Urban Transport in the Sharing Economy Era

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Collaborative cities: the digital economy transforming urban development

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More than half of the global population lives in cities, an increase of 15 percent over the last 35 years. Driven largely by population growth and a search for better living conditions and work opportunities, this trend is expected to continue. With 80% of its population living in cities, Latin America is the second most urbanized region on the planet and is estimated that by 2050 approximately 90% of its population will be urban (UN-Habitat, 2012).

This rapid pace of urbanization creates enormous social and economic challenges that threaten to jeopardize the economic and environmental sustainability of cities. The development of new technologies that improve management of metropolitan areas and the quality of life of their residents is key for addressing these challenges. Information and communication technologies, for example, reorganize value chains, improve organizational management and change the way that people work. In turn, such advances promote new ways of inhabiting cities.

In a digitally connected world, citizens have the capacity to participate in the development of cities, thereby changing the way cities are understood and planned. Based on the key tenets of Collaborative Economy –exchange and collaboration– a collaborative city connects citizens with the decision-making process in public affairs, protects the right to contribute and share, and facilitates the exchange of learning and transferring of skills, in turn promoting a collective vision of the city. By moving towards innovative public policies that incorporate citizens as drivers and protagonists of change in their communities, collaborative cities also narrow the classic gap between citizens and government.

Recent studies predict how the collaborative economy is growing. According to the consulting firm PwC (2015), within its first seven years the main productive sectors that comprise the collaborative economy were valued at 15 billion dollars and are expected to reach even greater potential by 2025 with estimated revenues of 335 billion dollars. More than just a sector, the collaborative economy restructures human interaction. It encompasses models of production, consumption, and financing based on the brokering of supply and demand between peers (P2P), professionals (B2B), or both

(P2B) through digital platforms. The goal of these models is to take advantage of existing underutilized goods and resources, regardless of whether there is a direct exchange between users. Its main consumer sectors include transportation, lodging, loans, independent work marketplaces, and online videos and music.

The impulse to share, exchange, lend, and donate first appeared as societies sought an innovative response to cope with economic crises. Yet, gradually, the philosophy was transferred to new business models based on collaboration or exchange between professionals. In many cases, the phenomenon is associated with the capitalization of technology companies that provide intermediate services and are responsible for the development of digital bilateral markets, such as Uber, which connects passengers with independent drivers willing to provide the service, having a valuation of 68 billion dollars. Another example is Airbnb, which through its platform connects guests with hosts, having a valuation of 30 billion dollars.

The collaborative economy changes why and how people move around the city. For example, sharing of vehicles (carsharing), sharing rides (carpooling), and convenient transportation of goods all call into question the need people have to own a vehicle that spends more time parked, occupying urban space. Not only does the colla-borative economy have the propensity to optimize individual transportation costs, it also stands to improve urban mobility

and reduce environmental pollution, among other positive impacts.

There is no doubt that the collaborative economy has been an abrupt transforming force worldwide. The Global South is not an exception. The impact of collaborative digital platforms has put pressure on institutions to regulate important sectors of the economy and encourage the entry of new actors.

Collaborative Cities

In a collaborative city, citizens are the ones who, through collaboration and contribution, strengthen their capacities to tackle challenges that are difficult to solve individually. Today, such cities establish both public and private initiatives that give more power to citizens with the aim of reducing social inequalities, improving quality of life, and promoting a holistic vision of urban networks to tackle problems related to climate change and socio-spatial inequality. These interactions not only promote business models based on exchange, they also take advantage of the power of collective intelligence and collaboration in finding solutions to the challenges of rapid urbanization.

Home to more than five hundred companies in its technology sector, San Francisco provides a case in point. Among its many projects, the Urban Forest Map is an application that monitors the status of green areas in the city, allowing users to track their growth and environmental impact. Moreover, users can add trees they find in their neighborhood or near

their place of work to Google Maps, thereby contributing to and improving information viewable by others, including urban planners.

Collaborative projects have also been implemented in the English city of Bristol. The sustainable transport charity, Sustrans, works with schools, employers, and local authorities to bring mobility to disadvantaged neighborhoods by encouraging transportation on foot, bicycle, or scooter. Another notable undertaking in Bristol is the Happy City Project, which aims to measure and improve the happiness of citizens across communities, schools, workplaces, hospitals, and prisons by promoting well-being versus material consumption. Perhaps most celebrated is the Bristol Pound, a currency involving 750 local businesses that is backed by the Chamber of Commerce. The currency helps guarantee that the monetary benefits of local economic growth remain and continue to circulate in the city.

In South Korea, Seoul created the Department of Social Innovation and the Committee for the Promotion of the Collaborative Economy which, together with projects that focus on training, seek to encourage policies that incentivize collaborative companies. The city also has a system of shared items, in which members of the population borrow or exchange books, tools, and clothes.

In each of the cases mentioned above, the intelligent use of technology puts citizens at the epicenter of collaborative activities in the city. In such a way, the Collaborative Economy also presents opportunities to develop effective instruments for mitigating the challenges of inequality in the global south.

If collaborative economies are changing – for the better – the way cities in Latin America are planned and managed, pressing questions remain. What role should public policies play? What sort of impacts do these platforms have on urban development? How are these impacts similar or different across sectors? How can a model for a Collaborative Economy that benefits the most vulnerable sectors of the population be deve-loped? How can society take advantage of the opportunities that these models present while simultaneously mitigating their unwanted effects?

By looking to the experiences of other cities around the world, important lessons can be drawn that advance evidence-based policy discussions and decision-making. Moreover, an in-depth study of how technology and digital platforms are evolving throughout these urban areas could help us to tackle key challenges regarding inequality, climate change and metropolitan governance. The present publication, which includes a review of four international cases to study the relationship between cities and collaborative economies, is our contribution to this goal.
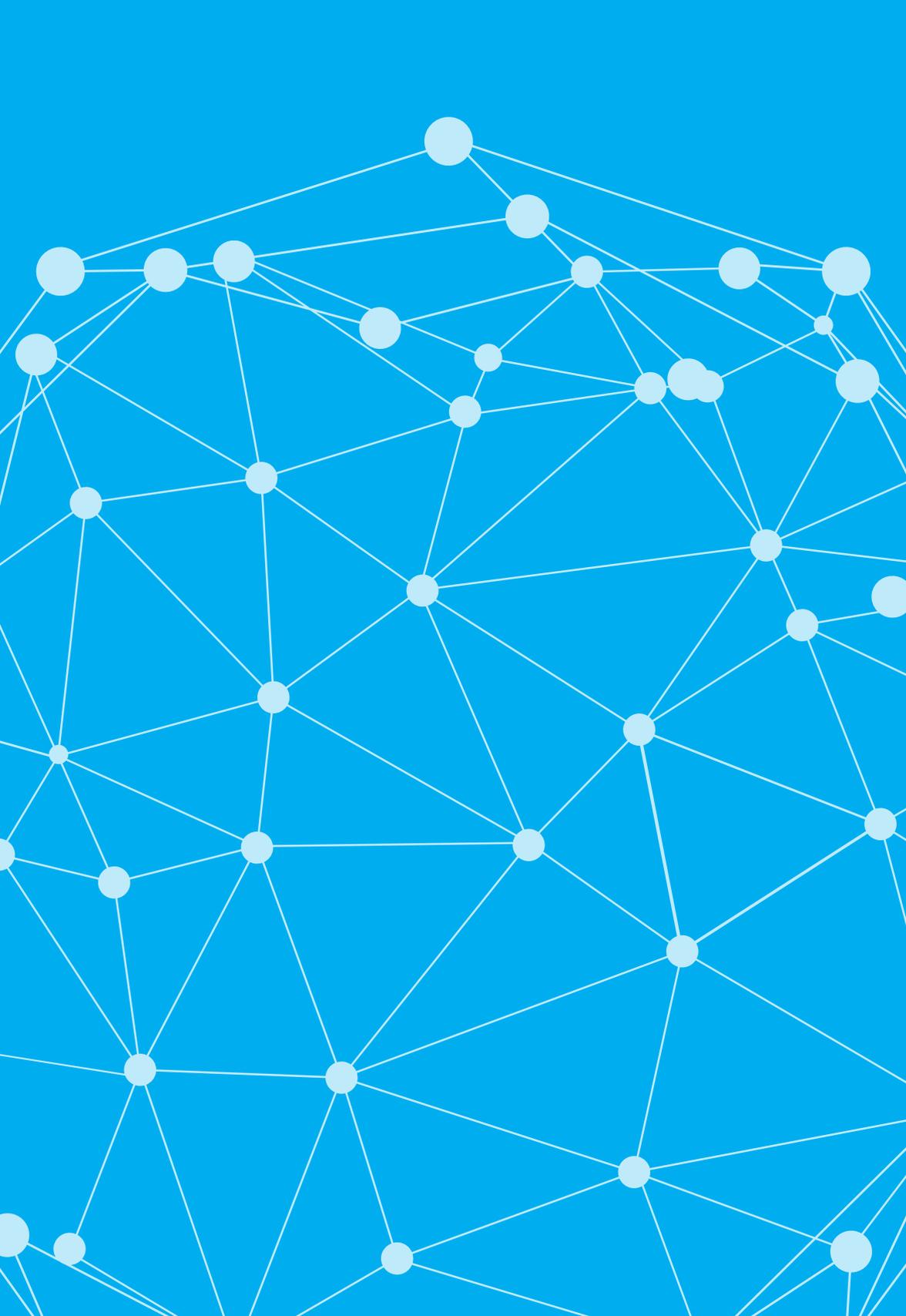
Researching on sharing economy in the Global South

Fernando Perini, IDRC

Digital marketplace platforms –usually referred as the sharing economy– have become an essential part of the digital economy in recent years. The sharing economy is powered by applications and platforms that allow private individuals to share assets or services between them, either free or for a fee. Advocates of the sharing economy testify to its enormous economic potential across sectors such as tourism, hou-sing, transport, service provision, and finance. Price Waterhouse Coopers (PwC) estimates the sharing economy will be worth 125B USD in the next decade. Sharing economy models will have an increasing impact on labour markets, environmental sustainability and consumption habits around the world.

The sharing economy is expanding swiftly in developing countries due to a number of factors. Rapid urbanization has been matched by a growth in 'digitalization', the uptake of new technologies and a sustained rise in the use of social networks. Most sha-ring economy applications function on mobile phones, which continue to grow in use across the developing world. Largely urbanized regions in the Global South

with substantial challenges related to transport, climate change, and housing are seen as frontier markets for businesses that engage in the sharing eco-nomy. However, despite the relevance of the sharing economy to emerging economies, not much is known about its size, make-up or broader effects, as most studies have examined the sha-ring economy in North American and European contexts.

As the trends of increasing connectivity, low-cost hardware and informal entrepreneurship continue to advance in the Global South, the International Development Research Centre (IDRC) has become more concerned with regulatory and inclusion challenges. Regulation of platforms such as Uber and AirBnB has become a major challenge in the developing world. As economic informality is already the norm in many places, it is not yet clear whether traditional regulation will stifle progress on normalizing the informal economy.

Collaborating with partners across the different regions, we designed this research to build unbiased and locally grounded evidence on the impact of the sharing economy in

the developing world. The studies featured in this book were selected through an open call and supported by a network of global experts. Along with establishing a network of Southern researchers, the project seeks to help policy-makers regulate this emerging sector, which will require juggling economic interests, safety concerns and commitments for sustainable and fair development for all citizens.

In addition to being academically relevant, we hope that this project will contribute to scaling innovations that can bring large-scale positive change – an objective that is very dear to our hearts at IDRC. To regulate and promote a sustainable change in our economies, we need to understand how these specific sets of collaborative models – broadly known as the sharing economy – have been disruptive to traditional industries. These new models are affecting jobs, welfare distribution, and access to services for the broader population. However, decision-makers are lacking evidence on how to design policies and programs to ensure that these innovations lead to large-scale positive impact. The diversity of the sharing economy creates new challenges for regulation and practice, which cuts across competition policy, innovation policy, labor regulation, intellectual property, and more.

This publication helps us better understand who will benefit and who will lose from sharing economy models, providing key guidance to policy-makers. It explores their impact in developing countries, mainly focusing on urban centers. Many sharing economy platforms operate regio-

nally and globally and these operations have significant implications for large cities where the phenomenon of the sharing economy is growing. This publication provides reliable and unbiased evidence, which is fundamental for strengthening the capacity of Southern institutions to adapt to and harness the sharing economy's disruptive potential.

We hope that this final publication will serve as a reference for decision-makers and experts on the sharing economy around the world, and that it contributes to a growing community that will provide continuity to this important agenda. The value of the sharing economy to the Global South will depend critically on local context and local action. Thus, we must work together to ensure that it truly contributes to those who need it most.

The relevance of sharing economy as a tool to promote inclusion, entrepreneurship and innovation

César Buenadicha, MIF-IDB

In the Sharing Economy is entering a new phase of consolidation and development in which new opportunities, but also increasingly new questions, emerge beyond the initial tsunami of the platform economy. The capacity of online platforms not only to generate a new digital business model, but particularly to provide a better delivery of good and services, specifically to less connected and marginal populations, should be at the core of the debate around the impact of Sharing Economy in a given city or country. Sharing economy models should not be entering a city just to compete with traditional models but rather they should come as a new delivery channel to enhance access for underserved populations.

During its more than 20 years of existence, the Multilateral Investment Fund (MIF), a member of the Inter-American Development Bank Group, has promoted innovation and private sector development through more than 1,500 projects executed in Latin America and the Caribbean. In this framework of work in innovation and entrepreneurship, the MIF is increasingly focusing its work in how digital platforms can support models that can more effectively empower the society and generate inclusive development in the region.

The Sharing Economy not only offers a promising new learning framework for Latin America and the Caribbean, but also a space for the region to be part of the Fourth Industrial Revolution. This new paradigm offers important opportunities to favor social inclusion, promote the entrepreneurial spirit and unleash a wave of innovation that can contribute to solving some of the great social, economic and environmental problems of the inhabitants of the region.

Having said the above, the Sharing Economy models should, in the first place, play a role within a broader agenda of the city, as part of digital and sectorial strategies conceived to improve citizens' life quality by generating new business opportunities, incentivizing social inclusion and mitigating negative impacts on the environment. Coherence and consistency of this agenda is key for its success. Thus, Sharing Economy models to be encouraged should respect the

values and objectives of the city's strategic plan.

Secondly, it is critical to support the development of local sharing economy models that are connected with entrepreneurship opportunities in the cities, so indigenous sharing economy initiatives complement international models. The ability to generate local models would not only provide a different profile for the sharing economy strategy in the city, but it also might serve as a tool to enhance competitiveness and attract talent.

Third, key aspects of the Sharing Economy initiatives that may impact cross-sectorially, issues such as employment conditions and social benefits, taxation, licenses, and others, should be addressed in order not to vulnerate workers' rights and working conditions, on one hand, and to enhance competition between the different players, on the other hand.

Both three aspects previously discussed require international organizations, such as the Interamerican Development Bank, to play an important role, particularly in terms of generating solid knowledge and convening spaces to openly discuss these issues with the different stakeholders.

These cases studies have been developed in connection with an IDB/MIF project called *"Development of the Sharing Economy in Cities as a tool to promote social inclusion, entrepreneurship and innovation"* that was approved in November 2016. The project aims to improve life quality and to generate economic opportunities for residents of Argentine cities by using the possibilities of the sharing economy as leverage to provide greater access to services and entrepreneurial opportunities. With a special focus on the most vulnerable populations, the project is linking various sharing-economy platforms to the comprehensive development of cities by strengthening urban entrepreneurship associated to cities' strategic lines of development. The project's ultimate goal is to promote growth and inclusive economic development in cities on the basis of innovation and entrepreneurship, and to help achieve the cities' priority development targets.

We want to thank the International Development Research Center of Canada (IDRC) and the Center for the Implementation of Public Policies promoting Equity and Growth (CIPPEC) for their support with both the development of this book as well as with the operation of the above mentioned IDB/MIF program. We believe that presenting best practices around the world and working together with the public sector and entrepreneurs are key building blocks for developing more inclusive and impact-oriented sharing economy models.
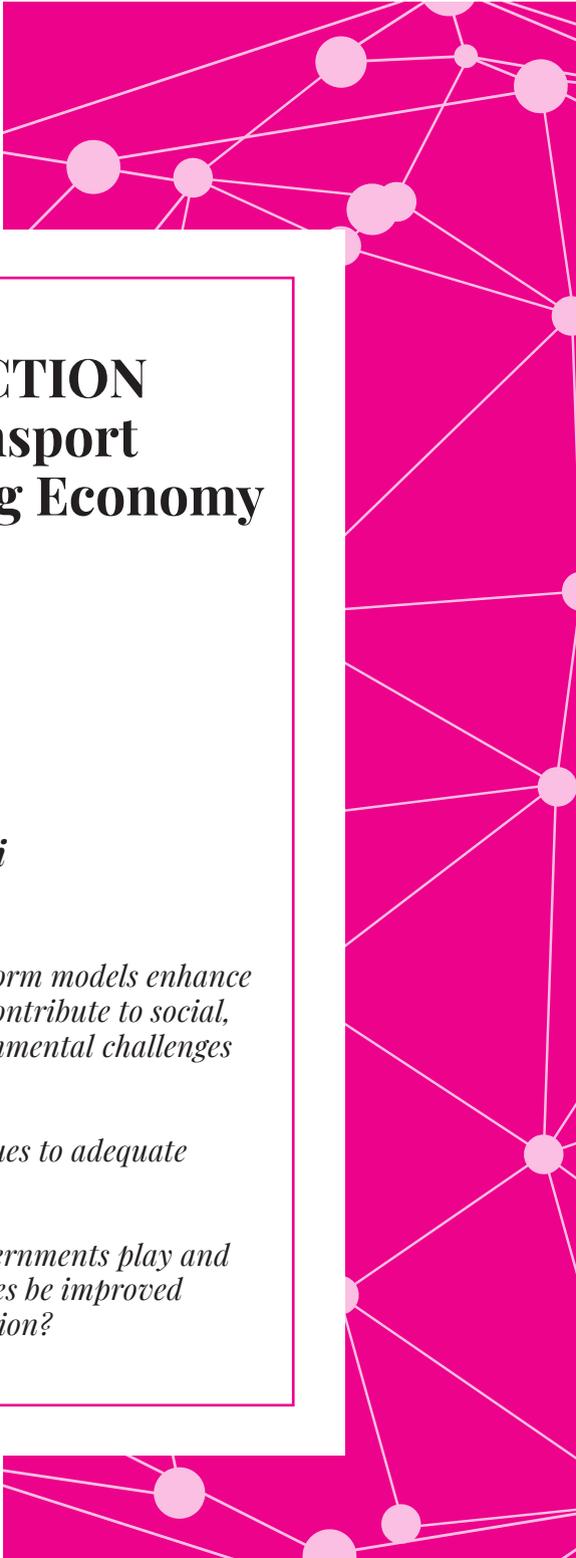
INTRODUCTION
Urban Transport
and Sharing Economy

Interview to:
Jeremy de Beer
Katherine Reilly
Dennys Antonialli
Helani Galpaya

How can digital platform models enhance urban mobility and contribute to social, economic and environmental challenges in the Global South?

Which are the key issues to adequate regulation?

What role should governments play and how can public policies be improved to face digital disruption?

Urban Transport and Sharing Economy

Interview to Jeremy de Beer[1], Katherine Reilly[2], Dennys Antonialli[3], Helani Galpaya[4]

How can digital platform models enhance urban mobility and contribute to social, economic and environmental challenges in the Global South?

Jeremy de Beer (JdB): In the social context, digital transportation platforms could provide a more accessible and efficient mode of transportation. So-called ride sharing meets the demand for transportation services in neighbourhoods with insufficient supply, complements public transit during late hours and weekends, and creates accessibility by offering prices that meet the fluctuating transportation demand at any point in time.

The global south has many cities that exemplify the need for this type of efficiencies to improve urban mobility. Cities such as Cairo and Alexandria in Egypt are examples of highly dense cities where transportation and traffic aggravate urban challenges. Without a fully developed system of transportation alternatives, there is an urgent need for different options. This is where ride sharing digital platforms play an important part by offering an opportunity to fulfil the demand for novel and safe means of transportation in Egypt's largest cities. In Mexico, for another example, Uber expanded its transportation services to suburban areas which include poorer areas historically underserved by transportation. This is creating a greater accessibility to transportation systems. In South Africa, the business model that Uber presents is recognized for the important contributions to safety and security, having no cash transactions, prevent them from becoming targets of crimes since there is no suspicion to hold significant amount of cash.

Another important social benefit is that it creates a more inclusive workforce by increasing the number of employment to women. Uber committed to create 1 million jobs for women drivers by 2020, and also partnered with local non-governmental organizations to implement iCare Live, a social enterprise that trains women drivers in India and takes them through the commercial licensing process.

In the economic context, there are both benefits and potential risks that need to be addressed. Most countries in the global South are characterized by informal economies and high rates of formal unemployment. Businesses like Uber and Careem bring flexible employment opportunities to people in countries with some of the highest unemployment rates in the world. In Egypt, for example, this flexible business model has offered a sustainable and independent alternative to the informal employment and the opportunity to have a second source of income by holding other work while driving on the Uber platform.

While the positive effects on the economy are well established, there are also negative effects in the economy. In India, critics show that ride-sharing platforms are offloading risks and creating precarious jobs, and while there is no doubt that drivers have found new avenues of employment, they have also led to the closure of traditional taxis and reduced their business. In countries across Africa, some argue that the sharing economy is an important part of economic development, while others worry that these business models exploit inequalities in the continent. While there is no doubt that these platforms create job opportunities, some worry that their expansion threaten the African businesses by formalizing Africa's already existing informal economies and stifle local entrepreneurs from building grassroots businesses.

In the environmental context, these digital platforms allow for a more efficient use of resources. The shared mobility model can create greater environmental awareness; reduce vehicle emissions; and links between alternative modes, such as walking, cycling, and public transportation. For some, ride sharing could reduce congestion and related fuel consumption and emissions during peak travel periods On the other hand, these businesses keep cars on roads, potentially displacing more environmentally friendly modes of transportation. The net effects are not yet well understood.

Katherine Reilly (KR): Platforms can help with urban mobility in an endless number of ways. It helps to remember that platforms are simply intermediaries that broker relationships between buyers and sellers, and in this way, they convene a marketplace. They can be community-based, state run, or private, and they can be non-profit, cooperative or for-profit entities. Because these marketplaces rely on data-intensive digital systems, they can greatly reduce the transaction costs associated with sharing or borrowing, and that means that they can make it much easier to leverage the underutilized value of goods.

We typically associate mobility with the *physical* platform economy, since the service must happen within a particular locality (unlike the virtual platform economy, which trades in digital labor, and is global in scope). Platform markets could be applied to anything mobility related. A vehicle itself could be shared, and that ve-

hicle could be anything: a car, a bike, a bus, a moving van. Markets can connect drivers to passengers, and there can be specialized markets for doing this type of work: for disabled people, tour groups, school children, etc. It may be that a good is being moved, rather than a person—your lunch, a package, or freight. Finally, mobility-related goods might be intermediated, such as parking spots, mileage credits, or even carbon offsets for exhaust gasses.

Another thing that can be intermediated is data. Digital platforms also reduce the transaction costs asso-cia-ted with collecting and leveraging data. It is no longer necessary to monitor traffic in the physical world, using paid observers or machines, for example. Data can be gathered through the devices that drivers, automobiles, passengers or goods carry when they move through a city. Though there may well be costs to individuals in terms of anonymity and privacy, the transaction costs associated with data sharing/gathering are close to zero, and once data is aggregated, its value can be leveraged to identify mobility patterns associated with any of the many different markets described above.

The potential benefits of platform models for urban mobility are many. Here I will focus on how the platform economy interacts with two important structural challenges that often undermine development in the glo-bal south.

First, platforms marketplaces often disrupt older existing marketplaces. This can, in theory, have democrati-

zing effects on marketplaces depending on existing arrangements. For example, traditional taxi licensing regimes have often built up into monopolies over time, as firms bought up all the concessions in a particular jurisdiction. In some countries, these incumbent monopolies become embedded in political power structures, in some cases forming part of local or national oligopolies. The introduction of ride-hailing applications has blown these monopolies apart, challenging oligopoly power, and opening up space for drivers to become entrepreneurs who own and operate their own fleet of vehicles.

It is important to note, however, that disruption is not always a positive thing. In some jurisdictions, challenges to incumbents may come at the cost of social security. For example, in some systems, drivers pay off the cost of their concession over the course of 15 or 20 years, and then sell it when they retire. In the intervening period, the value of the concession grows, so it serves as a retirement savings plan. The introduction of ride-hailing apps can render these retirement savings plans worthless. Cities need to ask themselves if the introduction of greater space for entrepreneurialism is worth the cost of potential losses in social security. In some cases, disruption may help open up space for new energy in the marketplace, but in other cases, it may simply stamp out job security and lower the bar on decent work standards.

Second, platforms have the potential to address liquidity problems that

are typical in the global south. They do this by leveraging existing capital stock to generate new value. Governments could, in theory, leverage the capital invested in road infrastructure to generate new income for social programming. In essence, this is the modern version of user tolls, however with the added possibility of targeted pricing and fees. It is possible, for example, to charge taxi drivers a fee for using the road infrastructure in the urban core during rush hour. This could in turn incentivize passengers to use mass transit to exit the core, before getting into a taxi. For individuals or businesses, meanwhile, platforms make it more possible to generate liquidity from the excess capacity in their material goods, making them less reliant on the banking system for loans, or better able to pay back loans once they have them.

The flip side of this proposition is that platforms are often controlled by global giants such as Uber or Lyft, which extract a commission on each relationship that they broker. This means that the liquidity which comes from efficiency gains is taxed by an international broker. In other words, the factors of production are working much harder and more efficiently, but when they do so, they benefit owners of production who are located elsewhere in the world, thereby recreating structural inequalities in the global financial system.

Dennys Antonialli (DA): One of the great virtues of digital platform models is the ability to connect offer and demand in real time. Temporarily vacant resources, such as a seat in a car, an electric drill or a couch in an apartment, can be borrowed, rented or used by those who need it but do not own it. That is the essence of the sharing economy. Relying on digital platforms as true logistics brokers, it provides more sustainable alternatives of consumption of goods and services in a networked society. A promising and powerful concept, it unleashed innovative technologies and disruptive business models, which are bringing groundbreaking transformations to consolidated industries and to society as a whole. Yet premised on the value of sharing, these transformations are still taking form and it is premature to say whether it will promote a change in culture and behavior with regards to property and ownership and lead to more inclusion and equality.

Taking urban mobility specifically, digital platform models are important tools for identifying needs and enabling a smarter and more efficient use of the modes of transport, which is particularly important in cities of the Global South, which tend to be characterized by non-ordinated growth and high levels of inequality. Identifying traffic fluxes may help alleviate traffic and guide policymakers in understanding what type of transport is more appropriate for each region. Frequency and capacity may be adjusted in real time according to demand. Carpooling may be faster, safer and more accessible since the platforms act as intermediaries to ease the process. In the many cities where ride-share applications have

been launched, companies claim their platforms have provided complimentary and efficient alternatives to public transportation and an important source of extra revenue for drivers.

The impact of the arrival of such disruptors to these markets and ecosystems are still far from being fully understood. Whether they remain as real icons of the sharing economy is also an open question. Regulation may play a key role in keeping them close to this premise, providing incentives to models that promote real sharing, like carpooling. The city of São Paulo in Brazil was a pioneer in that sense. As one of the articles of this book explains in further detail, policymakers had clear goals when drafting the regulations. They provided incentives for carpooling, for increasing the number of female drivers and of environmental-friendly vehicles.

The generation of data is another important feature of digital platforms and one that may lead to a revolution in terms of intelligent governance of the cities. Cooperation agreements between the platforms and the Public Administration might lead to more efficiency in the design of mobility public policies provided that data protection rules are followed.

Helani Galpaya: Transport platforms that mediate between commuters (those who want to travel from A to B) and transport providers (vehicles that get paid for moving people from A to B) could have multiple effects in an urban environment. Urban agglomerations in the Global South are growing rapidly due to inward migration, often at a pace that far outpaces the growth of transport (and other infrastructure) facilities to serve their needs. New platform-enabled transport options provide a brand new mode of transport for which there is no comparable substitute: provide a "cheaper" mode of transport; provide a higher quality mode of transport (quality could be about convenience, cleanliness, safety and so on). In most markets, the digital transport platforms are enhancing the market by providing services. The apps may bring new users into the market (e.g. those who didn't travel previously due to inconvenience or accessibility); apps may shift users from other modes of transport to this and better match their ability to pay (e.g. users who travelled uncomfortably by bus, but are willing to pay more for a more comfortable shared taxi, or users who drove their own cars and had to find parking may prefer taxis because of cost of parking is eliminated and the ride may be cheaper). When this happens, in economic terms, dead weight loss is eliminated due better matching of supply with demand. The overall market is better off. There could be positive externalities – fewer vehicles on the road because the vehicles that are running have higher utilizations (therefore not everyone needs to own a vehicle), reduced need for parking lots and so on.

However, it is possible that the new transport options create negative externalities, such as increased congestion on roads and increased en-

vironmental pollution due to more miles travelled by the higher utilization per vehicle. As with all negative externalities, taxing of various forms can be used to limit the harms. They need not apply just to the platform mediated transport vehicles only, since a well designed taxation system can limit externalities created by all vehicles.

However, thinking only of the impact on the transport or environment sector is to limit ourselves to the important but obvious benefits and challenges. Service provision (any service, not just transport) mediated by digital platforms leave a digital trace. Some types of data, such as gender disaggregated data of drivers and passengers captured by the platforms could be important to understand how inclusive these transport options are. Possibly more importantly, users and drivers of the app-based vehicles can also be an important (and often the only) source of data on traffic hotspots, travel time, transportation demand, etc. by time and location. This data can be incredibly valuable in sensor-poor developing countries with limited data on traffic and transport that many developed countries take for granted. Of course, the value of a single app-based operator's data could be low, specially if the operator has low market share since the data is unlikely to be representative of the user population. But if the data can be pooled while maintaining commercial confidentiality of the data (through various mechanisms of data anonymization), all operators can benefit. Even more are the benefits to the public sector.

The data could indicate routes that are in high demand and well served by private sector operators, which in turn can indicate where scarce public resources (such as subsidized bus services) can be better allocated to serve those in underserved areas. Combined with other sources of data (such as national census data, Google night lights, mobile network big data such as Call Detail Records or Visitor Location Registry data, even richer insights are possible of broader urban activity. For example CDR data has been used to design night bus services for the Seoul municipality, various countries have been trying on–demand public transport services based on insights from CDRs and other transportation data including from transportation platforms. Rich mobility data from such sources can also help with public health especially by improving the models used to predict the spatial spread of infectious diseases as has been shown in Sri Lanka and beyond.

Which are the key issues to adequate regulation?

JdB: Digital transportation platforms have both the potential to create benefits but also pose potential risks of creating challenges and negatively impact communities. Regulations and guidelines can be created to get the most of these benefits and mitigate the risks. Among the negative impacts of these ride-sharing platforms is the risk of fraud, lack of safety and loss of employment due to unfair competition. Some concerns are already being addressed by the existing platforms, but there are limits to self-regulation and a clear need for effective government policies and regulations.

One of the main concerns is consumer safety, which requires these sharing mobility platforms to develop policies to ensure consumers are protected from potential harms, such as theft or assault and road accidents, while using the service. Without proper regulations in place, consumer safety is difficult to guarantee. The risk of assault, theft, or serious accidents is real and concerning. Here is where regulators play an important role; they need to set regulations to allow these platforms to continue succeeding while maintaining a high standard of consumer safety. However, regulators should be careful before taking drastic decisions in this area. Lack of familiarity with digital transportation models can adversely affect their abilities to recognize potential benefits such as innovation, economic growth and more efficient networks for urban transportation

and logistics. Future policies should support the sharing economy for its benefits while developing strategies to address all challenges. Policy makers should understand the business model that these digital platforms offer to create the most effective regulations without harming the shared economy model but at the same time keep high standards of customer safety.

While creating bans or restricting permits can be effective regulating tools to protect consumers, they can also have devastating consequences on sharing economy markets. A complete ban of these platforms cuts off the potential economic and environmental benefits of the sharing economy model. Creating a permit requirement increases the start up costs, creating a barrier to enter the market which could have an impact on the economic benefits of the sharing economy model. Ride sharing services do often focus on safety and have created a safer and more comfortable means of transportation. For example, these platforms' ranking and tracking system make both drivers and users feel safer, users also feel safer by knowing their driver's information ahead of time. However, these features do not address all safety concerns. There is still concern for safety, for example there is concern regarding the driver's training, car maintenance, and accident frequency. Although it is unclear to what extent safety concerns diffe-

rent from the traditional taxi industry, regulators should create regulations that alleviate these concerns without creating strong barriers to enter the market or increasing costs.

In terms of fraud, current platforms deter this based on peer-reviews and the transfer of payments via microbusiness after a transaction is complete. This is an area where local governments may not need to create new, tailored regulations. While some commentators suggest regulations would be useful, individuals harmed by fraud are protected by general tort, consumer protection, and related regulatory schemes.

In terms of fair competition, local governments should focus on resolving the tension created by these ride-sharing companies and other transportation service providers. Policymakers should aim to strike a balance and create rules that serve regulatory goals without compromising the benefits. It requires the governments to level the playing field between ride-sharing applications and other transportation service companies. This leveling involves addressing the issues created by the difference in regulatory and financial competitive advantages between these two service providers.

KR: I will start by discussing two 'macro' regulatory concerns raised by the platform economy, and then turn to three more specific issues. The first has to do with regulating across jurisdictions, which is a challenge that often results from the introduction of new platform-based markets. For example, taxi concessions were often established within particular jurisdictions, and included strict rules about where taxis could and could not operate. But ride-hailing apps operate with a complete disregard for jurisdictions, making it difficult for a single municipality to confront the issues raised by platform applications. It becomes necessary for municipalities to work together with each other, and also state-level governments, to design new rules for ride-hailing. Some business sectors are also affected by new jurisdictional issues. For example, insurance companies may need to adjust their plans to reflect the new patterns of movement caused by platform-based marketplaces.

A second regulatory challenge involves making decisions without sufficient evidence. Many municipalities and state-level governments have found themselves under pressure to react to demands from entrepreneurs, innovators, citizen-customers or workers. Some governments have simply thrown up their hands and allowed the market to do its thing. In other cases, governments have convened round tables or held consultations to gather feedback from stakeholders. Where customers are well served by a range of public transit options, and employment is relatively stable, governments will feel much less pressure to make hasty decisions. But where jobs are scarce, informal labor is precarious, or transit options are lacking, governments will feel enormous pressure to cave to the demands of large platform

conglomerates. This may cause them to allow or enable activities that are suboptimal for consumers, workers or the environment.

Beyond these immediate functional challenges, governments in the global south face three main regulatory priorities. The first involves regulating for monopoly effects within the platform economy, and balancing this against the potential for innovation within the platform space. Platforms have a particularly strong tendency towards monopoly, because each platform must generate a sufficient user base (of both suppliers and customers) to make the market function properly. In technical terms, this is known as the 'network effects' of a platform. The benefit of a functioning platform is that it allows workers to be entrepreneurial within that space, and offers consumers with an efficient service. But this comes at the risk of enormous centralization of control in the hands of a very powerful broker, who has access to a massive quantity of data about the functioning of a marketplace. That broker can engage in all sorts of anticompetitive practices, ranging from price setting to vendor lock-in (making it challenging for workers or customers to switch to a new platform provider). Regulators need to ensure that policies are in place to protect workers and consumers against these forces.

With this in mind, a second regulatory priority involves developing streams of intelligence about the activities of platform actors. In order to regulate economies effectively, governments need to know how those economies are functioning. Traditional market statistics are simply not up to the task of informing governments about the activities of platform intermediaries. There has been a lot of talk about what municipalities could learn from the data held by companies like Uber. Uber has been only too happy to make that data avai-lable through Uber Movement. This may be a concession to the fact that OECD nations are going after much bigger fish. They want to understand how much platforms are contributing to GDP, and also the value of data stores held by platform companies, presumably so that they can modernize the tax system to reflect new and emerging business practices. Meanwhile, some other governments have experimented with creating their own mobility market platforms that act as gatekeepers for access to road infrastructure, and simultaneously gather data about urban mobility. The difficulty here is that local governments have very little power to force compliance by global platform giants, who are unlikely to modify their activities to suit local regulatory needs. In total, there is a lot of experimentation happening with regards to regulation and data right now, which is important, because ultimately governments need strong intelligence to inform not just urban planning, but also regulation of platforms themselves.

This leads to a third regulatory challenge, which revolves around ensuring consumer protections and decent work standards for citizens within the mobility space. Regulators

needs better information about how mobility platforms operate, as well as the benefits and threats to consumers and workers, so that they can design effective and locally relevant systems of protection. As mentioned above, a key challenge here revolves around maintaining the market dynamism created by platforms, while also preventing the proliferation of precarious labour. Another issue involves protecting citizens from corporate surveillance and anticompetitive behavior by platform actors. Thirdly, governments need to empower workers, including through regulations that make big data more transparent, and ensure that its value can spread throughout the chain of production. And finally, local governments need strategies to help them take on the power of global or even regional giants, who are often unwilling to cater to the needs or demands of local markets.

DA: In order to set the right priorities, regulators and policymakers should be guided by research data that will enable them to identify the issues they need to address. It is true that there is usually not a lot of data when disruptive technologies emerge but that should refrain them from taking drastic measures to respond to specific pressure groups or events. Action requires precaution and should always be evidence-based and not pressure-based. While data is not available, regulators should promote public debates to create knowledge around the issues. Inviting experts with different backgrounds and experience might help shed light on

how different ecosystems work and to anticipate the impacts disruptive technologies might bring. Learning is an important part of that process.

Another key aspect of that process is to understand context. Existing regulations were passed to address concerns at a given time and place. Understanding the regulatory rationality behind them is important to identify their goals and assess whether the same goals should be pursued in different contexts. If you look at the history of the regulation of private drivers and taxis in the city of São Paulo in Brazil for instance, you will notice that the safety of the passenger has always been a concern. Back in the 1950s, when it was very hard for the passenger to decide whether he could trust the driver or not, regulation required licenses would only be given to people with no criminal records. Even though safety remains as a big concern for private transportation, context changed significantly. Digital platforms have drastically reduced information asymmetry: most of them provide the passengers with plenty of information and reviews about whom is about to give them a ride. Licenses requiring clear criminal records may no longer be the most effective way to ensure safety. Before passing new regulation, policymakers should understand what is the context and which are their actual concerns.

Regulatory creativity should also be welcomed. The adoption of experimental regulations, such as sunset clauses, could represent effective alternatives. Experimental regulation could be later revised based on expe-

riences of the trial period and on the evidence of research.

HG: Balancing the interest of the consumers and producers (seller) is the essence of regulation. The incentive for the digital platform is to increase market share by dropping prices. This is not a bad thing for consumers. But it is possible that a platform with deep pockets can sustain a long-term price drop at levels below which it is not sustainable for others to keep up. Sustained below-cost pricing by a platform with deep pockets can drive out the competition and enable one firm to capture a dominant market position, after which they can raise prices as they please from a dominant position. At a minimum, predatory pricing by an already-dominant provider should be regulated against. The challenge of course is to define the relevant market – is it other platform transport providers, or does it include other traditional taxis as well, or even all modes of transport such as buses, trains, and private vehicles? Substitution effects need to understood clearly before such regulatory action can be taken. But low capacity regulatory institutions in developing countries will always find it challenging to conduct meaningful market reviews.

While pricing may requires regulatory attention to ensure that the long-term health of the market is maintained through high levels of competition, quality too may need to be looked at. Luckily most platforms are already better at signalling quality than most traditional markets.

Many apps allow the buyers to rate the sellers based on a set of criteria (e.g. politeness of the driver, cleanliness of the vehicle and so on), and this data is publically available to users of the app. However, due to business model incentives, there could be aspects of quality that aren't easy or cost-effective for the platform to monitor – such as criminal records of drivers. Technically, the traditional (non-platform) providers claimed to check such matters (though there are sufficient news stories of passengers being harmed by drivers of all types – tradition and platform based).

Just as the riding conditions (safety/quality) of the buyer is important, the working conditions of the seller (driver) are important too. In markets where the supply of labor is high, workers may be willing to accept unsafe working conditions in order earn sufficient income. In developed countries, platform workers engaged in the gig economy may be those who were previously employed, with health and retirement benefits. As such, they maybe accepting deteriorated working conditions compared to the options they had in the past. But in many developing countries, gig workers are often those who were informally employed, now entering a partially formalized economy. As such, they may be better off (for example, they could have a document record of their earnings, improving their ability prove income, thereby accessing formal financial services), even if the platforms do not provide benefits. Regulation of labor markets therefore needs to be done in a context specific manner.

What role should governments play and how can public policies be improved to face digital disruption?

JdB: Governments should invest in research to better understand these models and create strategic plans in order to develop the most efficient and appropriate regulations. According to some, federal governments should invest on statewide and regional planning studies to help integrate all models and technology, promoting shared mobility, zero emissions and clean-air vehicles, equitable services and affordable fares.

New technological innovations such as these digital platforms may be creating as many benefits as challenges for developing countries. Some commentators argue that local governments welcome these new economy models, while others are highly critical. Governments should be open to finding ways to regulate them in a way that maximizes their benefits and work together with these businesses to create a synergy that can build the conditions that will best satisfy all members of the community.

KR: The role played by governments will differ depending on the jurisdiction, the historical conditions confronted by the introduction of new platform business models, and the goals of the regulators. The shift in focus from direct management to intermediation of service provision (which is known as 'platformization') will have effects across all sectors of the economy, with wide implications for mobility-related services. Public policies could focus on a range of different activities from stimulating indigenous innovation for the development of localized mobility apps, to creating data localization rules that protect consumers' privacy, to offering training opportunities for workers in the platform space.

I am most taken up with the idea that governments can themselves create mobility markets that make them the gatekeepers for public infrastructure, whether that be roads, parking spots, or air quality. This model has the potential to return power to governments which has been progressively eroded by neoliberalism and free market capitalism. It also creates the opportunity to roll out regulatory technologies that are embedded in market transactions. These technologies could manage all sorts of regulatory activities, from taxation, to mobility controls, to labour laws, to carbon emissions. This type of power is particularly relevant to governments in the global south, who have few sources of leverage in negotiations with global corporations.

DA: Often times, disruption leads to panic. Longstanding industries, powerful lobbies and groups of well established stakeholders exert pressure onto governments and policymakers to react and repel disruptive technologies and digital platforms

that may pose a threat to their traditional business models. As aggressive as the newcomers may be, facing heavy-handed regulators is not an easy task and may represent an insurmountable obstacle to many of them, keeping innovators away and turning the domestic market into a hostile and unattractive place for disruptors.

In light of that, the first role governments can play is to mediate tensions and build bridges between different stakeholders, promoting a constructive agenda of public debates around the benefits and risks involved. Governments should also raise awareness about the issues at stake, making citizens aware of what they should consider when forming their own opinions about the disruptors. Digital literacy and educational campaigns may be an interesting strategy to make citizens more acquainted with the issues that concern them, such as data protection, freedom of expression, net neutrality, and etc.

If and when new regulation is needed, governments should create transparent and participatory processes for policy and lawmaking. From public hearings to online forums of participation, all the relevant stakeholders, particularly civil society, should be able to have a voice and take a stance. That should lead to more balanced and legitimate pieces of regulation.

New policies and regulation should also strike the right balance between legal certainty and flexibility. For that, policymakers should avoid drafting legislation to address a specific company or a business model. Disruptors should not be seen as a target but as part of complex ecosystems that are in constant and dynamic change. Regulation that is too specific may get outdated very quickly. It may extinguish the "fire" momentarily but it will not probably last for long. It can be outsmarted easily. Technology moves faster than policymakers. Digital disruptors are moving targets. Smart policies look at the whole ecosystem to establish principles and provide tools to prevent abuse instead of simply banning or prohibiting products and services.

Last but not least, governments should invest in and promote policy research. Disruptive technologies introduce a number of variables to the marketplace. They may lead to more openness and inclusion or they may create asymmetries and accentuate existing divides and inequalities. Looking at the actual impact of such disruptions on society is the only way to be smart about what needs to be fixed and what doesn't. Prof. Lawrence Friedman, from Stanford Law School, has published a great book on that point ("Impact: how law affects behavior"). One of the main takeaways is that impact is always an empirical question. The answers should inform and guide policy.

HG: Public policy is about managing scarce resources. Unlike in the past where the government was the sole provider of most infrastructure services, nowadays transport, ICTs, electricity and many other services are provided by a public and private sector mix. In this context, the role of

government is to encourage private sector providers to enter the market to offer products and services that meet people's requirements through a mix of price-quality bundles. This in turn enables the government to use its meagre resources in areas where private sector provision is not possible yet, or where principal agent problems aren't conducive for private provision because government oversight is difficult or not cost effective.

In the age of data, with all the data that the platforms are collecting about consumers, governments also have a role in ensuring the data is not misused. Following the EU, several developing countries are also considering various data protection laws. While personally identifiable data should not be misused (and therefore protected), there is also public/socieital value to be gained by the sharing and using the data (with appropriate protections and/or de-identified data) to solve societal problems. The role of government is to provide mechanisms that facilitate such sharing and use – for example, ensuring only anonymized or pseudonymized data is shared, setting up data warehouses, acting as a trusted broker and so on.

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ARTICLES

A Gendered Analysis of Ridesharing: Perspectives from Cairo, Egypt

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Abstract

This research offers a gendered analysis of the sharing economy through the experience of ridesharing applications in Cairo. It examines two key facets of the sharing economy, livelihoods and safety, focusing on two ridesharing applications: Uber and Careem. Through a lived experience methodology, the study explores perceptions of these applications as offering new opportunities to women, often revolving around a narrative of safety in the urban context of Cairo. In Cairo, these are especially pertinent concerns for women with high rates of harassment and unemployment. This perspective will be complemented by examining the livelihoods offered to these women, asking if perceptions of safety and opportunity impact their use. Livelihoods and safety are closely intertwined concerns, and are both considered fundamental rights of individuals living in large urban areas.

Keywords: *Egypt, Gender, Ridesharing, Sharing Economy*

1. Introduction

This research offers a gendered analysis of the sharing economy through the experience of women drivers using ridesharing applications in Cairo, Egypt. Cairo is Egypt's capital and by far its largest city. Comparatively, the population of Cairo stands at around 10 million, whereas the second lar-gest city, Alexandria, stands at half of that at 5 million (CAPMAS). This study examines two key facets of the sharing economy, livelihoods and safety. Livelihoods and safety are closely intertwined, and are both considered fundamental rights for individuals living in large urban areas. In the context of Egypt, these are especially of concern for women who experience higher rates of unemployment, and are subject to widespread harassment as well as gender-based violence and discrimination. This occurs in public spaces, in the workplace and in transit. A premise of this research is therefore that mobility in urban contexts is especially challenging for women, making the use of ridesharing applications by women drivers and passengers an important phenomenon to study.

Although there are no legal restrictions barring women from operating taxis or buses in Egypt, very few women, almost none, are employed as drivers either in the private or public sector. Globally, women tend to drive professionally less than men; in the United States, women drivers make up around 16% of the taxi driver and chauffeur sector (Data USA, 2016). In Egypt, data is scarce, but one article asserts that there is only

a total of eight female taxi drivers in Cairo (Abdelaziz, 2010).

Men continue to overwhelmingly dominate the profession in terms of private chauffeurs, taxis, public transport as well as on recently introduced ridesharing applications. This is in part due to social stigma around women driving professionally and socially accepted gender norms that can make the profession difficult. Nevertheless, women drivers are using ridesharing applications. We therefore focus on these women, putting forward a gendered analysis of livelihood and safety in the ridesharing sector in Egypt.

Two questions frame our research, each one rooted in the context of livelihoods and safety respectively. The first, what motivates these women to drive with Uber and Careem and how has this affected their livelihoods? The second, how do women drivers perceive safety while working in the sharing economy? This question is explored in light of specific gendered norms in the Egyptian context.

Through fieldwork that includes focus groups and interviews, the study explores women drivers' perceptions of these applications as offering new opportunities to them, often revolving around a narrative of safety in the urban context of Cairo. This perspective will be complemented by examining the livelihoods offered to these women, asking if perceptions of safety and opportunity impact their use. We explore rating systems embedded in the applications as a dimension of safety, drawing on rela-

ted literature to the term 'reputation economy'. This two-fold perspective will allow for a more comprehensive overview of the issues at hand. Throughout this chapter, we emphasize that local context shapes the unique narratives expressed by the women drivers.

The chapter is divided into six sections. Following this introduction, section two offers an overview to the socio-economic context of Egypt. Specifically, we explore challenges of urban sprawl and unemployment which frame the context in which ridesharing applications operate. The third section explores different perspectives of the sharing economy, the reputation economy and gender in the sharing economy. The fourth section explains the methodology of this study. The results of the fieldwork are detailed in section five, with key findings synthesized in the final section, six.

2. Ridesharing in Cairo: A Context of Urban Sprawl and Unemployment

In this section, we frame ridesharing within Cairo's urban sprawl and challenging economic conditions, and specifically employment. Against a backdrop of unemployment and informality, ridesharing offers a new form of work in the city. Employment is a chronic issue in Cairo and for Egypt's population at large. We provide context to the urban development of Cairo, focusing on challenges to mobility and transportation as the city continues to expand outwards.

With an ailing public transport network, ridesharing offers a viable transport option to navigate the city. For women specifically, restricted mobility adds to already substantive concerns of safety and harassment. Women earning a livelihood through ridesharing should be read in this specific context.

2.1. Economy and Employment in Egypt: A Snapshot

Egypt faces longstanding socio-economic challenges, magnified by an economic downturn since 2011. GDP growth staggered from highs of 8% annually in 2007, to almost negative rates in 2012-2013. Growth has since picked up slowly to 5.4% in the second quarter of 2018 (Trading Economics, 2018). Income inequalities continue to grow, with the richest 10% of Egyptians spending 70 times more than the poorest 10% (El-Behary, 2017). As of 2016, 25.2% of the population were living below the country's national poverty line (UNDP, 2016). Economic challenges were exacerbated by the free floating of the Egyptian pound on November 3, 2016 leading to a depreciation of 48 percent in the currency's value (Associated Press in Cairo, 2016). The figures translate into significant difficulties in creating adequate livelihoods and maintaining the quality of life.

Unemployment rates in Egypt stand at 8.2% for men and 23.1% for women as of 2017 (CAPMAS). According to a press release by Egypt's Central Agency for Public Mobilization and Statistics (herein referred to as CAPMAS), youth (ages 15 to 29) un-

employment stood at 31.8% as of 2016, with 24.9% and 47.2% of qualified males and females belonging to that age group being unemployed, respectively (CAPMAS, 2018). In 2017, around 25% of employees in the government sector were women (CAPMAS, 2017). In 2017, public sector employment reached 826,950 people, while government employment was just over 5 million people[1] (CAPMAS, 2018). Egypt has a sizeable informal economy; standing in at roughly L.E 1.6 trillion[2], it is estimated to contribute to about 40%[3] Egypt's total GDP (Al-Masry Al-Youm, 2017; Egypt Today, 2017). Higher rates of unemployment for women are also reported in Egypt's informal economy.

Reported female employment makes up only a small fraction of both the formal (estimated between 18 - 24%) and informal economies (12%) (El-Bakly, 2017; Mohamed, 2015; World Bank, 2017). This statistic, however, may be misleading given the difficulty of capturing informal work, particularly in households where many women may work. The transition from informal to formal employment is also mainly reserved for highly-educated male workers (Wahba, 2009). The lack of opportunities in the formal sector combined with the stigma associated with working in an informal sector account for the low participation of women in the labor market (Wahba, 2009).

The imbalance in formal employment rates can be attributed to a gendered wage gap, but also by the fact that commuting can often be costlier for women, who must account for safety concerns and social norms around mobility (World Bank, 2014). Emphasis is often placed on women's sexual and reputational safety, with many working environments deemed socially unacceptable for women. Women often bear the burden of household labor, and so any work environment that compromises women's ability to undertake this labor is avoided (Assaad, 2015).

Women also appear to be more at risk of poverty in their households. Lite-rature on the feminization of poverty has explored higher rates of poverty amongst women-headed households, particularly when compared to male-headed households. Accor-ding to a press release by CAPMAS, as of 2017, 3.3 million Egyptian households are headed by women, making up roughly 14% of all households (CAPMAS, 2018). A 2015 study explo-ring the feminization of poverty in Egypt found poverty more prevalent in female-headed households than male-headed households, but both behind married-couple households (AlAzzawi, 2015). Data used in this study did not indicate when income from married-couple households was generated by women or men, mea-

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[1] While controversial in terms of efficiency and disguised unemployment, the public sector is a major source of employment in the Egyptian context. Public sector and government employment combined account for 20% of the labor force, which is made up of 28.9 million people (CAPMAS, 2018).

[2] According to a 2017 press statement by the former Prime Minister, Sherif Ismail.

[3] According to Hala al-Saeed, the Minister of Planning and Administrative Development.

ning women maintained households may be disguised in this category.

Furthermore, many have called for a more holistic perspective on the feminization of poverty, rather than a focus on income poverty (Chant, 2006). Chant highlights that women seem to have less choice in assuming the burden of poverty, while this responsibility does not automatically translate to more agency, power to negotiate or personal reward (Chant, 2006). Poverty may be caused not by income, but by limitations to other resources and freedoms. This is of particular importance in this study, as it will be outlined in the following sections, women earning livelihoods through ridesharing navigate household obligations and the social stigma of driving professionally.

2.2. Mobility in Cairo's Urban Sprawl

Cairo is one of the world's most densely populated cities, with the Greater Cairo Region's population standing at around 20 million (CAPMAS). Cairo has been ranked the 9th largest global megacity in 2016 (UN Department of Economic and Social Affairs, 2016). It is one of the world's most heavily congested capitals, with both public infrastructures and private services heavily strained by rapid urbanization and rural migration to the center of the city. The latest figure available of daily passenger trips across Greater Cairo estimated there to be around 24.9 million trips per day in 2011 (El-Araby, 2013). The vast majority, almost all, ride sharing occurs in Cairo with some activity in other cities. All female drivers are

predominantly in Cairo with sporadic activity outside the capital.

Mobility in this megacity is challenging. In the 1990s, private real estate developers created new cities on the outskirts of Cairo, with gated compounds that continue to attract high-income Egyptians (Denis 1996). As the population of Cairo continued to increase, unregulated urban expansion on agricultural land became more and more common (Ibid.). As new compounds, offices and specialized technology parks move outwards, employees need to commute further, especially to secure private sector employment. Cairo's urban sprawl has been met with traffic congestion, and commuting times are on the rise.

Population increase in conjunction to urban sprawl and longer commutes has led to congestion and a strain on transport infrastructure. Furthermore, as economic policies around imports were relaxed in the 1970s, cars more became affordable and, in doing so, increased traffic significantly (El-Khateeb, 2017). The response has been to increase capacity by building roads, bridges and tunnels, a policy that predominantly favors private vehicle users (Tadamun, 2016). Public transportation remains undersupplied, with many opting to use microbuses. The operation of these microbuses is unplanned and informal, but fills in the gap of public transportation provision (Ramadan, 2014).

Women commuters feel the burden acutely when family obligations and concerns over safety on the road restrict their mobility. This

has often resulted in their exclusion from these economic opportunities that may be located far away from residential areas (Assaad, 2002). Sexual harassment is pressing safety concern amongst women in public spaces in Egypt, including on long commutes and in public transportation. In an experts' poll, conducted by the Thomson Reuters Foundation in 2017, Cairo was ranked as no. 1 on the list of the world's most dangerous cities for women. Cairo also came in third on the list for the risk of sexual violence (Thomson Reuters, 2017).

Mobility and transport challenges are also felt differently by groups with different socio-economic backgrounds. Some commuters may have private transport options such as a private car or driver, while others navigate different options between types of public transport and taxis. Passengers using ridesharing applications have the means to seek out private options that may be more comfortable. At the same time, the economic pressures we explore below, are motivating factors for women to enter the male-dominated transport sector. Economic means and incentives are therefore an important part of the story of ridesharing in Cairo.

2.3. Ridesharing: Transport Solutions and Livelihoods

It is against this economic and social backdrop that ridesharing gained popularity. Two ridesha-ring mobile phone-based platforms dominate the ridesharing market in Egypt, Uber and Careem. Uber is a global ridesharing application, launched in Egypt in 2014. Careem is a regional ridesharing application based in Dubai, expanding to Egypt in 2014, predominantly serving the Middle East, North Africa, and South Asia. Drivers are *driver-partners* as termed by Uber or *captains* as termed by Careem. We refer to them simply as drivers.

Their presence in Egypt has at different points been uncertain. In May 2018, the Egyptian government passed a law obligating companies to obtain a five-year renewable license, priced at 30 million Egyptian pounds, around 1.7million US dollars[4] (Thomson Reuters Foundation, 2018). The law also requires drivers to have special licenses, and for companies to keep user data for 180 days, sharing it with authorities when requested (Ibid). It is unclear if the law will have repercussions on driver's livelihoods, particularly as it appears the law is focused on regulating ridesharing companies rather than the drivers themselves.

Regardless, ridesharing continues to grow in popularity in Egypt. In the case of Uber, over 4 million rides in 2017 were provided by 150,000 drivers, indicating that ridesharing is a growing phenomenon in the city. As we have outlined, economic challenges coupled with social stigma that inhibit women's mobility also inhibit their ability to participate in the workforce. Women drivers using ridesharing therefore need to earn a livelihood while negotiating gender norms that affect their ability to do so.

[4] At the time of writing, 1 USD is the equivalent of 17.86 Egyptian pounds.

Local transport options aimed solely at women have also emerged in this context. Pink Taxi, an Egyptian ride-sharing application founded in 2015, is reserved for female drivers and passengers (Pink Taxi, 2018). A similar ridesharing application that is set to launch soon in Egypt is Fyonka, which translates to 'ribbon', an all-female car hiring service (Fyonka). These services are not widespread, but they respond to a demand in the market for women-only options.

3. Conceptualizing Livelihoods and Safety in the Sharing Economy

In this section, we explore a sample of perspectives on the sharing economy in academic literature. In particular, we look at the sharing economy as a contested source of livelihoods, noting debates on the business model of ridesharing applications. Rating systems, and the accompanying concept of an economy based on reputation, are examined in light of their implications of safety for both drivers and passengers. We pay particular attention to gender in the sharing economy, with focus on livelihoods and safety for women working with ridesharing applications.

3.1. The Sharing Economy: A Contested Source of Livelihoods

A 2014 report undertaken by the United Kingdom based Nesta and Collaborative Lab, outlines the history of the term 'sharing economy', starting with its predecessor 'collaborative consumption' coined by Marcus Felson and Joe Spaeth in 1978. This term was used to describe instances where economic goods or services are consumed in the process of joint activities (Felson and Spaeth, 1978). From there, the term sharing economy came into common usage, defined as "a socioeconomic ecosystem (...) around the sharing of human and physical assets. It includes the shared creation, production, distribution, trade and consumption of goods and services by different people and organizations" (Stokes et. al, 2014, 9). Similar terms include the peer-to-peer (P2P) economy, the gig economy-platforms that provide on-demand work- and the access economy, most notably used by author Jeremy Rifkin. Ridesharing applications are an example of this.

The term 'sharing economy' itself has been criticized. There are concerns about actual reciprocity in this economy, as suggested by the use of the word 'sharing'. As intermediaries get involved, some argue that the process of 'sharing' becomes 'market-mediated' between individuals who are strangers. 'Sharing' is replaced by an economic exchange in which a service or space is provided for a limited period of time (Eckhardt and Bardhi, 2015). The definition of sharing is being framed in the digital context as an altruistic, reciprocal form of interaction, although it very much commodified. While a full review of these debates is out of the scope of this paper, we use the term sharing economy acknowledging this contestation.

There has been a similar debate on the implications of sharing eco-

nomy business models globally. It has been argued that the model increases efficiency by making use of idle assets, thereby alleviating the strain on so-cieties (Van Welsum, 2016). This is argued to make economic and environmental sense, heralding the start of the post-ownership economy (Belk, 2013). An opposing argument is that consumers tend to view goods and services offered by the sharing economy as supplementary to their normal consumption. This, in addition to the fact that goods and services also need to be available everywhere and at all times disputes the argument that the business model minimizes consumption (Verboven and Vanherck, 2016).

The growth of the sharing economy in countries of the Global South can, in part, be explained by the poor quality and lack of reliability of traditional public services. Traditional transportation services –such as formal buses– in developing countries are often characterized as "unreliable, inconvenient, uncomfortable, or even dangerous" (Pojani and Stead, 2015, p. 7789), resulting in a shift away from formalized public transportation towards alternatives like ride-sharing services. A 2015 poll of internet users by Microsoft shows that 55% of people in the Global South view technology-enabled sharing economy services as better for workers than traditional services. The poll found that only 31% of people in the Global North shared that opinion. A similar result is seen in their evaluation of technology-enabled services on consumers, with the

percentage of people in developing and developed countries stating that these services are better for consumers being 59% and 33% respectively (Penn, 2015).

A common concern is that businesses in the sharing economy do not normally entitle workers to benefits, health insurance, sick leave or pension schemes, a long-term disadvantage (Van Welsum, 2016). As we will come to argue in this paper, it is important to contextualize this argument in light of local employment structures. The quality of jobs in the private sector comes into question in Egypt when "the majority of jobs held by employed youth in the private sector provide with no work contracts, no access to social insurance contributory schemes, nor health insurance" (Barsoum, 2014, p. 2).

Without normalizing these employment conditions, we point to the fact that ridesharing as a form of work does not stray far from the other current work opportunities for drivers in Egypt. In previous work studying Uber in Egypt by Rizk (2017), ridesharing was found to be an opportunity for young and educated men in the face of economic challenges and unemployment. It was also found as a more favorable alternative to informal employment (Rizk, 2017). It is thus critically important that literature and evidence that reflects realities from the Global South be included to complete current debates, as this study looks to do.

3.2. Safety and Reputation in the Sharing Economy

The reputation economy is a term used to describe the use of 'reputation' data, such as rating and reviews, to determine standing and perceptions of a service or person. It refers to a market where our data-gathered from our online presence and our interactions with the digital world-is made available for others to see and is used to decide how reliable or trustworthy we are (Schawbel, 2011). In the sharing economy, reputation data is made available to consumers "via numerical review scores of experienced customers who have interacted with the seller" (Ert, Fleischer, and Magen, 2016, p. 64). Uber or Careem use a system where drivers are rated out of five stars.

Within the context of the sharing economy, the reputation economy plays an integral role in "instituting trust among quasi-strangers" (Nica, Potcovaru, Mirică, 2017, p. 64). Unlike the earlier generations of P2P marketplaces which primarily involved the exchange of products, sharing economy platforms involve the tran-saction of services between individuals - the quality of which "cannot be verified before they are consumed" (Ert et al., 2016, p. 63). Literature on trust in the reputation economy finds it important to provide both consumer and service provider with a sense of security (Glöss, McGregor, and Brown, 2016).

Investigating individuals' satisfaction with, and the likelihood of using, sharing economy platforms, Mareike

Möhlmann finds trust to be a "principle determinant" that had a positive effect on user satisfaction with a sharing option (Möhlmann, 2015, p. 200). The emergence and implementation of reputation mechanisms, then, are critical in fostering a collaborative consumption economy where there is trust in both the individual and the service being provided (Ert et al., 2016).

In a set of interviews carried out with Uber drivers and users in the United States, Glöss et al. concluded that, in the same way that passengers found comfort and safety in the knowledge that their driver is registered with a system and has ratings, the drivers felt similarly about their passengers, creating a "stronger perceived connectedness between driver and customer" (Glöss et al., 2016, p. 1638).

It has also been argued that through rating systems marginalized groups, including women, can be more vulnerable to "racial or socioeconomic biases", which may lead them to "underperform on sharing platforms" (Rauch and Schleicher, 2015, p. 956). Minority drivers, such as women for example, may be "additionally burdened to overcome discriminatory preconceptions" in order for them to be able to achieve the rating required to remain an active participant in the economy (Glöss et al., 2016, p. 1638).

3.3. Gendering the Sharing Economy

A notable amount of research has been undertaken to analyze the ways in which the sharing economy has contributed to the creation of new

economic opportunities, and how it has changed consumer behavior and engagement. Less abundant is literature that offers a gendered analysis of the ways in which men and women participate in the sharing economy. We explore this literature in the following section.

An extensive study conducted by the International Finance Corporation (IFC) and Accenture[5] -in collaboration with Uber– researches both men and women who use Uber. The research undertaken covered six markets[6], both from the Global South and North. Women were found to represent a significant portion of the existent user base globally, with women riders citing an increased sense of independence and mobility since ride-hailing platforms entered the market (IFC, Accenture, Uber, 2018).

Prior to -or in the absence of- ride-hailing applications, women were less likely to access certain areas due to lack of public transport to those areas, or the time of day. Further, research indicated that women riders cited cost transparency and enhanced security as major determinants for their use of ride-hailing platforms, as opposed to men who cited ease of application launch and use. Women riders placed value on the security features provided by applications like Uber, such as "data trails" which contain information about their drivers, as well as their trip route and current location (IFC et al., 2018).

Although female riders expressed a greater sense of security using ride-hailing applications, female drivers surveyed in these markets echoed similar sentiments to male drivers regarding lack of security. Women riders may feel a sense of safety in having information on their drivers and the fact that their ride can be tracked, but women drivers did not feel this was enough to ensure their safety. Women also spoke to the gender bias they experience as drivers in markets less accepting of female drivers (IFC et al., 2018). Research showed that women tend to be less likely to have a bank account, and subsequently control over their own assets. In India, for example, lack of financial resources and administrative barriers hinder women's ability and willingness to partake in this type of economy (IFC et al., 2018).

That being said, research has indicated that having access to this type of employment has helped support women's entrepreneurial activities. Women have cited driving with Uber as a means to generate extra income to help launch their business or to facilitate the financial operations of their existing businesses. Further, while a number of reasons have been cited as to why women choose to drive using ride-hailing applications, flexibility was cited as a major determinant. Women drivers expressed their contentment with the flexibility the applications offered them in juggling other commitments, such as

[5] Accenture is a global professional services company, providing a broad range of services and solutions.

[6] These markets are: Egypt, India, Indonesia, South Africa, the United Kingdom and Mexico.

household management and responsibility, as well as the ability to be selective with their level of participation in this type of work (IFC et al., 2018).

4. Study Methodology

To address the research questions outlined earlier in the study, we carried out fieldwork with women drivers. For both Uber and Careem, women drivers represent only a small percentage of total drivers. In the case of Uber this is around 100 women out of around 150,000 drivers, around 0.06%. Careem has a similar ratio of female drivers, although the total figure of all drivers was not disclosed. Our sample size for the focus groups was 19 women drivers. As most women drove for both companies, we could not isolate the experiences between Uber and Careem and drivers tended to reflect on their experience as a whole. The case study adopts an integrated, mixed-methods approach, employing qualitative methods combined with (non-numerical) data sampling and data validation tools. The case study is premised on a combination of focus groups and semi-structured interviews.

In situations where there is a paucity of research and data, qualitative methods provide insight into complex situations. Ethnographic research is an established method of qualitative research. Described by Willis (2007), as an "umbrella term for fieldwork", ethnographic research includes different means of gathering data in a detailed and authentic

manner. Given the nature of the drivers' occupation, 'observing' participants in their natural setting would have likely proved disruptive to their work. This case study thus adopts a 'lived experience' methodology as it best fits with the conditions of the research and the nature of the phenomenon at hand (Manen, 1990)

Lived experience research uses experiences as a way of investigating the world, based on the understanding that individual life experiences respond to social conditions (Manen, 1990). This methodology acknowledges that experiences are shaped by identity politics including race, class, gender and religious and political associations. Lived experience research is designed to be less-structured and more open ended, and so relies on the use of tools such as focus groups and interviews.

For the specific purpose of this study, lived experience research was premised on responses from a range of women drivers, many of which came from different socio-economic backgrounds, the main social condition under examination. As the research questions were designed to allow for an in-depth explication of each woman's class-related background as well as the challenges related to it, lived experience research made it possible to analyze the drivers' responses in light of each's socio-economic realities. The open-ended questions also allowed for other social or cultural dispositions to come to light, allowing for a more well-rounded understanding of women drivers' perception of their jobs and

placement within the market. No variations were present in terms of gender or race and the research questions did not touch upon religious or political affiliations.

In order to ensure the accuracy and validity of the collected responses, the research team opted for what is known as triangulation. Triangulation is a technique used by researchers involving the use of multiple data sources to investigate the same phenomenon. In this case, the methodology focused on two types of triangulation. Triangulation of sources, involves checking the consistency of different sources of data, using more or less the same method of data collection. Another method, analyst triangulation, that which involves the use of multiple analysts or researchers to review findings, was found appropriate for this study. Similar to the idea of mixed me-thods research, triangulation is not just about validating results but also about deepening one's understan-ding of the phenomenon in question by producing multi perspectives of the same phenomenon. Triangulation research also helps in minimizing measurement bias; that which results from the way in which data is collected.

4.1. Focus Groups

Two focus groups were held in the spring of 2018 at the American University in Cairo's Downtown campus, focusing on female drivers' experiences with the two ridesharing companies. The division between focus groups was a result of the research team's call for drivers through

Uber first, and then Careem. Although Uber and Careem sent out a call for driver participation, they did not contribute to developing research questions or compensating drivers. Focus group were designed as open-ended questions, and as such participants were able to respond in a casual manner. Their responses were both audio taped and annotated by members of the research team. Consent forms ensuring confidentiality and anonymity of the participants were attained prior to the conduction of the focus groups.

Drivers who showed up on a pre-determined date, time and location specified in the call for focus groups were considered participants and no other screening was undertaken. Researchers did not have prior interaction or information on drivers, other than that they were women, Focus group questions were designed as open-ended questions, yet specific to the objectives of the study. Participants were able to respond in a free manner and their responses were both audio taped and annotated by members of the research team. Consent forms ensuring confidentiality and anonymity of the participants were signed during the focus group.

4.2. Interviews

Interviews were carried out with drivers, passengers and Uber and Careem representatives. Maximum variation sampling was used to ensure diversity. Samples collected for maximum variation sampling are typically small and thus this method purposefully used in selecting

respondents for the semi-structured interviews, of which only ten were conducted. Through including the perspectives of company representatives, passengers and drivers, shared patterns, as well as major differences that cut across their experiences could easily be pointed out. That is, the value of this method lies in its revealing of differences, as well as the common threads that connect the different perspectives of a small group of people. Given the small sample size, use of responses that would lead to identifiable information was avoided in both the interviews and focus groups.

Driver interviewees for the semi-structured interviews were selected based on two variables. The first, was their readiness to share information and comfortably answer open-ended questions during the focus groups. The second variable was the driver's availability for a follow-up interview. The intensity sampling method was used in selecting driver partners for the follow-up interviews. The method is premised on capturing in-depth information and highlighting contrasts among select cases that fit the phenomenon, but are not extreme cases (Palinkas et al, 2016). Two follow-up interviews were conducted with women drivers, which aimed to further capture nuanced differences in their responses. Following the collection of data as well as reflections and notes from the researchers, the analytical findings of the research were explicated.

For the interviews with passengers, stratified purposeful sampling, which allows for the comparison of a variety of experiences, was used in selecting six passengers for interviews. Three men and three women of ages ranging from 24-28 years old and holding a higher education degree were interviewed. All passengers selected were 'information-rich' cases (Palinkas et al, 2013), sharing the common element of having experienced one or more trips with women drivers. Information rich cases are considered to be those cases from which one can learn a great deal about central issues that are important to the purpose of the research (Paton, 1990) and are selected throughout the study for all semi-structured interviews. They were however, selected with their gender variability in mind, the variable that is thought to most likely affect their individual experiences. All use both Uber and Careem to varying extents. Most responses were generalized to the overall experience of using both Uber and Careem. Unless relevant to the experience, the study proceeds in referring to both services. Finally, Uber and Careem representatives were referred to not chosen by the researchers.

5. The Experiences of Women Drivers with Ridesharing Platforms in Egypt

In the following section, we outline responses from fieldwork undertaken with drivers as well as responses from passengers and representatives from Uber and Careem. We note experiences or positions that were most commonly expressed, contradictory, or that were out-

liers to the general consensus, when there was one. Although respondents' identities are confidential, this section works to ensure continuity between responses, matching motivations and experiences with anonymized drivers when possible.

5.1. Ridesharing: Women Drivers in Egypt

Women drivers make up a small percentage of drivers at both Uber and Careem. Given the small sample size, questions look to provide insight into some women drivers and explore the sentiments expressed by women who participated in this research.

The women in this study come from different socio-economic, educational and employment backgrounds. Some women work only in their own households or were previously unemployed. Other women previously, or concurrently, held positions in the tourism sector, worked at call centers, human resources or in the pu-blic sector.

Word of mouth, whether direct encouragement from other drivers or advice from friends or family, was how most women came to consider ridesharing. The process of applying to work is the same for men and women. In the case of Uber, drivers can apply online or visit the company's office, are asked to submit a set of documents that include: driver license, vehicle registration, criminal record, drug test, and vehicle inspection sheet. They are then asked to join an onboarding session, a two-hour lecture where they are taken through the application. The lecture covers topics such as using the GPS system and how to deal with clients. They also have a chance to ask questions.

The ability to drive with Uber or Careem is contingent on owning a car or renting one. Most women drive either their own, family owned, shared or inherited cars and at least one currently rents a car. Women viewed their car as an asset that they were trying to earn returns on, and ridesharing allowed for a means to do so. For those who own their cars, almost all participants, the cars were in themselves an investment they made for a purpose of earning a return. This was not necessarily initially planned to be through ridesharing.

All participants who had initially bought cars to try to rent them out to private chauffer companies or to hire an individual or family member, to drive for Uber and Careem, found that experience unfavorable. Accordingly, the women then decided to drive via ridesharing applications themselves. A concern expressed with regards to owning a car is high maintenance and fuel costs. Overall, it seemed that owning a car was still more favorable than renting a car which is costlier.

Although the profiles of women drivers differed, as we explore in the following section, most were nonetheless motivated by the desire or need to earn a livelihood. This is in part due to worsening economic conditions that affect a large array of women, but also to the common challenges women face when seeking work in Egypt. While different means

and resources available to women, such as owning a car, affected their experiences, they expressed similar aspirations, challenges and outcomes from driving with Uber and Careem.

5.2. Livelihoods: Motivating Factors

Drivers were explicitly asked of their motivations for seeking work with Uber and Careem, and what effect this has had on their individual and household income and expenses. While the question did not specify comparisons to other employment, this was a common benchmark for responses. Motivations varied between women, with the most co-mmon motivation being a financial obligation and incentive, and the fle-xible nature of driving with Uber and Careem as a secondary motivator. When asked to reflect on their experiences of driving with ridesha-ring apps, many cited personal achievements as: independence, both financial and otherwise, better livelihoods in times of economic downturn, and flexibility.

5.2.1. Financial Obligation and Incentive

Several, if not all, women pointed to the worsening economic situation in Egypt post 2011 as a motivation of pursuing work with Uber or Careem. They turned to ridesharing to either supplement existing income, or as a result of losing their jobs. One woman explained she worked in sales until she was let go after the 2011 uprising. Others also lost their jobs in tourism and services. For previously unemployed participants or those who worked in the home, worsening eco-

nomic conditions meant they needed to work in addition to their husbands to keep up with expenses.

For some, the loss of a husband and main source of income for the household, meant they had to find alternative sources of income. A much less common motivation was domestic abuse in the home leading women to seek out financial independence. One participant struggled with her abusive husband who did not want her to work. Most participants found they now needed to contribute (more) to the individual or household income. For those who lost their previous employment, a long period of unemployment, benchmarked at 6 months, led her to driving with ridesharing applications, seeing them as a fast and convenient option. Most of the participants have other jobs besides driving, or noted that they are continuing their education in parallel.

Globally, there is often pressure for women to leave the labor market after starting families. In Egypt, women's participation, even before marriage is heavily regulated by families and social norms. This leaves women in difficult situations with little or no experience should they become self-dependent or the primacy incomes for their household. One driver exemplifies this, joining Uber after a divorce when her husband, with whom she had five children, remarried. Ridesharing did not require her to have specific skills or training, other than the ability to drive.

Financial needs dictate work patterns for many of the participants.

Some will work until they reach a self-determined target, depending on a particular financial goal they have. One participant, who works around 14 hours a day, says she works long hours because she has a financial objective she needs to reach and has calculated how much she needs to work to achieve it. She was initially preparing for marriage, which is a costly endeavor in Egypt. When the engagement ended, she began working towards buying a car; she currently works with a rented one.

Others take advantage of peak hours or bonus opportunities to drive more. An example of this is increased demand for late night rides during the month of *Ramadan*, where people are out for *Sohour*, the last meal before fasting commences, until 3am. Similarly, in the summer time, where demand for ridesharing rises exponentially both in Cairo and on Egypt's North Coast resorts, the same participant said she would drive even more. Sometimes she would sleep in her car until she gets a request well after midnight to around 3am, which is common as passengers' head home after a long night out. Careem captains indicated that they make use of 'guaranteed hours', where Careem guarantees a set sum of money if they drive during certain hours. If they do not reach that amount of money on their own, Careem matches the difference.

These incentives are in place for both female and male drivers equally, with no gender specific incentives in place at the moment. Drivers expressed a learning curve in making the best use of peak periods. The Uber representative interviewed in this fieldwork also pointed out some seasonality in driving patterns, for both men and women, like before holidays or before school fees are due. They added that generally, drivers tend to worry about the destination if it is late at night, benchmarked at 3am, and if it is far away from their homes.

Although financial obligations and opportunities are important to women, a narrative of special or exceptional circumstances that led women to seek employment in this sector is noteworthy. The priority for most drivers remains the need to balance this work with household labor. Household obligations dictate their working schedules, needing to ensure childcare for their own children or grandchildren, or through curfews imposed by husbands. This is not to underestimate the effect of driving with ridesharing on financial independence, but rather to note that it is not unmediated. Most drivers arrange their driving hours to be home in time to complete care responsibilities[7], a flexibility which we explore later in this study.

Obligations or preferences are affected by participants' marital status, so working hours are indirectly shaped by this as well. One participant would work mostly at night once the children are asleep. For the same participant, hours were also dependent on the availability of a car, which she

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[7] Uber and Careem drivers do not have 'working hours' as drivers are considered independent contractors. The term work and its association is often contested in this setup.

shares with her husband. Some participants choose to work for a fixed number of hours a day, that they determine themselves. This usually ranges from 10-14 hours. One participant, a retired high school principal, explained that she drives hours that are similar to her previous employment, 9am to 5pm. She prefers this as it is a continuation of her previous daily routine, and keeps her busy and engaged rather than having excessive free time.

In reflecting on their financial expectations of driving with Uber and Careem, reviews are mixed. Some drivers say that driving with Uber and Careem exceeded their expectations financially. Others say that their profit was below what they expected, and that they were misled by advertisements of earnings up to 15,000 EGP, around 840 US Dollars at the time of writing. With experience, they realize that to earn such a sum, which more than most people make in other sections, they may need to work more hours. They also noted maintenance and fuel costs as expensive overheads. While drivers were not asked to provide details on their income, IFC et al.'s study found that women driving for Uber in Egypt make 38% profit from driving, compared to 49% made by their male counterparts. The study speculates that this discrepancy could stem from the fact that women drivers are inclined to drive "more selectively" (IFC et al., 2018, p. 65).

Our fieldwork found an overall positive effect on women's livelihoods. Women found working with Uber and Careem to be financially rewarding even if it did not meet all of their initial expectations, particularly when compared to other earning opportunities and in light of worsening economic conditions. As we outline below, other factors also contribute to their positive view on ridesharing livelihoods.

5.2.2. Flexibility with Ridesharing

Women's empowerment has increasingly come to have an economic dimension, particularly in policy discourse (Kabeer, 2012). The relationship between the two however, is far from linear. As Kabeer outlines, feminist economists have argued that gender inequality in the market cannot be explained in terms of individual choices and actions of men and women, but rather by discriminatory structures and practices (Kabeer, 2012). While individuals have agency, they make choices "they do so within the limits imposed by the structural distribution of rules, norms, assets and identities between different in their society" (Kabeer, 2012, p. 12).

Patterns of labor are therefore tied to responsibilities and expectations of different genders. Most women are primarily responsible for (unpaid) domestic work, and their participation in the labor force varies regionally (Kabeer, 2012). In the MENA Region for example, restrictions on women's mobility and activity in the public domain have arguably contributed to lower participation in the labor force (Kabeer, 2012). These constraints shape women's experiences, as we observed in our research. Women driver's propensity

for flexible work was often expressed with other domestic or familial obligations, as well as their presence in the public domain. Women could choose to work hours they deemed 'respectable'.

Many women commented positively on the flexibility of driving with ridesharing applications. It is unclear if they specifically sought out ridesharing for flexible work, but it is an additional motivator to continue work there. In this case flexibility is understood as the ability to manage other, mainly household, responsibilities with the ability to earn income in a way that allows women to conduct themselves based on their own preferences. Not working at night, for example.

Several women positively reflected on the ability to be one's own boss. In a follow-up interview, a driver who has worked at a large multinational explained that she did not like the long working hours or speaking on the phone all day – likely in a customer service position. Whereas with driving, she notes that she is her own manager now and she can decide her working hours. She also gets bonuses based on her rating – this was the same woman who needed to save up for her wedding.

Although the focus groups did not approach employment comparatively, the jobs many women held previously are comparable to the arrangement offered by Uber and Careem in several ways. It is likely that most of these private sector jobs did not offer benefits of formal work comparable

to those in the Global North, including decent healthcare, childcare or pensions. In the Egyptian context, alternatives for educated youth are often chronic unemployment, more precarious forms of informal work or underpaid formal work.

In previous empirical work undertaken by Rizk (2017), with Uber driver-partners in Egypt, men also valued flexibility. One group of drivers who were previously employed in the informal sector pointed to benefits of flexibility and being their 'own bosses' as important, but also 'working' for a reputable international company (Rizk, 2017). Compared to drivers in the United States, there was also a higher likelihood of drivers in Egypt and France to have Uber as their main or biggest source of income (Hall and Krueger, 2015; Landier and Thesmar, 2016, cited in Rizk, 2017). "Uber seems to be providing more long-term, sustainable work in these contexts. Driver-partners reporting that they plan to stay with Uber for the foreseeable future also support this" (Rizk, 2017, p.20). As the same study notes, informal work is also flexible, but irregular and uncertain.

5.3. Safety and Reputation Systems in Ridesharing

Participants shared a concern of how they would be perceived by members of their community if they drove with ridesharing platforms. Women touched upon, but did not explicitly state, a tension between working in professional versus service positions. Reactions seemed to be based on not seeing driving as a prestigious

occupation, especially for women, but were often verbalized in terms of safety. At the same time, there were valid concerns over harassment and staying safe while driving. In this section, we review these interconnected expressions of reputation and safety, with a focus on the rating systems offered by Uber and Careem. As the section explores, the lack of unified metrics for rating systems complicates any connection that can be made between safety and ratings (Rosenblat and Stark, 2016, p. 3771).

5.3.1. Social Stigma: Perceptions of Women Ridesharing Drivers in Egypt

Several women drivers expressed that family members were discouraged by how this would be perceived by others. Three significantly negative reactions were noted. One woman's husband left her because she drives with ridesharing apps. Another participant's father is still unhappy with her decision because he believes she had a more prestigious full-time job at a multinational company as a customer relations officer. One participant had to keep this as a secret from her daughter for more than one year, in fear of her response to the social stigma of her mom working and especially as a driver. Despite initial resistance from their families, after insistence on their choices, and following the significant increase in their incomes, family members became more accepting.

Other drivers' family members were more accepting. One woman working with Careem said her five sons did not support her initially but changed their minds as time progressed and no serious incidents took place. Ano-ther woman's daughter was concerned about how it would 'look' to others, but given her mother was the only source of household income, soon stopped their criticism. Another participant said that some of her family members expressed concern that their mom would be harassed. She noted that they did however seem to fear social stigma more than harassment. A fiancé of one of the women was worried that driving would be too dangerous, while another husband only wanted his wife to drive during the day. Here the Uber representative comments on cultural associations of women driving in Egypt. Research from the IFC and Accenture with Uber found that 57% of male drivers would be unhappy if a female family member wanted to drive (IFC et al., 2018).

Passengers however, did not display hesitation in driving with women. Women passengers interviewed expressed that they did not have the same concerns of driving with male drivers. Passengers rode with women drivers in Egypt at least once, with some riding with a woman twice, or three times. Women reported using Uber and Careem on a variance of 1-2 times a week, 3-4 times, or 5 times. Men used them less, with 1-2 times a week, once a month or every couple of months.

When passengers interviewed were asked about their motivation for using these applications, they cited the ability to order a car when it is needed, independence and ease of mobility.

Safety is more of a concern for women passengers. Ridesharing is preferred to taxis because it offers features like GPS and the ability to share location. Passengers prefer the ease of paying through the app and not arguing about prices with taxi drivers. All interviewees reported using taxis before ridesharing was available, and most still do when convenient or if using a taxi is faster than having to wait for an Uber or Careem.

5.3.2. Safety through Rating Systems

Part of drivers' family and community concerns are rooted in concerns over their safety in an environment dominated by men. While technology and rating systems are designed to mitigate safety concerns in the sharing economy, their effectiveness was disputed. Most drivers reported that evaluations do not always play a role in changing a drivers' choice in accepting a passenger. As literature on ratings and the reputation economy suggests, drivers believe the rating system seems to favor the judgment of customers.

Overall, drivers did not seem overly concerned with the rating system and did not always use it to indicate safety issues. Additionally, Careem drivers are not able to see passenger ratings before accepting a ride. Some drivers reported rating passengers poorly if they use a credit card rather than cash. This was because some drivers were cash dependent and could not wait for bank transfers. They also rated passengers poorly for requesting rides in 'unsafe' areas, or areas with bad roads.

When asked if there is a matrix which drivers, or passengers, are asked to follow for the rating system, the Uber representative responded there is not a specific matrix. Uber encoura–ges people (drivers and passengers) to rate each other favorably unless there is a strong reason to otherwise. They also encourage highlighting positive experiences with 'compliments'. The passenger or driver chooses a comment from a predetermined set, excellent or expert navigator. This however may not match expectations of some of the rating systems of providing an indication of safety.

Both Uber and Careem drivers are concerned that clients are not screened in the same way as the drivers. Drivers, for example, are subject to background checks and are required to submit criminal records. One participant explained in a follow-up interview that this is especially worrisome to women drivers because coupled with no screening for passengers, there is also an added concern of being asked to drive to certain remote areas which they consider more dangerous for women than men. She reiterated the desire to know more about passengers and suggested a camera could be added to the car.

The uncertainty of the legal status of ridesharing applications in Egypt noted earlier in this study was a source of worry for women. Many women reported feeling unsafe not knowing their status or seeing it as unfair that they are being targeted. However, the group agreed that women are less likely to be stopped for driving with Uber and Careem

than men, possibly because it less expected for women to be drivers. On the interaction with the police, some were of the opinion that officers are more likely to be lenient with them than with their male counterparts.

Generally, drivers seemed to feel protected by the fact that rides were mediated by an application, and passengers were not entirely anonymous. Yet most drivers felt that Uber and Careem did not do enough to ensure their safety beyond this. One woman reported being physically harassed, and expressed that the company did not 'stand by her' after she filed a complaint. Another driver complained that when a drunk rider picked up a fight with her and hit her, she believed the company did not do enough to solve the problem.

5.3.3. Community-based Coping Mechanisms

Safety did not arise as a standalone motivation to work with Uber and Careem. It instead arose from a discussion on the design of the applications. At other times, drivers were explicitly asked about a sense of safety and security. All drivers confirmed that they were wary about facing harassment, although it did not seem to be a persistent problem. Isolated extreme examples emerged. Women also tended to express harassment in terms of their non-ability to stop incidences from taking place. This led us to believe that most women felt the burden of ensuring their own safety. Most drivers felt that Uber and Careem would not go out of their way to resolve conflicts underscored this.

The Uber representative interviewed note that they have partnered with Harassmap, a local anti-harassment initiative, to offer training to women and men drivers, covering topics such as what constitutes harassment, how to respond to harassment, and how to defend themselves. Harassmap also held training sessions with Uber staff on how to deal with complaints from both passengers and drivers.

Drivers, like passengers, submit complaints using the application. Although complaints are sometimes handled outside the application, dri-vers are encouraged to use the application, and most processes begin with filing a complaint via an application or initiating a call to the call center. When asked to describe typical complaints, the Uber representative said they receive a whole range of complaints from cancellation requests, route issues, issues with the car, to more serious things like dangerous driving and accidents. In the case of safety related complaints, they explain that there is a specific team on hand to respond, with a turnaround time of three minutes. They also note that there is a physical presence dealing with complaints. Uber has a special team trained to deal with different government entities, working closely with the police when necessary. She says Uber supports the driver or rider in providing police with all necessary information. Additionally, all rides are insured.

A network of drivers also contributed to a sense of safety. Drivers expressed a sense of community amongst them-

selves, and commented on technology-mediated mechanisms they use to communicate and assist each other. They noted a social network that became a core benefit of their work with Uber and Careem. This was not initially anticipated by researchers and no specific questions led to this discussion. Mechanisms range from groups on social networking sites to communication applications, and the installation of GPS trackers in their cars. It also included drivers frequently communicating and sharing their current location and routes together. For use in our research, we refer to these as coping mechanisms.

Some drivers have formed a group, including both women and men, and they physically meet up regularly. They express having developed a sense of belonging to this group. Many participants expressed that working as drivers has allowed them to expand their networks and co-nnections, forming communities of support with other female drivers. Common platforms used to communicate are WhatsApp or Facebook groups. Drivers also spoke of an application that they use to communicate with both male and female drivers when they are in situations that require assistance.

One participant, for example, called on male colleagues when she was uncomfortable with a drunk passenger late at night in a relatively remote area of Cairo. Fellow drivers responded to her call and by sharing her location they were able to come to her assistance. Uber is aware of the use of Facebook and WhatsApp by

drivers. They further noted that there are 'driver influencers', drawing parallels to the rise of social media influencers. The Careem representative interviewed also acknowledged the use of Facebook and WhatsApp to communicate.

6. Women Drivers and Ridesharing in Egypt: A Synthesis of Findings

In this study, we have looked to offer a gendered perspective of ridesharing in Egypt. The challenges of urban sprawl and economic and employment opportunities provide a backdrop to the experiences of women drivers outlined in this study. Mobility and transport in the city is becoming an increasing problem for many. These are often times exacerbated for women and marginalized groups who must also navigate personal safety risks.

For those who can afford it, ridesharing is increasingly an option to navigate the city.

In the face of high rates of unemployment and informality in Egypt, ridesharing is additionally a new option to earn a livelihood. This study has explored experiences of women who drive with these ridesharing applications, and in doing so break the normalized stereotype of drivers as men. This is evidenced by the social stigma many of women and their families expressed. Again, while many women drive their own private vehicles, women driving in public sector transportation or taxis are practically unheard of.

From this study, we highlight three key findings. The first finding pertains to the motivations for earning a livelihood with Uber and Careem, and the second is in regards to their safety with doing so. The third finding pertains more generally to the experience work with Uber and Careem, and how this is perceived by women drivers.

The first finding is that motivations were most often lined to increasing economic pressure. Although the socio-economic makeup of women involved in our fieldwork differed, the vast majority acutely felt the need to supplement, or become the sole, household income. Most women viewed ridesharing as a flexible option that would allow them to fulfill other household or familial obligations. We note that this seems to be a continuity between the expectations of women in the household that must be met and gender norms of employment in Egypt. However, it is important to not disregard the expressions of pride, success and development that most, if not all, women raised during the fieldwork. This was often linked to the self-perception of women joining a male-dominated field. Some sort of independence and skill building was taking place for many women, even when motivated by financial need.

The second finding is that the relationship between technology and safety for women drivers is a multi-layered, and incurred mixed reactions from the women. Drivers expressed feeling protected by the fact that the application used a GPS system, and that their location could be shared and tracked. This served as a first layer of safety offered by the application. The second layer was perhaps the most disappointing for the women. The rating system was a second layer of safety offered by the application. It did not however, seem to hold much weight with most of the drivers, with arbitrary ratings on behalf of both drivers and passengers. Rather than a measure of safety, it was an outlet to voice other grievances with passengers, such as them being rude or paying with a credit card when cash is preferred.

The third layer is the use of third-party applications that invoked a sense of security and community in drivers when they shared locations and called for help from fellow dri-vers when needed. The use of Facebook and WhatsApp came about organically, as both women and men drivers interacted, found commona-lities in their experiences, and sought advice and support from each other. For women, this layer also emerged as most women felt that ridesharing applications did not do enough to ensure their physical safety. This is in the context of Cairo where harassment in the public sphere, and in public transportation is rife. They also felt that the passenger's safety was given more importance than their own, with passengers having more power to cancel rides and given more information on driver's identity. This is in line with previous literature that speaks to an unevenness is the balance of power, in favor of pa-ssengers. None of the three layer was seen to be without flaw, or sufficient on its own.

This is interesting specifically read in light of the social stigma of women working as drivers, detailed earlier in this study. Perceptions and stigma of driving as work were often expressed by family members as a fear for the safety of the women. These women drivers used technology to actively work against this fear, using the application and organic means of communicating to create a sense of safety. The Uber and Careem experience is arguably more technologically charged that a normal taxi would be in Egypt, most only equipped with a price meter.

The third finding relates to the experience of work driving with Uber and Careem. Drivers did not express concern over the benefits or entitlements; they for the most part viewed working with Uber and Careem as working for a credible multinational, but with flexible conditions. Likewise, the fact that the driving was mediated by an application seemed to be less important than the fact that Uber and Careem are multinational companies. This is in line with previous research by Rizk (2017) where male Uber drivers in Egypt reiterated a similar sentiment of working with a reputable company. They perceive this form of work as respectable as opposed to other less formal forms of work in Egypt, particularly for women. Ultimately, this study emphasized the need for two things. The first being the importance of researching women drivers own perspectives and narratives, and the second being the importance of this literature in the Global South. This is particularly highlighted by the third finding, of

how women viewed their own work. Perspectives from our fieldwork point to the fact that existing debates on the sharing economy model, which often focus on the Global North, do not seamlessly translate to how these women experienced their work. In this case, it was in many respects seen as a new opportunity to earn a livelihood, one that while held challenges, also challenged gender stereotypes of women's work in Egypt. This study represents one study of women drivers' experiences with ridesharing applications in the local context of Egypt, and the particular challenges of urban Cairo. Poor transport infrastructures and options, matched with daily congestion make mobility difficult for most in Cairo. Few affordable public transport options mean many turn to private sector options to navigate the city. For women, this is further compounded by fears over safety and harassment. At the same time, employment has remained a chronic problem for Egypt's population, more so for women. In the context of these two challenges is where ridesharing emerges as an opportunity for women drivers. There is space to build upon these findings, particularly as more women join the sharing economy.

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Politics, polity and policy of ridesourcing regulation in São Paulo

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Abstract[5]

Could ridesourcing regulation contribute to urban development? The City Hall of São Paulo expects this to be the case and in 2016 proposed an innovative regulatory policy, guided by the concept of intensive use of roads*, which is based on a market system of kilometer credits and incentives applied to prices. The City aims to rationalize the occupation of the road system and induce ridesourcing companies to provide the service when and where it is most needed. In this paper, the authors argue that São Paulo's ridesourcing regulatory policy provides a relevant framework for urban management, because it associates inclusive and sustainable development goals with an integrated approach of urban mobility.*

However, this achievement was possible by means of a particular political and institutional arrangement, after a process involving multiple interest groups with conflicting positions. The authors argue that the establishment of this policy was possible due to the leadership of the mayor, as well as the formulation and negotiations conducted by the different bodies in the executive government. Nevertheless, conflicts and contrary proposals in the legislative and constant inquiries from the judiciary created an unstable institutional terrain, from formulation to implementation.

Following three intertwined dimensions—policy, politics, and polity—the authors present the vices and virtues of the ridesourcing regulatory policy established in São Paulo. In a comprehensive approach, they explore the conditions and agreements that enabled its formulation and implementation, as well as the terms and challenges resulting from this process.

Keywords: *mobility; regulation; ridesourcing; ridesharing; urban development; urban policy; politics; urban governance.*

Acknowledgements

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Introduction

São Paulo, like many cities in Latin America, faces chronic mobility issues, mostly related to dysfunctional land use patterns and historical priority given to automobiles in detriment of public transportation. The urbanization process, which may be characterized as *peripheral urba-nization*[6], produced a low-density occupation pattern over an extensive territory and a highly unequal urban space. The poor and vulnerable live in peripheries while the rich inhabit the central areas, which are better provided with high capacity transit infrastructure and concentrated employment opportunities (Figure 01). Citizens who live in the peripheral areas are situated far from high capacity transit and formal jobs. The dysfunctional distribution of housing and employment opportunities results in a heavy burden for many workers, who face long and exhausting daily commutes.

The high capacity transit system is insufficient and covers only a small portion of an extensive urban territory. The city itself has a population of 12 million people[7] in an area of 1,521 square kilometers[8]. It is one of the 39 municipalities in the Metropolitan Region of São Paulo (MRSP), where roughly 21 million people live, spread across a territory of 7,946[9] square kilometers. Urban railway and subway lines cover, in total, 333.6 kilometers[10] and are the main mode of transport for 1% of daily trips[11]. Urban mobility is significantly reliant on the bus system, with both local and express buses (21.5% of daily trips), and on private automobiles (28.3% of daily trips). Although almost one third of daily trips are made by cars, vehicle occupancy is on average 1.4 persons per car[12] and the majority of car trips are rather short: more than 50% of car trips travel up to five kilometers (Figures 02 and 03). In the city itself, there are more than 6 million cars[13]. From these numbers, one grasps how public space in the city is taken up by car[14]. In addition, automobiles contribute to environmental damage in the Metropolitan Region of São Paulo: they are responsible

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[6] Caldeira, "Peripheral" 03-20.

[7] Instituto Brasileiro de Geografia e Estatística (IBGE), 2017.

[8] Empresa Paulista de Planejamento Metropolitano (EMPLASA), "Região Metropolitana de São Paulo".

[9] Empresa Paulista de Planejamento Metropolitano (EMPLASA), "Região Metropolitana de São Paulo".

[10] Secretaria de Estado dos Transportes Metropolitanos, 2015.

[11] Companhia do Metropolitano de São Paulo, "Pesquisa de mobilidade da região metropolitana de São Paulo". 2012.

[12] Companhia de Engenharia de Tráfego, 2011.

[13] Secretaria de Planejamento e Gestão do Estado de São Paulo. Departamento Estadual de Trânsito de São Paulo - Detran, 2017.

[14] Private space dedicated to parking reaches 28% of gross built area, considering developments from 1985 to 2013. Source: Embraesp, 1985-2013.

for 51% of greenhouse gas emissions caused by all vehicles, while buses produce only 13%[15]. The ubiquitous presence of individual automobiles in São Paulo's mobility pattern and infrastructure may be explained by cultural standards, the insufficiency of high capacity public transit, and the historical priority given to cars in mobility policies[16].

Ridesourcing[18] has thrived in São Paulo from the moment it was first introduced, taking advantage of an
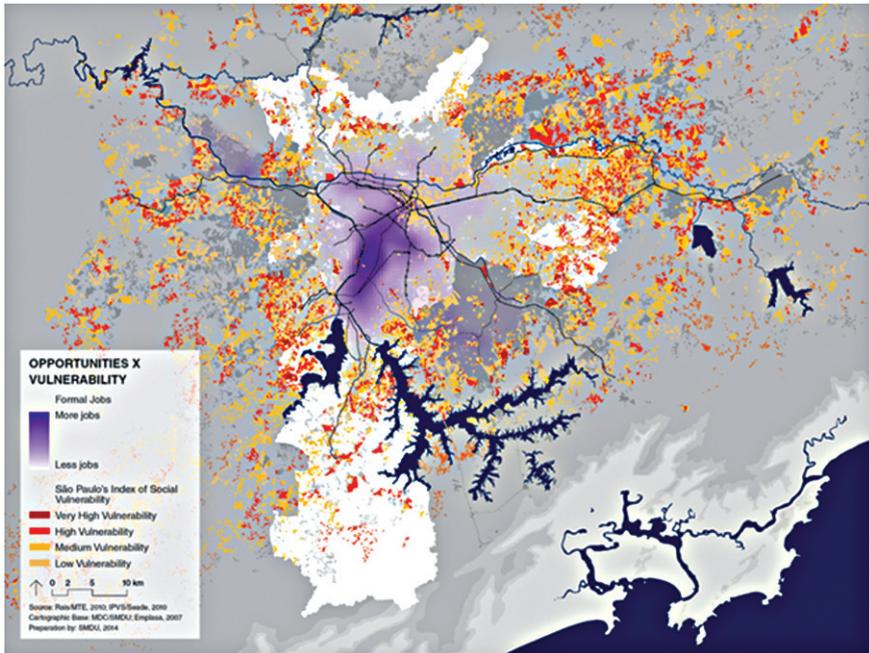
Figure 01. Spatial configuration of opportunities and vulnerability in São Paulo[17]. Source: Municipal Secretariat of Urban Development, 2016.

[15] São Paulo (Cidade) Plano de Mobilidade de São Paulo, 2015, 43.

[16] Vasconcellos, "Urban change, mobility and transport in São Paulo: three decades, three cities.", 91–104.

[17] The map displays the areas with highest vulnerability according to the São Paulo Index of Social Vulnerability (Índice Paulista de Vulnerabilidade Social), a multidimensional indicator, based on socioeconomic and demographic variables from census data. The index was created by the State of São Paulo SEADE Foundation, responsible for statistical analysis in the State level. Source: São Paulo (State). Indice Paulista de Vulnerabilidade Social. 2013, http://indices–ilp.al.sp.gov.br/view/pdf/ipvs/metodologia.pdf

[18] The authors consider the term *ridesharing* inaccurate and prefer the concept of *ridesourcing* instead. *Ridesharing* is understood as not-for-profit sharing of rides, while *ridesourcing* is understood as "smartphone app–based ride services, offered for profit, not incidental to the driver's trips, using personal vehicles" (Flores O, Rayle L, 2016) or rented automobiles.
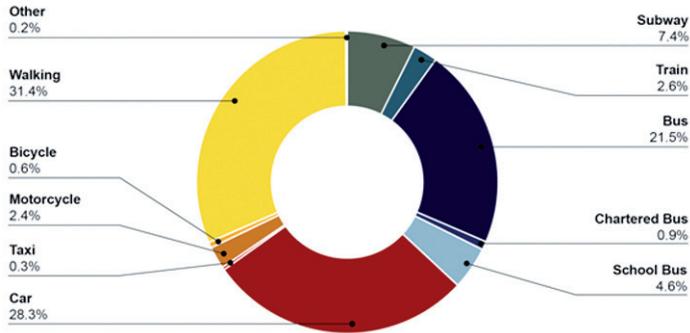
Figure 02. Modal split. São Paulo Metropolitan Region, 2012. Source: Pesquisa de Mobilidade – Região Metropolitana de São Paulo (Mobility Research – São Paulo Metropolitan Region). Companhia do Metropolitano de São Paulo. December, 2013. Prepared by the authors.
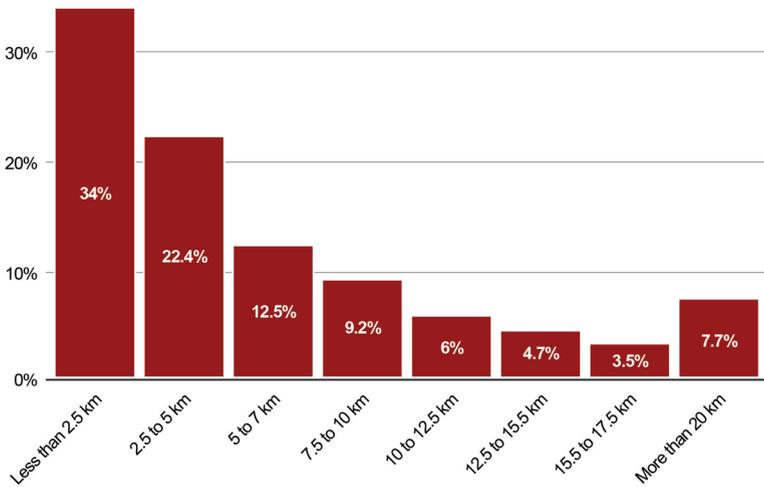
Figure 03. Linear distance interval between origin and destination of trips made by car. Source: Pesquisa Origem Destino – Região Metropolitana de São Paulo (Origin Destination Research – São Paulo Metropolitan Region). Companhia do Metropolitano de São Paulo. December, 2008. Prepared by Jacob (2017).

apparently contradictory high peak in tourism and an emerging economic crisis in 2014—besides the availability of a large car fleet. Uber was the first company to operate in Brazil, beginning in the cities of São Paulo and Rio along with the 2014 Football World Cup in Brazil. The event led to a 132% increase in foreign visitors[19]. At the same time, the

19 Rosati, C. et al, "Copa do Mundo eleva número de turistas no Brasil em 132%", Folha de São Paulo, July 12, 2014.

Brazilian economy faced the beginning of one of the worst crises the country has ever faced. From 2014 to mid 2017, unemployment grew from 7 million citizens to 13.5 millions[20], hitting workforces hard in the cities. The unemployment rate grew from 10.8 to 18.0% in the Metropolitan Region of São Paulo. Ridesourcing quickly became an opportunity for people who had lost their jobs or were compelled to reduce working hours. Figure 04 presents the number of commercial driving licences issued in São Paulo from September 2014 to December 2017, suggesting an influence of the opportunity repre-

sented by ridesourcing[21]. At the same time, consumers sought low-cost alternatives in everyday life and Uber provided a service that was cheaper than taxis or even using their own cars. Figure 05 presents the costs estimated for each mode of transportation in São Paulo. For short rides, ridesourcing has a more competitive price than using a private car. In this context not only was there a great number of potential ridesourcing users, but also an emerging pool of unemployed workers that could quickly and easily become ridesourcing drivers.
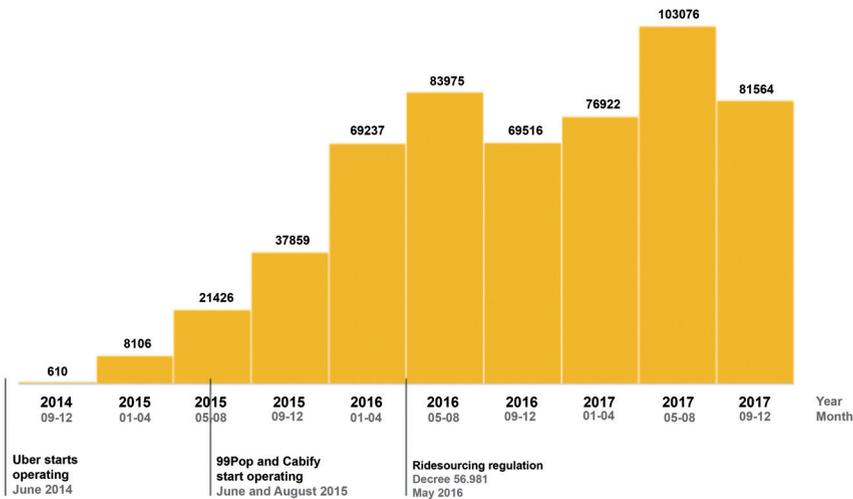
Figure 04. Commercial driving licenses issued in São Paulo (city), per 4-month period. Source: Secretaria de Planejamento e Gestão do Estado de São Paulo. Departamento Estadual de Trânsito de São Paulo - Detran, 2018. Prepared by the authors.

[20] Leon, D. et al. "Uma jornada pela crise econômica a bordo do Uber", Metropoles, August 6, 2018.

[21] From 2014 to 2015, the total number of licenses fell by 20%.The drop is possibly explained by the crisis and the changing mobility patterns of the youth. (Reis V. 2016) However, comparing the period of September to December in 2014 to the same period in 2015, the number of commercial licences was 62 times bigger. The rise is probably triggered by ridesourcing drivers.
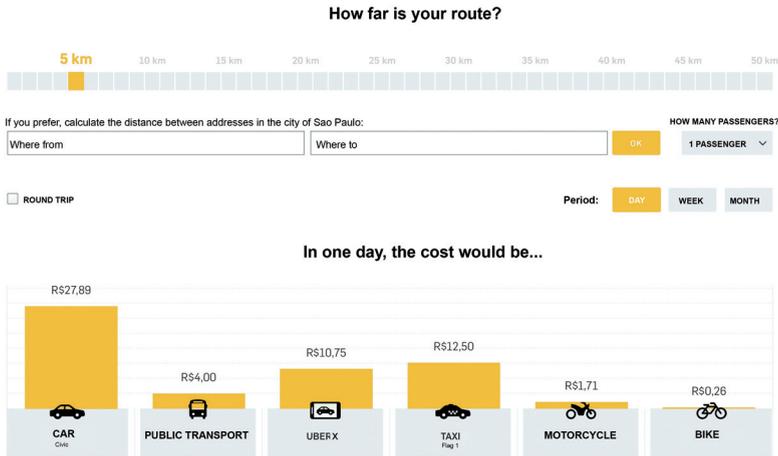
Figure 05. Cost comparison of transport modes. Source: O Estado de São Paulo.

As ridesourcing grew and São Paulo became Uber's largest market in terms of rides[22], conflicts also emerged. Taxi drivers strongly opposed the new competition and protested the rise of Uber. In the meantime, municipal councillors supported by taxi unions proposed a bill prohibiting app-based individual transportation. In a very disfavorable environment, with strong opposition from the City Council, the City executive government decided to intervene. The mayor proposed a regulation scheme allowing ridesourcing in São Paulo, regardless of the political burden this would cause him. No other cities in Brazil had engaged in the same movement and there was no federal recommendation regarding individual transportation. The City developed an innovative approach towards ridesourcing[23], proposing a dynamic regulation: within overall system of kilometer credits, resolutions may be issued at any time, adjusting the prices and discounts according to the City goals. This calibration may involve creating incentives oriented by social, urban, and environmental goals, such as providing for more opportunities for women, reducing the number of car rides, or reducing air pollution. Led by the mayor in office and motivated by particular agendas, the City managers developed a regulation model and a strategy to face the adverse political ambiance. This paper will further explore the principles who guided this process and its specificities.

Methods

The authors intend to provide a comprehensive overview of the formulation and implementation process of

[22] Edelstein, S. et al. "Didi Chuxing is Making a Play for one of Uber's Biggest Markets." The Drive, January 4, 2018.

[23] The policy was recognized by different media as a promising approach towards ridesourcing regulation, as seen in Jaffe, 2016 and Darido, 2016.

the ridesourcing regulatory policy created in São Paulo. For this purpose, they have considered the theoretical basis of policy analysis and the concepts of *policy*, *politics*, and *polity* to guide the exploration of the subject matter[24]. This approach involves analysing multiple aspects of public policies, including the objective and results of a particular strategy set to deal with a public problem (*policy*), the negotiations and political decision-making process (*politics*), and the institutional dimension underlying the strategies and negotiations undertaken (*polity*). Evidently these dimensions are intertwined in reality, as will become evident in the text, and they may not be considered strictly as independent variables. The separation adopted here is intended for two main reasons: facilitating comprehension of the model proposed and emphasizing specificities of the process in the particular context of São Paulo, Brazil.

The research that supports this paper was developed based on documental research and discourse analysis. The materials collected include official documents (acts, decrees, resolutions, meeting minutes, lawsuits, among others), newspaper articles, specialized media websites, and company websites. Also, the authors have conducted interviews with key stakeholders in the formulation process, including representatives from the executive and legislative branches, representatives of ridesourcing companies, and a representative of

a taxi drivers' union. The interviewees were: Fernando Haddad (former Mayor of São Paulo), Ciro Biderman (former Director of Innovation at SP Negócios and coordinator at Mobilab), Jilmar Tatto (former Municipal Secretary of Transportation), Giovanni Romano (Director at Sinditaxi - Union of Autonomous Taxi Drivers of São Paulo), Police Neto (Municipal Councillor), Adilson Amadeu (Municipal Councillor - represented by his team), Daniel Mangabeira (Head of Public Policy at Uber Brasil), Matheus Moraes (Director of Legal, Policy & Communication at 99), and Juliana Minorello (Head of Legal at Cabify Brasil).

Policy

The regulatory policy developed by São Paulo City Hall established in 2016 presents a new approach towards ridesourcing, based on the concept of *intensive use of roads*. The guiding concept is that companies should pay for the private use of public roads, and this price may vary according to the intensity of use. The justification of this concept is explained in a technical note:
"In an empty street, the addition of one vehicle does not interfere with the road space available. However, at a certain point, one extra car in the road starts to represent a cost to all the other vehicles, due to congestion. This cost grows exponentially. Therefore, the cost imposed to society depends on the occupation level of the infrastructure."[25]

[24] Frey, "Análise de Políticas Públicas: algumas reflexões conceituais e suas implicações para a situação brasileira", 04.
[25] Prefeitura Municipal de São Paulo, "Progressividade e uso do viário urbano", sem data.

Instead of imposing a traditional transportation regulation on the new mode of travel[26], the City proposed a mechanism for regulating the impacts of ridesourcing, as well as rationalizing the use of a public infrastructure. From the economics of the public sector point of view[27], the regulation is aimed at two market failures: externalities produced and the *free rider* problem with public goods. The externalities include congestion, as explained above, but also air pollution. At the same time, the urban road system is understood as a public good and commercial driving is charged in a similar fashion to an urban toll system, avoiding or compensating for the exploitative use of the public infrastructure.

The concept was significantly inspired by land use policy, in which the private sector contributes to the financing of public infrastructure provided to urban land[28]. In real estate regulation, land value capture mechanisms are intended to recover part of the value generated to private property due to public investment, and therefore should be reclaimed by the public. Land value capture mechanisms[29] charge developers a public price for intensive land use, which is necessarily supported by public investments in infrastructure. The ridesourcing regulation would follow the same logic, as argued by the City: *"The novelty is that, since this new modality of transport uses the road infrastructure that was paid by all, it was chosen to charge the same for its use. In other words, the cost of infrastructure is public, but the gain from it is private. That is, the use of a public infrastructure is remunerated. This type of charge is called the 'public price' or grant."*

Differently from land use, the value is generated based on a public asset (the road system, instead of land). In this case, the crucial issue is rather regulating the use of this public good, which is scarce and contested. In addition, the use of the road system is rather based on a flow, and not a stock. While in land-use planning charges are paid in advance, it would not be reasonable to sell road use "rights" in advance. The payment for road use is made afterwards, and in batches so as to reduce transaction costs.

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[24] Frey, "Análise de Políticas Públicas: algumas reflexões conceituais e suas implicações para a situação brasileira", 04.

[25] Prefeitura Municipal de São Paulo, "Progressividade e uso do viário urbano", sem data.

[26] For further analysis on the comparison between traditional transport regulation and urban governance, considering ridesourcing regulation in São Paulo, see Zanata R. and Paula P., 2018.

[27] Stiglitz, *Economics of the public sector*.

[28] Biderman, interview.

[29] In São Paulo, the basic floor area ratio is one (the amount of built area a developer is entitled to produce without paying extra charges is equal to the plot area). Additional building rights are considered a public good, which must be paid for by the developer to the City. To reach maximum floor area ratio, a public price (onerous grant of building rights) is paid. The revenue is invested by the City in urban improvements.

The regulation scheme is based on a target of kilometers and a pricing system for kilometer credits. The policy governing body (Municipal Committee of Road Use – MCRU) establishes the target, considering the road's capacity. At first, this target was calculated as the equivalent of kilometers traveled by 5,000 taxis and the price of one kilometer credit was esta-blished as 10 Brazilian Real cents[30]. Ridesourcing companies must then pay for the kilometer credits after their drivers use them. If the overall consumption of kilometers is close to reaching the target, the policy governing body may raise the price per kilometer credit, so as to discourage intensive road use. The diagram in Figure 06 explains this mechanism.

INTENSIVE USE OF ROADS REGULATION BY ECONOMIC ACTIVITY

KILOMETER CREDITS COMMERCIALIZATION

The proposed model (similar to the inflation targeting regime) privileges **regulation through price rather than the amount of kilometers**, giving greater flexibility to the market

If the monthly total amount of credits used by the OTTCs exceeds the established level, the price will be readjusted in the following months in order to guarantee the demand swings around this total

Used km

km "TARGET"

Sold at initial price

Time

Figure 06. Diagram of intensive use of roads system and kilometer target. Source: Municipal Secretariat of Urban Development, 2016.

[30] Estimated by the total road maintenance costs divided by the total kilometers driven, according to São Paulo "Nota técnica", 2016. The price per kilometer is not adjusted for inflation.

The regulation policy of ridesourcing in São Paulo, which includes the "solidarity lift"[31] and sharing of driverless vehicles[32], has the overall goals of optimizing the use of infrastructure use, improving accessibility and mobility, and promoting inclusive and sustainable urban development. The pricing system is the mechanism set for achieving these goals, by means of monetary incentives and disincentives applied to the price per kilometer credit. The price charged may be discounted according to the specific goals of the policy. The scheme is summed up in Figure 07. The incentives and disincentives are listed in Table 01.

Figure 07. Policy operation. Prepared by the authors, based on Decree 56.981/2016 and Resolutions issued by MRCU.

Besides the pricing system, the regulation also established the registration process, minimum service criteria, and the requirement of data sharing with the City. As established in Decree 56.981/2016, each ridesourcing company should enroll at the City Hall as an Accredited Transport Technology Operator (ATTO)[35], which are the companies responsible organizing and intermediating the connection between drivers and users through a technological platform. ATTOs are granted the right to the intensive use of roads for the exploration of an economic activity.

[31] Unpaid individual transport of drivers and passengers, who are interested in sharing trips and costs, provided that: i) the trips are not professional; ii) is not for profit; iii) is carried out by particular vehicles and not used for ridesourcing; iv) does not carry more than four passengers, simultaneously.

[32] Rental vehicle service available in public parking spaces whose economic exploitation is conditional on the payment of concession for the right to use parking in urban roads.

[33] Based on MRCU Resolutions nº 14/2017 and nº 15/2017.

[34] In order to reduce monopolies in the ridesourcing market and create space for smaller companies to compete, Resolution MRCU nº 12/2016 established a progressive price per kilometers. The more kilometer credits consumed by one company, the more expensive the price paid.

[35] Accredited Transport Technology Operator (ATTO) is the equivalent in São Paulo of Transport Network Company (TNC), as named the Californian regulatory policy.

Table 01. Incentives and disincentives applicable to kilometer credits. Prepared by the authors, based on Decree 56.981/2016 and Resolutions issued by MRCU.

TYPES	INCENTIVE OR DISINCENTIVE[33]	MULTIPLIER FACTOR	PRICE PER KM	LEGAL INSTRUMENT
Inclusive and Sustainable Development incentives	Female driver (also, according to Decree 56.981/2016 by mid-2018, 15% of all kilometer credits must be taken by female drivers)	10%	$0.01	Resolution 14/2017
	Accessible cars	10%	$0.01	Resolution 14/2017
	Hybrid or non-polluting vehicle	10%	$0.01	Resolution 14/2017
Mobility and accessibility incentives	Km driven out of central business district	50%	$0.05	Resolution 14/2017
	Between 8PM and 10PM	50%	$0.05	Resolution 14/2017
	Between 10AM and 5PM	70%	$0.07	Resolution 14/2017
	Between 10PM and 7AM	10%	$0.01	Resolution 14/2017
	On Sundays and holidays	70%	$0.07	Resolution 14/2017
Optimization incentives	Carpooling requested by 1 user	50%	$0.05	Resolution 04/2016
	Carpooling requested by 2 users	30%	$0.03	Resolution 04/2016
	Carpooling requested by 3 users	20%	$0.02	Resolution 04/2016
	Carpooling requested by 4 users	10%	$0.01	Resolution 04/2016
Competition and anti-monopoly incentives[34]	Consumption of up to 20% of the kilometer target	100%	$0.10	Resolution 15/2017
	Consumption of 20–40% of the kilometer target	110%	$0.11	Resolution 15/2017
	Consumption of 40–60% of the kilometer target	130%	$0.13	Resolution 15/2017
	Consumption of 60–80% of the kilometer target	160%	$0.16	Resolution 15/2017
	Consumption of 80–100% of the kilometer target	230%	$0.23	Resolution 15/2017
	Consumption of more than 100% of the kilometer target	360%	$0.36	Resolution 15/2017

As a counterpart, ATTOs must (1) pay the public price of kilometer credits, based on the amount used and incentives applied, (2) provide the City with operational data[36], (3) follow minimum operation criteria[37], and (4) offer users the possibility of carpooling.

The policy governing body, MCRU, is responsible for the implementation process, its outputs and outcomes, and propose adjustments, by means of resolutions. The committee is led by the Municipal Secretariat of Transportation and includes representatives from different Secretariats in the executive administration. Mobilab, the City's innovation lab dedicated to mobility, should be responsible for analyzing the data provided and supporting the assessment of the policy outcomes.

The strategy set by the City of São Paulo to regulate ridesourcing differs from other policies set by cities in Latin America: instead of issuing permits for ridesourcing companies and a standard fee, regulators in São Paulo established a mechanism to guide individual transportation towards specific goals, in a demand management approach. By mid-2016, when the policy was created in São Paulo, Mexico City was the only La-tin American city to have regulated ridesourcing. Later in 2016 and 2017, other cities followed, most of them following Mexico City's straightforward model. There, ridesourcing companies should register at the City Hall and pay 1.5% of the revenue per trip to a public fund—the "Taxi, Mobility, and Pedestrian Fund"[38].

São Paulo's approach, on the other hand, uses carrots and sticks towards a more desirable operation of ridesourcing companies, from a broad public perspective. Each company should pay for the kilometer credits it consumes. However, prices may differ, according to the various incentives. These include discounts for carpooling, so as to reduce the number of vehicles; for rides at night or in the peripheries, due to fewer transit options; for including female drivers, so as to provide even opportunities for men and women; and for accessible and electric vehicles, addressing the disabled and reducing air pollution. All these incentives are made by means of the pricing system.

One of the mechanisms set (in Resolution 12) was the progressive public price per kilometer credit. This measure has the goal of encouraging competition, given the risk of mo-

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[36] Data transmission was at first made via API. The information requested were: "I) origin and destination of the trip; II) duration and distance of the ride; III) waiting time for the arrival of the vehicle at the origin of the trip; IV) map of the route; V) items of the price paid; VI) evaluation of the service provided; VII) identification of the driver; VIII) other data requested by the City Hall necessary for the control and regulation of public policies for urban mobility." (São Paulo, Decree 56.981/2016)

[37] As established in Decree 56.981/2016, the minimum criteria include providing the identification of drivers to users, live navigation maps, user evaluation, and an electronic invoice with route, driver, and price information.

[38] Ciudad de México. Gaceta Oficial, 2015.

nopoly commonly held in "network economies". Six ranges of values have been created so that the reference price (R$ 0,10) can be increased by up to three times. By this mechanism, ATTOs that consume more kilometer credits pay more for them. The mechanism induces compliance with the target system, avoiding the growth of demand above the established value.

Through an integrated and holistic approach, the regulatory policy of São Paulo sets a relevant framework for associating the regulation of ridesourcing to inclusive and sustainable urban development. Ridesourcing is understood as an element of the

mobility system and ATTOs get incentives so that they address and mitigate structural mobility and development issues in the city. As described above, transit infrastructure is more concentrated in the central areas of the city. The same is valid for taxis, due to its higher price and to the preferences of drivers[39]. Figure 08 presents the proportion of trips made by ridesourcing in comparison to the total trips made via the 99 app. The company provides both taxi and ridesourcing options, but in the peripheral areas, ridesourcing takes a larger share of trips. In 2017, new ridesourcing companies appeared (and persisted) in the market, such as Lady Driver and Ubra (currently
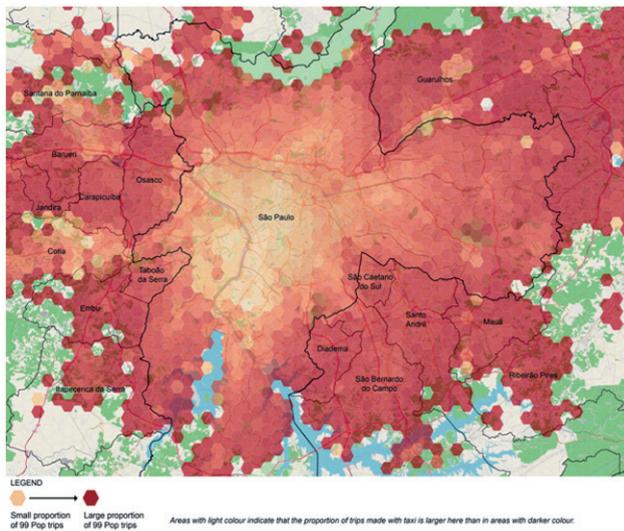
Figure 08. Proportion of rides made in "99Pop" service (ridesourcing) from the total number of rides (taxi hailing and ridesourcing) with 99 app, in the Metropolitan Region of São Paulo during the month of May 2018. Source: 99 Policy and Research Unit (ridesourcing and taxi sourcing company). The darker the color, the larger the rate of trips requested by ridesourcing in that area. The lighter the color, the larger the rate of taxi rides requested.

[39] According to Romano, from taxi union Sinditaxi, two thirds of individual transportation trips leave from the city expanded center.

JaUbra). The first one has only female drivers and takes rides requested from female riders only. The second was created by citizens from Brasilândia after they realized that Uber would not ride in their neighborhood, a poor district with high indicators of violence and the highest population in the north zone of the city. Although there is little evidence of the outcomes of the incentives, it is clear that there is demand and opportunity for an inclusive approach.

Politics

The regulation of ridesourcing in São Paulo was achieved through a specific political set-up and negotiation, involving several stakeholders with conflicting interests between late-2014 and mid-2016. This debate involved taxi drivers and unions, few drivers and representatives of ridesourcing companies, Municipal councillors (representatives of the legislative branch), the mayor in office, and representatives of the executive branch of the City Hall.

Conflicts with taxi drivers emerged not long after Uber first started operating in São Paulo. They alleged ridesourcing was illegal and that it was taking over the taxi market. They organized protests in key areas of the city and Uber drivers reported the daily hostility they suffered from taxi drivers[40]. As the tension was rising, the public sector was urged to take a stand.

The conflict moved to the institutional sphere, where the City Council first led the discussion on whether ridesourcing should be prohibited or not. Historically, taxi drivers' unions have influenced and supported the election of councillors due to their capacity of communication with the population who uses their services. Adilson Amadeu[41] is one of them, and his term of office is dedicated to advocating for taxi drivers' interests[42]. In August 2014, Amadeu presented a bill (PL 349/2014) proposing the prohibition of ridesourcing in the city, supported by a group of other 37 councillors.

One year later in October 2015, in a long and troubled session (Images 01 and 02), the bill was passed (as Act 16.279/2015) with 43 votes in favor, 3 against, and 5 abstentions. According to City officials, at that moment, taxi drivers and unions were strongly engaged in the process, while the only ridesourcing company operating (Uber) did not manage to engage as much drivers to support it and promote a stronger lobby than the taxi sector did. The bill passed with an article included in the last minute, proposing the elaboration of studies and analysis for the regulation of individual transportation. The prohibition of ridesourcing, therefore, would not last long.

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[40] "Taxistas ameaçam Uber: "já furei dois pneus, arranquei o passageiro de dentro do carro", Tecnoblog, 2015, https://tecnoblog.net/181336/taxistas-uber-ameacas/

[41] Amadeu's staff, interview.

[42] Amadeu's staff, interview.

As the bill passed, the executive representatives took a stand to promote the regulation of ridesourcing. The government prepared a draft decree proposing the regulatory policy and promoted an online public consultation of this document, open to citizens to express their opinions. The consultation gathered almost 6,000 comments, most of them were in favor of regulating ridesourcing, instead of prohibiting it. The consultation gathered evidence that although the vast majority of councillors were against the regulation, this was not necessarily the citizens' point of view. An opinion poll published in August 2016 supported the same argument: 69% of São Paulo citizens were in favor of Uber[43].

In the meantime, the Court of the State of São Paulo has granted Uber an injunction allowing the company to keep its operation[44]. This decision suspended the effects of Act 16.279/2016 for the company and the public prosecutor's office considered the act unconstitutional[45]. Later in October 2016, the act would be judged accordingly, at the State Court.

The mayor, in turn, was determined to establish a regulatory policy for ridesourcing. In partnership with the only councillors that had voted against its prohibition, the executive representatives proposed a new version for a bill regulating ridesourcing (421/2014) in April 2016. However, the majority maintained their position, including the situation party, and the bill was never voted on. As a result, the mayor and his team decided to establish the regulatory policy by means of a decree. Table 02 depicts each step of this process.

Images 01 and 02. Taxi drivers and councillors support for Bill 349/2014, during the final voting session. Source: Câmara de São Paulo (City Council of São Paulo).

[43] DataFolha."Opinião sobre o UBER", Folha de São Paulo, July 14, 2016.
[44] Redação. "TJSP: Prefeitura não pode restringir atividade do Uber." Jota, February 2, 2016.
[45] G1 São Paulo. "Lei que veta aplicativos como Uber em SP é inconstitucional, diz MP-SP." O Globo, April 13.

Table 02. Milestones of the regulatory policy discussion. Source: Elaborated by the authors, based on Diário Oficial do Município de São Paulo, Câmara de São Paulo, Tribunal de Justiça de São Paulo.

Date	Milestone
August 2014	Bill 349/2014 presented by councillor Adilson Amadeu and a group of other 37 councillors proposing the prohibition of ridesourcing in São Paulo
August 2015	Bill 421/2014 is presented by councillor Police Neto proposing the regulation of ridesourcing in São Paulo.
October 2015	Bill 349/2014 is enacted as Act 16.279/2015, prohibiting ridesourcing
December 2015	Bill 421/2014 is approved in the first round
December 2015 up to January 2016	Public consultation open for considerations about the draft decree for regulating ridesourcing
February 2016	The Court of the State of São Paulo grants an injunction to Uber to continue its operation
April 2016	Bill 421/2014 is reviewed and presented according to the draft decree prepositions. The bill does not reach the voting session.
May 2016	Decree 56.981/2016 is signed by the mayor, regulating ridesourcing

The executive's decision to regulate ridesourcing was driven by different motivations of the government officials. The key agencies involved from the executive branch were the Mayor's Cabinet, the Municipal Secretariat of Transportation (SMT)[46], and SP Negócios[47], each with a particular agenda: SP Negócios was driven by the opportunity of fostering technological development and innovation in urban mobility. SMT representatives recognized that ridesourcing was an inevitable market, especially

[46] Secretariat responsible for formulating, managing, and evaluating the urban mobility policies, as well as managing individualized and public transportation.

[47] Agency bound by cooperation with the Municipality of São Paulo (Secretariat of Finance and Economic Development), responsible for "prospecting programs for priority sectors of the city's economy"

after the Court's decisions. The mayor Fernando Haddad, in turn, was interested in standing for diffuse interests, opposing the corporate influence represented at the City Council. In his words:

"A typical issue in politics is that the diffuse interest always loses to the corporate interest, unless the chief of the executive decides to take over the agenda. This is a classic subject in political science, and that is what happened in this particular case, just as the doctrine suggests. (...) The City Council stands for corporate interests due to the logic in the election of councilors." [48]

It would be expected that the subject matter would have been conducted by the Municipal Secretariat of Transportation (MST). However, the mayor himself was deeply involved in the subject and all decisions were brought to the attention of his cabinet. Urban mobility and public spaces were core subjects in Haddad's agenda, which was directed towards a more inclusive city. According to him:

"The whole philosophy of the administration was based on the concept of scarcity of the public good, of the common good. Working with this concept in the public sphere is fundamental." Haddad considers that land value capture mechanisms, the incentives and requirements created in land use policy for mixed use buildings, and the regulation of the intensive use of roads were policies created within an overall approach of his administration: *"They are all concepts combined in the direction of another city."* [49]

During his term, several policies were created for improving public transit and fostering public spaces. The proposal of regulating the intensive use of roads, thus rationalizing the use of public infrastructure, met the goals of this agenda. The decision process was led by the mayor's office, while SP Negócios designed the overall policy scheme and MST was responsible for negotiating the subject with taxi driver representatives and in the Municipal Transit and Transportation Committee[50].

SP Negócios intended to create more of a command policy (rather than control), inducing ATTOS to provide a service that could generate less externalities and larger benefits for society. According to Ciro Biderman, Innovation Director at SP Negócios at the time, ridesourcing could be better integrated with public transportation, creating more efficiency. In his view, stimulating carpooling would be one of the greatest achievements of the policy, especially for first and last mile rides. Therefore, he did see great potential of ridesourcing to contribute to the mobility system.

Jilmar Tatto, Secretary of Transportation, believes that technological changes in urban mobility are inevitable,

[48] Fernando Haddad, interview.

[49] Fernando Haddad, interview

[50] City's council role Instance for social participation and control over urban mobility, constituted by decree 54.058/2013, and made up from public power, service operators and users.

however, he thinks there should be public regulation, especially in regard to public space and infrastructure. Tatto believes that *"in such a private relationship, one may be much stronger than the other, and therefore the State should intervene to avoid unfair competition – and this is even more complex in areas of public use."*[51] In his point of view, the road system of São Paulo is exclusionary as it is, and should be redistributed to open space for transit, which is the main priority. Even though the different stakeholders might have been motivated for diverse reasons, all of them did agree with the overall objective of making the road system more efficient, so that it could benefit the whole mobility system, creating space and opportunity for public transportation.

In order to establish the regulatory policy, in a very disfavorable environment, the executive branch of government took the leadership in the process, it set up negotiations with the different stakeholders involved, and proposed the regulation to be established by a decree.

As described above, the main stakeholders involved in this debate between 2014 and mid-2016 were taxi drivers and their representatives, municipal councilors, representing the legislative branch, ridesourcing companies, and the executive branch of the municipal government. While the first two groups were against the regulation of ridesourcing, and in favor of its prohibition, the last two groups supported the regulation.

When the mayor took responsibility for the regulation by signing a decree, he assumed the political burden, mostly of disapproving taxi drivers, in a year of elections. At the same time, he relieved the Councillors from the frictions of yet another discussion of the topic in the City Council. Simultaneously, MST negotiated with taxi unions the issuance of another 5,000 taxi licenses and the permission for taxi drivers to drive in exclusive bus lanes. This would preserve part of the individual transportation market for taxi drivers: they would have an advantage in terms of speed during rush hours. The outcomes of these negotiations are summed up in Table 03.

Polity

The formulation process of this policy benefited from an earlier restructuring in municipal governance with two new agencies, which created favorable conditions for this model to be developed. In 2013, the public company SP Negócios was created, with the purpose of promoting a better investment environment in the city. According to interviewees, SP Negócios was more prepared to conceive an innovative regulation than MST would. The second element was the foundation of the Laboratory of Innovation in Mobility (Mobilab), which gathered researchers and entrepreneurs to develop applied research, data analysis, transparency and participation in mobility issues. While SP Negócios was an important element for the formulation of

[51] Jilmar Tatto, interview

Table 03. Stakeholders, their positions during the regulation debate, and negotiation outcomes for each. Elaborated by the authors based on interviews.

Stakeholders	Taxi drivers	Drivers and ridesourcing companies (Uber, 99, Cabify)	Majority of councilors	Mayor and executive managers
Representatives	Unions and Associations (Adetaxi, Simtetaxi, Sinditaxi)	Uber (the other companies were not operating yet)	–	Mayor's Cabinet; MST; SP Negócios
Position	Against ridesourcing regulation	In favor of ridesourcing regulation	Against ridesourcing regulation	In favor of ridesourcing regulation
Outcomes of the negotiation	Taxi drivers are allowed to ride in bus-only lanes; 5,000 new taxi licenses were issued.	Companies are allowed to operate. Registration and payment of kilometer credits is mandatory.	Ridesourcing regulation was not subject to new sessions in the City Council, avoiding the political onus	Signature of Decree 56.981/2016, regulating ridesourcing

the policy, according to Biderman who was also coordinator of Mobilab, the lab was an essential structure for the policy to succeed. It should be responsible for systematic analysis of the data gathered from the ATTOS, proposing adjustments in the policy parameters.

The governing body established in Decree 56.981/2016 is the Municipal Committee of Road Use (MCRU), an intersectorial committee responsible for decision making and the implementation of ridesourcing regulation. MCRU congregates multiple secretariats and is part of by the MST. In periodical meetings, the commi-

ttee takes decisions regarding the parameters of the policy, such as the public price, incentives, and registration criteria, among others. Decisions are issued in resolutions, which allow for agile adjustments if needed[52]. The experience of an integrated governance of urban mobility proved to be prolific-recently the committee was also assigned the responsibility of overlooking the bike sharing system[53].

The establishment of the regulation policy by means of Decree 56.981/2016, after the political negotiations described previously, did diminish the conflicts between taxi drivers and unions and ATTOs. How-

[52] Until mid July 2018, eighteen resolutions were published.
[53] Decree N° 57.889/2017.

ever, the policy is still subject to instabilities due to constant inquiries and lawsuits taken to the judiciary system and data unavailability. Also, since the rules were set in a municipal decree, instead of an act, new decrees issued by following administrations may modify completely the policy. By mid-2018, four new decrees were issued[54] by the new administration in office since 2017, all of them setting specific adjustments, rather than a new policy. These include two changes in the secretariats that integrate MCRU, the allowance for older cars to provide ridesourcing services, and the rescission of the requirement of ATTOs offering carpooling services. The last reveals that the current administration no longer sees carpooling as a priority.

Lawsuits and judicial conflicts involving ATTOs and the City Hall persist after the regulation was established, creating several obstacles for the effective implementation of the policy. In October 2016, Uber, the largest company in the market, filed a lawsuit questioning the progressiveness of prices established in Resolution 12. The enterprise alleged that the City Hall had exceeded its competence and disrespected iso-

nomy principles. The argument also pointed out "diversion of purpose", since "the use of progressive price as a competition mechanism is related to economic right, not to the control of the road use targets"[55]. The suit claimed for the discontinuity of Resolution 12. In July 2017, the City Hall issued Resolution 16, which created a series of requirements for drivers and ATTOs, such as the registration of every driver at the City Hall, the prohibition of vehicles from other cities to provide ridesourcing services in São Paulo[56], a maximum car age of 5 years, among others. This time, Uber, 99, and Cabify joined a single lawsuit [57], and were granted injunction. Figure 09 presents the lawsuits and conflicts held in the judiciary between ATTOs and São Paulo City Hall. According to former mayor Haddad, ATTOs are now another corporatist force in the arena. At this point, the companies have stronger negotiation strategies and may have larger influence in the decision-making process.

Data analysis, which is one of the core elements of the policy, is also compromised due to disputes. The adjustments and calibration of the policy parameters (price per kilometer credit, incentives, etc) rely on

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[54] Decree 57.750/2017, Decree 57.939/2017, Decree 58.084/2018 and Decree 58.167/2018.

[55] TJ-SP, Pr. Comum. Nº. 1047591-20.2016.8.26.0053, São Paulo, Dr(a). Antonio Augusto Galvão de França, 04.11.16 (Braz.).
At the time of this writing, Resolution MRCU No 12/2016 was suspended by the Court of Justice of the State of São Paulo. The City Hall may still appeal.

[56] The prohibition of cars from other municipalities was considered a critical issue for two reasons: the urban area of São Paulo is contiguous to the other municipalities in the Metropolitan Region. Citizens often travel from one municipality to another. Besides, many drivers use rented cars for ridesourcing.

[57] TJ-SP. Pr. Comum. Nº 1047591-20.2016.8.26.0053, São Paulo, Dr. Kenichi Koyama, 23.01.18 (Braz.).

Municipal level

São Paulo establishes a regulatory policy for ridesourcing (Decree 56.981/2016)

Court of the State of São Paulo judges Act 16.279/2015 unconstitutional (after having granted injunction to Uber to continue its operation in February 2016)

Uber files a lawsuit against the City Hall of São Paulo, questioning Resolution 12 of MCRU

MCRU publishes Resolution 16, requiring the registration of all drivers, restricting ridesourcing to vehicles no older than 5 years and licensed in the municipality of São Paulo, among other rules

Individual drivers plead for the writ of mandamus, alleging the right to provide ridesourcing service with cars registered in other municipalities. The injunction was granted and drivers are entitled to provide the service with cars from other cities

Uber files a lawsuit against the City Hall of São Paulo, questioning the security and obligation of data sharing

MCRU publishes Resolution 18, changing part of the registration rules from Resolution 16

Decree 58.084/2018 is signed, expanding the vehicle age limit to a maximum of 8 years

Court of the State of São Paulo nullified Resolution 12 of MCRU. The City Hall may still appeal.

Federal level

The lower house of Congress approves Bill (PLC) 28/2017, restricting the activity of app-based transportation companies in Brazil

A petition against the approval of PLC 28 is delivered with 815 thousand signatures

The senate approves PLC 28 with several changes. The new version removes the issues mostly criticized by ridesourcing companies.

The lower house of Congress approves PLC 28 final version, with minor adjustments, such as the attribution of regulation to Cities

Federal Act 13.640/2018 is approved, reviewing the National Urban Mobility Policy and regulating the private individual transportation.

2016 — MAY, OCT
2017 — APR, JUN, SEP, OCT
2018 — JAN, FEB, MAR, APR

Figure 09. Timeline of conflicts involving ATTOs and São Paulo City Hall after the publication of Decree 56.981 in May, 2016 and of the regulation process at the federal level. Elaborated by the authors based on Diário Oficial do Município de São Paulo, Câmara de São Paulo, Tribunal de Justiça de São Paulo, Senado Federal and Câmara de Deputados.

data analysis, so does the assessment of the policy outcomes. Resolutions 02 and 13 stated that MCRU would publish a periodical report on the kilometer target and general information of the system. No reports have been published, however. Most companies interviewed alleged they do provide the data requested. Except for Uber, which has filed yet another lawsuit questioning the privacy and safety of data transmission to the

City Hall, as well as the obligation of doing so[58]. The authors of this article have requested those reports to the City Hall[59], but the information was declined, supposedly due to the lawsuit mentioned above[60]. Although the policy design did foresee an evidence-based decision-making process, supported by the capacity installed in the City Hall, the data analysis process by Mobilab and the City staff, and the assessment of the policy outcomes by society in general still face instabilities and lack of data input.

The proposal of a bill that consolidates the concepts and guidelines of the policy, preserving its flexibility while stating clear responsibilities and sanctions, would provide more stability. However, the enactment of the bill is still subject to the interests and unpredictability of the legislative process. Regarding data management, in turn, further negotiations with ATTOs may be necessary, since they have diverging positions on the matter.

Federal regulation

Further institutional challenges emerged when the Federal legislative branch began discussing a bill for regulating ridesourcing in mid-2016. The process started in a similar way, in comparison to São Paulo: a bill virtually prohibiting ridesourcing in Brazil was proposed by the Congressman Carlos Zarattini[61], with the support of taxi drivers and unions all over the country. The bill was approved with adjustments by the lower house of Congress (PLC 28/2017). It proposed adjustments to the National Urban Mobility Policy, the responsibility of Cities to regulate and collect the corresponding taxes, and several minimum requirements for ridesourcing operations. The last part was the most critical, since it included as minimum requirements a previous permit for all drivers and the registration of all cars in the "rent" category (just as taxis are).

As the bill was sent to the senate, ridesourcing companies engaged in a joint reaction. The scenario at this point was quite different from the process in São Paulo: the companies had created sectors and teams dedicated to raise awareness of drivers, users, and public opinion, as well as negotiating with regulators. The largest companies in this market launched a campaign called "together for mobility" and this time they were able to fully exploit the powerful network of users and drivers connected to their platforms. Demonstrations were organized in Brasília, where the Congress is located;

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[58] TJ-SP. Pr. Comum. Nº 1002511-62.2018.8.26.0053, São Paulo, Dra. Carmen Cristina Fernandez Teijeiro e Oliveira, 23.01.18 (Braz.).

[59] The requests were made on basis of the Information Access Act, which grants citizens the right to request for public information.

[60] The issue of data availability of ridesourcing companies is not restricted to the context of São Paulo, as seen in ZIPPER D, 2017.

[61] From Partido dos Trabalhadores of São Paulo, the same as former mayor Fernando Haddad.

informative leaflets and messages were sent to users and drivers and published in the press; and a petition was sent to Congress with around 825 thousand signatures. During the voting period, the Uber CEO was in Brazil to meet with ministers and senators. The approved version of the bill removed the mandatory registration of vehicles in the "rent" category, the requirement of ownership of the car driven, and it appointed to Cities the competence of supervision. After the mobilization, the outcome of the voting session was quite favorable to ridesourcing companies, which celebrated the results[62]. The bill was voted again in the lower house with minor changes, including the regulation competence of Cities, and was enacted by the presidency as Act 13.640/2018.

The enactment of the federal law has put an endpoint to the questioning of whether ridesourcing was illegal. The service has spread over more than one hundred Brazilian cities and very few have specific regulations. After the Federal Act 13.640/2018, the challenge is now posed to the municipalities and it is especially critical to those with low technical capacity. Which regulatory model best suits each context? Are cities going to adopt a traditional control policy, or will they follow an experimental approach with a command policy like São Paulo? In any case, the context of each city must be taken into consideration. More than following a certain model, cities ought to reflect on how a certain policy scheme will

be sustained considering the political and institutional dimensions. In the next session, the authors briefly point out challenges to be considered, from the lenses of the case of São Paulo.

Challenges and possibilities

There is little evidence available to provide an assessment of the policy performance. However, after exploring the formulation and implementation process, it is possible to identify a series of challenges posed to the regulation and to point out potential paths to be followed (summed up in Table 04).

Indeed, the absence of data available for social control and technical analysis could be pointed out as a first challenge. Privacy and security issues are obstacles for making public any information related to the performance of this policy and therefore compromising its impacts towards urban mobility and development. However, data is a core element of integrated and efficient management of urban mobility and therefore data governance and management need to be discussed in depth, along with data security management. Compliance to policy requirements, such as data sharing, is compromised in the case of São Paulo, since the policy was established by a decree, instead of an act.

Although ridesourcing is a private service, it uses public infrastructure as one of its main assets. As seen

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[62] Caram, B., et al. "Câmara aprova regulamentação de aplicativos como Uber; placa vermelha não será exigida", G1, February 28, 2018.

above, ATTOs are increasingly prepared to negotiate with politicians, with their specialized teams and resources. Their pressure over government fragilizes the preservation of collective and public values—the case of the progressive price, for instance, was discontinued. The constitution of social control mechanisms may contribute to finding an equilibrium between corporatist concerns and broader public interests, preserving public assets.

Another core feature of the regulation is flexibility. The governance body (MCRU) should be able to change the parameters (price per kilometer credit, incentives) easily through resolutions, as the consumption of kilometers grows. Nonetheless, legal disputes have questioned the resolutions contents, conflicting with that flexibility. The balance between flexibility and legal stability is a core issue yet to be developed.

Table 04. Challenges for the effectiveness of the ridesourcing regulation policy in São Paulo. Elaborated by the authors.

Challenges faced	Paths and possibilities
- Frequent lawsuits question resolutions published by MCRU	Providing legal certainty to a flexible regulatory policy, avoiding constant legal disputes
- Not all ATTOs comply with the requirement of providing data to São Paulo City Hall. The ATTO was granted an injunction. - Decisions changing the policy parameters were made regardless of justifications based on an assessment of the policy outcomes. - No assessment was developed regarding the outcomes of incentives and disincentives.	Creating a safe mechanism and an agreement for data transmission, so that ridesourcing regulation policy can be constantly assessed and integrated with other mobility policies
- ATTOs and drivers are more organized and capable of mobilizations and protests. - ATTOs have a stronger lobby capacity and may influence decision-making. - No information (reports or aggregate data) is disclosed to society, hindering social control	Including and strengthening social control mechanisms as a means of providing an equilibrium between corporatist and public interests
- No actions were taken to avoid competition between ridesourcing and transit system, or to provide better integration between them. - Bikesharing system is now regulated by MCRU, facilitating integrated mobility governance.	Creating incentives for rides integrated with the transit system (such as for first and last mile), creating more efficiency in the mobility system as a whole

One last challenge identified from the experience of São Paulo is the integration of ridesourcing to other mobility policies. As seen in Zanatta et. al, 2018, the regulation by São Paulo moves a step forward towards urban governance, in an experimental and holistic approach. This experience, which includes a multisectorial governance body, is being replicated in other regulatory policies—the challenge here is how to coordinate the different policies considering the growing complexity of the system.

Conclusion

In the first section, this paper explored the contents of the regulatory policy of ridesourcing established in São Paulo in 2016. Based on the concept of the *intensive use of roads*, it proposed a new approach towards ridesourcing: instead of focusing on the economic activity, the City should regulate its externalities and its level of occupation. Considering the historical privilege given to automobiles in mobility policies and the deficit in public transit, the policy oriented at the rationalization of the use of the road system was a paradigm shift. This position was coherent with the administration's overall objective of making infrastructure and public space more inclusive, shifting the scarce public good towards more people that can benefit from it.

The policy is based on the concept of regulating the *intensive use of roads* and its overall objectives are rationalizing the road system, while promoting inclusive and sustainable use of

it. The regulation operates through a pricing mechanism: ridesourcing companies pay for kilometer credits according to the total distance their drivers traveled. The policy governing body sets a target for the total amount of kilometers to be traveled by month. If the target is close to being reached, the price per kilometer may be raised. These credits were set at a public price of ten cents per kilometer, but they may be charged more or less, depending on the applicable incentives and disincentives.

The authors consider that this policy design provides for a relevant mechanism towards converging inclusive and sustainable urban development goals. By means of the pricing mechanism, the City may stimulate ridesourcing companies to provide services that also address public issues. These may include, for instance, reducing the number of cars with carpooling, or improving first and last mile mobility, especially in peripheral areas.

The formulation and implementation of this policy, however, must be analyzed considering political and institutional aspects, as seen in the sections of the article. The political arena involves different stakeholders with diverging positions. In the case of São Paulo, the regulation could only be established in a decree, signed by the executive branch of government, mostly due to intense opposition by the legislative branch. At the same time, a negotiation with the taxi sector had to be done, so as to minimize protests and conflicts. As the policy was implemented, con-

flicts have moved to the judiciary branch, now involving the City Hall and ridesourcing drivers and companies. Frequent lawsuits and court decisions have put at stake several policy aspects, from competition incentives to data analysis and assessment of the policy's outcomes. The late establishment of a federal act, regulating the matter at a national level, demands for adjustments to provide for compliance. Therefore, new political and institutional issues have emerged during the implementation process, posing a different set of challenges to the policy.

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Decent Work for Ride Hailing Workers in the Platform Economy in Cali, Colombia

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Abstract

The disruptions created by the digital platform economy have caused both policy makers and workers to generate adaptations to a rapidly changing context. These disruptions are challenging existing definitions of informality and precarity, as well as standard policy responses to worker rights and protections. While preventing precarity is still very much the goal of policy interventions, the idea that 'informality' is the cause of precarity has come to be questioned. In this article we introduce the decent work standard developed by Richard Heeks for digital online labour markets like Freelancer, Upwork or Amazon Mechanical Turk. We use a literature review of empirical research about ride-hailing to adapt this framework to the 'location-based service delivery' market. This new framework is then tested against an in-depth analysis of informality and precarity in the ride hailing sector in Cali-Colombia. Findings from this research show that platform workers lack many of the protections recommended by Heeks' decent work framework. However, the case study also demonstrates that workers are evolving some creative ways to grapple with specific aspects of precarity within the ride-hailing sector. Based on this analysis, we argue that policy analysis and worker innovations need to 'meet in the middle' and suggest some specific policy reforms that will be appropriate to the Colombian and Latin American context.

Key Words: *Decent Work; Sharing Economy; Platform Economy; Ride Hailing; Cali, Colombia; Informality; Precarity*

Introduction

The digital platform economy has introduced a series of industrial innovations such as on-demand services and instantaneous ratings systems that are rapidly reorganizing the activities of incumbent businesses, workers and consumers alike. The effects of these shifts on availability of work, working conditions, job security, and worker empowerment are

of particular concern, but are poorly understood. As a result, policy makers at the municipal, state and federal levels are often forced to introduce policy solutions before the full implications of new business models are realized and understood.

Policy makers working to regulate labour markets cannot simply reach for tried and true solutions to these issues. The platform economy holds out many potential benefits for workers, such as greater flexibility and the possibility to 'be your own boss.' However, the very "informality" of the platform economy may also worsen or introduce new forms of precarity among workers. While preventing precarity is still very much the goal of policy interventions, the idea that 'informality' is the cause of precarity should be questioned. This is because the platform economy directly challenges definitions of informality and precarity and therefore renders standard policy responses obsolete.

Meanwhile, in their day-to-day activities, workers are generating novel adaptations to their rapidly changing work context, which need to be taken into consideration by policy makers if policy interventions are to be successful. Worker-designed adaptations might even offer solutions to policy issues.

In an effort to find a way forward, this study explores the decent work standard developed by Richard Heeks for digital online labour markets like Freelancer, Upwork or Amazon Mechanical Turk. Since Heeks' standard was designed for online platform labour, we use a literature review to adapt it to the 'location-based service delivery' market, paying particular attention to the ride-hailing sector, which includes Uber, Lyft, 99Taxis or Easy Taxi.

This proposed framework is then tested against an in-depth analysis of informality and precarity in the ride hailing sector in Cali, Colombia. This case study demonstrates that workers are developing creative solutions to address precarity or improve opportunity within the ride-hailing sector. Based on this analysis, we argue that policy analysis and worker innovations need to 'meet in the middle' and suggest some specific policy interventions for the ride-hailing sector that will be appropriate to the Colombian and Latin American context.

Emerging Decent Work Standards for the Digital Economy

Decent work is defined by the International Labour Organization (ILO) as "opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men."

The decent work framework recognizes the existence of informality in the economy, but offers the possibility of overcoming traditional

binaries like informal–formal or contractor-employee so that work standards focus greater attention on overcoming precarity. The focus is on whether or not labour arrangements are 'empowering' to workers and, by extension, the question becomes whether or not the platform economy offers the possibility of empowerment to workers, even if the work resembles some definitions of informality. As Randolf & Dewan explain, "We must assess the impact of the platform economy on labor markets in the global South by considering how participation in these forms of work impacts individuals over the course of their working lives. This means focusing on the scope for skill formation, economic mobility, and empowerment" (2017, p. 56). This approach is considered to be more appropriate for both the digital economy, which has created new forms of work, and the global south, which has not tended to mirror western models of labour inclusion.

It is important to consider whether and how the digital platform economy will empower workers, because new forms of work may have significant implications for inclusion. As Ilavarasan points out, the possibility for transforming the labour experience through platforms is highest for low skilled jobs among labourers who have primary or secondary levels of education (2017, p. 18). Unskilled workers who are illiterate are at risk of being excluded from the opportunities presented by the platform economy. This is especially the case since they are less likely to have access to the internet or digital banking systems, which are key to participation in the platform economy (Cañigueral, 2015). Highly skilled workers with superior levels of education, on the other hand, will find themselves in the position of managing these trends. In total, the platform economy promises to reorganize the opportunities for empowerment available to workers, creating new patterns of ex-
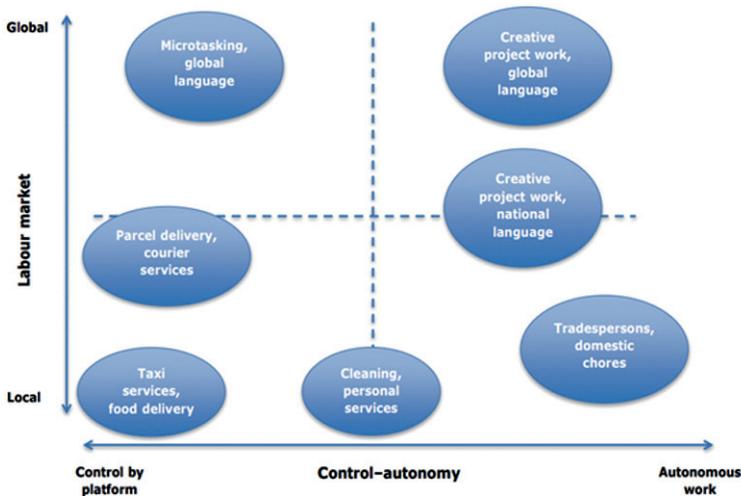

Figure 1: Typological Map of Labour Platforms. *Source: Forde et al., 2018, p. 32*

clusion and precarity (see also Malin and Chander, 2016).

We are only just beginning to understand how the sharing economy will affect the workers who are swept up in these changes. The flexibility and autonomy offered by platform economy jobs may be seen as a benefit, however flexible jobs often come with few or no benefits, and weak labour protections. The relationship with existing labour standards is also unclear: it may be possible to draw on existing standards in some cases, but new frameworks may be required in others. Meanwhile, the dynamics of regulatory processes are complex in this space. For example, incumbent actors in highly regulated industries such as transportation or banking are often delaying regulations that can support an effective implementation of newer digital models (Cañigueral, 2015). Frameworks are needed to begin making sense of the changes we are seeing.

Recent work by Richard Heeks offers an emerging set of guidelines called 'Decent Work in the Digital Economy.' This framework emerges from an extensive review of empirical studies of the impact of "crowd work"[1] platforms like Freelancer, Upwork or Amazon Mechanical Turk in the glo-

bal south. He notes that "while the paper takes a particular interest in the perspective of workers in developing countries, most of its findings will apply globally, and many will apply to the broader gig / sharing / platform economy" which includes 'location-based service delivery' such as ride hailing (Heeks, 2017, p. 1). Having said this, ride-hailing and related services such as food delivery or localized home services have very local labour markets that are highly controlled by platform service providers. This makes them markedly different from creative digital work that can happen through global labour markets that afford workers more autonomy, as shown in Figure 1 below. This means that it is important to explore the relevance of Heeks' model to the ride hailing sector, and make adaptations as necessary.

Benefits of platform-based work

Heeks' literature review examined empirical studies to identify the main benefits and challenges of platform-based work in developing countries[2]. Based on his review, potential benefits from crowd work include access to employment opportunities, unbiased or objective inclusion in labour markets, reasonable earnings (often higher than workers

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[1] See Howcroft & Bergvall-Kåreborn (2018) for an in-depth explanation of this term.

[2] It must be noted that overall, there is very little empirical data on the impact of the sharing economy on workers. As noted by a recent Canadian study, "The biggest gaps are a lack of studies looking at the lived experiences of gig workers; an understanding of the health and economic impacts of the gig economy, especially on vulnerable groups; and more empirical data in general," and further on, "Geographically, the United States is disproportionately represented, with some work focusing on the European Union and the United Kingdom. Only one article and one report made comparisons with the Global South" (Bajwa et al., 2018). This is also noted in Heeks' review, and can be corroborated by the present study as well.

would otherwise earn), career development opportunities, greater flexibility, and in some cases reduced costs (for example, from commuting to work) (Ibid, 2017, p. 10).

Ride hailing studies corroborate many of Heeks' observations about flexibility (Lee et al., 2015; Hall and Kreuger, 2016, p. 11), access to employment opportunities (Kashyap and Bhatia, 2018), and in particular, overcoming access barriers that exist in established taxi industries (Hall and Krueger, 2016, p. 6). This would align with the notion that ride-hailing apps empower workers to be independent contractors. A detailed analysis of the Mexican case also found that Uber drivers *can* earn significantly higher salaries than traditional taxi drivers, however this depends on hours worked, whether drivers contribute to social security, and whether drivers own cars or contract out their services to car owners (Manuel, https://ingresopasivointeligente.com/cuanto-gana-un-chofer-de-uber-en-mexico/). In addition, taxi work that is considered informal with reference to government regulations, can be 'formalized' or made less precarious through the introduction of ride-hailing apps. Ride hailing companies have been known to help informal economy drivers get paperwork together, and offer significant benefits to drivers such as less downtime while waiting for clientele, or the introduction of insurance policies for drivers and passengers (Smart et al., 2017, p. 99; see also Malin and Chandler, 2017, p.386). Finally, ride sharing services have been shown to make more efficient use of automobile resources than traditional taxi technologies (Cramer and Krueger, 2016).

Location-based work is not associated, however, with career development opportunities except insofar as it allows workers to take time away from other full time work until something better comes along, or they complete studies (Hall and Krueger, 20016, p. 12). Nor does location-based work reduce the costs of work, however it may be used to supplement income or offset the costs of household expenses such as car maintenance.

Heeks organizes key challenges into three domains of decent work that are based on the International Labour Organization's (ILO) decent work scheme (2013). These are: 1) the conditions of work itself, 2) the employment situation which includes things like the availability of jobs or the possibility for career development, and 3) the overall employment context including laws and policies, or the possibility for collective bargaining. Literature related to each of these domains is reviewed on continuation.

Challenges Related to the Work Conditions

Work conditions for crowdworkers revolve around whether and how they can 'win' contracts and complete tasks in a platform environment, and the compensation received for these efforts. Based on this, Heeks divides working conditions into four key issues: the adequacy of compensation, work processes, working hours, and health and safety.

As in the case of crowdworkers, drivers express concerns about costs associated with ride hailing. Compensation may be inadequate to cover the cost of driving to pick up locations, waiting for customers, car insurance or car maintenance and depreciation (Smith and Leberstein, 2015, p. 6). Drivers may feel compelled to offer extras to passengers (such as water or cell charging stations) to enhance their ratings (Rosenblat and Stark, 2016, p. 3775). And obviously, "Uber and Lyft themselves depend on the infrastructures of mobile and Internet communications through which their technologies function—though they largely outsource this infrastructure to their drivers" (Malin and Chandler, 2017, p. 387).

The notion of "work processes" marks a departure from the existing ILO decent work standard, which previously spoke of "productive work". This is significant, given that platform workers are positioned as independent contractors. The idea of "decent work processes" directs our attention to the need for fair conditions in which to operate an independent business. In the ride-hailing space drivers complain about the lack of transparency in how computer algorithms assign rides, which makes it difficult for drivers to make independent choices about how to use the system (Lee et al., 2015; Rosenblat and Stark, 2016, p. 3775). Drivers also note a lack of control over work assignments because the app tells them what to do, leaving them with little autonomy.

The issue of surge pricing also fits here. Ride-hailing apps are designed to increase prices when there is a surge in demand as an incentive to drivers. However, the nature of surge pricing means that drivers are not actually operating independent businesses: "Through surge pricing's appeal to the concept of algorithms and automated management, Uber can generate and coordinate clusters of labor in response to dynamic market conditions without explaining the reliability of its cluster incentives or guaranteeing the validity, accuracy, or error rates of its labor deployments. Many drivers express frustration and enthusiasm alike for surge pricing because its very dynamism is characteristically fickle and opaque" (Rosenblat and Stark, 2016, p. 3766).

In the ride-hailing literature, the question of working hours is also closely tied to surge pricing and the overall illusion of flexibility in time use. Workers are encouraged to work at peak times of day in order to earn the highest incomes (Smith and Leberstein, 2015, p. 6; Malin and Chandler, 2017, p. 392). But this takes away their autonomy: "The fact that virtual platforms allow workers to choose their work schedule and timetable – given that new technologies make it unnecessary to dictate instructions in this regard – does not mean that the worker becomes independent. The company could at any time issue new instructions that workers must obey. Just because the company decides not to exercise its managerial power does not mean it doesn't have it" (Signes, 2015, p. 11; *translated*). Some studies have also suggested

that workers would need to drive long days to earn a basic income as a driver - as much as 12 hours a day, 6 days a week, with few breaks.

Finally, regarding health and safety concerns (Tran and Sokas, 2017), research has identified increased feelings of isolation (Smith and Leberstein, 2015, p. 6), engaging in risky work, such as driving while fatigued (Rosenblat and Stark, 2016, p. 3768) and driving late at night or in unsafe neighborhoods (Malin and Chandler, 2017, p. 384) to be key issues.

Challenges related to Employment Conditions

A second set of challenges revolves around the nature of employment in the ride hailing sector. This includes access to employment opportunities, the potential for career development, the stability and security of work, the status of employment, discrimination, and dignity or respect at work. As in the case of the crowdworking literature, this domain is discussed much less frequently in the ride-hailing literature, except where discrimination and dignity are concerned.

As noted above, employment status is key to understanding decent working conditions in the ride-hailing sector. While ride hailing platforms legally designate drivers as independent contractors, they set up information systems that effectively treat them like employees (Hernández and Nava, 2012). This is often described as 'dependent contracting' in which "the collection and use of data and its analysis in a massive and auto-

matic way, allows Uber to have a tacit but at the same time strong control over its partners, which makes them more like drivers working for the purposes of the company. That is, employees, but without the responsibilities and burdens that this would entail for the company that employs them". (Pérez, 2016).

Given the nature of the work, availability of employment opportunities in the ride-hailing sector is often assumed. But in fact, many workers in the global south lack the basic language, skills and infrastructure to take advantage of these jobs, at least in the form which they are initially offered. Because of the disempowered condition of many workers, studies from India (Kashyap and Bhatia, 2018) and South Africa (Kute, 2017, p. 46-47; Geitung, 2017) have found that many drivers are actually hired by savy car owners who leverage the value of their automobile rather than pay to have it parked, or fleet operators who use a ride-hailing app to manage logistics. Indeed:

Regarding Uber's transport service management model, in general terms the traditional model of taxis is replicated, however the concession variable disappears and it is replaced by ownership via a technological application. Due to this particularity, in the case of Uber arrangements are based on the ownership of the vehicle and the operation or provision of the service. This is so, because the owner of the vehicle is not necessarily the person providing the transportation service for Uber. Indeed, Uber provides a platform that links drivers already evaluated by

Uber, with the owners of vehicles that operate on the platform. (Romero and Sosa, 2016, p. 169; *translated*).

The lack of access to infrastructure and/or ability to own and operate a mobile adds to the insecurity and vulnerability of some drivers in this sector.

An additional aspect of work stability and security in the ride hailing sector revolves around the assignments and ratings systems of platforms. When they are starting out, drivers must be very careful to maintain a strong rating, and this means that they cannot turn down rides, and must please their customers (Rosenblat et al., 2017). Poor ratings can result in getting kicked off the system. This is also tied up with surge pricing: "Owing to the contingent effects of surge periods on drivers' income and customer ratings, rideshare drivers can be both the fortuitous victims and beneficiaries of the surge pricing system" (Malin and Chandler, 2017, p. 393). Together these factors mean that the security and stability of ride-hailing work is heavily dependent on the algorithms used to organize the system. Drivers are vulnerable to sudden changes in service offerings, pricing or algorithms, which puts them in a very vulnerable position (Ravenelle, 2017).

A major consideration in the crowd-working space has been the potential for career development opportunities through the transferability of skills and ownership over ratings. The issue of career development expresses itself quite differently in the ride-hailing space. Enterprising individuals have developed courses to help people get started with ride-hailing, both online and offline, and there are many websites and blogs out there that offer tips to drivers. However, these fall more into the category of training rather than career development. A related issue is data portability, which in theory is meant to allow drivers to transfer ratings from one app to another. However, in reality drivers tend to work for multiple companies and what we have seen instead is the rise of secondary applications, such as Mystro (https://www.mystrodriver.com/), which help drivers make decisions between competing hails from different platforms. As noted above, where career development is concerned, ride-hailing is mostly seen as a way to supplement income while pursuing studies or other lines of work.

The issue of discrimination and dignity at work has also been raised in the ride-hailing literature at both a structural and an individual level. In general, Hua and Ray note that ride-hailing exhibits racialized and gendered patterns of work in which "male immigrant full-time drivers positioned against more privileged part-time drivers both within the ranks of Uber and across the Uber-cabbie divide" (Hua and Ray, 2016). Several authors and drivers also suspect discrimination takes place through ride-hailing apps (Rosenblat et al., 2017) and report instances of poor treatment by customers ran-ging from cancelled calls to inappropriate expectations (Gloss et al, 2016) or uncivil or disrespectful treatment by customers.

Challenges related to the Employment Context

A third category of issues concerns the overall context for employment, which addresses the availability of social protections, possibilities for collective bargaining, access to platform governance and accountability and legal frameworks.

Within this larger domain, the lack of social protections for drivers is widely discussed and noted. In general, the ILO notes that "The si-tuation of people who work autonomously in the informal economy is much more serious, so much so that it can be considered the other extreme of decent work, which is to say they are without equal opportunities in employment, without respect for their fundamental rights at work, without social protection, and without any level of representation in institutional spaces of social dialogue" (Ledesma Céspedes, 2013; *translated*). With regards to ride-hailing in the United States, Smith and Leberstein note that:

Characterizing workers as non-employees has serious negative consequences for them: non-employees have no statutory right to minimum wage, overtime pay, compensation for injuries sustained on the job, unemployment insurance if involuntarily separated from employment, or protection against discrimination. They are not covered under their companies' employee benefits plans and have no federally protected right to join a union and collectively bargain with the companies for which they work. While workers can challenge their status, doing so often

entails overcoming the threat of denial of future work, followed by protracted fact-finding and extensive litigation costs. Workers in these companies are performing the core work of their companies, the very essence of the employment relationship. Yet, while claiming that workers are independent entrepreneurs, the companies try to have it both ways. They often manage the workers as if they were employees, unilaterally setting rates for services, dictating how the services are provided, and screening, testing, training, evaluating, promoting, and disciplining workers based on the standards the companies set. (Smith and Leberstein, 2015, p. 6; see also Malin and Chandler, 2017, p. 385)

However, it is important to note that effective social protections are often non-existent for large segments of the working poor in developing countries. In this context, the question if often more what can be gained from ride-hailing, rather than what is lost.

A second issue that is widely noted in the ride-hailing literature concerns power asymmetries between workers and platform owners in the platform economy. As Rosenblat and Stark explain "the labor that Uber drivers do is shaped by the company's deployment of a variety of design decisions and information asymmetries via the application to effect a 'soft control' over workers' routines" (2016, p. 3761). And further on:

The lines of communication between Uber and its drivers are based on a profound information asymmetry. Whereas numerous channels filter data up from drivers and riders to the cor-

porate system, the paths for drivers to request information from Uber are limited and distributed through decentralized support centers. Drivers can make inquiries and usually receive template responses, but they are not empowered to negotiate the terms of their work by communicating to a representative of higher management. (p. 3771).

Malin and Chandler also note: "Standing (2011) argues that a central theme of neoliberalism has been 'that countries should increase labour market flexibility, which came to mean an agenda for transferring risks and insecurity onto workers and their families' Uber and Lyft provide strong examples of this risk transference, which is a central component of the "independent contractor" model on which both companies rely." (2017, p. 385)

Finally, researchers have also noted the challenge of collective bargaining in the gig economy. "The platform model creates a network for workers to connect with gigs while never providing them with a chance to connect with each other. Gig workforces are by their very nature geographically and socially dispersed, leaving the workers with few anchoring points and communities that they can associate with their work." (Bajwa et al., 2018, p. 12). This has the particular effect of making it difficult for gig-workers to organize collectively to protect their rights as workers (De Stefano, 2015). However, there are many examples of workers organizing to protect their rights, and of online discussions about how to do so productively (Campbell, 2016).

Overall Assessment

Overall, there are broad similarities between the decent work challenges that Heeks identified for the crowd-work sector and those that have been identified in this review for location-based gig work. It is worth drawing out some of the ideas that Heeks adds to the discussion about decent work through his analysis of the platform economy. In particular, work process becomes a significant domain of labour relations in the platform economy, with implications for levels of worker autonomy, opportunities for worker creativity and entrepreneurialism, and the human rights of workers with regards to surveillance, data ownership and a host of related issues.

If workers are to be considered true independent contractors, then the terms of their work relationship should be such that they can work independently. This is closely related to the issue of employment status, which is clearly at the heart of debates about work in the platform economy. In this context, decent work frameworks can no longer measure their achievement against "formalization" of labour relations, or at least, the definition of formality needs to shift. And this means that, in a platform economy, there need to be new ways to provide workers with social protections, empower them and provide opportunities for growth and personal development.

However, because ride-hailing is localized (unlike crowdwork, where competition can happen globally)

there are some significant differences in decent work standards in this sector. For example, health and safety issues are considerably more important to drivers than crowd workers.

The barriers to employment are also very different, including access to an automobile, and they often revolve around complex contests between localized incumbents who are being challenged by global platforms. Combined with the fact that driving is considered to be a lower-skill job, this means that training is less likely to work as a way to empower workers in this sector of the economy. Finally, because drivers are so directly dependent on their platform system for connecting with customers, knowledge about those work systems, or control over data about public transport, is essential to the empowerment of localized workers, and their ability to make companies accountable.

After completing his own literature review about crowd work, Heeks comes to the conclusion that, in fact, positives outweigh negatives for workers in the platform economy in developing countries. What he means is that, for workers in the global south who had little access to social protections in the first place, the relatively well-paying jobs facilitated by the sharing economy can be seen as an immediate gain. He argues that, based on empirical research of workers, "there is little current evidence for intervention in the digital gig economy" (p. 16). It is not clear whether the same can be said of

workers in the ride-hailing sector, and it is likely the case that findings will vary from location to location.

Regardless, Heeks goes on to suggest that larger structural factors should influence decisions about whether and how to regulate the platform marketplace. These include "the assumption that the breadth and depth of asymmetries is such that they must underlie inequalities that are damaging to society, and which require correction towards greater equity of value, risk, resources, information and power" or that the new marketplace "falls short of the standards for decent work, and that it is appropriate to try to 'hold the line' on decent work and not accept that an eroded quality of work should become the new norm" (p. 20). Based on this, Heeks goes on to suggest a set of "Decent Digital Work Standards" appropriate for labourers in online labour markets, which is reproduced in Figure 2. In Figure 2, the standards start with the broader context and progress towards working conditions – the reverse of how the issues were addressed above. This figure shows existing ILO decent standards in the left-hand column, and recommended amendments on the right.

While many of these suggestions (such as provision of leave and minimum salary) apply across the labour spectrum, others appear to be more catered to the crowdworking sector, such as "the opportunity to access digital gig economy work". In the ride-hailing sector, specific labour and health and safety guidelines will certainly be necessary. For example,

one could image a digital driver's license that allows regulators to limit driving time across all ride-hailing platforms to a reasonable amount per week. Similarly, training may not be as necessary in the ride-hailing space, and could be replaced with regulations for the onboarding of new workers to reduce anxiety and insecurity as they start to build up their online reputation and profile. But by far the two largest concerns for localized platform workers are the possibility and right to operate with some measure of autonomy within a highly-automated system, as well as the right to form collectives to organize their work and defend their rights in a platform economy.

	Code Components / Standards
Employment Context	
Social Security	• Provision of annual, sick and maternity leave • Provision of unemployment, disability and health insurance • Provision of liability insurance • Provision of pension contributions • Portable benefits • Shared contributions from workers, platforms and clients including taxation
Social Dialogue, Employers' and Workers' Representation	• Right to organise and negotiate collective agreements • Legal changes where collective negotiation is prevented for independent contractors • Enable (collective) communication between workers
Economic and Social Context for Decent Work	• Compliance with all relevant national laws in worker jurisdiction • Client responsibility for digital supply chain • Access for policy-makers to anonymised transactional platform data
Employment	
Employment Opportunities	• Opportunity to access digital gig economy work • Provision of training opportunities • Worker-accessible, portable work history and reputation profiles
Stability and Security of Work	• Combination of stability and flexibility • Clarification / recategorisation / development of new / flexibility to choose employment status
Equal Opportunity and Treatment in Employment	• No discrimination • Data protection and privacy for both clients and workers
Dignity and Respect at Work	• Respectful and prompt communications between clients, platform and workers • Clear rules for work rejection and re-work, worker deactivation, worker ratings, and worker 'levelling-up' • Human review of worker complaints • Neutral third-party dispute resolution mechanism
Work Conditions	
Adequate Earnings and Productive Work	• At least minimum wage paid taking unpaid time and other costs into account • Clear information and communication about tasks • Clear information about payment including schedule and conditions and non-payment • General-terms details about client identity and task purpose • Rating system for both clients and workers
Decent Working Time	• Compliance with national working time directives and with ILO guidelines
Safe Work Environment	• Ensure potentially psychologically unsafe tasks are signalled, and support provided

Figure 2: Decent Digital Work Standards for the Digital Gig Economy. *Source: Heeks, 2017, p. 26*

With the caveat that very little research has emerged so far about the experience of workers in the sharing economy, particularly workers from the global south, these standards represent the best advice to date on how to update labour policies in developing countries given the new realities of the digital platform economy. But these recommendations represent just one side of the coin. While policy analysts have been busy considering how they can update regulatory approaches, workers have been busy developing their own innovations and adaptations.

The next section presents an analysis of ride hailing in Cali, Colombia. It first marshals empirical evidence to evaluate the condition of ride hailing workers in Cali against the decent work standards that have been established above. It then explores innovations by workers to improve specific aspects of their working conditions and economic welfare.

The subsequent section considers the gaps that exist between emerging global standards, and the reality for workers on the ground. This allows us to consider real 'on the ground' opportunities for expanding the possibility of decent work in the global south.

Evaluation of decent work standards against Ride Hailing Labour Realities in Cali, Colombia

In Cali, Colombia the platform economy offers an outlet for endemic labor informality, which exceeds 48%

of the population or approximately 599,000 people in 2017 (Colombian National Department of Statistics, 2017). It is expected that this figure will increase substantially in 2018 and beyond, due to the arrival of immigrants from Venezuela who are fleeing the political and economic situation in that country.

As a result, even though ride-hailing is deemed illegal by regulatory authorities, it is strongly embraced by workers in Cali, and protests against platform companies by regular taxi drivers and general inhabitants in this city have been almost non-existent.

In fact, many former taxi drivers have embraced ride hailing. Many have purchased private vehicles for use as platform taxis on days when their primary taxi cannot be used due to local vehicle circulation restrictions known as *pico y placa* (peak and plate) (Preston, 2014). License plate numbers determine which vehicles can circulate on which days. What we can learn from this is that platform-based businesses provide enough revenue to justify investing in second car.

Drivers do not understand (and do not express interest in knowing), that they are working in the greater framework of a "Platform Economy." They interpret their activities simply as a means to fulfill immediate economic necessities "while it is possible." Drivers believe that sooner or later legislation will be created to legislate ride hailing, and that this will undermine the financial benefits of working in this sector.

Indeed, many drivers feel that out-lays for social security or insurance cut into their income. Many would prefer not to pay for these things, and see future formalization of the platform economy as a threat. One of the attributes that most benefit those who work in the informal sector is the ability to evade tax rules and rates. This helps explain why many drivers who registered and payed fees to work for 'formal' taxi services have decided to make the switch to ride-hailing platforms[3].

This situation has the potential to generate greater precarity among taxi drivers. As a result, both poli-cymakers and workers need to find common ground regarding the fu-ture of these activities. Many of the platforms available in Cali, such as Uber, Cabify and WayCali, have busi-ness models that allow them to be competitive, user friendly and fair to workers. But the lack of appropriate regulation prevents a virtuous rela-tionship between users, workers and platforms.

While Heeks' Decent Work Standards for the Digital Gig Economy offer a starting point, new policy must take into consideration the emergent ex-perience of local drivers in the plat-form economy. With this in mind, this section evaluates the choices and circumstances of workers in Cali against the components and stan-dards proposed by Heeks on the ba-sis of empirical research carried out by G. I. Colombia and Luis Lozano Paredes in the spring of 2018. This included both a general survey and in-depth interviews (see Appendix 1 for study details).

Empirical Evidence about the Em-ployment Context

Starting with social security, empiri-cal data shows that there is no mini-mum standard in Cali at this time (Figure 3). Contributions are volun-
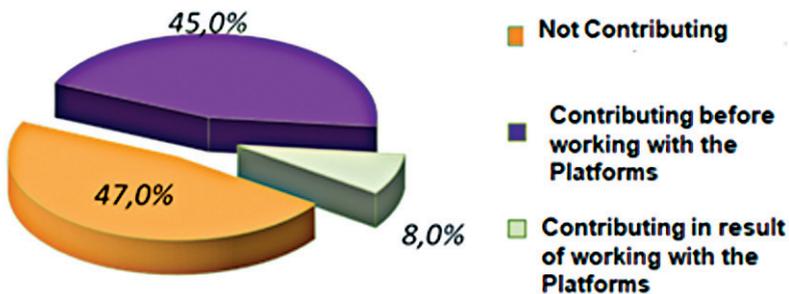

Figure 3: Contribution to the Retirement / Social Security System

[3] It is worth noting here that the Colombian Government created a decree which attempted to regulate Transportation Platforms in Colombia, under the name of "Luxury Cabs" (Mi-nistry of Transportation of Colombia, Decree 2297/2015). This regulation however failed be-cause it was not substantially different from existing taxi regulations.
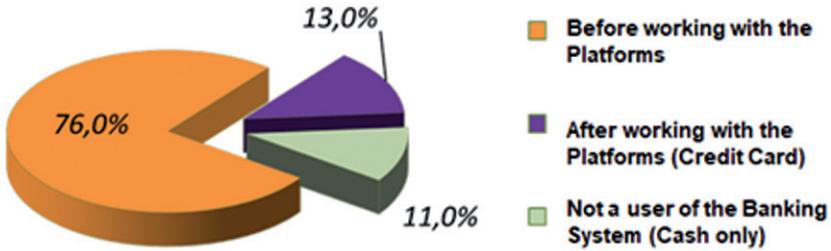
Figure 4: Use of the formal banking system

tary, and only 47% of surveyed workers made contributions to insurance, sick and/or maternity leave, or a pension plan. Many workers rely on external sources of funding (a second job for example) or a previous contribution to the social security system that came from work not associated with platforms.

Social security contributions are especially low among those at the beginning of their professional life and for those who are close to pension age (Figure 5). In the first case they assume they do not need it, and in the second case they feel it is too late to contribute. This is aligned with generalized findings for the overall labour market in Colombia (Jaramillo Jassir et al, 2015).

Participation in the formal banking system is an important indicator of precarity among Colombian workers, since it suggests access to financial opportunities such as loans or private pension funds, as well as saving

	18-25 years old	26-35 years old	36-50 years old	51 years old +
Not Contributing	88,2	29,0	44,7	42,9
Contributing before working with the Platforms	11,8	58,1	47,4	50,0
Contributing in result of working with the platforms	,0	12,9	7,9	7,1

Figure 5: Contribution to the Retirement / Social Security System by age

	18-25 years old	26-35 years old	36-50 years old	51 years old +
Before working with the Platforms	52,9	80,6	84,2	71,4
After working with the platforms (Credit Card)	35,3	9,7	5,3	14,3
Not an user of the Banking System	11,8	9,7	10,5	14,3

Figure 6: Use of the formal banking system by age

for future security. Greater participation in the formal banking sector does not seem to result from working with platforms (Figure 4). In some cases, drivers interact with banks to access credit for the purchase of a new vehicle, but this is not an indication of a savings culture.

What this suggests is that drivers see the platform economy as a quick way to earn income, which requires few qualifications. This option has a low level of capital risk since the driver maintains ownership of the main business asset (the vehicle), there is no need to pay an association fee, and there is little supervision, so drivers can meet their personal goals on their own schedule. This is corroborated by the fact that so many workers in Cali see ride hailing as there only option (Figures 7 & 8).
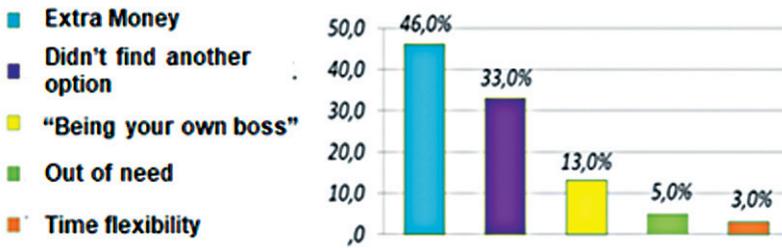

**Figure 7:** Motivations for Working in Ride Hailing
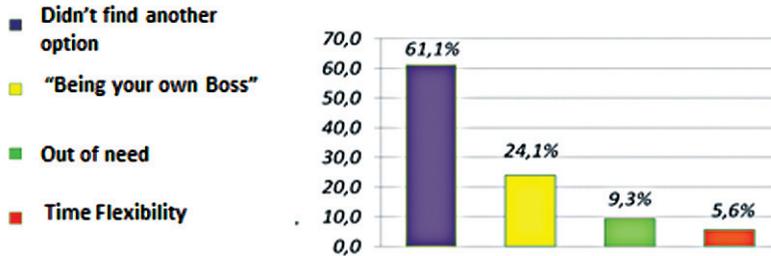
Figure 8: Motivations for Working in Ride Hailing (excluding Extra Money)

Finally, Colombian labor safety and health regulations suggest that platform workers might fall under the Occupational Hazard System. This regulation says that when an independent worker is contracted to execute a service such as a work contracts, leasing of services, provision of services, consultancy, or similar, for more than a month, the contracting party must make contributions to the General System of Labor Risks. This regulation only covers labour risks within the time that the workers is employed to carry out the independent work, and says nothing about number of hours works, benefits or any other activity.

Continuing with the standard regarding **social dialogue and representation of employers and workers**, in Colombia, current regulation does not offer a categorization for platform works, however platform drivers could be qualified as self-employed "independent workers". Colombian legal frameworks do not currently contemplate collective negotiation and collective communication between independent workers.

In the case of the **economic and social context for decent work**, Colombia currently does not offer a national law regarding platform workers' rights. The debate on this subject is currently open and ongoing. This means that drivers within the ride hailing systems currently do not have access to their metadata or any kind of consumer digital asset management or quality control.

Meanwhile, since platforms and platform work are technically illegal in Colombia, there are no grounds for companies such as Cabify, WayCali or Uber to share their data with national, regional or local governments. In fact, Uber provides data openly via Uber Movement (https://movement.uber.com) that could be of service to governments. In the case of Bogota, Colombia, this data has been used by academics and think tanks to advice policy makers about urban planning, but the current legal standing of Uber in Colombia means that this data cannot be directly used by local government. In addition, it important to note that Uber movement only provides information about travel times. Regulation could lay out specific categories of data of interest to governments, such as transactions, densities, numbers of drivers, or the status of vehicles.

Empirical Assessment of Employment Conditions

Continuing with **employment opportunities**, there do not appear to be any barriers to working in the ride hailing sector, and both main platforms, Uber and Cabify do offer training opportunities, including a course in mobile-use for all participating drivers. This is not the case with the local application, WayCali. At the current time, training is business driven, rather than government mandated.

Also, with both Uber and Cabify, workers have access to portable work history, reputation ratings and weekly earnings. This is offered through the mobile application used by drivers, which is different to the one available to users (Figure 7). However as of now, this data is not interoperable between the different platforms, as they use different data management systems and don't negotiate nor interchange data between them.

With regards to **stability and security of work**, flexibility is valued by workers in Cali. Survey results show that flexibility is a contributing factor to work in ride hailing (Figures 7 & 8), but flexibility was emphasized more strongly during interviews. Existing labour standards in Colombia recognize autonomous workers but there is no arrangement in place to balance the need for job stability with flexibilized business practices.
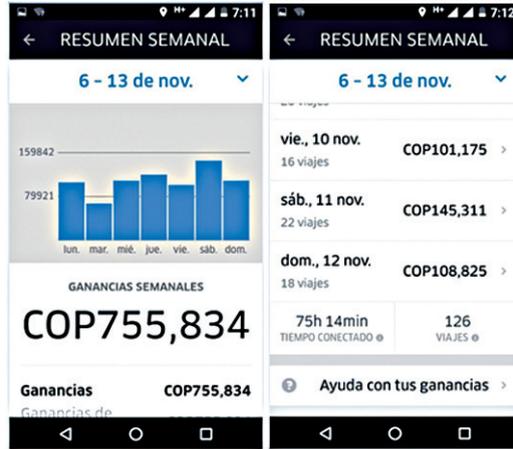
Figure 9: Screen Capture of Uber Driver App.
Screen captures from one of the Uber partner drivers interviewed, which includes daily and weekly reports of earnings and number of rides provided. COP 755 834 works out to USD 267 per week.

In terms of **equal opportunity and treatment in employment**, there are company policies in all platforms guaranteeing anti-discrimination and data protection together with privacy for clients and workers, but as in the previous case current regulation in Colombia has not dealt with the specific impact of transportation platforms, and even if there is binding regulation regarding data protection (Colombian Congress, Statutory Law 1581/2012), to date it has not been applied to Transportation Network Companies.

The component regarding **dignity and respect at work** is also difficult to evaluate in the current context. There are not currently any regulations in Colombia addressing this issues. For the most part, drivers indicated that their expectations are fulfilled by working with ride-hailing platforms. As Figure 10 demonstrates all workers surveyed indicated that their expectations were either totally or substantially fulfilled.
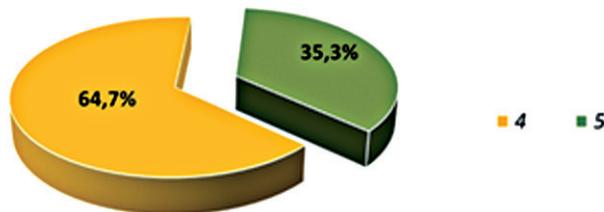

Figure 10: Fulfillment of Worker's Expectations.
Evaluation scale from 1 to 5, 5 being total fulfillment of expectations.

Workers did not express complaints regarding poor treatment by clients, and the platforms appear to pay attention to worker complaints, and offer clear rules to drivers and users. Overall, *the perception* is that platforms do offer a good work environment. This may be partly explained by the fact that workers do not expect more than a well-performing platform so that they can do their job and earn a profit. In Cali, workers value the autonomy, flexibility and independence offered by ride-hailing, and their perceptions are shaped by this context.

One of the standards proposed by Heeks for Dignity and Respect at Work, can be evaluated in the negative, as there is not a neutral third party where workers can resolve disputes that may emerge between them, the platforms and/or the clients.

This kind of mechanism if not stipulated anywhere in current regulations, even the newest one regarding "Luxury Cabs", nor is there any established mechanism that can be used for conflict resolution.

Empirical Assessment of Work Conditions

With regards to **adequate earnings**, the current minimum wage in Colombia is COP 781 242 per month, (USD 270) and the average take home earnings for platform workers after expenses (based on in-depth interviews and hidden inquiry), is COP 2 300 000 per month (USD 767). Therefore, ride hailing appears to provide earnings in excess of minimum wage, and as Figure 11 shows, surveyed drivers earn enough money to justify continuing with ride hailing in the future.
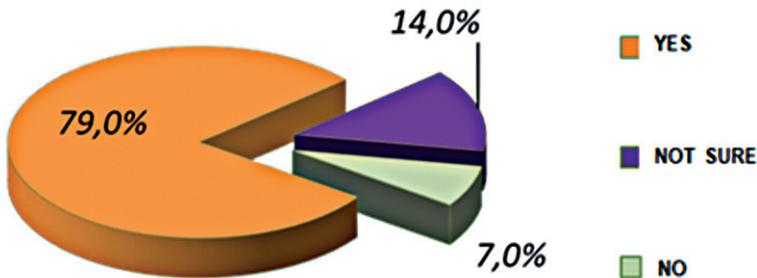
Figure 11: Earnings are such that drivers would keep working with the Platforms in the future

Earnings figures acquire more relevance when compared with the average earnings of 'formal' Taxi drivers in Columbia. A poll of taxi drivers conducted by the National Federation of Merchants (Fenalco, 2016), for the city of Bogotá D.C., determined

that, on average, taxi drivers have a monthly income of COP 1 725 000, (USD 575) after paying for expenses such as the rental of the vehicle, maintenance, which are on average COP 363 200 (USD 121) per month.

However, regarding **decent working time**, there is no compliance with national working time directives, or International Labor Organization Guidelines in Colombia. In July, 2017, the Colombian Labour Code increased the working day from 8 to 10 hours. This allowed employers to schedule 10 hour shifts without exceeding the 48 regulatory hours per week. However, platform workers in Cali reported working an average of 60 hours worked per week, or more, including working on Sundays, and in the evenings. As independent workers, drivers can choose to work long hours even if this does not comply with national standards.

For example, one interviewee, a woman aged 24, stated:

"I work almost until 10 pm. I wake up at 8 am, get ready and start driving in the city. During the day I do take some breaks for lunch and a nap, but after that I get back to the car and keep driving till 10 pm, and I do this from Monday to Sunday."

Another interviewee, a 31 year old man reported that:

"In my main job, I work from 7:30 am to 5:00 pm, then I rest a little bit because the workday is really long, and then from 8:00 pm to 11:00-12:00 pm I start driving. And on weekends I rest on Saturdays and use Sundays for driving from the early morning 5:00 am to 7:00 pm with a lunch break".

Finally, with regards to **work security**, drivers need only comply with the minimum standards for car cir-

culation. Colombia has mandatory insurance for car accidents called the Seguro Obligatorio de Accidentes de Tránsito (SOAT). This is a requirement for driving in general, and not specific to platform work. It is included in the cost of a car, and is amortized over the life of the car by ride hailing workers.

Overall Evaluation of Empirical Evidence

This evaluation shows that Colombian regulations fall well short of the decent work standards for the digital economy proposed by Heeks. However, we can also see that, even in the absence of regulations, businesses already fulfill many of the standards suggested by Heeks, and workers are not necessarily demanding changes.

We also learn that the decent work standards proposed by Heeks offer guidance on minimum standards for workers, but in doing so, they treat all workers as if they are the same. In reality, there is considerable diversity among workers. Based on the empirical research gathered by this study, we can conclude that workers have three primary motivations for entering into ride-hailing:

Motivation 1: Increasing income. Drivers turn to ride hailing either as their primarily job or as a complement to their primary job. This is not exclusive to the transportation sector in Colombia. Many workers have secondary jobs such as catalog distribution, consultancies, or low risk unskilled work that does not require much personal investment (Ledesma

Cespedes, 2013). This suggests that protection of income levels or income gains should be central to future regulatory goals for the platform economy.

Motivation 2: Flexibility. This attribute is valued by people because it gives them the *feeling* of financial freedom and autonomy from managers. To achieve Heeks' standards for Stability and Security policy makers need to strike the right balance between flexibility and protections, and this needs to be done with proper recognition of the interests manifested by workers.

Motivation 3: Possibility of growth (Empowerment). Especially for younger workers, the platform economy is viewed as an opportunity to generate greater wealth by acquiring additional vehicles, and subcontracting them out. This happened in the past in Colombia with traditional yellow taxis. Regulations allowed drivers to buy several vehicles and even pay a third party to manage their micro business (Ibáñez Pérez, 2012 pg. 37-38 and 64). This suggests that policy makers should take into consideration the entrepreneurial aspirations of younger workers within the ride hailing sector.

In total, decent work standards should be designed such that they do not undermine entrepreneurship, while at the same time protecting against new forms of precarity for sub-contracted workers. In order to do this, policy makers need to take into consideration the emergent solutions being developed within local taxi ecologies. We explore this issue specifically on continuation.

Entrepreneurialism by Workers in the Ride Hailing Sector

During the realization of the field work for this project, an interesting finding emerged: Cali has two large groups of drivers that use WhatsApp as a communication tool to build their own "platforms" for ride hailing. One of the groups is constituted by up to 300 drivers and the other one by 50 drivers. Drivers use these platforms to supplement their work during off peak times for the big platform companies, and address some of the problems they face in these larger platforms.

What this innovation shows us is that workers in Cali are independently developing creative solutions to address both problems with ride-hailing platforms, as well as the lack of progress on decent work standards by policymakers and legislators of Colombia. The self-organized platforms developed by workers have emerged to improve specific aspects of labor conditions and secure economic welfare. Successful policy must keep these types of innovations in mind since they establish the context for effective decent work standards in the platform economy.

The WhatsApp groups have been created by enterprising taxi drivers who have become the managers of the groups. Workers pay a monthly fee to become part of a dispatch group. This group does not offer

anything beyond dispatches – it neither offers nor demands verification of driver data, there is no need for compliance with mechanical technical norms, there is no accident insurance, nor contributions to social security. What the group offers is the opportunity to make a direct cash transaction with a customer.

A second WhatsApp group is available to customers. The size of the customer group is increased through referrals as well as previous ratings in established platforms such as Uber. Passengers can post pickup requests to the passenger channel. This group also includes intermediaries such as security guards and doormen at apartments, hotels and clubs, who can post requests on the behalf of customers. Administrators pick up these requests and send them out to drivers through the dispatch channel.

The intermediaries (the security guards and doormen) are paid COP 1 000 (USD 0.35) for each ride contracted or COP 75 000 (USD 27) for every 50 services contracted. If the service is to the airport, the payment goes up to COP 5 000 (USD 1.77) per ride.

As these services have evolved, the larger of the two groups has adopted a more direct form of dispatch through the use of the Zello walkie-talkie app[4]. As a result, the group has come to be known as *Los Sellos*. Through this free application groups of up to 2,500 drivers can sustain communication with each other. To access the Zello service drivers must pay a onetime membership fee of COP 100 000 (USD 35) and a monthly membership fee of COP 40 000 (USD 15). Passengers still post their requests to the WhatsApp group, but dispatch becomes more fluid. And in the event that a driver cannot provide a service, the group members use the walkie-talkie system to locate a nearby driver.

Previously there was an "alliance" between security guards and the taxi companies. Each guard was assigned a dedicated radio to access the central taxi frequency. But with the emergence of *Los Sellos*, security guards have shifted their allegiance away from traditional taxi services and towards these more informal systems. The *Sellos* have clearly defined leaders (including the original creator

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[4] In addition to the networks that rely on technology, another way of worker's innovation was found, in which some drivers from Uber, Cabify and Way Cali distribute personal cards independently in condominiums and negotiate commissions with security guards of these residential complexes, who are the people to whom the inhabitants of the buildings resort to ask for transportation.

Also, carpooling is becoming a business model in its own, and another innovation by workers. Even if the current regulation prohibits "sharing expenses", (which is that whoever shares the vehicle in the carpooling scheme cannot be charged a price for the service) workers, despite the restriction, and with the pretext of the carpool regulation by the local government (Orobio, 2018), are using their children's University or School emails to provide the service. The model of governance is similar to the analyzed emergent phenomena, where a monthly fee is charged, and either the owner of the vehicle or a subcontracting to third party provides the service, provided by established and pre-arranged routing.

of the WhatsApp group), who manage the application and contact the door-men of the residential complexes to generate more operational spaces.

The cost of a ride is calculated using a free application called Blumeter. Blumeter is an application that allows users to manage rides made outside of the Uber platform. Pricing can be set using Uber as the basis, or customized by the driver.
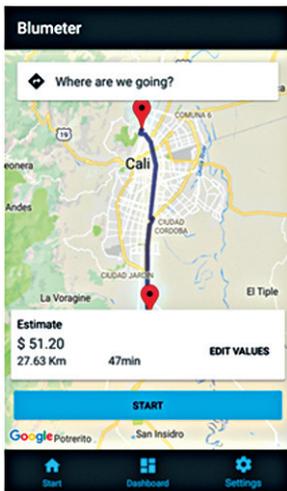

Figure 12: Blumeter App for Calculating the Value of Rides

As these transportation groups have grown, organizers have started to introduce sub-groups for specific zones of the city as well as the suburbs of Jamundí, Yumbo, Palmira and Rozo. They have also introduced an inter-city service between Cali and Popayán, which is 140 kms away or the Port of Buenaventura, which is 120KM away. The call for service is received on the main network, and the administrator then forwards it to the administrator of the area or route network, who assigns the fare to a driver. The intercity routes are also used for packages.

One of the main reasons these emergent WhatsApp networks are successful, is that Uber, Cabify and WayCali face significant challenges with collection of payments in developing countries. There are two main challenges in Cali. First, the cost of using a credit card is very high in Colombia, which means that customers are unlikely to use their credit card for small transactions, such as a $1 taxi ride. They would much rather pay in cash. Second, in order to accommodate this, the big platform companies have devised cash payment schemes. Each time a driver takes a case payment, they incur a debt to the platform for the cost of the commission. The next time that a passenger uses a credit card to pay, this debt is paid down.

But this creates an incentive for drivers to avoid customers who use credit cards, as well as an incentive to leave the platform if their commission debt becomes too large. Since there is no shared information system between platforms, and no credit history for drivers, drivers can do this with impunity. In addition to this, drivers can avoid the commissions charged by big platform companies all together if they connect more directly with customers. Altogether, there is a massive incentive for more localized platforms in cities like Cali, and they produce a win-win situation for drivers and customers,

who get the same level of service, but at a lower cost to customers and a higher salary for workers.

In these networks, the passengers, drivers and owners of vehicles know that they are immersed in a scheme that offers few guarantees or protections. For example, there is no support for accidents whatsoever. This risk is apparently already calculated by the workers, who report that it is a risk worth taking. They gain higher income this way, and also avoid some of the pitfalls of working with platform companies, such as problems with rate settlement and poor complaint mechanisms between drivers and platforms. Drivers see these schemes as a means to achieve personal gain, and to grow a mico-business by acquiring more vehicles.

As a result, emergent driver-run platforms operate on an even more informal and flexibilized basis than the larger, more established platforms like Uber or Cabify. However, through these schemes, workers are finding creative ways to improve their working conditions in the platform economy. For example, drivers, especially female drivers, enjoy the security of knowing that passengers have been vetted by trusted community members such as security guards posted at known buildings. And also, local collaborations can help drivers connect with fares during 'dead hours' when markets are saturated, thereby improving their income. In addition, these local systems allow drivers to enhance their service offering through delivery of packages, or carpooling, which is en-

dorsed by the Cali municipal government (Orobio, 2018). This may have the added benefit of reducing congestion on the roods. And of course, these systems reduce the commissions that are paid to foreign firms or local platform companies, which is one of the surest way of putting money in the pockets of low-income earners.

All of this has to be evaluated in the context of emergent business models that have significant implications for workers' rights and protections. Policy makers need to consider how to balance these innovations with the previously discussed standards of decent work. In order to avoid a new process of precarization, policy proposals need to take into consideration not only the situation of workers in "regular" platforms such as Uber and Cabify, but also the entrepreneurial spirit of workers in the emergent WhatsApp and "Sellos" networks.

Exploring and Explaining the Gap between Standards and Reality: Challenges and Opportunities for Closing this Gap

Having evaluated the work standards proposed by Richard Heeks and analyzed innovations by platform workers in Cali, this section will seek to resolve gaps between the proposed decent work standards for the digital economy, and the reality for workers on the ground in this sector.

In the Colombian context, existing labor regulations, which were designed

for a radically different labor model, do not guarantee decent conditions for platform workers. From the point of view of current regulations, the majority of platform workers in Colombia would be considered autonomous workers. Colombian legislation for autonomous workers is clearly insufficient to ensure adequate levels of income for ride-hailing workers, or for that matter, any platform economy worker.

In addition, the Colombian Social Security system is also inadequate for protecting platform workers. This is because the system is based on salaried work and long-term insurance. This suggests that Colombia requires more flexible forms of social security that offer the possibility of transferring benefits.

The above means that it is necessary to consider a new statute of *autonomous and decent digital work*, which lays out clear obligations for the companies involved, and offers new ways to extend the benefits currently enjoyed by those who have salaried work to workers in more flexible jobs. However, overregulation that reduces or destroys the incentives that produce innovations in cities like Cali should be avoided. In total, **new regulation should seek to achieve a minimum from which no one can be lowered, but not a maximum which no one can reach.**

Heeks' standards for decent work in the platform economy offer a useful starting point, but in consideration of the material presented here, they need to be revised and adapted for the Colombian context.

One of the first steps to achieve a harmonization between the proposed standards and the reality of drivers in Colombia is the generation of a special regulatory and policy framework for micro-entrepreneurs and/or autonomous workers, which details a minimum specific labor regulation for workers on digital platforms. This would have the added benefit of overcoming the illegality/legality limbo that transport platform currency occupies in Colombia.

Some suggestions for this new regulation include the following:

• Platform companies should finance training for workers. This could be offered through a combination of online 'onboarding' sessions offered by the companies themselves, and an independently run training program financed by companies by catering to the specific needs of workers.

• Platform companies should provide accident and liability insurance for all their workers.

• Protections should be established for workers who value the flexibility offered by platform companies in their search for additional work.

• Protections should be established for workers who value the flexibility offered by platform companies and are not interested in entering into collective agreements with the employers.

• The concept of "precariousness" and "informality" in Colombia should be revised to 1) recognize as formal those who have temporary or partial contracts and invoice a minimum amount per month, and 2) grant space to workers who voluntarily choose to categorize themselves as entrepreneurs.

• Regulations should create the conditions for easy transfer of pension and social benefits from other forms of work to platform "gig-economy" work and vice-versa.

• Valuable data from established platforms should be made easy to access by workers, policymakers and urban planners.

These suggestions have been added to Heeks summary of decent work standards for the gig economy in Figure 13.

	Code Components / Standards for Ride-Hailing in Cali, Colombia
Employment Context	
Social Security	Provision of Liability Insurance
	Portable Benefits
	Shared contributions from workers, platforms and clients including taxation
Social Dialogue, Employers' and Workers Representation	Enable (collective) communication between workers
	Legal changes to allow collective negotiation (Include an article for opting-out as an individual contractor)
	Right to organize collective and individual agreements with a supervising party
Economic and Social Context for Decent Work	Adaptation of the national laws for autonomous workers to include digital "decent" work standards
	Guaranteed acesss for policy makers to anonymised transactional data and quantity of workers affiliated to collective or individual agreements
Employment	
Employment Opportunities	Opportunity to access digital gig-economy work
	Mandatory provision of training opportunities (Work exceeds or equal to Minimum wage)
	Worker-accesible, portable work history and reputation profiles
Stability and Security of Work	Combination of Stability and Flexibility (include article for individual opting-out or opting-in from and to a Stable vs. Flexible framework
	Clarification/ recategorisation / development of new / flexibility to choose employment status
Equal Opportunity and Treatment in Employment	Non-discrimination policy
	Data protection and privacy for both users and workers
Dignity and Respect at Work	Respectful and prompt communication between clients, platform and
	Clear rules for work rejection and re-work, worker deactivation, worker ratings and workers "levelling up"
	Human review of workers complaints
	Creation of a Neutral third-party dispute resolution mechanism
Work Conditions	
Adequate Earnings and Productive Work	Clear information and communication about tasks
	Clear information about payment including schedule, conditions and non-payment according to work developed
	General-terms details about client/user identity
	Rating system for both clients and workers
Safe Work Environment	Provision of Accident Insurance (Mandatory National Insurance for Traffic Accidents) and support in case of event

Figure 13: Modified Decent Digital Work Standards for the Digital Gig Economy. *Source: Adapted from Heeks, 2017.*

In updating this table, three of Heeks' suggestions were removed, because, based on analysis of local activities in Cali, they would undermine the emergent activities of drivers in that city.

Regarding the provision of pension contributions and other benefits of Social Security such as leaves of absence, it is preferable to allow wor-kers to transfer these benefits from either other sources of income such as a second job, or independent contribution as autonomous workers to the Contributive system (Today a 12.5 % of the base salary for contribution). Or if they are part of the Subsidized regime, to allow a transfer of the social programs included in the Identification and Classification System for Potential Beneficiaries or SISBEN in Spanish[5].

To demand a provision of these kind of benefits to autonomous workers will not only disincentivize platforms such as Uber and Cabify, but also will be a high burden to emergent organizations as the described in the previous section.

Regarding the right to collectively negotiate agreements, as important as this provision is, it is also important to allow workers to negotiate independently. This is especially important in cases where workers value the flexibility offered by platform companies, or wish to develop networks of drivers who leverage platforms for entrepreneurial activities. To be clear, the idea here would be to ensure the right to negotiate collective agreements, but also offer individual workers the option of working outside of them.

The same case with the provision of a minimum wage equivalent, and the restriction in work hours as established by ILO Standards. The Cali case study showed that many workers chose to work longer hours, or to pursue a flexible and variable rate of daily, weekly or monthly earnings, because they view themselves as entrepreneurs, or used platforms as a way to gain some extra income. Imposing minimum wage or hour restriction policies to platform workers would prove inconsistent not just with the current context in Cali, but also the will of the workers themselves.

A better negotiation of wage terms, work time and other provisions, can be achieved both collectively or individually between the worker and the platforms or emerging networks.

The remaining components for Decent Work in the Platform Economy are perfectly compatible with the context studied and are included in the framework for the proposition of a statute regarding *autonomous and decent digital work*. The study developed for this document and the evaluation of the local context against Heeks' decent work standards can be applied to other cities of Colombia, Latin America and the Global South, both to learn from local knowledge and experience, but also to reach more applicable and comprehensive

[5] See: Congress of Colombia, Law 100 of 1993. By which the integral social security system of Colombia is created and other provisions are dictated.

policies regarding the issue of work in this disruptive and growing economic model.

Conclusions

In conclusion, Heeks points out that for workers in the so called "global south", platforms are quite beneficial, and policy makers face the challenge of understanding not just the local labor conditions but also the larger structural dimensions of the emerging platform economy.

Building from Heeks' theory, and in contrast with the actual reality of the context in Cali, Colombia (extensible to the Global South in general), it can be argued that in developed countries, the main problem regarding workers in the platform economy is the need to protect these providers against erosion of acquired labor protections and rights. In developing nations, the platform economy frees up space for people to be more entrepreneurial and empowers them in their individual liberties, but this emergence of new economic relations in labor can also leave the most marginalized workers in a precarious position if correct policies are not implemented.

However, in emerging and developing countries, attention should be fixed on the need to empower workers to be entrepreneurs and/or innovators and therefore to produce the conditions for their own welfare, while also protecting them from the extremes of economic abuses. This must be complemented with schemes that identify pockets of workers who are on the extreme outside of these systems, and offer protections to support them.

More broadly, this study corroborates the idea that, in the realm of work security, strict definitions of informality are no longer useful. In the current context, the idea of informality and the call for formalized work may actually make the labour pool worse off by justifying concentrations of control, transforming formal work into a club that only some workers can access, and excluding other workers from being entrepreneurs in the marketplace. One of the potential benefits of the platform economy is that it undermines the efforts of special interest groups to control and exploit sectors of the economy. In protecting workers, regulators should attempt to protect this potential for greater decentralization of economic control.

Therefore, it is proposed that policies in these contexts need to balance basic protections with enabling conditions and liberties in economic and labor relations. This means that policy should seek to achieve a minimum from which no one can be lowered, but not a maximum that no one can reach.

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We hope that this work can be used in the elaboration of Public Policies that can help achieve and promote decent work standards for the gig-economy workers in the Global South.

APPENDIX 1: RESEARCH METHODOLOGY

The research technique employed in this study is qualitative. It included a survey of 200 subjects, with semi-structured interviews and descriptive model, with an expected confidence level of 95%, an accepted error margin of 3.87%, and an expected variability of 5%. In addition, the study conducted 5 in-depth interviews.

To obtain further information and evaluate the conditions of ride-hailing workers, the studied engaged in 50 instances of participant observation which involved rides and informal conversations with taxi drivers. Finally, they study gathered secondary information to gain insights into factors shaping the activities of workers in the ride hailing sector. This included analysis of the legal aspect, and conflict situations with other transportation service providers both in the platforms and outside them (conventional yellow taxis, special transport (Ministry of Transportation of Colombia, Decree 431/2017) and others).

The research site was the city of Cali and the municipalities which conform its metropolitan area, including the city of Yumbo and the suburbs of Pance and Jamundí.

The survey focused on uncovering the following information about workers' conditions:
• Employment conditions
• Educational Level
• Direct or Indirect Tax Payments
• Subscription to a Prevision (Retirement) scheme, Public or Private
• Subscription to the formal Banking System

It gathered the following information:

Demographics:

Age Range
Gender
Level of education reached

Current studies
Civil Status
Dependents

Work:

1. In addition to driving on this platform, do you have another job?
2. How long have you been working in this type of transport?
3. How many platforms do you drive for?
4. Before working for the platforms, what did you do?
5. Is the vehicle yours?
6. Do you earn enough money on the platform(s), to make it worthwhile continuing in this line of work in future?

Formality / Informality:

7. Do you contribute to the pension / social security system thanks to working on these platforms? Do you contribute any of your earnings on this platform to your pension?
8. Are you a user of the formal financial system? (banking services):
9. Do you have RUT (Unique Tax Registration?) Does it contribute some of your profits from this platform towards the simplified regime?

Extended Interviews

10. If this car is yours, are you still paying for it? Do you rent it from someone?
11. Is your car insured, or do you prefer not to pay those charges?
12. Do you have a public or special driver license? Did you work as a special (taxi driver) before? Do you work as one now?
13. Do you work for yourself, or do you work for the owner of the car if it is not yours?
14. If you work for the owner, do you have access to information about the transactions you carried out?
15. What was the agreement that arrived? With how much of the payment does the owner remain after the percentage that the platform extracts? Remember that this survey is anonymous.
Among other elements that could emerge during the extended conversation.

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Sharing economy platforms as enablers of urban transport in the global south: Case of digital taxi aggregators in New Delhi, India

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By a mixed method study, the present paper examines the sharing economy in the Global South, in the light of urban transport digital platforms in New Delhi, India. The existing public transport system seems to be of inadequate quantity and quality. Apart from personal vehicles, public buses and metro trains are preferred by many due to affordability and traffic congestion. The study observes that digital platforms are offering viable alternative transport systems than exacerbating the challenges in the city. The platform taxis in New Delhi are licensed commercial taxis regulated and are not unutilized private cars that ply for a fee. Incumbent private taxis supply overpriced but poor services. The number of auto rickshaws are stagnant due to restrictive policies. The taxi unions are fragmented and lack visibility. The policy approach of the government is evolving from benign negligence to active support. The study offers policy suggestions for the continuation of platform taxis as commercial taxis but easing up commercial licence acquisition, encourage platforms to increase quantity in poor pro segment, enable market pricing, and sustain passenger safety measures. The data for the study were secondary data (policy instruments, trade press report, newspaper articles, press statements and blogs), quantitative survey of 400 users and non-users, and in-depth personal interviews with the relevant actors.

1. Sharing Economy Dynamics

By a mixed method study, the present paper examines the sharing economy in the Global South, in the light of urban transport digital platforms in New Delhi, India. Sharing economy can be defined as "consumers gran-ting each other tempo-rary access to under-utilised physical assets ("idle capacity"), possibly for money" (Frenken & Schor, 2017, p.2-3). It has three characteristics – "consumer-to-consumer interaction (c2c), temporary access and physical goods" and is enabled by the Internet to share among the strangers "to a larger social scale" (ibid, p.4).

In a resources constrained environment, sharing is common among the working class, poor and coloured communities. However, the present phenomenon of sharing economy appears to be transcending all the boundaries. It has facilitated the inexpensive access to goods and services without ownership (Frenken & Schor, 2017, p.4).

The best-known examples for sharing economy are Uber, Airbnb and Lyft. In these businesses, a private property owner decides to use the unutilized idle time of assets for either renting it out or using it to provide services for a fee. The digital platforms establish the connection between the users and the owners. Since they are aggregating all the asset owners in a single electronic platform, they are also called as aggregators. In exchange of services between the owners and users, the platforms charge a small fee. The physical goods, like cars and houses, are transformed into information goods and made available through the platforms (Sundararajan, 2016) for users to see and access them. As the platforms have better access to data related to owners, usage, location and time, they can suggest be-tter prices. Surge pricing, also called as congestion pricing in conventional economic terms, in Uber is a great example for making use of data on traffic conditions, vehicle availability and user demand. The digital platforms also ensure an environment, where stakeholders' trust is built for smooth execution of demand and supply of services between the strangers (Kathan, Matzler, & Veider, 2016, p.664).

The platforms are growing at a faster rate, and their business models appear to be replicable across the countries. For instance, Uber is present in over 60 countries and more than 400 cities. The technology-centric sharing economy is expected to outgrow the traditional industrial dynamics and related regulatory environments (Sundararajan, 2016; Kathan, Matzler, & Veider, 2016). The digitalisation is altering the way market and government interact in many ways. The shared mobility is rapidly adopted by the urban consumers, younger population predominantly, which is looking for convenience in their travel (Rayle, Dai, Chan, Cervero, & Shaheen, 2016). For instance, Didi enables 7 million rides per day in China (Hahn & Metcalfe, 2017). The change in the preferences for transportation means opening up new avenues to be covered by the existing regulations. The old regulations may need to be revised to accommodate the digital platforms along with the traditional actors. For instance, digital platforms like Uber or Ola in India co-habitat with the local taxis and public buses in the urban transportation space. If the existing laws are inadequate, digital platforms may face some challenges (Cramer & Krueger, 2016).

The sharing economy has the potential to increase the environmental sustainability by lower the resource usage by the people. For instance, use of app-based taxis rather than individual cars (Kathan et al., 2016) can reduce the private car ownership. The sharing economy offers various choices to the users and subsequen-

tly reduces the resource utilisation of assets for individual consumptions (Kathan et al., 2016). However, this might influence the other businesses indirectly (Frenken & Schor, 2017, p.5). One concern of the sha-ring economy is about the reduction in the owner-ship, which might reduce the pro-duction, which in turn might reduce the employment opportunities. The sharing could also bring other dis-criminations like the marginalization of poor people by reduction of pu-blic transport systems due to rise in sharing economy transport. Another concern is about the unequal distri-bution of the income generated out the sharing of goods and services, as the platforms could accumulate a big share out of the income, despite the owners having access to the resources (Frenken & Schor, 2017).

The urban transport sector in the global south is facing many cha-llenges - the mismatch between demand and supply, pressure on land, pollution and congestion, and government policy issues (Pucher, Korattyswaropam, Mittal, & Ittyerah, 2005). The governments are attemp-ting to deal with them and also fo-cusing on the sustainability of the transportation sectors with new technologies and regulations (Gold-man & Gorham, 2006). The urban mobility is one area where the digital platforms are innovating and chan-ging the way transportation services are delivered. However, it also results in the proliferation of motorised ve-hicles crowding the already conges-ted urban spaces (Mendez, Monje, & White, 2017).

The digital platforms functioning in the urban transportation domain are evolving themselves and forcing the government to react due to many consequences like passenger safety and drivers as labour. The platforms result both in benefits (e.g. diversifi-cation of mode of transport, efficiency, resource utilisation, inclusion) and negative externalities (e.g. conges-tion, pollution, employees and cus-tomers concerns, exclusion). This raises many questions especially in developing countries on rising con-flicts between the traditional and new players, digital firms and customers, old regulations and need for new laws. Hence, there are concerns about dea-ling with the new changes, whether to follow the free market or protectionist policies for maximum benefits or to reduce the negative externalities.

The sharing economy is also in-fluencing the social, economic and policy spheres (Mendez et al., 2017). There is a need for deliberations in the policy space as the transport to the public has been prerogative of the governments regarding ownership of roads or rails and who can use the same. As the conditions are different between the global north and south countries–cars, broadband penetra-tion, digital literacy, privacy con-cerns and urban intensity, a study of dynamics between the government, sharing economy platforms, users and incumbent actors is required.

In the light of the above, the following research question is examined in the context of New Delhi, India: what is the nature of the interplay between sha-ring economy firms in urban transport

domain and various stakeholders in the existing transport system?

The above question is answered by understanding responses of the urban customers and the incumbent players – taxi unions, owners and drivers in New Delhi, India. An attempt is also made to capture the policy response to this urban mobility transition.

2. Methodology

The study was undertaken in New Delhi, the national capital of India. New Delhi has compelling reasons for a field site - presence of almost all platforms and aggregators operating; presence of number of private taxi unions; presence of important policymakers and their ministries; and wide range of transport systems –metro rails, public transport buses, private buses, truck companies, auto rickshaws and informal three-wheelers.

New Delhi has 18.9 million people living in 1483 Sq.km (11320 persons / sq.km) and mostly urban, with 97.50 %. The per capita income is relatively high when compared to other Indian cities, INR. 300793 (~USD 4670). It has a literacy rate of 86.2% (Government -NCT-Delhi, 2018). The network of telecommunications is established very well in Delhi, for instance, the teledensity in Delhi is highest with 262.14% with a total of 50.5 million wireless subscribers. The internet penetration in India is around 360.3 million out of which 340.45 million users are mobile device internet users, and in 2014 the number of internet users in Delhi was 10.6 million[1] (TRAI, 2018). New Delhi is the migrant capital of the country and is also one of the most polluted cities in the world.

The study had followed a mixed method (Creswell & Creswell, 2017) for data collection. It started with a secondary search of already published content related to digital platforms. The data sources were newspaper articles, magazines, online news aggregators, annual reports, statistical summaries, policy instruments, press releases from government, taxi unions and aggregators. The keywords like Uber, Ola, Ola Cabs, Uber India and Delhi taxi were used while searching for the relevant content.

In-depth qualitative interviews were conducted with the relevant people. The interview schedule was different for different sets of respondents. The break-up of the 61 qualitative interviews is as follows: 17 taxi drivers with the digital platforms (e.g. Ola, Uber etc.); 8 taxi drivers operating independently; 5 auto-rickshaw drivers ope-rating independently; 1 cab services owner; 10 users and 10 non - users of digital platforms (e.g. Ola, Uber etc.); 4 taxi / auto-rickshaw union representatives; 4 digital platforms (e.g. Ola, Uber etc.) representatives and 2 government representatives.

A quantitative survey of users and non – users of digital platforms was conducted. Two hundred from each group, totalling 400 respondents were interviewed using a structured questionnaire. The interviews were

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[1]   https://indiastat.com/table/telecommunication/28/internet/143/863671/data.aspx

conducted in person in New Delhi. The questionnaire contained themes related to present mode of transportation, the frequency of and nature of usage of app-based cab services, reasons of usage, and major concerns. The questions to non-users were related to the present mode of transportation, reasons behind the choice of transportation, and challenges in travel. Demographic details of respondents of both users and non – users such as place of residence, gender, education, occupation, and income were used. Data were collected using judgemental sampling (Babbie, 2015). Attempts were made to include diverse sets of respondents including gender, income and occupation.

3. Findings

The overall climate in the transport domain seems to be supportive to the platforms. The license regimes, nature of services offered by the incumbent players – quality, quantity and pricing, and quantity of public transport available to the users have encouraged the platforms to grow in New Delhi. From the platform perspective, the policy regime environment is moving from benign negligence in the past to active supporter in the future.

Traditionally, taxi market is regulated on three major areas of control (Cooper, Mundy, & Nelson, 2010) quality (vehicle age, functional condition, fuel used, owners and who can drive); quantity (number of taxis within a location, matching supply to

the demand, and political reasons); and economic (calculation of fee and fixing it to benefit both users and the service providers). The control of these three domains is with the government. With the introduction of digital platforms, these controls are being negotiated with the introduction of more private taxis in the market, peer review of quality of ride including cars and dynamic pricing by real-time data analysis. As the incumbent players are being either replaced or forced to give up the status quo, there is resistance and pressure for restrictive regulations.

The sharing economy platforms in the transportation domain, especially Uber, faced ban in few places in the world[2]. A Harvard Business School professor pleaded for shutting of digital platforms, especially Uber, as they are 'spontaneously' violating all regulations (Edelman, 2017). There are moderate views on regulation (for instance, Harding, Kandlikar & Gulati, 2016) limiting to reducing the likelihood of monopoly and collusion in a taxi market led by apps. The moderate view argues that the digital platforms are solving the credence problem in the taxi market –a customer knows the quality and cost of the ride before, and the thin market– signalling surge pricing to potential taxi drivers to enter the market, resulting in better demand-supply dynamics (Harding, Kandlikar & Gulati, 2016).

Apart from the global digital platform, Uber, there are many home

[2] https://qz.com/1084981/map-all-the-places-where-uber-is-partially-or-fully-banned/

grew ones in the transportation space in India: Ola[3], Jugnoo[4], Orahi[5], Pickup[6], Sewa[7], Cabby Cabs[8], Meru[9], and MegaCabs[10]. Most of them focus on urban locations and operate in New Delhi. Ola is the market leading digital platform in India. It entered India in 2010 and largely imitated Uber in all aspects – technology, operations and revenue model. Three years later, Uber had started its India operations. As of 2016, there were 550.000 drivers in Ola and 350.000 drivers in Uber India[11]. The New Delhi market is dominated by two major platforms, Uber & Ola. In India, they comprise 95% of the market share and likely to be same in New Delhi as well. A multinational consultancy report[12] exaggeratedly said that there are '1.500 drivers on boarded everyday' by a local aggregator.

The findings from the data are presented in five parts. The first part will present the existing licence regime for taxis in New Delhi and the location of platform taxis within it. The second section describes the quality and quantity of incumbent transport systems. The third part will share how and why platforms are used or not used. The fourth part will detail the responses of the incumbent players - auto rickshaws, traditional taxis, unions and drivers to the platforms. The last part shall trace the policy responses of the government.

3.1 Permit regime and legality of platform taxis in New Delhi

The level and nature of control exerted over the transport sector is not centralized and likely to differ from state to state in India. Vehicle registration in one state may be liable for further taxes in other states. The driving licenses issues by state governments is valid for all states. In New Delhi, a commercial license issued by the Delhi transport department is required for any vehicle to charge a fee from passengers or users. All commercial vehicles should have a license plate with the yellow background colour and black texts. The personal vehicles should have a white background and black texts. A commercial taxi or vehicle can be driven only by a person who has a commercial driving license. It is illegal for a person who has only a private driving license to drive taxis and co-llect money for the services.

[3] https://www.olacabs.com/

[4] https://www.jugnoo.in/

[5] https://www.orahi.com/

[6] https://economictimes.indiatimes.com/small-biz/startups/how-p2p-ride-sharing-app-pikup-wants-to-provide-a-safe-carpooling-experience/articleshow/52219100.cms

[7] http://sewa.cab/

[8] https://indianceo.in/startup/cabby-cabs-cheapest-cab-services/

[9] https://www.meru.in/

[10] https://www.megacabs.com/?skip=mob

[11] *h*ttps://www.livemint.com/Companies/okLbTyf5OtqKnO1r0YBAeP/Uber-vs-Ola-the-battle-for-dominance-in-Indias-cab-market.html

[12] https://www.ey.com/Publication/vwLUAssets/ey-the-rise-of-the-sharing-economy/$FILE/ey-the-rise-of-the-sharing-economy.pdf

In New Delhi, there are four categories of taxis or cabs[13]. The first category is local taxis which are owned by individuals. They are allowed to ply within city limits of Delhi, the life of permit is lifetime and are allowed to collect INR 14 per KM. Taxis under City Taxi Scheme 2015 are three categories: mini, economy and premium. Under this scheme, one should have a minimum of 200 taxis over a period of two years either owned or aggregated. The maximum permitted limit is 2500 cabs. They should have a 1000 sq.ft parking space. They are allowed to run in the National Capital Region, an area that includes Delhi, Noida and Gurgaon. Their permit is valid for only five years and needs to be renewed. The rates range from INR 10 / KM to INR 23 / KM. The third ca-tegory is tourist taxis. They are given all India permit and not allowed to conduct business within the city limits. In other words, they should not pick passengers and drop them within the city limits, like the City Taxis Scheme. The permit is valid for the lifetime. The fourth ca-tegory is rental cabs. The permit is valid for five years. In this category, a customer rents the car for a fee and drives herself. Compressed natural gas (CNG), identification badge for drivers, and fare meter are mandatory for all categories, except tourist taxi and rental cabs.

The digital platform taxis are given the opportunity to be covered under the City Taxi Schemes. All the related regulations apply to them. In other words, to drive Uber, one should have a commercial driving license and a car that has a yellow colour licence plate or car that has a commercial licence to service as a taxi. This is unlike in the west where people drive personal cars for a fee competing with the professional licensed drivers.

However, the platforms are not registered under any of the taxi categories. The platforms had attempted to register under the City taxi Scheme, but their applications were rejected for lack of parking space and absence of contact details of call centres in the application form[14]. Given this, are platform taxis considered illegal in New Delhi?

The illegality of the platform taxis comes under at least two areas: geographic restrictions & pricing. The taxis are not licensed to run in the city, but they do. The prices during peak hours are higher than the rates fixed by the government.

It is said that more than 80% of the taxis running with the platforms do it illegally since, they only have tourist licenses and do not have local taxi licenses[15]. However, this violation is not uncommon in India where similar violations are routinely done by the incumbent taxis as well, as explained below.

[13] https://www.slideshare.net/valoriserconsultants/taxi-permit-structure-in-delhi

[14] https://www.huffingtonpost.in/2015/01/29/uber-ola-licence-delhi_n_656778o.html

[15] http://timesofindia.indiatimes.com/articleshow/54159924.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

The violation related to prices were acted upon by the government[16]. As per the existing rules, taxis can charge up to 25% more than regular prices during 23:00 – 05:00 hrs. The platforms have been sticking to the permitted surge pricing.

3.2 Quality and quantity of the incumbent transport systems

The existing transport systems in New Delhi are not passenger friendly. Overall the perception about the system is not pleasant. At present, the platform taxis are offering satisfactory alternatives for those who can afford.

In New Delhi, there are no hail taxis. One would not get a taxi on the road by waving hands. One needs to find a nearby taxi stand where few of the local taxis are stationed. The local taxis are dominated by Ambassador cars; state produced ones from 1991 pre-liberalization era with a black body and yellow top. Later Echo, a van manufactured by Maruti Suzuki was added. Together they are also called as kaali people (Black and Yellows) taxis. A recent calculation says that there are about 6.600 – 10.000 such taxis in Delhi[17]. No new licenses are given since 1998. The cars in the rest of the categories are relatively new and maintained well when compared to the Ambassador cars and Echo vans.

The local taxis do not run on meters, usually. There are fixed slabs used by them. For instance, depending upon the location of the stands or taxi offices, pick or drop to an airport can range from INR 500 to INR 2000[18]. The distance between the office location and destination is calculated two ways and charged from the passenger. For instance, if the passenger takes a taxi to the airport, 10 KM away, it shall be charged for 20 KM. These charges are applicable only for popular fixed locations like airport and railway stations. For other places, there are two slabs: four hours and eight hours. The first slab will cost INR 800 – 2400 for 4 hours and 40 KM, depending on the size of the vehicle. The second slab doubles of the first one. Additional KM or time will cost extra money. For single rides, like getting dropped in a venue which is 12 KM will fall under the first slab. This practice makes the taxi rides expensive for the users. The user experiences regarding non-rude drivers, cleanness of cars and transparency in pricing are not satisfactory.

There are private cars, with white number plates, run illegally with no commercial taxi and driving licenses by local entrepreneurs. They cater to the neighbourhood needs and run exclusively on an informal basis. They deal with only cash, and no formal receipts are given. The rates charged by them are not different from the local taxis mentioned above.

Auto rickshaws are next commercial transport vehicles available for the short distances. The auto rickshaws, also known as tuk-tuks in other

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[16]https://thewire.in/law/no-more-surge-pricing-delhi-hc-clamps-down-on-uber-and-ola

[17]https://www.hindustantimes.com/delhi-news/delhi-s-once-omnipresent-kaali-peeli-taxis-struggle-to-stay-afloat/story-1KuY6nOF6EoshUkBX7SauK.html

[18] 1 USD = 68.52 INR (August 2018)

Asian countries, are three wheelers with a capacity of three seats, run on CNG and attached with a meter. The charges are lower than taxis, INR 8 / KM. Auto rickshaws are criticized for overcharging, considered to be unsafe to travel on India roads and to contribute to air pollution and traffic congestion (Harding et al., 2016). There is a need for approval in the form of licence to drive auto rickshaw in New Delhi.

Vehicle population data from the Delhi Economic Survey (2017) indicate that taxies have increased by 29.9% from 91.073 in 2015 - 2016 to 118.308 in 2016 - 2017. For the same period, the number of auto rickshaws was reduced by 46.8%, from 198.137 in 2016 - 2016 to 105.399 in 2016 - 2017. The reduction in auto rickshaws is due to the limited issue of licenses and non-renewal of old ones. This has created an artificial scarcity for auto rickshaws, both for potential owners, drivers and users.

Delhi Metro Rail Corporation (DMRC) operates over 3.000 trips daily covering parts of New Delhi city and satellites. In 2016 - 2017, it had an average daily ridership of 2.76 million passengers[19]. The rail system is world class and stays relatively cleaner than any other public transport system in the city. A study of 1.112 Delhi metro riders (Goel & Tiwari, 2016) showed that 55% of use non-motorized roads to access the metro stations. In the absence of a metro, the majority of them would have used the bus, and only 18% would not make any trips.

It appears that affordable travel options for the general public are decreasing. Despite Delhi being migrant capital for neighbouring poor states, daily average number of passengers ferried by the Delhi transport corporation has decreased, from 3.6 million in 2015 - 2016 to 3.16 in 2016 - 2017. The total number of buses in the fleet has also decreased from 4352 to 4027 in the same period.

In summary, by existing secondary documents and data, it can be concluded that existing license regimes and transport systems provide a conducive environment for growth and operations of the platforms. The platforms are not fundamentally violating the regulations in New Delhi.

3.3 Private vehicles, public transport & traffic congestion

A survey using a questionnaire was conducted with 200 users and 200 non-users of the platforms. The survey provided insights on reasons for usage of platforms and non-usage vis-à-vis the public transport. Further insights were generated using qualitative interviews.

The users and non-users of the study were comparable with roughly half of them are males (Table 1). Almost two third of them had an undergraduation degree. There are some differences in occupation: 84% of the users have full-time job compared to 93% of non-users and 14.50 % of users have their own businesses compared to 7% of non-users. Roughly half

[19] http://www.delhimetrorail.com/press_reldetails.aspx?id=ZlXC4jMrU0olld

of them have INR 20.000 – 30.000 as monthly family income. Among non-users, one-tenth of it has INR 10.000-20.000 as monthly income.

Personal vehicle usage is still high among Indians (Table 2). 66% of the users and 77% of the non-users have personal vehicle and half of them use it a minimum of five days a week. When compared, non-users are using their own vehicle more frequently than users on a daily basis. The less use of personal vehicle enables the individuals to opt for other mode of transportation as data shows that most of them are also using public transport. The topmost challenge in travelling to work is slow traffic followed by over-crowded public transportation. Earlier, secondary data also indicated the inadequacy of the public transportation. Traffic congestion is a new reason emerging from the survey.

Public transport (metro trains and public buses) is still the most preferred among those who do not have personal vehicles. Auto rickshaw is the next preferred transport. Affordability, safety and weather conditions are major reasons for the usage. The incumbent taxis are not part of the transport plans for any of the respondents. The public is likely to experience discomfort, if there is further decrease in quanitity of public transport.

Table 1. Demographic details of users and non-users

Demographic details		Users (n=200, in %)	Non–Users (n=200, in %)
Gender	Male	51.50	51.50
	Female	48.50	48.50
Marital status	Married	58.50	73.50
	Single	41.50	26.50
Occupation	Full-time job	84	93
	Own Business	14.50	7
	Part-time job	1.50	0
Educational Qualification	School 10 years & below	1.50	11
	School 11-12 years	11	4
	Undergraduate	71.50	64
	Post graduate	16	21
Family Monthly Income (INR)	Below 10000	0	1
	10001-20000	0	10.50
	20001-30000	47	46
	30001-40000	13	13
	40001-50000	23	6
	50001-60000	7	6
	Above 60001	11	17.50

Platform users: Public transport first, moderate usage, but perceived better quality

Among the users (Table 3), the platform taxis are used very frequently only by 5%, and overall usage is mostly for intracity travel for shopping, health centres and recreations. Using platform taxis for everyday office commute is not present. Ola and Uber are the most used platforms. Users did not pay through credit and debit cards. App-based and cash payments are prevalent.

The important finding from the nature of usage of platform taxis is about continuing the utilisation of surge pricing. More than half of the users continue to use the surge pricing taxis if needed.

While responding to the preference for taxis (Table 4), most of the users choose the basic taxi services, which are more affordable. In Ola, the first preference is shared taxis (17.5%) followed by 42.5% micro, 30.5% minicab service, and hardly 2% of the users selected the prime category. A similar trend is seen for Uber as well. Most of the respondents are sticking to the basic version of the cab services with minimum fare and then move to the next version of available cab service.

Table 2. Transportation choices of users and non-users

		Users (%)	Non-users (%)
Own Personal Vehicle		66	77
Frequency of personal vehicle usage	Everyday 5-6 times in a week	24 41	34 15
Perceived travel challenges towards workplace	Top most Second top most	63 Slow traffic 19 Overcrowded Public transport	66 Slow traffic 24 Overcrowded Public transport
Transportation choice	First most frequently used Second most frequently used	64.5 Metro 46.6 Auto(non-app based taxis)	44 Government Buses 29.5 Auto rickshaw (non-app based)
Reasons to use public transport	Rank 1 Rank 2 Rank 3	41 Affordable 22 Safety 25 Weather conditions (use on rainy days, during higher temperature days etc.)	31 Affordable 28 More frequency 18 Weather conditions (use on rainy days, during higher temperature days etc.)

This reflects the price consideration as one of the aspects in selecting the cab services.

Qualitative data showed that if users are not getting the most affordable taxis, they are shifting to a higher version. To quote: "I am using share or pool, and if I am not getting any of them, then I am going for micro. If travelling with family, I then choose micro or UberGo."

Of the challenges while using the platform taxis, 89% users mentioned the wrong estimation of fare as very much present followed by 18.5% users for traffic congestion. Waiting time and traffic congestion is the most cited challenges as sometimes present by the users. The overall quality of the services of the platform taxis seems to be satisfactory. Rude behaviour of drivers, the unpleasant behaviour of co-passenger, unclean cars, poor

Table 3. Platform taxis usage behaviours (N=200)

		Very frequently (%)	Frequently (%)	Sometimes (%)	Never (%)
Types of usage of app based cab services	Intracity taxi services	5.0	21.5	73.5	0.0
	Rental cab services	0.0	0.0	0.0	99.5
	Outstation cab services	0.0	0.0	7.5	92.5
Purpose to use app based taxi	Office	1.0	2.5	39.0	57.5
	Shopping	0.5	8.5	33.5	57.5
	Movies	0.0	2.5	16.5	81.0
	Health Centres	0.0	3.0	34.5	62.5
	Recreation	1.0	11.5	67.0	20.5
	Events	0.0	0.0	36.5	63.5
App based taxis preferences	Ola	4.0	19.0	70.0	7.0
	Uber	2.5	17.5	56.0	24.0
Modes of payment of rides	Cash Payment	3.5	16.5	53.0	27.0
	App-based payment	4.5	20.5	39.0	36.0
Uploads money in mobile app	Through my mobile apps (such as PayTm, BHIM etc.)	27.0	19.0	14.5	39.5
Surge Pricing usage	I continue using the same app-based taxi	0	56	44	0

response from the company, driver not knowing routes and non-usage of GPS are not reported as very much present by the users.

When asked about the reasons for using app-based taxis, the dominant reason agreed by 99.5% is customer support system, followed by attractive offers like free rides or share passes, 97%. 90% of users also agreed that app-based taxis are used to avoid parking issues. 84.5% of the respondents agreed that app-based taxis are cheaper than using their car. The least important reasons are SOS / emergency button features (16%) and easier to book (52.5%).

The promotional offers given by the app taxis are attractive to the users. To quote a respondent: "I am using daily app based taxis to travel to the workplace and I have taken share passes of Ola. Being a regular customer, I am getting offers messages from the company."

Apart from reasons discussed above, people like to use app-based taxis for special occasions to travel with family. To quote: "When I am travelling with family I then book app based taxis and use app-based taxis services since three years ago."

Some of the respondents feel that app-based taxis are almost like the public transport. To quote: "Longer travel time and traffic need a lot of attention and concentration to drive. Public transport is not good. Metros are overcrowded, with no place to sit. As the income increases, factors such as consideration for convenience, and com-

fort increase. I would say app based taxis are public transport only which has given choices to the people."

While responding to factors considered important by most of the respondent to use app-based taxis, users agreed to factors such as safety, timing, affordable, 24*7 availability of cabs, door stop pick up, travel experience, transparency about the tariff, clean cars, feedback about the trip, used during weather condition, and better service than public transport.

The qualitative interviews highlight the safety issue of app-based taxis. One of the respondents mentioned that "previously we needed to think twice while travelling during the night. We needed to arrange in such a manner that we got the vehicle while returning. Now we can travel at night by app-based taxis on 24*7, and we can inform our relatives through the message about the rides."

The existing non-app-based taxi services are not comfortable for some of the respondents. App-based taxis offer them comfort in the ease of booking. To quote one: "Previously taxis were not available and to book a taxi was not an easy task. We needed to go to the taxi agent one day in advance. Now, app based taxis brought the convenience of traveling by taxi."

The usage of app-based taxis depends upon economic factors. For instance, one respondent said, "I am using daily app based taxis to travel to my workplace" and another respondent said that "the moment I need to go out I book the Ola and Uber." In both

Table 4. Platform usage behaviours-2 (N=200)

A.		First in Ola (%)	First in Uber (%)	
Type preferences		Auto - 0.5 Share - 17.5 Micro - 42.5 Mini - 30.5 None - 7.0	UberGo – 24.5 Pool 40.5 Uber XL 11 None 24 Prime - 2.0	
B.		Very much present (%)	Sometimes present (%)	Not at all present (%)
Challenges while using app-based taxis	Overcharged	1.5	16.5	82.0
	Wrong estimation provided	89.0	4.0	7.0
	Rude behaviour of the driver	0.0	14.5	85.5
	Unpleasant behaviour of co-passenger	0.0	9.0	91.0
	Poor response from the company	0.0	7.0	93.0
	Delay in arrivals	0.5	27.0	72.5
	Unclean cars	0.0	27.5	72.5
	The driver does not know the routes	0.5	6.0	93.5
	Driver does not know the GPS	0.0	0.0	100.0
	Cancellation of rides by driver	0.5	32.0	67.5
	More waiting time than the estimate	8.5	87.5	4.0
	Traffic congestion	18.5	63.0	18.5

C.		Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
Reasons to use app based taxis	Cheaper than using personal car	20.0	64.5	14.5	0.5	0.5
	To avoid parking Issues	54.0	36.0	9.5	0.5	0.0
	Feel safer using Ola/ Uber etc.	24.1	59.8	14.6	1.5	0.0
	Live tracking of car movement	23.0	41.0	17.5	18.5	0.0
	To reach the access point of public transport such as Metro stations etc.	9.5	56.0	26.0	8.5	0.0
	Better travel experience	17.5	69.0	0.0	13.5	0.0
	Customer support system	40.0	59.5	0.0	0.5	0.0
	Easier to book app based taxis (Ola/ Uber etc.) in online means	26.0	40.5	1.0	32.5	0.0
	SOS / Emergency button feature	0.0	16.0	36.5	47.5	0.0
	Attractive offers (Free rides, share passes, convenient payment options etc.)	11.0	86.0	0,5	2,5	0,0

D.		Very important (%)	Important (%)	Neutral (%)	Slightly Important (%)	Not important at all (%)
Important factors to use app based taxis	Safety	71.5	28.5	0.0	0.0	0.0
	Timing	59.5	40.5	0.0	0.0	0.0
	Affor-dable	61.0	39.0	0.0	0.0	0.0
	Availability of cabs (24*7)	64.5	34.5	1.0	0.0	0.0

D.		Very important (%)	Important (%)	Neutral (%)	Slightly Important (%)	Not important at all (%)
Important factors to use app based taxis	Doorstep pickup	76.5	23.5	0.0	0.0	0.0
	Travel experience	7.0	30.0	0.0	0.0	0.0
	Transparency about tariff	78.5	18.5	3.0	0.0	0.0
	Clean cars	65.5	34.0	0.5	0.0	0.0
	Feedback about the trip	14.5	71.5	8.0	6.0	0.0
	Weather conditions (use on rainy days, during higher temperature days etc.)	57.0	36.0	7.0	0.0	0.0
	Supporting employment for people	5.5	91.5	0.0	3.0	0.0

the cases, respondents come from the higher economic background and do not want to spend time in driving but instead prefer 'to do some productive work while travelling.'

Non-users: affordability and public transport usage despite poor quality and traffic congestion

Kathan et al. (2016) argued that the sharing economy is a threat to traditional industries and is having the potential to increase the environmental sustainability by providing various choices to the users and reducing the resource utilisation. The main reason for people to use the traditional mode of transportations such as buses, the Delhi Metro and auto rickshaws is affordability. The commuters face various challenges while using the public transport and overall service quality experience is not encouraging.

The top challenge while travelling to the workplace for non-users of platform taxis is slow traffic (65.5%) followed by overcrowded public vehicles (24%) and weather (21%). Among the challenges in using public transport, traffic congestion is very much present (59%) followed by rough driving of the public transport buses (28.6%). While talking about challenges that are 'sometimes present', it includes long waiting time for transportation (80.7%), unclean vehicles (72%), poor response from government (72%) and rough driving (59%).

Despite the poor quality of public transport, users do not use platform taxis due to the higher cost. The non-users cited affordability (31%) as the top reason and second top reason (24%) for using the public transport. None of the factors like frequency, good service quality, closer to home and safety crossed 25% as the top reason.

78% of the non-users at least agreed that public transport is cheaper than personal vehicles, taxis and auto rickshaws etc. The affordability as the main reason for using public transportation is reiterated in qualitative interviews as well. To quote: "the main issue is the money. Why should I pay Rs.50-60 to travel to app-based taxis? I have to see my budget (income and saving). I do not have that much money to use daily Ola and Uber. If I used them daily then that will cost me around Rs.100-150. At present I am paying Rs.5 (one way bus tariff) to reach work place. Why should I pay more?"

The rapid expansion of metro rail coverage and introduction of electronic rickshaws along with affordability are making some of the users continue to use the public transportation. Roughly half of them are using for travelling to the office / workplace. A quarter of them uses it for shopping and less than 10% use for going to movies. The Delhi Metro network is 187.41 Km, its total daily ridership is 26 lakh (2015-16), and the government is increasing the DMRC network in a phased manner by adding 117.57 Km and 103.93 Km after completion of 3rd phase and 4th phase respectively. A respondent

who is using metro trains feels comfortable. The trains offer better travel experience in all weather conditions. To quote one: "I find metro safe compared to other modes of transport, good in all weather, with no traffic issues and no bad roads issues".

Avoiding parking issues came up as a top reason with 88% at least agreed to the same. Parking own vehicles emerged as a big challenge in the qualitative interviews as well. To quote a respondent: "If I am choosing public transport, then I am not responsible for the vehicles and have no need to search for a parking place. If there is traffic, then I can get down at any place, without bothering about the vehicle."

One respondent argued for using the personal car: "I agree that other transport options are cheaper but instead of using them I am using my car. Here, comfort is more important than other factors. For instance, if I am using app-based taxis then also I am getting into traffic on the road, and it´s costlier than using the car. If app based taxis fail to provide convenience and affordability, then why should I use them?" Some of the two-wheeler owners cite the lesser travel time as: "I am using my bike and I have full control over it, and with that, I can reach to my workplace in 20-25 minutes without waiting for taxis to come".

The weak capacity of users and other reasons for non-use of platforms did not find support in the data. Most of the respondents disagreed with the listed reasons for non-use: they do

not have internet and smartphones, taxis are not available to their places, they are not using them because they are environmentally conscious or they do not know how to use them.

3.4 Status of incumbent players

The sharing economy did not emerge in a vacuum, but with many existing players whose interactions are altered by the ICTs (Kathan et al., 2016). The shared mobility is influencing the transportation choice of individuals, which in turn is forcing the incumbent actors to respond to the new challenges. The incumbent players consist on auto rickshaws, unions, taxi owners and drivers.

Auto rickshaws: Limiting policy regime & stagnant orientation

The growth of auto rickshaws is limited by the restrictive policy on numbers and pricing. The number of auto rickshaws plies in the city are fixed by the Supreme Court decision, which stated that the transport department should not issue new permits due to rising pollutions and poor working conditions of the existing vehicles. There is a mandatory requirement to convert the existing auto rickshaws into CNG (Compressed Natural Gas) fuel, banning petrol or diesel variants. The survey showed that auto rickshaws are the second most preferred transport after public buses and metro trains. The cap on the number of permits to be issued for the auto rickshaws has resulted

in poor demand and supply situation. This gap has led to a black market for auto-rickshaw permits. The license holders are charging extra money for usage of license consequently buying auto-rickshaws at inflated rates or paying exorbitant rents for the vehicles, if driven on the lease.

The cost of an auto rickshaw is INR. 250.000 in the market, but it is only available at INR 650.000 to the drivers. The daily rent for an auto rickshaw is about INR 700 – 800 in the market, excluding the fuel. A driver is expected to charge INR 25 for first two Km and then INR 8 per Km. This rates were fixed in 2013[20] and have not been modified in line with the inflation. The prevalent conditions are affecting the passengers as the drivers ask for either extra money or refuse meter based ride. The common perception about the auto drivers is not pleasant as passengers are overcharged and fleeced in unusual situations like rains, bus strikes or festivals. Allowing more number of autos as per the rise in population on the road might decrease the cost of a ride for the passengers[21].

The use of ICTs is low among the auto drivers. It is rare to see them using GPS to navigate or display the mobile numbers in autos. Though usage of smartphones and mobile Internet is common, most of the broadband is used for watching video content.

The auto-rickshaw drivers are at the bottom of the transport value chain

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[20] https://delhitrafficpolice.nic.in/public-interface/auto-rickshaw-taxi-fare-calculator/

[21] http://nyayabhoomi.org/blog/what-would-happen-if-the-cap-was-lifted/

who charges less for a ride, own low-cost vehicles and cover short distances. They are also relatively less educated and have weak employable skills. Most of the driver-owners, especially the auto rickshaws[22], are not highly educated and have been in the business for a long time. One of the respondents echoed: "I have been in this business for the last 20-25 years and don't have many skills to move to another profession. I will continue to run, how much ever I can in this."

Most of the drivers are contented with what they are earning despite the gradual decline. An auto rickshaw driver respondent has been driving auto rickshaw for last 12 years and manages a daily income of Rs. 450 – 500 after fuel and other expenses by driving for 12 hours. When asked for a reason for not joining the app taxis, he responded: "I am happy with the present way of earning and able to manage a decent income."

The auto rickshaw drivers also agree that their businesses got affected because of app taxis. Now when he stands outside housing society, many app-based taxis are coming to pick the customers. Earlier customers come outside to take auto rickshaws. One reasoned that inefficiency in the system of auto rickshaws is related to the number of auto rickshaws and its exaggerated prices in the black market. The cap on the auto rickshaws are creating the gap in the market and suggested to release new permits regularly.

Unions: Fragmented, ineffective lobbying & slow response to competition

There is no dominant union for taxis and autos in New Delhi, which can be said of a true representative of taxi owners or drivers. Qualitative interviews with drivers and owners indicate that there are more than 150 such unions. Some of them use 'associations' in the titles. None of the unions is closely associated with any dominant political party. This situation is different from Mumbai or Kolkatta, where dominant taxi unions are visible in the public space and are backed by political parties.

A scan of newspaper and related materials throw the following names: Rajdhani Parivahan Panchayat, Chalak Shakti, Sarvodaya Drivers' Association, Delhi Auto Rickshaw Sangh, Delhi Pradesh Taxi Union, the Rajdhani Tourist Drivers' Union, Delhi Taxis, Tourist Transporters and Tour Operators Association, Association of Radio Taxis, Indian Association of Taxi Operators, Delhi–NCR Driver Taxi Association and others. Some of the magazines indicate that thirteen to twenty associations participated in a strike called in Sept 2017.[23-24]

Unions seem to be hyper-local in Delhi. Earlier, government of Delhi permitted to run taxi booths in an

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[22] https://thewire.in/economy/autorickshaw-economy-ola-uber

[23] https://www.ndtv.com/delhi-news/app-based-taxi-drivers-to-strike-in-delhi-tomorrow-1682568

[24] https://inc42.com/flash-feed/ola-uber-ban/

approved place to those own four or five taxis in their names. They were allowed to have a small temporary structure to run an office and keep the taxis in the open area. As per the government data, there are 98 booths in Delhi[25]. Some of the newspaper reports indicate the number to be as high as 500[26]. The premises are given on lease by the government. The taxi booths or stands do not own the land on which the businesses are operating. There is a higher possibility that each one of them is registered as a union. As per the drivers, the self-claimed larger unions invite any taxi owner to become a member of paying the fee. Presently, the allocation of booths is discontinued by the government and the businesses are run from the private premises.

The taxi union representatives opined that their businesses have reduced to half after platform taxis came into the market. To quote one of them: "Earlier drivers used to have six trip rounds, whereas now it is reduced to three trip rounds a day. Sometimes we are not able to have even three trips rounds a day." Another taxi union representative mentioned that now it is very difficult to have a business. Now, most of the passengers are travelling with platform-based taxis.

The unions are expected to lobby with the government or convey their concerns. The driver respondents repeatedly said that the union membership fee is a waste of money and most of the union leaders are corrupt. The impact of unions on policy changes appear to be absent or minuscule. The analysis of interview data and secondary data showed that there is poor coordination among various unions. There is a lack of visible and decisive leadership in representing the unions. The unions are not politically connected as well. The owners do not have confidence in the unions to handle the present situation. One of the respondents opined: "Nothing came out of the protest. Our leaders are corrupt. When they get money, they remain silent."

The secondary data indicate that unions do represent the drivers to the government and are presenting their concerns to it. However, their demands seem to be impractical. In a recent communication to the government, some unions wanted a total ban of app-based taxis and to stop permitting commercial taxis[27]. A representative opined that work security of their drivers is important and demanded that the app-based taxis should not be allowed to pick up passengers from the airport. A representative said that the union is writing to the government but not being able to get any responses.

The unions also gave inputs to the upcoming new policy, Delhi City Taxi Scheme 2017. The inputs include:

[25] https://www.ndmc.gov.in/departments/enforcement_stall_taxi_stand.aspx

[26] https://www.hindustantimes.com/delhi-news/delhi-s-once-omnipresent-kaali-peeli-taxis-struggle-to-stay-afloat/story-1KuY6nOF6EoshUkBX7SauK.html

[27] https://www.ndtv.com/delhi-news/want-a-cap-on-the-number-of-cabs-in-delhi-taxi-union-1214424

fixing minimum fares for taxis, compulsory registration of cab aggregators, banning National Capital Region taxis in the city, and have four categories of taxis instead of the economy and luxury bifurcation[28]. Further reading of statements in the trade press, as quoted by the union representatives, does not reflect positively about the unions in Delhi: "We wanted to participate in the meeting to give our suggestions, but we were not allowed in the room."

Not surprisingly, there was no independent strike called out by the taxi unions against the digital platforms, Uber and Ola. Poor coordination among them, the absence of hail taxi systems and lack of high dependency for intracity travel by the passengers are some of the reasons. As most of the taxi drivers are independent owners, losing out earnings due to protests and strikes is not preferred by them.

The platform taxi drivers called for a strike in early 2017[29]. Not all drivers participated in the protest. The demands included a reduction of the commission from 25% to 10% and an increase of base fare to a minimum of INR 10 per KM. The overall response had been weak, and the strike was not successful.[30]

There were attempts to face the competition from the platform taxis. However, the taxi unions are comprising of small size taxi owners who are neither tech savvy nor skilled enough to design their apps or introduce ICTs in their operations. One union, Chalak Shakti, has attempted to create an app similar to Uber and Ola but specifically focused on the drivers. The SEWA app was introduced in 2017 and has a decent interface.[31] The app does not charge 25% as commission, but INR 700 as monthly fee from the drivers. The money shall be paid directly to the driver. The passenger can hail the taxi from the road as well. The ride rates are slightly lower than platform taxis. There are no surcharges.

The study attempted to install and use the app. The app did not install from the Google app store. No further information on the app is available elsewhere. The study spoke to the representative through the contact number and was told that the app is closed. Similar efforts by Mumbai taxi unions failed in 2016 as there were no takers from customers and drivers.[32]

There are other attempts to stay competitive as well. The unions are spreading awareness among the drivers to remain attractive to the

[28]https://www.business-standard.com/article/pti-stories/delhi-taxi-unions-give-suggestions-for-city-taxi-scheme-2017-117091101456_1.html

[29]https://www.hindustantimes.com/india-news/cab-strike-ends-in-mumbai-but-ola-uber-drivers-plan-delhi-ncr-shutdown-on-friday/story-fsaELQ8Vj9xUzZAlrTPp3O.html

[30] https://www.ndtv.com/delhi-news/ola-uber-drivers-might-go-off-road-today-1682631

[31] https://officechai.com/news/sewa-cabs-delhi-launched-app/

[32] https://www.medianama.com/2017/03/223-sewa-cab-ola-and-uber/

customers. Clean cars, polite conversations, and non-rash driving are part of the activities. The drivers are also suggested to bring in new cars. The unions are arranging regular training for drivers in collaboration with private service providers on various aspects related to passenger management, use of technologies and maintenance of the car. The government has made it mandatory to have GPS in the taxis. The unions are trying to educate the taxi owners or drivers to have the same.

Some of the taxi owners altered the business model. They have attached few of the taxis with the Uber or Ola and earned good money in the earlier phases when incentives were higher and attractive. Some of the taxis are still running with the apps where the drivers are employed by them. Rest of the cars are still running in the old business model.

Some of the owners removed the drivers from the taxis attached to the apps and had started driving themselves. To quote one of them: "Now it is difficult to get the drivers. The salary of drivers has increased to around Rs 18.000. At that salary, drivers will work as a job. However, to earn money in this profession, we need to search continuously and move to those places where chances of getting work are higher. For drivers, it is a 10-12 hours job, and they do not worry about the income. However, the owner needs to worry about the car EMI, driver's salary, and maintenance, etc."

Drivers: Platforms as enablers

Overall, drivers on the platform appear to be benefited and happy with the nature of employment. Earlier research (Kashyap & Bhatia, 2018) indicated that many of the driver-owners are poor and disadvantaged people who turned to platforms to escape poverty and discriminations. The case of drivers seems to be different from taxi owners. They are not overtly affected by the platforms. The mobility of drivers from regular jobs to app taxis and vice versa is common. The attrition of drivers in taxi companies is also common in Delhi as per the qualitative interviews. Some drivers have left their regular jobs to join the platforms. To quote such a case: "Previously I was working in a call centre company through vendors. However, I was working there for more number of hours. The vendors were delaying the payment for three months and deducting the kilometres from our work. My income was reducing and I was unhappy with that system. One of my friends told about the app-based companies and I joined. I am happy with the company; I am getting good income and recei-ving income regularly."

It is also common for two drivers to drive the same taxi, though app registration is done only for one single driver. The passengers do not find this strange or at least it does not emerge in the interviews. This activity is done to maximize the incentives offered by the digital platforms or to meet the payments for the car loan. The platforms have some incentive structure for which the drivers

need to be logged in for a longer duration. Generally around 13-16 hours or for a number of trips. The drivers adopted themselves with the system, though not permitted legally. One of the drivers mentioned: "We are two drivers driving this taxi. I drive for 24 hours. The next day, another one will drive for 24 hours. Then he takes the rest for one day, and I will drive."

Interestingly, some of the drivers found that market rates for drivers' salary have increased after the platforms. One of the drivers mentioned that the salary of drivers who are driving private cars had increased. As the employment options for the drivers have increased, either join as a private house driver or join platform taxis, people are finding it difficult to get the drivers at lower salaries.

The platforms are offering better revenues and opportunities to the drivers. There are drivers with the app taxis who were previously driving auto rickshaws. One of the respondents mentioned that earlier he had auto rickshaws and now he is driving platform taxis to earn more revenues. There are some drivers, those who were working with the traditional taxis and joined the platforms. To quote one: "I was driving a Kaali peeli (traditional) taxi on rent and was getting lesser income. Earlier, we need to wait for the customers. In this, we do not have to go in search of customers. If we want, then we accept the ride and drop the passenger."

The drivers also feel the freedom of choice is better in platform companies. One driver said: "In this work,

we are the owner of oneself and the company will not come and tell us to take a passenger. If we want to go home, sleep or have food, we can do it according to our wish."

Interestingly, some of the non-platform drivers blame the platform drivers for the traffic congestion in the city. Accordingly, to them, the platform taxis are driven by migrants and are dependent on the GPS by the platform requirements. Since they drive by looking at the GPS in the app, they are largely responsible for traffic congestion and accidents. The study is not able to validate this assumption.

Some of the drivers had participated in the union organized strikes and protests. However, the economic cost of the participation had forced them to return to work soon. Many drivers had mentioned that nothing happens out of the strike against the companies, and there is a loss of income.

Few of the drivers have made a decision not to work with platforms. They feel that platforms are complicated and work as a private company. They feel that the traditional system is good and can earn income in the range of Rs 12.000-18.000 by working for 10-14 hours.

3.5 Government: benign neglect in the past, reactive in the present and supportive in the future

The role played by the government with respect to platforms can be divided into three time periods: past – benign neglect of transportation sector, present – reactive policy response

to the present situations and future – supportive to the platforms.

The policy of the government towards the public transport system in New Delhi in the past was benign neglect from the perspective of platforms. The transport system is not growing in line with the increase in population, including inward migration. The data showed a reduction in the number of public transport buses and a number of auto rickshaws, the most used modes of transport by the New Delhi commuters after their vehicles. In the survey, most of the commuters felt that the quality of the existing public buses is not good and government is not responsive. The services provided by the auto rickshaws are expensive due to restrictive regimes that fixed the quantity and pricing. The incumbent taxi services are not helpful for intracity travel by not following meter based rides and overcharging the customers. The drivers who are working with taxi owners are employed on an informal basis and are not covered by any of the safety net measures. The traffic congestion is being rated as the top most challenge in travelling to work, irrespective of the vehicles use.

Overall the existing environment is supportive to the entry of platforms based taxis, largely due to the apathy of the government. The platform taxis are still second to public transport and auto-rickshaws in New Delhi, largely due to the affordability to the lower and lower middle-class of the commuters. The taxi and auto rickshaws owners reported that their businesses have been affected by the platform taxis.

The present policy approach is more reactive to the negative incidents arising from the platform economy ecosystem. In December 2014, a woman executive was raped by an Uber driver while she was on a ride.[33] It created a furore in the nation. Uber was criticized for not verifying the driver's records. The Ministry of Home Affairs banned the platform taxis immediately. Despite the ban, the taxis continued to run in the city. The Delhi transport department and police department impounded few vehicles. The government also rejected the Uber's license application[34]. However, the ban was lifted in April 2015[35], and things went back to normal. Ola introduced a safety button in its app wherein a passenger can pass the information to the nearest police station.

In February 2017, the Delhi Government contemplated banning the shared cab services segment of the digital platforms, Uber and Ola. The shared services allow the passengers to ride taxis along with other passengers who are travelling on the same route, but to different destinations. The cost of the ride is 50% lower than the single person ride for the passen-

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[33]https://www.theguardian.com/world/2014/dec/09/uber-taxi-driver-rape-charge-serial-sex-offender-indian-media-claim

[34]https://www.thehindu.com/news/cities/Delhi/delhi-govt-asks-centre-to-ban-uber-ola-taxi-for-sure-apps/article7031897.ece

[35] https://in.reuters.com/article/india-uber-idINKCN0PI17V20150708

gers. Apart from safety concerns, especially for the women passengers, the government argued that the app taxis are violating the 'contract carriage permit' of Motor Vehicles Act, 1988, which does not allow passengers to get in or drop out midway. Stage carriage permit allows the same, as followed by buses[36]. As of today, July 2018, the shared services are not banned.

So far, the government has not modified the existing regulatory frameworks to accommodate or to reject the platform taxis in New Delhi. The transport in city roads is under the purview of the state governments. Hence regulations present in Delhi might not be applicable to other states. A clear demonstration of su-ccessful policy in one state will help other states to imitate the same. The implementation efficiency might be different for different states, as in other policies.

An approved policy document, City Taxi Scheme (2015) of Delhi government gives indications for the support of digital platforms. The policy document calls to use the term aggregators and allow them under group category. The group category shall have a Delhi office with contact details. The licensee is expected to maintain a fleet of minimum 200 taxis either owners or through an agreement with individual taxi permit holders. Though there is no special provision for platforms, this policy is not against the aggregators.

The future policy landscape looks positive for the platform taxis. At the national level, there are efforts to facilitate the platform taxis. The Ministry of Road Transport & Highways, Government of India had formed a committee consists of six members from the government to propose taxi policy guidelines to promote urban mobility. The committee did not have a single industry representative. The report was published in December 2016 and is under consideration by the Ministry for possible policy formulation. This report is supportive of the aggregators. The committee has suggested achieving the following goals, relevant to the platforms (Ministry of Road Transport and Highways, 2016, p.12):

• evolve uniform, national guidelines responsive to state-specific requirements,
• lower entry barriers to the commercial taxi operators/ aggregators and promote opportunities amongst the unemployed youth in the country, -encourage shared transportation assets and limit private car ownership to alleviate the acute congestion and pollution in cities,
• encourage and permit new forms of urban mobility like bike sharing and e-rickshaws, and
• create a national ecosystem for taxi aggregators.

The suggestions proposed by the committee may replicate the shared economy model in transportation as in the western countries. Private car owners can become taxi drivers of the platforms, after paying a fee. Though overall supportive of

[36] https://www.hindustantimes.com/delhi-news/delhi-moves-to-ban-app-based-shared-cab-services-such-as-uberpool-ola-share/story-sQmz4kgaiFcHS2hIKrFT3J.html

the platforms, the committee has suggested some controls like pricing (maximum should be three times of minimum fare), the need for physical presence in the state where it operates and that the maximum commission or fee should be 20%.

The comments from Niti Aayog, also called as National Institution for Transforming India, a national government think tank, is supportive of the platform taxis. It has suggested the following: no minimum tariff, no surge pricing, no geographical license restrictions, no separate licence for platforms, to enable online license submissions, to permit platform buses and permission for car pooling in private cars.

The Delhi Government is exploring new regulations in the form of Delhi City Taxi Scheme 2017. As of mid of 2018, it is yet to be cleared. The extant information in the newspaper indicates a supportive environment for the platform taxis. Since the central government is recommending a supportive policy environment for the platform taxis, the state governments are likely to follow the same.

4. Policy Implications

The present study observes that digital platforms are helping the transport systems in New Delhi. The existing public transport systems are not able to meet the growing demand. The quality of existing public transport systems, both buses and metro trains is not rated high by the users. The commercial transport systems are of higher prices, poorly managed and restricted by the licensing regime, especially with affordable auto rickshaws. The commuters continue to use personal vehicles as experience in platform taxis is not better due to the traffic congestion. The other main reason is the affordability of the public transport. The uptake of platform taxis has resulted in the decline of revenues for incumbent players. The use of platform taxis is rising despite concerns related to the safety of women passengers and perceived exploitation of platform drivers. In this context, what are the policy options available?

The regulatory challenges related to sharing economy are being noted all over the world (Munkøe, 2017) and efforts are being made to address the same. Some of the challenges related to transportation include: whether drivers on the platforms are workers or contractors; if individuals are contractors in the platforms, whether they should be treated as business entities or private individuals; and what the nature of contractual relationship between the user, platforms and the asset owner / service provider should be like. Følstad, Skjuve, & Haugstveit (2018) offer four major policy suggestions related to sharing economy: simplify the adherence to the regulation by the platforms; introduce regulations to reduce risk, protect privacy and security to the users; avoid monopoly situation for the platform firms; and introduce standardized process for how users connect, pay, insure and other related activities and maintenance of service quality.

The study presents the following policy suggestions:

4.1 Treating platform taxis as commercial taxis

At present, platform taxis are treated as commercial taxis. This is different from the global north, where taxis owned by private individuals can enter the market easily without any approvals from the government. In India, taxis need to have a commercial license to collect fees from the passengers and should be driven by the commercial driving license holders. When a car is under a commercial license, all the relevant regulations apply and can be controlled by the government. The implementation and monitoring might not be strict, but possibilities are not ruled out. At present, there are recommendations to allow private driving licenses for commercial taxis. The platform taxis should continue to be treated as commercial taxis[37]. This will provide space for the government. To regulate the taxis, if needed.

4.2 Modifying existing regulatory frameworks to increase the quantity and enable market pricing

There is demand-supply imbalance in public transport provision in New Delhi. Permitting the entry of cars in the market through digital platforms is likely to address the problem. However, the affordability of the transport should be ensured: the shared taxi category of platforms, a ride being shared by multiple passengers, or shared passes, which offer flat rates stipulated distances that are cheaper than the regular rides. There is uncertainty related to the continuation of the services, as the existing licenses do not permit shared rides for the intracity travel. The city taxi schemes should include the shared taxi services.

Despite the poor quality of services, the public buses are predominantly used in New Delhi. The platforms should be encouraged to run the buses on the routes where the volume of passengers is high. The size and number of platform buses can be fixed by the government to balance the traffic flow and commuting comfort of the users.

The prices for the rides, both minimum and maximum, are fixed by the government. However, the prices are not followed by the incumbent taxis. There are no hail taxis that use meters on the roads. The pricing structure is a failure. The government should allow the market to fix the prices. In other words, the platforms should be permitted to fix both minimum and maximum prices. The surge prices will signal the high revenue earning potential bringing in number of taxis into the ecosystem. If prices are reduced below the break-even levels, taxi driving should become unviable resulting in market exits.

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[37]https://timesofindia.indiatimes.com/india/commercial-driving-licence-not-needed-for-taxis-autos/articleshow/63822859.cms

4.3 Generating employment & protecting the drivers

Platforms can generate a significant amount of employment within a short time. Workers can think beyond just driving, but have started exploring owning the assets. It is said that "platform economy companies have given drivers a stable, mid-term period of time to accumulate wealth, which in turn has allowed them to stabilize and take short-term decisions by making large investments in their work [applying for loan to buy their own vehicles], and to bear the risks of flexible working conditions in the short-term with more confidence (p.1)" (Surie & Koduganti, 2016).

Any policy support to the platforms will generate further employment in the transport domain. The support can be in all possible areas. For instance, conversion of private cars into commercial cars should be a simple process, preferably with less or no visit to the transport departments. This will bring number of idle cars to the market.

There are concerns about protecting the platform drivers, especially in two areas: working hours and protection from market shocks.

If the platforms continue to squeeze drivers to stay in the road longer, drivers might drop out of the platforms due to burn-outs or seek an alternative employment. A poor supply of drivers is likely to affect the usage of the platform resulting in better management of drivers in future. Unlike manufacturing, the factories cannot be shifted to cheap labour locations. The transport platforms are tied to local geographies and need to manage the local resources to sustain. For instance, cheaper drivers in Mumbai will not help the platforms in New Delhi. If the driver is a salaried employee, the existing labour legislation will apply. If the driver is a contractor, related contract legislation shall apply.

The working hours related discussion should be seen from a broader context. This is not a problem peculiar to the platforms. The regulation related to labour is a bigger problem and needs to be handled. In India, 81% are employed in the informal sector[38], and 68% does not have a formal contract. 57% are not covered by any social security cover[39]. The condition is the same for the drivers who are attached with the incumbent taxi associations or agencies in India. This is different from the global north, where the condition of the platform drivers are highlighted in the media by comparing with the workers in other industry. For instance, a study of Uber and Lyft drivers by the Massachusetts Institute of Technology[40] reported that drivers made around USD 3.37 per hour much lower than the stipulated minimum wages in the US.

[38]https://thewire.in/labour/nearly-81-of-the-employed-in-india-are-in-the-informal-sector-ilo

[39] http://fowigs.net/wp-content/uploads/2017/12/Capitulo3.pdf

[40]https://qz.com/1222744/mits-uber-study-couldnt-possibly-have-been-right-it-was-still-important/

When Ola and Uber came to India, there was a problem of supply and demand concerning the platforms. There were no adequate drivers or taxis on the platform, and not many users were looking for taxis. Ola had managed this problem by offe-ring incentives to drivers to join the plat-form and for continuing. For instance, a driver used to get INR 15.000 for attaching the taxi to the platform in 2016. The incentive structure used to be INR 2.000 – 3.000 for five to six rides, and up to INR 12.000 for 17-18 rides, every day[41]. Many drivers had joined the platform expecting to earn around INR 100.000 in a month. The commission or fee levied for the trip was only 10%.[42] Once the threshold amount of drivers had joined the program, the incentives were re-duced by the platforms. The com-mission also went up to 20 - 30%.[43] Naturally, the drivers were upset and protested. There were no false claims made by the platforms to the drivers who had assumed that the incentive schemes would continue forever.

The promotional schemes and incen-tives announced by the digital plat-forms to attract both the drivers and platforms are not sustainable. They are likely to be withdrawn by the platforms in the near future to enable sustainability and competitiveness. The Competition Commission of In-dia, a statutory body that enforces the Competition Act (2002), monitors the monopoly situation in all sectors and intervenes if needed. Earlier, a complaint by the existing radio taxi companies against Uber and Ola was rejected by the Commission.[44]

4.4 Ensuring safety of the passengers

The study found mixed opinion to-wards safety in the platform taxis. Some users are finding them safe and some non-users are finding them unsafe. As per the existing regula-tions, the taxi drivers are expected to display the driver batch to the users. In platform taxis, the iden-tification badge of the driver is dis-played in the car and also in the app when receiving a taxi. Recently Uber has introduced a panic button that connects with the emergency perso-nnel[45]. Similar buttons were already introduced in India by Uber and Ola. Ola has also introduced the additio-nal feature in the app through which a passenger can share the trip details to a family member. The Delhi Go-vernment mandates that all the taxis are expected to have GPS whose data shall be shared with the government agency. The agency can track the taxi if needed. The government needs to ensure whether the safety measures are implemented in the taxis.

[41]https://www.hindustantimes.com/delhi-news/driver-income-continues-to-fall-after-uber-and-ola-withdraws-incentives/story-wAyBH5WrZhPhAppBJiLlCJ.html

[42]https://qz.com/1230993/the-reality-of-driving-for-ola-and-uber-in-india-debt-slashed-pay-multiple-jobs/

[43] https://www.medianama.com/2017/06/223-ola-uber-incentive-driver-suicide/

[44]http://www.dnaindia.com/business/report-competition-commission-reject-com-plaints-of-unfair-practices-against-ola-uber-2178209

[45]http://www.latimes.com/business/technology/la-fi-tn-uber-safety-20180412-story.html#

In summary, New Delhi Government is going in the right regulatory direction. The ongoing policy discussions are indicating further favourable conditions to the platforms. This is likely to address the urban transport problems in Delhi in addition to generating employment and creating livelihood opportunities for the people.

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FINAL WORDS

The explosion of the digital economy is one of the most disruptive processes of the 21st century. The transformation of social relations and the circuits of production and consumption that the new ICTs have introduced, pose great dilemmas to cities about the ways of managing their resources, the organization of space and the relationship between citizens and governments.

While the impacts of this phenomenon are being studied in several global cities, the investigation of urban processes related to the emergence of digital platforms in the Global South is still incipient. The studies presented here constitute a first approach to some of the central themes that link the collaborative economy to urban development. With focus on transport in cities, these case studies provide relevant data and new perspectives on labor issues, gender, regulation and their organization in systems.

The unfold of digital platforms offering transportation services in Cali has been consolidated as an alternative complementary work, both for taxi and other traditional means drivers, as well as for workers from other areas, who find in this market a possibility to increase income. But, in addition, this phenomenon has triggered the proliferation of parallel, self-managed platforms, which while promising greater agility and profits, further precarize the situation of drivers as well as passengers, on sensitive issues such as safety and dignified working conditions. This sort of informality beyond informality reinforces the questions about how governments can regulate these services and transform them into sources of genuine employment, but above all poses a new question: what are the limits of the digital economy to solve structural problems of unemployment and labor informality in the cities of the Global South and to what extent can adequate public policies predict and reduce further precarization as a result of the proliferation of platforms?

On the other hand, from a gender perspective, the study of women drivers in Cairo adds another dimension to the problem of platform-mediated work, by making visible the inequalities faced by women who choose these new forms of income generation. While the motivation to expand their income remains a constant, the perception of the drivers raises issues still little explored in academic studies, mainly on the job stereotypes that these women face when joining a labor field traditionally dominated by men. This study inquires the scoring systems, insofar as they reproduce social inequalities, and places at the center the question of the insecurity that these workers face as women, evidencing the relationship between this situation and their choice of working in the framework of the digital economy.

In another context, the study conducted in San Pablo points in one of

the most structural directions of the debate on the digital economy, which is how to regulate a phenomenon that does not fit in the pre-existing categories, neither into the regulatory frameworks that have traditionally organized transportation throughout the last century. While the city has developed and implemented an innovative legislation, which can be a source of inspiration for national legislation in Brazil and even for other cities that are transiting similar roads, the study transcends what could be a simple technical review. The regulation of the digital transport platforms in San Pablo highlights the complex political plot and the tensions between different social actors to reconcile the way in which urban management incorporates this disruptive component.

In relation to how these platforms are inserted in the existing transport systems, New Delhi's research shows how the digital economy is beginning to gain a space between public and private transport services that have severe deficits in quality, safety and economic accessibility. It also highlights the role that these platforms play as generators of job offers, especially in a city where other forms of employment related to urban transport are not accessible, both due to costs and regulatory limitations.

All these views constitute a great contribution for the field of public policy. On the one hand, they provide relevant information to know the situation of the workers of the platforms, the tensions and the challenges in the field of regulation and the design of transport systems in cities. But, above all, they leave a path of applied research that needs to be deepened: beyond the sectoral approach of the various problematic fronts that have unleashed the proliferation of these digital platforms in a very short time, it is urgent and unavoidable to think how new forms of urban transport are inserted in a holistic view of mobility in cities. What articulations can governments make with the private sector in order to generate a better public transport offer? To what extent many of the solutions offered today by different companies can be developed from the public sector? What are the approaches that an adequate regulation must take into account to regulate urban transport? Ultimately, it is about bringing the public dimension of a basic service such as transport to the forefront and, from there, thinking about the role of the private sector of digital platforms as part of a mobility strategy urban and not as an actor that operates speculatively in the voids of public policies in cities. Moreover, this disruption is an invitation for cities to think about the possibility of developing their own platforms, putting in the foreground the relevance not only of organizing the transport system but also of doing it with their own digital data.

To be able to deal with the emergencies posed by the conjuncture and to develop, simultaneously, comprehensive and long-term proposals, is undoubtedly a great challenge for urban management. This work offers a first contribution for all those governments that are willing to go through it.

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