

An Evidence-Based Analysis of Relevant Market

*The Case of Ridesharing in Delhi-
National Capital Region (India)*



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Authors

Amol Kulkarni, Parveer Singh Ghuman, Swasti Gupta and Ujjwal Kumar (CUTS International)

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Abbreviations

ACCC:	Australian Competition & Consumer Commission
CCCS:	Competition and Consumer Commission Singapore
CCI:	Competition Commission of India or Commission
COMPAT:	Competition Appellate Tribunal
IIT:	Indian Institute of Technology
KIIs:	Key Informant Interviews
MoRTH:	Ministry of Road Transport & Highways
MSPs:	Multi-Sided Platforms
NCLAT:	National Company Law Appellate Tribunal
NCR:	National Capital Region
NCT:	National Capital Territory
OAPs:	Online App-based Platforms
OECD:	Organisation for Economic Cooperation and Development
SSNDQ:	Small but Significant Non-transitory Decrease in Quality
SSNIP:	Small but Significant Non-transitory Increase in Price
TERI:	The Energy & Resources Institute

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Lastly, it is important to mention that CUTS International will not draw any profits from this report since it is purely intended for informative and educational purposes.

Errors, if any, in the report are solely ours.

Foreword I

Driven by digitization and urbanization, the world is moving rapidly towards technological progress. Internet of Things and Industry 4.0 are paving the way for incredible innovations that are integrating technologies, disrupting traditional sectors, and changing consumer experience and behaviour along the way. Urban mobility is one such sector that is witnessing an explosion of new business models based on a shared economy, operating as multi-sided digital platforms with intricate functional characteristics that are challenging the conventional understanding of competition regulation. As Asia dominates the global ride sharing market, India constitutes one of the leading drivers of its urban mobility movement due to accelerated regulatory, technological and industrial advancements in the country.

Competition in the ride sharing digital markets entails, on one hand, dealing with complex issues, such as high rates of innovation and investment, dynamic pricing strategies, network externalities and tipping to name a few. On the other, it leads to enhanced efficiencies through more choices, lowered prices, increased transparency and improved quality for consumers. At the same time, the unique features of multi-sided digital platforms affect market definition, identification of market power and raise compelling debates on leaning towards an effects-based approach while undertaking market assessment.

To that end, it is pertinent for competition law and policy to evolve with the growing needs of a digital economy by revisiting the traditional policies and tools for scrutinizing a firm's behaviour.

In this riveting report, CUTS International conducts an objective determination of the relevant product and relevant geographic market of the urban transportation industry in Delhi National Capital Region (NCR). In doing so, it builds on prevalent economic literature on Multisided Platforms and goes a step further by gathering consumer preference data through an on-ground survey of riders and drivers of Online-App-based platforms operating in the NCR region in the market.

The report, a laudable initiative by CUTS, adopts an evidence-based approach towards defining the relevant market which constitutes its most valuable addition to the ongoing discourses on regulation and competition of multisided platforms, and the developing consumer preferences with the advent of a digital economy. Another rare offering of this report is that in so defining the market it focusses on users of both sides of a platform i.e. riders and drivers of a ride sharing platform. A key strength of the report is also its emphasis on non-price factors alongside price factors in ascertaining the relevant market. Through its finding that consumers are increasingly giving equal, if not more, weightage to non-price factors parallel to price factors, it showcases a practical depiction of the evolving consumer preferences.

As this report underscores, there is a case for embracing a consumer-centered perspective in delineating the relevant market and assessing competition, particularly in the context of emerging digital markets.

The essence of this report lies in its comprehensibility, coherence and the overarching drive to promote competition and consumer welfare. This is reflected in its exhaustive evidence-based analysis of competition assessment of the ride sharing industry. I would like to congratulate CUTS for coming out with this timely and essential study on the rapidly developing urban mobility space. I would strongly urge the regulators, policy makers and relevant stakeholders to go through its findings and I am optimistic about its far-reaching contribution in shaping the narrative of competition law and policy in a digital economy.

Allan Fels AO
Professorial Fellow
University of Melbourne

Foreword II

With the advent of disruptive innovations and dawn of complex platform-based businesses models, India is transcending towards a digital economy characterized by big data, Artificial Intelligence, economies of scale, deep pockets, data driven network effects and tipping etc.

These digital platforms exert pressure on existing government policies for stimulating innovation and economic development while safeguarding public interests. They have changed the way consumers interact with services and their providers by acting as intermediators for users on either side of the platform through technological innovations. This enables them to act as both bridge builders and gatekeepers with far reaching impact on the socio-economic landscape of all economies. Particularly in the context of a developing country like India where both innovation and competition are at a nascent stage, these platforms are disrupting the traditional markets across sectors.

Digital platforms raise several questions for regulators across the world and are currently of particular interest to policymakers. One pressing concern worldwide has been the consideration whether existing regulatory approaches and instruments are sufficient to promote and safeguard public interests. Others policy issues that grapple the regulators include opportunities platforms present for innovation, their ability to promote transparency and accountability in the markets, impact of their entry on freedom of choice for consumers, their treatment of users' personal data, and the labor implications of their operations. Thus, there is a need to regulate digital platforms in a manner consistent with our enduring values as a democratic society, by striking a fine balance between regulatory oversight, innovation and consumer protection.

In this light, consumer preferences assume a significant role in understanding digital platforms and their impact on market contestability. More so in the rapidly evolving urban mobility sector in India that is changing the face of urban transportation as we know it. It has been significantly upended with the entry of digital platforms and the ousting of traditional market players. Thus, grounded in a unique evidence-based approach towards defining the relevant market, this report by CUTS International is an enlightening resource in shaping global debates on competition in the era of digital platforms. A peculiar aspect of the report is its analysis of both sides of the platforms namely, riders and drivers in highlighting the central role of consumer preferences in the urban mobility sector. It takes the readers through emerging concepts such as the growing importance attached by users of a platform to factors other price, role of network effects in determining consumer behaviour and concludes by defining two relevant markets that are intricately connected.

The astute consumer perspective highlighted in the report leaves a thought-provoking impact on its readers. I wholeheartedly encourage the regulators and policymakers across the globe to be guided and inspired by the findings of the report in dealing with digital platforms.

Sudhir Mittal

Former Acting Chairperson Competition Commission of India

Preface

We live in a world where increased internet penetration and technology fueled digital economy has led to a rapid emergence of Multi Sided Platforms (MSPs). This technological revolution has transformed the way consumers interact with products and services across sectors.

The successful entry of Online App-based ride sharing platforms (OAPs) has changed the face of transportation as we know it and revolutionised consumer behaviour. Simultaneously, it has also caught the attention of regulators and policymakers as they display unique competition and regulatory challenges.

CUTS International has always been at the forefront of promoting twin issues of enhancing market competition and safeguarding consumer welfare. In an endeavor to provide a consumer centered perspective to the ongoing discourse on understanding MSPs and the underlying competition framework that governs them, this report delineates the relevant market of the ride sharing industry in Delhi NCR through an evidence-based analysis.

The findings reveal diverse consumer preferences, unique to India where competition law is still evolving particularly in a dynamic sector like transportation. I hope that the findings of this publication serve as a value addition in shaping the competition landscape of India vis-à-vis MSPs.

Udai S. Mehta
Deputy Executive Director
CUTS International

Reflections

The essence of this report lies in its comprehensibility, coherence and the overarching drive to promote competition and consumer welfare. This is reflected in its exhaustive evidence-based analysis of competition assessment of the ride sharing industry. I would like to congratulate CUTS for coming out with this timely and essential study on the rapidly developing urban mobility space.

Allan Fels

Professorial Fellow, University of Melbourne

A key strength of this report is that it provides some very helpful insights rooted in how consumers perceive their alternatives, and their reported switching perceptions.

Eleanor Fox

Professor, New York University

This is a well-argued and well-written report on a complex subject of defining markets through an evidence-based analysis.

Geeta Gouri

Former Member CCI

This report will prove to be a useful resource in understanding consumer preferences for regulators and policymakers in India as well as other jurisdictions where innovative ride sharing platforms are disrupting traditional modes of transportation.

James Mancini

Competition Expert, OECD

Overall, this is a great step forward towards a quantitative assessment of the relevant market in the case of the transportation services market in the Delhi-NCR region.

Shyam Khemani

Special Advisor, Competition Policy, SKP

Grounded in a unique evidence-based approach towards defining the relevant market, this report by CUTS International is an enlightening resource in shaping global debates on competition in the era of digital platforms.

Sudhir Mittal

Former Acting Chairperson, CCI

Executive Summary

BACKGROUND

Globally, digitalisation is expanding at an unprecedented pace. Rapid internet revolution has made multi-sided platforms (MSPs) ubiquitous in our modern economy. These MSPs exhibit unique characteristics including - (a) facilitation of interaction between two or more consumer groups (enabling cross-group network effects), thereby creating value and (b) development of unique cost-price mechanisms depending on the interconnectedness of both sides, which distinguishes them from their traditional counterparts. Consequently, these MSPs are disrupting traditional markets across sectors.

In the context of India, ride sharing¹ within urban transportation is one such sector that has been significantly upended with the entry of MSPs. Owing to their distinct features, these Online App-based Platforms (OAPs) exhibit significant competitive pressure on traditional players. Concurrently, enforcement of competition law in India, and globally, with respect to MSPs generally and OAPs specifically is at an incipient stage. Particularly, delineation of market definition of MSPs forms the hotbed of competition law discourse in the rapidly evolving market dynamics.

Ascertaining the relevant market encompasses relevant product and geographic market. As per the Competition Act 2002, the accurate delineation of relevant market requires an intricate assessment of several factors, one of them being 'Consumer Preferences'. However, the extent to which consumer preferences are currently evaluated and relied on appears to be limited and can be further supplemented with objective on-ground research.

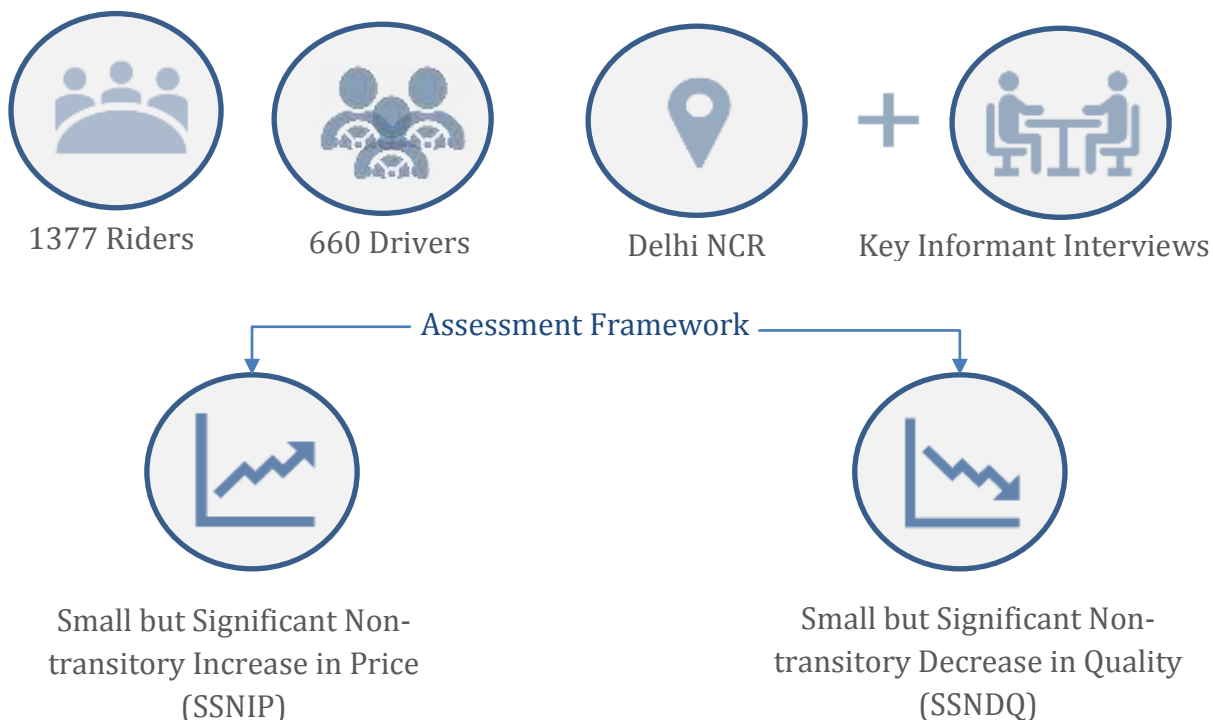
In this backdrop, we undertook an evidence-based analysis to ascertain the relevant market of OAPs in the context of the ride sharing industry in Delhi NCR from the perspective of consumers (users on both sides of OAPs, namely riders and drivers). To that end, we conducted an on-ground survey of 1377 riders and 660 drivers in Delhi NCR to understand their preferences and switching decisions. The survey results were supplemented with the findings from Key Informant Interviews (KIIs) with relevant stakeholders such as on ground service providers (both online and offline), transport and competition experts (both national and international) as well as Government officials.

The data sets were analysed by applying tailored versions of Small but Significant Non-transitory Increase in Price (SSNIP) and Small but Significant Non-transitory Decrease in Quality (SSNDQ) tests in a complementary manner to ensure robust findings. While SSNIP entails

¹ For the purpose of this note, the meaning of ride sharing includes the provision of transportation services through matchmaking, prevalent in the transportation market in India. The word sharing does not necessarily imply sharing of assets in its literal sense.

consideration of price factors, SSNDQ focusses on quantitative evaluation of quality factors to ascertain substitutability for determining relevant market in a competition analysis.

METHODOLOGY



MARKET ASSESSMENT

The first step in relevant market analysis was to undertake a general assessment of riders' preferences in the market.

RIDERS' TOP PREFERRED MODES OF TRANSPORT



**Radio taxis do not rank high amongst the most preferred private/hiring modes of transport despite offering similar physical characteristics as OAPs.*

To better understand consumers' preferences, we examined the reasons behind the consumers' choices vis-à-vis their respective 'most-preferred' modes.

RIDERS' TOP THREE REASONS FOR PREFERRING OAP SERVICES



Less Travel



Easy



Reliability

Non-Price Factors and Network Effects



Riders value non price factors such as availability and reliability in preferring OAP services. These are supply-induced reasons that are likely to be directly linked to the critical mass of drivers available with OAPs at all relevant times.



Drivers value non price induced factors such as more riders attached to the platform and readily available rides in attaching with OAPs. These are demand induced reasons responses in favour of whom collectively surpass the most obvious incentive for drivers i.e. a better income.



These findings are indicative of growing significance of non-price factors alongside price factors for consumers as well as cross group network effects generated by platforms.

Multifarious Consumer Preferences

To better understand consumer preferences and reasons thereof, we dived deep into preferences of riders segregated by different income groups, gender, and geography.



Riders across all income groups prefer OAP services citing *less travel time and availability* as top reasons.



Majority of women prefer personal vehicles for reasons of *safety*.



Riders in New Delhi prefer Personal Vehicles (followed by OAP services) due to being *less costly*. In other cities across NCR, OAPs have the lead owing to *reliability and comfort*. There is a challenge in availability of OAPs in Sonapat.

RELEVANT PRODUCT MARKET

Riders

To examine shifting decisions of riders, different scenarios in the form of hypothetical increase in prices, decrease in availability and unavailability of OAPs were administered to them. Their shifting trends were further analysed across demographics such as income, gender and geography. The findings are as follows:



There is a significant shift of riders availing OAP services to alternate modes (app based as well as non-app based) of transport indicating that *current pricing levels are competitive and not monopolistic*.



Riders are unlikely to view OAP services uniquely. Rather, they are likely to compare their specific features from which they derive most value with similar features of other service providers. This leaves *scope for innovation and entry in the market substantially open*.



Each of the top alternate modes preferred by riders was compared with OAP services to examine the level of closeness of substitution:

Other OAPs (Multihoming)	• Due to the similarity in terms of pricing, service provision, availability and quality, OAP providers are the closest substitutes to each other.
Non-App Autos v. OAPs	• For riders valuing less cost, easy availability and less travel time, autos are close substitutes of OAPs; for riders valuing security & fare visibility, they are next best substitutes .
Personal Vehicles v. OAPs	• OAP services are trying to mimic and possibly beat the convenience and cost-effectiveness of personal vehicles. They appear to be close substitutes .
Non-App Taxis v. OAPs	• Overall, non-app taxis appear to be next best substitutes . For riders valuing non-price factors (reliability and availability), they are more likely to be close substitutes as compared to other riders.
Metro v. OAPs	• Due to the value attached by riders to non-price factors, metro may exercise competitive constraint on OAPs. Thus, it is emerging as the next best substitute to OAPs.
Radio Taxis v. OAPs	• Despite their similar characteristics, riders do not consider them as functionally substitutable. Hence, radio taxis are weak substitutes , particularly for riders valuing comfort.

Drivers

To examine shifting decisions of drivers, different scenarios in the form of hypothetical increase of service fee of platform operators, reduction in incentives of drivers and unavailability of OAPs were administered to them. The findings are as follows:



There is a significant shift of drivers from existing OAP services to alternate modes of transport indicating that *current pricing levels are competitive and not monopolistic*.



Key alternates considered by taxi drivers are *other OAPs or plying as non-app taxis (in that order)*. The likelihood of shifting to other online platforms by taxi drivers is significantly higher as OAPs are one of the highly preferred mode of transport among riders.



Key alternates considered by auto drivers are *plying as non-app autos or linking with other OAPs (in that order)*. The likelihood of plying as offline auto drivers is significantly higher as riders typically prefer non-app/ direct service/ street hail autos over app-based autos.



A substantial number of drivers are likely to switch to a new online platform, which if caters to specific driver needs, may be able to compete with existing platforms. Thus, despite the existence of cross-price network effects, *there is scope for innovation and entry in the market*.

RELEVANT GEOGRAPHIC MARKET

The cities of NCR where OAPs are providing their services, including *New Delhi, Faridabad, Ghaziabad, Gurugram and Noida lie in the same relevant geographic market for OAP services*. Sonapat, however, displays heterogeneity in availability of OAPs and rider preferences, and is unlikely to fall in the relevant geographic market.



Riders across NCR consider similar alternate modes with differences in the order of preference.



Majority of OAP taxi drivers operate within the whole of NCR while majority of OAP auto drivers prefer to stay within the confines of their respective cities.

CONCLUSION: RELEVANT MARKET

Riders

The demand is relatively elastic as it is extremely easy to switch to alternative modes. Hence, the rider can easily choose from a wide array of transportation modes. We envision the relevant product market as “**market for transportation services for riders**”, in which the different probable substitutes of OAPs in the present case (Delhi-NCR) are OAP Service Providers, Non-app auto rickshaws, Personal Vehicles, Non-App Taxis, Metro and Radio Taxis (in the decreasing degree of substitution).

Radio taxis are considered to be weak substitutes because they longer provide a ‘viable alternative’ to commuters in Delhi-NCR (as suggested by data). This finding signifies organic maturing of the transportation market and evolving consumer preferences with the entry of innovative and sophisticated service providers.

Accounting for the conclusion on the relevant geographic market, the relevant market on the riders’ side has been delineated as **market for transportation services for riders in Delhi NCR (consisting only the following cities: New Delhi, Faridabad, Ghaziabad, Gurugram and Noida)**.

Drivers

Analysing the competitive constraints on the OAPs from the drivers’ perspective, the relevant product market is “**market for facilitation services to drivers for accessing riders**”. While the OAPs facilitate access by offering a bundle of services to drivers including technology enabled real time matchmaking and allied services such as price discovery and uniform safety standards, other service providers can also compete through alternative means.

Accounting for the conclusion on the relevant geographic market, the relevant market on drivers’ side has been delineated as **market for facilitation services to drivers for accessing riders in Delhi NCR (consisting only the following cities: New Delhi, Faridabad, Ghaziabad, Gurugram and Noida)**. However, it is important to add a caveat that when the OAPs are providing services to auto drivers, the relevant geographic market might be narrower/ city specific.

Introduction

The global economy is being digitalised at an exponential pace. One of its major upshots has been the rapid emergence of online technology platforms or multi-sided platforms (MSPs) that connect different sets of users.² Such platforms have now become ubiquitous. Their ability to effectively connect users having different but interconnected needs on a real-time basis and at an unprecedented scale and scope has benefitted consumers immensely.

At the same, their rapid emergence has disrupted markets across the globe and concurrently challenged the traditional understanding of economic regulation. One such area that has specifically been upended is competition law and policy, primarily because MSPs function very differently from single sided markets, display unique characteristics and tend to rely on creation of networks. This has made it challenging for competition law regulators to reconcile the application of traditional competition law principles to contemporary market distortions in the digital space.

Concurrently, there has been a plethora of economic and legal literature that explores the inner workings of platforms and delineates the manner in which they function. Experts have also revisited traditional tools and concepts of competition law to analyse platform markets intricately and to capture their salient features. For instance, experts have widely acknowledged that the traditional market definition tool commonly known as the Hypothetical Monopolist test or the Small but Significant Non-Transitory Increase in Price (SSNIP) test needs to be readjusted in the context of MSPs.

However, there still remain certain blind spots in the present-day understanding of how competition law should apply to the MSP context. The objective of this study is to address one such blind spot – i.e. the role of consumer preferences, consumer behaviour and substitutability in addressing contemporary competition law issues in the context of MSPs. Evidently, gauging the consumers' perspective is a determinative step in competition law analysis – particularly in the delineation of market definition, assessment of market dominance and its subsequent potential abuse.

In this backdrop, the broader aim of this study is to contribute to the present understanding and ongoing global discourse on MSPs generally, and 'Online App-based Platforms that facilitate transportation' (hereinafter 'OAPs') specifically, from the competition law perspective. We do

² OECD, *Rethinking Antitrust Tools for Multi-Sided Platforms*, (2018) available at www.oecd.org/competition/rethinking-antitrust-tools-for-multi-sided-platforms.htm: 'While the multi-dimensionality begins with two-sidedness (in which consumers and sellers meet on a platform), this is only the beginning, and many of these markets have three sides (consumers, content suppliers, and advertisers) and some even have four (for example in payment cards) or more.' Thus, a multisided platform includes a two or more-sided market.

this by taking the specific case of ridesharing³ industry in the vibrant Delhi- National Capital Region (Delhi-NCR) of India (that is witnessing one such competition law dispute).

In this regard, the first natural step is to define the relevant product and geographic market purely from the consumers' perspective, which is discussed at length in this report.

³ For the purpose of this note, the meaning of ride sharing includes the provision of transportation services through matchmaking, prevalent in the transportation market in India. The word sharing does not necessarily imply sharing of assets in its literal sense.

Market Definition and the Importance of Consumer Preferences

a. Market Definition

The first key step in competition investigations (abuse of dominance and assessment of combinations) is the definition of market. Market definition is a means to determine the entirety of competitive constraints which a supplier of a particular product or service faces while functioning in a particular geography or area.⁴ As such, defining the relevant market is not an end in itself.⁵ It is a means of identifying the boundaries of competition between firms.⁶ The main purpose of defining a market in both its product and geographic dimension hence, “*is to identify those actual competitors of the undertakings involved that are capable of constraining those undertakings’ behaviour and of preventing them from behaving independently of effective competitive pressure*”.⁷ The manner in which the market is defined has a direct impact on the subsequent assessment of the level of competition in that market.⁸

There are several factors that are included in the market definition process. At the outset, the necessary prerequisites include delineating the relevant product and relevant geographic market. In the Indian context, the Competition Act, 2002 (Act) defines the “relevant product market” as a market comprising all those products or services which are regarded as interchangeable or substitutable **by the consumer**, by reason of characteristics of the products or services, their prices and intended use.⁹ The Act defines “relevant geographic market” as a market comprising the area in which the conditions of competition for supply of goods or

⁴ See OFT, *Market Definition*, (2004), available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/284423/of_t403.pdf

⁵ Ibid.

⁶ See EC, *Commission Notice on the definition of relevant market for the purposes of Community Competition law*, (1997) available at [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31997Y1209\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31997Y1209(01)&from=EN)

⁷ Ibid

⁸ It may be worth mentioning that the identified competitive constraints being exercised on the undertakings in a market are likely to change as the market evolves. In the matter of *Coca Cola v. Commission of European Communities* (Cases T-125/97 and T-127/97), the Court of First Instance noted that in ascertaining dominance, *the Commission must define the relevant market again and make a fresh analysis of the conditions of competition which will not necessarily be based on the same considerations as those underlying the previous finding of a dominant position*, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A61997TJ0125>.

⁹ Section 2(t) of the Competition Act, 2002. It may be noted that the recent report by the Competition Law Review Committee (2019) recognized that the current definition of relevant product market focusses on the substitutability of a product only from the consumer side or demand side perspective. Since the CCI has recognized supply side substitutability in its decisional practice, the Committee recommended that in the interest of comprehensiveness, the definition under this section should be amended to make explicit reference to supply side substitutability. Available at: http://www.mca.gov.in/Ministry/pdf/ReportCLRC_14082019.pdf (page 51)

provision of services or demand of goods or services are distinctly homogenous and can be distinguished from the conditions prevailing in the neighbouring areas.¹⁰ The accurate determination of both requires an intricate assessment of several factors including characteristics, intended use and price of goods and services, assessment of geographical homogeneity of conditions of competition for supply and demand etc.¹¹

Accordingly, the Competition Commission of India (Commission) has relied on said factors while delineating the relevant product and geographic market in the digital space generally and the multi-sided markets context specifically.¹²

For instance, in the case where the Commission investigated Google's possible anti-competitive practices related to web-search results, it considered the question of substitutability of online general web search services and search advertising services.¹³ It concluded that they are not part of the same relevant product market because (a) both services portray wide variations in the mechanism for generation and display of results (b) they serve distinct goals and are perceived differently by various categories of users, namely, publishers (websites) and internet users entering search queries and also the clicking behaviour and (c) they constitute complementary services from the point of view of websites striving for eyeballs. The Commission concluded that online general web search services and search advertising services were, hence, two separate relevant product markets.

In the context of OAPs as well, the Commission has consistently utilised these factors to define the relevant market in cases of potential abuse of dominance. Up until now, the Commission has in ten decided cases defined the market in the context of several Indian cities (Bengaluru, Kolkata, Delhi, Chennai, Hyderabad and Mumbai) and two OAP service providers – Ola and Uber.¹⁴ The allegations mainly included abuse of dominance through predatory pricing, deep discounting and foreclosure of competition by creation of entry barriers (in some cases individual dominance was contended and in others collective dominance was contended by the complainants). In nutshell, the Commission did not find a violation in any of the cases. Nevertheless, the Commission's approach in defining the relevant market is worth noting.

The stand taken by the Commission vis-à-vis the relevant product market has been consistent. In all geographical locations, except for Kolkata, the Commission has held that OAPs and radio taxis constitute a distinct relevant product market i.e. *the market for radio taxi services*. The

¹⁰ Section 2(s) of the Competition Act, 2002.

¹¹ Section 19(6) and 19(7) of the Competition Act, 2002. Considering the nuances of digital economy, the Competition Law Review Committee has recommended express inclusion of "characteristics of goods and services" and "costs associated with switching supply/demand to other areas" as factors for determination of relevant geographic market in Section 19(6) of the Act. Similarly, for determination of relevant product market, the Committee has recommended to change factors provided under S.19(7) of the Act from exhaustive to inclusive, as well as comprehensive and wide enough to accommodate factors that may apply to new age digital markets. Available at: http://www.mca.gov.in/Ministry/pdf/ReportCLRC_14082019.pdf at page 71 and 72.

¹² The detailed factors vis-à-vis the relevant product market are mentioned in Section 19(7) of the Act and factors vis-à-vis the relevant geographic market are mentioned in Section 19(6) of the Act.

¹³ Matrimony.com Limited and Google LLC and others Case No. 07 of 2012 and Case No. 30 of 2012 available at <https://www.cci.gov.in/sites/default/files/07%20&%20%2030%20of%202012.pdf>

¹⁴ Case No. 6 and 74 of 2015 (Bengaluru), Case No. 81 of 2015 (Kolkata), Case No. 82 of 2015 (Delhi), Case No. 96 of 2015 (Delhi), Case No. 21 of 2016 (Delhi), Case No. 25 of 2017 (Hyderabad), Case No. 26 of 2017 (Mumbai), Case No. 27 of 2017 (Kolkata), Case No. 28 of 2017 (Chennai).

rationale is that the key features of radio taxis (OAPs and regular GPS enabled radio taxis), viz. point-to-point pick and drop facility, ease of booking, pre-booking facility, round the clock availability even at obscure places, predictability in terms of expected waiting and journey time, reliability in terms of GPS/GPRS tracking, ease of payment, quality vehicles, professional and well trained drivers, feedback facility etc. makes them different from other modes providing transport. In Kolkata, the scope of relevant product market was broadened to include yellow cabs and was accordingly ascertained as ‘services offered by radio taxis and yellow taxis. This was because the Commission found presence of sufficient competition between yellow taxis and radio taxis in Kolkata.

Similarly, vis-à-vis the relevant geographic market, the Commission’s approach has been consistent. It has put forth the general view that *“providing taxi services is a highly localised service. From the commuter as well as the taxi driver’s point of view, it won’t be feasible to offer such services beyond the local limits of a particular city/state. Also, it was observed that a commuter would generally rely on local transport available to him/ her within the vicinity of the city rather than going beyond it”*.¹⁵ As a result, the Commission has consistently held in all cases that the geographic market lies within the city limits, depending on the city in question. However, the application of this approach was somewhat complicated and criticised in appeal in Delhi-NCR because of the distinct nature of the region and the presence of robust connectivity between different cities. This has been explained below in detail in the subsequent sections.

Recently however, in the backdrop of complex functioning of MSPs, it is important to note that scholars have gone to the extent of questioning the very need to define markets. One view suggests that the *“definitions of both classical economic markets and antitrust markets are inevitably arbitrary not just at their periphery but at their core”*.¹⁶ Another view propagates *“the immodest claim that the market definition process is incoherent as a matter of basic economic principles and hence should be abandoned entirely”*.¹⁷ This view rests on the central argument that in defining relevant market, there is a presumption of market power whereas the rationale for defining markets is to enable an inference about market power, thus rendering the exercise futile.¹⁸ Some scholars during the stakeholder consultation also proposed a similar view and argued that market definition is mainly undertaken so as to ascertain whether prices are too

¹⁵ See cases 25-28 of 2015, available at <https://www.cci.gov.in/sites/default/files/25%20-%2028%20of%202017.pdf>

¹⁶ Markovits, Economics and the Interpretation and Application of U.S. and E.U. Antitrust Law, available at: <https://doi.org/10.1177/0003603X15625126> The main argument is that the definition of classical markets is a non-arbitrary way to define competitiveness of two products – which is inherently incorrect because “neither classical economic markets nor antitrust markets can be defined nonarbitrarily. In particular, classical economic markets cannot be defined nonarbitrarily inter alia because 1. there is no nonarbitrary way to define the competitiveness of two products; 2. even if there were a nonarbitrary way to define the competitiveness of two products, there would be no nonarbitrary way to define the inequality of the competitiveness of the different pairs of products placed in a given market; 3. even if there were a nonarbitrary way to define the competitiveness of two products, there would be no nonarbitrary way to define the extent to which members of any pair of products placed in a given market are more competitive than any product in that market is with any product placed in a different market; and 4. when no set of market definitions is dominant—i.e., when one set does best at satisfying the “all market-insiders are highly competitive” condition, another does best at satisfying the “all market-insiders are equally competitive” condition, and/or another does best at satisfying the “the members of each pair of market-insiders are more competitive with each other than any market-insider is with any market-outsider” condition, there is no nonarbitrary way of ranking the different sets of market definitions (or the protocols that generate them).

¹⁷ Louis Kaplow, Why (Ever) Define Markets?, 124 HARV. L. REV. 437 (2010) and Louis Kaplow, Market Definition: Impossible and Counterproductive, 79 ANTITRUST L. J. 361 (2013).

¹⁸ Ibid, p. 440

high. Since prices offered by OAPs are already low and competitive, there might be limited merit in actually defining the relevant market.

A counter-argument to this view is that market definition remains essential in competition analysis beyond establishing market power as it identifies '*the area of effective competition, i.e., the metaphoric arena in which the competition at issue occurs*'.¹⁹ Without defining the market, it would be extremely difficult and possibly erroneous to ascertain dominance and subsequent potential abuse. Moreover, defining markets is an important screen for determining dominance and its standardised procedure ensures legal certainty.

Hence, principally we acknowledge that the process of market definition holds merit. However, at the same time the market definition process needs to inculcate on-ground evidence in order to be robust and relevant in fast-changing markets. This can happen through conducting evidence-based market studies that involve primary data collection of consumer preferences and actual behaviour. To that end, this study proposes to undertake a consumer-centric analysis. The underlying intent, however, is **not to substitute or replace** the analysis that competition authorities such as the Commission usually conduct, but to rather complement it by adding to its findings through on-ground data collection and analysis.²⁰

b. The Central Role of Consumer Preferences

The manner in which the market is defined and interpreted in a particular context or set of facts should ideally be based on evidence of consumer preferences and the on-ground purchasing behaviour of consumers.²¹ This is because consumer preferences and behaviour depicts consumer demand and lies at the foundation of the relevant market definition.²² This explains why 'consumer preferences' has found a place in India's Competition Act as one of the factors that the Competition Commission '*shall have due regard to*' in determination of relevant product and relevant geographic market.²³

The critical role of consumer preferences in market definition is magnified further in the context of growing prominence of digital businesses generally and MSPs specifically.²⁴ Recently, the Commission observed "*in case of platform markets, where the platforms may be serving many sets of consumers and may be having multitude of relationships with these consumers, the consumer-side for which the relevant market is being defined needs to be identified.*"²⁵ The inherent characteristics of MSPs including - (a) facilitation of interaction

¹⁹ Gregory Werden, Why (Ever) Define Markets? An Answer to Professor Kaplow (February 13, 2012), p. 5, available at: <http://ssrn.com/abstract=2004655>

²⁰ By conducting this study, we also acknowledge that despite having the authority and willingness to conduct such research, the competition authorities do not always have the time and resources to do so.

²¹ Meyer Christine, *Designing and using surveys to define relevant markets*, ECONOMICS OF ANTITRUST: COMPLEX ISSUES IN A DYNAMIC ECONOMY (ed. Lawrence Wu), National Economic Research Associates (2007)

²² Ibid.

²³ Section 19(6)(g) and 19(7)(c) of the Competition Act, 2002.

²⁴ Malik, Payal & Malhotra, Neha & Tamarappoo, Ramji & Kaur Uberoi, Nisha. (2018). Legal Treatment of Abuse of Dominance in Indian Competition Law: Adopting an Effects-Based Approach. Review of Industrial Organization, DOI: 10.1007/s11151-018-9651-y.

²⁵ *Federation of Hotel & Restaurant Associations of India vs. MakeMyTrip India Pvt. Ltd. and others*, Case No. 14 of 2019, at para 35

between two or more consumer groups (enabling cross-group network effects), thereby creating value and (b) development of unique cost-price mechanisms depending on the interconnectedness of both sides - distinguishes MSPs from traditional resellers, fully vertically integrated firms and input suppliers.

As a result of their distinct nature, the applicability of traditional econometric tools devised to understand and define markets is being challenged and being revisited. For instance, application of the Hypothetical Monopolist test²⁶, also called the Small but Significant Non-Transitory Increase in Price (SSNIP) test in the multi-sided market context might lead to an incorrect definition of the relevant market.²⁷ This is primarily because the manner in which a hypothetical monopolist would price its product in a two-sided business model may be different from that of a traditional firm setting price.²⁸ This might lead to a very narrow market definition thereby causing erroneous conclusions.²⁹ While available literature modifies the SSNIP test in two-sided markets by relying on cross-price elasticity models³⁰, their credibility or actual application is unconfirmed.³¹

While this distinction between MSPs and traditional firms has been well-established in literature; from the consumers' perspective, it might not matter at all. This is because consumer demand is multifarious and is not dependent on the business model *per se*. Depending on the facts and circumstances, the business model (MSP or not) might not make any difference to the consumer. This implies that it would be incorrect to always assume that firms having different business models always compete in different markets. Hence, an approach that focusses too much on the nature of business models, although simple in implementation, is also likely to be misleading – primarily because the functional differences might be technically correct but not practically so. In such a scenario, survey evidence and primary data gathered from consumers could play a crucial role in defining markets.³² The need for such an understanding seems especially relevant to the transport market wherein different firms (including individuals providing transport services) having diverse business models are currently facilitating transportation services to the riders.

²⁶ The primary query wherein is “whether a hypothetical monopolist of the focal product could profitably sustain prices a small but significant amount above competitive levels (considering usually a price level of 5-10 percent)”. Following the price increase, if consumers shift to an alternate product, that product is considered to be a substitute and falls within the same relevant product market.

²⁷ Gurkaynak, G., Inanilir, O., Diniz, S., & Yasar, A. G. (2016), Multisided markets and the challenge of incorporating multisided considerations into competition law analysis, *Journal of Antitrust Enforcement*, 5, 1–30.

²⁸ Filistrucchi, Lapo, A SSNIP Test for Two-Sided Markets: The Case of Media (October 2008). NET Institute Working Paper No. 08-34. Available at SSRN: <https://ssrn.com/abstract=1287442>

²⁹ Malik, Payal & Malhotra, Neha & Tamarappoo, Ramji & Kaur Uberoi, Nisha. (2018). Legal Treatment of Abuse of Dominance in Indian Competition Law: Adopting an Effects-Based Approach. *Review of Industrial Organization*, DOI: 10.1007/s11151-018-9651-y. Also, Niels, Gunnar, Transaction versus Non-Transaction Platforms: A False Dichotomy in Two-Sided Market Definition, *Journal of Competition Law & Economics*, nhz016, December 2019, at <https://doi.org/10.1093/joclec/nhz016>

³⁰ Filistrucchi, Lapo, A SSNIP Test for Two-Sided Markets: The Case of Media (October 2008), NET Institute Working Paper No. 08-34, Available at SSRN: <https://ssrn.com/abstract=1287442>

³¹ Sebastian Wismer & Arno Rasek, Market Definition in Multi-Sided Markets, OECD (2017), available at: https://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Diskussions_Hintergrundpapiere/OECD_2017_Competition_Committee_multi-sided%20markets.pdf?__blob=publicationFile&v=3

³² See http://www.konkurrensverket.se/globalassets/english/research/pros-and-cons2017_5-cristina-caffarra.pdf slide no.14

A Fresh Consumer-Centred Perspective: The Case of Ridesharing in India

From the aforementioned discussion, it can be argued that consumer preferences should play a central role in delineating the relevant market, assessing competition and also effects of a firms' action, especially in the digital market context.

The upshots of this approach are two-fold: (a) the understanding of competition and regulation in platform markets is currently being constructed at a global level and an assessment based on consumer preferences would go a long way in adding value to the underlying conceptual framework and (b) preferences of consumers and their interactions with different firms in the market are also evolving with markets. In dynamically changing environments firms have multi-dimensional characteristics and competition is likely to be based on various factors in addition to price. Hence, gauging consumer preferences would help deconstruct the nature of competition, and intricacies of competitive constraints between firms.

Hence, there is a need to analyse digital platform markets through the eyes of consumers – something that is difficult to find through existing literature on the subject.

The need for a practical understanding vis-à-vis market definition and the opportunity to observe and analyse diverse consumer perspectives can be contextualised perfectly in the urban transportation sector. This is because

- a) Multisided digital platforms such as Uber, Lyft, Didi Chuxing, Grab, and Ola have disrupted the traditional transportation ecosystem and revolutionized how firms compete in the space, essentially by facilitating the connection between riders and drivers on a real time basis
- b) Such disruption in the transport industry exhibited significant competitive pressure on traditional players.³³ It caused the incumbents to raise regulatory and anticompetitive concerns and
- c) Competition authorities across the globe are currently trying to understand the ridesharing market itself and trying to grasp and reconcile the diversity of consumer preferences and behaviour.

India is one such country that has witnessed national disruption in urban transportation and subsequent rise in competition complaints by incumbent service providers. In the Indian

³³ Russo, F. & Stasi, M. (2016), Defining the relevant market in the sharing economy, Internet Policy Review, 5(2). DOI: 10.14763/2016.2.418

context, allegations of anti-competitive conduct against OAPs providing ridesharing services primarily relate to abuse of dominance. The counter arguments include technological prowess, innovative business models and enhanced consumer welfare, through (a) increased efficiencies; and (b) lower prices through vigorous competition. Simultaneously, enforcement of competition law in India is currently shaping up in the ridesharing sector and there is a clear opportunity to conduct an in-depth consumer-centric analysis of the market definition, which can form the basis of assessing potential dominance.

As it stands, the extent to which consumer preferences are currently evaluated and relied on appears to be limited (this can be due to several reasons including resource and time constraints) and can be further supplemented with objective on-ground research. Naturally, this can complement the competition law analysis in the context of MSP, by enhancing the understanding of diversity of consumer demand, irrationality and subjectivity of consumer behaviour; something that forms the basis of the behavioural economics approach and may not typically be factored in the competition law analysis.³⁴

On-ground research might especially help in supplementing the current understanding of consumers' switching behaviour and substitutability vis-à-vis OAP services. Hitherto, it appears that the Commission has found that distinctive features of radio taxis - like convenience of time saving, point-to-point pick and drop, pre-booking facility, ease of availability - are distinctive enough that the consumer would not switch to other modes of transportation that are not able to replicate *all* such functions.³⁵ This approach may result in generalising consumer preferences and may inadvertently include assumptions about consumer switching behaviour and interchangeability, excluding other modes of transportation that can exercise a competitive constraint on OAPs.

³⁴ There is ongoing debate on how behavioral economics can help better inform the analysis conducted by competition agencies, especially when the agency has to address counterfactuals. See Dame Vivien Rose, *The role of behavioural economics in competition litigation*, available at DOI:<https://doi.org/10.4337/clj.2018.02.01>; There have also been propositions that firms might deviate from the classic profit-maximising behaviour in certain circumstances and that might change the nature of market competition. See Mark Armstrong and Steffen Huck, *Behavioral Economics and Antitrust*, (2014) available at <http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199859191.001.0001/oxfordhb-9780199859191-e-009>

³⁵ See Case No. 6 & 74 of 2015; available at <https://www.cci.gov.in/sites/default/files/6%20%26%2074%20of%202015.pdf> wherein the Commission stated, "*The consumer perceives OP (opposite party in this case – ANI Technologies Pvt. Ltd that run the business of an OAP in India named 'Ola') as a service provider of radio taxi service whose service is substitutable with the services provided by other radio taxi service operators, irrespective of the business model followed by them*", which is in fact a blanket statement made without the support of concrete on-ground consumer preference data. Similarly, in the case No. 82 of 2015; available at https://www.cci.gov.in/sites/default/files/26%282%29%20of%202015_0.pdf, the Commission relied on its earlier analysis and stated, "*the features of radio taxis like convenience of time saving, point-to-point pick and drop, pre-booking facility, ease of availability even at obscure places, round the clock availability, predictability in terms of expected waiting/ journey time etc. makes them different from other modes of transport like auto-rickshaws, buses and other private taxis. The Commission also noted that there was a dedicated category of commuters who use radio cabs, especially executives, professionals, tourists etc. who will not switch to auto-rickshaws or buses under normal circumstances even though they have to pay a little higher for radio taxis than the other modes of transport. The Commission is hence of the view that in the present case also, the similar relevant product market definition would be appropriate considering the growing dependence of commuters on radio taxis owing to their various distinctive features highlighted above.*" This too seems to be based on several assumptions and the commission does not actually know or has no means of confirming the accuracy of these claims as these would need to be confirmed by the consumers themselves.

Moreover, it appears the Commission has not fully explored drivers' perspective, and their linkage with OAPs, possibly as consumers, in the past. From a plain reading of Section 2(f)(ii) of the Competition Act, it appears that it is possible to include drivers within the ambit of the definition of consumers.³⁶ Drivers, like riders, appear to avail the facilitation services provided by OAPs and other online/ offline intermediaries in the transportation sector for accessing riders, in exchange of a service fee being borne by them. In a similar vein, OAPs have contended before the Commission, rather unsuccessfully, that they merely act as a facilitator, an intermediary which connects two ends of the supply chain, the drivers and riders. For them both sides are 'users' (consumers) of their platform.³⁷

This is line with the observation of the Australian Competition & Consumer Commission (ACCC) which observed *"Digital platforms (including Google and Facebook) are multi-sided platforms. That is, the platforms bring together multiple sets of users that interact via the platform. The number of users on one side (e.g. consumers) increases the value of the platform to other sets of users (e.g. advertisers). Recognising the multi-sided nature of these platforms, the ACCC has been careful to take into account the competitive constraint provided by the different sides of the relevant platforms in determining whether market power is held in the relevant market(s)."*³⁸

Therefore, it is important to take drivers perspective into account while ascertaining the 'relevant market' definition. An evidence-based approach to better understand drivers' perspective on their linkage with OAPs and their hypothetical switching behaviour in different scenarios (as discussed in subsequent sections), can supplement the understanding of value created by OAP services. Taking into account drivers' perspective is also important to examine the network effects created by OAPs and their relevance thereof in competition assessment.³⁹

³⁶ As per the Section, 'consumer' means any person who hires or avails of any services for a consideration which has been paid or promised or partly paid and partly promised, or under any system of deferred payment and includes any beneficiary of such services other than the person who hires or avails of the services for consideration paid or promised, or partly paid and partly promised, or under any system of deferred payment, when such services are availed of with the approval of the first-mentioned person whether such hiring or availing of services is for any commercial purpose or for personal use;

³⁷ CCI order dated 19th July 2017 in Case No. 6 & 74 of 2015 notes rationale of OAPs, *"OP claims to have created a software platform in the form of a mobile application i.e., a portal that can be downloaded by commuters as well as licensed taxi drivers, on their respective mobile phones. Once the portal is downloaded, it allows the commuters to register themselves, along with allowing them a wide range of customisations such as, preferred payment method, preferred type of cab, etc....It is claimed that OP does not employ drivers (they are self-employed) and does not own any cars. It is stated that the portal aggregates a wide range of choices for the commuters and driver and once the commuter makes his choice and the driver accepts the ride, the driver would provide the end-to-end service of picking up the commuter from the preferred pickup point and dropping the commuter to the preferred destination. At the end of the ride, the portal provides an opportunity for the driver as well as the commuter to rate each other respectively...Highlighting the above working model, OP submitted that it merely acts as a facilitator, an intermediary which connects two ends of the supply chain, the taxi service provider and a commuter. There is ample freedom of choice on both the sides of the supply chain, with the portal only playing an intermediary role of connecting a commuter with a driver. Further, OP relied on view taken by certain other jurisdictions to submit that ridesharing service operators namely Uber, Lyft, etc., have been held to be digital platforms and not transportation companies....It was also urged that the main purpose of OP is not to provide a transport service but an intermediation service connecting drivers with commuters. Further, OP is not directly involved in the physical act of moving persons or goods from one place to another."*

³⁸ Page 59, Digital Platform Inquiry, ACCC, June 2019; <https://www.accc.gov.au/publications/digital-platforms-inquiry-final-report>

³⁹ Russo, F. and Stasi, M.; *Defining the relevant market in the sharing economy*; <https://policyreview.info/articles/analysis/defining-relevant-market-sharing-economy> note, 'platforms help to coordinate the participation of buyers and sellers (both users of the platform), to reduce the interaction costs for the two groups of users so that all agents are better off and receive positive network effects through using the platform. The interdependency among the group of users creates indirect (positive) network effects, as the value of the

The network effects so created are visible in the form of emerging reliance of riders on supply induced factors such as availability and reliability of rides in choosing their mode of transportation, and possible reliance of drivers on availability of established rider base.

Adding on to existing understanding would require primary data collection which can help appreciate how and why consumers find different modes of transportation substitutable to OAPs. Considering the research gap as to whether or not consumers on the ground actually perceive OAPs services in the manner assumed can be checked only through primary data collection.⁴⁰

In relation to the relevant geographic market as well, the Commission's conclusion in one of the cases was based on different state regulations with limited examination of on ground situation as to whether such regulatory barriers caused distortions in homogeneity of supply or demand of OAP services in that region.⁴¹

While, in the case of Bangalore, the Commission had conducted a detailed investigation into the matter and then arrived at a conclusion vis-à-vis relevant market definition, at the same time it is critical to take into account the consumer perspective for reasons previously mentioned. The need to gauge and rely on consumer preferences becomes all the more important in order to draw up a true picture of consumer demand and market dynamics in complex regions such as Delhi-NCR, that too in sectors such as transportation that are constantly evolving and show unique regional and sub-regional characteristics.⁴²

Therefore, this study has been framed and presented with the objective of adding to the current understanding of OAP services in Delhi-NCR. It is based primarily on consumer preference data collected through an in-depth survey of 1377 riders of OAPs and other services that provide transportation and 660 drivers linked to OAPs, and interactions with relevant stakeholders (service providers, regulators and subject scholars/ experts).⁴³

platform for one group of users grows with the growing of the user base on the other side of the platform....These effects increase the value that the economic actors can realise from using the platform. All of these features boost sharing economy businesses, whose majority relies on low interaction costs and a wide base of users in order to work efficiently.' They further point out, "...defining the relevant market, in the case of sharing economy businesses, and more generally in two-sided platforms, is not a simple exercise. A clear conceptual framework has not yet emerged. Furthermore, the case law is not of great help; in fact, if we look at the enforcement practice, we still notice a number of inconsistencies."

⁴⁰ See http://www.konkurrensverket.se/globalassets/english/research/pros-and-cons2017_5-cristina-caffarra.pdf slide 15.

⁴¹ See Case No. 82 of 2015; available at https://www.cci.gov.in/sites/default/files/26%282%29_82%20of%202015_0.pdf where the Commission observes, "Since transport is a state subject under the Constitution, the radio taxi services market is also largely regulated by the State Transport Authorities making the conditions of competition homogenous only in a particular city/State...In the first instance, the taxi operators in Delhi seem to be constrained by the operation of similar competitive forces in both Delhi and NCR region as these operators (OLA, UBER, MERU etc.) run their radio taxis in Delhi as well as NCR. However, it is observed that the regulatory architecture is different for Delhi and the other regions that fall in the NCR e.g. the Delhi High Court's order in the recent past directing the taxi operators to use CNG vehicles within Delhi. Similarly, it is possible that there might be other regulatory requirements also in the NCR which the radio taxis operating in Delhi might not be required to fulfil."

⁴² As rightly observed by Joan Robinson, *The frustrating thing about India is, whatever you can rightly say about India, the opposite is also true*, see <https://www.economist.com/news/2005/11/18/contrary-india>.

⁴³ **Detailed methodology note has been annexed (Annexure - 1)**

Before going into the findings, it is important to highlight that for the purposes of the riders' survey, only those people were considered as valid respondents who fulfilled two conditions: (a) availed OAP services AND (b) OAP services were **one** of their top four most frequently used private/hiring modes providing transportation. This made sure that the respondents were reasonably frequent users of OAP services and presumably gave well-informed and well-thought out answers (especially considering that they were asked about different hypothetical scenarios).

To that end, rest of the paper is structured as follows:

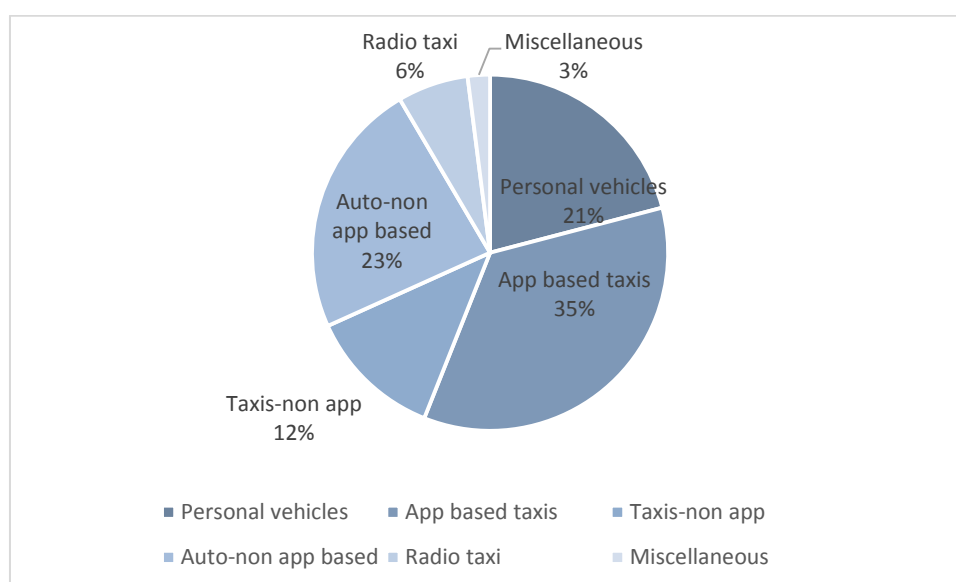
- a) Determining the broad structure of the transportation market of Delhi-NCR from the perspective of consumers' general preferences, and the popularity/usage of different transportation modes.
- b) Understanding specifically how consumers of Online App-based Platforms (OAPs) i.e. both riders and drivers, perceive OAPs and what are the distinct needs/ demands that the OAPs fulfil.
- c) Determining the competitive constraints on OAPs by analysing interchangeability and substitutability from the perspective of riders and drivers. Here, we also consider the peculiarities of two-sided markets and specifically take into account cross-group network effects and interlinkages between both sides of the platform. To capture the essence of how platforms function, we analyse the perspective of both riders and drivers coupled with a multiple markets approach, thereby viewing the platform as operating in possibly separate but nonetheless inter-related markets.⁴⁴
- d) To delineate the relevant geographic market, determining whether the conditions of competition for supply and demand of OAP services are distinctly homogenous to Delhi or does the homogeneity extend beyond Delhi to its neighboring areas (other NCR cities) where OAP services are available. We retain our reliance on evidence from the ground (data collected from riders, drivers of OAPs, OAP service providers actively operating in the Delhi-NCR area and subject scholars/ experts) to determine the relevant geography.

⁴⁴ For more on the multiple-markets approach, see Katz Michael and Sallet Jonathan, *Multisided Platforms and Antitrust Enforcement*, available at https://www.yalelawjournal.org/pdf/KatzSallet_ieayvf51.pdf. Looking at both sides of the platform is crucial. Scholars/ experts believe that platforms are best viewed from the *multiple-markets* perspective as it is absolutely essential to give careful consideration to inter-linkages between both sides of the platform. Moreover, analysing platform competition from the *multiple-markets* approach “recognizes that the interests of users on different sides of a platform are not fully aligned with one another, and that the state of competition, and indeed the sets of competitors, on different sides of a platform can significantly differ from one another.”

Market Assessment

The responses from frequent users of OAP services (Figure 1) generally show that indeed the OAPs have gained popularity and have already overtaken some of the traditional modes of city travel.

Figure 1: Top four private/ hiring transport modes ⁴⁵



In the private/hiring transportation segment, it is evident that OAP taxis (non-shared and shared) are now one of the most popular transport modes as approximately 35 percent of the responses of all the riders favour OAPs as one of their most frequently used mode of transport. Naturally, riders also predominantly prefer their personal vehicles (both four wheelers and two wheelers). The results also show that while OAP taxis have gained popularity, some traditional modes of transportation, which include non-app based three-wheelers (popularly known as auto-rickshaws), remain popular and command a significant level of patronage (approximately 23 percent of the responses). Non-app based taxis which are usually hailed through calling the local taxi stand or contacting the driver directly over the phone or hailed from a taxi stand/ hub also seem to be a preferred choice, but only to a limited extent.

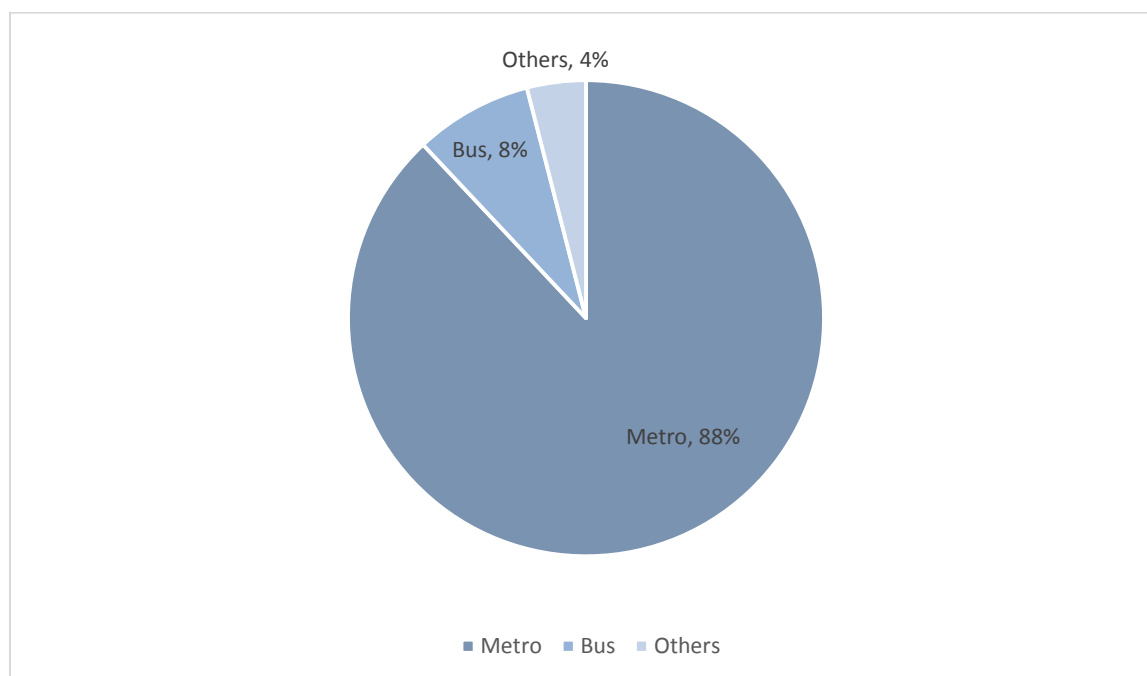
Perhaps the most noticeable finding that arises from the survey is that radio taxis – i.e. taxis that operate through radio signals and can be hailed by calling a designated number of an intermediary, which have been argued to be in the same relevant product market as the OAPs by the Commission, appear to be not very popular among the riders. *Prima facie*, it is evident

⁴⁵ The modes are ranked based on frequency of use. To determine top modes, percentage of total responses was considered. Miscellaneous includes carpool, app based bikes, app based three-wheelers or auto rickshaws, office provided transport and chartered buses

that riders prefer several modes of transportation for their needs, possibly implying that dependence on a single private mode of transportation is not so high. The response by riders might also be indicative of availability of relevant modes of transport.

In the category of public transport (mainly state owned mass transit modes), the results are more skewed towards Metro and it emerges as the clear leader in riders' choice with 88 percent of the respondents categorising it as their most preferred public mode, followed by bus (8 percent) and others (4 percent).⁴⁶ (Figure 2)

Figure 2: Top preferred public mode of transport



This puts metro as one of the most popular transportation modes in the Delhi-NCR which is also corroborated by the fact that the metro's average ridership per day has grown significantly over the years.⁴⁷

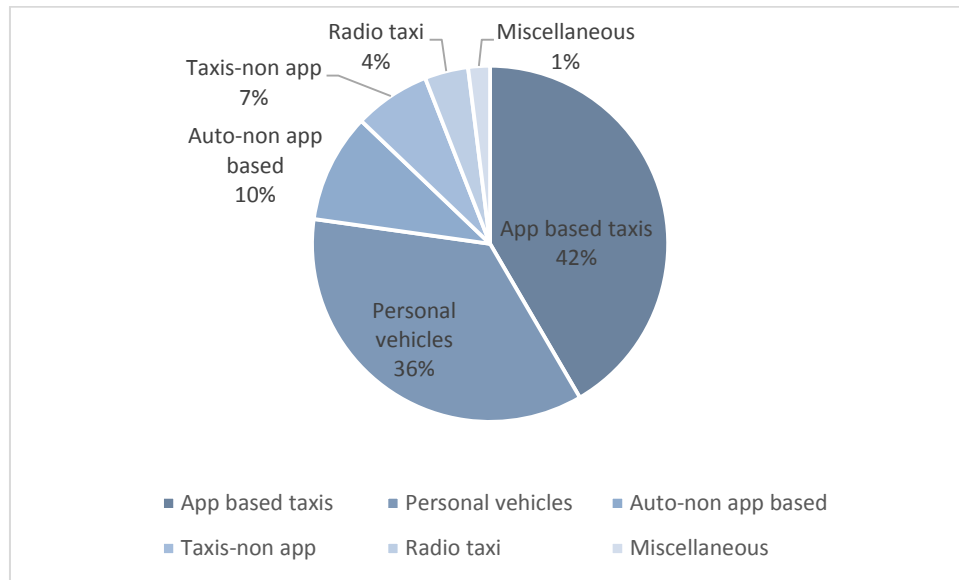
Further, in order to better understand rider preferences, we analysed primary choice of riders, or in other words - their most preferred private/hiring mode. The responses generally reinforced the earlier findings and confirmed that OAP linked taxis are most preferred modes. However, despite the rise in popularity of OAPs, non-app based modes enjoy a significant level of patronage (Figure 3).⁴⁸

⁴⁶ 'Others' includes (a) sub-urban/passenger rail and (b) non-users of public transport

⁴⁷ As per official data of the Delhi Metro Rail Corporation Ltd., the average ridership per day has increased from 6.25 lakhs (2007-08) to 27.61 lakhs (2016-17). For more, see http://www.delhimetrorail.com/OtherDocuments/DMRC-AR-2017-WEB_23118.pdf

⁴⁸ The respondents were asked to identify one mode of transportation that they use most frequently out of their top four modes selected. Upon identification of the top-most private/hiring mode, the riders were asked to provide reasons for their preference. The idea behind this exercise was to further segment the choice of riders, provide a reasonable proxy for actual usage and to simultaneously compare the reasons for respondents' choices. This

Figure 3: Most preferred private/ hiring mode of transport



While there is still a high preference for personal vehicles (two wheelers as well as four wheelers) (36 percent of the respondents), the two types of OAP taxis (shared and personal) remain the most popular private/ hiring mode of transport (41 percent of the respondents). Among public modes of transport, the Metro is the most popular option and evidence indicates that ridership of the Metro has augmented over the years - owing to improvements in infrastructure and opening of new metro lines, as mentioned earlier.⁴⁹

On the other hand, radio taxis do not rank high among the most preferred, even though in terms of physical characteristics - such as vehicle type, comfort, and direct origin-to-destination connectivity - they are similar to the vehicles attached to OAPs. Interestingly, more riders prefer travelling from auto-rickshaws than non-app taxis and radio taxis. Such a huge gap in terms of preferences between seemingly identical modes of transport (taxis) and sustained ridership of other non-identical modes indicates that consumer demand is multi-faceted, highly subjective and is not just limited to the physical characteristics of the transportation mode. In other words, riders may place higher premium on specific attributes of modes of transportation over their physical characteristics. Hence, there is a need to identify and analyse the various possible tangible and intangible factors that the consumers' value in different modes of transportation.⁵⁰

comparison would provide preliminary background of why riders choose the mode that they use/avail most frequently.

⁴⁹ See The Hindu, *Delhi Metro records increase in ridership figures*, March 16, 2018, available at <https://www.thehindu.com/news/cities/Delhi/delhi-metro-records-increase-in-ridership-figures/article23265353.ece>

⁵⁰ In the questionnaire, two separate questions were posed to the respondents (riders) asking for their preferences amongst the public and private modes of urban transport in Delhi NCR. While these preferences were later clubbed together to assess the overall preferences of riders, the initial segregation was made to prevent any bias against public modes of transport and ensure that they were reasonably represented in the analysis as well as the substitutability assessment.

a. The Importance of Non-Price Factors and Network Effects

To better understand riders' preferences, we look at the reasons behind the riders' choices vis-à-vis their respective 'most-preferred' modes. The general trend across modes reveal that top three reasons behind riders' choices constitute - less travel time followed by less price/ less cost and then easy availability⁵¹. Interestingly, for riders preferring OAP services, less price (or the mode being less costly) does not feature in the top three reasons (and not even in the top five reasons). Their top three reasons for choosing OAP services are, namely, less travel time, reliability of service, and availability, followed by comfort and ease of payment (Table 1).

Table 1: Top Three Reasons for Preferring Different Modes
(All figures in percentage of responses)

Rank	Personal vehicle	OAP services	Non-app autos	Metro	Non-app taxis	Radio taxis
#1	Less costly (15%)	Less travel time (15%)	Less costly (19%)	Less travel time (20%)	Less costly (29%)	Less costly (19%)
#2	Availability (14%)	Reliability (12%)	Availability (18%)	Availability (16%)	Reliability (11%)	Less travel time (13%)
#3	Less travel time (13%)	Availability (12%)	Less travel time (13%)	Less costly (14%)	Availability (11%)	Comfort (13%)

The importance of non-price factors, especially travel time, reliability and availability, is also indicative of the importance of cross group network effects generated by such platforms. In particular, reliability and availability of OAP services are supply-induced reasons and thus are likely to be directly linked to the critical mass of drivers available with OAPs at all relevant times.

The significance of network effects was further highlighted when we reviewed findings from the drivers' side. When drivers were asked about their reasons for attaching to the OAPs, a significantly large proportion (25 percent) of responses were directly and indirectly related to demand of the platform on the other side i.e. the riders' side. The reasons included - more riders attached to the platform/more demand of the platform (17 percent) and readily available rides (8 percent). These non-price demand-induced reasons collectively surpassed the most obvious incentive that drivers naturally look out for – i.e. a better income than before (23 percent responses).

Hence, in addition to the price point, a major value proposition that attracts drivers and riders to the platforms – is the interconnectedness that the platforms offer i.e. easily available and reliable rides (i.e. driver and rider base, as the case may be) on either side of the platform. This interconnectedness is a practical depiction of cross-group network effects or indirect network effects which have evidently attracted drivers to attach their vehicles to the OAPs as well as riders to use the OAPs' services.

⁵¹ Riders were given several options to choose from: less costly, ease of payment, pre-decided fare/ visibility of trip cost, less travel time, timely availability/ less waiting time, reliability of service, comfort, safety/ trackability, ease of booking, environment friendliness, ease of managing invoice/ receipts, pre-book rides

This is also a practical depiction of the supply-demand feedback loop generated through the platform. The foundation of this demand (owing to its inherent linkage with the other side of the platform) created through successful generation of cross-group network effects might confer it a distinct nature. As has been suggested by some that the self-reinforcing nature of network effects might make it challenging for other players in the market to break and replace this demand-supply feedback loop – thereby resulting in a winner-takes-all scenario.⁵²

However, the mere presence of network effects does not imply that other modes of transportation cannot offer a competitive constraint to the OAPs and cater to the diversified needs of the riders. Interaction with expert stakeholders also highlighted that the very value proposition/business model of the platforms strives on creation of network effects because "thicker" the platform, lesser "friction" it causes in consumers' experience, and greater the usage and utility of the platform. Network effects are therefore also seen by some as an incident of the organic functioning of the market and not as an entry barrier.

Moreover, as indicated in Table 1 above, the fact that in case of Metro, riders value non-price factors over price factors indicates that it might be in a position to offer a competitive option to riders. Given its impressive growth and increasing ridership it might possibly balance the self-reinforcing nature of network effects of OAPs. The creation of cross-group network effects also does not automatically imply that the drivers have been locked-in and have no option of switching to other modes of service provision.

Hence, in order to address the main concerns, i.e. (a) whether or not network effects actually act as entry barriers or (b) potentially lock-in both sides of the platform, there is a need to look at the evidence.⁵³ This has been touched upon in the subsequent sections where we delve deeper into the substitutability from the riders' and drivers' perspective.

Nevertheless, the preliminary investigation into diverse reasons influencing consumer choice portrays that in addition to price, non-price factors play a very significant role. For instance, in case of OAPs and the Metro, the top reason of choice is less travel time and the second reason is reliability and availability respectively. Even when price is ranked first, it is closely followed by non-price factors such as travel time, availability and reliability (exception being non-app taxis and radio taxis). Consumer demand not being solely reliant on price factors lends weight to the assumption that competitive constraints between different service providers are also likely to be influenced by non-price factors.

⁵² Bose Avirup and Parsheera Smriti, *Network Effects in India's Online Businesses: A Competition Law Analysis*, (2016) available at https://www.cresse.info/uploadfiles/2017_pa14_pa2.pdf

⁵³ Experts have also favoured an evidence-based approach. See Evans David S. and Schmalensee Richard, *Network Effects: March to the Evidence, Not to the Slogans*, available at <http://mitsloan.mit.edu/shared/ods/documents/?DocumentID=4243>

b. Multifarious Consumer Preferences

The modes preferred modes of transport and reasons for preference may change depending on specific requirements of riders. In order to better understand consumer preferences and reasons thereof, we dived deep into preferences of riders segregated by different income groups, gender, and geography.

It appears that OAP services are one of the most preferred private/ hiring modes of travel among riders across income groups.⁵⁴ These services are enormously popular among low-income group riders, 64 percent of whom have mentioned it as their most preferred mode (Table 2). Despite being in the low-income group, low price/ low cost is not the primary reason for choosing OAP services. Less travel time and availability are the top reasons. The popularity of non-price factors may be attributable to innovative manner of service provision by OAPs which has helped augment the nature of consumer demand through providing easily available rides in a reliable and cost-effective manner. Metro has emerged as the most-preferred public mode of transport across all income groups.

Table 2: Preferences of Different Income Groups

Annual Income (Rs.)	Most preferred private/ hiring mode	Most preferred public mode
Not earning	Personal vehicles	Metro
Up to 1,00,000	App based taxis	
1,00,001 to 2,50,000	App based taxis	
2,50,001 to 5,00,000	Personal vehicle	
5,00,001 to 10,00,000	App based taxis	
More than 10,00,000	App based taxis	

Moreover, clear diverse preferences emerge when riders are split on the basis of gender. While 47 percent females prefer personal vehicles amongst private/ hiring modes of travel, only 33 percent males do so. Safety is one of the top three reasons for choosing personal vehicles as preferred mode by females. Safety is also the top most concern of riders travelling from one state to another in the NCR region. OAP taxis are most preferred choice of 44 percent males.

When preferences of riders based in different cities is analysed, diverse trends emerge.⁵⁵ For instance, most popular mode in New Delhi is personal vehicle but OAP services in other cities. OAP services closely follow personal vehicle in New Delhi. Also, challenge in availability of OAP services was observed in Sonapat. This can be due to several reasons including (i) small city size, (ii) availability of tuk tuk/ shared autos; (iii) semi-urban/rural setting and therefore, reliance on personal vehicles; and (iv) lack of acceptance of technology/ OAP platforms etc. Less price/ less cost is the top reason for the most popular mode of transport for riders in New Delhi,

⁵⁴ Riders were classified into different income groups: up to Rs. 1 lac per annum, between Rs. 1 lac and Rs. 2,50,000 per annum, between Rs. 2,50,000 and Rs. 5,00,000 per annum, between Rs. 5,00,000 and Rs. 10,00,000 per annum, more than Rs. 10,00,000 per annum, not earning, and not disclosing.

⁵⁵ Refer to sampling strategy for details on the city selection process.

but this reason does not feature in preferences of riders in Faridabad, Ghaziabad and Gurugram. Further, factors like reliability and comfort appear to be unique to riders of Faridabad, Gurugram and Ghaziabad, respectively (Table 3).

Table 3: Rider Choices by Cities

Cities in NCR	Most Popular Mode	Reason #1	Reason #2	Reason #3
Faridabad	OAP services	Less travel time	Availability	Reliability
Ghaziabad	OAP services	Availability	Less travel time	Comfort
Gurugram	OAP services	Availability	Less travel time	Reliability
New Delhi	Personal vehicle	Less costly	Less travel time	Availability
Noida	OAP services	Less travel time	Less costly	Availability
Sonepat	OAP services	Less travel time	Less costly	Availability

Interestingly, OAP services have emerged as most preferred mode across riders in most geographies, albeit for different reasons. This shows that different riders may value different characteristics in same mode of transport. The aforementioned analysis portrays the diversity and complexity of consumer preferences in Delhi-NCR's transportation market.

The divergence in terms of weightage attributed to various factors means that depending on the consumers and their preferences, the decision to switch from one mode to another may change, and broad generalisations might not reflect on-ground realities. Naturally, the non-price factors and diverse consumer switching behaviour should also be given due importance while delineating the relevant product market.

Consequently, as long as non-app modes are able to fulfil major characteristics desired by the riders, they are likely to act as competitive constraint to app-based modes. These constraints need not necessarily be price constraints. This means that transportation modes that may otherwise be different in physical characteristics may apply a competitive constraint on each other provided they cater to the specific demand factors (price and/or non-price) of the riders.

Be that as it may, we can draw the following preliminary conclusions at this stage:

- (a) The finding with respect to modes of transportation (other than OAP services), specially personal vehicles, non-app based auto rickshaws, and the Metro, being among top-preferred and most frequently used modes underlines the critical role that other transport modes in the Delhi NCR might be playing in acting as a countervailing power against any form of abuse by any player in the market,
- (b) The finding that radio taxi constitute less-preferred and less-frequently used hiring mode signify organic maturing of the transportation market, evolving consumer needs, the origin of previously untapped demand and significant riders shifting towards innovative and more sophisticated service providers, and

(c) The finding that consumers value non-price factors as much as price factors, especially availability and reliability in case of OAP services, is indicative of the cross-group network effects generated by such platforms. It also indicates that consumer behaviour/preference is a dynamic concept and is not limited to price-related considerations.

Considering these preliminary inferences, there is merit in actually looking at which modes are acting as a competitive constraint on OAP modes. To ascertain this, an analysis of interchangeability between different modes and switching decisions from the consumer perspective, (which goes beyond mere comparison of characteristics and service provision) has been conducted and findings are discussed in the subsequent sections.

Relevant Product Market

To contextualise switching behaviour, it is important to first examine the major travel needs of the riders catered to by the OAP services. Most riders have been using OAP services since last 2-4 years, and use app based services for around 2-10 times in a month. The top three travel needs catered by OAP services are personal outings/ leisure; travelling for place of work or study; and picking/ dropping family members. However, OAP services are still not a preferred option for first mile and last mile connectivity.

To cater to their travel needs, most riders (approximately 68 percent) do think of alternate modes of transport in addition to app based rides while booking a ride via an OAP.⁵⁶ This is an important behavioural finding and indicates that demand of majority of users of OAP services in Delhi-NCR is elastic to a significant extent. The top alternate modes of transport considered were non-app autos, non-app taxis, metro and personal vehicle. This finding is unsurprising as these are the usual modes of transport considered by riders, and the broad reasons for considering such modes are similar to those mentioned earlier, such as, less travel time, less costly/ economical, availability/ less waiting time. One outlier to the general trend emerged – most riders usually think of the Metro as an alternative to OAPs owing to its visibility of trip cost and its pre-decided fare.

a. Riders' side

Subsequent to a macro analysis of preferred modes of transport for riders in general and certain rider groups in particular, specific hypothetical scenarios helped us gather evidence about probable switching happening on the ground. These price and non-price hypothetical scenarios included long term price increase of OAPs; increase in wait time of OAP services (indicating reduced availability of OAP services); and complete unavailability of such services.

Assessment framework – SSNIP and SSNDQ

Assessment of user behaviour as a result of small but significant non transitory increase in price (SSNIP) is a popular method to ascertain substitutability for determining relevant market in a competition analysis. We earlier mentioned the challenges attributed to application of SSNIP test in two-sided markets' context. In order to tackle them, non-price factors such as reduction in availability and complete unavailability of such services have also been considered as indicators to examine the switching decisions of riders. The use of non-price factors also becomes important as a general preference analysis of riders (as discussed in previous section) indicated that non-price factors were considered as important by riders, if not more, as price factors, in determining the preferred mode of transport. The analysis of switching from the non-

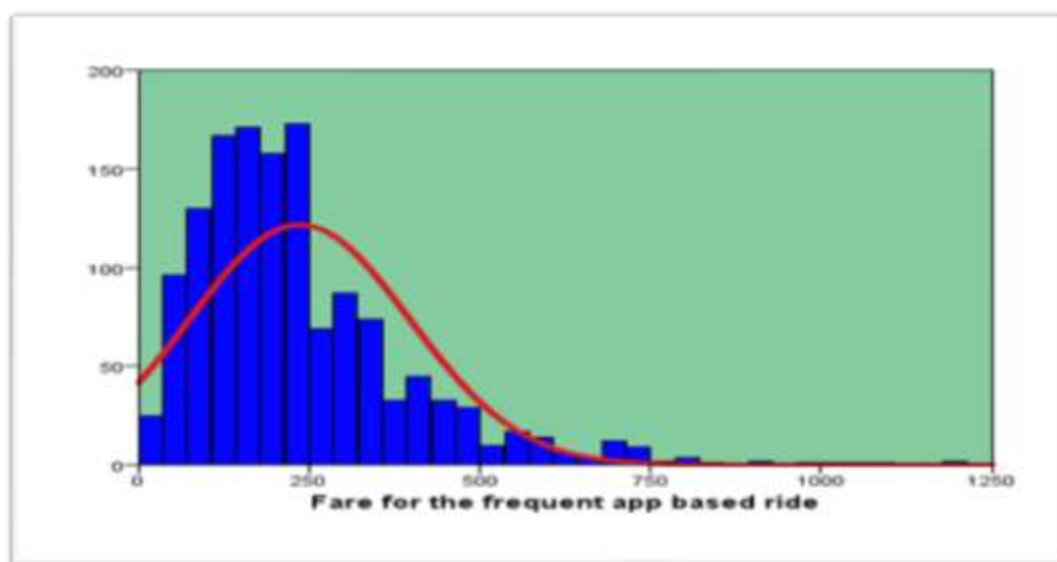
⁵⁶ The respondents were specifically asked whether they considered taking any alternative modes of transportation instead of an app-based ride – at any time before opening the application to book the ride or during the time when the rider has opened it already and is about to book the ride

price perspective is a proxy for conducting the Small but Significant Non-transitory Decrease in Quality (SSNDQ) test. The utility of the SSNDQ lies in its ability to inculcate a quantitative evaluation of quality factors in the market definition process.⁵⁷ Experts have observed that the SSNDQ test is necessary for defining markets and assessing market power in sectors subject to rapid technological change.⁵⁸

Hence, we conducted tailored versions of the SSNIP and SSNDQ tests in a complementary manner and do not see both tests as substitutes to each other. Moreover, the tests have been conducted on both sides of the OAPs – riders as well as drivers.⁵⁹

In the case of SSNIP test, although mostly a 5 percent increase in price is used to ascertain consumer behaviour, it is important to understand the context of service in which the increase is being assessed. As the distribution of the fares shows (Figure 4), there are more respondents who faced lower fares than those who faced higher fares (the riders were asked to mention either the average fare of their most frequent ride or the fare of the last ride taken). As a result, a 5 percent increase to a lower fare might not create an immediate noticeable difference for the users. The weighted average fare among all the responses given is about 236 rupees; a 5 percent increase would translate into about 248 rupees, which would just be equal to the mode in the distribution. It may not be significantly different from the original fare to cause significant shifting decisions. As a result, we thought that it might also be important to analyse how the riders would respond if the fare increased by a margin of 10 percent.

Figure 4: Distribution of fares of OAP services among riders



⁵⁷ OECD, *The Role and Measurement of Quality in Competition Analysis*, (2013) available at <http://www.oecd.org/competition/Quality-in-competition-analysis-2013.pdf>

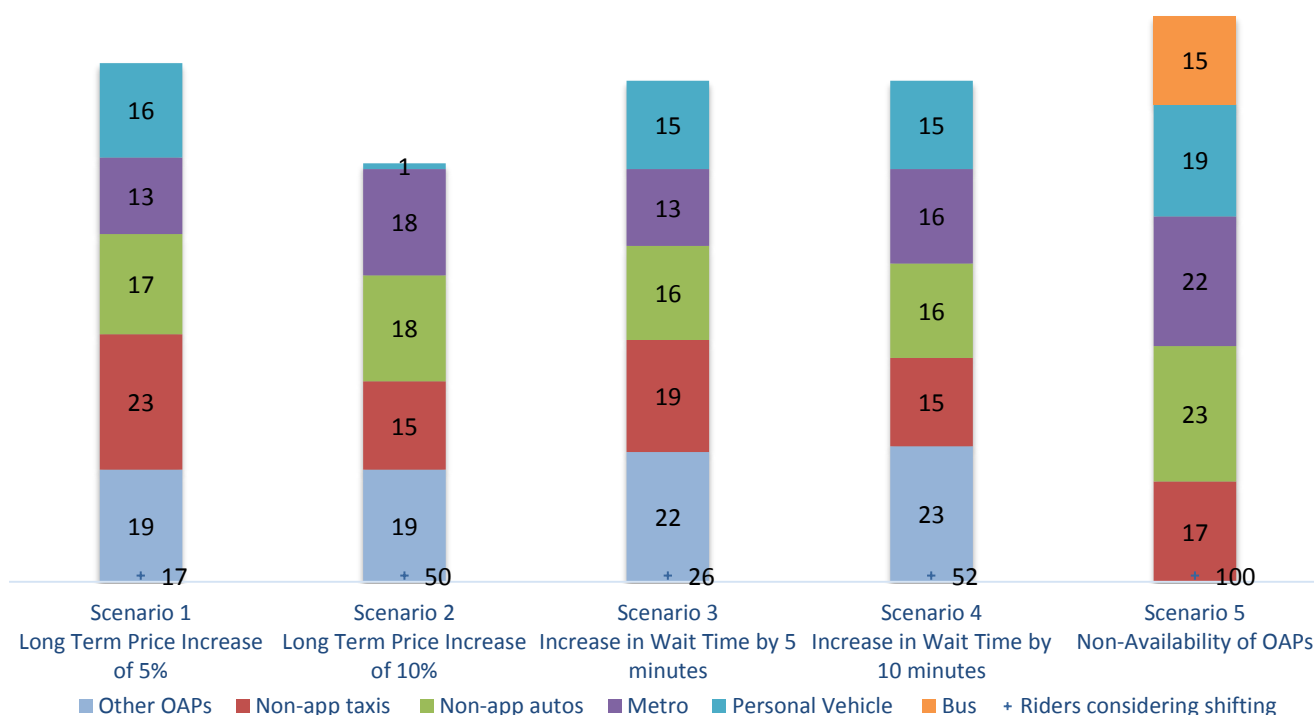
⁵⁸ Ibid.

⁵⁹ The application of the SSNIP and SSNDQ applied in the present instance remains open to external scrutiny and further improvements.

Findings

A broad snapshot of the price and non-price scenarios, along with the findings is mentioned in Figure 5.

Figure 5: Scenario Analysis for Riders (rider %)

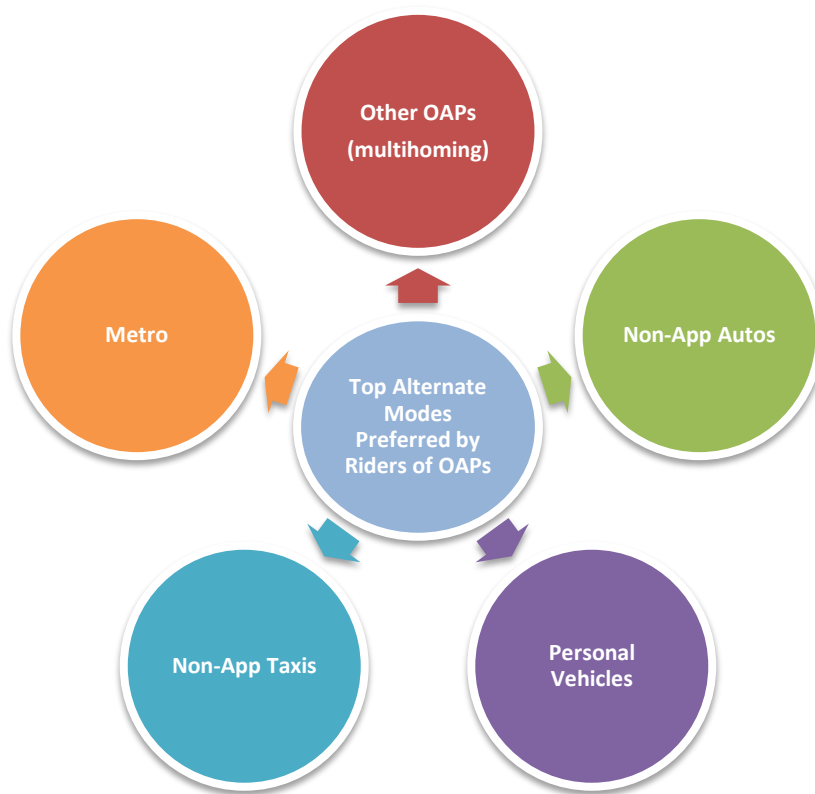


Even though 5 percent increase in price may not be significant, around 17 percent riders consider alternate modes of transport to OAP services in such scenario. As a response to rise in prices from 5 percent to 10 percent, the percentage of riders considering alternate modes of transport also increases from 17 percent to 50 percent. A similar trend is visible in non-price factors i.e. decrease in availability of OAP services.

A significant shift of riders to alternate modes of transport owing to hypothetical increase in prices or decrease in availability indicates that current pricing levels are competitive and not monopolistic. This finding was reinforced during expert consultations. It was mentioned that irrespective of mode/modes which consumers were shifting to, if OAPs lose significant business owing to change in price, the current pricing levels are likely to be competitive.

The top alternate modes preferred by riders are other OAPs (multi-homing), non-app autos, non-app taxis, metro and personal vehicles. These modes cumulatively garnered around 85 percent responses in each scenario, out of which other OAP services garnered around 20 percent responses and non-app modes garnered around 65 percent responses.

Figure 6: Top Alternative Modes



While the key alternatives considered by riders remain common across scenarios, the extent of preferences varies. For instance, while non-app taxi emerged as most preferred mode in scenario 1 (long term increase by 5 percent), this preference changes in scenario 2 (long term price increase by 10 percent). Diving deep into the nature of riders who preferred shifting to non-app taxis, around 68 percent of such responses in scenario 1 were from riders who chose OAP services as their most preferred mode of transport. The ratio of such riders reduced to 58 percent in scenario 2. As discussed earlier, the reasons of preference of these two modes differ.

Based on the understanding of top alternate modes considered by riders, we consider substitutability of each of these modes with the OAPs below. The level of closeness of substitution is depicted through three categories, in decreasing order of closeness: *close* substitutes, *next best* substitutes and *weak* substitutes.

- **Other OAP services – Multi-homing**

Due to the similarity in terms of pricing, service provision, availability and quality, OAP providers are the closest substitutes to each other. The immense popularity of OAP services also alludes to the competition among such modes and the closeness of substitutability amongst different OAPs. The costs of switching from one OAP to another (known as multi-homing) from the riders' perspective are minuscule. The ease of multi-homing is further exaggerated by the fact that there are smartphone applications available that help the riders to compare prices and estimated time of arrival. As there are two major OAPs in the Delhi-NCR – Uber and Ola, the

market is benefitting from intense contestability for ridership. Hence, app-based modes are without any doubt, the closest substitutes to one another.

It is safe to conclude that OAPs are *close* substitutes to be a part of the same relevant product market. This was also observed by the Commission in the abuse of dominance cases against OAPs (in several regions) and by the Competition and Consumer Commission Singapore (CCCS) in the assessment of the Uber-Grab merger deal.⁶⁰ This is also reinforced by the data collected on the ground (Refer to Figure 5 for switching decisions).

However, given that non-app modes are also being considered by riders signify competitive constraints posed by such modes over OAP services, although to a relatively lesser extent.

- **Non-app Autos vs OAPs**

Non-app based auto rickshaws are also a widely used mode in Delhi-NCR. They are usually hired from the street and are ideal for short distances. As mentioned before, the top reasons why consumers prefer autos include less cost, easy availability and less travel time taken. Time, cost and availability are noticeably the most critical and common elements of travel demand and autos have been able to cater to all three. This explains why autos have been able to remain relevant and competitive in Delhi-NCR despite the entry of OAP services and relatively inferior service characteristics of autos on parameters like comfort. For riders who value OAP services because of these three factors, auto-rickshaws are likely to be *close* substitutes (Refer to Table 1 and Figure 5 for data supporting this statement).

The closeness of substitution would naturally decrease for riders who seek to accrue greater value from OAP services like security, fare visibility, comfort etc. For instance, from the respondents who value security the most and are ready to shift to alternative modes in case of a 5 percent SSNIP, the response percentage in favour of shifting to auto-rickshaws is 12 percent. This is significantly lower than the general trend (average consumer shifting in favour of auto-rickshaws) that hovers around 17 percent.

Notably, it is a usual practice in Delhi-NCR that fares for individual rides are negotiated on the spot between the rider and driver, despite regulations mandating meter-based per km pricing. Stakeholder interactions indicate that with the emergence of algorithmic pricing offered by OAPs and fares being made visible at the time of booking, the ability of auto-rickshaw drivers to demand arbitrary fares at the time of negotiations has decreased. Consequently, auto-rickshaw drivers have lost bargaining power that they used to enjoy previously.

Hence, in addition to the three main factors, riders also value fare visibility, which has in effect constrained the auto-rickshaw drivers' ability to price their services. The point being that for the users who now value fare visibility, auto-rickshaws might not be close substitutes but only *next-best* substitutes. For other riders who give prime importance to other factors like comfort and security, autos will most probably be *weak* substitutes to OAP service providers.

⁶⁰ Case number: 500/001/18, Sale of Uber's Southeast Asian business to Grab in consideration of a 27.5% stake in Grab at p.42 In this case, the CCCS issued an Infringement Decision against Grab and Uber in relation to the sale of Uber's Southeast Asian business to Grab for a 27.5% stake in Grab in return (the "Transaction"). The Transaction was completed on 26 March 2018. CCCS found that the Transaction has led to a substantial lessening of competition in the provision of ride-hailing platform services in Singapore. See <https://www.cccs.gov.sg/public-register-and-consultation/public-consultation-items/uber-grab-merger>

- **Personal vehicles vs OAPs**

The OAP service providers have often claimed that their chief objective is to replace personal vehicles with instant smartphone based transport services, thereby replacing personal transport with a sharing economy model.⁶¹ It appears that this intent has also persuaded auto-makers to rethink their manufacturing strategies and sales plans as transport itself is starting to look like more of a commodity and the market is shifting towards smart mobility.⁶²

Moreover, the prominence of personal vehicle ownership in India is so immense that replacement of personal cars with efficient modes of transport including public transport and shared mobility has become a national policy objective. This is because shared mobility is likely to help in decreasing congestion, tackle air pollution and improve last-mile connectivity. These have consequently become important underlying principles of the Ministry of Road Transport's (MoRTH) latest guidelines of taxi policy.⁶³

Despite these efforts, personal vehicles are used very frequently by the citizens of Delhi-NCR and vehicle ownership is constantly increasing.⁶⁴ It is highly likely that users of OAP services own and use a personal vehicle. Out of the entire rider sample, there are only 11 respondents who do not own one. This means that 99.2 percent of the respondent group have access to personal vehicles, including two wheelers and/or four wheelers.⁶⁵ This portrays that vehicle ownership is extremely common among the group of riders that use OAP services. Combined with the fact that OAP services are trying to mimic and possibly beat the convenience and cost-effectiveness of personal vehicles, it becomes more likely that personal vehicle usage is a significant competitive constraint on OAPs business in Delhi-NCR. Data on rider switching also depicts that the response percentage in favour of switching to personal vehicles is hovering between 15-19 percent (Figure 5) and riders' top reasons for choosing both modes are comparable to a significant extent (Table 1). This indicates that the level of closeness is high and personal vehicles and OAP services could be considered as *close* substitutes.

However, this might or might not hold true in other cities or regions because substitutability is case and circumstance specific. For example, in the Uber-Grab merger in Singapore, the CCCS noted that private cars were not substitutes, "*in large part due to the high cost of owning a private car in Singapore, which is prohibitive for a significant proportion of the population*".⁶⁶ Moreover, the CCCS noted that for existing car owners, there was some substitutability between platform services and private car usage. Since this group of existing car owners did not form a sufficiently large base of the parties' rider base, it was held that private cars in Singapore do not pose a significant competitive constraint on the platforms' business.⁶⁷ It should, however, be noted that the the order of the CCCS in Uber-Grab is under appeal.

⁶¹ See for instance https://www.uber.com/newsroom/mode_switch/

⁶² See <https://www.livemint.com/Companies/QcRCclz6EEDWGQx11JM3yK/Cabs-make-car-firms-rethink-sales-plans.html>

⁶³ See <https://smarnet.niua.org/sites/default/files/resources/Taxi%20Policy%20Guidelines.pdf>, p.13

⁶⁴ See registration trends available at <https://vahan.parivahan.gov.in/vahan4dashboard/>

⁶⁵ This includes the personal vehicles of the respondents' families.

⁶⁶ Case number: 500/001/18, Sale of Uber's Southeast Asian business to Grab in consideration of a 27.5% stake in Grab at p.48

⁶⁷ Ibid.

It should also be kept in mind that every city/region may have different complexities vis-à-vis keeping and using private vehicles, therefore, the assessment of substitutability between private vehicles and OAPs is to be carefully conducted keeping in mind region-specific facts and circumstances.

- **Non-app taxis vs OAPs**

The riders also have the option of booking taxis through offline modes such as phone calling, direct street hailing or calling intermediaries like taxi stands. These modes were more prevalent and widely used before the entry of OAPs. This was reinforced through stakeholder interactions with non-app taxi service providers who spoke about their declining businesses and profits post the entry of OAPs.

It is important to note that street hail is only prevalent in hubs such as bus stands, railway/metro stations and the practice of hailing taxis from the street is extremely uncommon in Delhi-NCR. Hence, the non-app taxi modes that are still functioning include an intermediary in some form or the other. Notably, these offline modes also display network effects to some extent as they are two-sided platforms as well. This emerged from stakeholder interactions also where offline taxi providers stated that they still had their own closed networks of loyal customers and who further refer their names to other customers.

In terms of product characteristics, there are similarities as well as differences between these modes and OAPs. Similarities include the level of comfort, reliability, availability, two-sidedness (except for street or direct hail) and round the clock service. Differences are mainly regarding the prices and the manner of booking. Stakeholder interactions with taxi stand owners and other offline service providers indicate that it is mainly the difference in prices that has made riders shift from offline taxi services to OAP service providers. There is a significant difference in trip fares because offline taxi services charge a fixed fare and charge for the return trip as well (the taxi has to return to its designated point of origin after dropping the passenger). This is not the case with OAPs because of the real-time pick-and-drop facility enabled through the GPS and dynamic pricing based on demand-supply factors.

Non-price competition is, however, very much existent. Data suggests that reliability and availability are important reasons for their choice of non-app taxis. The existence of non-price competition was also highlighted by stakeholders who stated that offline modes are as good as OAPs (or even better according to some) in terms of reliability and travel time.

Hence, for the riders who value non-price factors more, non-app taxis are more likely to be *next-best* substitutes as compared to those riders who give prime importance to price.

- **Metro vs OAPs**

The Delhi Metro began its operations in 2002 and has emerged as one of the critical modes of mass urban transportation in Delhi-NCR.⁶⁸ Its operational network presently stands at 317 km with 231 metro stations.⁶⁹ It extends beyond the boundaries of Delhi to cover other cities of the

⁶⁸ See http://www.delhimetrorail.com/about_us.aspx

⁶⁹ See http://www.delhimetrorail.com/Zoom_Map.aspx

NCR.⁷⁰ The Metro has emerged to be the most preferred mode of public transport with 88 percent respondents choosing it as their top choice.

Notably, Metro has a fixed timing and does not necessarily connect the user origin directly to her destination. However, both OAPs and Metros are preferred by respondents for being easily available and offering less travel time. Thus, due to the value attached by riders to non-price factors, it is likely to exercise competitive constraint on OAPs. It also features in the top alternate modes of transport considered by riders with increase in prices and waiting time of OAPs. Further, it emerges to be a popular mode amongst riders in the event of non-availability of OAPs. Additionally, the fact that the Metro has constantly upgraded its network and continues to build its infrastructure to connect different areas of Delhi-NCR portrays its ability to offer a cost-effective alternative to OAPs. Therefore, in view of its preference coupled with limitations, Metro might qualify only as a *next-best* substitute to OAPs.

- **Radio Taxis vs OAPs**

As mentioned initially, present Indian jurisprudence considers radio taxis to be in the same relevant market as OAPs and clubs them in the same relevant product market – i.e. “market for radio taxi services”. The rationale is that the consumer views OAPs as service providers of radio taxi services whose service is substitutable with the services provided by other radio taxi service operators, irrespective of the business model followed by them.

However, data suggests that there is a growing distinction between traditional radio taxis (booked through means other than online means) and OAPs in the mind of the riders. It appears that radio taxis are no more considered as timely available or reliable mode of transport. Consequently, despite offering comfort comparable to OAPs, riders may not prefer radio taxis, due to access to better alternatives in the market. Also, over time, the market has evolved and reached a stage where riders are not willing to shift back to modes that they consider inefficient in the taxi market. This can impact contestability. At best, radio taxis may qualify only as *weak substitute* of OAPs, for riders valuing comfort over other factors.

However, given that some traditional radio taxi operators also offer OAP services in which their own vehicles also ply, the Commission may reconsider the previous market definition in any subsequent cases.

It is also relevant here to discuss here the case of Kolkata where the Commission broadened the relevant market to include yellow taxis because they had an active presence and commuters’ reliance on such taxis was significant, indicating that yellow taxis provide a viable alternative.⁷¹

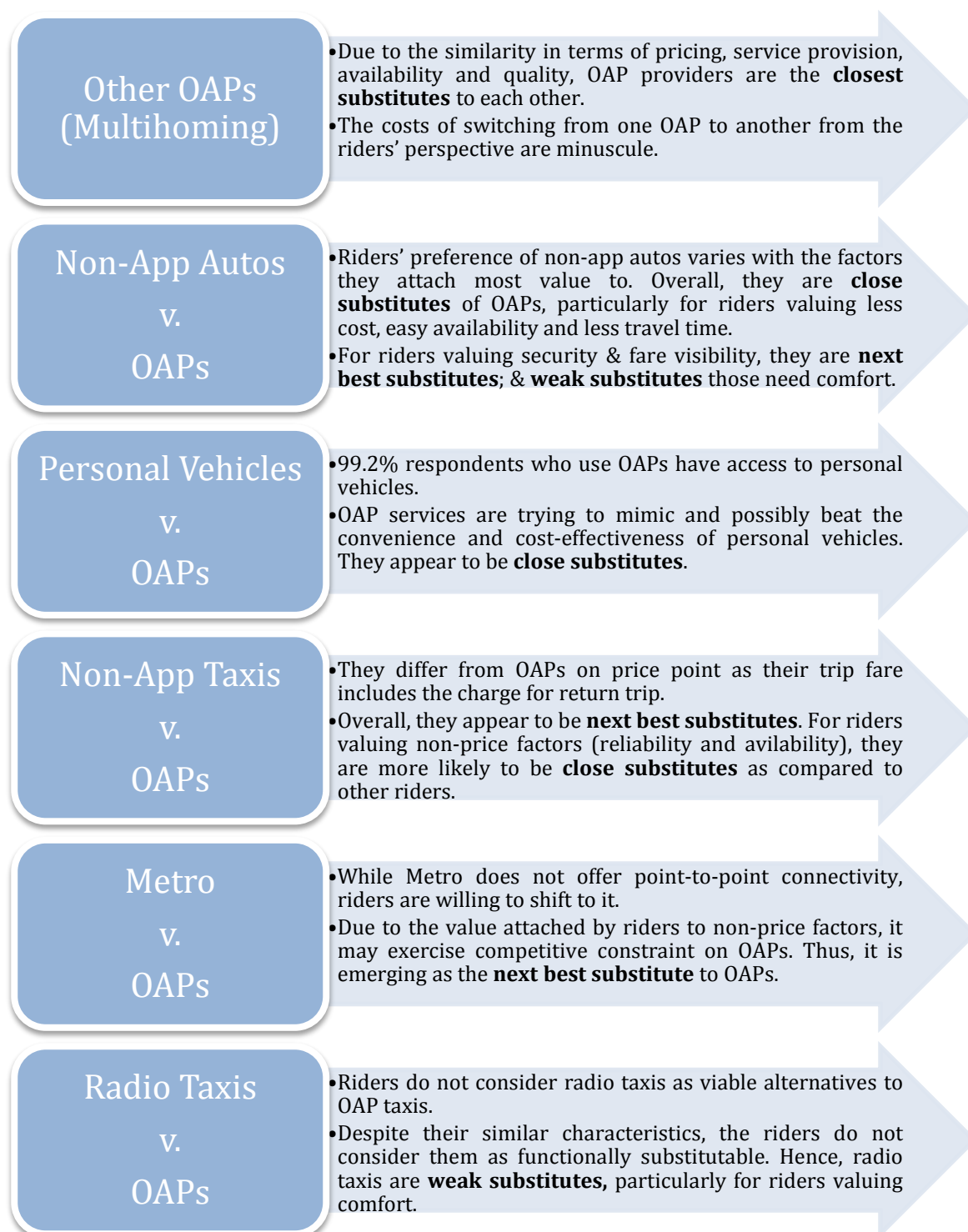
Applying the same logic to the present case where radio taxis appear to no longer provide a ‘viable alternative’ to commuters in Delhi-NCR (as suggested by data), there remains limited rationale behind including radio taxis in the same relevant market. If the actual on-ground viability is considered as a factor to broaden the market, it ought to also justify narrowing down of the market, especially when the rider/commuter does not consider two modes to be substitutable due to lack of viability. Should the viability of radio taxis increase in future, with

⁷⁰ Ibid.

⁷¹ See Case No. 81 of 2015 Meru Travel Solutions Private Limited and Uber India Systems Pvt. Ltd. <https://www.cci.gov.in/sites/default/files/812015.pdf>

enhancement in timely availability and reliability for riders, the relevant market could be re-examined to determine if they pose significant competitive constraint on OAP services.

**Figure 7: A snapshot of comparison of the OAPs with Top Alternatives
Modes preferred by riders of OAPs in Delhi-NCR**

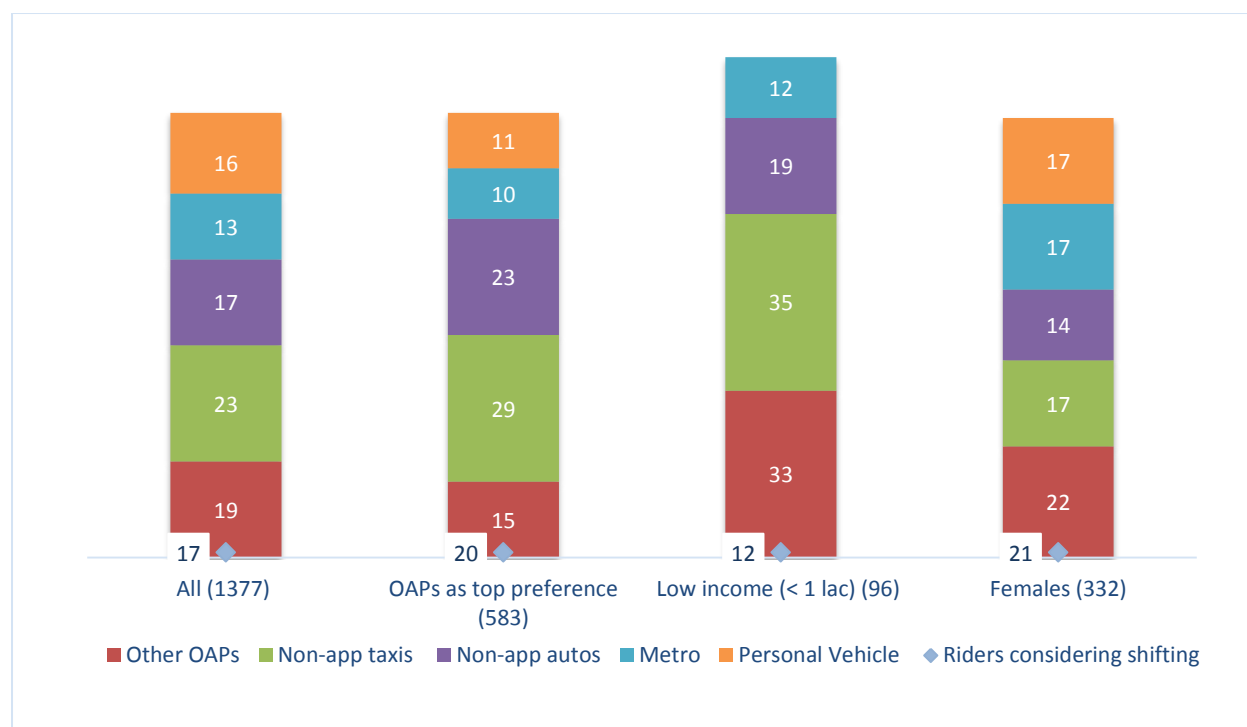


DIVERGENCE IN PREFERENCES AS PER CHANGING DEMOGRAPHICS AND OTHER FACTORS – INCOME, GENDER AND USAGE OF OAPS

The diverse shifting patterns of riders, as mentioned above, lends credence to the hypothesis that the choice of alternatives and reasons thereof may vary across riders depending on income, gender, geography and other such factors.

To verify this hypothesis, we examine shifting trends of riders across groups in aforementioned scenarios. We analysed shifting preferences of female riders, riders in low-income groups, and riders who chose OAP services as their most preferred mode of travel (Figure 8).

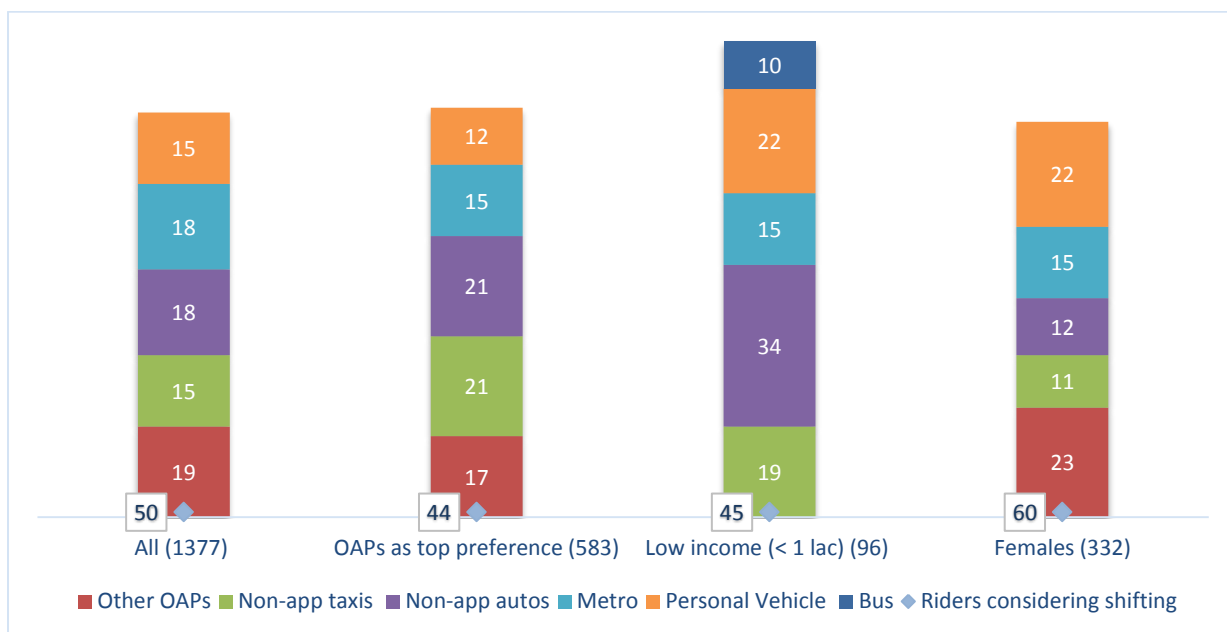
Figure 8: Riders Analysis Scenario 1- Long Term Price Increase of 5% (rider %)



Spotlight Finding: Female Riders are highly price sensitive

Around 21 percent and 60 percent females consider alternate modes of travel in case of price rise in OAP services by 5 percent and 10 percent, respectively. This is significantly higher than the average proportion of riders considering alternatives. Further, females are likely to consider personal vehicles over other popular modes of transport. This is perhaps owing to reasons of safety (Figures 8 and 9).

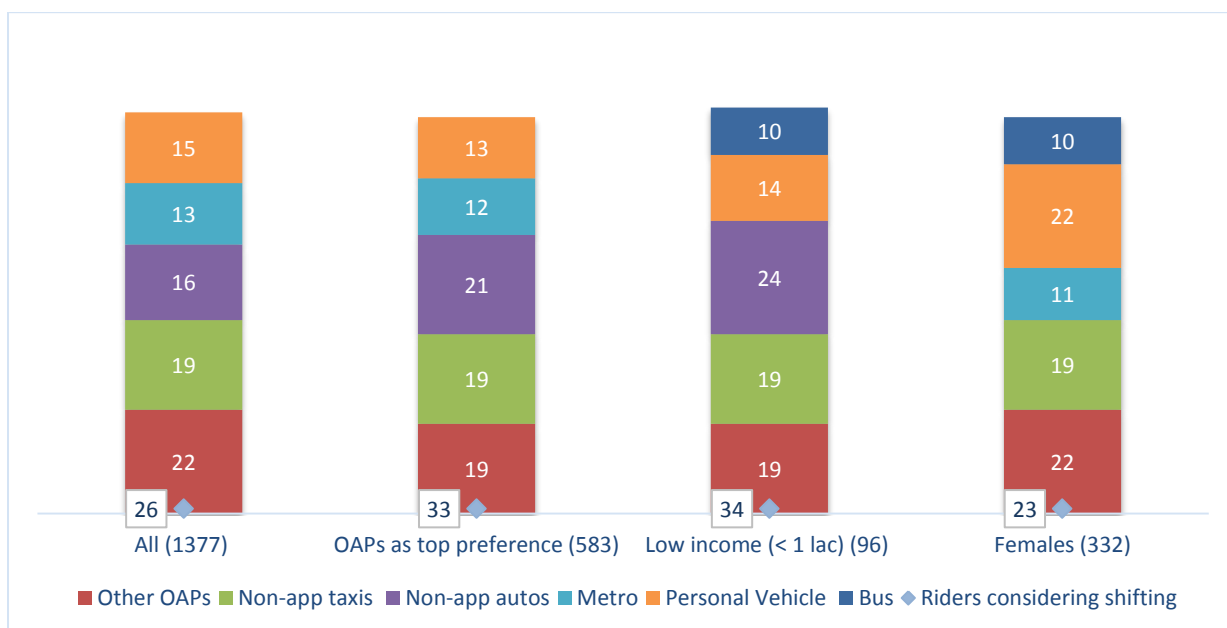
Figure 9: Riders Analysis Scenario 2 - Long Term Price Increase of 10% (rider %)



Spotlight Finding: Non-App Autos is Most Preferred Alternative by several rider groups

Non-app autos are the most preferred alternative considered by riders of low-income group and riders considering OAP services as most preferred mode of transport (Figure 9). Naturally, bus is a popular alternative among riders of low-income group. However, given that choice of bus is not ubiquitous among rider groups, it is unlikely to feature within relevant product market.

Figure 10: Riders Analysis Scenario 3 - Wait time increase of 5 minutes (rider %)

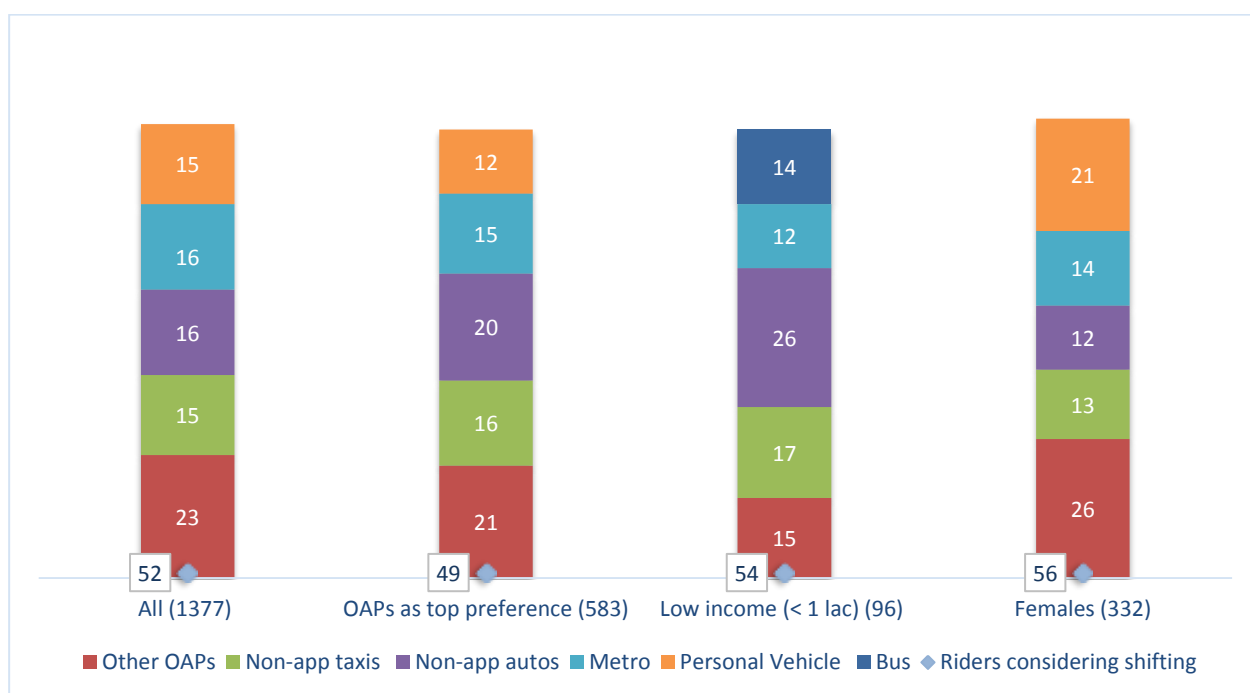


Spotlight Finding: Increase in wait time influences riders' shifting decision

When we review shifting patterns across rider groups owing to change in non-price factors such as reduction in availability, interesting trends emerge. The average wait time experienced by riders is around 7 minutes. If the wait time increases by 5 minutes (close to 71 percent increase), around 26 percent riders are likely to consider alternate modes of transport (Figure 10). Female riders are likely to experience a little lesser wait time than males. They also appear to be more patient riders when faced with smaller increase in wait time, perhaps owing to reasons of safety and comfort.

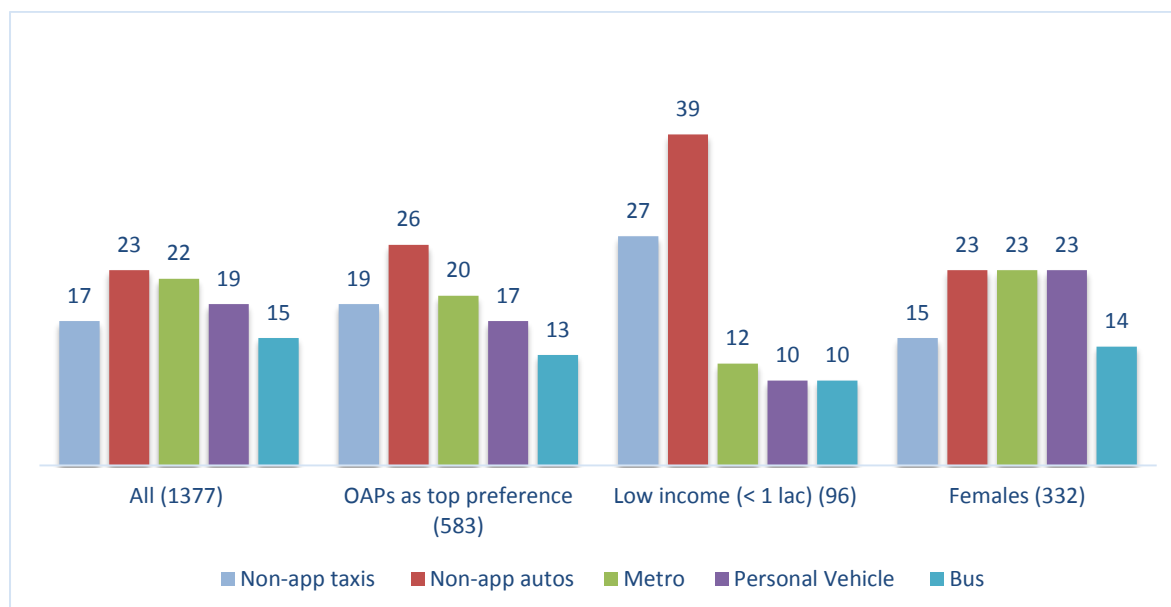
However, around 50 percent OAP riders are likely to consider alternate modes of transport when the estimated wait time increases by 10 minutes. Most popular alternate modes are other OAP services, non-app taxis and non-app autos. It appears that non-app autos are likely to be quite popular among OAP riders of low-income groups in case of long term price and wait time increase. (Figure 11).

Figure 11: Riders Analysis Scenario 4 - Wait Time Increase of 10 minutes (rider %)



However, despite being widely popular, it appears that non-app autos are not very popular among female riders, who prefer personal vehicle and metro more than non-app autos, perhaps owing to reasons of safety. Bus also emerges as one of the popular modes of transport among low-income riders, but its preference is not ubiquitous.

Figure 12: Rider Analysis Scenario 5 - Non-Availability of OAPs (rider %)



Spotlight Finding: Non-availability of OAPs

When no OAP service is available (Figure 12), non-app autos and metro emerge as most popular modes of transport. In line with their preferences in other scenarios, female riders prefer personal vehicle over non-app taxis. On the contrary, low-income riders and riders preferring OAPs as their top choice of transport prefer non-app autos over non-app taxis in event of unavailability of OAPs.

While the key alternate modes of transport considered by riders remain common, differing trends among riders suggest diverse factors considered by riders in choosing their preferred mode of transport. Also, the findings suggest that radio taxis, which have so far been presumed to be within the same market as OAP services, are gradually going out of favour.

i. Riders' Side Findings

The key conclusions emerging from analysis of switching preferences of riders are:

- a) A significant shift of riders availing OAP services to alternate modes of transport owing to hypothetical increase in prices or decrease in availability indicates that current pricing levels are competitive and not monopolistic.
- b) Riders consider app based as well as non-app based modes as an alternative to their existing OAP services. Key alternates comprise other OAPs, non-app autos, non-app taxis, personal vehicles and metro. Other OAPs being the most preferred substitute across the board means multi-homing is prevalent as the costs of switching from one OAP to another are negligible. This indicates high level of contestability between OAP service providers for the market of ridership. It also indicates that OAPs are the closest substitutes to one another.

However, contestability on riders' side between different OAPs is not limited to one another but extends to other modes of transportation highlighted above. The collective competitive constraints (price and non-price) applied by non-app modes on OAPs (as riders are shifting to non-app modes) means that the relevant product market on the riders' side is broader than just OAPs. A comparison of each of these modes portrays that the closeness of substitution varies and can be depicted in the following decreasing order (1 being closest and 6 being weakest): 1. Other OAPs 2. Non-app auto-rickshaws 3. Personal vehicles 4. Non-app taxis 5. Metro 6. Radio taxis.⁷²

- c) As preferences among these modes are likely to vary with change in riders and their situation-specific requirements, the relevant product market from the riders' perspective is highly subjective. This is evident from the fact that different categories of riders perceive OAPs differently and derive varied levels and types of benefits from them. Hence, riders are unlikely to view OAP services uniquely. Rather, they are likely to compare specific features of OAP services from which they derive most value with similar features of other service providers, which may have different physical attributes, in order to decide.
- d) Riders' functional substitution to alternative modes from OAP services is likely to be determined by price and non-price features of available modes of transport, with the latter playing a significant role in riders' preferences.
- e) The fact that different riders value different features in OAPs leaves the scope for innovation in transport market substantially open. For instance, in order to cater to specific demand of security for female riders, app based taxis driven by women for women have been launched.⁷³ Entry barriers for more such innovative services seem low.⁷⁴

b. Drivers' side

In order to delineate the relevant product market in the context of two-sided platforms, it is critical to view both sides of the platform. This is because the competitive constraints that the platform faces on one side might not always be applicable if perceived from the other side. Moreover, the nature of demand for the platform on both sides might be different despite the interconnectedness between them.

Assessment framework

Hence, we specifically viewed how drivers (taxi drivers and drivers of three-wheelers – popularly known as auto-rickshaws that are attached to OAPs) perceive OAPs and gauged their

⁷² These findings appear consistent to emerging literature. See, "Importantly, when defining a market, one must consider not only the competitive constraints from other two-sided platforms, but also from one-sided businesses (e.g., taxis for ride-sharing services or checks for credit-card transactions) to the extent they are considered viable substitutes. This can be done by properly defining the relevant market." Wong-Ervin, Koren, Assessing Monopoly Power or Dominance in Platform Markets, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3525727

⁷³ www.koalacabs.com

⁷⁴ The literature is increasingly recognizing the room for niche and innovative service providers to co-exist and compete with large multi-sided platforms. "Large heterogeneity and low entry cost imply that while there may not be room for two large platforms, there are usually niche opportunities for small platforms, which may have the potential to challenge the incumbent" See, Jullien and Sand-Zantman, *The Economics of Platforms: A Theory Guide for Competition Policy*, TSE Digital Center, Policy Papers series No. 1, September 2019, at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3502964

possible switching behaviour, in terms of cost of access (mainly service fees charged by platform), incentives received by drivers⁷⁵ and unavailability of OAP services.

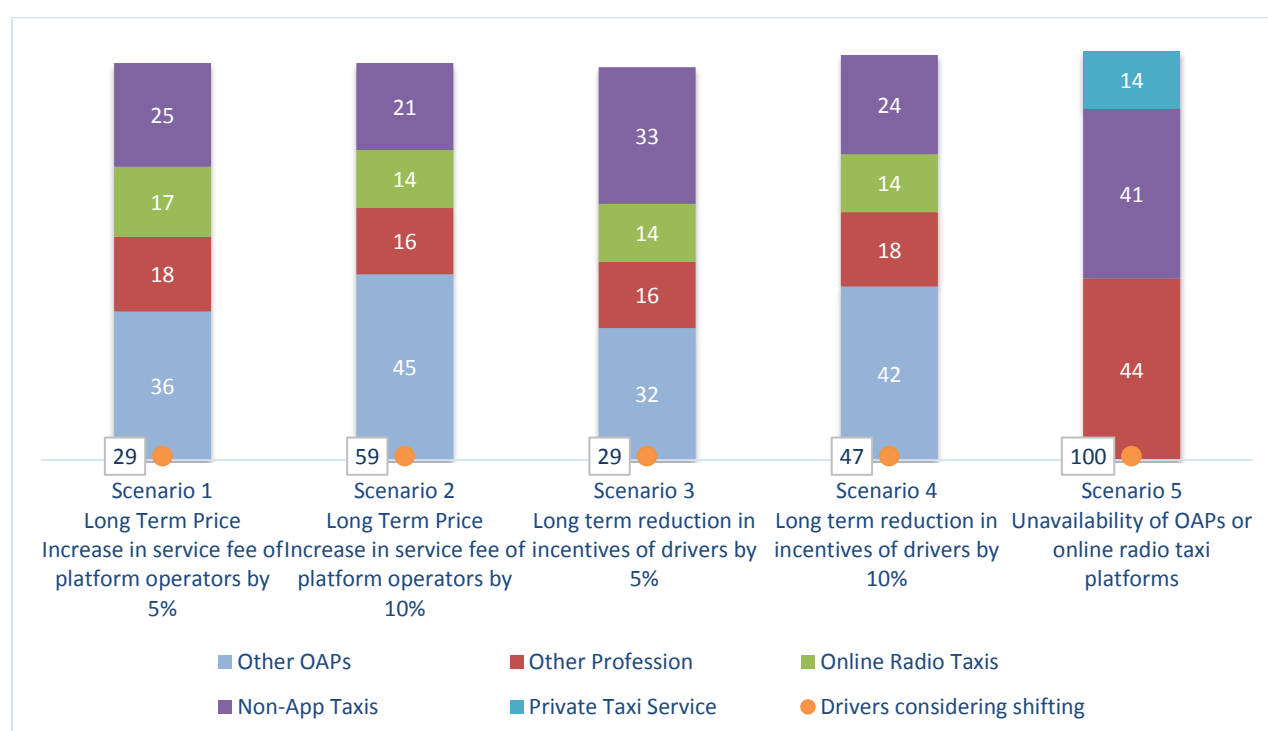
To that end, several hypothetical scenarios were designed that related to long term increase of service fee of platform operators, reduction in incentives of drivers and unavailability of online platforms. Such scenarios helped us gather evidence about probable switching happening on the ground and identify probable substitutes to OAPs from the drivers' perspective (Figure 13).

Findings

• Taxi drivers

A broad snapshot of scenarios presented to **taxi drivers** to gauge substitutability among options available is set out below.

Figure 13: Taxi Drivers Scenario Analysis⁷⁶



As is evident, a long-term increase in service fee of platform operators by 5 percent is likely to result in around 29 percent taxi drivers associated with such platform considering shifting to other alternatives. An escalation in platform operators' service fee from 5 percent to 10 percent is likely to result in a spike (from 29 percent to 59 percent) in the number of taxi drivers who would consider shifting to alternative service providers. Similar trends are visible in decrease in

⁷⁵ "Driver incentives refer to payments that we make to Drivers, which are separate from and in addition to the Driver's portion of the fare paid by the consumer. For example, Driver incentives could include payments we make to Drivers should they choose to take advantage of an incentive offer and complete a consecutive number of trips or a cumulative number of trips on the platform over a defined period of time.", retrieved from <https://www.sec.gov/Archives/edgar/data/1543151/000119312519103850/d647752ds1.htm>

⁷⁶ Total drivers: 462

incentives of taxi drivers associated with OAPs, albeit the sensitivity towards reduction in incentive appears to be lesser.

A shift by a substantial proportion of drivers from an existing online platform indicates competitive constraints posed by other modes on OAPs. The top alternate modes considered by drivers are shifting to other OAPs, plying as non-app taxis, or online radio taxis. These modes cumulatively garnered around 80 percent of responses, of which a predominant were in favour of shifting to other OAPs (around 39 percent on average). Plying as non-app taxis and online radio taxis fell short by a fair distance, garnering around 26 percent and 15 percent responses on an average, respectively.

Additionally, 17 percent responses were in favour of switching the professions. In fact, more responses were in favour of leaving the existing profession over joining radio taxis. In case of unavailability of OAPs and online radio taxis, most drivers are likely to shift to a) a new profession or b) non-app taxis.

As witnessed in previous section, other OAPs were one of the highly preferred alternatives among riders along with non-app taxis and non-app autos. Similarly, taxi drivers prefer to switch between OAPs in the first instance. This displays the strong feedback loop between driver and rider demand. It also portrays the critical role that OAPs play in facilitating the real time matchmaking between the driver and the rider. The data revealed that around 11 percent⁷⁷ of drivers are currently multi-homing (attached to more than one OAPs). Additionally, around 19 percent of taxi drivers claimed to have procured taxis through loans.

From the drivers' perspective, OAPs usually facilitate matchmaking by providing several services such as connecting riders to nearby drivers, letting drivers view rider availability through a smartphone in real-time, algorithmic price discovery and real-time navigation etc. Such a service is even more crucial to the drivers' side because it appears that it has become difficult to avail riders through other modes such as offline taxi service providers, radio taxi providers or street-hailing in cities such as Delhi-NCR (especially for taxi drivers and not so much for auto drivers).

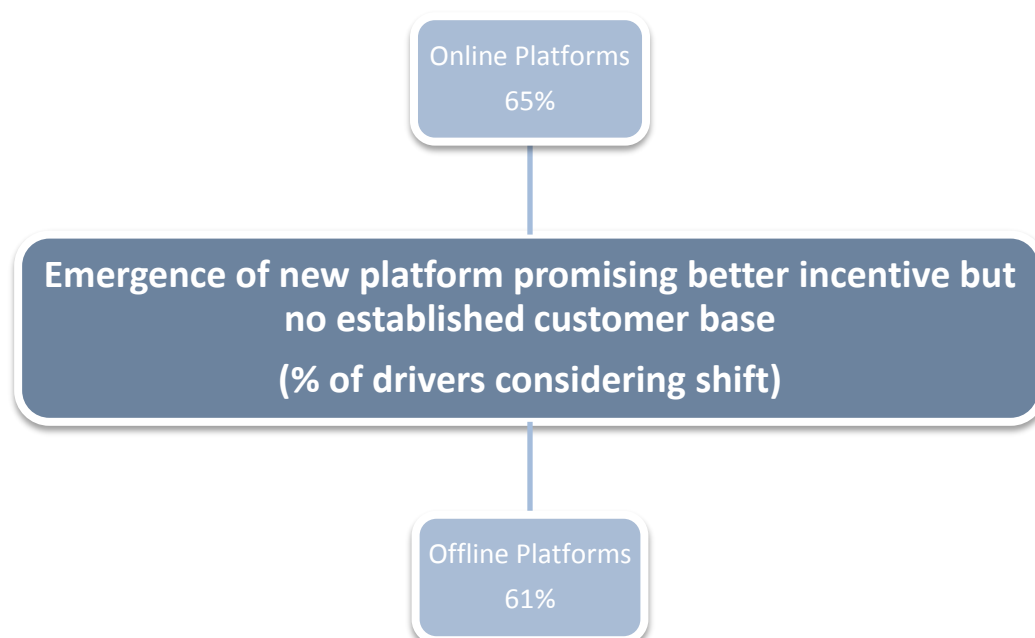
This is because technology enabled matchmaking and facilitation services have perhaps evolved as the most advanced and easiest ways of accessing riders – in the taxi industry at least. Without this essential component, it appears to be extremely difficult (both in terms of cost and time) to serve the rider in a way that is sustainable for drivers (in the taxi market). The same was corroborated during the stakeholder interactions with several taxi drivers who were attached to offline service providers. They were clearly facing difficulties in terms of getting consistent access to riders and even claimed to be sitting idle during the major part of the day due to this challenge.

The centrality of technological matchmaking or facilitation services is perhaps the reason why the degree of reliance on OAPs is uniquely higher from the taxi drivers' perspective (as

⁷⁷ During our stakeholder interactions, a major OAP claimed that a significantly higher proportion (i.e. almost half) of drivers currently multi-home. It also claimed that in addition to multi-homing, drivers continue to have the option of undertaking private (for example, half-day, full-day or outstation hires) or corporate transport duties (for example, call-centre pick up, transport for business meetings, airport drops and pick up for company executives, etc.)

compared to riders for whom it is relatively easier to switch to other offline modes). However, such finding is not surprising. The alternate modes considered by taxi drivers are predominantly those that pose the least amount of switching costs. Perhaps, this is also reflective of the efforts invested by platforms to retain drivers and ensure their availability for riders.⁷⁸ The switching costs to unrelated modes like metros or buses for that matter are prohibitively expensive and thus perhaps unrealistic, and akin to change in profession. Lack of other offline suppliers to swiftly provide an equally strong and viable means of connecting the drivers to riders may also act as a hindrance to switch. This is different from the riders' perspective wherein switching costs to offline modes are negligible.

Interestingly, when asked about willingness to shift to a new platform providing higher incentives, but without an established customer base, around 65 percent taxi drivers replied in the affirmative for online platforms. In line with this phenomenon, in Delhi-NCR, a new competitor – Burdy recently made inroads into the market. It has adopted a business model through which it fixes fares on a per km basis and ensures increased certainty of wages and security for the drivers. It has already been able to get 12,000 drivers on board its platform which proves that drivers are open to working with new aggregators.⁷⁹



⁷⁸ Moreover, while justifying key contractual terms between platforms and suppliers, Akman notes, "these terms may arguably be necessary to preserve the investments made in the platform by ensuring a certain quality level in the dealings facilitated between suppliers and customers. This is because erosion of such quality on one or both sides of the platform can lead to a loss of network effects and of the necessary scale of operations for the platform, which can ultimately lead to the collapse of the business model. Thus, although [both of] these types of terms may be unusual for traditional agency relations, they do not appear to be unusual for the standard contracts of platforms given how the platform business model functions". See, Pinar Akman, *Online Platforms, Agency, and Competition Law: Mind the Gap*, 43 Fordham Int'l L.J. 209 (2019), at <https://ir.lawnet.fordham.edu/ilj/vol43/iss2/1>

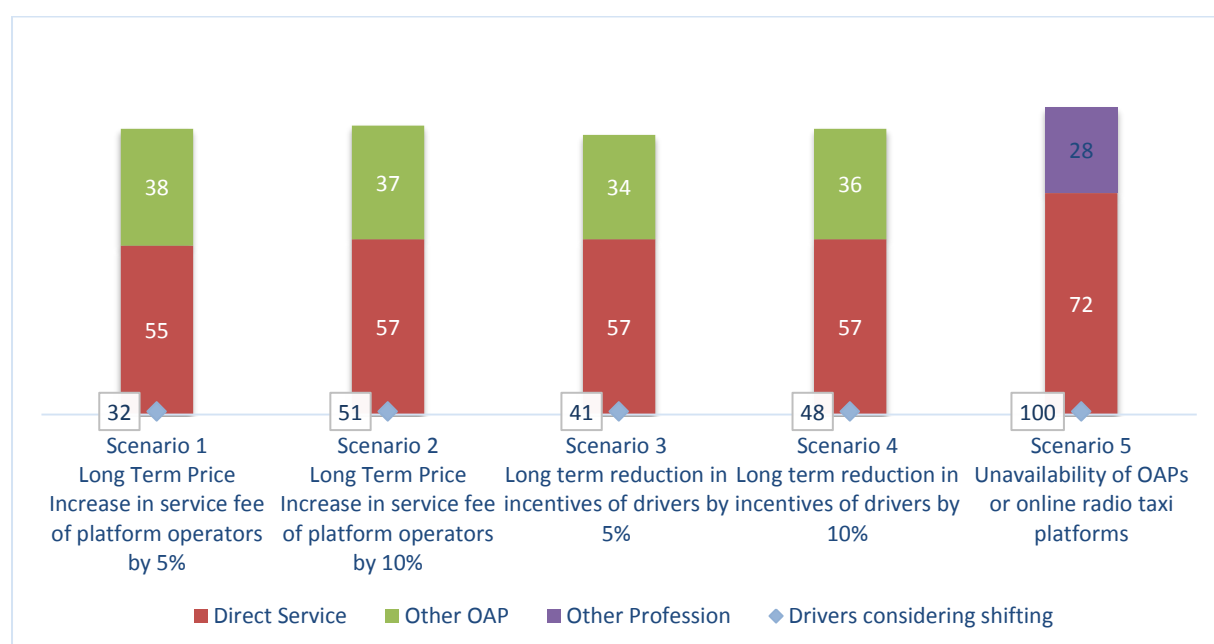
⁷⁹ See <https://timesofindia.indiatimes.com/business/india-business/burdy-launches-cab-aggregation-services-in-delhi-ncr/articleshow/66458746.cms>

However, drivers have been more responsive to working with online platforms over offline ones. This indicates the important role that technology has played in facilitation of transportation services and transforming the urban transportation market into what it is today. More importantly, given that around 35 percent taxi drivers have chosen to stay put with their existing OAPs at prevailing incentives and an established customer base highlights the role cross-group network effects play in switching decisions of drivers. This also reinforces the findings in previous section that drivers value demand-led factors as much as, if not more, than the price factors in decision making.

- **Auto-rickshaw drivers**

However, the scenario analysis of drivers of three-wheelers or **auto-drivers** linked with OAPs tells a different story (Figure 14).

Figure 14: Auto Drivers Scenario Analysis⁸⁰



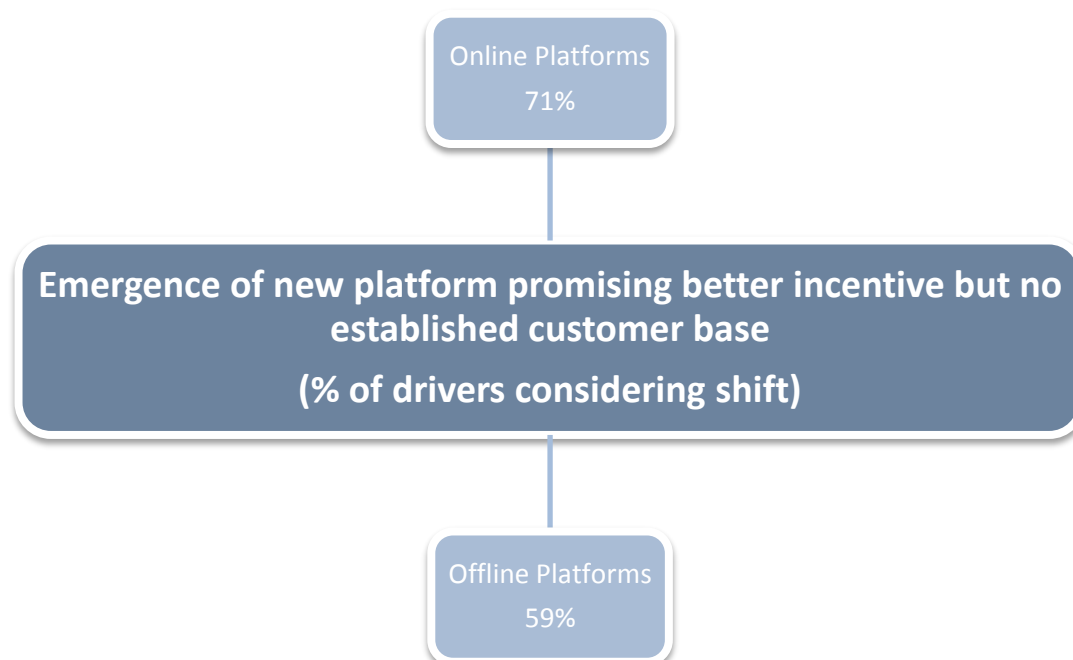
As is evident (Figure 14), a long term increase in service fee of platform operators by 5 percent is likely to result in around 32 percent auto drivers associated with such platform considering shifting. An escalation in platform operators' service fee from 5 percent to 10 percent is likely to witness increase in ratio of auto drivers considering shifting from 32 percent to 51 percent. Similar trends are visible in decrease in incentives of auto drivers associated with OAPs.

A substantial proportion of drivers shifting from their existing online platform indicate competitive constraints posed by other modes. The top alternative considered by auto drivers is providing direct service to riders (garnering around 57 percent responses on average). This mode comprehensively outweighs the other popular choice of shifting to other OAPs (which garnered around 36 percent responses on average).

⁸⁰ Total drivers: 198

This finding is unsurprising as app based autos as a travel option has not yet taken off in the Delhi-NCR and riders typically prefer non-app/ direct service/ street hail autos over app based autos. Moreover, the switching costs which auto drivers face while shifting from OAPs to non-app modes is unlikely to be significant and substantially lesser than those faced by taxi drivers linked with OAPs. Only around 13 percent auto drivers had procured their vehicles on loans.

Interestingly, when asked about willingness to shift to a new platform providing higher incentives, but without an established customer base, around 71 percent auto drivers replied in affirmative, if such platform was online. The ratio of affirmative responses declined by approximately 12 percent if such a platform worked through offline means.



The reliance on an online platform over an offline one points to role of technology in transportation market. More importantly, given that a significant proportion of auto drivers have chosen to stay put with their existing OAPs despite lower service fees but established customer base highlights the role cross-group network effects play in switching decisions of drivers. This also reinforces the findings in previous section that drivers value demand-led factors as much as, if not more, than the price factors in decision making.

However, when compared with responses of taxi drivers, the willingness of a higher percentage of auto drivers to shift to other online platforms also points to the comparatively lower switching costs they are likely to face.

i. Drivers' Side Findings

The key conclusions emerging from analysis of switching preferences of drivers are:

- a) A significant shift of drivers from their existing OAPs to other modes indicates that current pricing levels are competitive and not monopolistic. However, it might also indicate that the earnings that the drivers are presently earning are just sustainable and even a SSNIP

(service fee increase and/or incentives decrease) can lead to significant number of drivers shifting to alternatives.

- b) Taxis drivers and auto drivers are likely to consider different options for switching, in case of hypothetical increase in service fee of platforms operators' or reduction in their incentives.
- c) Key alternates considered by taxi drivers are other OAPs or plying as non-app taxis. However, the likelihood of shifting to other online platforms by taxi drivers is significantly higher than plying as non-app taxis.
- d) Key alternates considered by auto drivers are plying as non-app autos or linking with other OAPs. However, the likelihood of plying as offline auto drivers is significantly higher than linking with other OAPs. This perhaps is indicative of limited popularity of app linked autos and riders' preferences towards offline autos.
- e) Drivers are likely to consider price as well as non-price factors (like availability of established rider base) while deciding about switching options. The fact that a large number of drivers are likely to avoid switching to a newly launched platform which offers better incentives but not an established customer base highlights the cross-price network effects generated by platforms and their importance for drivers.
- f) However, existence of cross-price network effects is unlikely to limit competition or create entry barriers as substantial number of drivers are likely to switch to a new online platform, which if caters to specific driver needs, may be able to compete with existing platforms.

Relevant Geographic Market

According to section 2(s) of the Competition Act, 2002: “*relevant geographic market*” means a market comprising the area in which the conditions of competition for supply of goods or provision of services or demand of goods or services are distinctly homogenous and can be distinguished from the conditions prevailing in the neighbouring areas.

Therefore, in the present scenario, we need to determine (a) the extent of homogeneity of the conditions of competition for supply and demand of OAP services and (b) whether these conditions are restricted to Delhi or extend beyond it i.e. to the neighbouring NCR cities.

On this matter, there is a lack of consensus between the Commission and COMPAT (now NCLAT). In matters related to transport, the Commission has been determining just “Delhi” as relevant geographic market while the COMPAT opined that it should have been Delhi-NCR and not just Delhi. The Commission’s general approach has *inter alia* focussed on limiting the relevant geographical area based on city/state boundaries. The chief rationale thereunder is that transport being subject to regulation by the state, renders the conditions of supply and demand of OAP services homogenous to the extent of boundaries of that particular city/state.⁸¹

The COMPAT however, put forth a pragmatic counter-argument in favour of broadening the relevant geography by stating, “*Neither in the practical sense nor even in the regulatory sense, the kind of distinction made by the Commission exists...Further as far as the consumer is concerned, a seamless movement between two points within the NCR is a more pragmatic way of looking at any transport regulation as customers are not affected by political demarcations.*”⁸²

However, it is not a surprise that divergent opinions have come up, because (a) the Delhi-NCR is unlike other regions and states, in the sense that in some respects - such as connectivity, infrastructure and diversity of population - there seems to be a mere nomenclatural difference between Delhi and its adjacent satellite cities such as Gurugram (Haryana), Noida (Uttar Pradesh) and Ghaziabad (Uttar Pradesh); though (b) in other respects such as law and

⁸¹ The general approach of the Commission as evident from CCI Case Nos.: 06 of 2015; 74 of 2015; 81 of 2015; 82 of 2015; 96 of 2015; and 21 of 2016: “*the geographic market in the radio taxi services industry has to be defined on the basis of city/State in which they are operating. Since transport is a state subject under the Constitution, the radio taxi services market is largely regulated by the State Transport Authorities, making the conditions of competition homogenous only in a particular city/State. Moreover, it may not be economically viable for a consumer, willing to travel within a particular city or geographic region, to book/hire a radio taxi operating in another city/State*”. In the specific instance of Delhi-NCR (Case No. 96 of 2015), the Commission additionally observed, “*The demarcation of Delhi as a separate relevant geographic market is further corroborated by the fact that the app (i.e. applications) designed by such aggregators (i.e. OP, OLA etc.) also specifically distinguish between taxis available for booking within Delhi and those available for booking for commuting from Delhi to NCR. Therefore, it appears that the radio taxis operating in Delhi region face homogenous competitive constraints distinct from those prevailing in other cities/States*”.

⁸² Competition Appellate Tribunal in Appeal No.31/2016. COMPATs decision dated 7 December 2016 has been confirmed by the Supreme Court in appeal.

governance (including transportation regulations) there are clear demarcations between Delhi and other surrounding cities.

It is in this background that we demystify the homogeneity of conditions of competition for supply and demand of OAP services in the Delhi-NCR by relying on primary data and try to paint an actual on-the-ground picture of the situation.

a. Riders' side

First, if looked at from the riders' perspective, there is not much difference in the general preferences of the riders' vis-à-vis public and private modes of transportation in Delhi-NCR.⁸³ Moreover, riders' behaviour shows that majority of the riders do consider other modes of transportation at the time of booking the ride through the OAP or when they are thinking of booking a ride through the OAP. This behavioural trend cuts across Delhi-NCR and is not specific to any particular city.⁸⁴

The switching decisions in case of increases in price and deterioration of availability show that similar alternative modes are being considered across the region, although the order in which they are preferred is different to some extent. As an example, the following tables (Tables 4 and 5) show the city-wise divergence in the general order of switching preferences. In table 4, the overall trend in terms of switching preferences is given, alongside the city-wise trend for purposes of comparison.

Table 4: Riders Analysis Scenario 2 - Alternatives considered in case of long term price increase of OAP services by 10 percent across cities in Delhi NCR

General trend in order of switching preference	Faridabad	Ghaziabad	Gurugram	New Delhi	Noida	Sonepat
Multi homing	Non-app autos	Metro	Non-app autos	Multi homing	Multi homing	Non-app autos
Non-app autos	Non-app taxis	Multi homing	Metro	Metro	Metro	Multi homing
Metro	Metro	Non-app autos	Multi homing	Personal vehicle	Non-app autos	Non-app taxis
Non-app taxis	Personal vehicle	Non-app taxis	Personal vehicle	Non-app autos	Non-app taxis	Bus
Personal vehicle	Multi homing	Personal vehicle	Non-app taxis	Non-app taxis	Personal vehicle	Personal vehicle

⁸³ Refer to Section on general consumer preferences

⁸⁴ Refer to Section on general consumer preferences

From the aforementioned general trend (across the region), it is visible that in case of a long-term price increase of OAP services, the most preferred option for the riders is to shift to another OAP (switching between different OAPs or multi-homing). Switching between OAPs is the most preferred alternative in New Delhi and Noida and relatively less preferred in other cities such as Gurugram, Faridabad, Ghaziabad and Sonapat. Similarly, there are geographical diversions from the general, although not so prominent.

Table 5: Riders Analysis Scenario 4 - Alternatives considered in case of increase in wait time by 10 minutes across cities in Delhi NCR

General trend in order of switching preference	Faridabad	Ghaziabad	Gurugram	New Delhi	Noida	Sonapat
Multi homing	Non-app autos	Metro	Non-app autos	Multi homing	Multi homing	Multi homing
Non-app autos	Non-app taxis	Non-app taxis	Multi homing	Metro	Non-app taxis	Non-app autos
Metro	Multi homing	Multi homing	Metro	Personal vehicle	Non-app autos	Personal vehicle
Non-app taxis	Personal vehicle	Personal vehicle	Personal vehicle	Non-app taxis	Metro	Non-app taxis
Personal vehicle	Metro	Non-app autos	Non-app taxis	Non-app autos	Personal vehicle	Metro

Based on analysis of data and stakeholder consultations, one city - Sonapat is coming out as an outlier and the divergence in switching decisions is stark. For instance, the general trend of alternatives includes the Metro in several scenarios; however, riders in Sonapat have shown low responsiveness to the Metro as a viable alternative to OAPs. For example, when faced with complete non-availability of OAP services, only 6 out of the 61 riders interviewed in Sonapat chose the Metro as a substitute. Similar non-responsiveness is displayed in other hypothetical scenarios as well.

This is because the Delhi Metro network has yet to extend connectivity to cover the city of Sonapat. Also, it is not merely Metro connectivity that makes Sonapat an outlier. The city also displayed relatively poorer availability of OAP services and displayed different supply-side characteristics. During administration of the survey, it was difficult to locate drivers of OAP services and availability of OAP taxis and OAP three-wheelers was an issue.⁸⁵ This difficulty did not arise in other cities of Delhi-NCR. This is primary reason why the representation of drivers from Sonapat in the sample is the lowest. Considering the stark differences in demand side switching and supply side conditions (OAP service availability), it seems to be the case that Sonapat is not part of the relevant geographic market.

Other regions, however, display some divergence in terms of rider demand and it would be beneficial to analyse the supply side conditions in order to determine whether the conditions are homogenous or not.

⁸⁵ Two-three days were designated for Sonapat, despite which it was relatively difficult to locate drivers.

From the riders' perspective, it was also important to check whether presence of different laws or regulations in different states hindered the riders' connectivity when they travelled to cities in other states in the NCR. The impact of laws and regulations on riders' preferences was found to be minuscule. Only 9 percent of the riders stated that the difference in laws and regulations in different states affected the sequence of their most preferred modes for inter-city travel (between different cities of NCR, based in different states). Other practical reasons such as long distance (41 percent) and security (29 percent) played a more impactful role in deciding whether a shift in preferences would happen when travelling from one city to another in different states. This also reinforces COMPAT's observation that there is seamless movement of consumers from one part of the NCR to another. However, this is not entirely conclusive as there is a need to look at the drivers' side, which plays an important role in delineating the relevant geographical market.

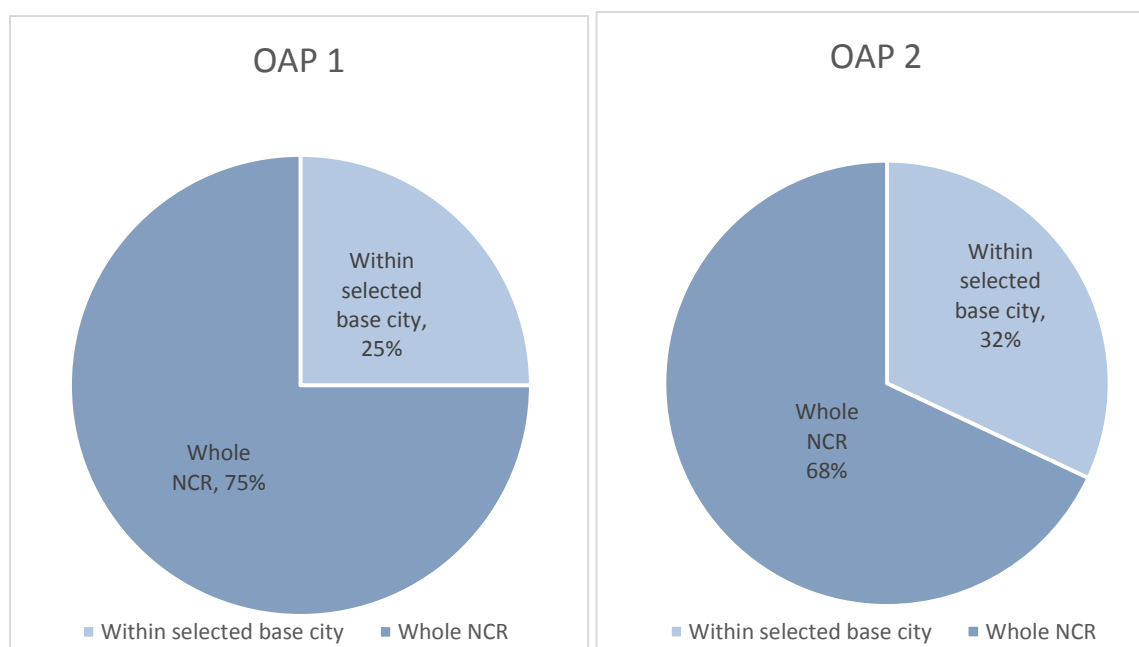
b. Drivers' side

It is first essential to understand how the drivers linked to different OAPs operate geographically – whether they operate within the confines of their preferred city or do they go beyond its geographical limits, thereby serving other cities of NCR.

Before we look at the data, it is important to note here that one of the salient features of the OAPs' business model (that distinguishes it from its offline counterparts) is the match-making facility that connects riders with drivers in real time. This allows the drivers that usually operate in one area (say, Delhi) the flexibility to pick-up or drop passengers to and from another city (say, Gurugram). This means that the drivers associated with OAPs can practically operate in the entire region and do not need to drive-back to a designated spot (such as a taxi stand) after serving one rider to pick up the next passenger(s). This feature of OAPs is central to its value proposition on both sides and may confer a critical competitive advantage over other service providers.

From the data (Figure 15), it is evident that majority of OAP taxi drivers operate within the whole of NCR. On an average, nearly 3/4th of the taxi drivers mentioned that they operated in the entire Delhi-NCR area.

Figure 15: Geographical operation of taxi drivers with major OAPs



However, this trend saw a drastic change when it came to three-wheelers or auto drivers linked to OAPs. In the case of two most prominent OAPs functioning in Delhi-NCR, only 17 percent auto-drivers operate in the entire NCR and the rest prefer to stay within the confines of their respective cities.

This implies that the geographical scope of operation of auto-drivers is highly locale specific and generally for short to medium distances while taxi-drivers' geographical scope is much greater and extends beyond city-limits. This reinforces our previous finding that on the drivers' side, there might be different competitive constraints on the OAPs, depending on the type of service offered.

For example, if the service being offered through the app is that of three-wheelers or autos, the competitive constraints faced by the OAPs on the drivers' side might be different from the taxi market (this holds more importance for determining the relevant product market). Vis-à-vis the relevant geographic market, it seems to imply that for the OAP taxis, there is an overall trend of drivers extending their services beyond city limits, although the same might not be the case for autos.

However, this conclusion needs to be concretised by exploring the reasons why the minority taxi drivers (25 percent in OAP 1 and 32 percent in OAP 2) usually operate within the confines of their respective base cities. Are there any hindrances that they face in going beyond city limits? Do these hindrances emanate from regulations? Firstly, when asked whether drivers face hindrances while plying in cities of NCR other than their base city, a high majority of them (around 80 percent) answered in negative. Of the 20 percent respondents who did face hindrances, majority (70 percent) cited "Toll Tax" as the biggest hindrance in plying outside their base cities. However, this toll-tax is included in the fare of the rider and the drivers do not bear the costs, unless it crosses city limits independently. This means that regulations do play a

role in constraining drivers to some extent (that too when they individually cross city limits without a rider) but not to the extent of hindering seamless connectivity between different cities.

Secondly, there are no restrictions levied by the app-based platforms that constrain the drivers to operate in a certain city/region. Approximately 96 percent drivers, including auto-drivers confirmed that they are allowed by the OAPs to function outside the limits of their base city. This is perhaps inconsistent with Commission's observation that applications are designed by OAPs in a manner which distinguishes between taxis available for booking within Delhi and those available for booking for commuting from Delhi to NCR⁸⁶, and highlights the importance of evidence-based assessment. Collectively, the supply-side analysis indicates that there is in-fact seamless movement of drivers of cabs across the Delhi-NCR. The restrictions posed by regulations may not be as pronounced as indicated by the Commission – mainly because drivers of cabs are allowed to operate, and in fact do operate beyond the geographical limits of their respective base cities. At the same time, supply-side data also suggests that the case is different for OAP auto-drivers and they prefer to operate within their base locale/city, for operational reasons.

c. Geographic Market Findings

From the above analysis of the primary data (rider and driver-side) it is clear that cities of NCR where OAPs are providing their services, including New Delhi, Faridabad, Ghaziabad, Gurugram and Noida lie in the same relevant geographic market for OAP services. Sonapat however, is displaying heterogeneity in terms of availability of OAPs and rider preferences. Hence, it is unlikely to fall in the relevant geographic market. To that extent, the data tends to corroborate the COMPAT view (in the Appeal No.31/2016) that *"It is a matter of common knowledge that customers can move from one point in NCR to another point calling taxis on telephone/internet platforms. Neither in the practical sense nor even in the regulatory sense, the kind of distinction made by the Commission exists".*⁸⁷ In fact, the primary data goes further than the view taken by the COMPAT such that not only consumers can move freely within the aforementioned select cities of NCR, but also OAP drivers can and do move freely.

Before concluding, it is crucial to note that the difference in terms of geographical scope of auto and taxi drivers does not imply that the other side – i.e. the riders' do not view autos and cabs as interchangeable. It also does not imply that OAPs do not face a competitive constraint from autos. The riders' preference data suggests that they are switching from OAPs to auto-rickshaws, which is most probably depicting switching in case of short trips. This finding also implies that from OAPs' perspective, the competitive constraints on the drivers' side are different (auto-rickshaws not applying a competitive constraint on OAP taxi services in so far as the driver side is concerned) from the competitive constraints on the riders' side (auto-rickshaws applying a competitive constraint on OAP taxi services for short distance riders in so far as the rider side is concerned). Hence, depending on which side the platform is competing

⁸⁶ See Case number 82 of 2015, available at: https://www.cci.gov.in/sites/default/files/26%282%29%20of%202015_0.pdf

⁸⁷ Supra Note 82.

(rider or driver), there might be different competitive constraints – as also highlighted by Katz and Sallet (2018).⁸⁸

As a conclusion to the geographical scope, both from the perspective of geographical homogeneity of OAP services, the conditions of competition are homogenous in the *Delhi NCR where OAPs are active*- except for in Sonapat. Hence, the relevant geographic market is coming out to be *the specific area within Delhi NCR consisting of the following cities: New Delhi, Faridabad, Ghaziabad, Gurugram and Noida.*

⁸⁸ For more on the multiple-markets approach, see Katz Michael and Sallet Jonathan, *Multisided Platforms and Antitrust Enforcement*, available at https://www.yalelawjournal.org/pdf/KatzSallet_ieayvf51.pdf

Conclusion: Relevant Market

The following conclusions can be drawn from the overall analysis:

a. Defining two relevant markets that are intricately interconnected

The rationale behind defining the relevant market is to mainly identify the competitive constraints that faced by a particular undertaking. Hence, market definition is not an end in itself (OFT, 2004) but the first step towards determining competitive constraints, market power and the effects of behaviour at stake.⁸⁹

Notably, the competitive constraints that a two-sided platform, like OAPs for ride sharing, faces are different, depending on which side one is examining. The primary support for this conclusion is on-ground data on diverse consumer preferences and switching decisions being made by riders and drivers linked with OAP services. In order to capture this diversity in consumers' functional substitutability and cover the entirety of the competitive constraints on an OAP, it is critical to take the *multiple-markets approach* and define two interrelated relevant product markets.⁹⁰

b. Riders' side

On the riders' side, it is extremely easy to switch to alternative modes; hence the demand is relatively elastic as compared to the drivers' side. The costs of switching on the riders' side seem much less than the costs faced by the drivers. Hence, the rider can easily choose from a wide array of transportation modes.

As a result, the riders' data depicts functional substitutability between OAP services and other forms of transportation – app based as well as non-app based. Close substitutes include - other OAPs, non-app autos, and personal vehicles. Next-best substitutes include non-app taxis, and the Delhi metro, while radio taxis appear to be weak substitute. Moreover, it is clear that preferences among these modes are likely to vary with change in riders and their situation-specific requirements. This is evident from the fact that different categories of riders perceive OAPs differently and derive varied levels of benefits from them, which might differ with situations. Hence, riders are unlikely to view OAP services uniquely. Rather, they are likely to compare specific features of OAP services from which they derive most value with similar features of other service providers, which may have different physical attributes, in order to

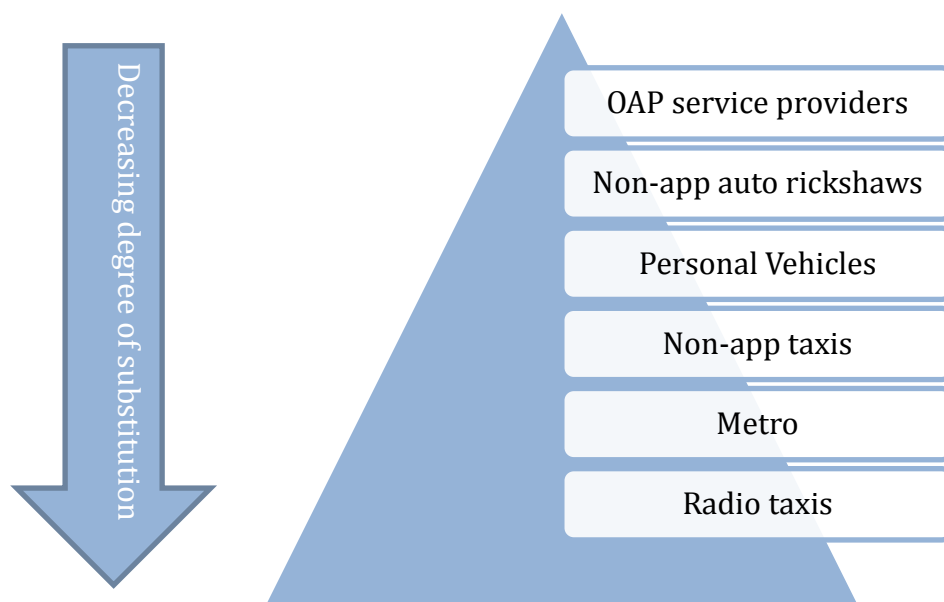
⁸⁹ Sebastian Wismer & Arno Rasek, Market Definition in Multi-Sided Markets, OECD (2017), available at: https://www.bundeskartellamt.de/SharedDocs/Publikation/EN/Diskussions_Hintergrundpapiere/OECD_2017_Competition_Committee_multi-sided%20markets.pdf?__blob=publicationFile&v=3

⁹⁰ Katz Michael and Sallet Jonathan, *Multisided Platforms and Antitrust Enforcement*, available at https://www.yalelawjournal.org/pdf/KatzSallet_1eayvf51.pdf.

decide how to travel. This confers a significant level of subjectivity to the relevant product market on the riders' side.

Hence, we envision the relevant product market as “**market for transportation services for riders**”, in which the different probable substitutes of OAPs in the present case (Delhi-NCR) are as follows (Figure 16).

Figure 16: Market for transportation through select online and offline means in Delhi-NCR



Notably, this relevant product market definition is broader in scope than the one defined by the Competition Commission of India. Depending upon how the rider perceives an OAP service provider and compares the value offered therein with other modes – it is most probable that she will end up opting from these alternative modes.

Overall, a coherent reading of data on general consumer preferences and probable switching behaviour shows that these modes collectively apply a significant competitive constraint on the OAP service providers. Although, in the absence of additional data from other stakeholders and OAP service providers, there was no way of quantifying the intensity of the competitive constraints that these modes apply on OAP service providers, we nonetheless arranged the modes in a hierarchy of closeness of substitution by comparing the respective shares of riders' responses in the hypothetical scenarios and comparing the characteristics of these modes with OAPs. Hence, the aforementioned modes have been included in the market definition and have been arranged as per preliminary understanding based on consumer insights about the closeness of substitutability – OAP service providers being the closest substitutes to each other and radio taxis being the weakest substitute out of the lot to an OAP service provider.

There are, however, some limitations of this market definition. First, there was no way of extrapolating the demand elasticity of the riders' vis-à-vis the alternate modes and possible

reverse substitution/switching happening from these modes to the OAPs. Hence, it was difficult to conclusively compare the level of substitution of each mode from those mentioned vis-à-vis OAPs – that could serve the purpose of identifying a clear substitute, an exception being multi-homing (switching between OAPs). That is why all the modes that might apply a significant *competitive constraint* on OAPs have been incorporated into the market definition, while excluding others. Secondly, although data suggests that there is definitely a collective competitive constraint, it is unclear which modes the OAPs actually factor in while devising their algorithmic pricing mechanisms and developing other non-price related business strategies (such as aiming for improvements in availability of rides). Third, it cannot be said with absolute certainty (although it is highly probable) that the respondents would actually substitute OAPs with these modes if they face the hypothetical scenarios that were put forth in the survey. There are limitations to capturing consumer behaviour on the ground due to presence of several inherent biases (although the methodology of designing the survey was rigorous enough so as to avoid bias to the maximum extent possible).

Hence, accounting for the conclusion on the relevant geographic market (as indicated in the section above), the relevant market on the riders' side has been delineated as ***market for transportation services for riders in Delhi NCR (consisting only the following cities: New Delhi, Faridabad, Ghaziabad, Gurugram and Noida).***

c. Drivers' side

On the other hand, the drivers' side (taxi drivers and auto-rickshaw drivers) analysis narrates a different story.

First, the *taxi drivers'* elasticity of demand (assuming here that drivers are consumers demanding access to OAPs) is relatively less elastic. This is because their theoretical ability of selecting alternative modes instead of online platforms (just by switching off the application and operating through offline means) is constrained by practical reasons such as (a) lack of other offline suppliers to swiftly provide an equally strong and viable means of connecting them to riders (this came out from the key informant interviews with taxi/auto stands and taxi associations) or in some cases (b) relative unpopularity of offline taxi services. Hence, the likelihood of shifting to other online platforms by taxi drivers is significantly higher than plying as non-app taxis.

This is corroborated by our finding that key alternatives or substitutes chosen by taxi drivers were limited to other OAPs or plying as non-app taxis. However, it is important to note that relatively limited number of possible competitors does not necessarily have an adverse effect on competition. This is because the level of contestability between OAPs to prevent the driver from leaving the platform is immense. The drivers' side is central to the value proposition of platforms and enables the platform to generate and maintain the network effects. Also, driver retention is absolutely critical to ensure that the riders find taxis that are easily available (availability being one of the chief factors valued by riders). The effect is that drivers are provided incentives so that they stick to one platform only. This is also probably the reason why a significant majority of drivers are not likely to indulge in multi-homing between two major OAPs in the region, despite having the option to do so. However, in case of hypothetical price and non-price scenarios, a significant shift of drivers from their existing OAPs to other modes,

specifically alternative OAPs indicates that current pricing levels are competitive, at least between the two major OAPs in the region.

Moreover, this trend changes in the case of auto drivers. Key alternates considered by auto drivers are plying as non-app autos or linking with other OAPs. However, the likelihood of plying as offline auto drivers is significantly higher than linking with other OAPs. Perhaps this is indicative of limited popularity of app linked autos and riders' preferences towards offline autos. The fact that OAPs are not popular amongst this category of drivers reinforces the finding that offline modes can and do apply a competitive constraint on OAPs on the driver side as well. In the end, what matters is the ability of the drivers to effectively connect with riders and from the OAPs perspective this means that it has to compete with all such modes that provide an opportunity to/ facilitate the drivers to access the other side – i.e. the riders.

Therefore, in entirety, analysing the competitive constraints on the OAPs from the drivers' perspective, the relevant product market is "**market for facilitation services to drivers for accessing riders**". While the OAPs facilitate access by offering a bundle of services to drivers including technology enabled real time matchmaking and allied services such as price discovery and uniform safety standards, other service providers can also compete through alternative means.

In the present scenario, it is evident that facilitation services provided to taxi drivers by OAPs have been successful in Delhi-NCR while those provided to auto-drivers has not been as successful. This implies that individual offline players (providing the riders the option of street-hailing) can also compete in the market as long as they are able to effectively access the riders' side and fulfil their diverse transportation needs. The point being that as competitive constraints on the OAPs change in different circumstances, its constituent competitors on the drivers' side would also change accordingly.

Hence, accounting for the conclusion on the relevant geographic market (as indicated in previous section), the relevant market on drivers' side has been delineated as **market for facilitation services to drivers for accessing riders in Delhi NCR (consisting only the following cities: New Delhi, Faridabad, Ghaziabad, Gurugram and Noida)**. However, it is important to add a caveat that when the OAPs are providing services to auto drivers – the relevant geographic market might be narrower/ city specific.

Annexure – 1

Methodology Note

1. Preparatory Work

This activity included literature review, gap analysis, identification of factors for assessment of relevant market (product and geographic) and indicators for assessment of competition in the relevant market. This analysis helped frame the broad contours of the questionnaire for market survey and stakeholder interactions.

2. Stakeholder identification and primary data collection

The second natural step was to identify relevant stakeholders, accordingly frame tools for data collection and collect data. Two chief data collection mechanisms were applied:

a) Consumer survey

For conducting the survey of consumers, two separate structured schedules were framed for riders (general users) and drivers of online app-based platforms. The sampling strategy (mentioned below in detail) was framed in order to make sure that the survey findings are representative of the area and target population. An independent survey agency was hired for conducting the on-ground survey.

The survey was administered using bilingual questionnaires with questions and options contained therein displayed in both Hindi and English, in order to ensure clarity of thought and perception of respondents. However, it is still possible that the respondents may have confused between different options and used them interchangeably.

b) Key informant interviews

In addition to the survey, unstructured questionnaires for interviewing key stakeholders through Key Informant Interviews (KIIs) were also framed. The following broad stakeholder groups were interviewed: (i) Offline Taxi Service Providers; (ii) Taxi Union/Auto Union (iii) Taxi service providers having mixed business model (online and offline) (iv) Government institutions (Centre and State Governments, Ministry of Road Transport and Highways, State transport departments, state RTOs and research institutes) and (v) Experts in the field (international and national).

Sampling Strategy for survey

Geographical Area: The Delhi-National Capital Region (Delhi-NCR) consists of 9 districts of the National Capital Territory (NCT) of Delhi, 8 districts of Uttar Pradesh, 14 districts from Haryana and 2 districts of Rajasthan (table ahead). Delhi-NCR was selected as the survey location because there are multifarious/maximum possible substitutes which are readily available in the region and the market is robust.

Moreover, the region consists of a good mixture of Tier 1, 2 and 3 cities; making the survey representative - in terms of innately covering socio-economic diversities of the target population and giving a holistic perspective of market conditions through a well-informed consideration of the views of all interested stakeholders.

Delhi-NCR: State and District wise details

State	Districts	Area (Sq.km)	Population (in thousands)
Uttar Pradesh	Meerut*	14,858	14,576
	Muzaffarnagar		
	Ghaziabad#		
	Gautam Budhh Nagar (NOIDA)#		
	Bulandshahr		
	Baghpat*		
	Hapur		
	Shamli		
Haryana	Faridabad#	28,545	11,031
	Gurugram#		
	Mahendragarh		
	Bhiwani		
	Charkhi Dadri		
	Nuh		
	Rohtak*		
	Sonipat#		
	Rewari		
	Jhajjar*		
	Panipat		
	Palwal		
	Jind		
	Karnal		
Rajasthan	Alwar*	13,447	3,674
	Bharatpur		
NCT Delhi	Central#	1,483	16,788
	East#		
	New Delhi#		
	North#		
	North East#		
	North West#		
	South#		
	South West#		
	West#		
Total		58,332	46,069
*: Service of either Ola or Uber is available #: Service of both Ola and Uber are available			

Considering the nature and mandate of the study, the geographical coverage has been limited to only those districts in Delhi-NCR where major online app based service providers like Ola and Uber, both operate. This aided in the collection of relevant data from riders who actually use the focal product (OAP services) and also the views/opinions of drivers who are an integral stakeholder of the industry. Such districts have been highlighted in Green colour in table above.

Sample Size- Riders: Considering the total population of Delhi and NCR to be 4.60 crore (at the time of survey design); we propose to cover 1,310 respondents, to statistically represent this population (which is greater than the required minimum of 1067 respondents calculated with 3% margin of error and 95% confidence level). To be on the safe side and allow for a greater buffer, we have covered 1377 respondents. Also, only those people were considered as valid respondents who fulfilled two conditions: (a) availed OAP passenger transportation facilitation services and (b) OAP passenger transportation facilitation services were **one** of their top four most frequently used private/hiring transportation modes. This made sure that the respondents who were identified gave out well-informed answers and actually were reasonably frequent users of OAP services. As regards the division of this sample among the constituent states of Delhi and NCR; it was done in proportion of the constituent state's population to the total population of Delhi and NCR. That is, the percentage share of constituent state's population in total population of Delhi and NCR is the share of that state in the sample of consumers covered for the study.

However, as none of the two districts of Rajasthan (part of NCR) have been selected for the study; the percentage share of the state (7.97%) has been equally divided among the other three states (table below):

State	Population of NCR/Delhi Districts (in thousands)	% of total Delhi & NCR Population	Total sample of the State (D x 1310)	Actual Sample of State (State Share + One-third of Rajasthan's Share)
A	C	D	E	F
Uttar Pradesh	14,576	31.64%	414	449
Haryana	11,031	23.94%	314	348
Rajasthan	3,674	7.97%	104	-
NCT Delhi	16,788	36.44%	477	512
Total	46,069	100.00%	1,310	1,310

Sample Size- Drivers: For the study, we have selected 50% of the consumer's sample as the sample of drivers- that is 655 (50% of 1,310).

As per the statistical handbook of Delhi 2017, there are a total of 322,434 Auto Rickshaws/Taxis registered in Delhi (174,000 Auto Rickshaws-54% and 148,434 Taxis-46%). Taking this as a proxy indicator, the sample of 655 drivers was distributed in the same proportion – that is 54% Auto Rickshaw Operators and 301 - 46% Taxi/Cab Operators. However, at the time of sampling, there stood a great likelihood that the consumers may not perceive taxis as substitutable with

autos (as per existing literature and the analysis of Competition Commission of India). Thus, the sample of 655 drivers was distributed in proportion of 60% Taxi/Cab Operators (393) and 40% Auto Rickshaw Operators and (262).

As regards the distribution of the number of Auto Rickshaw and Taxi/Cab operators covered from each of the state, like the case of consumers, it has also been distributed in proportion of the constituent state's population to the total population of Delhi and NCR- i.e., the percentage share of constituent state's population in total population of Delhi-NCR is the share of that state in the sample of drivers to be covered for the study.

In order to ensure randomness within each district sample for the purpose of this study, the individual respondents were chosen at random locations within a region including popular hotspots of transportation services. The overall sample spread of the interviewed riders and drivers can be understood with the help of the following table:

State	Population of NCR/Delhi Districts	% of total Delhi & NCR Population	Total sample of Consumers from the State	Total sample of the Auto Rickshaws from the State	Total sample of Taxi/Cab Operators from the State	Actual Sample covered (Distributing Sample of Rajasthan Equally in Other three states)		
	(in thousands)		D x 1310	D x 262	D x 393	Consumers	Auto Rickshaw Operators	Taxi/Cab Operators
A	C	D	E	E	E	F	G	H
Uttar Pradesh	14,576	31.64%	414	83	125	449	90	135
Haryana	11,031	23.94%	314	63	94	349	70	104
Rajasthan*	3,674	7.97%	104	21	31	-	-	-
NCT Delhi	16,788	36.44%	477	95	143	512	102	154
Total	46,069	100.00%	1,310	262	393	1310	262	393
*: Not covered in actual sample - the share of the state has been equally divided among the other three states								

Distribution of sample consumers and auto rickshaw/taxi/cab operators across sample districts: The respective sample of each constituent state of Delhi and NCR has been equally divided among the sample districts to be covered from that particular state.

State/District	Actual Sample covered (Distributing Sample of Rajasthan Equally in Other three states)		
	Riders	Auto Rickshaw Operators	Taxi/Cab Operators
<i>Uttar Pradesh</i>			
Ghaziabad	225	45	68
Gautam Buddh Nagar (NOIDA)	224	45	67
<i>Haryana</i>			
Faridabad	116	23	35
Gurugram	116	24	35
Sonipat	116	23	34
<i>NCT Delhi</i>			
Central	57	12	17
East	56	11	17
New Delhi	57	12	17
North	57	11	17
North East	57	11	17
North West	57	11	17
South	57	12	18
South West	57	11	17
West	57	11	17
TOTAL	1,310	262	393

Annexure – 2

Assumptions/Limitations of the study

The findings of this study should be seen in the light of the following assumptions and potential limitations:

1. The primary limitation of the study, perhaps its biggest one, is the absence of firm-level data and documentary evidence that only competition agencies have the authority to collect. In the context of online app-based platforms, this includes data such as pricing, cost-structures, business strategies, number of active users of platforms and number of trips taken etc. This kind of data plays a significant role in the process of market definition and assessment of the level of competition. As a result, findings of the study regarding market definition and level of competition may be subject to complete change if such kind of data is integrated with the findings.

Nevertheless, the primary objective of the study was to assess the market definition and level of competition through the lens of consumer preferences and likely behaviour, and from the perspective of relevant stakeholders. It is generally the case that competition authorities, despite having an interest in primary-data collection and analysis, might not have the resources or the time to implement it. Hence, the study was intended to plug-in this precise research gap in the Indian context and add to the present understanding of competition authorities about such markets by providing a purely consumer-centric perspective. Hence, the findings of the study need not be viewed as a substitute to the competition agencies' analysis but should be perceived as an important input to be factored therein.

2. The study only investigates demand substitution which is a significant element of the SSNIP Test. It does not investigate the supply substitution by other service providers or competition posed by new entrants in response to an increase in price by an incumbent. It also does not look at profitability of a hypothetical price increase. It also does not look into the profitability of the hypothetical price increase. In that sense, the study relies on a partial SSNIP Test. However, our study is aligned with the Competition Act, 2002 as supply substitution and potential competition do not find mention under Section 19 of the Act which focusses only on demand substitution.
3. There is a lack of supporting data that could quantifiably assess and compare the *closeness* of the substitutability of the alternative modes that have been identified to be a part of the same relevant market as that of OAPs. In other words, the study could not accurately gauge the *intensity* of the competitive constraints being applied by alternative modes on the online app-based platforms. In the absence of such evidence, we rely on a qualitative analysis of consumer behaviour in hypothetical scenarios and the comparison of consumer preferences vis-à-vis different modes of transportation.

4. As the case with surveys in general, there is always a possibility of biased or noisy data percolating into the study findings. For instance, questions that involve hypothetical future choices can be particularly difficult for the respondents to imagine and they might end up giving off-the-cuff answers.⁹¹ Moreover, depending on how the questions are framed and asked, the respondents might underestimate or overestimate their real behaviour, especially in cases of hypothetical scenarios.⁹² However, this possibility was recognised at the time of survey design and was corrected to the maximum extent possible.

As an example, the respondents were not merely asked how they would respond to a 5 percent increase in prices, they were first made to recall the details (e.g. price, waiting time, distance, starting point and destination) of their most frequent ride and then hypothetical questions were put forth using the data collected. This meant that the respondents were informed about the exact fare of their most frequent ride after accounting for a 5 percent price rise and then asked to state their preferred alternative choice(s), if any. The hypothetical query on a non-price factor was also framed (increase in ride Estimate Time of Arrival) in this manner.

Consequently, the likelihood of respondents giving a well-thought out response increased because they personally associated/related to the hypothetical scenarios and could reasonably envision themselves in the specific situation. Thus, the schedules were designed to cover respondent behaviour holistically and objectively.

Despite these efforts to accurately capture consumer behaviour, it leaves room for limitations as consumer behaviour is driven by various real-time circumstances that cannot possibly be foreseen or covered in the survey. Hence, the limitation of inherent bias or noisy data cannot be addressed completely in such surveys and has been duly acknowledged.

5. In order to capture all possible responses vis-à-vis transportation modes, the schedules contained a detailed list of all modes available in Delhi-NCR. For instance, in the taxi segment, online app-based platforms offer personal taxis as well as shared taxis and both the options were available for the respondents to choose from.

However, to conduct the analysis of market definition and competition in a simplistic manner, similar modes that had very minute differences in terms of characteristics or the means of hiring were clubbed together (Table below). This can also be viewed as a limitation of the study because we assumed that the minute differences between some modes can be disregarded to avoid complexity and to arrive at a simplified yet reasonably accurate analysis of the market.

⁹¹ Meyer Christine, “*Defining and using surveys to define relevant market*”, NERA Economic Consulting (2007), available at <http://www.nera.com/publications/archive/2007/designing-and-using-surveys-to-define-relevant-markets.html>

⁹² Ibid.

Modes Grouped Together
Online app-based taxis = Taxi (personal/ non-pool)-app based + Taxi (shared/ pool) -app based
Autorickshaw non-app based = Auto/ e-rickshaw/ cycle rickshaw hired by personally going on street/ hub + Auto hired by contacting the driver over phone
Taxis non-app based = Taxi hired by personally going on street/ hub + Taxi hired by contacting the driver over phone + Taxi hired by contacting an intermediary like taxi stand + Non-app shared taxi



Consumer Unity & Trust Society

D-217, Bhaskar Marg, Bani Park, Jaipur 302016, India

Ph: 91.141.228 2821, Fx: 91.141.228 2485

Email: cuts@cuts.org, Web: www.cuts-international.org

CUTS offices also at Kolkata, Chittorgarh and New Delhi (India); Lusaka (Zambia); Nairobi (Kenya); Accra (Ghana); Hanoi (Vietnam); Geneva (Switzerland); and Washington DC (USA)