Regulatory Impact Assessment

of

Maharashtra City Taxi Rules, 2017

CUTS International

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Foreword

Good processes lead to good outcomes. Regulators have traditionally given importance to regulation over regulation making process, sometimes leading to unintended adverse consequences. Hence, it is increasingly becoming clear that the latter is as important as the former, if not more.

Regulations are expected to provide rational and reasonable provisions and harmonise competing or conflicting interests of diverse stakeholders in a fair and transparent manner. Hence, good regulation making process needs to be clear about the need and objectives of regulation. It should compare different pathways which are likely to achieve such objectives, and should adopt the one which is likely to achieve the same at the least cost- social, economic and financial. While such analysis typically happens within a regulatory agency, it lacks transparency and a coherent structure. Lack of wider and adequate stakeholder consultation in a structured manner often leads to inefficient or ill-defined regulation. Such sub-optimal regulation is unlikely to achieve its objective and imposes higher costs than the expected benefits.

Regulatory Impact Assessment (RIA) is a universally recognised tool to assess the impact of an existing or proposed regulation. It essentially involves robust stakeholder consultation and structured feedback from them as input in policy making. This helps in resetting of existing regulations and formulating good regulation optimally.

CUTS International, in this study on Regulatory Impact Assessment of Maharashtra City Taxi Rules, 2017, provides a glimpse of the unintended consequences of regulations which do not follow a transparent and structured process to assess costs and benefits of the regulatory proposals. The study points out that despite good intentions of retaining the benefits of innovation and technology in urban mobility sector and creating a level playing field between incumbent taxi providers and technology enabled new innovative players, if the Rules come into force, the cost to consumers for daily commute and the cost to the drivers are likely to increase very significantly. In fact, a large number of drivers will be driven out of business, leading to loss of livelihood and financial loss. The study has quantified these costs. It has been based on data collected from 1000 consumers and 1000 drivers of taxis comprising 750 drivers linked to app based aggregators and 250 drivers of Black & Yellow Taxis in the Mumbai Metropolitan region.

Incumbent city taxi providers are already incurring significant compliance costs due to provisions of the Maharashtra Motor Vehicles Rules, 1989 which are similar to the Maharashtra City Taxi Rules, 2017 (such as permit, PSV badge, minimum engine capacity, and clean fuel). Therefore, it indicates that there is a need to revisit the regulatory framework even for incumbent city taxi (black and yellow taxi) and auto rickshaw service providers so as to ensure that they are subject to reasonable and proportionate regulatory requirements which are likely to achieve the regulatory objectives at least costs to such incumbents as well.

The Committee constituted by the Government of Maharashtra under my chairmanship for fixation of taxi and auto rickshaw fare in Maharashtra has also identified these rules and a few more for a review and revision or deletion keeping the larger public and

commuter interest in mind. While some provisions, viz. , rules on permits, PSVA badge, unclean fuel etc will hit the drivers directly, other provisions, viz., enforcement of a specific colour scheme will impact fare pricing thereby hitting the consumer. In the end, all such provisions will also entrail a significant cost on the economy and the society at large.

The study recommends that it is high time that the regulatory agencies adopt process reforms whole heartedly. While regulators like the Telecom Regulatory Authority of India have a structured process of seeking public comments and counter comments on regulatory proposals, this needs to be taken to the next level. Assessment of likely costs and benefits of different regulatory proposals on relevant stakeholders, comparing different regulatory proposals can be achieved if stakeholders are involved in regulation making process. This would require a change of mind-set which does not view regulator and regulated entities on distinct higher and lower pedestals but as equal partners in the sustenance and development of the market in order to realise its true potential.

While the Central Government and related regulators have begun warming up to the idea of cost – benefit analysis and Regulatory Impact Assessment, state and local regulators are yet to appreciate the importance of this idea and approach fully.

I hope, CUTS International is able to take its study to different state level regulators and other stakeholders for creating a demand for RIA. It is necessary to prise out the state level regulators from their insularity into a transparent participatory process of regulation making in order to make them wholesome and acceptable. That will also make compliance that much easier and bring down regulatory compliance costs as well. I congratulate them for coming out with this timely and important study on a sector in which regulation is presently being widely debated and hope that the study can contribute to such conversations. I wish CUTS International all the very best in this initiative

BC Khatua
Chairman
Committee for determination of
Fare structure of Taxis and
Auto Rickshaws in Maharashtra

Preface

Regulation of key economic sectors in India typically has command and control features. Regulators distrust the market and market players and thus end up micro-regulating. Stringent conditions to enter and operate, significant discretion with regulatory authorities, and limited redress options to stakeholders are common in sectors like banking, insurance, and transport, among others.

Unsurprisingly, such regulation is a result of unverified assumptions, based on limited data, and rarely involves consultations with stakeholders. Often, such regulation artificially raises costs for market players. Incumbents are left with limited options but to support barriers to competition. High costs and limited supply adversely impacts consumer welfare.

More recently, technological innovations are emerging which target such market inefficiencies by reducing cost of operations, and providing quality services to consumers at affordable prices. Several sectors such as finance and mobility are experiencing benefits from such mobile and internet enabled innovations.

However, such innovations do not necessarily fit within the existing regulatory architecture, thus challenging regulators to design a framework for regulating innovation which does not compromises on benefits experienced by different stakeholders. Innovative business models also challenge existing business models in which incumbent market players have invested heavily.

More often than not, regulators attempt to regulate innovation by tinkering with existing regulatory framework, without envisaging the potential impacts of such approach. This report suggests that such approach of levelling the playing field between existing and new market players by increasing the cost of operations for all is not advisable. This finding is based on a cost – benefit analysis of select provisions of recently issued Maharashtra City Taxi Rules, 2017 (Rules), which intend to regulate the licensing of taxis linked with app based aggregators in Maharashtra.

The report follows framework laid down by the Regulatory Impact Assessment (RIA) approach, a globally recognised best practice in regulation making. RIA recommends estimating and comparing impacts of proposed regulatory options with those of the baseline scenario, and facilitates in selection of such option which has the potential to result in maximum net benefits. RIA has been adopted in several jurisdictions including United States, United Kingdom, and Australia, and has been recommended for India as well.

The report finds that if the Rules come into force, consumers and taxi drivers are likely to be most adversely impacted. Per day cost to consumers is likely to double and per day cost to taxi drivers is likely to increase by more than five times. Such analysis is based on data and information collected from in-depth discussions with 1,000 taxi drivers and 1,000 consumers of taxi services in Mumbai Metropolitan Region. In addition, consultations with experts and other stakeholders have been carried out, along with reviewing available literature and research reports.

Structured stakeholder consultations and evidence based policy formulation is key to an RIA exercise and ensuring that regulatory proposals are close to reality. Such initiatives also aid in stakeholder buy-in for regulatory changes.

CUTS has been a frontrunner in calling for adoption for India in India and we hope that this report takes us closer to realising this dream.

Udai S Mehta
Deputy Executive Director
CUTS International

Acknowledgement

Efforts of several people have gone into making this report a reality. Involvement in various forms, such as direct inputs, thought provoking discussions, timely reviews, incessant encouragement and guidance have been crucial, in development of this report.

We are immensely grateful to Mr. B.C. Khatua for agreeing to write foreword for the report and encouraging our efforts towards adoption of RIA. We also acknowledge the inputs provided for the report by Shirish Deshpande and Varsha Raut, Mumbai Grahak Panchayat, Anindita Kavoor, Consumer Guidance Society of India, Ashok Datar, Chairman and Trustee, Mumbai Environmental Social Network, Ashok Ghanghrde, Independent transport planner, Mumbai, Mandar Kagade, Consultant, Finance Research Group, IGIDR. Special thanks to Ankit Pingle, Senior Research Associate, CUTS International for his invaluable support in research and survey. We also appreciate the efforts of Madhuri Vasnani for editing, Rajkumar Trivedi and Mukesh Tyagi for preparing the layout of this report. Vijay Singh, Akshay Sharma and Nimra Khan deserve special mention for their contribution to outreach of the report.

Words alone cannot convey our sincere gratitude to each and every individual who have contributed in every small way towards bringing out this report. But it is only words that this world thrives on. We express our sincere gratitude to all such individuals, whether or not named above, without whom the publication of this report would not have been possible.

CUTS International will not draw any profit from this report, since it is solely for informative and educational purposes. In addition, any error that may have remained is solely ours.

Summary of Key Findings

In March 2017, the Government of Maharashtra issued the Maharashtra City Taxi Rules, 2017 (Rules) for regulating the taxis linked with app based aggregators.

CUTS International has applied the RIA tool to estimate costs and benefits of select key provisions of the Rules, likely to have direct and substantial impact on drivers and consumers linked with app based taxi aggregators. The analysis has been informed by in-person interactions with 1,000 drivers and 1,000 users of city taxi services in Mumbai Metropolitan Region and consultations with relevant stakeholders.

It was found that different Rules impact diverse stakeholders in divergent manner. For instance, while B/Y taxis are likely to be positively impacted by the Rules owing to likely increase in demand, compact hatchback taxis are expected to be severely negatively impacted owing to likely exit from the market. A stakeholder wise impact of Rules reveals the following picture:

1. Consumers

If the Rules are enforced, the consumers are likely to incur significant additional monetary as well as non-monetary costs. The monetary costs will be on account of high fares of available modes of transport. Non-monetary cost is the additional amount which the consumer is likely to be willing to pay to avoid travelling through inconvenient modes like buses and B/Y taxis.

Rule	Average daily cost to consumer in baseline	Increase in daily cost to consumer under the Rules	Increase in cost (%)
Minimum Engine Capacity	-310	-115.89	37.38
Fleet Composition	-360	-51.71	14.36
PSV badge	-360	-105.33	29.26

2. Drivers linked with app based aggregators

If the Rules are enforced, the drivers linked with app based aggregators are likely to be negatively impacted, when taken together. For instance, if the fleet composition requirement is adopted, the aggregate costs to drivers with engine capacity above 980 CC are likely to increase by around 93 percent from INR 1500 to INR 2899.01.

Similarly, in case the minimum engine capacity rule is adopted, compact hatchback taxis (having engine capacity below 980 CC) will need to exit the market. Further, it may not be possible to operate such taxis under AITP on inter-city routes. Consequently, owners of such taxis would be required to forego the income from city taxi services while not having alternative avenues to deploy the vehicle. Owing to increase in demand, taxis with engine capacity above 980 CC are likely to experience positive impact.

3. Other modes of transport

If the Rules are enforced, alternatives to taxis linked with app based aggregators, i.e. B/Y taxis and A/C buses are likely to witness increase in demand, and consequent increase in income.

Rule	Average daily income of B/Y taxi	Increase in average daily income of B/Y taxi	Increase in income (%)
Minimum Engine Capacity	2,000	122.23	6.11
Fleet Composition	2,000	27.87	1.39
PSV badge	2,000	128.67	6.14

4. Aggregate impact

In aggregate, the Rules are likely to negatively impact the stakeholders, when taken together.

Figures in INR per day

Rules/ Stakeholders	Minimum Engine Capacity	Fleet Composition	Permit and Fee	Requirement for PSV badge	Need to operate taxis on clean fuel	Colour standardisation
Consumers (actual)	-39.89	-30.77		-25.33		
Consumers (inconvenience)	-76	-20.94		-80		
B/Y taxi	122.23	27.87		128.67		
Compact Hatchback taxi	-950			-950		
Hatchback taxi	114	707.08	1.26	-0.05	-31.24	-26.03
SUV taxi		-2106.09	-7.75		-1.64	-1.37
A/C Bus	22.16	5.05		23.33		
Permit & Fee		0.82	0.8	0.1		
Aggregators	-36.1	-4.62		-41.54		
Net impact	**-843.6**	**-1421.6**	**-5.69**	**-944.82**	**-32.88**	**-27.4**
	Negative	**Negative**	**Negative**	**Negative**	**Negative**	**Negative**

Executive Summary

Background

It has been estimated that by 2030, cities across the world will cater to approximately 6 billion people as compared with approximately 3.6 billion today. This comprises approximately 66 percent of the world's population.[1] Likewise, Indian cities are estimated to cater to approximately 38 percent of the country's total population. It has been projected that India's urban population will reach 0.6 billion people by 2030, twice the size of the United States of America.[2]

Increase in pressure on cities has resulted in expansion of urban sprawl,[3] consequently increasing the average commute distances for its inhabitants.[4] The increase in average daily commuting time augments the need for point to point or intermittent public transport (IPT) and results in an increase in the demand for motor-vehicles.

This increase in demand has led to emergence of new business models and technologies such as app based aggregators which connect drivers of cars to potential consumers. Such aggregators serve the rising urban consumer base, which hitherto remained underserved by traditional service providers. For instance, the need for IPT in cities like Mumbai has been traditionally met by the Black and Yellow (B/Y) taxis. No new B/Y taxi permits were issued since 1997 until recently. This has resulted in imbalance between demand and supply of taxis, which is largely being catered by app based aggregators since last few years.

However, the advent of such technology enabled innovative services do not often fit within the policies designed to regulate the services offered by traditional service providers. Consequently, regulators in different Indian states have been attempting to achieve regulatory convergence between different business models. Many states such as Rajasthan, West Bengal, Karnataka and Maharashtra have taken initiatives to regulate taxis linked with app based aggregators.

The curious case of Maharashtra

While the rules issued in Rajasthan, West Bengal and Karnataka have come into force, the Maharashtra City Taxi Rules, 2017 (Rules)[5] are yet to be enforced. Further, several commuting options are available in a city like Mumbai, which is epitome of urban

[1] https://www.mckinsey.com/featured-insights/urbanization/how-to-make-a-city-great
[2] Ejaz Ghani, *The smart cities project must promote diversity,* LiveMint, 21 May 2018, at https://www.livemint.com/Opinion/XENew1ujWdeGx6PQv9tJMK/The-smart-cities-project-must-promote-diversity.html
[3] Urban sprawl refers to the expansion of poorly planned, low-density, auto-dependent development, which spreads out over large amounts of land, putting long distances between homes, stores, and work and creating a high segregation between residential and commercial uses with harmful impacts on the people living in these areas and the ecosystems and wildlife that have been displaced. http://www.everythingconnects.org/urban-sprawl.html
[4] http://iihs.co.in/knowledge-gateway/wp-content/uploads/2015/07/RF-Working-Paper-Transport_edited_09062015_Final_reduced-size.pdf, "As populations increase, the average travel distances as well as intensity are expected to increase as there is a direct correlation between the two indicators. Average trips lengths for metro cities including Bengaluru are over 8 km, while it is 6 km or less for all other metro cities. This trend in trip length and frequency is only expected to increase with increasing income levels, migration, participation of women and a service-oriented economy. As more people travel over longer distances on regular basis for employment and education purposes, will inevitably lead to road congestion."
[5] Available at https://transport.maharashtra.gov.in/Site/Upload/Pdf/mahacts17%20.pdf, accessed on 15th December 2017

sprawling in India. Thus, a closer look at interaction between users and providers of IPT services in Mumbai is expected to offer unique insights. The Rules were issued to regulate the licensing of taxis linked with mobile apps of taxi aggregators. The Preamble to the Rules states that a large number of such taxis have been operating with the All India Tourist Permits (AITP) albeit essentially operating as city taxis. It further highlights the difference in regulation of city taxis and taxis operating with AITPs in cities of Maharashtra, and calls for regulatory convergence. As per the Preamble, the Rules intend to retain the advantages of app based taxis, viz. efficient demand/ supply matching, dynamic price discovery, better commuter experience and upgradation/ modernisation of taxi services.

Approach & Methodology

Any proposed regulation can impact different stakeholders in varied and divergent manner. It is essential to ensure that costs of regulations are outweighed by their benefits. Regulatory Impact Assessment (RIA) is a process of systematically identifying and assessing direct and indirect costs and benefits of regulations on different stakeholders.

RIA is an important element of an evidence-based approach to policy making and review, as it essentially comprises robust and structured stakeholder engagement. Impacts of different regulatory options are compared with 'as is' scenario on the basis of scientifically developed tools such as cost-benefit analysis, cost-effective analysis etc. and thus the best possible regulatory intervention is selected, which has the potential to result in maximum net benefits. RIA essentially answers the following questions:

RIA Answers	What is the problem being solved, and why did it emerge?
	What will happen if the government does not act?
	What kinds of actions could be envisaged to address the problem?
	What are the consequences of possible actions?
	Why is the proposed solution the best one? Does it best solve the problem by achieving maximum net benefit?
	Can the government implement the solution effectively?

Scope of the Report

This report presents findings of a limited RIA exercise conducted by CUTS International on select provisions of the Rules. This involved assessment of costs and benefits of such provisions, and estimation of the net impact on different stakeholders. Broad suggestions with the intention of reducing costs and enhancing benefits are also provided.

Six specific provisions were identified for the purpose of in-depth cost-benefit analysis. The relate to: i) minimum engine capacity ii) fleet composition, iii) permit fees; iv) fuel type; v) Public Service Vehicle (PSV) badge; and vi) colour standardisation. These provisions were selected as they are likely to have direct and substantial impact on taxi drivers and consumers, and can provide a broad idea of aggregate impact of the Rules. Due regard was also given to interest and expertise of CUTS International and available resources.

The exercise was informed by robust primary research in form of interactions with 1000 drivers and 1000 users of city taxi services in Mumbai Metropolitan Region (MMR). Of

1000 drivers interviewed, 750 drivers were associated with app based taxi aggregators while remaining 250 drivers drove black and yellow taxis. The exercise also involved in-depth interaction with different relevant stakeholder groups including government, experts, consumer representatives, taxi union representatives, academia, among others, to understand their perspective on the Rules. An attempt has been made to estimate quantitative and well as qualitative costs and benefits of the Rules on different stakeholders such as consumers, taxi drivers, government and aggregators.

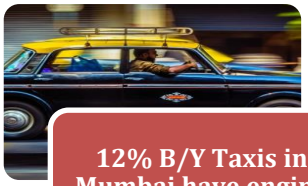
The provisions analysed under the study and related findings have been discussed below:

Minimum Engine Capacity

Regulatory Proposal: Taxis attached to any aggregator should have minimum engine capacity of not less than 980 CC.

Objective: Ensuring adequate comfort for consumers and create a level playing field between B/Y taxis and taxis linked with app based aggregators. Currently, B/Y taxis are required to have a minimum engine capacity of 980 CC.

Baseline Scenario



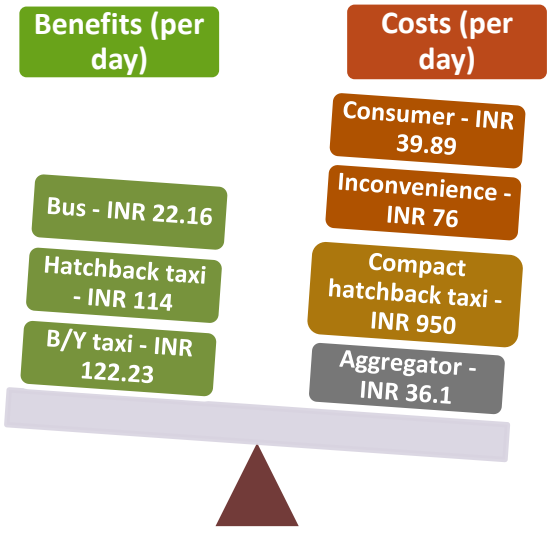
12% B/Y Taxis in Mumbai have engine capacity less than 980 CC

99% drivers of taxis linked with aggregators felt that it was unfair to fix minimum engine capacity

46% users of app based taxis have used taxis with low engine capacity. 99% of such users did not face any problem

Impact Assessment:

- Taxis with engine capacity less than 980CC (compact hatchback taxis) are likely to exit the market, adversely impacting such drivers.
- Consumers are likely to shift to AC buses, hatchback taxis and B/Y taxis, positively impacting such drivers, and negatively impacting the consumers.
- In case consumers shift to AC buses, while the actual fare will reduce, consumers will bear inconvenience, to avoid which they will be willing to pay higher fare.



Recommendations

Better alternatives to ensure consumer safety and comfort, such as prescribing power to weight ratio, should be explored, while undertaking cost benefit analysis. The restriction on minimum engine capacity should be rationalised to allow taxis with engine capacity of 600 CC and above to link with app based aggregators.

Fleet Composition

Regulatory Proposal: At least 30 percent of taxis linked with app based aggregators must have engine capacity of 1400 CC and more (SUV taxis).

Objective: Facilitating optimal competition between high end taxis operating under Previous Taxi Schemes[6] and similar taxis linked with app based aggregators.

Baseline Scenario

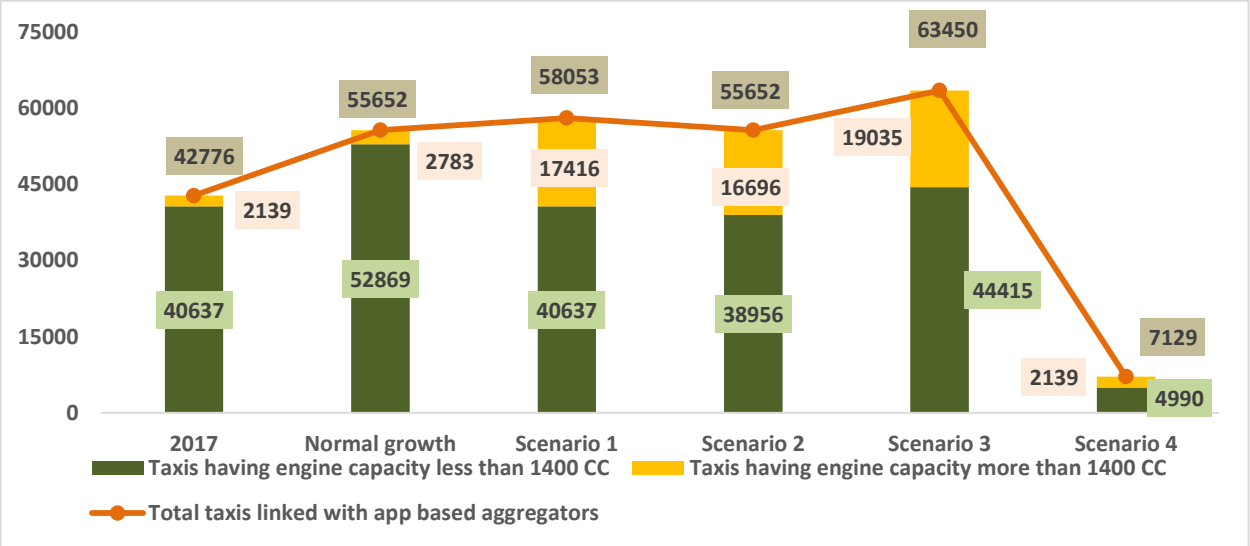
86% drivers revealed that existing fleet composition in line consumer demand

Drivers of taxis with engine capacity more than 1400 CC felt that government should not decide fleet composition

96% consumers stated that there is no shortage of SUVs while booking app based taxis

Impact assessment

Following are the likely scenarios if fleet composition requirement comes into force:



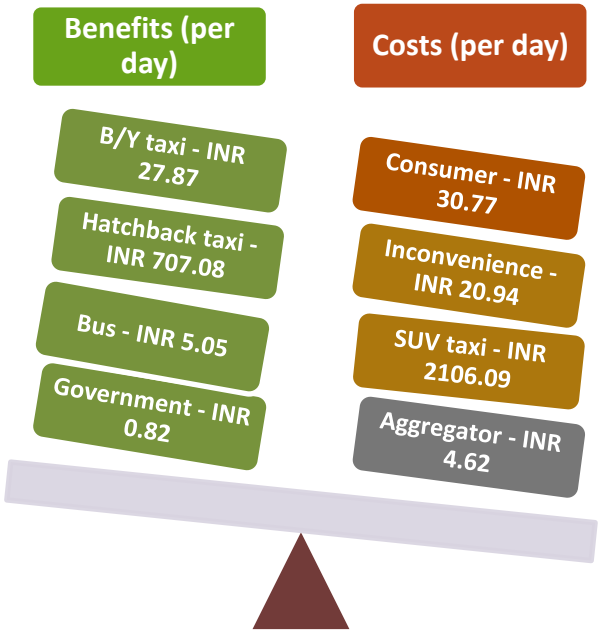
In all scenarios, the demand for taxis with engine capacity less than 1400 CC (as projected in normal growth scenario) is likely to outstrip their supply. Similarly, in most scenarios, the supply for taxis with engine capacity more than 1400 CC is likely to outstrip their demand (as projected in the normal growth scenario).

[6] Currently, high end taxis with engine capacity of 1400 CC and more are predominantly operated under the Fleet Taxi Scheme, 2006, Phone Fleet Taxi Scheme, 2010, and Call Taxi Scheme 2010

- Consumers who are unable to find taxis with engine capacity below 1400 CC are likely to shift to AC buses, SUV taxis and B/Y taxis,[7] positively impacting such drivers. However, given that supply of SUV taxis will outstrip the demand, such drivers will be negatively impacted.

- In case consumers shift to AC buses, while the actual fare will reduce, consumers will bear inconvenience, to avoid which they will be willing to pay higher fare.

- Government will collect permit and fees owing to increase in number of SUV taxis.



Recommendations

The minimum fleet capacity requirement should be removed. A periodic market analysis should be conducted to assess if supply of taxis is corresponding to demand and artificial barriers are present. Also, a market for tradeable fleet composition certificates could be created wherein aggregators who link more than desired number of taxis should be in a position to sell the certificates to aggregators who are unable to do so.

Permit & Fee

Regulatory Proposal: Taxis attached to any aggregator will be required to obtain a permit called the App Based City Taxi Permit (ABCTP) by paying prescribed fees (and taxes). Currently, taxis linked with app based aggregators are operating with All India Tourist Permit (AITP).

Taxis	Permit fee (AITP)	Permit fee (ABCTP)	Taxes (AITP)*	Taxes (ABCTP) **
Hatchback taxis (INR)	1,500	25,000	8,000	7,150
SUV Taxis (INR)	1,500	2,61,000	12,000	7,150

**Annual. All others figures are one time. **Assumption. As B/Y taxis are subject to this.*

Objective: Creation of a level playing field between the incumbent B/Y taxis and SUV taxis and corresponding taxis linked with app based aggregators.

[7] The probability of a consumer finding a taxi with engine capacity less than 1400 CC differs in each of the scenario.

Baseline Scenario

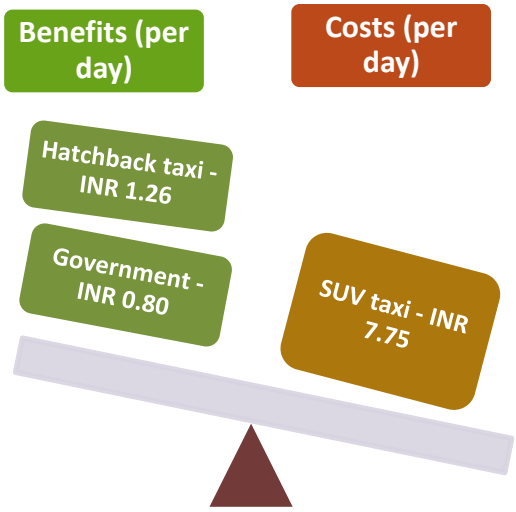
30% permits previously auctioned for high end taxi service remained unacquired

Almost all drivers associated with aggregators possess AITP and a substantial proportion are not willing to surrender the permits

Consumers care about safety and comfort and not about type of permit driver posseses

Impact Assessment

- The cost of operations for drivers is likely to increase. Those drivers who will be unable to afford the higher fee requirement may exit the market, thus adversely impacting their revenue. This may result in increase in fare for consumers.
- The government is likely to collect higher revenue.
- The request may result in achieving the regulatory objective, however, the same is likely to happen at prohibitively high costs.



Recommendations

Taxis with AITPs should be permitted to operate under the Rules without surrendering their existing permit. The permit fee should be decreased for all types of taxis and should be nominal and uniform. Fee paid under different rules should be set off from the permit fee applicable under the Rules.

Public Service Vehicle (PSV) Badge

Regulatory Proposal: A driver is required to have a valid commercial driving license to drive a taxi and a valid PSV Badge issued by the licensing authority. To obtain PSV badge, one should have state domicile[8], topographical knowledge of area of operation and working knowledge of Marathi.

Objective: To ensure that the passengers are not inconvenienced, and local employment is promoted.

[8] Residence in Maharashtra for 15 years

Baseline Scenario

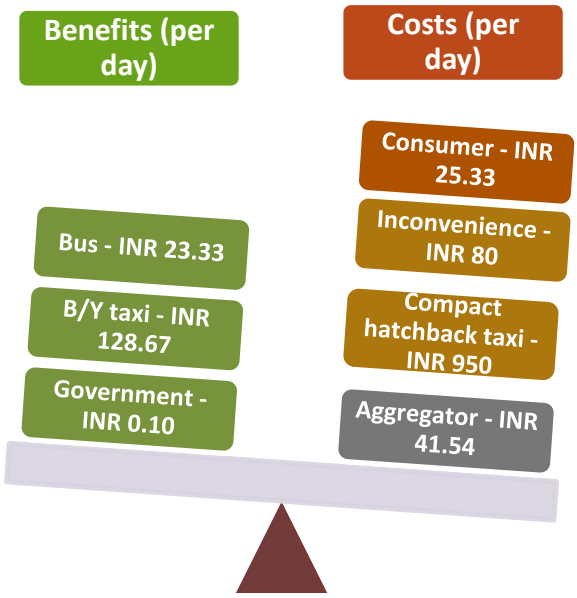
32% drivers of taxis linked with app based aggregators are not eligible to apply for PSV Badge

Many taxis remain unoperational owing to unavailability of drivers fulfilling domicile condition

Most drivers are reasonably familiar with local language and topography

Impact Assessment

- Drivers eligible for obtaining PSV badge will invest necessary resources to obtain it.
- Drivers who are not eligible will be adversely impacted. For instance, ineligible drivers-owners of taxis with engine capacity less than 980 CC will have to leave the market and might not even be in a position to operate the taxi with AITP, resulting in significant loss.
- The government is likely to benefit owing to the collection of fee to issue PSV badge.
- A reduction in number of taxis will force consumers to shift to other options, thus creating inconvenience and increased costs. This may benefit drivers of such alternate modes of transport.



Recommendations

Mandatory conditions such as permanent residence of Maharashtra result in artificial restrictions on employment. These conditions need to be avoided while job creation and entrepreneurship should be promoted. Further, the requirement of PSV Badge can be replaced with conditions like Aadhaar number, residential address proof, and contact details of two family members (akin to the procedure in other states), to ensure authenticity of drivers. This relaxation should be provided to incumbent taxi service providers as well.

Further, consumers appreciate if drivers have reasonable awareness of topography and local language. Most drivers already meet such condition. Consequently, the condition for drivers to have reasonable awareness of topography and local language may be retained. However, the process of certification should be proportional and should not create artificial barriers. Any rejection on these grounds should be in writing and with adequate reasons. Proportional certification requirements should be ascertained through a robust stakeholder consultation process. In addition, monitoring and supervision of drivers should be improved. Efforts for speedy grievance redress need to be made.

Need to Operate Taxis on Clean Fuel

Regulatory Proposal: A taxi registered under the Rules is required to be driven on clean fuel.[9] Such vehicle should meet emission standards as prescribed from time to time by the Transport Authority. If the services of any working taxi operating under some valid permit are intended to be offered through any aggregator, then the said taxi is required to convert to be driven on clean fuel, within one year from commencement of the Rules.

Objective: All incumbent city taxis operate on clean fuel. Therefore, the intention is to create a level playing field between the incumbent taxis, and the taxis linked with app based aggregators, and benefit environment.

Baseline Scenario

77% drivers of diesel taxis expressed inability to convert/change their taxis

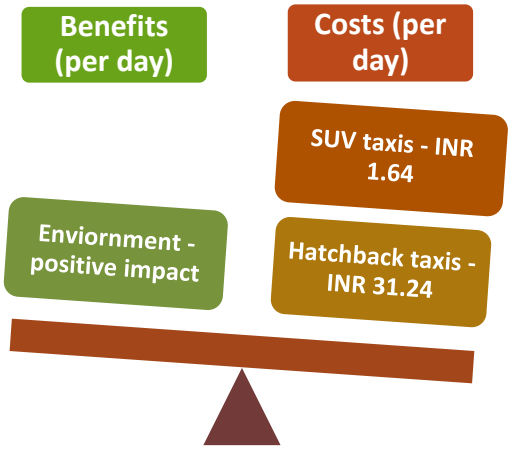
89% drivers of diesel taxis opined that taxis are not the major source of pollution

85% drivers of diesel taxis agreed to such rule being implemented during 3-5 years

Impact Assessment

- The owners of taxis operating with diesel fuel will need to invest resources to convert diesel assembly into petrol/ CNG assembly. The taxi owners will need to bear such costs, which is likely to be passed on to consumers. If such conversion is not possible, taxi owners will need procure new taxis with clean fuel. This will increase cost to taxi owners, and consequently consumers.

- Operation of taxis with clean fuel is expected to positively impact the environment.



Recommendations

Instead of regulating type of the fuel, government may regulate emission standards. This is likely to promote innovation and benefit environment. Also, taxis operating with clean fuel may be incentivised. The transition period to comply with clean fuel requirement must be reviewed and decided based on consultation with relevant stakeholders. For instance, the taxis may be replaced after the existing permit expires by natural efflux of time, which is also in line with the judgement of Supreme Court in the National Capital Region (NCR) for a similar issue. The Government should provide adequate support to taxi drivers to manage the transition, and focus on improving the CNG infrastructure in the city.

[9] Clean Fuel - Unleaded petrol or CNG or LPG or Hybrid or Electrical

Colour Standardisation

Regulatory Proposal: All taxis operating under ABCTP shall be painted as specified below:

Vehicle specifications	White Colour
Front and rear bumper of vehicle	White Colour
Lower side of the vehicle	Daffodil Yellow Colour

Objective: To make it easy for commuters to identify taxis at locations with large number of vehicles moving at any point of time, while creating level playing field between different taxi operators.

Baseline Scenario

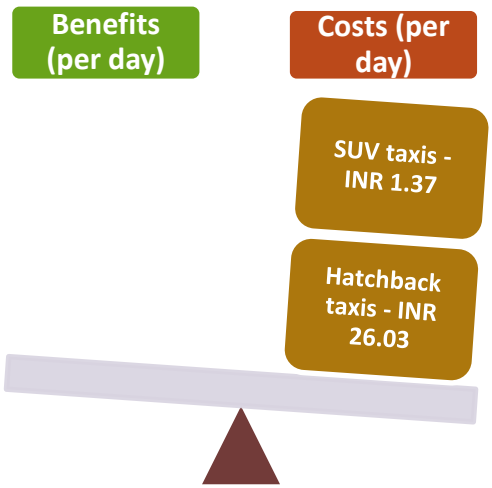
48% of users opined that standard colour of taxis may not impact ease of locating taxis

64% of drivers thought that there would be no benefit associated with standardised colour.

87% users found it easy to locate their booked taxi in a crowded location

Impact Assessment

- The drivers will incur extra costs in getting the taxis repainted. Further, drivers may not be able to earn additional revenue through advertisement, due to limited space available after the repaint. This may increase cost of operations without increasing revenue.
- The cost incurred by drivers may be passed on to the consumers resulting in increase in fares.



Recommendations

The colour standardisation requirement can be done away with, and if there is a need to differentiate taxis from other vehicles, a sticker of the name of aggregator, or the logo of such aggregator at all sides of the taxis should suffice.

Aggregate Impact

The table below presents the aggregate impact and highlights that different Rules impact diverse stakeholders in divergent manner. For instance, while B/Y taxis are likely to be positively impacted by the Rules owing to likely increase in demand, compact hatchback taxis are expected to be severely negatively impacted owing to likely exit from the market. Further, while the Rule on minimum engine capacity may positively impact hatchback taxis on account of increased demand, the Rule on clean fuel and colour standardisation is likely to negatively impact such taxis. In aggregate, the Rules are likely to negatively impact all stakeholders taken together.

Rules/ Stakeholders	Minimum Engine Capacity	Fleet Composition	Permit and Fee	Requirement for PSV badge	Need to operate taxis on clean fuel	Colour standardisation
Consumers (actual)	-39.89	-30.77		-25.33		
Consumers (inconvenience)	-76	-20.94		-80		
B/Y taxi	122.23	27.87		128.67		
Compact Hatchback	-950			-950		
Hatchback	114	707.08	1.26	-0.05	-31.24	-26.03
SUV		-2106.09	-7.75		-1.64	-1.37
Bus	22.16	5.05		23.33		
Permit & Fee		0.82	0.8	0.1		
Aggregators	-36.1	-4.62		-41.54		
Net impact	-843.6	-1421.6	-5.69	-944.82	-32.88	-27.4
	Negative	**Negative**	**Negative**	**Negative**	**Negative**	**Negative**

A closer look at the stakeholder wise impact of Rules reveals the following picture:

1. Consumers

If the Rules are enforced, the consumers are likely to incur significant additional monetary as well as non-monetary costs. The monetary costs will be on account of high fares of available modes of transport. Non-monetary cost is the additional amount which the consumer is willing to pay to avoid travelling through inconvenient modes like buses and B/Y taxis.

Rule	Average daily cost to consumer in baseline	Increase in daily cost to consumer under the Rules	Increase in cost (%)
Minimum Engine Capacity	-310	-115.89	37.38
Fleet Composition	-360	-51.71	14.36
PSV badge	-360	-105.33	29.26

2. Drivers linked with app based aggregators

If the Rules are enforced, the drivers linked with app based aggregators are likely to be negatively impacted, when taken together. For instance, if the fleet composition requirement is adopted, the aggregate costs to drivers with engine capacity above 980 CC are likely to increase by around 93 percent from INR 1500 to INR 2899.01.

Similarly, in case the minimum engine capacity rule is adopted, compact hatchback taxis (having engine capacity below 980 CC) will need to exit the market. Further, it may not be possible to operate such taxis under AITP on inter-city routes. Consequently, owners of such taxis would be required to forego the income from city taxi services while not having alternative avenues to deploy the vehicle. Owing to increase in demand, taxis with engine capacity above 980 CC are likely to experience positive impact.

3. Other modes of transport

If the Rules are enforced, alternatives to taxis linked with app based aggregators, i.e. B/Y taxis and A/C buses are likely to witness increase in demand, and consequent increase in income.

Rule	Average daily income of B/Y taxi	Increase in average daily income of B/Y taxi	Increase in income (%)
Minimum Engine Capacity	2,000	122.23	6.11
Fleet Composition	2,000	27.87	1.39
PSV badge	2,000	128.67	6.14

Way Forward

As indicated earlier, different regulatory proposals can impact diverse stakeholders in divergent manner. Consequently, there is a merit in beginning to think about costs and benefits of regulatory proposals prior to their adoption and assessing whether the regulatory objectives are likely to be met at minimum costs.

This holds true in case of Rules as well. It may be useful to consider alternatives to some of the provisions of the Rules, estimate their impacts and examine if such alternatives are likely to meet the regulatory objectives at lesser costs, than those likely to be imposed by the Rules. Some alternatives have already been discussed elsewhere.

It must also be noted that several incumbent city taxi providers are already subject to provisions similar to Rules (such as PSV badge, minimum engine capacity, clean fuel) and are incurring significant compliance cost. In fact, one of the rationale for introduction of the Rules was to create level playing field between incumbent city taxi providers and taxis linked with app based service providers. A level playing field may not necessarily be achieved by increasing the costs of new market entrants to match the costs of incumbents but can also be created by reducing the costs of incumbents to match the costs of new entrants. In other words, there is a need to revisit the regulatory framework for incumbent city taxi providers and ensure they are subject to reasonable and proportionate regulatory requirements which are likely to achieve the regulatory objectives at least costs to such incumbents.

However, reforming specific existing regulatory provisions may not necessarily ensure that similar regulatory frameworks will not be issued in future wherein costs may

outweigh benefits. Thus, there is a need to reform the regulation making process and institutionalise the process of considering impacts of regulatory proposals in advance.

RIA serves this purpose. To ensure the adoption of RIA in the regulatory process, political will is necessary. Various expert committees and independent studies[10] have already recommended adoption of RIA in India. These include erstwhile Planning Commission's Working Group on Business Regulatory Framework (WGBRF) (2011)[11], Financial Sector Legislative Reforms Commission (FSLRC) (2013), Committee for Reforming the Regulatory Environment for Doing Business in India (2013), Tax Administration and Reforms Commission (2015), and the Department of Industrial Policy and Promotion's Expert Committee on Prior Permissions and Regulatory Mechanism (2016).

More recently, the Ministry of Commerce & Industry, Government of India has constituted a Better Regulation Advisory Group with the objective of improving regulatory processes. A sub-group consisting of CUTS International and Federation of Indian Micro and Small and Medium Enterprises (FISME) was tasked to suggest a mechanism for adoption of RIA in India, for ministries and regulators under the Central Government to improve regulatory processes.[12]

Moreover, to enable institutionalisation of RIA, training and capacity building of relevant government institutions to undertake in-depth RIA would be required. Building such capacity and conducting periodic RIAs would put significant strain on exchequer. However, the consequent benefits of improved regulatory governance and imposition of minimal costs on stakeholders to achieve regulatory objectives are expected to outweigh the costs of institutionalisation and conducting RIA.

[10]CUTS projects on Regulatory Impact Assessments in India are available at http://cuts-ccier.org/ria/

[11] to which CUTS acted as a Knowledge Partner

[12] http://pib.nic.in/newsite/PrintRelease.aspx?relid=176264

Chapter 1: Regulating Innovation in Urban Mobility

1. Innovation in Urban Mobility

Across the globe, technology led innovation is permeating different walks of life. It is helping solve problems of inadequate access, high costs and low quality of goods and services across sectors. Ubiquity of mobile phones is aiding rapid upscaling of such innovation. Unsurprisingly, entrepreneurs are rapidly integrating such innovation for improving service delivery sectors like finance, hospitality, retail and urban mobility.

Such technology led innovation has led to the emergence of mobile based platform markets which match providers with users of goods and services. While platforms have existed for years, information technology has profoundly reduced the need to own physical infrastructure and assets. It makes building and scaling up platforms vastly simpler and cheaper, allows nearly frictionless participation that strengthens network effects, and enhances the ability to capture, analyse, and exchange huge amounts of data that increase the platform's value to all.

In the urban mobility sector, a mobile application (app) based aggregator model has emerged wherein the transport service providers such as vehicle owners and users of transport services are connected through an app on which they are registered to match demand of services with available supply.

The innovation in urban mobility has the potential to provide reliable and convenient transport services to the doorsteps of users at affordable prices. Thus, private vehicle ownership is expected to be discouraged, congestion is likely to be reduced and the vehicles are expected to be optimally utilised.[13] In addition, the need for on-street parking is expected to be reduced substantially.[14] The innovation is likely to cut transaction costs, improve the allocation of available capacity and reduce information asymmetries between drivers, fleet operators and passengers.

The changes in service delivery model are not always consistent with regulatory frameworks hitherto applicable in such sectors. Consequently, regulators across sectors are revisiting existing frameworks to design regulations suitable for such technology enabled models.

2. Regulatory Responses to Innovation

The importance of regulatory frameworks in transport sector should not remain understated. They can influence the type and size of the vehicles on road, the mix between public transport and shared vehicles, and ultimately, the amount of vehicular travel, congestion and emissions in the city.[15]

[13] Ganesh, Venkatesh, *Car wars: taxi aggregators tweak biz models*, Business Line, 27th October 2015, accessed on 15th December 2017, at http://www.thehindubusinessline.com/companies/car-wars-taxi-aggregators-tweak-biz-models/article7810629.ece

[14] International Transport Forum, *Urban Mobility System Upgrade: How shared self driving cars could change city traffic,* OECD and Corporate Partnership Board Report, 2015

[15] International Transport Forum, *Urban Mobility System Upgrade: How shared self driving cars could change city traffic,* OECD and Corporate Partnership Board Report, 2015

The growing popularity of app based taxi aggregators has caught authorities off-guard. A predictable regulatory response has been an attempt to fit these within the existing regulatory frameworks.

Principles for Regulation of App Based Taxi Aggregators

In order to guide regulators, the International Transport Forum has issued ten guiding principles for regulation:

1. Regulation should be limited to correcting market failures.
2. Regulation should rely on the most efficient tools.
3. Regulation should be technology neutral and should not discriminate between operators in a market.
4. The impact of regulation and its relevance should be monitored and re-assessed.
5. Regulation should be adaptable.
6. There should be an adequate division of regulatory responsibility.
7. Regulation should be clear and easy to apply.
8. Regulation should be focused.
9. Regulation should be based on sound economic principles.
10. Regulation should be inclusive of all social groups.

Source: International Transport Forum, App based Ride and Taxi Services: Principles for Regulation, OECD, 2016

In India, the power to legislate on mechanically propelled vehicles lies with central as well as state government.[16] Accordingly, the Central Government has promulgated the Motor Vehicles Act, 1988[17] (MV Act). The MV Act authorises a regional transport authority in the state to grant a permit for contract carriage i.e. motor vehicle which carries passengers, subject to the specified conditions.[18] It also empowers the state transport authorities to grant permits for tourist vehicles for operation in the state, subject to the specified conditions.[19] Such permits are typically referred as All India Tourist Permits (AITPs).

Central[20] and state governments[21] are also empowered to make rules under the MV Act. Accordingly, the central government has issued the Central Motor Vehicles Rules, 1989[22]. Similarly, several state governments have issued rules under the MV Act.[23] In addition, state governments are authorised under the MV Act to regulate different aspects of urban mobility.[24] Accordingly, several Indian states have taken initiatives to regulate innovation in urban mobility. Such regulations mostly focus on conduct of drivers, accountability of aggregator in case of misconduct by drivers, and recording and sharing of mobility data by the aggregator with the regulators.

In issuing respective regulations, most states appear to have taken in account an advisory issued by the Ministry of Road Transport and Highways (MoRTH), Government of India.[25]

[16] Item 35 of List III (Concurrent List) of the Constitution of India: "*Mechanically propelled vehicles including the principles on which taxes on such vehicles are to be levied.*"
[17] http://www.advocatekhoj.com/library/bareacts/motor/1.php?Title=Motor%20Vehicles%20Act,%201988&STitle=Short%20title,%20extent%20and%20commencement
[18] Section 74 of the MV Act
[19] Section 88(9) of the MV Act
[20] Section 64 of the MV Act
[21] Section 65 of the MV Act
[22] http://www.lawsindia.com/Advocate%20Library/Amendments/Cen_motor_vehi_rules_1989/MAIN.htm
[23] For example, Maharashtra Motor Vehicles Rules 1989
[24] Such as sections 74, 89 (1), 93, 95 (1), 96(2)(xxviii) of the MV Act.
[25] The advisory is available at http://morth.nic.in/showfile.asp?lid=1822, accessed on 15th December 2017.

However, at times, regulations cover other aspects of mobility as well, such as vehicles permitted and fuel type, etc. The table below provides a broad snapshot of emerging regulations of urban mobility in select Indian states.

Regulation of app based taxis across states							
Type of regulation	**MoRTH advisory** [26]	**Districts of Haryana in NCR** [27]	**Karnataka** [28]	**Rajasthan** [29]	**West Bengal** [30]	**Madhya Pradesh (draft)** [31]	**Delhi** [32]
Engine Capacity/ vehicle type	No restriction	600CC and above with seating capacity not exceeding 6 excluding driver	No restriction	No restriction	Motor cabs with sitting capacity of up to 6+1 excluding meter taxis	No Restriction	600CC and above with seating capacity not exceeding 7 including driver
Fuel type	Meet emission standards as prescribed from time to time	CNG/ LPG	No restriction	No restriction, to be run on CNG when proposed to be operated in NCR	No restrictio n	Clean Fuel	Clean Fuel
Colour	No restriction	White, with blue coloured strips on both sides displaying name of licensee	No restriction	No restriction	No restrictio n	As specified by the Transport Commissione r	White, with coloured stripes on both sides of taxi
Public Service Vehicle Badge	Self-attested copy of EPIC card, PAN card, residential address proof,	Required	Required	Police verification, self-attested copy of EPIC card, PAN card, residential	Self-attested copy of EPIC card, PAN card, residentia l address proof,	Driver shall have valid licence of driving the vehicle.	Required

[26] The Advisory for licensing, compliance and liability of on-demand information technology based transportation aggregator issued by MoRTH is available at http://morth.nic.in/showfile.asp?lid=1822, accessed on 15th December 2017

[27] NCR Motor Cab (Taxi) Scheme, 2016, available at https://haryanatransport.gov.in/srservices/vahan/gui/jsp/notification_frame.jsp, accessed on 15th December 2017

[28] The Karnataka On-Demand Transportation Technology Aggregators Rules, 2016, available at https://haryanatransport.gov.in/srservices/vahan/gui/jsp/notification_frame.jsp, accessed on 15th December 2017

[29] The Rajasthan On-Demand Information Technology Based Transportation by Public Service Vehicle Rules, 2016, available at http://www.transport.rajasthan.gov.in/content/dam/transport/transport-dept/pdf/notificationrule/notificationrules.pdf, accessed on 15th December 2017

[30] The Directives to regulate the operational activities/ conduct of the On-Demand Transportation Technologies Aggregators, 2015 available at https://wbxpress.com/wp-content/uploads/2016/03/4450-WT.pdf, accessed on 15th December 2017

[31] Draft Rules, Transport Department, Madhya Pradesh, available at: http://govtpressmp.nic.in/pdf/extra/2017-10-13-563.pdf , accessed on 15th January , 2018

[32] City Taxi Scheme – 2015 by Transport Department, available at http://delhi.gov.in/wps/wcm/connect/f9c68480499d268a87b99f018ef168b1/Taxi.compressed.pdf?MOD=AJPERES&lmod=-370276847 accessed on 15th December 2017

Regulation of app based taxis across states							
Type of regulation	**MoRTH advisory** [26]	**Districts of Haryana in NCR** [27]	**Karnataka** [28]	**Rajasthan** [29]	**West Bengal** [30]	**Madhya Pradesh (draft)** [31]	**Delhi** [32]
	contact details of two family member			address proof, contact details of two family members	contact details of two family members		
Vehicle eligibility	Registered and compliant with law and regulations prescribed under the Act including intermediary guidelines	Permit issued by State Transport Authority under section 74 of the Act	Permit issued under section 74 or section 88(8) of the Act	Public Service Vehicle to be validly registered under provisions of the Act and holds relevant permit to ply in the given area	Permit or any other document as prescribed and issued under applicable laws, including, but not limited to, an AITP or state tourist permit	Vehicle must be validly registered, having valid certificate of fitness, insurance, pollution control.	Permit issued by State Transport Authority under section 74 of the Act
Driver eligibility	No restriction	Valid commercial driving licence ,at least be middle school pass, Adequate knowledge of roads and routes of NCR area	Resident of Karnataka for at least 2 years and working knowledge of Kannada and any other language, preferably English	No restriction	No restriction	No restriction	Valid commercial driving licence, at least be middle school pass, Adequate knowledge of roads and routes of NCR area
Source: Author Relevant state laws sourced from WRI India, New Mobility Policy Database, 2017 [33]							

In addition to the advisory as mentioned above, the MoRTH had constituted a committee to review the issues relating to taxi permits. In December 2016, the committee released its report recommending, inter alia, to the states that the AITP taxis may be allowed to operate for point to point trips within a city except as street hailing taxis. These vehicles would have to comply with the fuel specified for the respective states while operating for aggregators. It further advised states to avoid unreasonable restrictions that would limit operations of taxis, thereby causing inconvenience to the citizens and increased use of personalised vehicles.[34]

The central government has also initiated amendments to the Act pursuant to the Motor Vehicles (Amendment) Bill, 2016 (Bill). The Bill explicitly legitimises the aggregator

[33] Available at http://www.wricitieshub.org/newmobility/sites/default/files/Policcy%20database_Final.pdf , accessed on 15th December 2017

[34] The Report of MoRTH committee is available at http://morth.nic.in/showfile.asp?lid=2525 , accessed on 15th December 2017

business model by defining 'aggregator' and amended section 93[35] of the Act in this regard. Further, it provides greater regulatory independence to central and state governments. For instance, by authorising respective governments to issue directions to aggregators and drivers, power to relax applicability of certain provisions, modify permits to meet certain objectives. The objectives include: promoting effective competition among transport service providers, better utilisation of transportation assets, improving urban transport, and reducing congestion.[36] The Lok Sabha passed the Bill in April 2017 and is pending under consideration of the Rajya Sabha, the upper house of the Parliament.

3. The Curious Case of Maharashtra

The Government of Maharashtra issued a draft City Taxi Scheme in 2015, which failed to see light of the day.[37]

On 04 March 2017, the Government of Maharashtra notified the Maharashtra City Taxi Rules, 2017 (Rules).[38] The intent of the Rules is to regulate the licensing of taxis linked to mobile apps of taxi aggregators. The Preamble to the Rules notes that a large number of such taxis have been operating with the AITPs issued under section 88(9) of the Motor Vehicles Act, 1988 (Act), but are essentially operating as city taxis.

City taxis operating in Maharashtra have been hitherto issued three types of permits:

i) street hail or black and yellow (B/Y) taxis or cool cabs permitted under section 74 of the Act;
ii) taxis permitted under the Fleet Taxi Scheme, 2006 to operate under existing permits originally issued for black and yellow taxis; and
iii) taxis permitted under the Phone Fleet Taxi Scheme, 2010 operating on permits which were auctioned and sold.

The table below highlights key features of taxis under these schemes.

[35] The amendment explicitly requires aggregators to obtain license from the state government, subject to specified conditions. It further provides that while issuing the licence to an aggregator, the state government is required to follow such guidelines as may be issued by the Central Government. In addition, every aggregator is required to comply with the provisions of the Information Technology Act, 2000 and the rules and regulations made thereunder.
[36] See, sections 67 and 88A of the Bill. Draft of the Bill as introduced in the Lok Sabha is available at http://www.prsindia.org/uploads/media/Motor%20Vehicles,%202016/Motor%20Vehicles%20%28Amendment%29%20Bill,%202016-.pdf , accessed on 15th December 2017
[37] Available at https://www.ndtv.com/india-news/uber-takes-on-maharashtra-government-over-mumbai-taxi-scheme-1244487, accessed on 30th March 2018. The draft was rejected by law and justice department. See, https://www.hindustantimes.com/mumbai-news/maharashtra-city-taxi-scheme-2016-state-issues-revised-draft-seeks-citizens-opinion-by-nov-5/story-PwBTROtBjVKslRxmluA4gJ.html, accessed on 30th March 2018
[38] Available at https://transport.maharashtra.gov.in/Site/Upload/Pdf/mahacts17%20.pdf, accessed on 15th December 2017

Key features of city taxis operating in Maharashtra			
Type of Regulation	**Black and yellow taxis permitted under Act**	**Permitted under Fleet Taxi Scheme**	**Permitted under Phone Fleet Taxi Scheme**
Minimum engine capacity	980 CC	1400 CC	1400 CC
Fuel	CNG	CNG	CNG
Permit fee (per vehicle)	INR 25,000	Existing permits allowed	INR 2,61,000
Mode of pick up	Street hail and designated stands	Pre-booked rides	Pre-booked rides
Facility	-	Air conditioner	Air conditioner
Fare	Regulated with meter	Regulated with meter	Regulated with meter
Source: Preamble to Rules			

Attempt to bring regulatory convergence between incumbents and app based taxis		
Type of Regulation	**Requirement under Rules**	**Attempted convergence with**
Minimum engine capacity	980 CC	Black and yellow taxi regulation
Fleet composition	At least 30 percent of taxis attached with aggregator should have engine capacity of 1400 CC or more	Fleet Taxi Service Scheme and Phone Fleet Taxi Scheme
Fuel	Vehicles should be driven on clean fuel i.e. unleaded petrol or CNG or LPG or Hybrid or Electric power. Existing diesel fuel based vehicles should be converted to clean fuel within a period of one year from the date of commencement of the Rules	Black and yellow taxi regulation, Fleet Taxi Service Scheme and Phone Fleet Taxi Scheme
Permit fee	INR 25,000 per vehicle below engine capacity of 1400 CC and INR 2,61,000 per vehicle above engine capacity of 1400 CC	Black and yellow taxi regulation and Phone Fleet Taxi Scheme
Need for Public Service Vehicle (PSV) Badge	Yes	Black and yellow taxi regulation, Fleet Taxi Scheme and Phone Fleet Taxi Scheme
Source: Author		

The preamble to the Rules note that there is a difference in regulation of city taxis and taxis operating with AITPs in cities of Maharashtra, which calls for regulatory convergence. It further provides that such convergence must retain the advantages of app based taxis, viz. efficient demand/ supply matching, dynamic price discovery, better commuter experience and upgradation/ modernisation of taxi services. As a result, the Rules retain several features of existing regulations applicable to city taxis in Maharashtra. The table below provides a snapshot of such attempted regulatory convergence.

A summary comparison of regulatory framework of Government of Maharashtra and other states revealed that the former has adopted a slightly different approach to regulate

innovation in mobility. This might be done to create a level playing field between incumbents and new entrants in the market.

However, the validity of the Rules has been challenged by the drivers/ owners linked with app based taxi aggregators and aggregators themselves before the Bombay High Court and the matter is sub-judice.[39] In the interim, the Government of Maharashtra constituted an expert committee to review fare and other related matters of taxis and autos, under the chairmanship of Mr. B.C. Khatua. The committee has recently released its report: the Taxi Auto Fare Committee Report 2017 (Khatua Committee Report),[40] wherein it has suggested amendments to some of the Rules. The government has submitted that it will not take coercive action under the Rules till further directions issued by the Court.[41]

Given the unique nature of urban mobility situation in Mumbai[42], it is pertinent to closely review the Rules and assess potential impacts on different stakeholders.

4. Need for Regulatory Impact Assessment

Any change in the prevailing regulatory scenario may be perceived differently by different stakeholders. While some may welcome the change, others may view it with suspicion and thus show resistance. This has been observed in the case of the Rules as well.

A sub-optimal regulation has the potential to increase the cost of administration and compliance, have unintended outcomes, and limits the likelihood of achievement of its objectives. Moreover, it can raise complexity and uncertainty associated with obligations, which must be avoided.

Consequently, only such regulations must be adopted which can achieve intended objectives with least possible distortions. Therefore, it is of paramount importance to understand the costs and benefits of any regulation on different stakeholders. One of the systematic approaches to critically assess impacts of regulations is by undertaking Regulatory Impact Assessment (RIA) study.

Regulatory Impact Assessment
It is a process of systematically identifying and assessing direct and indirect impacts of regulations, using consistent analytical methods. It involves a participatory approach via public consultation to assess such impact, determination of costs and benefits, and selection the most appropriate regulatory alternative. It is a method of estimating the likely impacts of regulation 'before' it is adopted, and comparing different options to determine which produces the best result.

RIA is an important element of an evidence-based approach to policy making, as it essentially comprises stakeholder engagement in policy making and review. Impacts of regulatory options are compared with 'as is' scenario on the basis of scientifically developed tools such as cost-benefits analysis, cost-effective analysis etc. and thus the

[39] Writ Petition 1329/2017 in the Bombay High Court, accessed on 15th December 2017
[40] The report is available at https://transport.maharashtra.gov.in/Site/Common/ViewPdfList.aspx?Doctype=421c4209-3a6e-4eba-9248-47bfb7533389, accessed on 15th December 2017
[41] Maharashtra taxi rules discriminates between black-and-yellow cabs and app-based taxi services: Bombay HC, Indian Express, 03 August 2017, available at http://indianexpress.com/article/india/maharashtra-taxi-rules-discriminates-between-black-and-yellow-cabs-and-app-based-taxi-services-bombay-hc-4780461/ accessed on 15th December 2017
[42] Urban Transport in India: Challenges & Recommendations, Indian Institute for Human Settlements. The report is available at http://iihs.co.in/knowledge-gateway/wp-content/uploads/2015/07/RF-Working-Paper-Transport_edited_09062015_Final_reduced-size.pdf, accessed on 15th December 2017

best possible regulatory intervention is selected. The central goal of RIA is to ensure that laws and rules efficiently produce economic, social, and environmental benefits, that is, that benefits justify costs. Its process ensures that the assessment is open and transparent, that the information used is reliable and not biased.

A RIA exercise essentially answers the following questions:

1. What is the problem being solved, and why did it emerge?
2. What will happen if the government does not act?
3. What kinds of actions could be envisaged to address the problem?
4. What are the consequences of possible actions?
5. Why is the proposed solution the best one? Does it best solve the problem by achieving maximum net benefit?
6. Can the government implement the solution effectively?

To answer these questions, the broad steps implemented in a RIA are: i) understanding the baseline, i.e. situation on ground and relevant laws and regulations and examining if regulatory objectives are being fulfilled; ii) assessing the costs of baseline on different stakeholders. This is followed by designing possible alternatives and estimating the changes in baseline owing to such alternatives, including estimating changes in costs to different stakeholders and additional benefits which may be experienced by the stakeholders. A comparison between different alternatives follows which has the potential to achieve maximum net benefits to stakeholders in particular, and economy, society and environment, in general.

Several jurisdictions have benefitted from implementation of RIA. The table below provides a snapshot of benefits experienced through RIA by different jurisdictions.

Benefits of RIA
Developed and developing countries have increasingly realised benefits of RIA over the years. A study of 15 RIAs by the US Environmental Protection Agency showed that three (out of total 15) RIAs increased net benefits to society from recommended improvements in regulations, by $10 billion. The total cost of preparing all of the 15 RIAs studied was approximately $10 million. Similarly, removing numerous regulatory barriers in South Korea was estimated to boost FDI by $26 billion over 5 years. Moreover, The One-in, Two-out Policy of UK, which mandates removal of £2 of costs for imposition of £1 of costs via state-led intervention, has resulted in net reduction £836 million in costs to business between 2010 and 2014. The REACH regulation from the European Commission would have imposed €10 billion in costs on the European chemicals industry, as it was first written. The regulation was revised to make it easier to comply, without significantly changing benefits. The final cost was €2 billion. The RIA cost the Commission about €1 million, producing a social return on investment of 8,000 to one and saving thousands of jobs. The OECD estimated in Vietnam that each full RIA is estimated to cost nearly $500 (due to very low labour costs in the public sector), but the introduction of RIA is expected to save the private sector 100,000 times that amount through a reduced or more efficient regulatory regime. In Victoria State, Australia, a recent evaluation of RIA showed that between 2005-06 and 2009-10, the RIA process achieved estimated gross savings of A$902 million over the 10-year life of the regulations. For every dollar invested in the RIA process, gross savings to the private sector and government of between A$28 and A$56 were identified. Today, over 65 countries have adopted some form of RIA in making new laws and rules.

Implementation of RIA improves overall regulatory quality, by factoring all the relevant expectations of stakeholders. Rigorous and transparent assessment of costs and benefits also increases the acceptability of regulation among stakeholders. As a result, there is greater clarity and predictability in regulatory process.

RIA has been recommended for India by several expert committees. These include the erstwhile Planning Commission's Working Group on Business Regulatory Framework (to which CUTS acted as a Knowledge Partner), Financial Sector Legislative Reforms Commission, Damodaran Committee Report, the Tax Administration Reform Commission and the Expert Committee on Prior Permission and Regulatory Mechanism recommended adoption of RIA in India by central and state governments. The Pre Legislative Consultation Policy of the Government of India, introduced in 2014, also requires government departments to conduct partial RIA of proposed legislations.

In order to assess the impact of different provisions of the Rules, RIA appears to be most suited framework.

RIA in India
Several expert committees and independent studies have highlighted the benefits of RIA and have recommended its adoption for India. These include erstwhile Planning Commission's Working Group on Business Regulatory Framework (WGBRF) (2011), Financial Sector Legislative Reforms Commission (FSLRC) (2013), Committee for Reforming the Regulatory Environment for Doing Business in India (2013), Tax Administration and Reforms Commission (2015), and the Department of Industrial Policy and Promotion's Expert Committee on Prior Permissions and Regulatory Mechanism (2016). The Department of Public Policy and Promotion has recently constituted a 'Better Regulation Advisory Group' to provide recommendations on regulatory reforms required to attract investments. It is closely reviewing models adopted in different countries to recommend a model for adoption of RIA in India. In addition to the expert committees, there has been some awareness and acceptance within the government on the RIA process. For instance, the Pre Legislative Consultation Policy of the Government of India highlights the need for estimating the impact of proposed legislations on key stakeholders. The Financial Stability and Development Council had decided to adopt implement non-legislative recommendations of the FSLRC, which include cost-benefit analysis of draft regulations. However, this has met with limited compliance. However, CUTS International has significant experience and expertise in conducting RIAs, generating awareness, and conducting capacity building programmes on RIA for government and other stakeholders. CUTS' work on RIA include: highlighting its utility by conducting RIA case studies in different sectors; undertaking outreach and advocacy activities; and building capacity of relevant stakeholders on RIA. CUTS has also engaged with several states and central government departments/ bodies and regulatory agencies to promote RIA.
Source: http://cuts-ccier.org/ria/

5. Scope of the Report

This report presents findings of a limited RIA exercise conducted by CUTS International on select provisions of the Rules. Six specific provisions were identified for the purpose of in-depth assessment: i) minimum engine capacity ii) fleet composition, iii) permit fees; iv) fuel type; v) PSV badge; and vi) colour standardisation. These provisions were selected as

they are likely to have direct and substantial impact on taxi drivers and consumers, and can provide a broad idea of aggregate impact of the Rules. Also, in light of interest and expertise of CUTS International and available resources, these provisions have been selected.

While impact of provisions of the Rules on different stakeholder groups has been estimated in detail, similar exercise has not been adopted to suggesting recommendations to improve the regulatory framework under the Rules. Consequently, a complete RIA has not been carried out to prepare the report.

In order to conduct RIA, a perception survey was undertaken to interact with key respondents in the Mumbai Metropolitan Region("MMR"). Structured questionnaires were administered to 1,000 drivers and 1,000 consumers. Of the sample size of 1000 drivers, 750 drivers were associated with app based taxi aggregators while remaining 250 drivers drove black and yellow taxis. In addition, key informant interviews were conducted with select representatives of different categories of drivers and owners of taxis, to better understand costs involved. The exercise also involved in-depth interaction with different stakeholder groups including government, experts, consumer representatives, taxi union representatives, academia, among others, to understand their perspective on the Rules.

In order to assess impact of Rules, an attempt has been made to identify quantitative and well as qualitative costs and benefits of the Rules on different stakeholders. The stakeholders include consumers, drivers of taxis linked with app based aggregators, drivers of B/Y taxis, aggregators, government, and sector experts in the MMR region. In addition, attempt has been made to conduct preliminary assessment of impact of Rules on congestion in the MMR region. For consistency purposes, impact on drivers and owners of taxis has been clubbed and reported as 'impact on drivers' in the report.

In addition, given the Rules have not yet been implemented, certain assumptions have been made and scenarios have been designed at appropriate places to predict impact of the Rules.

The following chapters of the report are loosely based on RIA methodology. Each chapter deals with a select provision of the Rule. It begins with understanding the regulatory proposal and intended objective of the Rules. This is followed by in-depth examination of the baseline i.e. the prevailing scenario, which the Rules intend to alter. An assessment of costs and benefits of such potential alteration on different stakeholder groups follows. After understanding impact on specific stakeholder group, net impact of the Rules is being examined and attempt has been made to assess if the relevant provision will be in a position to achieve the desired objective. Each chapter concludes with recommendations and rationale for the same.

Consequently, each of the chapter below is structured as follows:

1. Regulatory proposal
2. Intended objective
3. Baseline
4. Impact assessment
5. Net impact
6. Recommendations

Chapter 2: Minimum Engine Capacity

1. Regulatory Proposal

The Rules provide that taxi attached to any aggregator should have minimum engine capacity of not less than 980 CC with seating capacity not exceeding seven including driver.

2. Intended Objective

It appears that this Rule intends to create a level playing field between regulations applicable to incumbent B/Y taxis and new entrants i.e. taxis linked with app based aggregator. The preamble to the Rules indicates that currently B/Y taxis are required to have a minimum engine capacity of 980 CC.

Interactions with stakeholders revealed that taxis with engine capacity more than 980 CC are expected to provide desired level of comfort to consumers. Such cars are capable of running on speeds optimal for city riding and also have optimum braking system. The total seating capacity and power to weight ratio of such cars is expected to be suitable for intermittent public transport. It was further mentioned that cars with engine capacity less than 980 CC may not be able to provide the level of comfort expected from a city taxi.

3. Baseline

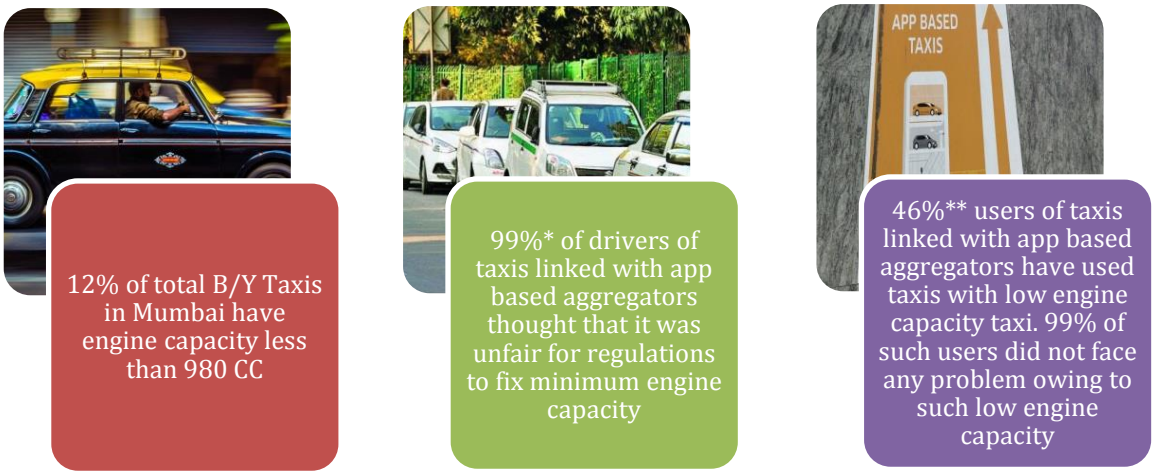
The principal assumption underlying the Rule is that minimum engine capacity of B/Y taxis is 980 CC. Drivers of 250 B/Y taxis were interacted with under the project. Approximately 12 percent such B/Y taxis had engine capacity less than 980 CC. Further, the report of Khatua Committee noted that approximately 20 percent B/Y taxis currently operating in Mumbai have engine capacity less than 980 CC.[43]

Further, in interactions with drivers of 750 taxis linked with app based aggregators, approximately 99 percent drivers believed that it was unfair to disallow linkage between taxis with engine capacity less than 980 CC and app based aggregators.

In addition, of 1,000 users of taxis linked with app based aggregators interacted with, approximately 46 percent reported to have used taxis with engine capacity less than 980 CC. Of such users, overwhelming 99 percent did not face any problem which can be attributed to low engine capacity while riding such taxis.

[43] The Report of the Committee for Determination of the Fare Structure of Taxis and Auto Rikshaws in Maharashtra State, September 2017, available at https://transport.maharashtra.gov.in/Site/Upload/GR/Part%201.pdf

Figure 2.1 Baseline Scenario of Taxis with engine capacity below 980 CC

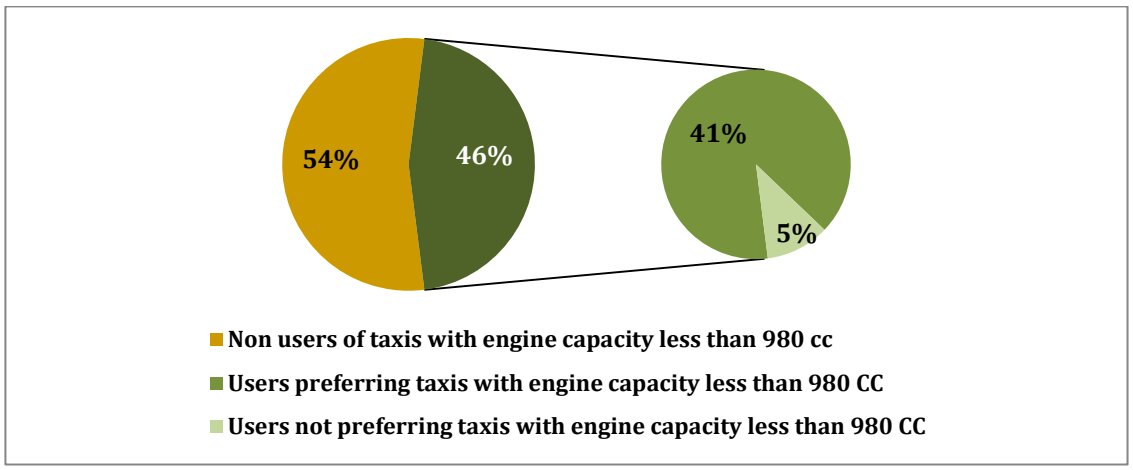


* Sample Size – 750 drivers of taxis linked with app based aggregators
** Sample size – 1000 users of taxis linked with app based aggregators

In fact, approximately 41 percent users preferred travelling in compact hatchback taxis (a substantial number of such taxis have engine capacity less than 980 CC) over other types of taxis. The key factors considered by users while booking such taxis include availability of air conditioner, vehicle cleanliness, adequate leg space, and good condition of taxi. Further, it appears that 'car noise' is most likely a cause of discomfort in compact hatchback taxis.

The survey revealed that users of such taxis appear to be satisfied with the level of services provided by such taxis. Approximately 41 percent of users prefer compact hatchback taxis.

Figure 2.2 Usage of taxis with engine capacity less than 980 CC



As per stakeholder interactions, cars with low engine capacity have previously failed to provide adequate comfort or operate with desired braking system. These were ensured by cars with engine capacity of at least 980 CC. Consequently, cars with engine capacity of less than 980 CC have not been permitted to operate for public transport. However, it appears that with the advent of technology, cars with engine capacity less than 980 CC are now able to provide adequate comfort, safety and better experience to users, and operate with desired braking system. For instance, engine capacity of cars such as Chevrolet Beat,

Datsun Go, Renault Kwid, among others, is less than 980 CC. Nevertheless, such cars provide services similar to cars with engine capacity more than 980 CC. Thus, it is reasonable to assume that comfort and the effective braking system is not dependant on engine capacity.

If such restriction on minimum engine capacity gets implemented, it would not just restrict the entry of compact hatchback but would also affect various stakeholders. The impact on various stakeholders has been discussed in next section.

4. Impact Assessment

Impact on consumers

As indicated earlier, some taxis currently linked with app based aggregators have engine capacity less than 980 CC. If the minimum engine capacity rule becomes operational, such taxis will no longer be in a position to continue their linkage with app based aggregators. This may result in reduction in availability of smaller taxis for consumers, despite potential demand. The average fare and expected time of arrival of remaining smaller taxis is likely to witness consequent increase.

Table 2.1 Fare Calculation of different segment of Taxis

Fare Calculation Parameter	Taxi Category		
	Compact Hatchback Taxi[44]	Hatchback Taxi[45]	B/Y Taxi
Base Fare	50	70	22 (First 1.5 kms)
Distance (kms)	10	10	10
Rate/ kms	6	8	14.84
Total Ride Time (est.)	30	30	30
Ride time/ min charges	1.5	1	1.48
Total Fare	**155**	**180**	**193**

Source: Author calculation. Figures from https://www.olacabs.com/fares/mumbai accessed on 17th December 2017. Figure of B/Y Taxi from report of Khatua Committee.

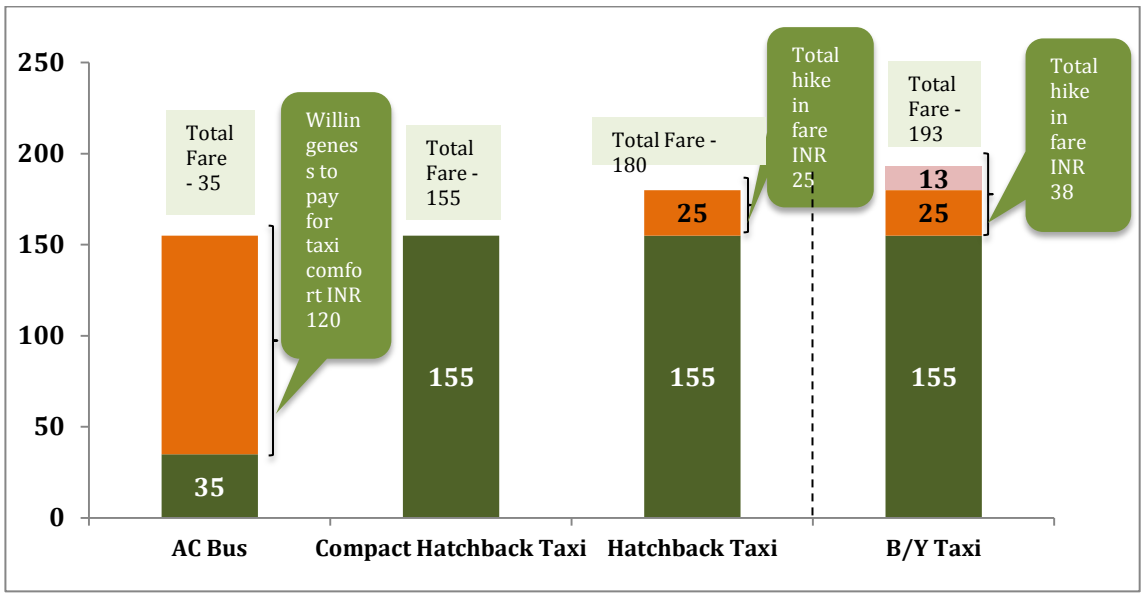
Interactions with consumers revealed that approximately 41 percent consumers preferred compact hatchback category taxis. Maruti Suzuki Alto, Datsun Go, Hyundai Eon, operate as taxis in this category.[46] Such taxis have engine capacity less than 980 CC. Estimates suggest that average fare for 10 km ride of 30 minutes in Mumbai by using this segment of taxis is approximately INR 25 lesser (exclusive of taxes) than immediately higher category i.e. regular hatchback taxis, wherein taxis have engine capacity of more than 980 CC.[47]

Further, estimates suggest that average fare for 10 km ride of 30 minutes in Mumbai for compact hatchback taxi segment is INR 155 and hatchback taxi segment is INR 180.

[44] See fares for micro category at https://www.olacabs.com/fares/mumbai accessed on 17th December 2017
[45] See fare for mini category at https://www.olacabs.com/fares/mumbai accessed on 17th December 2017
[46] https://www.olacabs.com/, accessed on 17th December 2017
[47] https://www.olacabs.com/fares/mumbai accessed on 17th December 2017.

Consequently, consumers would need to pay approximately INR 25 extra for a similar ride with hatchback taxis linked with app based aggregators.

Figure 2.3 Difference in fare for different segment of Taxi with respect to Compact Hatchback Taxi



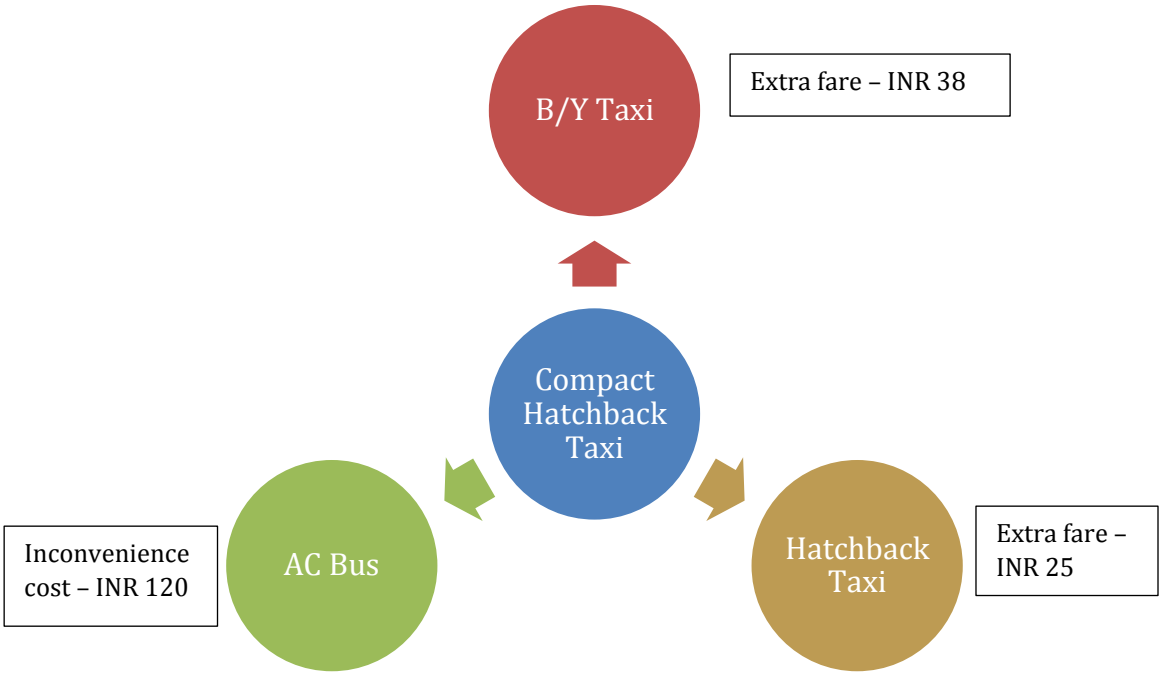
Similarly, if a consumer chooses to ride a B/Y taxi owing to unavailability of compact hatchback category taxis, s/he might need to pay approximately INR 38 extra for a lesser comfortable ride. B/Y taxis typically do not provide the level of comfort provided by a compact hatchback category taxi.

In addition, approximately 28 percent of consumers cited low fare and negligible wait time as key reasons for preferring such compact hatchback taxis linked with app based aggregators. An increase in fare and wait time might cause inconvenience to consumers.

Approximately 80 percent consumers interacted with have previously opted for an alternate mode of transport over taxis linked app based aggregator because of high estimated fare. Approximately 51 percent consumers opted for public transport (buses/ train). Such shift in mode of transport might degrade comfort in commuting and consequently cause inconvenience to commuters.

Estimates suggest that average fare for 10 km ride of an air conditioned (AC) bus in Mumbai is INR 35.[48] This is INR 120 less than average fare for 10 km ride in Mumbai by compact hatchback taxi, being INR 155. In other words, consumers are willing to pay at least INR 120 extra to avail AC taxi services. Despite such willingness to pay extra, in case AC taxi services are not available and consumers are forced to shift to AC buses, they are likely to bear inconvenience cost worth INR 120.

[48] Rates of regular tickets, daily bus pass and periodical bus passes with effect from 1st July 2016 are available at http://bestundertaking.com/pdf/farerevisionjuly2016-english.pdf



Approximately 15 percent users preferring taxis with engine capacity less than 980 CC comprised students, home makers and unemployed, i.e. they do not have a direct source of income. It is reasonable to assume that this category will be adversely impacted should taxis with engine capacity less than 980 CC are not allowed to link with app based aggregators.

Impact on taxi drivers

In case minimum engine capacity requirement is implemented, some of the taxis currently operating with engine capacity less than 980 CC will no longer be in a position to continue their linkage with app based aggregators. This would have a direct and adverse consequence on the income of drivers of such taxis.

Interactions with drivers of taxis linked with app based aggregators revealed that average daily income of approximately 79 percent of such drivers was in the range of INR 2000 – INR 2500. In addition, approximately 97 percent of drivers worked for at least 25 days in a month.

Consequently, the total revenue foregone in a month by a driver, owing to inability to link taxi with app based aggregators, is estimated to be in the range of INR 50,000 – INR 62,500. Thus, the total annual revenue foregone by one such driver would be in the range of INR 6,00,000 – INR 7,50,000. In addition, the interactions revealed that the average daily savings of one such driver is approximately INR 1,000. Consequently, monthly loss of savings for one such driver would be approximately INR 25,000 and annual loss in savings for one such driver is expected to be INR 3,00,000.

Drivers of taxis with engine capacity less than 980 CC have experienced an increase in income after associating with app based aggregators. It is reasonable to assume that such drivers would experience a decline in income if they are not allowed to continue their association with app based aggregators.

Further, a significant proportion of such drivers are likely to be owners of taxis with engine capacity less than 980 CC. Presumably; these cars were procured on loan with the objective of linking with app based aggregators for intra-city travel. In addition to repayment of loan availed for procurement of taxis, the owners of cars will need to incur cost of repair and maintenance, and pay insurance premium and taxes. Estimates suggest that such daily fixed cost for taxis with engine capacity less than 980 CC is approximately INR 581.32.

Per day cost incurred by taxi owners		
S. No	**Cost heads**	**Engine capacity of taxi less than 980 CC (INR)**
1	Cost	4,00,000
2	Permit Fee	1,500
3	Interest (10%) and processing cost (2%) on loan for 5 years on 1 + 2	1,18,371
4	Cost of repair and maintenance for 5 years	3,38,880[49]
5	Cost of insurance and taxes for 5 years	1,62,165[50]
6	Additional tax	40,000[51]
7	Cost for five years (life of car) (SUM (1:6))	10,60,916
8	Per day cost (7 /5 years / 365 days)	581.32

It might be reasonable to assume that such taxis with low engine capacity are not suitable for inter-city travel. Sedan taxis are most suited and preferred by users for long distances inter-city travel. Therefore, there may be a possibility that such owners/ drivers would not be able to do intercity business on All India Tourist Permit (AITP) permit. In such situation, such owners/ drivers would not just lose employment opportunity but will still need to bear significant fixed cost of the car.

In addition, the restriction is expected to create artificial entry barrier for potential drivers interested to link taxi having engine capacity less than 980 CC with app based aggregators. To such extent, potential drivers would suffer loss of a source of income.

As a result of the restriction, while taxis with engine capacity less than 980 CC will not be able to operate with app based aggregators, it may be reasonable to assume that demand for taxis with engine capacity between 980 CC – 1400 CC will increase.[52] As a result, drivers of such vehicles may experience increase in income. Similarly, the demand for B/Y taxis may rise, consequently resulting in increase in income of drivers of B/Y taxis.

Impact on aggregators

As indicated earlier, the reduction in taxis with engine capacity less than 980 CC may prompt users to move to taxis of higher segment and/or other modes of transport. Should consumers shift to higher segment of taxis linked with aggregators, the demand for higher segment of taxis would increase. In such situation, it is expected to boost revenues of drivers of such taxis and consequently the app linked aggregators.

[49] Annual cost of repair and maintenance is INR 67776*5 years. For details, see Part II of the Khatua Committee Report

[50] Annual cost of insurance and taxes is INR 32433*5 years. For details, see Part II of the Khatua Committee Report

[51] INR 2000 per seat * 4 seats * 5 years

[52] This assumption is reasonable as most taxi aggregators club taxis with less than engine capacity of 1200 CC under one group.

To the contrary, shift to other modes of transport is expected to result in aggregators foregoing revenues which were earned through taxis with engine capacity less than 980 CC. While, it is reasonable to assume that the shift would be largely dependent on the profile and income of consumers but interaction with stakeholders suggest that majority of consumers are likely to opt for public transport over costlier higher segment of taxis.

Impact on government

The Rules provide for permit fee of INR 25,000 for taxis with engine capacity less than 1400 CC. To the extent taxis with engine capacity less than 980 CC are not permitted to continue their linkage with app based aggregators, the government is expected to forego potential revenue in form of permit fees. In addition, the government would not be able to generate revenue through commercial road tax imposed on such taxis, and mandatory annual fitness test of vehicle etc.

Owing to unavailability of taxis with engine capacity less than 980 CC, consumers are likely to shift to AC buses. Estimates suggest that average fare for 10 km ride by one consumer of an AC bus in Mumbai is INR 35.[53] Consequently, the revenue generated by government through operating public transport services such as buses is likely to increase. At present, the government is incurring a daily loss of INR 6,014 to operate one bus.[54]

However, owing to consumer shift, the pressure on intermittent public transport in the city is likely to increase. Interactions with stakeholders revealed that there is shortage of such transport options in the city. Consequently, the government will need to make substantial investments to ensure public transport services meet the increased demand.

Impact on congestion

As on 31 March 2016, the total number of cars[55] per lakh population in Greater Mumbai region[56] was approximately 4,579.[57] The population density of the city is extremely high, approximately 20, 482 persons per square kilometre.[58] Further, in Mumbai, approximately 70 percent of cars on road are single occupancy vehicles.[59]

To the extent taxis with engine capacity less than 980 CC are replaced by bigger taxis, the congestion and traffic is expected to worsen in the city. At present, one car covers around 15 square meters of space. In addition, estimates suggest that a car requires approximate three parking spaces thus requiring around 45 square meters of parking space. Parking at an off-street space is likely to increase congestion. To the extent consumers shift to buses owing to unavailability of taxis with engine capacity less than 980 CC, the congestion is likely to decrease, as a bus is expected to carry more passengers when compared with passengers carried by multiple cars aggregately occupying similar space.

[53] Rates of regular tickets, daily bus pass and periodical bus passes with effect from 1st July 2016 are available at http://bestundertaking.com/pdf/farerevisionjuly2016-english.pdf
[54] https://www.firstpost.com/fwire/best-buses-running-into-losses-of-over-rs-2-cr-every-day-finds-rti-2376854.html and http://www.thehindu.com/news/cities/mumbai/in-the-red/article18344667.ece, accessed at 15 May 2018
[55] Cars comprise cars, jeeps, meter fitted taxis and luxury/tourist cabs
[56] Greater Mumbai region comprise Mumbai Central, Mumbai West, Mumbai East and Borivali
[57] Total number of cars, as defined, being 977831 and total population being 21357000
[58] http://indiapopulation2017.in/population-of-mumbai-2017.html, accessed on December 17, 2017
[59] See Para 5.3.1 of Khatua Committee report on page no. 95

5. Net Impact

In case the minimum engine capacity requirement comes into force, it is reasonable to presume that majority of consumers are likely to shift to either of the available modes of transport such as: AC buses, hatchback taxis and B/Y taxis. The table below highlights the aggregate and net impact on each of the stakeholder categories in each of these scenarios.

Stakeholders		AC Buses	Hatchback Taxis	B/Y Taxis	Net impact per stakeholder
Consumers	**Costs**	Inconvenience cost - INR 120 per trip* i.e. INR 240 per day*** X 0.95 (probability) = 228/ 3= 76	Additional fare - INR 25 per trip* i.e. INR 50 per day*** X 0.95 (probability) = 47.5/ 3 = 15.83	Additional fare - INR 38 per trip* and Inconvenience i.e. INR 76 per day*** X 0.95 (probability) =72.2 /3 = 24.06	Negative. INR – 115.90 per day[60]
	Benefits	-	-	-	
Drivers	**Costs**	Of Taxis with engine capacity less than 980CC: Savings foregone = INR 1000 per day X 0.95 (probability) = 950/ 3= 316.67	Of Taxis with engine capacity less than 980CC: Savings foregone = INR 1000 per day X 0.95 (probability) = 950/ 3= 316.67	Of Taxis with engine capacity less than 980CC: Savings foregone = INR 1000 per day X 0.95 (probability) = 950/ 3= 316.67	Negative. INR – 713.77 per day
	Benefits	N.A	Of hatchback taxis: Revenue of INR 180 per new** trip* i.e. INR 360 per day*** X 0.95 (probability) = 342/ 3= INR 114	Of B/Y taxis: Revenue of INR 193 per new** trip* i.e. INR 386 per day*** X 0.95 (probability) = 366.70/ 3 = INR 122.23	
Bus	**Costs**	N.A	N.A	N.A	Positive. INR 22.16 per day[61]
	Benefits	Revenue per consumer per trip*: INR 35 i.e. INR 70 per day***/ 3 = 23.33 *0.95 = 22.16	N.A	N.A	
Aggregators	**Costs**	Revenue is likely to reduce - INR 31 per trip **** = INR 62	-	Revenue is likely to reduce. INR 31 per trip **** = INR 62	Negative. INR

[60] (228+47.5+72.2)/3 (probability) = INR 115.90 per day
[61] INR 70/ 3 (probability) = INR 23.33

Stakeholders		AC Buses	Hatchback Taxis	B/Y Taxis	Net impact per stakeholder
		per day * 0.95 = 58.90/ 3 = 19.63		per day * 0.95 = 58.90 / 3 = 19.63	- 36.10 per day[62]
	Benefits	-	Revenue is likely to increase. INR 5 per trip ***** =INR 10 per day *.95 = 9.5/ 3 = 3.16	-	
Aggregate impact on all stakeholders		**INR - 390.14 per day**	**INR – 215.34 per day**	**INR – 238.13 per day**	**Negative. INR - 843.61 per day**

**Trip means a 10 km trip in MMR region*
***New trip means additional trip by hatchback and B/Y taxis to fill the void created by compact hatchback taxis exiting the market*
**** It has been assumed that one consumer takes at least one round trip in a day, i.e. two trips – from source to destination and back.*
***** Assuming that aggregators earn 20 percent of per trip fare and per trip fare for compact hatchback taxi is INR 155.*
****** In case consumer shifts from a compact hatchback taxi to a hatchback taxi, the increase in fare per trip is estimated to be INR 25. Consequently, the aggregators are expected to earn additional revenue of INR 5 (20% of fare) per trip.*

It can be deduced that the net impact of minimum engine capacity requirement is likely to be negative i.e. costs estimated to be imposed by the requirement are likely to outweigh the potential benefits. It might be recalled that one of the key intended objectives of the requirement was to ensure user comfort and safety. Consequently, the Rules intended to prohibit linkage of taxis with engine capacity less than 980 CC with app based aggregators.

Such Rule may further restrict technological innovations, and might prove to be detrimental for the sector in the long run. As indicated earlier, with improvement in technology, cars with engine capacity less than 980 CC are in a position to provide comfort and security of a level of car of immediately higher segment.

Since, it is reasonable to assume that, the comfort and safety provided by other modes of public transport, including B/Y taxis is lesser, when compared with cars with engine capacity less than 980 CC. Therefore, if the requirement becomes operational, consumers who shift to immediately higher segment are expected to pay a higher fare for a substantially similar level of comfort and safety. Consequently, users which shift to such modes of transport are likely to experience reduction in comfort and security. Thus, it appears that the minimum engine capacity requirement will not be able to fulfil its intended objective.

[62] (62+62-10)/3 = INR 38 per day *0.95 = 36.10

6. Recommendations

As indicated earlier, many states in the country have formulated regulatory framework to regulate app based aggregators. These include rules issued by the Haryana government for its districts in the NCR,[63] Karnataka,[64] Rajasthan[65] and West Bengal.[66] Some states like Madhya Pradesh have issued draft regulations and are in the process of finalising the regulations. Interestingly, the rules issued by Governments of Haryana and Delhi[67] provide that minimum engine capacity of taxis linked with app based aggregators should be 600 CC. In other words, these governments acknowledge that cars with engine capacity between 600 CC and 980 CC are capable of providing adequate safety and comfort to users.

However, it appears that engine capacity alone might not be sufficient to determine user safety and comfort. The Regulatory Committee of City of Edinburgh Council has replaced the restriction on engine capacity with one on 'Power to Weight' ratio of the car. The taxis would now be assessed on the basis of the manufacturer's original weight and brake horsepower specification. The minimum value was set to be 0.0648 horsepower per kg.[68]

In other words, engine capacity needs to be viewed in consonance weight of the car and braking power. A light weight car may provide adequate comfort even with low engine capacity if the braking power is adequate. Taxis such as Hyundai Eon and Maruti Alto have engine capacity less than 980 CC but have a higher power to weight ratio as prescribed by regulatory committee in the city of Edinburgh. 'Power to Weight' ratio of these taxis is 0.076 horsepower per kg and 0.066 horsepower per kg respectively. Consequently, despite running on low engine capacity, such taxis appear to be in a position to provide adequate comfort and security, and meeting regulatory objective.

It would thus be unfair if such taxis are not allowed to link with app based aggregators despite conforming to regulatory objective. As indicated earlier, the minimum engine capacity condition might result in decrease in supply to vehicles and higher fares for consumers, given the higher average fares for taxis of higher segments. If consumers are unable to afford such higher fares, they might shift to other modes of transport.

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[63] NCR Motor Cab (Taxi) Scheme, 2016, available at https://haryanatransport.gov.in/srservices/vahan/gui/jsp/notification_frame.jsp, accessed on 15th December 2017

[64] The Karnataka On-Demand Transportation Technology Aggregators Rules, 2016, available at https://haryanatransport.gov.in/srservices/vahan/gui/jsp/notification_frame.jsp, accessed on 15th December 2017

[65] The Rajasthan On-Demand Information Technology Based Transportation by Public Service Vehicle Rules, 2016, available at http://www.transport.rajasthan.gov.in/content/dam/transport/transport-dept/pdf/notificationrule/notificationrules.pdf, accessed on 15th December 2017

[66] The Directives to regulate the operational activities/ conduct of the On-Demand Transportation Technologies Aggregators, 2015 available at https://wbxpress.com/wp-content/uploads/2016/03/4450-WT.pdf, accessed on 15th December 2017

[67] The City Taxi Scheme, 2015 issued by Government of NCT of Delhi is available at http://delhi.gov.in/wps/wcm/connect/f9c68480499d268a87b99f018ef168b1/Taxi.compressed.pdf?MOD=AJPERES&lmod=-370276847

[68] In Schedule B: Conditions of Fitness of Private Hire Cars delete wording of current condition 244 and replace with the following ' The vehicle must have an engine capacity with a 'Power to Weight' ratio equal to or greater than 0.0648 hp per kg'. https://consultationhub.edinburgh.gov.uk/sfc/change-to-licensing-conditions-for-taxis-and-phc/ accessed on 17 December 2017.The Licensing conditions for the Taxi and private hire cars in Edinburgh City could be accessed at http://www.edinburgh.gov.uk/download/downloads/id/3812/taxi-phc_licence_-_standard_conditions.pdf, page 69

Similar regulatory restrictions creating artificial barriers on operating conditions and inflating cost for ultimate consumers exist in other countries as well. Countries such as Ireland, Netherlands, Sweden and the United Kingdom have removed or loosened entry restrictions on taxis.[69] This is expected to result in reduction in ETA and increased consumer satisfaction.[70] Furthermore, in major cities in New Zealand and Ireland, the numbers of taxis more than tripled following the adoption of an open entry policy.[71]

In light of the above, following recommendations are made:

1. The restriction on minimum engine capacity is rationalised to allow taxis with engine capacity of 600 CC and above to link with app based aggregators.
2. However, the above should be an interim measure and better alternatives to ensure consumer safety and comfort, such as prescribing power to weight ratio, should be explored. The costs of such alternatives should thoroughly studied and only such alternative which has the potential to meet regulatory objectives at least cost should be adopted. The design and cost-benefit analysis of alternatives should be done in a transparent manner through structured stakeholder consultation.

[69] OECD Reports(https://www.itf-oecd.org/sites/default/files/docs/app-ride-taxi-regulation.pdf; http://www.oecd.org/regreform/sectors/41472612.pdf)
[70] Fingleton, Evans, and Hogan (1997), The Dublin Taxi Market: Re-Regulate or Stay Queuing? Dublin: TCD Department of Economics.
[71] Fingleton, Evans, and Hogan (1997), The Dublin Taxi Market: Re-Regulate or Stay Queuing? Dublin: TCD Department of Economics.

Chapter 3: Fleet Composition

1. Regulatory Proposal

The Rules provide that at least 30 percent of taxis linked with app based aggregators must have engine capacity of 1400 CC and more.

2. Intended Objective

Currently, high end taxis with engine capacity of 1400 CC and more are predominantly operated under the Fleet Taxi Scheme, 2006, Phone Fleet Taxi Scheme, 2010, and Call Taxi Scheme 2010 (Previous Taxi Schemes). The objective of such Taxi Schemes was to provide effective, convenient, reliable, comfortable and efficient taxi service, which was not provided by prevailing city taxi services.[72]

It appears that objective of the Rules was to facilitate optimum competition between high end taxis operating under Previous Taxi Schemes and similar taxis linked with app based aggregators. The Rules also provide that operators of taxis under the Previous Taxi Schemes shall be deemed to be aggregators under the Rules. Any permit granted/ used for vehicle operating under such Previous Taxi Schemes, subject to payment of fee as prescribed under the Rules, shall be deemed to be a permit granted under the Rules.

Interactions with stakeholders revealed that such high end taxis are predominantly hired to travel with luggage to/ from points of outstation travel (such as railway station, airport). The Rules also intended to ensure that such high end taxis continue to remain economically viable for their operators.

3. Baseline

According to the Motor Vehicles Department, Government of Maharashtra (MVD), the total number of luxury/ tourist cabs as on 31 March 2017 in Greater Mumbai region (comprising Mumbai Central, Mumbai West, Mumbai East and Borivali) was 59,917.[73] This number increased to 63,330 by 31 October 2017.[74] Luxury/ tourist cabs include taxis linked with app based aggregators. The compounded annual growth rate (CAGR) of luxury/ tourist cabs in Greater Mumbai region, since their launch in 2007-2008 up to 2013-14 was 7.62 percent. For the period 2013-14 to 2016-17, the CAGR witnessed exponential increase to 66.33 percent. In 2013-14, app based aggregators launched their services. Consequently, the rise in number of luxury/ tourist cabs can be reasonably attributable to app based aggregators.

If the app based aggregators had not launched their services, it is reasonable to assume that the sector would have continued to grow with CAGR of around 7.62 percent. In such scenario, the total number of luxury/ tourist cabs operating in Greater Mumbai region by 31 March 2017 would have been around 17,141 only. Plausibly, the taxis exceeding this number would have not been operational but for app based aggregators. Consequently, it might be reasonable to assume that the total number of taxis linked with app based aggregators as on 31 March 2017 was around 42,776.[75]

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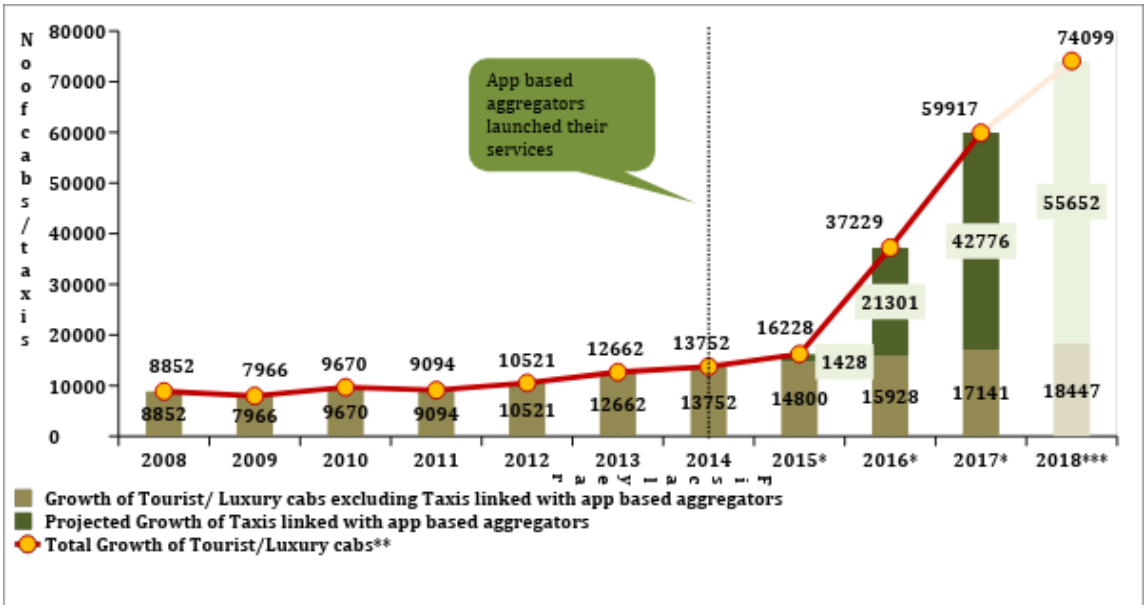
[72] https://transport.maharashtra.gov.in/1116/Fleet-Taxi-Scheme-2006?format=print, accessed on 16th December 2017

[73] Category wise and Office wise Motor Vehicle Population as on March 2017, available at https://transport.maharashtra.gov.in/Site/Upload/GR/Vehicle%20on%20road%20as%20on%2031%20march%2017%20prov.pdf

[74] As per the data provided by MVD

[75] 59,917 – 17,141

Figure 3.1 Growth of luxury/ tourist cabs in Greater Mumbai Region



** Total number of tourist/ luxury cabs is extracted from MVD data. The split between taxis linked with app based aggregators and other taxis has been estimated*
*** CAGR of tourist/ luxury cabs from fiscal 2008 – 2014 is 7.62 percent. CAGR of tourist/ luxury cabs from fiscal 2014 – 2017 is estimated at 66.33 percent. Consequently, CAGR of tourist/ luxury cabs from fiscal 2008 – 2017 is estimated to be 23.67 percent.*
**** Projected values based on: i) CAGR of all tourist/ luxury cabs of 23.67 percent; ii) CAGR of tourist/ luxury cabs (not linked with app based aggregators) of 7.62 percent*

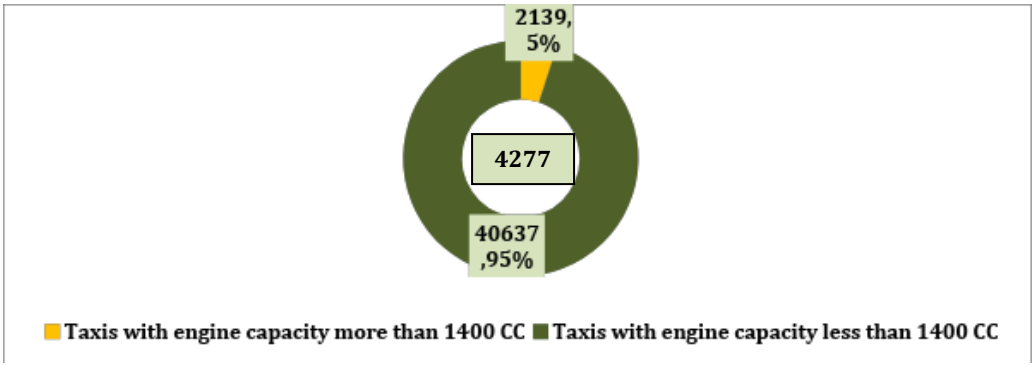
The number of taxis with engine capacity more than 1400 CC within total taxis linked with app based aggregators is not available in public domain. However, review of literature and interactions with stakeholders revealed that the ratio of taxis with engine capacity less than 1400 CC to taxis with engine capacity more than 1400 CC is 25:1. The Khatua Committee also observed that the share of ridership of more than 1400 CC engine capacity vehicles is less than 5 percent.[76] It further noted that according to car manufacturers, around 7 to 10 percent consumers use cars with engine capacity more than 1400 CC.

Such observations were validated during interactions with stakeholders, wherein of total taxis linked with app based aggregators, approximately 4 percent had engine capacity more than 1400 CC. In this light, the rationale for requiring at least '30 percent' taxis linked with app based aggregators to have engine capacity more than 1400 CC was not clear. It may be noted that the previous draft of the Rules had fixed such minimum percentage at '50 percent'.[77]

It is reasonable to assume that at present the taxis linked with app based aggregators with engine capacity more than 1400 CC would be approximately 5 percent of total taxis i.e. 2,139. Thus, the total number of taxis linked with app based aggregators below 1400 CC would be around 40,637 (95 percent of total taxis linked with app based aggregators).

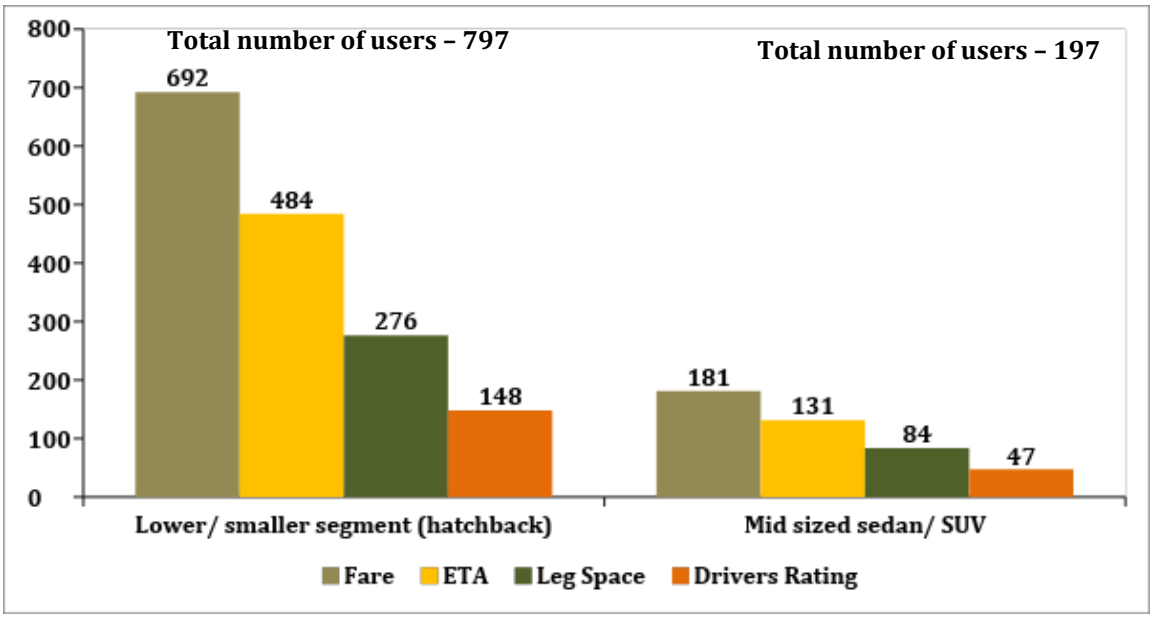
[76] See para 5.5 of Khatua Committee Report for Determination of the Fare Structure of Taxis and Auto Rickshaws in Maharashtra State on page no 98
[77] CUTS comments on Draft Maharashtra City Taxi Rules, 2016 are available at http://www.cuts-ccier.org/pdf/Advocacy-DRAFT-MAHARASHTRA-CITY-TAXI-RULES-2016.pdf, accessed on 15th December 2017

Figure 3.2 Total No. of taxis linked with app based aggregators



The key factors considered by users while booking their preferred app linked taxis are: fare; expected time of arrival (ETA); leg space; and driver rating. These factors remain constant despite change in users of different segments[78] of taxis. In other words, it appears that users of app linked taxi are satisfied with the quality of services provided by taxis of their preferred segment.

Figure 3.3 Factors* considered by users while booking taxis linked with app based aggregators



* Users consider multiple factors at a time while booking taxis

Further, approximately 86 percent of drivers linked with app based aggregators revealed that the existing fleet composition was in line with consumer demand for taxis. As mentioned earlier that the objective for such Rule is to protect the interest of drivers with taxi having engine capacity more than 1400 CC. On the contrary, such drivers consider that it was not fair for the government to determine fleet composition.

Interaction with drivers revealed that while total number of taxis with engine capacity more than 1400 CC is miniscule but no additional protection is required. Further, less than 1 percent of consumers reported to prefer SUV/ MUV taxis. Approximately 96 percent of consumers felt that there was no shortage of SUV taxis.

[78] Taxis are typically segmented based on the applicable fare. Usually, applicable fare for hatchback taxis is less than that for mid-size sedan or sports utility vehicles.

86% of drivers revealed that fleet composition in line consumer demand

Drivers of taxis with engine capacity more than 1400 CC thought that government should not decide fleet composition

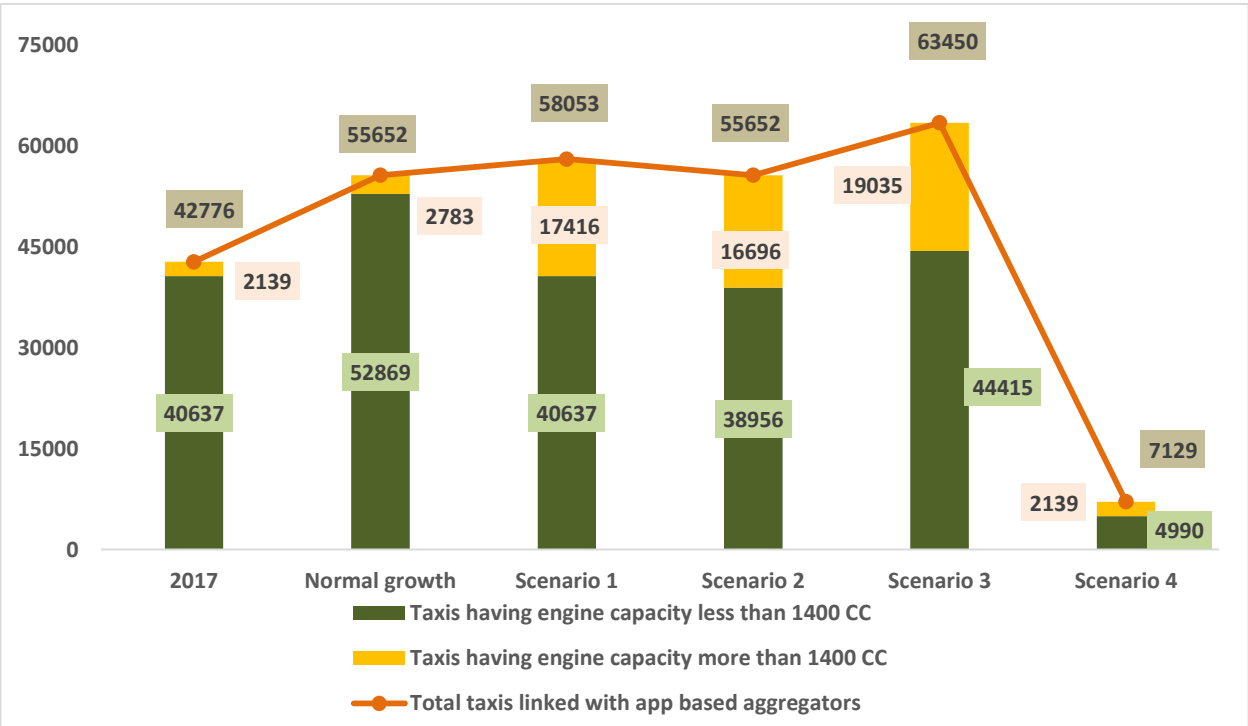
96% consumers stated that there is no shortage of SUVs while booking app based taxis

Interactions with stakeholders revealed that many taxis linked with app based aggregators having engine capacity less than 1400 CC such as Maruti Swift Dzire, Tata Tigor, Hyundai Xcent, and Honda Amaze etc. provide good user experience. The level of comfort provided to the consumers by such cars is similar to that provided by cars with engine capacity more than 1400 CC. These cars also provide adequate luggage space and thus meet the use case of travelling to/from point of outstation travel. It appears that such cars are economically viable to drivers than cars with engine capacity more than 1400 CC.

4. Impact Assessment (Scenario Analysis)

In order to gauge impact of fleet composition requirement, the following four scenarios have been projected, with respect to the total app linked taxis as on 31 March 2018:

Figure 3.4 Probable Scenario of Taxis linked with App based Aggregators in 2018, if Rules come into force



Total B/Y taxis as on 31 March 2017 were 55,343. The CAGR of B/Y taxis during fiscal 2008 – 2017 was 1.36 percent. Assuming that the CAGR remains same, total B/Y taxis as on 31 March are estimated to be 56,096.

Scenario 1: ***If the total taxis with engine capacity less than 1400 CC remain constant***

As on 31 March 2018, total taxis linked with app based aggregators having engine capacity less than 1400 CC remains 40,637 i.e. such taxis as on 31 March 2017. In order to comply with fleet composition requirement, total taxis linked with app based aggregators will need to be at least 58,053 as on 31 March 2018. Consequently, total taxis linked with app based aggregators having engine capacity more than 1400 CC are required to be to be at least 17,416 as on 31 March 2018.

Scenario 2: ***If the taxi sector grows at the CAGR observed since 2008***

The CAGR of tourist/ luxury cabs in Greater Mumbai region for 2008-2017 period is estimated to be 23.67 percent, owing to entry of app based aggregators in 2013-14. Assuming the growth continues at same rate, total taxis linked with app based aggregators as on 31 March 2018 are projected to be 55,652.[79] Consequently, to comply with fleet composition requirement as per the Rules, total taxis linked with app based aggregators having engine capacity less than 1400 CC are estimated to be 38,956. Therefore, total taxis linked with app based aggregators having engine capacity more than 1400 CC are estimated to be 16,696.

Scenario 3: ***If taxis linked with app based aggregators increase at average growth experienced since 2014***

The average annual growth of taxis linked with app based aggregators in Greater Mumbai region (fiscal 2015 – 2017) has been estimated to be 20,674.[80] Assuming growth in fiscal 2018 remains same, total taxis linked with app based aggregators as on 31 March 2018 are projected to be 63,450.[81] Consequently, to comply with fleet composition requirement, total taxis linked with app based aggregators having engine capacity less than 1400 CC are estimated to be 44,415. Therefore, total taxis linked with app based aggregators having engine capacity more than 1400 CC are estimated to be 19,035.

Scenario 4: ***If total taxis with engine capacity more than 1400 CC remain constant***

We assume that total taxis linked with app based aggregators having engine capacity more than 1400 CC does not change from 31 March 2017, and remains at 2,139. In order to comply with fleet composition requirement, total taxis linked with app based aggregators are estimated to be not more than 7,129 as on 31 March 2018. Consequently, total taxis linked with app based aggregators having engine capacity less than 1400 CC are estimated to be not more than 4,990 as on 31 March 2018.

Set out below are potential impacts on different stakeholders under projected scenarios.

[79] See figure 3.1 for details
[80] See figure 3.1. The growth in fiscal 2016 is 19873 (21301 – 1428) and fiscal 2017 is 21475 (42776 – 21301). Consequently, the average growth is 20674 (19873+21475/2)
[81] 42776 + 20674

Scenario 1: The total taxis with engine capacity less than 1400 CC remain constant

Impact on consumers

As per this scenario, additional 15,277 taxis with engine capacity more than 1400 CC are expected to be linked with app based aggregators. Thus, the availability of such taxis for consumers preferring high end taxis is expected to increase. Consequently, the estimated wait time for consumers is expected to decrease. This may result in reduction in fare of taxis with engine capacity more than 1400 CC. Fare and estimated time of arrival are two most important factors which consumers consider while booking app based taxi. Approximately 87 percent of consumers mentioned fare as one of the most important option while approximately 62 percent considered estimated time of arrival as one of the most important option.

However, according to interactions with stakeholders, consumers preferring high end taxis with engine capacity more than 1400 CC constitute a miniscule proportion and a significant proportion of consumers prefer taxis low and mid segment taxis with engine capacity less than 1400 CC. Given that number of such low and mid segment taxis are not expected to witness increase despite presumable increase in demand, the estimated wait time for such taxis is likely to increase. In addition, fare of such taxis might witness an upward pressure. Such upward pressure is expected to be countered by potential reduction in fare of taxis with engine capacity more than 1400 CC, owing to substantial increase in supply.

Even with the infusion of significant number of high end taxis in the market, it seems unlikely that large number consumers would shift to such taxis. This is primarily because fare of SUV taxi is significantly higher than other segments of taxis. In addition, owing to a high capital cost for a such taxi, the fare is not expected to fall beyond a certain threshold in spite of increase in supply.

Table 3.1 Comparison of Fare of different segment of Taxi linked app based aggregators

Fare Calculation Parameter	Taxi Category			
	Compact Hatchback Taxi	Hatchback Taxi	SUV Taxi	B/Y Taxi
Base Fare	50	70	150	22 (First 1.5 kms)
Distance (kms)	10	10	10	10
Rate/ kms	6	8	17	14.84
Total Ride Time (estimate)	30	30	30	30
Ride time/ min charges	1.5	1	2	1.48
Total Fare	155	180	380	193

Source: Author calculation. Figures extracted from https://www.olacabs.com/fares/mumbai accessed on 17th December 2017. Figure of B/Y Taxi from report of Khatua Committee.

Consequently, even if fare of SUV taxis witnesses a reduction, such fare is expected to remain considerably higher than the fare of lower segment of taxis linked with app based aggregators.

Consequently, it appears that upward pressure on fare of taxis with engine capacity less than 1400 CC is likely to outweigh the downward pressure created by increase in number of taxis. Consumers who might not be in a position to afford such taxis are likely to shift to alternate mode of transport, such as public transport and B/Y taxis. Shifting to other modes of transport might result in increase in inconvenience and reduction in comfort for consumers.

Estimates suggest that average fares of B/Y taxis are higher than average fares of taxis with engine capacity less than 1400 CC (table 3.1). The difference in fares can typically range from approximately 7[82]-25 percent.[83] Consequently, users are expected to shift to B/Y taxis only if fares of taxis with engine capacity less than 1400 CC rise above average fares of B/Y taxis.

Impact on drivers

Approximately 45 percent drivers of taxis with engine capacity more than 1400 CC also own the taxi. Approximately 61 percent of such taxis were purchased after 2014. Therefore, it is reasonable to assume that such individuals had procured the taxi for linking with app based aggregators. Such taxis are most likely to be procured on loan, to be repaid on periodic basis with interest. As indicated earlier, given the substantial increase in taxis with engine capacity above 1400 CC, the fare of such taxis are likely to reduce. This may adversely impact income of owners of taxis and delay the breakeven. The income of drivers of taxis may also be adversely impacted.

Under scenario 1, it is reasonable to assume that additional cars with engine capacity more than 1400 CC will need to be procured. Each such new car is expected to cost at least INR 9,00,000.[84] Such cars are most likely to be procured on loan, to be repaid on periodic basis with interest. However, as indicated in earlier section, infusion of high end taxis may not attract considerable amount of consumers, thus such drivers would not be able to generate enough revenue to make repayments within reasonable period, and may be left with under-utilised assets.

As indicated above, the fare of taxis with engine capacity less than 1400 CC are likely to increase owing to supply of taxis not matching the increase in demand. This may increase the revenue of drivers of such taxis. To the extent consumers shift to B/Y taxis, drivers of such taxis might also experience an increase in revenue.

Impact on aggregators

As indicated earlier, additional 15,277 taxis with engine capacity more than 1400 CC are required to be linked with app based aggregators, to comply with fleet composition requirement under the Rules. In case such taxis are not available, the application for license by aggregators might be rejected by the licensing authority. This may adversely impact viability of taxi aggregation business.

[82] Difference of average fare between hatchback taxi and B/Y taxi
[83] Difference of average fare between compact hatchback taxi and B/Y taxi
[84] See para 5.21.1 at pg 115 of Khatua Committee Report

Impact on government

On procurement of each car of engine capacity above 1400 CC, GST of 28 percent is expected to be levied. Consequently, INR 2,24,000 as GST is expected to be collected by the government on each such sale, exclusive of registration and other fees. However, in order to manage increase in pressure on public transport system, it will need to make substantial investment.

Impact on congestion

A significant increase in number of taxis with engine capacity more than 1400 CC is expected to disproportionately increase the number of cars per lakh population in Greater Mumbai region. This increase will also be witnessed in the ratio of cars per km road length. This is expected to increase congestion and put strain on infrastructure of the Greater Mumbai region.[85] Given that the average length of taxis with engine capacity more than 1400 CC is more than taxis with lesser engine capacity, such strain on resources may be higher than usual.

Scenario 2: The taxi sector grows at the CAGR observed since 2008

Impact on consumers

Despite increase in total market size of taxis linked with app based aggregators from 42,776 to 55,652 taxis, 1,681 taxis with engine capacity less than 1400 CC are expected to exit the app based aggregator platform. At the same time, 14,557 taxis with engine capacity more than 1400 CC are expected to associate with app based aggregators.

Given that the number of taxis with engine capacity less than 1400 CC (the most preferred taxi segment) will not increase in response to its demand, but is likely to decrease, consumers are expected to experience significant shortage of such taxis. This is expected to significantly increase waiting time for consumers and the instances of dynamic pricing. This would further significantly increase the average fares of such taxis.

However, increase in number of taxis with engine capacity more than 1400 CC is expected to fill some of the void created by decrease in taxis with engine capacity less than 1400 CC. Significant increase in taxis with engine capacity more than 1400 CC is expected to put downward pressure on prices. As indicated earlier, estimates suggest that average fare for 10 km ride of 30 minutes in Mumbai for taxis with engine capacity more than 1400 CC is approximately INR 200 higher (exclusive of taxes) when compared with for taxis with engine capacity less than 1400 CC.[86]

To the extent such consumers are unable to afford increase in average fares of taxis with engine capacity less than 1400 CC or traditionally higher fares of taxis with engine capacity more than 1400 CC, they are expected to shift to other modes of transport, such as B/Y taxis, buses, autos, among others. However, a shift to B/Y taxis is likely to happen only when average fares of taxis less than 1400 CC rise above the average fares of B/Y taxis. This would require increase in average fares of taxis with engine capacity less than 1400 CC in the range of INR 13-38, depending on the segment of taxis.

[85] As per the Economic Survey of Maharashtra 2016-17, as on 01 January 2017, there were 24,441 vehicles per lakh population and 98 vehicles per km road length in the state.
[86] See table 1. Also, see https://www.olacabs.com/fares/mumbai accessed on 17th December 2017. The fare for taxis with engine capacity above 1400 CC is estimated to be around INR 380 while the fare for taxis below such capacity is estimated to be around INR 180

Further, interactions with stakeholder revealed that there is shortage of public transport and intermediate public transport in the city of Mumbai. Therefore, it is reasonable to assume that this would aggravate the discomfort and cause inconvenience to consumers in their daily commute. Interactions with stakeholders revealed that at times, behaviour of drivers of B/Y taxis with consumers/ passengers is not congenial. This may further create inconvenience and discomfort to consumers.

Impact on drivers

Substantial increase in taxis with engine capacity more than 1400 CC is expected to adversely impact the income of existing drivers of such taxis. Most of these drivers are also expected to be owners of such taxis. As indicated earlier, each such new taxi with engine capacity more than 1400 CC is expected to cost these drivers at least INR 8,00,000. As most of these taxis are procured on loan, decrease in income of drivers would make it difficult for such drivers to afford personal expenditure and monthly loan repayment at the same time. On the other hand, decrease in taxis with engine capacity less than 1400 CC and increase in demand of such taxis is expected to positively impact income of drivers of such taxis.

To the extent consumer of taxis linked with app based aggregators shift towards B/Y taxis, owing to their inability to afford the increased/ high fares in such market, the drivers of B/Y taxis are expected to experience positive impact on their income.

Impact on aggregators

As indicated earlier, additional 14,557 taxis with engine capacity more than 1400 CC are required to be linked with app based aggregators. In case such taxis are not available, the application for license by aggregators might be rejected by the licensing authority. Even if aggregators are able to link with desired number of taxis with engine capacity more than 1400 CC, it might not result in substantial increase in revenue generated, owing to limited demand from consumers and high fares.

At the same time, existing 1,681 taxis with engine capacity less than 1400 CC are required to be delinked with app based aggregators. A significant proportion of revenue for aggregators is generated by the taxis with engine capacity less than 1400 CC. Consequently, the aforementioned requirement is expected to adversely impact the revenue of taxi aggregators.

Impact on government

For every taxi with engine capacity less than 1400 CC which is expected to exit the app based aggregator platform, the government is expected to forego a permit fee of INR 25,000. However, such loss is expected to be recouped by permit fee of INR 2,61,000 paid by every taxi with engine capacity more than 1400 CC, which links with app based aggregators. In addition, the government is expected to collect substantial tax on procurement of any new car to be linked with app based aggregators.

However, to the extent, consumers are likely to shift to other modes of transport, such as public transport, the government will be required to make substantial investments to manage such increase in pressure on existing infrastructure.

Impact on congestion

The situation with respect to congestion is expected to exacerbate, however, the strain on infrastructure will not be as much as it is in scenario 1. This is because additional taxis with engine capacity more than 1400 CC expected to enter the market are less than the

number under previous scenario. Also, some taxis with engine capacity less than 1400 CC are expected to exit app based aggregator platform.

Scenario 3: Taxis linked with app based aggregators increase at average growth experienced since 2014

Impact on consumers

Total taxis linked with app based aggregator are expected to increase from 42,776 to 63,450 taxis. Consequently, additional 3,778 taxis with engine capacity less than 1400 CC and 16,896 taxis with engine capacity more than 1400 CC, are expected to be linked with app based aggregators. While the overall growth of market is expected to be in line with consumer expectations, such growth is likely to be disproportionate. Consumers preferring taxis with engine capacity less than 1400 CC may experience less than expected growth and the growth of taxis with engine capacity more than 1400 CC may exceed consumer expectations.

Consequently, consumers preferring taxis with engine capacity less than 1400 CC may experience increase in fares and estimated wait time, while consumers preferring high-end taxis may experience the opposite. As indicated earlier, the fare difference between the two categories may resist consumers of low-end taxis from shifting to taxis with engine capacity more than 1400 CC. Such consumers might shift to alternate modes of transport, including public transport and B/Y taxis. However, consumers are expected to shift to B/Y taxis only if average fares of taxis with engine capacity less than 1400 CC rise above average fares of B/Y taxis.

Impact on drivers

Given the supply of taxis with engine capacity more than 1400 CC is expected to increase without consequent increase in demand of such taxis, it may result in substantial reduction of fare for such taxis. This may result in substantial reduction of income of drivers of such taxis. This may further delay the breakeven point for drivers. As such taxis are bought on loan, delayed breakeven would mean longer payback period.

In case of drivers with engine capacity less than 1400 CC, given that demand is expected to outweigh supply, the consequent increase in dynamic fares is likely to increase income of existing drivers. To the extent consumers shift to B/Y taxis, the income of drivers of such taxis is expected to increase.

Impact on aggregators

As indicated above, additional 3,778 taxis with engine capacity less than 1400 CC and 16,896 taxis with engine capacity more than 1400 CC, are required to be linked with app based aggregators. Given the demand for taxis with engine capacity less than 1400 CC exceed its supply, the aggregators should not find it difficult to locate such taxis. However, taking into account the competition between different aggregator platforms, the aggregators would need to offer such taxi owners attractive terms to link their taxis with them.

Given the limited demand for taxis with engine capacity more than 1400 CC, aggregators might find it difficult to identify required number of high-end taxis. Inability to link the requisite number of taxis may result in reject of application of aggregators by the licensing authority.

Impact on government

Substantial increase in total number of app linked taxis is expected to increase the revenue of government collected by way of permit fees and taxes on sale of new vehicles. Given that number of taxis with engine capacity more than 1400 CC is likely to witness exponential increase, the increase in revenue is expected to be substantial. The government will also need to invest resources to manage burden on other modes of transport, including public transport.

Impact on congestion

Substantial increase in total number of app linked taxis is expected to significantly increase the proportion of cars per lakh population and per km road length. As compared to previous scenarios, the increase in number of taxis with engine capacity more than 1400 CC is highest in this scenario i.e. 1669 when compared with scenario 1 and 2339 when compared with scenario 2.

Change in number of taxis with engine capacity more than 1400 CC, when compared with 2017	Scenario 1	Scenario 2	Scenario 3	Scenario 4
	+15227	+14557	+16896	No change

At present in Greater Mumbai area, taxis constitute approximately 4.4 percent of total cars in the area.[87] However, in this scenario, the percentage of taxi would increase to 6.5 percent of total cars in the area. Therefore, it is reasonable to assume that congestion might increase significantly in the Greater Mumbai area.

<u>Scenario 4: Total taxis with engine capacity more than 1400 CC remain constant</u>

Impact on consumers

Total taxis with engine capacity less than 1400 CC are expected to be reduced by 88 percent. Consequently, the availability of such taxis for consumers is expected to reduce significantly. This is expected to substantially increase the fare and expected time of arrival for remaining taxis linked with app based aggregators. Owing to limited supply and high demand, the consumers are highly likely face increased dynamic fare and consequent increase in average fare of such taxis. Fare and expected time of arrival are two most important factors which consumers consider while booking taxi linked with app based aggregator.

Should the consumers choose to move to taxis with engine capacity more than 1400 CC, they will need to pay high fare for using such high end taxis. Also, the consumers are likely to shift to other modes of transport, such as, B/Y taxis, auto rickshaws, local trains, metros, buses, private vehicles etc. Approximately 80 percent consumers interacted with have previously opted for an alternate mode of transport over taxis linked app based aggregator because of high estimated fare, on account of dynamic pricing. Approximately 51 percent consumers opted for public transport (buses/ train). This may result in reduced comfort and increase in time taken to reach desired destination.

[87] Category wise and Office wise Motor Vehicle Population as on March 2017, available at https://transport.maharashtra.gov.in/Site/Upload/GR/Vehicle%20on%20road%20as%20on%2031%20march%2017%20prov.pdf

Further, more than 80 percent drivers of taxis linked with app based aggregators believed that such requirement could reduce availability of small cars, resulting in inconvenience to consumers, and also increase in fare.

Impact on drivers

If the scenario 4 is implemented, it is expected that around 35,646 taxis having engine capacity less than 1400 CC linked with app based aggregators will need to be delinked. This would adversely impact income generating opportunities of owners and drivers of such taxis. Average daily income of approximately 79 percent drivers of taxis linked with app based aggregators was in the range of INR 2000 – INR 2500, which might be at risk. Such adverse impact on income could adversely impact ability of owners of such taxis to repay the loan.

Given the significant decrease in availability of app based aggregators, the consumers are expected to shift to other modes of transport, including B/Y taxis. Such increase in demand might positively impact income of drivers of B/Y taxis.

Impact on aggregators

Significant reduction in number of taxis in the market is expected to adversely impact the revenue generating capacity of app based aggregators.

Impact on government

As significant number of taxis with engine capacity less than 1400 CC is expected to delink app based aggregators. The government is expected to forego permit fee of INR 25,000 each such taxi which exits the market.

Given that consumers are expected to heavily rely on public transport, the government will be expected to make substantial invests in upgrading infrastructure and ensuring availability of public transport.

Impact on congestion

As total taxis linked with app based aggregators are expected to reduce from 42,776 to 7,129, the proportion of total taxis to per lakh population and per km road in Greater Mumbai region is expected to substantially reduce. This may reduce congestion. However, a substantial decrease in availability of taxis may nudge consumers to procure private vehicles. To the extent the number of private vehicles increase, the situation with respect to congestion is likely to exacerbate. Consequently, it would be difficult to forecast any impact on congestion with certainty.

5. Net Impact

In case the fleet composition requirement comes into force, taxis linked with app based aggregators may undergo change as indicated the three most likely scenarios as discussed above. The fourth scenario wherein the total number of taxis is projected to drastically reduce from 42776 to 7129 is assumed to be unlikely.

1	Engine capacity of taxis	<1400	>1400
2	Total number of taxis (2017)	40637	2139
3	Total number of taxis based on normal growth projections (est) (2018) i.e. total demand for taxis based on normal growth projects	52869	2783
4	Maximum revenue generation per driver per day basis stakeholder interaction (INR)	2500	2500
5	Estimated maximum revenue generation per day based on normal growth projections(2018) **(3 X 4)** (INR)	13272500	6957500

The net impact on taxi drivers in each of these scenarios is estimated below.

	Estimated figures for 2018 for taxis with different engine capacities	**Scenario 1**		**Scenario 2**		**Scenario 3**	
		<1400	**>1400**	**<1400**	**>1400**	**<1400**	**>1400**
6	Number of taxis	40637	17416	38956	16696	44415	19035
7	Revenue generation per driver per day **(5 ÷ 6)** (INR)	3252.52	399.48	3392.86	416.72	2975.87	365.51
8	Change in revenue generation per driver per day **(7 – 4)** (INR)	**752.52**	**-2100.52**	**892.86**	**-2083.28**	**475.87**	**-2134.49**
9	**Net impact on revenue generation per driver per day (INR)**	Negative. -1348.00		Negative. -1190.42		Negative. -1658.62	

In each of the three likely scenarios, the change in number of taxis with engine capacity less than 1400 CC is unlikely to match the consumer demand, as projected in the normal growth scenario mentioned above. Consequently, the consumers of taxis with engine capacity less than 1400 CC (and currently paying INR 180 as fare per trip[88]) may choose shift of A/C buses, SUV taxis or B/Y taxis. **The impact on consumers as a result of such shift is set out below.**

AC Buses	**SUV Taxis**	**B/Y Taxis**	**Additional cost** in choosing one of the alternate options
Inconvenience cost - INR 145[89] per trip* i.e. INR 290 per day*** (probability) = 290/3 = 96.67	Additional fare - INR 200[90] per trip* i.e. INR 400 per day*** (probability) = 400/ 3 = 133.33	Additional fare - INR 13[91] per trip* i.e. INR 26 per day*** (probability) = 26/ 3 = 8.67	INR 238.67[92]

**Trip means a 10 km trip in MMR region*

**** It has been assumed that one consumer takes at least one round trip in a day, i.e. two trips to and fro – from source to destination (and back).*

However, the probability of choosing an alternate to taxis with engine capacity less than 1400 CC differs in each of the likely scenarios, as discussed below.

[88] 1 trip = 30 minutes ride of 10 kms
[89] INR 180 – INR 35 (fare per trip of AC bus)
[90] INR 380 (fare per trip of SUV taxi) – INR 180
[91] INR 193 (fare per trip of B/Y taxi) – INR 180
[92] INR 96.67+133.33+8.67 = INR 238.67

Scenario	Total Demand for taxis with engine capacity less than 1400 CC **(A)***	Total availability of taxis with engine capacity less than 1400 CC **(B)**	Probability of consumers finding a taxi with engine capacity less than 1400 CC **(C = B ÷ A)**	Probability of consumers not finding a taxi with engine capacity less than 1400 CC **(D = 1 – C)**	Additional cost/ net impact on a consumer for choosing one of three alternate options per day (INR) **(E =** 238.67 **X D)**
Scenario 1	52869	40637	0.77	0.23	Negative. - 54.89 of which - 22.23 is inconvenience cost i.e. monetary cost = - 32.66
Scenario 2	52869	38956	0.74	0.26	Negative. - 62.05 of which - 25.13 is inconvenience cost i.e. monetary cost = - 36.92
Scenario 3	52869	44415	0.84	0.16	Negative. - 38.19 of which – 15.47 is inconvenience cost i.e. monetary cost = - 22.72

*Based on normal growth projections. See 3 in table above.

In case the consumers who earlier chose taxis having engine capacity below 1400 CC shift to AC buses or B/Y taxis, the aggregators are likely to forego the revenue hitherto generated from taxis having engine capacity below 1400 CC. Should the consumers shift to taxis with engine capacity higher than 1400 CC, their revenue is likely to increase. Assuming that the aggregators earn 20 percent[93] of fare per ride, **the change in revenue of aggregator in each scenario is estimated in table below.**

Scenario	Probability of consumers not finding a taxi with engine capacity less than 1400 CC (A)*	Revenue foregone by aggregators if AC bus is chosen by consumers (Cost) (B) (INR)	Revenue foregone by aggregators if B/Y taxi is chosen by consumers (Cost) (C) (INR)	Additional revenue generation by aggregator if SUV taxi is chosen (Benefit) (D) (INR)	Net impact **[E = D – (C+B)]** (INR)	Net impact per consumer per day in light of probability of choosing an alternate mode **[F = E * A]** (INR)
Scenario 1	0.23	72** ÷3=24	72**÷3=24	80***÷3=26.67	- 21.33	Negative. - 4.90
Scenario 2	0.26	72**÷3=24	72**÷3=24	80***÷3=26.67	- 21.33	Negative. - 5.55
Scenario 3	0.16	72**÷3=24	72**÷3=24	80***÷3=26.67	- 21.33	Negative. - 3.41

** See D in the table above*

[93] Based on stakeholder interactions

*** INR 180 (fare per ride of taxi <1400 CC) X 20% (aggregator commission) X 2 trips per day = INR 72*
**** INR 200 (additional fare per ride taxi >1400 CC)) X 20% (aggregator commission) X 2 trips per day = INR 80*

In case the consumers who earlier chose taxis having engine capacity below 1400 CC shift to AC buses, the government is likely to earn additional revenue owing to the increased fare collection. In addition, the number of taxis having engine capacity more than 1400 CC is likely to increase, resulting in increased permit fee collection by the government.

The impact on government in each of three likely scenarios is set out below.

Scenario	Probability of consumers not finding a taxi with engine capacity less than 1400 CC (A)*	Additional revenue collection by government if AC bus is chosen by a consumer in a day (B) (INR)	Additional revenue generation per day by government in light of probability of consumers not finding a taxi with engine capacity less than 1400 CC **(C = B X A)** (INR)	Additional revenue generation per day by government on account of permit fee collection from new taxis (INR) (D)	Net impact on government **[E = D + C]** (INR)
Scenario 1	0.23	23.33*	5.36	0.82**	Positive. 6.18
Scenario 2	0.26	23.33*	6.06	0.82**	Positive. 6.88
Scenario 3	0.16	23.33*	3.73	0.82**	Positive. 4.55

** INR 35 (fare per trip) X 2 trips in a day = INR 70 per day ÷ 3 (probability of choosing AC bus among other two options) = INR 23.33*
*** INR 1500 (permit fee) / 5 years / 365 days in a year = INR 0.82*

In case the consumers who earlier chose taxis having engine capacity below 1400 CC shift to B/Y taxis, drivers of such taxis are likely to earn additional revenue, as set out in the table below.

Scenario	Probability of consumers not finding a taxi with engine capacity less than 1400 CC (A)*	Additional revenue collection if b/Y taxi is chosen by a consumer in a day (B) (INR)	**Additional revenue generation per day by B/Y taxi driver** in light of probability of consumers not finding a taxi with engine capacity less than 1400 CC **(C = B X A)** (INR)
Scenario 1	0.23	128.67*	29.59
Scenario 2	0.26	128.67*	33.45
Scenario 3	0.16	128.67*	20.59

** INR 193 (fare per trip) X 2 trips in a day = INR 386 per day ÷ 3 (probability of choosing B/Y taxis among other two options) = INR 128.67*

Based on above, the estimated impact on all stakeholders is set out below.

Stakeholders		Scenario 1	Scenario 2	Scenario 3	Net impact*
App based taxi Drivers	**Costs**	-1348.00	-1190.42	-1658.62	Negative. -1399.01* per day
	Benefits				
B/Y Taxi drivers	**Costs**				
	Benefits	29.59	33.45	20.59	Positive. 27.87* per day
Consumers (monetary)	**Costs**	- 32.66	- 36.92	- 22.72	Negative. - 30.77* per day
	Benefits				
Consumers (inconvenience)	**Costs**	-22.23	-25.13	-15.47	Negative. - 20.94* per day
	Benefits				
Government	**Costs**				Positive. 5.87* per day
	Benefits	6.18	6.88	4.55	
Aggregators	**Costs**	- 4.90	- 5.55	- 3.41	Negative. - 4.62* per day
	Benefits				
Aggregate impact on all stakeholders		Negative. - 1401.61 per day	Negative. - 1251.14 per day	Negative. - 1695.67 per day	Negative - 1421.60 per day

** Net impact = (Scenario 1 + 2 + 3)/ 3, given that probability of occurring of any of the scenarios is equal*

It can be deduced that the net impact of fleet composition requirement is likely to be negative i.e. costs estimated to be imposed by the requirement are likely to outweigh the potential benefits. It might be recalled that one of the key intended objectives of the requirement was to ensure optimal competition between and taxis linked with app based aggregators and existing high end taxi services and ensuring that the latter remain viable.

With this objective, the Rules create reservation for high end taxis in the total fleet linked with app based aggregators. However, the supply of high end taxis as a result of high end taxis as a result of the requirement is expected to exceed demand, which may adversely impact fares and potential revenue of operators of high end taxi operators.

6. Recommendations

As indicated earlier, many states in the country have formulated regulatory framework to regulate app based aggregators. These include rules issued by the Haryana government for its districts in the NCR,[94] Karnataka,[95] Rajasthan[96] and West Bengal.[97] Some states like Madhya Pradesh have issued draft regulations and are in the process of finalising the

[94] NCR Motor Cab (Taxi) Scheme, 2016, available at https://haryanatransport.gov.in/srservices/vahan/gui/jsp/notification_frame.jsp, accessed on 15th December 2017

[95] The Karnataka On-Demand Transportation Technology Aggregators Rules, 2016, available at https://haryanatransport.gov.in/srservices/vahan/gui/jsp/notification_frame.jsp, accessed on 15th December 2017

[96] The Rajasthan On-Demand Information Technology Based Transportation by Public Service Vehicle Rules, 2016, available at http://www.transport.rajasthan.gov.in/content/dam/transport/transport-dept/pdf/notificationrule/notificationrules.pdf, accessed on 15th December 2017

[97] The Directives to regulate the operational activities/ conduct of the On-Demand Transportation Technologies Aggregators, 2015 available at https://wbxpress.com/wp-content/uploads/2016/03/4450-WT.pdf, accessed on 15th December 2017

regulations. Interestingly, no state other than Maharashtra has introduced a restriction on fleet composition of app based aggregators.

The report of Committee constituted by Ministry of Road Transport and Highways (MoRTH) to propose taxi policy guideline to promote urban mobility recommends that the states should not impose unreasonable restrictions that will make the taxi operations economically unviable causing inconvenience to the citizens and increase in use of personalised vehicles. It provides that there should be no restrictions on the choice of the operator or aggregators with regard to composition of the fleet.[98] Accordingly, the Khatua Committee report recommended that the regulatory requirement in relation to fleet composition should be deleted, as it is against public interest.[99]

The fleet composition requirement essentially makes a quota/ reservation for high end taxis with engine capacity more than 1400 CC. Similar 'quota' regulations in other economic sectors have reportedly had adverse consequences. For instance, in the financial sector, for many years, banks were required to mandatorily open branches in rural areas, should they wished to expand their branch network. The government objective was to promote financial inclusion. While having limited benefits, such mandates resulted in cross-subsidisation of banking services, increase in operating costs and high cost to consumers for accessing financial services.[100] Similarly, banks are mandatorily lend a proportion of their total lending portfolio to 'priority sectors' under the financial inclusion mandate. Such lending quotas have met with limited success.[101] The route dispersal guidelines in the aviation sector also require airlines to deploy fixed capacity on routes that are unprofitable.[102] It has been pointed out that such guidelines impede competition and have undesirable consequences.[103] Similar practices have reportedly been adopted in the road transport sector.[104]

The potential adverse impact of such 'quota' regulations are being realised and regulators seem to increasingly taking corrective actions in form of evaluating the need for such 'quotas', linking the same to market, and introducing 'exclusivity conditions[105]' and tradable certificates to make such conditions commercially viable. For instance, the

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[98] The report is available at https://smartnet.niua.org/sites/default/files/resources/Taxi%20Policy%20Guidelines.pdf, accessed on 15th December 2017

[99] The Report of the Committee for Determination of the Fare Structure of Taxis and Auto Rikshaws in Maharashtra State, September 2017, available at https://transport.maharashtra.gov.in/Site/Upload/GR/Part%201.pdf

[100] Panagariya, *Bank Branch Expansion and Poverty Reduction: A comment,* Columbia University, August 2006, http://www.columbia.edu/~ap2231/technical%20papers/Bank%20Branch%20Expansion%20and%20Poverty.pdf

[101] Kochar, *The Distributive Consequences of Social Banking: A micro empirical analysis of the Indian Experience,* The University of Chicago Press Journal, January 2011. Also, Committee on Comprehensive Financial Services for Small Businesses and Low Income Households, January 2014. Also, Nathan Associates Inc, *Re-prioritising priority sector lending in India*, December 2013, at https://www.nathaninc.com/sites/default/files/Priority_Sector_Lending_India.pdf.

[102] Majumder, *Airlines spar over remote flying norms,* Business Standard, December 2017, at http://www.business-standard.com/article/companies/airlines-spar-over-remote-flying-norms-117122600717_1.html

[103] Nathan Economic Consulting, *Research Study of the Civil Aviation Sector in India*, CUTS Institute for Regulation and Competition, January 2012, at http://www.circ.in/pdf/Civil_Aviation_Sector.pdf. Also, https://www.bangaloreaviation.com/2014/10/route-dispersal-guidelines-anguish-airline-network-planners.html

[104] Mehta, *Research Study of the Road Transport Sector in India*, at http://www.circ.in/pdf/Road_Transport_Sector.pdf

[105] Clause 2.8 in the Regional Connectivity Scheme – UDAN, October 2016, at http://www.civilaviation.gov.in/sites/default/files/Final%20Regional%20Connectivity%20Scheme%20%28RCS%29.pdf

Reserve Bank of India has introduced a scheme for Priority Sector Lending (PSL) Certificates, to enable banks to achieve the priority sector lending target and sub-targets by purchase of these instruments in the event of shortfall and at the same time incentivize the surplus banks; thereby enhancing lending to the categories under priority sector.[106]

The objective of fleet composition requirement is to protect interest of incumbent market players and is not related to serving a hitherto under-served or excluded segment of the market. A significant body of literature suggests that creating artificial barriers to protect interests of incumbent operators is not advisable and may adversely impact consumer welfare.[107] Consequently, it is difficult to rationalise the need for prescribing fleet composition through regulation, and the same should not be part of the Rules. Fleet composition should be left to the market forces subject to demand of intermittent public transport.

However, should the government feel that it is absolutely essential to retain the fleet composition requirement in the Rules, the same should be rationalised. This can be achieved through:

1. Linking the requirement with market forces and periodic review – At present, the share for taxis with engine capacity more than 1400 CC is around 5 percent of the total demand. Interactions with stakeholders suggest that the supply of taxis with engine capacity more than 1400 CC is responsive to consumer demand.

At present, restrictions on fleet composition are based on equity grounds but there is no conclusive evidence which can suggest that drivers of incumbent taxi services have benefited in restricted markets[108]. On the contrary, high fare and controlled availability adversely affect low income consumer group of taxi services. Therefore, it is recommended that there should not be any cap on fleet composition. However, the market condition should be periodically reviewed to identify disruptions in the market, examine the ongoing changes in the market structure and assess if the supply is drifting away from optimal situation. Literature[109] suggests that in a free market where number of taxis is unregulated, the social optimum[110] can occur at a point at which industry profits are negative.[111] However, this is an unlikely condition, thus, periodic review of market is necessary.

[106] RBI Notification on Priority Sector Lending Certificates, April 2016, available at https://rbi.org.in/scripts/NotificationUser.aspx?Id=10339&Mode=0
[107] Armstrong, Regulation and Inefficient entry, February 2000, World Bank, at http://siteresources.worldbank.org/INTWDRS/Resources/477365-1257315064764/3197_armstrong.pdf. Also, Amato and Laudati (ed), *The anti-competitive impact of regulation,* The Robert Schuman Centre for Advanced Studies at the European University Institute, 2001
[108] OECD Report on Taxi Services: Competition and Regulation, available at http://www.oecd.org/regreform/sectors/41472612.pdf, accessed on 30 March 2018
[109] Yang, H., Ye, M., Tang, WH. & Wong, SC. (2003) Modelling Urban Taxi Services: A Literature Survey and an Analytical Example. In Lam, HK, and Bell, MGH. (eds). Advanced Modeling for Transit Operations and Service Planning. Pergamon Press
[110] Social Optimum is defined as the point at which total (producer plus consumer) surplus is maximised
[111] Revenue generated is equal to the cost incurred taxis engaged in business, but leaves a loss equal to dead taxi miles i.e. mileage utilised by the taxi driver to drive to a booking without passengers in the taxi.

2. In addition, creating a tradeable market for Fleet Composition (FC) Certificates[112] – Akin to PSL certificates as discussed above, a tradeable market for fleet composition certificates could be created to incentivise market players for achieving the desired fleet composition. Aggregators who link more than the desired number of taxis should be in a position to sell the FC certificates to aggregators who are unable to do so. The price of FC certificates should be determined by market forces.

[112] **Fleet Composition Certificates** are tradable, non-tangible taxi commodities (in form of certificate) that represent proof that one taxi of engine capacity more than 1400 CC owned by eligible taxi service operator/ individual and is running into the taxi service market.

Chapter 4: Permit Fee

1. Regulatory Proposal

The Rules provide that vehicles attached to any aggregator will be required to obtain a permit called the App Based City Taxi Permit (ABCTP). The ABCTP is granted on payment of fee as mentioned below:

Table 4.1 ABCTP fee for taxis to be linked with app based aggregators

Type of Vehicle	Permit fees (INR)
Motor Cab having engine capacity less than 1400 CC	25,000
Motor Cab having engine capacity 1400 CC or more.	2,61,000

2. Intended Objective

The taxis and the type of permits of taxis currently operational in the MMR region is set out in the table below

Table 4.2 Taxis and types of permits

Type of Taxi	Permit fees (INR)
B/Y taxis under the Act	25,000[113]
Taxis with engine capacity of 1400 CC or more under Previous Taxi Schemes of 2010	2,61,000[114]
Taxis with All India Tourist Permit (AITP)	1,500[115]

In addition to the permit fees, taxis are required to pay taxes, as set out below

Table 4.3 Taxes to be paid by taxis

Type of Taxi	Frequency	Permit fees (INR)
B/Y taxis under the Act	One time	INR 7,150[116]
Taxis with AITP (4 seater i.e. engine capacity of less than 1400 CC)	Annual	INR 8000[117]
Taxis with AITP (6 seater i.e. engine capacity of more than 1400 CC)	Annual	INR 12,000[118]

[113] See 6 at https://transport.maharashtra.gov.in/1178/Permit-Fees, accessed on 16th December 2017
[114] Preamble of Maharashtra City Taxi Rules, 2017
[115] See 2(a) at https://transport.maharashtra.gov.in/1178/Permit-Fees, accessed on 16th December 2017
[116] Page 92 of the Khatua Committee Report
[117] INR 2000 per seat * 4 seats = INR 8,000. See, Page 92 of the Khatua Committee Report
[118] INR 2000 per seat * 6 seats = INR 12,000. See, Page 92 of the Khatua Committee Report

Significant proportions of taxis linked with app based aggregators have AITP and compete with other taxis in city transport market. Therefore, it appears that the intended objective of the permit fee requirement is to create a level playing field between incumbents and the new entrants i.e. taxis linked with app based aggregators, to the extent permit fee requirement is concerned.

Given that permit fee for B/Y taxis and taxis in similar segment under the Rules (with engine capacity between 980 CC and 1400 CC) is INR 25,000, the Rules provide that B/Y taxis are freely allowed to get attached to any licensee under the Rules. Further, the existing permit of B/Y taxi is deemed to be a permit granted under the Rules.

Similarly, the Rule provides that operators of taxis under Previous Taxi Schemes shall be deemed to be aggregators under the Rules. Any permit granted/ used for vehicle operating under such Previous Taxi Schemes, subject to payment of fee as prescribed under the Rules, shall be deemed to be a permit granted under the Rules. The permit fee paid in respect of permit under the Previous Taxi Schemes shall be set off from the permit fee prescribed in this Rule but payable as per the Rule.

3. Baseline

While the B/Y taxis have been operating in Mumbai since a long time, the issuance of new B/Y taxi permits was stopped in 1997 until recently.[119] As result, the population of city increased without any proportional increase in B/Y taxis.

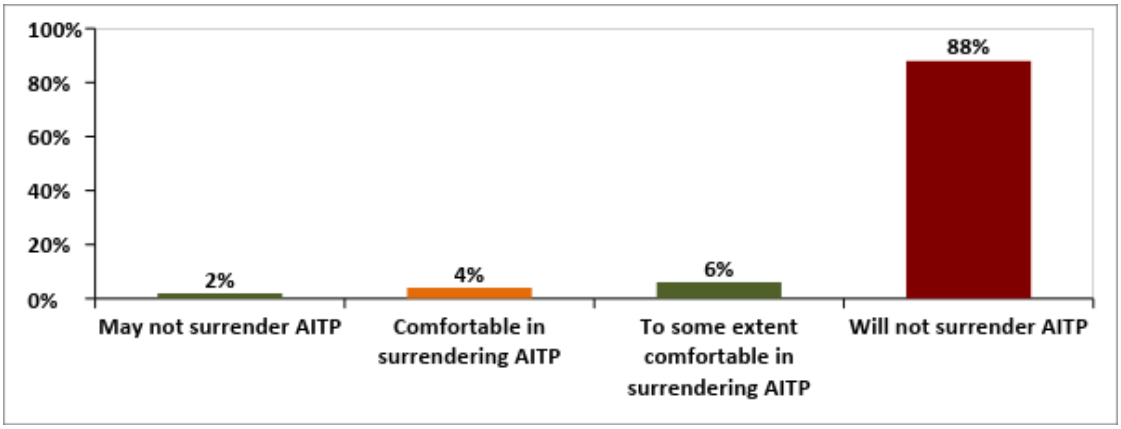
The high end taxis with engine capacity more than 1400 CC were launched around 2005. Under the Phone Fleet Taxi Scheme, 2010, limited number of permits were auctioned and sold by the Government of Maharashtra at then discovered price of INR 2,61,000 per permit.[120] Of 4000 permits auctioned, the company which won the auction was able to acquire only 2800 such permits.[121]

But if the Rules gets implemented, drivers with AITP permit will have to surrender their existing AITP and would be required to obtain ABCTP by depositing prescribed permit fee.

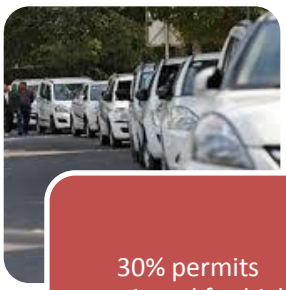
It appears that drivers of taxis linked with app based aggregators are not willing to surrender AITP.

[119] Kaali-peelis: Few want to drive yellow-top taxis, http://www.dnaindia.com/india/report-khaali-peeli-few-want-to-drive-yellow-top-taxis-2533575, accessed on 17 December 2017
[120] Preamble of Maharashtra City Taxi Rules, 2017
[121] See Para 5.11.2, page no 103 of Khatua Committee Report

Figure 4.1 Perception of drivers towards AITP

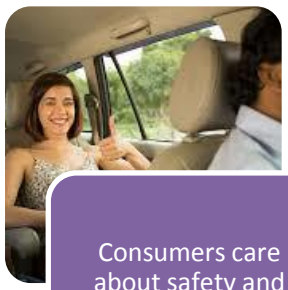


Interaction with stakeholders revealed that taxis plying with AITP for intra city commute are not illegal. Though originally meant for inter-state travel/ inter-city travel, it appears that AITP rules do not prohibit drivers to ride within the city. In addition, the taxi policy guidelines issued by MORTH committee revealed that AITP rules do not restrict the use of taxi with AITP inside the city boundary.



30% permits auctioned for high end taxi service remained unacquired

Almost all drivers associated with aggregators possess AITP and a substantial proportion are not willing to surrender the permits



Consumers care about safety and comfort and not about type of permit driver posseses

4. Impact Assessment

In case the permit fee requirement comes into force, drivers will need to pay permit fee prescribed under the Rules. This is likely to impact different stakeholder groups, as set out below.

Impact on drivers

It is reasonable to assume that cars for operating as city taxis are procured on loan, wherein the loan amount includes cost of permit fee. The table below estimates the difference in daily cost to owners of taxis operating with AITP and ABCTP.

Per day cost incurred by taxi owners					
S. No	**Engine capacity of taxi/ Cost heads**	**< 1400 CC**		**> 1400 CC**	
		AITP (INR)	**ABCTP (INR)**	**AITP (INR)**	**ABCTP (INR)**
1	Cost	550000	550000	900000	900000
2	Permit Fees	1500	25000	1500	261000
3	Interest (10%) and processing cost (2%) on loan for 5 years on 1 + 2	162595	169523	265783	342289
4	Cost of repair and maintenance for 5 years[122]	338880	338880	338880	338880
5	Cost of insurance and taxes for 5 years[123]	162165	162165	162165	162165
6	Additional tax	40000[124]	7150[125]	60000[126]	7150[127]
7	Cost for five years (life of car)[128]	1255140	1252718	1728328	2011484
8	**Per day cost**	**687.75**	**686.42**	**947.03**	**1102.18**
9	**Difference**	**1.33**		**(155.15)**	

As can be deduced from the table above, the per day cost to owners of taxis with engine capacity below 1400 CC, operating under ABCTP, is likely to be INR 1.33 lesser than owners of similar taxis operating under AITP. However, for owners of taxis with engine capacity more than 1400 CC, the per day cost of taxis operating under ABCTP is likely to be more than INR 155.15, when compared with per day cost of similar taxis operating under AITP.

Such increase in expenditure may delay the break-even for owners of app linked taxis. This was validated during interaction with stakeholders. More than 50 percent drivers of taxis linked with app based aggregators indicated that artificial restrictions under the Rules might delay achieving break even in the business, and could also discourage new entrants in the business.

Also, after depositing hefty permit fee and obtaining ABCTP, drivers would be restricted to do business under city boundary limits. Consequently, such drivers may lose out

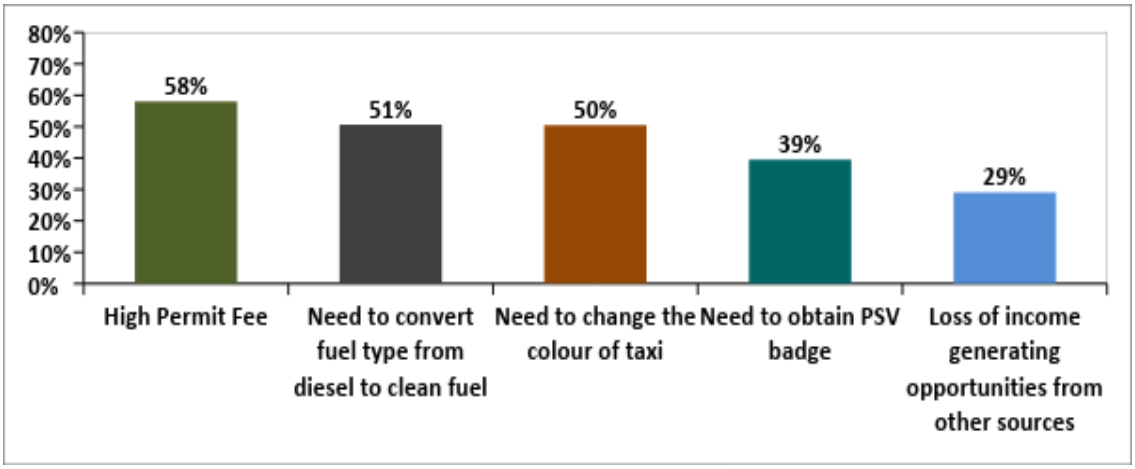
[122] Annual cost of repair and maintenance is INR 67776*5 years. For details, see Part II of the Khatua Committee Report
[123] Annual cost of INR of insurance and taxes is 32433*5 years. For details, see Part II of the Khatua Committee Report
[124] INR 2000 per seat * 4 seats * 5 years
[125] One-time tax on B/Y taxis. It is assumed that taxis operating under the Rules with ABCTP will also need to pay such tax
[126] INR 2000 per seat * 6 seats * 5 years
[127] One-time tax on B/Y taxis. It is assumed that taxis operating under the Rules with ABCTP will also need to pay such tax
[128] The life of taxis has been assumed as 5 years for calculation purposes. Also, AITP is available for 5 years and typical loan tenure is for 5 years.

income generating opportunities from other sources. This seems to be against the business principle as additional investments are leading to reduction in revenues.

Other sources of income for drivers with AITP are: (i) car rental for outstation trips; (ii) car rental for within the city commute; (iii) cars attached with government/private offices etc. ABCTP would not permit taxi for aforementioned services. Therefore, it is reasonable to assume that surrendering AITP would be a huge opportunity cost for such drivers.

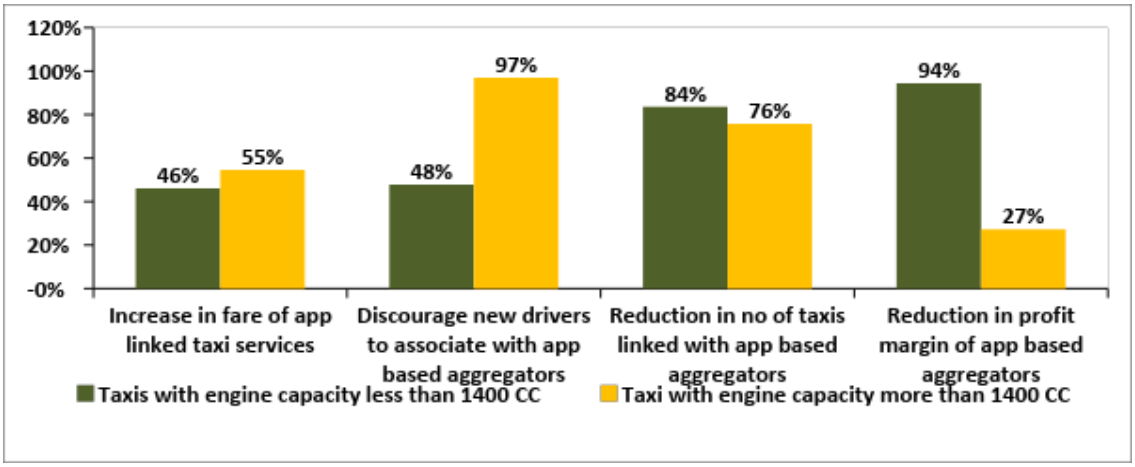
Approximately 88 percent of the drivers of taxis linked with app based aggregators have shown reservation in surrendering AITP for ABCTP. The main reasons include high permit fee and loss of income generating opportunities from other sources.

Figure 4.2 Reasons for not surrendering AITP



Further, interactions with stakeholders revealed that the probable impacts of high permit fee could be: (a) Reduction in profit margins of app based aggregators; (b) Increase in fare of taxi services; (c) Reduction in the number of taxis linked with app based aggregators; (d) Discouragement to new drivers to associate with app based aggregators.

Figure 4.3 Probable impact of high permit fee



Owners of taxis currently operating under AITP would have already paid the applicable permit fee of INR 1500. In case such owners decide to surrender their permit and obtain ABCTP, they will have to pay an additional permit fee of INR 25,000 or INR 2,61,000, as may be applicable.

Approximately 52 percent drivers linked with app based aggregators do not own the taxis. In the event owners of such taxis decide to delink their taxis owing to high permit fee, such drivers may lose their job or steady source of income. Of such drivers, approximately 32 percent are first time drivers i.e. they were not associated with taxi business earlier. Therefore, it is reasonable to assume that such drivers chose to associate with app based aggregators for better employment and steady income opportunity. Consequently, such taxi drivers are expected to forego income which could have been generated owing to linkage with app based aggregators. The average daily income foregone by each such driver could be in the range of INR 2000 - INR 2500.

As indicated earlier, permits granted under Previous Taxi Schemes, subject to payment of fee as prescribed under the Rules, shall be deemed to be permits granted under the Rules. The permit fee paid in respect of permits under the Previous Taxi Schemes shall be set off from the permit fee prescribed in this Rule but payable as per the Rule. Consequently, taxis operating under Previous Taxi Schemes are likely to find it easier to obtain a permit under the Rules. In addition, they are expected to find limited competition as stringent entry barriers in form of high permit fees is likely dissuade interested persons from obtaining ABCTP. Consequently, such taxis are likely to benefit from increase in demand and limited supply of taxis linked with app based aggregators.

Similarly, drivers of existing B/Y taxis are likely to benefit from increase in demand of such taxis owing to limited supply of taxis linked with app based aggregators.

Impact on consumers

As indicated earlier, a significant proportion of drivers with AITP are unlikely to surrender their permits to obtain ABCTP. This may result in artificial scarcity of taxis in the city. Consequently, the consumers may have to shift to other modes of transport, such as, B/Y taxis, auto rickshaws, local trains, metros, mono rail, buses, private vehicles etc. Thus, it may result in inconvenient and uncomfortable travel as compared to taxi ride. In addition, time taken to reach desired destination might increase.

However, some drivers may choose to opt for ABCTP by payment of high permit fee. It is reasonable to assume that such increase in operating cost will eventually be passed on to consumers in form of increased fares, reduced quality or limited access. As indicated earlier, for owners of taxis with engine capacity more than 1400 CC, the per day cost of taxis operating under ABCTP is likely to be more than INR 155.15, when compared with per day cost of similar taxis operating under AITP. It is reasonable to assume that such increase in cost will be passed on to the consumers.

Impact on Aggregators

As indicated earlier, existing operators under Previous Taxi Schemes are deemed to be aggregators under the Rules. However, they may experience reduction in fleet size as substantial proportion of existing vehicles linked with operators have AITPs, most of which are unlikely to be surrendered. Also, increase in operational cost of taxis linked with aggregators owing to high permit fees is likely to adversely impact revenue prospects of aggregators as well.

Should aggregators decide to increase fares of taxis, price sensitive consumers might shift to other modes of transport adversely impacting aggregators.

Impact on Government

Reduction in number of taxis linked with app based aggregators is expected to put pressure on other modes of transport, including public transport.

In order to manage rising demand, the Government of Maharashtra has been promoting intermittent public transport.[129] It has recently removed cap on number of B/Y taxi permits. However, such relaxation failed to attract many and the permits largely remain unsold.[130]

Consequently, the government is expected to make substantial investments to upgrade existing public transport system. One of the ways could be infusion of good quality city buses in the system along with enhancement of existing network of such buses.

However, the permit fee and taxes applicable on taxis under the Act and Rules are different, as highlighted in the table below

Table 4.4 Change in Permit fee and Taxes collection by the government (INR)

Type of Taxi	Aggregate per taxi permit fee and taxes at present	Aggregate per taxi permit fee and taxes if Rules can implemented*	Change in fee and tax collected from one taxi
Taxi with AITP (4 seater i.e. engine capacity of less than 1400 CC)	41,500[131]	32,150[132]	(9350)
Taxi with AITP (6 seater i.e. engine capacity of more than 1400 CC)	61,500[133]	2,68,150[134]	2,06,650
Additional fee and tax collected by government per taxi			1,97,300

** Assuming taxis with AITP surrender their permit and obtain permit under the Rules, and the one-time tax of INR 7150 is also applicable on such taxis.*

Despite losing revenue of INR 9,350 per taxi with engine capacity less than 1400 CC with ABCTP in place of AITP, the government is likely to earn additional revenue of INR 2,06,650 per taxi with engine capacity more than 1400 CC with ABCTP in place of AITP. Consequently, the net permit fee and tax collection by the government is likely to witness an increase by INR 1, 97,300 per taxi.

Impact on Congestion

Reduction in the app based taxis would increase the load on other modes of transport such as bus, local train, metros, K/P taxis etc. To the extent taxis currently operating as

[129] Maharashtra State Urban Transport Policy, 2017 https://www.maharashtra.gov.in/Site/Upload/Acts%20Rules/Marathi/Notification%20for%20Transport%20Policy.pdf, accessed on 17 December 2017

[130] Few takers for kaali-peeli driving permits http://indianexpress.com/article/cities/mumbai/few-takers-for-kaali-peeli-driving-permits-4723625/, accessed on 17 December 2017

[131] 1500 (permit fee) + (8000 * 5 years = 40,000) = 41500

[132] 25000 + 7150

[133] 1500 (permit fee) + (12000 * 5 years = 60,000) = 61500

[134] 261000 + 7150

city taxis will cease operation, due to unavailability of permits, the congestion is expected to decrease. However, as mentioned earlier taxis linked with app based aggregators constitute 4.4 percent of total cars in the city. Should the decrease in number of taxis in the city is replaced by private cars; there might not be any significant impact on congestion.

5. Net Impact

In case the permit fee requirement comes into force, drivers will need to pay permit fee prescribed under the Rules. The consequent net and aggregate impact on different stakeholders is set out below.

Stakeholders		Taxis having engine capacity less than 1400 CC	Taxis having engine capacity more than 1400 CC	Net impact per stakeholder (per day)
Taxi Drivers	**Costs**	-	Increase in fixed cost - INR 155.15 per day * 5% (probability) = 7.75 (for SUV taxis)	Negative INR - 6.49
	Benefits	Reduction in fixed cost - INR 1.33 per day * 95% (probability) = 1.26 (for hatchback taxis)	-	
Consumers	**Costs**	-	Significant increase in fare	Negative
	Benefits	Marginal decrease in fare	-	
Government	**Costs**	Reduction in fee collection - INR 5.12 per taxi per day * 95% (probability) = 4.86	-	Positive INR 0.80
	Benefits	-	Increase in fee collection - INR 113.23 per taxi per day * 5% (probability) = 5.66	
Aggregate impact on all stakeholders (per day)		Negative INR – 3.6	Negative INR – 2.09	Negative INR - 5.69

It can be deduced that the net impact of permit fee requirement is likely to be negative i.e. costs estimated to be imposed by the requirement are likely to outweigh the potential benefits.

It might be recalled that one of the key intended objectives of the requirement was to promote level playing field between incumbent B/Y taxis and taxis having obtained permits under Previous Taxi Schemes with other taxis which have obtained AITPs. While the costs of operations for all taxi drivers is expected to increase, this is likely to be achieved at reduced income generating opportunities and higher costs to consumers.

6. Recommendations

Level playing field between market players can be created primarily through two mechanisms. First, subjecting all market participants to stringent conditions and high costs which incumbents have been subject or second, reducing the barriers and costs for all participants, including incumbents, and promoting competition. Contrary to the latter case, higher operating costs may adversely impact interest of stakeholders and consumers in the former.

Reforms in several economic sectors have witnessed push backs from incumbents. Going ahead with such reforms, however, is likely to benefit all stakeholders in long term. For instance, in the aviation sector, the government recently decided to scrap a requirement that mandated airlines to have five years of domestic operations to be eligible to fly overseas.[135] This was met with stiff resistance from incumbents as they had invested significant resources to meet the said requirement. However, the liberalisation is likely to benefit the industry as a whole. Similarly, the government has been introducing several reforms to reduce cost of incorporation for businesses, which were not available to incumbents.

Consequently, limited rationale exists from denying prospective market players from benefits of reforms only because prevailing market players have incurred higher costs. In order to ensure incumbents also benefit from reforms, broad-based reforms which reduce the cost for incumbents should also be carried out.

Stakeholder interactions revealed that objective of the government from the permit fee requirement has not been to generate revenue. Further, none of the states has imposed such exorbitant permit fee. Some states have allowed AITP vehicles to operate as city taxis. The report of the taxi policy committee of MoRTH had also cautioned against high entry barriers in the market. It does not restrict vehicles with AITPs to operate as city taxis. The Khatua Committee in its report recommended that such a rule is illogical and unfair. The committee suggested that the fee should be reduced to INR 10,000 for all taxis, part of which should be transferred to a taxi and auto rickshaw welfare fund.[136]

In the light of above, following recommendations are being made:

1. Taxis with AITPs should be permitted to operate under the Rules without surrendering their existing permit.
2. The permit fee under the Rules should be decreased for all type of taxis and should be uniform for all i.e. B/Y Taxis and taxis linked with app based aggregators. Further, the fee should be nominal and should be charged uniformly irrespective of engine capacity of taxi. Fees paid under prevailing rules should be set off from the permit fee applicable under the Rules.

[135] Majumder, Cabinet clears civil aviation policy, replaces 5/20 condition with 0/20 rule, Business Standard, 15 June 2016, at http://www.business-standard.com/article/economy-policy/cabinet-clears-civil-aviation-policy-replaces-5-20-rule-116061500325_1.html

[136] See Page 103 - 104, Khatua committee report. The report is available at https://transport.maharashtra.gov.in/Site/Common/ViewPdfList.aspx?Doctype=421c4209-3a6e-4eba-9248-47bfb7533389, accessed on 15th December 2017

Chapter 5: Requirement for PSV Badge

1. Regulatory Proposal

The Rule states that the driver shall have a valid commercial driving license to drive a taxi and a valid Public Service Vehicle (PSV) Badge issued by the licensing authority. Further, drivers are required to have adequate knowledge of the roads and routes of the area of operation.[137]

In order to obtain PSV Badge, an individual is required to submit following documents to the concerned authority: i) Domicile certificate 'Form S.E.G.' from Tehsildar; ii) Character certificate from Superintendent of Police/ Police commissioner; iii) Medical certificate; iv) address proof; and iv) driving license. It appears that the S.E.G certificate confirms that the applicant is residing in the state of Maharashtra for at least 15 years.[138] In addition, an individual is required to satisfy the authorities about: its topographical knowledge of the area of operation; and working knowledge of Marathi and any one of the languages commonly spoken in such area.

History of PSV Badge

The requirement of a PSV Badge was first inserted in the Motor Vehicle Act (Act), 1939 when drivers of Public Service Vehicles were required to wear a uniform and badge for identification. The same provision has been retained under the current Act, wherein power has been given to State Governments to issue badges to drivers of transport vehicles under Section 28 of the Act. Basis the power granted by the Act, many States have provided for the issue of Public Service Vehicle Badges in their respective State Motor Vehicle Rules.

While neither the **Act** nor any of its Rules defines a public service vehicle ("**PSV**") Badge, it is considered to be a physical mark that is to be pinned on the left pin pocket of driver/conductor of any public service vehicle plying in India. The PSV Badge can be triangular, circular or rectangular, each shape usually denoting a particular type of public service vehicle. The words "DRIVER" or "CONDUCTOR" along with his name and badge number are to be printed on the badge. At times, the badge is supposed to be written in English as well as the respective local language.

2. Intended Objective

The Rules indicate that objective of the aforementioned requirement is to ensure that the passengers are not inconvenienced. Stakeholders were also of the view that the domicile requirement intends to promote passenger convenience, comfort, and security. It was believed that criminal records of the drivers migrating from other states would be extremely difficult to verify. Therefore, the domicile condition could help authorities in conducting thorough background check. The domicile related condition is likely to be met by locals and individuals residing in the state for a significant period. Consequently, one of the objectives of the requirement is to promote local employment.

[137] Rule 7 of the Maharashtra City Taxi Rules 2017
[138] See Para 5.9.2 at page 101 of the Khatua Committee Report.
See, http://mumbaisuburban.gov.in/pdf/forms/form%20no5.pdf, accessed on 16th December 2017

Further, certain consumer groups (such as elderly and from remote areas) are likely to be more comfortable in communicating with drivers in local/ vernacular language. Therefore, working knowledge of Marathi could help in better communication. Some stakeholders also emphasised that while GPS is typically used in commuting, working knowledge of roads and important landmarks could be helpful.

3. Baseline

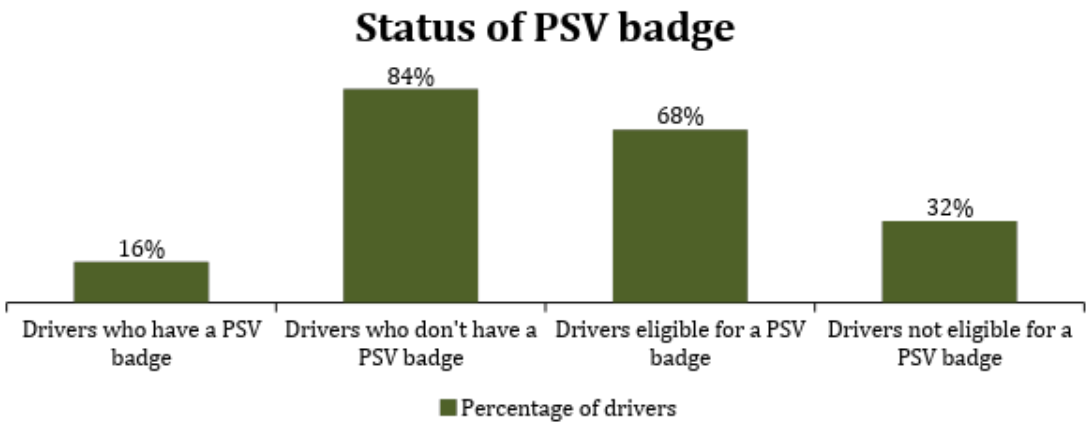
The stringent eligibility criteria for obtaining a PSV Badge in Maharashtra appear to have resulted in gradual reduction in number of commercial vehicles operating on roads. For instance, in 1997, there were approximately 63000 B/Y taxis in Mumbai city. However, the number of such taxis in city decreased to approximately 42,000 in 2013 and further shrunk to approximately 37,000 in 2017.[139]

In 2014, the government had announced a lottery for renewing B/Y taxi permits. Interaction with stakeholders revealed that many such permits were not renewed or remained unsold because of unavailability of drivers fulfilling stringent eligibility criteria. Similarly, in 2016 the government removed the cap on issuance of permits for B/Y taxis.[140] However, such liberalisation did not elicit adequate response as enough local candidates fulfilling domicile condition were not available. The report of Khatua Committee also noted that a significant number of drivers of B/Y taxis in the city are migrants from Uttar Pradesh, Bihar and other states.[141] Such drivers run B/Y taxis in the city without PSV Badge.

Similarly, stakeholders estimated that approximately 50 percent taxis linked with the operators licensed under Previous Fleet Taxi Schemes have remained unutilised as adequate numbers of drivers fulfilling PSV Badge criteria were not available.

Interaction with stakeholders also revealed that most drivers of taxis linked with app based aggregators do not meet the domicile condition, which was perceived to be restrictive. This was validated by interactions with drivers of taxis linked with app based aggregators in the survey, wherein approximately 32 percent drivers of taxis linked with app based aggregators were not eligible to apply for the PSV Badge.

Figure 5.1: Current scenario and status of drivers against PSV badge



139 Few takers for Kaali-peelis driving permits http://indianexpress.com/article/cities/mumbai/few-takers-for-kaali-peeli-driving-permits-4723625/, **accessed on 17 December 2017**
140 Id
141 Khatua Committee

Of 68 percent drivers eligible, approximately 16 percent have already obtained a PSV Badge. Thus, around 52 percent drivers will need to apply for PSV Badge, should the Rule become operational.

However, it must be noted that taxis under the Rules fall within the definition of motor cab as defined under Motor Vehicle Act, 1988. Rule 24(1) of the Maharashtra Motor Vehicle Rules, 1989, exempt drivers of motor cabs to obtain the PSV Badge. The Bombay High Court has also observed that the need for drivers of motor cabs to satisfy the requirement of Rule 24(1) of the Maharashtra Motor Vehicle Rules, 1989 is illegal as Rule 24 is not applicable to motor cabs.[142] Thus, it appears to be inconsistency between requirements under the Rules and the exemption provided under the Maharashtra Motor Vehicle Rules, 1989.

With respect to other conditions, a significant proportion of stakeholders thought that drivers should have adequate knowledge of topography and Marathi language. According to approximately 71 percent consumers, it was important for the taxi drivers to have good knowledge of city roads/ routes. Similarly, approximately 76 percent of drivers linked with app based aggregators confirmed being familiar with road routes in Mumbai. In addition, approximately 86 percent of drivers linked with app based aggregators were able to speak and/ or understand Marathi language.

32% drivers of taxis linked with app based aggregators are not eligible to apply for PSV Badge

Many taxis remain unoperational owing to unavailability of drivers fulfilling domicile condition

Most drivers are reasonably familiar with local language and topography

In addition, the Supreme Court in its judgement143 dated 3rd July 2017 in Mukund Dewangan vs. Oriental Insurance Company Limited, state that licence issued to drive light motor vehicle, it would also mean specific authorisation to drive a transport vehicle or Omnibus, the gross vehicle weight or motor car, road roller or tractor, the unladen weight of which, as the case may be, does not exceed 7500 kg. Thus, it is reasonable to assume that that there is no requirement to obtain separate commercial license to drive transport vehicle coming under Light motor vehicle[144] category.

[142] Shivpujan Kumar v/s State of Maharashtra (Writ petition 12843 of 2016), among other writ petitions clubbed together

[143] Supreme Court Judgement, Civil Appeal No. 5826 of 2011, *Mukund Dewangan vs. Oriental Insurance Company Limited & Ors* can be accessed at https://drive.google.com/file/d/0B1HsQbGlNpEfQlM5VXhGTnh4cVE/view

[144] Light motor vehicle means the unladen weight of vehicle does not exceed 7500Kgs.

4. Impact Assessment

Impact on consumers

As indicated earlier, many taxis will become out of order owing to unavailability of drivers fulfilling domicile condition. Several drivers which are currently plying taxis, including taxis linked with app based aggregators, are not eligible to apply for PSV Badge. The Rule would prohibit existing drivers of taxis linked with app based aggregators to continue their linkage with aggregators. It would further restrict new drivers, who do not have PSV Badge, to associate with app based aggregators.

In such situation, the number of taxis operational in the city would decrease significantly. As the gap between demand and supply would increase due to artificial scarcity of drivers, the fares of taxis are likely to increase significantly.

As indicated earlier, increase in fare is expected to force price sensitive consumers to shift to public transport and B/Y taxis, which has inadequate infrastructure to cater the needs of the consumers. Consequently, it would increase the commuting time of consumers. Thus, it would cause inconvenience and discomfort to consumers.

Impact on drivers

Approximately 32 percent drivers of taxis linked with app based aggregators do not fulfil the conditions to possess the PSV Badge. Substantial proportions of such drivers possess reasonable knowledge of topography of Mumbai city and Marathi language. However, they fail to meet the necessary condition of 15 years of residence in Maharashtra to acquire state domicile certificate. Such a rule would compel such drivers to delink taxis with app based aggregators, despite having awareness about routes and working knowledge of Marathi language.

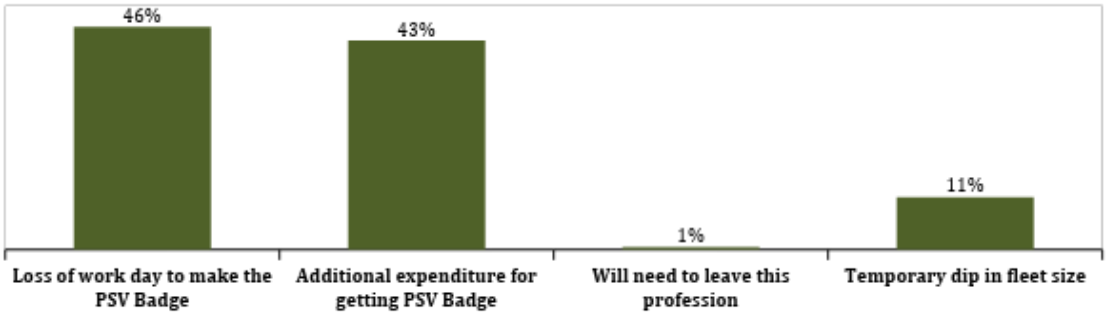
This is expected to significantly impact income of such drivers. As indicated earlier, average daily income of drivers of taxis linked with app based aggregators was in the range of INR 2000 – INR 2500, which might be at risk, owing to their inability to continue association with app based aggregators. Interactions with stakeholders further revealed that demand for inter-city and inter-state taxi is being met currently and such taxis are readily available. Consequently, drivers who disassociate their taxis from app based aggregators might not gain as per expectations if they ply taxis on inter-city and inter-state routes. Thus, it is reasonable to assume that there would be a significant reduction in the income of drivers. Further, many such drivers might be owners of taxis and would have obtain taxis on loans to be repaid in instalments on interest. An adverse impact on income is likely to delay the loan repayment and break-up for such drivers.

As most of drivers of taxis are migrants, their cost of living is expected to be much higher than compared with local drivers, consequently, the PSV badge condition is expected to adversely impact the former category of drivers.

To the extent drivers who are eligible to apply for PSV badge do so, they are expected to incur substantial costs in doing so. The average time needed for a driver to obtain the PSV Badge is in the range of 30 – 60 days, and the fee for the same is INR 766.[145]

[145] https://transport.maharashtra.gov.in/1176/License-Fees, accessed on 17 December 2017

Figure 5.2 : Possible Impact of Proposed Rule on drivers



The existing drivers who possess PSV Badge are expected to experience increase in demand and consequent increase in income.

Impact on Aggregators

If a significant proportion of drivers choose to discontinue their association with app based aggregators owing to their inability to comply with the Rules, the aggregators might be adversely impacted. The business model of aggregators is based on economies of scale and the aggregators might revisit their business model.

Impact on Government

As indicated earlier, the Rule is unlikely to promote local employment as limited individuals exist with requisite eligibility criteria. It might end up endorsing illegal driving with increased the risk of accidents and entry of criminal elements into taxi business.[146] This may adversely impact safety and security of consumers.

In addition, absence of adequate taxis in the city is likely to force consumers of taxis linked with aggregators to shift to other modes of public and intermittent public transport. To facilitate smooth travel for consumers, government would be required to upgrade the public transport. Further, funders might be discouraged to invest in other start-ups owing to such stringent and inconsistent policies.

Impact on Congestion

The Rule will result in substantial number of drivers becoming ineligible to drive taxis linked with app based aggregators. Such taxis are expected to go off roads in Mumbai region. This might result in reduction in congestion. However, there is a possibility that such cars end remaining unutilised and end up taking parking space which might adversely impact congestion.

It is likely that this will put significant pressure on public transport. However, should consumers shift to private vehicles, the congestion situation in Mumbai region may worsen.

5. Net Impact

In case the PSV badge requirement comes into force, it is assumed that drivers eligible for obtaining PSV badge will invest necessary resources to obtain the badge. Drivers which are not eligible will lose income generating opportunity. The table below highlights the consequent impact on different stakeholders.

[146] Para 5.9.6 page number 101 of Khatua Committee

Stakeholders		Drivers eligible to obtain PSV Badge	Driver 'not' eligible for PSV Badge	Net Impact (per day)
Taxi Drivers	**Costs**	Cost to one driver per day - INR 0.10[147]/2 (for calculating per unit cost) =0.05	Of Taxis with engine capacity less than 980CC: Savings foregone per day = INR 1000 per day X 0.95 (probability) = 950	Negative INR -821.38
	Benefits	-	Of B/Y taxis: Revenue of INR 193 per new trip i.e. INR 386 per day/ 3 (probability) = 128.67	
Consumers	**Costs**	-	Inconvenience cost of travelling in AC bus INR – 240/ 3 (probability) = 80 + Additional cost of travelling in B/Y taxi – INR 76/ 3 (probability) = INR 25.33 per day (probability) = INR 105.33	Negative INR -105.33[148]
	Benefits	-	-	
Government	**Costs**	-	-	Positive INR 23.43
	Benefits	Revenue generation per driver per day = INR 0.10	Of Bus: Revenue of INR 35 per new trip i.e. INR 70 per day / 3 (probability) = INR 23.33	
Aggregators	**Costs**	-	Loss of revenue INR 62[149] X 0.67 (probability of not choosing the mode) = 41.54	Negative INR - 41.54
	Benefits	-	-	
Aggregate impact on all stakeholders		**Positive** **INR 0.05**	**Positive** **INR 944.87**	**Negative** **INR - 944.82**

It can be deduced that the net impact of PSV Badge requirement is likely to be negative i.e. costs estimated to be imposed by the requirement are likely to outweigh the potential benefits. It might be recalled that one of the key intended objectives of the requirement was to encourage local employment and ensure safety and security of consumers. However, it appears that local youth is not inclined to work as taxi drivers as a result most such positions are taken up by migrants, which might be adversely impacted by the Rule.

Consequently, the rule is likely to have an overall negative impact on employment in a situation when the country is grappling with serious job creation challenges.[150] Engagement as drivers with app based aggregators is an important employment generation avenue.[151] The government has launched several schemes to promote job creation and entrepreneurship. This includes ensuring access to finance at cheaper rates.

[147] INR 766 ÷ 20 years (life of taxi driver) ÷ 365 days = INR 0.10 per day
[148] INR 158 / 2 (probability of choosing one option) * 2 (round trip) = INR 158
[149] INR 31 revenue per trip * 2 trips per day = INR 62
[150] Goyal et al, *Elusive jobs: Modi govt slowly coming to terms with what awaits it in the final year*, Economic Times, 19 February 2018, notes, "*cab-hailing apps like Ola and Uber employing 5,50,000 and 3,50,000 drivers respectively in India as of July 2016, according to Statista.*"
[151] Sharma et al, *Ola, Uber drivers and CAs to help Modi government solve its job math for india,* Economic Times, 24 February 2018. Also, *Indian workers shifting to gig economy*, Indian express, 05 February 2018

It appears that several individuals have availed this facility to purchase cars for linkage with app based aggregators.[152] Artificial restrictions like those imposed by PSV Badge condition might unintentionally make taking up such micro-entrepreneurship initiatives challenging.

6. Recommendations

A review of conditions imposed by regulatory framework of different states to verify background of applicants reveals that most states do not require a PSV Badge. Typically, documents required include: Self-attested copy of EPIC card, PAN card, residential address proof, contact details of two family members.

Regulation of app based taxis across states							
Type of regulation	**Districts of Haryana in NCR[153]**	**Karnataka[154]**	**Rajasthan[155]**	**West Bengal[156]**	**Madhya Pradesh**	**MoRTH advisory[157]**	**Delhi[158]**
Public Service Vehicle Badge	Required	Required	Police verification, self-attested copy of EPIC card, PAN card, residential address proof, contact details of two family members	Self-attested copy of EPIC card, PAN card, residential address proof, contact details of two family members	Driver shall have valid licence of driving the vehicle.	Self-attested copy of EPIC card, PAN card, residential address proof, contact details of two family members	Required

[152] Shetty, *Uber drivers will get SBI loans at below 12%*, Times of India, 16 March 2016, at https://timesofindia.indiatimes.com/business/india-business/Uber-drivers-will-get-SBI-loans-at-below-12/articleshow/51426756.cms. Also, Rajappa, *Gig economy: An empowering trend here to stay or a stumbling block that compromises on labour welfare,* Yourstory, 09 February 2018.

[153] NCR Motor Cab (Taxi) Scheme, 2016, available at https://haryanatransport.gov.in/srservices/vahan/gui/jsp/notification_frame.jsp, accessed on 15th December 2017

[154] The Karnataka On-Demand Transportation Technology Aggregators Rules, 2016, available at https://haryanatransport.gov.in/srservices/vahan/gui/jsp/notification_frame.jsp, accessed on 15th December 2017

[155] The Rajasthan On-Demand Information Technology Based Transportation by Public Service Vehicle Rules, 2016, available at http://www.transport.rajasthan.gov.in/content/dam/transport/transport-dept/pdf/notificationrule/notificationrules.pdf, accessed on 15th December 2017

[156] The Directives to regulate the operational activities/ conduct of the On-Demand Transportation Technologies Aggregators, 2015 available at https://wbxpress.com/wp-content/uploads/2016/03/4450-WT.pdf, accessed on 15th December 2017

[157] The Advisory for licensing, compliance and liability of on-demand information technology based transportation aggregator issued by MoRTH is available at http://morth.nic.in/showfile.asp?lid=1822, accessed on 15th December 2017

[158] City Taxi Scheme – 2015 by Transport Department, available at http://delhi.gov.in/wps/wcm/connect/f9c68480499d268a87b99f018ef168b1/Taxi.compressed.pdf?MOD=AJPERES&lmod=-370276847 accessed on 15th December 2017

The Karnataka On–Demand Transportation Technology Aggregators Rules, 2016 (Karnataka Rules 2016) states that a driver shall be a resident of Karnataka for a minimum period of two years. Further, the taxi policy guideline by MORTH committee suggests that there should not be any unreasonable restrictions on drivers and licensee that may make taxi operations unviable.

Parameters	Maharashtra	Delhi	MP	Rajasthan	Haryana	Karnataka	West Bengal	MORTH Advisory
Minimum residence in state	15 years	No	No	No	No	2 years	No	No
Character Certificate	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Medical Certificate	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Address Proof	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Commercial Driving License	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Knowledge of Topography	Yes	No	No	No	No	No	No	No
Knowledge of Local Language	Marathi and any one of the language commonly spoken in the area	No	No	No	No	Kannada and any one other language, preferably English	No	No

Consequently, it appears that the conditions imposed by the Rules are most stringent. The report of Khatua committee also pointed that the requirement is inappropriate, and is making the Rules extremely restrictive in nature. It recommends a period of residence of two years. Further, the condition to have topographical knowledge and good moral character to obtain badge has been covered in Rule 7(2)[159] and & 7(4)[160].

It must be noted that new technologies are emerging which can help in allaying some of the concerns which prompted the state government to mandate PSV and a domicile requirement. For instance, with universal identification like Aadhaar number, it should become easier to authenticate individuals and conduct background check. The number can also be used in criminal investigations. Furthermore, the Union Government is planning to implement Global Positioning System (GPS) tracking devices and panic buttons on transport vehicles by April 2019[161]

[159] Rule 7(2) states that the driver shall possess adequate knowledge of the roads and routes of the area of operation so that the passengers are not inconvenienced.
[160] Rule 7(4) states that driver should have good moral character without any criminal record.
[161] Gazette notification by Ministry of Road, Transport and Highways dated 18 April 2018.

Consequently, the following is being recommended:

1. Mandatory residence like artificial restrictions on employment need to be avoided and job creation and entrepreneurship should be promoted.
2. The requirement of PSV Badge can be replaced with conditions like Aadhaar number, residential address proof, and contact details of two family members.
3. Monitoring and supervision of drivers should be improved. Efforts for speedy grievance redress need to be made.
4. Further, consumers appreciate if drivers have reasonable awareness of topography and local language. Most drivers already meet such condition. Consequently, the condition for drivers to have reasonable awareness of topography and local language may be retained. However, the process of certification should be proportional and should not create artificial barriers. Any rejection on these grounds should be in writing and with adequate reasons. Proportional certification requirements should be ascertained through a robust stakeholder consultation process. In addition, monitoring and supervision of drivers should be improved. Efforts for speedy grievance redress need to be made.

Chapter 6: Need to Operate Taxis on Clean Fuel

1. Regulatory Proposal

Any vehicle operating under the Rules is required to be driven on clean fuel i.e. unleaded petrol or CNG or LPG or Hybrid or Electrical (power rating of electric vehicle will be specified by the State Transport Authority). Such vehicle should meet emission standards as prescribed from time to time by the Transport Authority.

If the services of any working vehicle operating under some valid permit are intended to be offered through any aggregator, then the said vehicle is required to convert to be driven on clean fuel, within a period of one year from the date of commencement of these rules. The aggregator is required to submit certificate/undertaking in that behalf, at the time of registration.

2. Intended Objective

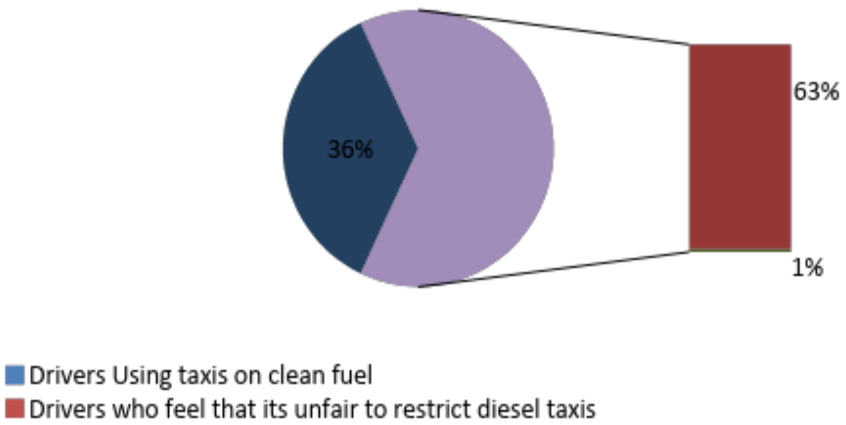
It appears that this Rule intends to create a level playing field between incumbent B/Y taxis and fleet taxis, and new entrants i.e. taxis linked with app based aggregators in the city taxi market. All incumbent city taxis operate on clean fuel and go through regular checks on emission norms.

Stakeholder interactions revealed that objective of the clean fuel requirement was to control vehicular emission resulting in air pollution.

3. Baseline

Approximately 64 percent drivers of taxis linked with app based aggregators use diesel cars, and thus are expected to be impacted by the clean fuel regulation. Out of such drivers, approximately 99 percent felt that it is unfair to restrict diesel taxis to operate as city taxi.

Figure 6.1: Driver views on restricting diesel taxis



Further, approximately 77 percent of such drivers expressed inability to convert their taxi from diesel to clean fuel. As a result, such drivers believed that they will left with no option and will need to delink their taxis from app based aggregators. Interestingly, approximately 85 percent of such drivers agreed to the rule being implemented in a phased manner, over a period of 3-5 years.

Figure 6.2: Drivers views on conversion to clean fuel

Alternatively, approximately 89 percent drivers using diesel taxis opined that taxis are not a major source of pollution in the city, and restricting them will not have a significant impact on the desired outcome of curbing air pollution.

The requirement to operate taxis on clean fuel is not exclusive to Maharashtra. A similar requirement was imposed in the NCR region, wherein the matter reached Supreme Court. In its order, the Supreme Court directed that all existing taxis operating with AITP in the National Capital Region should convert to clean fuel taxis on expiry of their present permit period by efflux of time, i.e. allowed to operate diesel taxis till the validity of their current permits. The Khatua committee made recommendations on same lines.[162]

4. Impact Assessment

Impact on drivers

In order to comply with clean fuel requirements, the diesel taxis will need to change entire engine assembly along with fuel kit. The cost of conversion from diesel to CNG per vehicle is approximately between INR 60,000 to INR 1 lakh.[163] Interaction with experts revealed that conversion of engine capacity might adversely impact performance of the vehicle, reduce engine life, increase wear and tear of the vehicle, and enhance maintenance cost.

An alternative to changing engine assembly is procurement of new car which runs on clean fuel. Interactions with stakeholders revealed that a significant proportion of drivers of diesel taxis were prepared to buy to a new car which runs on clean fuel, and thus willing to continue their linkage with app based aggregators. Each such new procurement is expected to cost approximately 5 lakhs.

Interactions with drivers currently linked with app based aggregators revealed that a substantial proportion of such drivers will not be in a position to make investments to change the entire engine assembly or procure new clean fuel taxi. It is reasonable to assume that these drivers relied on financial institutions to procure such taxis, and are in the process of making repayments.

[162] Paragraph 5.6.3 at page 99 of the Khatua Committee Report
[163] http://www.mycarhelpline.com/index.php?option=com_easyblog&view=entry&id=557&Itemid=91, and http://indianexpress.com/article/cities/delhi/diesel-to-cng-conversion-to-cost-dearly-taxi-drivers-look-for-alternatives/, accessed on 17th December 2017

As a result of clean fuel requirement, such drivers may be left with limited income generating opportunities, and may find it difficult in making repayments. As a result of delinking from app based aggregators, such drivers will need to forego their daily income ranging from INR 2000 – INR 2500. Further, of such drivers, approximately 72 percent did not hitherto generate income from inter-city taxi services. Such drivers might be even adversely impacted by the clean fuel requirement under the Rules.

Furthermore, drivers of taxis with engine capacity less than 980 CC likely to lose the business completely as consumers ordinarily hesitate to prefer such taxis for long route travel. Thus, it is reasonable to assume that owners of such taxis likely to bear fixed cost of taxi i.e. INR 581.32 per day.

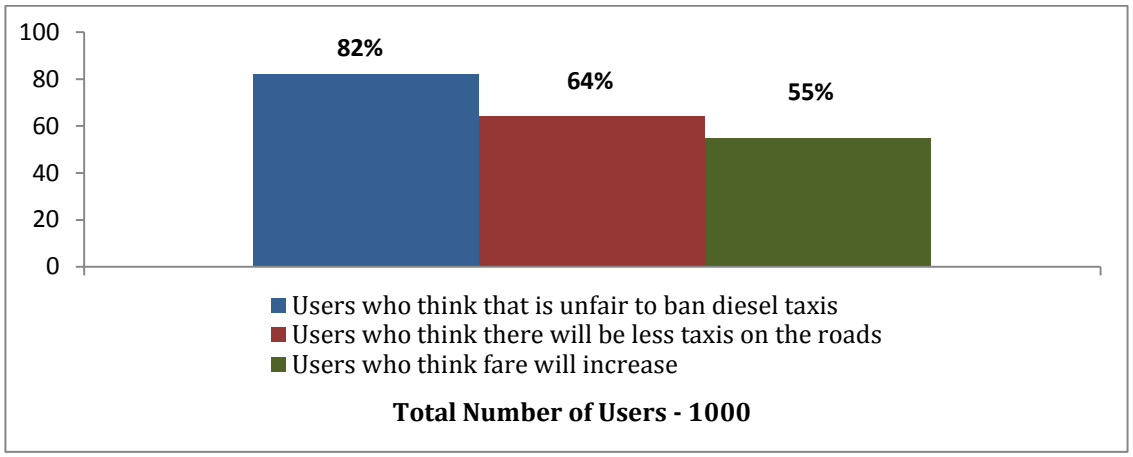
The Rules provide a transition time of one year for drivers linked with app based aggregators. Stakeholder interactions revealed that such time period might not be sufficient to incentivise a significant majority of drivers to shift to clean fuel requirement.

Impact on consumers

Interactions with stakeholders revealed that approximately 82 percent users of taxis linked to app based aggregators thought that it was unfair to ban use of diesel taxis for city transport. Should such rule be implemented, the fares of city taxi services are likely to increase and the availability of such taxis will decrease.

In other words, if approximately 77 percent drivers of diesel run taxis are forced to discontinue their linkage with app based aggregators, it may result in a substantial reduction in the number of taxis associated with app based aggregators.

Figure 6.3: User views on restricting diesel taxis



As a result, price sensitive consumers may move to other modes of transport, such as, black and yellow taxis, auto rickshaws, local trains, metros, buses, private vehicles etc. This may require additional resources, result in reduced comfort, or an increase in time taken to reach desired destination. Interaction with stakeholders also suggests that close to approximately 80 percent users have opted for an alternate mode of transport over app based taxis because of high estimated fare, on account of surge/ dynamic pricing. Of such number, approximately 63 percent consumers opted for public transport (buses/ train).

Impact on government

Catering to the rule of clean fuel requirement, some of the drivers of taxis linked to app based aggregators will need to procure new CNG taxis, and apply for permit under the

Rules. As a result, the government is expected to generate revenue in form of registration fees, tax on sale of taxis, permits issued to such taxis, among other sources.

However, alternatively, if the drivers delink from app based aggregators, this will impact the availability of taxis in the cities. Such a reduction will negatively impact the already overloaded public transport, and intermittent public transport. Government will have to put additional efforts to improve the said transport services to improve commuting options to the residents.

Impact on aggregators

The business model of app based aggregators is based upon the taxis linked, and is directly impacted by an increase or decrease of drivers associated with them. If the Rules are implemented without providing appropriate transition time to drivers, there is a risk of loss of revenue due to drivers being unable to switch to clean fuel in a short duration.

Taxis which are unable to comply with the clean fuel requirement will need to be delinked from app based aggregators. As a result, it is reasonable to assume that the business of the app based aggregators will be negatively impacted, and they may incur losses, and less revenue from their models.

Impact on congestion

A decrease in the number of taxis linked with the app based aggregators might reduce the congestion on the city roads. However, the pressure on existing public transport and intermittent public transport systems is expected to increase, since users may opt for alternate sources. To the extent existing taxis are in a position to comply with clean fuel requirement.

Impact on environment

To the extent existing taxis linked with app based aggregators are able to comply with the clean fuel requirement; the environment is expected to be positively impacted. In case such taxis are unable to comply with the requirement, they are expected to go off road. In such situation, consumers might transition to alternative modes of travel which are already expected to be running on clean fuel. Consequently, environment is not likely to be negatively impacted. However, if such consumers move to modes which are not plying on clean fuel, the environment might be negatively impacted.

5. Net Impact

In case the clean fuel requirement comes into force, the owners of taxis running with diesel fuel will need to convert diesel engine assembly into petrol engine/ CNG engine assembly. The table below estimates net impact in such scenario:

Stakeholders		Taxis with changed engine assembly	Net Impact (per day)
Taxi Drivers	**Costs**	Cost of conversion - INR 32.88 per day[164]	Negative
	Benefits	-	INR - 32.88
Consumers	**Costs**	Marginal increase in fare	Negative
	Benefits	-	

[164] INR 60,000 (total cost of conversion) / 5 years / 365 days = INR 32.88 per day.

Stakeholders		Taxis with changed engine assembly	Net Impact (per day)
Aggregators	**Costs**	Marginal loss of revenue	Negative
	Benefits	-	
Aggregate impact on all stakeholders		Negative INR - 32.88	**Negative** **INR** **- 32.88**

However, it was revealed during stakeholder interactions that conversion of diesel engine assembly into petrol engine/ CNG engine assembly may not be permitted. Consequently, the taxi owners will need to procure new taxis for which costs have been estimated, in the table below.

Stakeholders		New Taxis with Clean Fuel*	Existing Taxi with Diesel Fuel	Net Impact (per day)
Taxi Drivers	**Costs**		***Per day savings foregone*** For existing taxis with engine capacity less than 1400 CC: Revenue (INR 2000 * 95% = 1900 / 3 = 633.33) – Cost (1400 CC - INR 687.75 * 95% = 653.36 / 2 = 326.68) = 306.65 For existing taxis with engine capacity more than 1400 CC: Revenue (INR 2000 * 5% = 100 / 3 = 33.33) – Cost (INR 947 * 5% = 47.35 / 2) = 23.67 *Total savings foregone per taxi = INR 330.32*	Positive INR 128.67
	Benefits	***Per day savings*** For new taxis with engine capacity less than 1400 CC: Revenue (INR 2000 * 95% = 1900 / 3 = 633.33) – Cost** (1400 CC - INR 687.75 X 95% = 653.36 / 2 = 326.68) = 306.65 For new taxis with engine capacity more than 1400 CC: Revenue (INR 2000 * 5% = 100 / 3 = 33.33) – Cost** (INR 947 X 5% = 47.35 / 2) = 23.67 *Total savings per new taxi = INR 330.32*	Of B/Y taxis: Revenue of INR 193 per new trip i.e. INR 386 per day/ 3 (probability) = INR 128.67	

Consumers	**Costs**		Inconvenience cost of travelling in AC bus – INR 240/ 3 = 80 + Additional cost of travelling in B/Y taxi – INR 76 / 3 = INR 25.33 per day (probability) = INR 105.33	Negative - 105.33
	Benefits	-	-	
Government	**Costs**	-	-	
	Benefits	Per day permit fee and tax collection from new taxis less than 1400 CC - INR 22.74 * 95% = INR 21.60 Per day permit fee and tax collection for taxis more than 1400 CC – INR 33.70 permit fee and INR 2000 as tax per seat * 5% = 1.69 *Fee and tax collection per new taxi = INR 23.29*	Of Bus: Revenue of INR 35 per new trip i.e. INR 70 per day / 3 (probability) = INR 23.33	Positive INR 46.62
Aggregators	**Costs**		Loss of revenue	Negative
	Benefits	Increase in revenue		
Aggregate impact on all stakeholders		Positive INR 353.61	Negative INR - 283.65	**Positive** **INR 69.96**

** Costs are inclusive of permit fee and taxes

6. Recommendations

The report of MoRTH Committee recommends that any new taxi should not be allowed to procure a permit unless it complies with the fuel type prescribed by the state department. However, it states that existing taxis which do not conform to the mandated fuel requirement may be allowed to operate till their permit is valid.

The Khatua Committee in its report also recommends similar process to gradually phase out diesel taxis. The report notes that most of the taxis associated with aggregators are diesel taxis. Also, there is no technology available to convert diesel cars to clean fuel cars. It is not feasible for drivers to sell their taxis at throw away prices due to regulatory distress. Such taxis should be replaced after the existing permit expires by natural efflux of time, which is also the judgement of Supreme Court in the National Capital Region (NCR) for a similar issue.

Based on above, it is recommended that:

1. Instead of regulating type of the fuel used for taxis, government may decide to regulate and ensure implementation of strict emission standards. Such regulations will also promote innovation so that the emission from diesel taxis may be controlled to the extent possible. Such innovation will also help in curbing air pollution due to emission caused by other vehicles apart from the city taxis.

2. Government may also incentivise use of clean fuel taxis over diesel taxis, so that drivers may find using clean fuel more lucrative. Our interactions with the stakeholders also noted that there is a lack of CNG availability in the city. The CNG pumps are not sufficient to cater to the demand of taxis, and if more taxis are added, it may put more burden on the existing infrastructure, resulting in more time taken in refuelling. Government can focus on improving the CNG infrastructure in the city while taking a phased approach, so that drivers can convert/change their existing taxis to clean fuel over a period of time without jeopardising their investments and livelihood.

3. The transition period to comply with clean fuel requirement must be reviewed and decided based after consultation with stakeholders. The government should provide adequate support to taxi drivers to manage the transition.

Chapter 7: Colour Standardisation

1. Regulatory Proposal

The Rules state that all the taxis operating under ABCTP shall be painted as specified below:

Figure 7.1: Specified colour on the vehicle

Vehicle Side	Colour
Top side of Vehicle	White Colour
Front and rear bumper assembly of vehicle	White Colour
Lower side of the vehicle	Daffodil Yellow (RAL 1007) Colour

However, black and yellow taxis, cool cabs and taxis under Previous Taxi Schemes may continue with their present colours.

2. Intended Objective

It appears that this Rule intends to make it easy for commuters to identify taxis at locations with large number of vehicles moving at any point of time. The Rule also aims to create level playing field among the incumbents such as B/Y taxis, fleet taxis and new entrants since standardised colour is defined for all incumbents.

3. Baseline

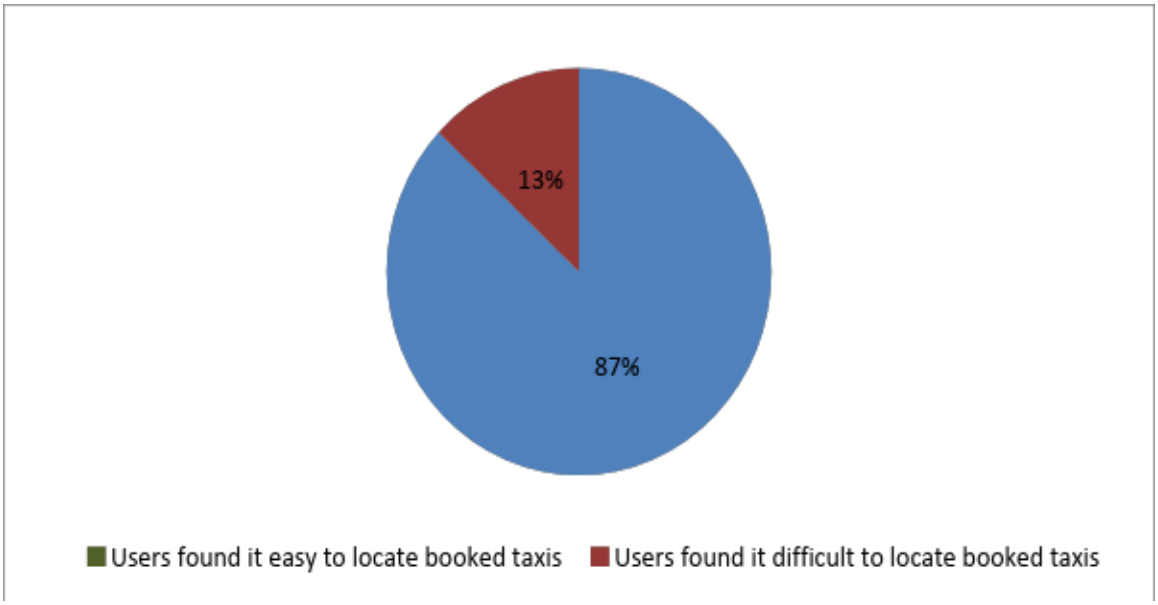
At present, there is no standard colour defined for taxis linked with app based aggregators, whereas all incumbent taxis are required to have a standard colour (Black and Yellow for B/Y taxis etc.) to operate in the city.

Interactions with stakeholders revealed that majority of users of taxis linked with app based taxis do not face any difficulty in finding booked taxis, due to the details such as the model, colour, registration number of the taxi etc. displayed on the mobile application of the aggregators after the ride is booked. The application also tracks the taxi in real time so that users can see location of booked taxi on the mobile application.

Approximately 87 percent users of taxis linked with app based aggregators found it easy to locate their booked taxi in a crowded location, such as airport or railway station even without a standard colour. Interestingly, approximately 48 percent of users were of the opinion that a standard colour may not make it convenient to locate the booked taxi.

Similarly, approximately 97 percent of drivers of taxis linked with app based taxis were of the view that the users do not find it difficult to locate booked taxis after arriving at the location.

Figure 7.2: Users opinion on ease of locating booked taxis



Furthermore, approximately 64 percent of drivers of taxis linked with app based aggregators revealed that there would be no benefit associated with the proposed standardised colour scheme for taxis linked to app based aggregators.

Figure 7.3: Stakeholders view on implementation of standardised colour

4. Impact Assessment

Impact on taxi drivers

In case the rule to standardise the colour of taxis is implemented, the drivers will incur extra costs in getting the taxis repainted. Interactions with stakeholders revealed that approximately 50 percent of drivers linked with app based taxis were afraid of reduced profit margins on account of additional expenditure on repainting the taxi. According to Khatua Committee, the repainting cost will be approximately INR 50,000 – 60,000, which will lead to additional expenditure to the drivers. It suggests that repainted colour may not last for as long without fading. Furthermore, approximately 50 percent drivers

reported a potential inability to earn additional revenue through advertisement, due to limited space available after the repaint. Such limitations may impact the earnings of drivers, with added costs of repainting the taxi to adhere to the Rules.

Alternatively, based upon the stakeholder interactions, drivers who do not opt for ABCTP owing to standardised colour requirement may have to forego an income of INR 2000 – 2500 per day, due to delinking from app based aggregators. Consequently, they may face difficulties in paying their debts and maintaining their taxis.

As indicated earlier, black and yellow taxis, cool cabs and taxis under Previous Taxi Schemes may continue with their present colours. Consequently, they are unlikely to be negatively impacted on account of Rules. However, as other drivers may face increase in cost of operations and possibly reduced operations, the incumbent drivers may experience increase in demand.

Impact on consumers

As indicated earlier, approximately 87 percent of users did not face any difficulty in locating the booked taxis. It is reasonable to assume that mandating a standard colour may not make any difference in ease of locating taxis. However, the costs incurred by drivers for changing the colour of the taxis might be passed on to the consumers resulting in increase in fares.

The requirement may dissuade potential drivers from linking their taxis to app based aggregators. To the extent this happens, the supply of taxis might not increase in consonance with demand, resulting in increase in fares, or longer estimated time of arrival.

Impact on aggregators

The app based aggregators may not be directly impacted by the implementation of aforementioned rule. However, the additional cost of repainting the taxi might adversely impact the revenue of drivers, and thereby adversely impacting the revenue projections of aggregators.

Alternatively, as discussed above, the drivers may refuse to opt for ABCTP due to additional expenditure required to be incurred. This may impact the business of the aggregators, since the number of taxis linked with the app based aggregators may decrease, which will adversely impact the revenue of the aggregators.

Impact on government

If the government decides to implement such rule to standardise the colour of the taxis linked with app based aggregators, there may be no benefits associated with it. As discussed above, approximately 87 percent consumers find it easy to identify the booked taxis, which is the primary objective behind such Rule.

Furthermore, if many drivers decide to discontinue their linkage with app based aggregators by not opting for ABCTP, it may result in a decrease in the fleet size of the app based aggregators. Consequently, such decline may cause increased burden on intermittent public transport, and public transport systems. Based upon the stakeholder interactions, existing transportation system in the city is insufficient to cater to the needs of commuters, and needs substantial overhaul to facilitate quick and comfortable experience to such commuters.

Impact on congestion

There may not be any impact on the congestion in the city, due to implementation of such rule to standardise the colour of taxis linked to app based aggregators. However, if the drivers disassociate themselves from app based aggregators due to implementation of such rule, the number of taxis on the city roads may decrease and may reduce congestion.

5. Net Impact

The following table compares the impact of the standardised colour requirement on different stakeholder groups, and postulates the net impact:

Stakeholders		Taxis with Daffodil Colour	Net Impact (per day)
Taxi Drivers	**Costs**	Cost to colour one taxi - INR 50,000[165] or INR - 27.40 per day	Negative INR - 27.40
	Benefits	-	
Consumers	**Costs**	Marginal increase in fare	Negative
	Benefits	-	
Aggregators	**Costs**	Marginal loss of revenue	Negative
	Benefits	-	
Aggregate impact on all stakeholders		Negative INR - 27.40	**Negative** **INR - 27.40**

It can be deduced that the net impact of colour requirement is likely to be negative i.e. costs estimated to be imposed by the requirement are likely to outweigh the potential benefits. It might be recalled that one of the key intended objectives of the requirement was to improve identification of taxis linked with app based aggregators which is unlikely to be achieved.

6. Recommendations

None of the Indian states have any regulations regarding the colour of the taxis linked to app based aggregators.

The MORTH committee report recommends that states should not impose any unreasonable regulations, which may make the operations unviable. In addition to Maharashtra, only Delhi has a standardised colour requirement. The Khatua committee recommends that the drivers should be allowed to purchase a taxi of any colour. However, putting a sticker of aggregator brand name and logo can be made mandatory to be put on taxis.

Based on above, it is recommended that the standard colour rule is unlikely to benefit the consumers, in terms of ease of identifying taxis. It may result in drivers incurring additional costs. Such a rule can be done away with, and if there is a need to identify the taxis from other vehicles, a sticker of the name of aggregator, or the logo of such aggregator at all sides of the taxis should suffice for the purpose.

[165] Part 2 Khatua Committee Report

Chapter 8: Conclusion and Way Forward

1. Aggregate impact

The previous sections of the Report discussed in detail likely impact of select provisions of the Rules. The table below presents the aggregate impact and highlights that different Rules impact diverse stakeholders in divergent manner. In aggregate, the Rules are likely to negatively impact all stakeholders taken together.

Rules/ Stakeholders	Minimum Engine Capacity	Fleet Composition	Permit and Fee	Requirement for PSV badge	Need to operate taxis on clean fuel	Colour standardisation
Consumers (actual)	-39.89	-30.77		-25.33		
Consumers (inconvenience)	-76	-20.94		-80		
B/Y taxi	122.23	27.87		128.67		
Compact Hatchback	-950			-950		
Hatchback	114	707.08	1.26	-0.05	-31.24	-26.03
SUV		-2106.09	-7.75		-1.64	-1.37
Bus	22.16	5.05		23.33		
Permit & Fee		0.82	0.8	0.1		
Aggregators	-36.1	-4.62		-41.54		
Net impact	-843.6	-1421.6	-5.69	-944.82	-32.88	-27.4
	Negative	Negative	Negative	Negative	Negative	Negative

2. Way Forward

There is a merit in beginning to think about costs and benefits of regulatory proposals prior to their adoption and assessing whether the regulatory objectives are likely to be met at minimum costs.

This holds true in case of Rules as well. It may be useful to consider alternatives to some of the provisions of the Rules, estimate their impacts and examine if such alternatives are likely to meet the regulatory objectives at lesser costs, when compared with costs likely to be imposed by the Rules.

Summary of recommendations
The restriction on minimum engine capacity should be rationalised to allow taxis with engine capacity of 600 CC and above to link with app based aggregators. Further, better alternatives to ensure consumer safety and comfort, such as prescribing power to weight ratio, should be explored
The minimum fleet capacity requirement should be removed. A periodic market analysis should be conducted to assess if supply of taxis is corresponding to demand and artificial barriers are present.
Taxis with AITPs should be permitted to operate under the Rules without surrendering their existing permit. The permit fee should be decreased for all types of taxis and

Summary of recommendations
should be nominal and uniform. Fee paid under different rules should be set off from the permit fee applicable under the Rules.
Mandatory conditions such as permanent residence of Maharashtra result in artificial restrictions on employment. These conditions need to be avoided while job creation and entrepreneurship should be promoted. Further, the requirement of PSV Badge can be replaced with conditions like Aadhaar number, to ensure authenticity of drivers. This relaxation should be provided to incumbent taxi service providers as well.
The transition period to comply with clean fuel requirement must be reviewed and decided based on consultation with relevant stakeholders. Further, instead of regulating type of the fuel, government may regulate emission standards.
The colour standardisation requirement can be done away with, and if there is a need to differentiate taxis from other vehicles, a sticker of the name of aggregator, or the logo of such aggregator at all sides of the taxis should suffice. This relaxation should be provided to incumbent taxi service providers as well.

It must also be noted that several incumbent city taxi providers are already subject to provisions similar to Rules (such as PSV badge, minimum engine capacity, and clean fuel) and are incurring significant compliance cost. In fact, one of the rationales for introduction of the Rules was to create level playing field between incumbent city taxi providers and taxis linked with app based service providers. A level playing field may not necessarily be achieved by increasing the costs of new market entrants to match the costs of incumbents but can also be created by reducing the costs of incumbents to match the costs of new entrants. In other words, there is a need to revisit the regulatory framework for incumbent city taxi providers and ensure they are subject to reasonable and proportionate regulatory requirements which are likely to achieve the regulatory objectives at least costs to such incumbents.

However, reforming specific existing regulatory provisions may not necessarily ensure that similar regulatory frameworks will not be issued in future wherein costs may outweigh benefits. Thus, there is a need to reform the regulation making process and institutionalise the process of considering impacts of regulatory proposals in advance.

RIA serves this purpose. To ensure the adoption of RIA in the regulatory process, political will is necessary. Various expert committees and independent studies[166] have already recommended adoption of RIA in India. These include erstwhile Planning Commission's Working Group on Business Regulatory Framework (WGBRF) (2011)[167], Financial Sector Legislative Reforms Commission (FSLRC) (2013), Committee for Reforming the Regulatory Environment for Doing Business in India (2013), Tax Administration and Reforms Commission (2015), and the Department of Industrial Policy and Promotion's Expert Committee on Prior Permissions and Regulatory Mechanism (2016).

More recently, the Ministry of Commerce & Industry, Government of India has constituted a Better Regulation Advisory Group with the objective of improving regulatory processes. A sub-group consisting of CUTS International and Federation of Indian Micro and Small and Medium Enterprises (FISME) was tasked to suggest a mechanism for adoption of RIA in India, for ministries and regulators under the Central Government to improve regulatory processes.[168]

[166] CUTS projects on Regulatory Impact Assessments in India are available at http://cuts-ccier.org/ria/
[167] to which CUTS acted as a Knowledge Partner
[168] http://pib.nic.in/newsite/PrintRelease.aspx?relid=176264

However, RIA comes with its own limitations. It cannot guarantee implementation/ administration and compliance with regulations. The information collected through stakeholder consultation is largely based on perceptions. Further, at present, limited understanding exists among stakeholder community about the RIA tool, thus making data collection challenging. The capacity within government departments to conduct RIAs/ cost-benefit analyses is also limited. To overcome such limitations, greater awareness about RIA and its utility is required. Similarly, capacity building initiatives within government departments on RIA are essential. The government should create a dedicated pool of officers to conduct RIAs across sectors and build capacities within different departments, over time. Building such capacity and conducting periodic RIAs would put significant strain on exchequer. However, the consequent benefits of improved regulatory governance and imposition of minimal costs on stakeholders to achieve regulatory objectives are expected to outweigh the costs of institutionalisation and conducting RIA.

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