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Title:

Understanding Intermediate Public Transport (IPT) as the Mode of Choice in Jakarta, Indonesia

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Summary

Jakarta suffers from heavy traffic congestion, and this costs people not only their money but also their valuable time. Yet public transportation is still not enough to facilitate people's daily mobility. In response to the Jakarta's gridlock, the paratransit or intermediate public transport (IPT) plays a bigger role in helping the commuter's activity and mobility. However, most of the existing IPT mode has poor quality and level of service. In 2014, GOJEK as a newcomer in IPT was launched and started to provide an alternative means of transport, and its presence has created a new system of providing service to its customers, and shortly it became popular and highly demanded by the people.

Since the IPT operation is based on the user's travel needs and their satisfaction with the level of service, the user may leave the IPT with poor service, and they prefer to switch to another IPT mode that is considered better and capable of accommodating their mobility.

GOJEK operation and popularity has not only alarmed other IPT operators about how important the quality of service is, but it has also raised government's awareness of how the regulation should adapt to and accommodate the new system of IPT operation without sacrificing the travel needs of the commuters.

Hence, to bridge the government's interest in formulating a new regulation and in helping IPT operators improve their service, this study will explore the four IPT modes' level of service in Jakarta from the commuter's perception. The attributes of the commuter's perception of the level of service will be analyzed to find the most influential factor that determines their transportation mode decision. This study will reveal the important aspects of developing the transportation system policy by determining different weights of importance for the paratransit users in Jakarta. Finally, this research proposes several recommendations to help the government formulate the regulation that accommodates the operators' and commuters' interest.

Keywords: ***intermediate public transport, paratransit, choice of mode, perception, level of service***

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Abbreviations

IHS	Institute for Housing and Urban Development
IPT	Intermediate Public Transport
GOJEK	The brand of online booking motorcycle taxi
Bajaj	Three-wheeler taxi
Ojek	Conventional motorcycle taxi
TPB	Theory of Planned Behaviour
ERP	Electronic Road Pricing
BRT	Bus Rapid Transit

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Chapter 1: Introduction

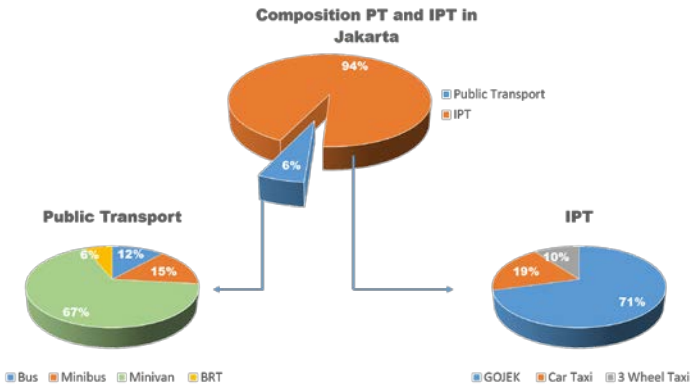
1.1 Background

Unlike the urban transportation systems in developed countries where the commuters have access to integrated public transportation that covers wide area, commuters in many Asian developing countries rely on paratransit or Intermediate Public Transport (IPT) such as taxi, three-wheeler taxi, motorcycle taxi, and minivan. It provides flexible and frequent services to the small residence where public transportation may not be available, playing an important part in bridging the gap between the poor public transportation system and private vehicle. (Cervero, 2000).

In the case of Jakarta, the capital of Indonesia and the center of governmental activity and trade of goods and services, the city provides an opportunity for a better job, better income, and a wider market for business. As a consequence, Jakarta attracts urbanization and has high commuter traffic. On the other hand, the public transportation system in Jakarta is poor and various means of transportation are mixed together on the road resulting in heavy congestion (Rahardjo, 2012). This condition is worsened by the unbalanced number of private vehicle and public transportation to serve the transportation needs of the commuters. According to Jakarta Local Government, the number of motorized vehicles in Jakarta is more than 5.5 million; 98 % of which are private vehicles serving 44% trips and 2% are public transport and intermediate public transport vehicles serving 56 % of commuter trips (Jakarta Local Government, 2014). With 17.1 million demands for public transport trips per day, the number of public transport vehicles today is still not enough to accommodate the commuters' trips.

In response to the complicated traffic situation and problematic public transportation system in Jakarta, the paratransit or IPT sector has evolved and developed over the years. IPT provides and handles the travel needs in the city, with 141,503 units of IPT including three-wheel taxi, car taxi, and online motorcycle taxi compared to 9,286 units of public transport, IPT plays a significant role in transporting Jakarta's commuters.

Figure 1. The Share of Public Transport and Intermediate Public Transport in Jakarta



Source:(Jakarta Transportation Agency, 2015)

IPT improves the mobility in Jakarta by complementing the public transportation and operates not in isolation, but as a flexible complement or integration to the public transport (Cervero, 2000). The IPT in Jakarta mostly belongs to private companies or individuals, and usually the government does not have any share in the IPT ownership. In this study, the IPT modes discussed includes taxi, three-wheeled taxi, conventional motorcycle taxi, and GOJEK. Taxis in Jakarta are commonly licensed and accessible at most markets, train stations, CBDs, malls, and available for order by phone or smartphone application. Fare~~s~~ are based on the metered rates, though the minimum payment ranges from Rp.15,000 (1 Euro) to Rp.25,000 (1.7 Euro).

Three-wheeled taxis or known as *Bajaj* commonly belongs to corporations or individuals, and are accessible at most traditional markets, bus terminals, train stations, and offices. However, unlike taxi, three-wheeled taxis are prohibited on some streets, especially toll roads and Jakarta's major arterial road. Fares are based on negotiations between the driver and the passenger, and there is no particular standard rate of service. However, commonly it starts from Rp.10,000 (0.7 Euro).

Conventional motorcycle taxi or known as *ojek* commonly belongs to individuals and accessible in most residential areas, bus stations, bus terminals, train stations, most traditional markets, and office areas. Often, conventional motorcycle taxi drivers have their stations or groups located in strategic areas such as at the entrance of residential areas and in front of office buildings, and the drivers will take the passengers alternately and sequentially. Conventional motorcycle taxi operates informally and illicitly, has uncertain or irregular rates, lack of proper credentials, has no certification of benchmark, lacks commercial driving permit or the necessary registration to enter the market as public transport. Similar to the three-wheeled taxi fare system, conventional motorcycle taxi fare is based on negotiation and the distance of the destination location.

However, in 2014, a private transportation company launched a public transport in the format of online booking motorcycle taxi named GOJEK. It is also trying to improve motorcycle taxi transportation by organizing a fleet of trusted drivers. GOJEK introduced a hi-tech booking system and guaranteed the service standard. Through the app, users can order the service via GOJEK booking application system on their smartphones anywhere and anytime as long as they have internet connection instead of waiting and taking one on the street. The rate will be determined based on the distance per kilometer automatically. Usually, it starts from Rp.15,000 (1 Euro), and at the pick-up location, the driver offers passengers clean helmets and face masks. The service is not limited to transporting passengers from point A to point B, but by using the same application users can also use GOJEK as teleshopping transportation means such as food delivery, groceries delivery, and courier service (Sari, 2015).

The breakthrough of app-based technology and added services in transportation system helps the commuter avoid unnecessary travel, and door-to-door services makes GOJEK popular and plays a significant role in providing alternative public transport in the city. However, this new system of transportation increases the competition among IPT operators. As a result, other IPT drivers protest the presence of GOJEK to the government because GOJEK is unregulated and it is not in accordance with the existing law number 22/2009 about road traffic and land transportationwhich does not include the use of motorcycles and private vehicles as a public transport. The IPT operators also claim that GOJEK steals their customers and significantly decreases their income. On the other hand, the government hesitates to allow the operation of GOJEK, since it is considered as an unsafe public transportation.(GlobeAsia, 2015; Freischlad, 2016).

Desperate with the poor condition of public transportation and heavy congestion, GOJEK considered providing a good service for their customers. GOJEK service helps commuters' mobility because now they have an alternative door-to-door IPT mode which is a fast, low-cost transportation for their daily trip. The commuters argue that banning GOJEK services is not a solution for the lack of adequate public transport in Jakarta (Russell, 2015). This conflict of interest among the commuters and other IPT operators has raised government's awareness of the need for providing adequate alternative public transportation for the people by codifying a law that will protect its existence and its customers.

1.2 Problem Statement

The heavy traffic congestion in Jakarta is not only causing financial loss but also a psychological burden on the citizens. Even though the government has introduced applicable solutions such as Electronic Road Pricing (ERP), three-in-one system, upgrading the commuter line, and increasing the number of Bus Rapid Transit (BRT) units, traffic congestion remains a problem and IPT mode plays a significant role in commuter mobility and activity. Joewono and Kubota (2007) in their research identified that the technical and rational reasons are not the only main causes of the congestion. They argued that the behaviour of the passengers in choosing transportation mode has a bigger role in affecting the transport system in Jakarta.

Building upon the related research by (Joewono and Kubota 2007; Joewono and Kubota 2008) who studied the user perception and user satisfaction with regard to IPT level of service in Indonesia, this study will investigate the IPT services including GOJEK as a new IPT mode which becomes popular and is rising in demand. At the moment, there is no law that protects and accomodates motorcycle taxi services that are based on a ride-sharing application such as GOJEK. Consequently, the government faces a wide criticism for their handling of the legal aspect of ride-calling applications.

On the other hand, there is a risk when the policy comes up to the public, since there is no available data and studies that deeply discuss why exactly the Jakarta's commuters prefer to use the new IPT alternative like GOJEK rather than other IPTs. There is a possibility that the policy may eliminate the GOJEK's convenience factor. Learning from a similar case related to taxi system in Addis Ababa, Ethiopia where the government regulates the self-developed taxi in the city, Redie (2014) found that after the regulation, the taxi drivers were required to use a fixed route. As a result, the commuters lose the convenience of the taxi service regarding the short travel time and availibility since the drivers can no longer use shortcuts and tend to be trapped in the congestion.

In order to improve urban transportation to make it accessible, available, and convenient, the government needs a holistic approach by considering the commuters' perspective of the transportation level of service. Since people in Jakarta are still highly dependent on IPT services to travel inside the city, this study aims to explain the main factor in service delivery that influences the commuters in Jakarta to decide their mode of IPT. Until today, no sufficient and updated research has been conducted to assess the service delivery of IPT modes, including GOJEK in Jakarta. This is, therefore, the reason why the researcher becomes enthusiast to dig the issue.

1.3 Research Objective

This study is designed to explain the determinant factors and reasons behind commuters' perception to use Intermediate Public Transport as a choice of mode in Jakarta.

The main research question and sub-research questions below are the final research questions. The previous provisional research question can be seen in the appendix.

1.4 Main Research Question

Which factors explain the choice of Intermediate Public Transport mode for commuting in Jakarta, Indonesia?

1.4.1 Sub Research Question

1. What are the traveling characteristics of IPT users in Jakarta?
2. Does the perception of IPT users significantly differ from the perception of the non-users/occasional users with regard to commuting by a particular IPT mode in Jakarta?
3. How do commuters perceive the different aspects of service level of different IPT modes in Jakarta?

1.5 Significance of the Study

IPT contribution to commuters' accessibility and mobility is important to cover the lack of the public transportation and covered service area. This result of this research will serve as an input for policy and planning formulation to encourage the improvement of urban transportation in Jakarta and Indonesia as a whole. By determining the levels of service attributes and how the perception of the commuters affects the choice of IPT modes in Jakarta, the government can have some information as a guidance in the policy making process to improve and integrate public transportation and intermediate public transportation, encouraging people to reduce their private vehicle use.

Moreover, since studies related to IPT in Indonesia are still limited, this study will contribute to academic and empirical literature on travel demand analysis in Indonesia.

1.6 Scope and Limitations of the study

The purpose of this study is to explain how commuters' perception and level of service of intermediate public transport affects the commuters' choice of IPT mode. This study particularly considers the use of GOJEK as a new system of IPT. This research was conducted in Jakarta, the capital city of Indonesia which is growing fast in terms of population and where urbanization leads to heavy traffic congestion. The study uses questionnaires to sample the commuters and collect their perception of IPT service level and their choice of IPT mode. Even though the study requires a large number of samples to generalize the result, the research will limit the number of the respondents due to limited time in the field work.

Chapter 2: Literature Review

2.1 Introduction

The purpose of this chapter is to provide theoretical review as the background of the research. The academic literature review emphasizes on the concept of public transportation as a factor that supports the accessibility and mobility of the urban area.

This chapter will focus on urban public transportation and its characteristics. It starts by discussing the Urban Transportation System and its characteristics, followed by the discussion of travel behaviour in two different perspectives, factors affecting the choice of mode, and further study of the instrument to measure the service level of public transport. This chapter also considers some empirical literatures on the subject of urban transportation and mode choice and concludes the discussion with a conceptual framework for this research.

2.2 Urban Public Transportation System

In the urban region, transportation is the accumulation of individual trip-making decisions based on the individual travel needs and passengers' mobility during specific periods. The facilities and services in the transportation system are the main factors that allow this mobility to occur. The characteristics of these travel patterns and the facilities and services that support the mobility and accessibility are the basis for understanding the transportation system (Meyer.D, 2001).

According to Pourbaix (2012), there are three different categories of urban travel: public transport, non-motorized transport, and private motorized transport. All of them allow modern cities to exploit the advantages of concentration to provide better goods and services more efficiently and to trade those goods and services in other places, which in turn allow for economic specializations and efficiencies. However, the performance of transportation system in the urban area depends on policy and public investment, and on various daily decisions made by travelers about whether, where, how, and when to travel. Understanding how people make travel choices is the key to understand urban transportation problems and potential solutions. Interestingly, public transport - commonly identified as the backbone of urban transport - surprisingly has low shares regarding actual mobility provision in cities. Estimates suggest that the mode share of all urban public transport trips worldwide was only 16% in 2005.

In general, the presence of public transportation is crucial and the most recommended major strategy is not only to address the problem related to private car dependency such as urban congestion, pollution, environmental sustainability, and global warming. but also to boost the mobility of social and economy activities (Currie and Wallis, 2008). As Glover (2011) explained, public transport was broadly taken to mean transport services made available to the general public. However, Hayashi et al. (2004) explained that the public transportation system in the most Asian developing countries is more dependent on road-based transportation such as bus and IPT modes than on rail or water transportation. The paratransit transportation can be regarded as the common characteristics of Asian transportation system. It represents the wide spectrum of both the motorized and non-motorized transport, which fall between private vehicles and conventional public transportation. In many developing Asian cities, the transportation system hierarchy is developed to meet people's demands and their preference for door-to-door services. This type of transportation service is provided by the IPT and it is growing in poorly-planned urban structures with insufficient transportation facilities. As a result, the transportation modes in Asian countries are more varied compared to those in

European cities, especially in the category of small and medium-volume ride-sharing public transport, for example, three-wheeled taxis and motorcycle taxis.

2.2.1 Intermediate Public Transportation Modes

The public transportation system in developing countries is a mixture of conventional public transportation and IPT. As car ownership in developing countries seems to increase in number, the use of public transport is also increasing. However, unlike in most developed countries where commuters highly depend on conventional public transport such as bus and train, many developing countries have a unique form of IPT, which is mostly privately operated and may not be included in the definition of the organized sector (Thirumurthy and Yamamura, 1986).

IPT service is prominent for its role as a gap filler.; it exists to cover the area that is left unfilled by the public transport services. Often, throughout the developing countries, public transport finds itself in a free-fall of worsening service and decreasing revenues. The absence of regulation and the lack of law enforcement makes the IPT grows and rapidly able to step in and take over where public transport operators have left off (Cervero, 2000).

However, the characteristic of the IPT mode is variously based on the function in the different countries. Usually, the IPT modes are the preferred modes of transportation for the low-income people. In general, the IPT modes can be categorized into three groups based on the capacity of the vehicle. First, the individual type that can load fewer than four passengers. Second, the shared type that can load between five to ten passengers. Third, the collective type that has a capacity of more than eleven passengers (Shizamaki and Rahman, 2000).

The characteristic of the function is different to each group. The individual group provides door-to-door services. On the other hand, the shared and collective group generally have a fixed route to pick up the passenger, but often deviate from passenger demand. The collective group IPT sometimes cut routes to take passengers to the opposite direction.

2.2.2 Characteristics of IPT

- ***Entrepreneurialism***

The IPT is mostly the domain of the private sector or individuals. Occasionally, the driver of IPT owns the vehicles, though in many developing cities the vehicles are leased by the owner to earn profit share from their daily-basis operation. The service is designed and priced based on market mechanism and demand since the operation is purely private; the IPT operation tends to profit-oriented. However, in many cases in the Asian developing countries, the IPT services are managed and coordinated by the formal private company, cooperatives, and private transport associations (Cervero, 2000).

- ***Service Condition***

In many cases, the IPT capacity in carrying passenger is very limited due to the size and type of the vehicles. Even though there is a significant difference in the passenger handling capacities compared to the public transportation, considering the total output of IPT with its large number of operating units, IPT has made an important contribution in urban public transportation. Unlike public transportation, IPT vehicles are not under the obligation to operate on fixed route and may avoid providing service where the number of potential users is low. They are also more maneuverable in busy traffic and can accelerate and decelerate faster compared to conventional public transport like the bus. The IPT operators have the flexibility to operate whenever and wherever it is profitable for them (Shizamaki and Rahman, 2000).

Commonly, IPT operating hour and schedule is not fixed; the working time depends on the driver's need to get passenger or depends on rush hour (Tuan and Mateo-Babiano, 2007). As a result, often to earn more money, specific locations such as CBD, market, or terminal are crowded by IPT waiting for their passengers (Joewono and Kubota, 2007).

- ***Fare***

In general, fares of IPT modes vary widely. Taxicab has the most expensive price compared to other IPT modes in all cities. In fact, most IPT fares are still higher compared to bus as public transportation because most IPT provide door-to-door services and convenient means of travel. According to Shizamaki and Rahman (2000), IPT fare systems can be divided into three categories i.e. fixed, metered, and negotiation. In general, the fare of individual IPT type is agreed by negotiation between the passenger and the driver, and therefore it is highly dependent on the driver's character, location, and time (Tuan and Mateo-Babiano, 2007). However, in the case of shared and collective types of IPT, the fares tend to be fixed rate or metered depending on the type of the vehicles.

2.3 Travel Behaviour

To understand the travel behaviour, a thorough understanding of the reasons for choosing the transportation mode is important (Anable, 2005). In many studies, derived demand is claimed to be the main factor that forms the travel pattern and travel habit of the commuters. However, Banister (2008) states that derived demand is not the single dominant view to be considered in developing sustainable transport system. Feeling or emotion is the factor that contributes to the travel behaviour.

The individual activity is a determinant to understanding the travel behaviour. Identification of their traveling destination, traveling purpose, and their traveling option is the first step to identify their needs of transportation means. According to Wee and Annema (2013), the needs, opportunities, and abilities are the general factors that affect the travel behaviour. The combination of commuter's needs of travelling and opportunities to meet the needs create the commuter motivation to travel. On the other hand, the availability of money, skills, and capacity to choose travel options can be seen as the individual's ability that will form the feasibility of action to travel if the individual's ability meets the opportunities.

The behavioural choice is formed by the inseparable factor of the travel motivation and feasibility of action. However, the travel behaviour is dependent on the choice of the commuter mobility which is influenced by the economic and psychological perspectives. These perspectives imply that individual choice is based on different variables, different resources, and the need to take the best alternative in traveling option depending on the perspective they face.

- **Psychological Perspective**

Psychological perspective emphasizes the motivational factor that influences the travel behaviour. According to Wee and Annema (2013), one of the most influential frameworks in the psychological perspective is the theory of planned behaviour (TPB). This theory of perspective proved to be predictive to some types of behavioural intention in traveling.

The TPB assumes that the form of behaviour is an accumulative pattern of intentions to engage in relevant behaviour. This theory tries to predict and to explain human behaviour by dealing with the possible linkage between attitude, subjective norm, and perceived behavioural control; all of these factors are the variable which determines certain people's behaviour (Ajzen, 1991).

The “attitudes” factor reflects people’s perception into a particular action. This factor depends on belief that certain decision will create a specific logical outcome and how the outcomes are important to them (e.g. driving a car is convenience). The “social norm” factor reflects the product of normative convictions, which the individual’s environment expects of them, and the individual’s motivation to comply with this expectation (e.g. family members). Meanwhile, the “perceived behavioural control” (PBC) reflects the extent of someone convictions is capable of engaging the relevant behaviour. The PBC can influence the behaviour pattern directly and indirectly based on the information given by other people. The TPB assumes that other supporting factors such as gender, age, personality, and general values affect the travel behaviour indirectly via these three factors.

Thus, TPB also shows that the individual’s behaviour is possible to be changed by influencing their attitudes, social norm, and the perceived behavioural control. Verplanken et al., (1997) added that another factor such as habit also has a dominant influence on the travel behaviour. It shows that, when the habit is weak, the intention affects the behaviour more strongly than when individual’s habit is strong.

The TPB theory is focused on the individual’s motivation influencing the travel behaviour. Criticism by different studies said that travel behaviour does not depend only on motivation. The contextual factors can accommodate or restrain the travel behaviour by influencing people’s opportunities of using the transportation means. For example, the congestion cost on a particular main road will influence the travel behaviour. These contextual factors need to be identified vis-à-vis to the individual motivation to figure out the variable that is strongly related to the travel behaviour.

- **Economic Perspective**

The economic perspective emphasizes on the economic preference-based approach to the domain of transportation. For travel behaviour, the attribute that is considered influential to the economic preferences is not only the price per kilometre, but also many other variables such as the value of travel time, price, time, and income elasticity.

According to Small and Verhoef, (2007) the value of time is the basis for commuters to make a trade-off between fare and speed when the commuters face various travel options. A different commuter has a different value of time. The transport option that they make is based on the purpose of travel, activities, situational condition, and economic condition.

The price elasticity is defined as the sensitivity to the tariff of good and service itself. The fluctuation of the price and cost of one travel option can affect travel behaviour. Higher the price of a transportation mode may encourage people to choose the cheaper mode of transportation. On the other hand, the travel time elasticity points out that the travel behaviour depends on the travel duration and the speed of travel. A decrease of travel duration by a certain percentage will lead to the increase of the total distance traveled by similar percentage. Hence, the travel time remains about constant, but the travel distance will increase (Zahavi, 1979).

Meanwhile, income elasticity is the influence of income level on transport demand. Rietveld, (2001) explains that there is a linkage between people’s income and travel purpose to their option of transportation mode. As income increases and people become rich, their transport mode tends to be more expensive or they will choose the more expensive version of the same transport mode depending on the purpose of the trip and the service provided by the transport mode.

From the economic perspective, the individual’s choice depends on various decision-making options that give them the greatest possible benefit in traveling and how they assess their travel option and their travel advantages (Olsson, 2003).

From both perspectives explained above, the psychology perspective covers a broader range of the travel behaviour subject than the economic perspective. The psychological perspective elaborates the core reasons and results of behavioural choice more than the economic perspective. On the other hand, the economic perspective emphasizes the consumer's rational thinking of travel options. The economic perspective also confines its concept to the financial, opportunity, advantages and disadvantages aspects, while the psychology perspective focuses on the software factors such as motivation, ability, and norm.

2.3.1 Perception in Travel Mode

TPB from the psychological perspective explains that the individual factors encourage people to choose a particular travel mode. This theory assumes that the choice is also dependent on the individual's perception of his or her ability to execute certain behaviour. TPB has made it possible to explain the choice of travel mode. According to Olsson (2003), to predict people's decision to choose certain options, the researchers need to indicate a specific measurement in the individual's perception. Steg and de Groot (2010) prove that subjective norm of people plays a significant role in influencing the perception of a mode of travel. The more positive the subjective norm for a specific mode of travel is, the more people choose the mode.

Obviously, people's travel behaviour and decision does not depend on motivation alone. To truly capture the individual's perception, researchers use several approaches to indicate the personal decision in making the mobility choice. Vredin Johansson et al. (2006) stated that convenience, safety, and flexibility are strongly related to the public transport passenger perception in determining the choice of mode. Likewise, Santos' (2008) research also found that the service quality of public transport can strongly influence people's decision-making process.

In addition, Gray (2008) describes that people's perception of popular transportation mode influences their decision about the transportation itself. Several key factors considered by passengers in using a particular transportation include safety, comfort, accessibility, reliability, cost, and efficiency. They are important in determining what service type should be considered in a specific area.

Perception based on explanatory variables such as service quality and socio-economic factor tend to be convincing factors among the frequent users of the urban transportation system (Monticone and Bierlaire, 2011). A similar approach is also found in the empirical research in the context of public transport passengers attitude (Joewono and Kubota, 2007). Based on the description, good level of service quality tends to give a positive impact on paratransit passenger satisfaction.

However, the discussion above prompts a question: What is perception regarding the travel mode? Perceptions are concerned with images, and is ultimately formed in the transport users' mind (Heffner et al., 2006). The image includes what the users can see and all things that are covering the users' sense. The important part of the image realization is the distinctiveness of the product or service itself (Hess, 2008). Therefore, the image delivers a mental basis for consumers' judgment. The positive images have strong influence in changing the users' perception, building an emotional connection, and changing the users' behaviour. Sumaedi et al. (2014) also found that there is a solid connection between service quality, perceived sacrifice, and image. The image formed in the users' mind through a procedure where combination of information was processed and saved as the basis of judgment and decision about whether the service is capable of meeting its functions.

2.3.2 Level of Service

Many modern systems of public transport performance indicators focus on operating efficiencies such as load factors and cost per vehicle-kilometre instead of service delivery experienced by users such as convenience, comfort, travel time, reliability, and affordability (Dhingra, 2011).

It is undeniable that level of service in transportation system represents the passengers' perception of the transport performance (Currie and Wallis 2008). The level of service concept has been connected to the transport mode system, and it represents how the service meet the passenger expectation (Geetika, 2010). The level of service can be described by various extensive types of attributes which can be affected by the transport operators and the regulation (Neil Paulley, Richard Balcombe, 2009)

The level of service measurement is a very useful instrument to assure the continuous upgrade of the quality of transportation system services delivery. Subjective and objective measurements can be the tools of evaluation to assess the service improvement of the transportation system. Subjective measures are based on user perceptions, and objective measures are represented by separate performance measures that are stated as numerical values, the value of performance compared to the benchmark, or the previous performance value (Eboli and Mazzulla, 2013).

Measurement of service performance is necessary in various ways such as to assist the transportation system performance evaluation comprehensively, evaluate the performance of the transport system management based on community objective, set a service quality standard in the management control system, and facilitate the requirements from the government authorities and transportation authorities related to accountability. Many researchers state that decreasing users of transportation system indicates the unattractiveness of the transport service itself due to the inability of the transport system to comply with the essential service level that is expected by the users. As explained in the previous subchapter, factors of service quality are important in any transport mode due to its influence on passengers' choice of mode.

The level of service measurement is widely used in transport planning. There are various names for this, including "performance indicators" or just "transportation statistics". In spite of the term of the instrument, appropriate set of service level data needs to be collected continuously for appropriate evaluation purposes.

The level of service evaluation can reflect various perspectives. Commonly, the indicators reflect user perception, including comfort level, travel time, reliability, affordability, integration, and satisfaction. The evaluation is simply a quantitative breakdown from transportation users' perspectives. This evaluation helps the transport system operators to indicate which service quality indicators are considered most important by their users (Dhingra, 2011). However, there is a weakness in this kind of measurement; it's because of strong subjectivity of the user's judgments to the services and less attention to the non-users' perception (Eboli and Mazzulla, 2013).

2.4 Factors that Affect the Choice of Mode

There are various factors that affect people's choice of transport mode. Some research identified that travel time, fare system, cost, and comfort as the most significant attributes. These factors range from transport-specific factors to individual-related factors. These factors

can be classified into several different groups i.e. hard and soft factors, internal and external factors, subjective and objective factors, and standard trip factor.

In some research methods, separation of hard and soft factors is common because hard factor is much easier to measure than the soft factor. The traditional travel mode choice model often uses hard factors based on theory of maximization of utility. Aspects like travel duration, fare, and waiting time are the common measurement in the hard factors. On the other hand, soft factors highlight the psychological factors such as comfort, motivation, etc. (Olsson, 2003 citing Locar-Lucassi, 1998).

Internal and external factors in the travel mode choice have a wider range of factors to analyze, particularly in internal factors. External factor underlines the traveling time and cost. On the other hand, internal factor includes socio-economy, demography, attitude, habits, and perceived level of control (Olsson, 2003 citing Nilsson, 1998)

Alternatively, travel option factors are divided into objective and subjective factors. The objective factor includes hard factors such as cost, time, etc., and soft factors such as information, convenience, etc., in the objective factor measurement. Age, gender, and purpose of travel or other socio-economic factors are often included into the objective factors. Meanwhile, the subjective factors emphasize factors that are based on the individual's perceptions such as characteristics, attitude, and lifestyle that are more difficult to measure (Olsson, 2003 citing Rystam, 1998; Magelund, 1997).

Another way to identify factors that influence travel option in public transport is by describing the attribute of transport to the timetable attribute. This way will explain the travel time interchange, the comfort attribute (feeling, sight, and hearing), the onboard services (entertainments and catering), the safety attribute (the traffic safety and personal security), and the quality satisfaction (punctuality, impression, and tidiness) (Olsson, 2003 citing Kottenhoff 1999).

Even though each literature shows a various method to cluster the factors that influence the travel mode choice, Olsson (2003) classify and describes the factors according to the affectability which include the Environment-specific factors (topography, weather, access), transport-specific factors (timetable, parking facilities stations), quality factors (safety, security, standard of the transport system), measure affecting choice of travel (marketing, communication, mode-specific, and policy measure), individual specific factors (age, gender, income), and trip specific factors (reason for the trip, luggage, errands).

2.5 Measuring the Service Level of Urban Transport

According to Litman (2009), there are three indicators of the service level of public transport i.e. service quality measure that measures the user perspective of the public transport quality services, outcome indicators that reflect the output, and an indicator of cost efficiency which reflects the ratio of cost and benefit. However, Parasuraman et al. (1990) argues that in measuring the transit level of service, the costumer's perspective should be considered. Customers evaluate the service in various ways that may not be systematically linked to the use of the service. The effectiveness and efficiency indicators that are mostly used to assess the performance level often generalize the service quality (Hensher and Wong, 2011).

Many kinds of literature use different indicators to measure public transportation service level and evaluate passenger satisfaction. It can be divided into several categories of service level (Transport Research Board, 2013) such as:

- Time that includes travel duration and transfer time;

- Availability that includes service coverage, service denials, frequency, and hours of services;
- Service delivery that includes reliability, comfort, passenger environment, and customer satisfaction;
- Safety and security that include safety device inventory and vehicle accident rate;
- Cost or fare

Another indicator to measure the service level delivery may be provided in a different way, for example Eboli and Mazzulla (2013) and the Transport Research Board (2013) give a description and level of service range for several service measures as follows:

- **Service availability**

This service category reflects the characteristics of vehicle path and coverage, number of fleets, travel time, services option, service accessibility, and waiting time. Service availability and accessibility is a factor that determines whether a public transport becomes favorable or less likely to be an option for the passenger. Ideally, the service can be reached in moderate walking distance from departure location to arrival location.

- **Service reliability**

Reliability of the public transport services can be interpreted as the ability to maintain consistent travel time and punctual schedule, as Beirão and Sarsfield Cabral (2007) state that tardiness of arrival makes the service unreliable and resulting in the additional travel time and waiting time. Service reliability in terms of travelling time is a significant component that shapes the perspective of transportation means. Other important components are time spent in waiting, walking, and transferring modes, which are viewed as time-consuming compared to the time spent in the vehicle (Wachs, 1976).

- **Comfort**

Comfort in public transport means the passengers are provided with physically good vehicle condition, clean seats, smooth ride, and additional amenities that support passengers' trip experience.

- **Safety and security**

The safety and security aspect is safety from the accident, crime, and feeling of security from the behaviour of other people. According to Solomon (1968), safety during the travel may not be a factor that affects the modal choice. Likewise, the possibility of becoming a victim of an accident or being involved in a crime incident is not considered as the determinant of the transport option. However, when a passenger is asked about the safety and security importance, this factor is considered as enormously significant in the public transport operation.

- **Fare**

Fare or price is the amount of money to be paid when the passenger uses the services; it includes the payment system (cash, voucher, or card), discount fares availability (e.g. for students, retirees), and discount volume (e.g. monthly prepaid). Even though the price rate may be different even in the same type of public transport means, the price is not considered as an important aspect that can change public transport vehicle decision, except for the low-income passengers who depend on cheap public transport (Beirão and Sarsfield Cabral, 2007).

- **Information**

Information service or information center linked to service quality, clear information of the departure and arrival schedule, route, transfer spot, fare, access to location, and how to use the services is crucial for the passenger in deciding whether they will use the transit services (Transport Research Board, 2013).

- **Customer care**

Customer care is the service that makes the trip easier and enjoyable; it includes the appearance of the operator staff, polite and experienced driver, supportive travel agent, the response to customer complaint. These are related to information service. The indicators that can be used are the number of response to complaints and questions, the accessibility of customer care staff, and the number of the staff.

2.6 Empirical Literature Review

The large number of of literature on modal choice demonstrates how the service quality level affects commuters' decision-making in transit mode. Various models, approaches, and techniques have been used to assess public transportation quality service level, especially from the user point of view in developing countries.

Van et al. (2014) conducted a study to examine the contribution of psychological factor in explaining the transport mode choice in the Philippines, Vietnam, Japan, Thailand, China, and Indonesia. The study uses the explanation of three variables. First is the symbolic affective which represents the prestige values, at the same time comfort and relaxation associated with affective feelings. Second is instruments that consist of beliefs such as usefulness, convenience, simplicity, and speed. These factors represent the functional attributes of the travel modes. The third variable is the social orderliness aspect of travel modes such as environmentally friendly, safe, altruistic, and quiet. Based on the combined studies in all those countries, the research reveals that all psychological perspectives are strongly connected to the intention and behaviour regarding commuting mode choice. The result also confirms the theory of planned behaviour (Ajzen, 1991) which explained that the attitude may be a forecaster of behavioural intention.

Noor et al. (2014) reviews the customer satisfaction with public transport in Malaysia by analyzing 24 satisfaction variables such as convenience, time punctuality, physical condition of public transport vehicle, fare, waiting time, driver hospitality, safe feeling, etc. between minibus and transit bus. This research was successful in improving three main dimensions of public transit service satisfaction attribute i.e. comfort, accessibility, and safety. This study concludes that user perception of transit service has a major role in affecting the decision on the modal choice. The key finding in the research is the accessibility to reach the public transport, and the schedule reliability is a key issue that needs to be addressed. Moreover, user convenience and comfort also determines consumer preference of public transports.

2.7 Conclusion

There are many researches that include people's travel behaviour as the determinant in commuter's choice of mode. Each study related to travel behaviour and choice of mode has its own characteristics depending on the condition of the location, socio-economy, infrastructure, etc. It can be assumed that the choice of IPT mode is potentially affected by several factors. This literature review helps to identify those key factors that determine commuter decision-making process in travelling.

As in the above discussion, the psychological perspective explains that attitude, social norm, and perceived behavioural control are the key factors that form people's motivation and beliefs in certain transport mode that in the end resulting in the logical outcome based on their individual capacity. On the other hand, the economic perspective highlights how people make their trip decision based on the greatest possible advantages that they can get from certain travel

options. The price elasticity, income elasticity, travel time, and time elasticity are the main factors that are the biggest consideration for the people in deciding a particular way of traveling.

Even though both of the perspectives describe a wide range of factors related to the travel behaviour and travel option, interestingly, as part of the psychological perspective, the individual's perception has a significant role in influencing the choice of mode. The studies in this literature review reveal that the external factors connected to the service level of the transport mode and socio-economic factors play an important part in shaping the individual's perception. The individual's perception is the product of the combination of information from various sources that is used as the basis of judgment and information in people's minds in making decisions. Those studies proved that the individual's motivation in determining the transport mode may strongly affect their perception.

Once the traveler thinks that they receive the maximum benefit from their trip, their decision becomes a habit. Based on the TPB discussed in the literature review, this kind of habit or behavior will determine what kind of mobility type, mobility plan, and mobility mode the people will use.

Besides traveler's perception, the choice of mode is also determined by several main factors, which include purpose of travel, age, gender, individual feeling in terms of comfort, and satisfaction. However, the main finding of the literature review concludes that the level of service of the transport mode which is related to the commuter experience and perception is the catalyst factors that trigger the commuter's consciousness in choosing their way to travel. In conclusion, from the discussed studies, it can be assumed that the availability, reliability, comfort, safety, fare, information, and customer care are the most vital attributes in transportation level of service.

2.8 Conceptual Framework

A conceptual framework is a visual and/or written product that explains the concept, assumption, expectation, beliefs, and theories that informs by variables and indicators and recognizes the connection between them as the basis of the research (Robson, 2011).

This research was conducted in Jakarta where the major transportation modes are dominated by the IPT. There is a much wider range of studies related to travel behaviour and choice of mode that mention that external factors beyond individual motivation and transportation system itself can affect people's choice of mode. For instance, Pelzer (2010) highlights the socio-economic factor that affects people's commuting behaviour by non-motorized transport such as bicycle. The urban form was also taken into consideration which influences the household behaviour in Canada in choosing a particular mode of transport and route for their daily transport (Curtis and Perkins, 2006). Natural factors such as weather and temperature/ also play indirect roles in people's behaviour (Pikora, Giles-Corti, et al., 2003).

Nonetheless, since this research was conducted in a particular location, a particular mode of IPT, and a particular group of IPT users, it will focus on the factors that are already discussed in the literature review and set aside the broader factors such as urban form, environment, and natural aspect. Even though the literature reviews also show many factors which can affect people in making a decision about IPT as a transport mode. This study will specifically explain the level of service as the determinant factor in commuters' considerations.

In this study, the attempt to investigate people's tendency toward a choice of mode is by involving commuter's perception of IPT mode. As discussed in the literature review, perception provides a foundation in assessing the commuter's behavior in making the travel

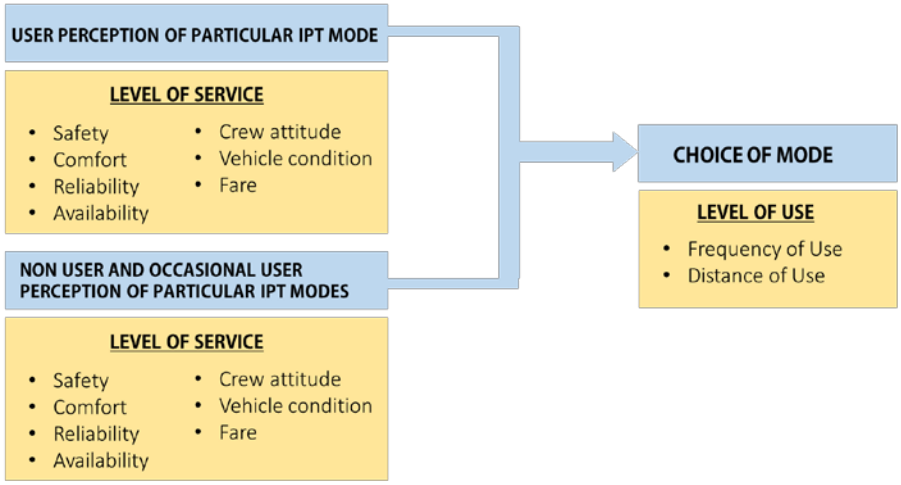
mode selection. The value of perception may change the final decision of the commuters in choosing a particular IPT based on different information and different situation. Even though perception may be affected by commuter's experience in using IPT, it does not always need experience to make commuters produce a certain judgment about the choice of mode.

Therefore, the TPB explains that people's conviction in their mobility plan is, in turn, is a consequence of the information given by various sources (perception) and may be affected by experience. The perception component is valuable in predicting people's behavior in choosing a particular transportation mode (Garling and Fujii, 1999).

It is undeniable that some researchers use a different methodology to identify the connection between perception and choice of mode. Some researchers study the connection between perception of level of service with the choice of mode in Indonesia by exploring the transport user's perception and their loyalty to it (Joewono and Kubota, 2007). Another study use traveller's perception of satisfaction with the transport service to predict the future choice of mode in Indonesia (Joewono and Kubota, 2008). Built upon both of the research, this study uses an approach that investigates the connection between perception and the choice of mode. However, to deeply understand the influence of the perception of the choice of mode, this study divides the perception into two variables. First, the user perception of a particular IPT mode and, second, the non-user/occasional user perception of a particular IPT mode. This separation is necessary because people may use, occasionally use, and not use the transport mode for various reasons, which are different from case to case and place to place (Le-Klähn et al., 2014). The separation of the user categories provide a detailed insight of why a particular user category picks a particular IPT mode, their precise perception of IPT level of service, and whether there is a significant difference between user perception and non-user/occasional perception of level of service in the IPT modes.

Moreover, in this research, the level of service is elaborated to detail the safety, comfort, reliability, availability, crew attitude, fare, and vehicle condition. By deeply evaluating the level of service issue from IPT user and non-user/occasional user perception, the determinant factors in the choice of IPT mode can be studied.

Figure 2. Conceptual Framework



Chapter 3: Research Design and Methods

3.1 Introduction

This chapter presents a description of the methods and steps employed in the study. It commences with the operationalization of variables and indicators, specifies the sample size and sampling techniques as well as the procedures used in data collection. This chapter further gives a brief description of the study area and the techniques used for data analysis.

3.2 Operationalization of Variables and Indicators

According to Straits and Singleton (2011), operationalization is detailed descriptions of the research operations or procedures necessary to assign units of analysis to the categories of a variable to represent conceptual properties.

In this research, the characteristics of transport services have been operationalized as the level of service that includes the safety, comfort, availability, reliability, availability, crew attitude, vehicle condition, and price. These variables are selected from the previous study by Sumaedi et al. (2012) about travel behavior of paratransit users in Indonesia. The study revealed that the service quality level and service condition strongly influence the commuter's preference in choosing the transport mode. This level of service may directly or indirectly influence the commuters' preference of transport mode trough their perception of IPT in Jakarta. The study also explained that the service improvement probably affects the user's future choice in IPT mode, and it also underlines that public opinion about the level of service is useful to bridge the difference in perception between users, stakeholder, and policy makers. However, unlike the previous studies of IPT in Indonesia that mostly discussed the effect of level of service on specific transport mode such as minivan (Joewono, 2006; Sumaedi et al. 2012; Sumaedi et al. 2014), this research will pay attention to car taxi, three-wheeler taxi, conventional motorcycle taxi, and GOJEK, which are not required to use the fixed route.

The table below shows the operationalization of concepts with the variables and measurable indicators. There are several advantages and disadvantages of conducting the survey using significant number of variables. Some of the disadvantages are related to imperfect responses of the respondents, and long formulation of survey instrument and questionnaire which is time-consuming for the surveyor.

In the questionnaire, the questions are divided into three sections.Section I contains questions related to respondents' characteristics. Section II contains questions related to respondents' perception of each IPT mode's level of service. Section III contains questions that are related to IPT usage level which includes usage frequency and travel distance. All of the levels of service indicators shown in Table 1 below were asked by using the scale rating in order to make it easier for the respondent to respond to the questions.

Table 1.Operationalization Table

Concept	Variable	Sub Variables		Indicators	Source
Travel Behaviour	**User Perception**	Level of Service	Safety	• Safety from traffic accident • Safety from crime while riding	Sumaedi et al. (2014)
			Comfort	• Comfort on board	
			Reliability	• Adequate number of IPT • Waiting time • Travelling time • Obedience to traffic regulation • Pick up adherence and punctuality	
			Availability	• Operation hours • Operation area of IPT (station and coverage)	
			Crew Attitude	• The drivers are polite • The drivers are willing to help the passengers	
			Condition of Vehicle	• The IPT has modern appearance and equipment • Mechanical condition	
			Price	• Cost of fare	
	Non-User /Occasional User Perception	Level of Service	Safety	• Safety from traffic accident • Safety from crime while riding	Sumaedi et al. (2014)
			Comfort	• Comfort on board	
			Reliability	• Adequate number of IPT • Waiting time • Travelling time • Obedience to traffic regulation • Pick up adherence and punctuality	
			Availability	• Operation hours • Operation area of IPT (station and coverage)	
			Crew Attitude	• The drivers are polite • The drivers are willing to help the passengers	

Concept	Variable	Sub Variables		Indicators	Source
			Condition of Vehicle	• The IPT has modern appearance and equipment • Mechanical condition	
			Price	• Cost of fare	
	Choice of IPT Mode		Frequency	• Number of IPT used for daily activity or daily need per week	
			Travel Distance	• The distance covered by IPT to support daily activity per trip	

3.3 Research Strategy

Travel behaviour in this research is based on three variables, namely user perception, non-user/occasional user perception, and choice of mode. This study employs a survey research strategy that is used to describe the characteristics of particular cases or aspects in the larger population which involves quantitative information and several independent variables that strongly affect the dependent variables (Gable, 1994). According to Pinsonneault and Kraemer (1993), survey research is appropriate for the study in which the central research questions are "how," "what," and "why." Specifically, this study seeks to address the most influential factor in Level of Service and perception that affects the commuters' decision to use a particular IPT mode. This is why the survey research strategy method is the most suitable mechanism to use.

Regarding the time dimension, the survey strategy consists of cross-sectional research, longitudinal research, and retrospective research. Cross-sectional research collects data from a sample population at a single time, comparatively in a short period and performs evaluations across the concerned variables. Longitudinal research (which consists of subtypes i.e. trend studies, cohort studies, and panel studies) is a mechanism to collect the data at more than one point at a time and performs evaluation trough the time. On the other hand, the retrospective surveys mechanism involves collecting the data in two different time spans and making comparisons between the past and current time for cases in the set of data. In this mechanism, the researcher's purpose is to replicate the longitudinal study by gaining data in more than one period (Johnson, 2001). In addition, surveys are flexible instrument that can generate qualitative and quantitative information depending on how the instrument is structured and analyzed.

Nevertheless, the use of survey to complete research may be confronted with some limitations and challenges. For instance, the ambiguous responses and omission of responses in certain questions (Mathiyazhagan and Nandan, 2010). The imperfect replies of the respondent may occur because of the education background, making it difficult to generalize information on variables, and making it hard to measure. Particularly, the sub-variables of perception of the level of service which plays a significant role as the determinant in the choice of mode research is hard to be delivered eloquently trough the survey method because it involves a large number of questions and respondents. Once the survey process is started, it will be difficult to modify the questions if some questions need to be eliminated or are ambiguous to be understood by the respondent (Gable 1994). The core of this research is to establish the connection between

perception of level of service and IPT as a choice of mode. To achieve theobjective, this research will collect quantitative data trough structured questionnaire as the main premise of this research.

3.4 Data Collection Method and Sampling

3.4.1 Sampling Techniques and Sample Size Selection

According to the Jakarta local government, the population of Jakarta in 2014 was about 10 million and the number of workforce is about 4.72 million. However, the exact number of people who use urban public transportation is unknown.. Based on this fact, this study employs the non-probability data sampling techniques. This study takes the sampling population from the workforce population. Thus, the Slovin formula will be used to collect quantitative data from the population.

Based on the formula, with tolerance of error of 8%, the number of sample population will be at least or minimum 156 samples. Moreover, for the triangulation process, the author will conduct in-depth interviews with minimum 3 of the IPT mode users. In the field work, the commuter will be randomly selected and screened by asking screening questions about their experience and perception of using the IPT. Based on their answers, they will then be categorized into users and non-users/occasional users. The IPT users will be defined as the commuters who use IPT services i.e. car taxi, three-wheeled taxi, conventional motorcycle taxi, and GOJEK on daily basis, 3-6 times a week and 1-2 times a week, while the non-users are the commuters who never use the particular IPT mode and occasional users are the commuters who use a particular IPT mode 1-2 times in a month.

3.4.2 Data Collection Method and Instrument

This research used the questionnaire as the main data collection method. The structured interview method used is the closed-ended question and in-depth interview to collect revealed preference data from the commuters. The questions were read and written in the Indonesian language since most of the population did not understand English.

In the questionnaire structure, the main questions will be divided into three main sections i.e. the respondent's characteristics, the respondent's perception of the IPT level of service, and the IPT level of use by the respondents. In the respondent's perception section, they are expected to answer the questions based on the information they have in mind related to the IPT level of service. In the second section of the questionnaire, the respondent will respond by using ordinal measure. In the third part that is related to the frequency of use and travel distance, the respondent will respond by using nominal measure.

3.5 Validity and Reliability

Neuman (2003), refers to reliability as dependability or consistency. It is proposed that the same result will occurr under the same condition. Meanwhile, the validity refers as truthfulness and accuracy. It refers to how well ideas are matched with actual reality. There are two main forms of validity that are also strongly related to reliability; namely internal validity and external validity. Internal validity means that the researcher does not make any internal errors in the research design in order to produce credible conclusion. External validity means that the

researcher can generalize the result found in a particular small group to a bigger range of situation and different population.

In the questionnaire data collection method, there is a possibility that the interview presupposition will affect the reliability of response, resulting in socially desirable responses. This presupposition can result from the way the questions are asked by the interviewer. Regarding the reliability, the method used in selecting the sample should be replicable or repeated at different times and places using similar procedure. This research assures the validity by designing the questionnaire based on the indicators in the operationalization. Gathering data using both questionnaire and interview from the respondents ensures data triangulation in order to meet the required validity. The questionnaire was also tested before it was distributed to the larger number of respondents to prevent ambiguity and to make sure that the questions are easily understood by the respondents.

Moreover, the questionnaire will use multiple indicators in measuring the same variable to meet the required reliability. The researcher also observes the data collection procedures and applies adequate statistical analysis to test the reliability.

3.6 Data Analysis Technique

Simple statistical frequency analysis was used in this research to investigate and evaluate the level of service from the respondent's perception of the level of service, as the purpose of this research is to explain and investigate the main reasons why the commuters prefer a particular IPT as a choice of mode in Jakarta.

Data was prepared by coding, editing, and then analyzed by using the Statistical Package for Social Science (SPSS). Data was interpreted using the table of frequency and cross tabulation where it was necessary and appropriate. Tables and charts were produced by using the excel sheet; theresult was also interpreted using statistical tests such as multivariate analysis of variance (MANOVA) and Multivariate Regression to find out the connection between the level of service from the perception of the choice of mode.

Chapter 4: Research Design and Methods

4.1 Introduction

This chapter presents the major findings resulting from data collected from the fieldwork. It begins (Section 4.2) with a brief description of the characteristics of respondents and their transport mode choice for travelling in addition to the main purpose of travel. This is followed by an analysis of commuters' perception of IPT level of service delivery (Section 4.3). The next part (Section 4.4) assigns the perception of service level among the group users who use the particular IPT mode. A further analysis of the factors that influenced commuters' choice of IPT is discussed at the end of the chapter (Section 4.5).

4.2 Demography and Travel Characteristics of Respondents

4.2.1 Method of analysis

The purpose of this section is to investigate respondents' demography and their travel characteristics. In this section, simple statistical frequency data and cross tabulation is used as the method of analysis. The result of this section is used to answer the first sub-question: 'what are the travel characteristics of the IPT users in Jakarta?'. The data needed to answer this question was sourced from the questionnaire especially from Section I about respondents' background and Section III about the choice of mode.

4.2.2 Respondents' Characteristics

Respondents' gender, age, monthly income, and weekly transportation cost were generally asked from all respondents who use one or more IPT modes as the transportation of choice to go to work. During the survey period, 245 respondents voluntarily filled the questionnaire, consisting of 153 female respondents (62.4%) and 92 male respondents (37.6%). These respondents were divided into two groups i.e. IPT users and non-IPT users/occasional IPT users. IPT users are defined as commuters who used IPT service every day, 3-6 times a week, and 1-2 times a week. On the other hand, non-users/occasional users were the commuters who use IPT mode services 1-2 times within a month and who never use IPT mode.

Each respondent was asked about their frequency of use of four IPT modes in Jakarta. Based on their frequency of use of each IPT mode, they are categorized as users or non-users/occasional users of taxi, users or non-users/occasional users of three-wheeler taxi, users or non-users/occasional users of conventional motorcycle taxi, and users or non-users/occasional users of GOJEK.

From all commuters asked in the survey, it can be elaborated that the proportion of respondents who are categorized as taxi users was 36.3%, while the proportion of taxi non-users/occasional users is 63.7%. The proportion of three-wheeler taxi users is 14.3% and the proportion of non-users/occasional users of three-wheeler taxi is 85.7%. On the other hand, the proportion of respondents who are categorized as conventional motorcycle taxi users is 29.4%, while the proportion of non-users/occasional users is 70.6%. Lastly, the proportion of GOJEK users is 80.4% and the proportion of non-users/occasional users is 19.6%. Frequencies and cross tabulation were engaged to analyze the respondents' characteristics.

Table 2. Users and non-users/occasional users of IPT mode

	Users				Non-Users/Occasional Users			
	Male (count)	*Female (count)*	*Total (count)*	*Total (%)*	*Male (count)*	*Female (count)*	*Female (count)*	*Total (%)*
Taxi	30	59	89	36.3%	62	94	156	63.7%
Three-Wheeler Taxi	13	22	35	14.3%	79	131	210	85.7%
Conventional M.cycle Taxi	23	49	72	29.4%	69	104	173	70.6%
GOJEK	70	127	197	80.4%	22	26	48	19.6%

A further analysis of the employment status and different respondent categories indicates that the biggest part of the taxi users (50.6%) work in the private sector, while 57.1% of the three-wheeler taxi users work as government employees. Meanwhile, most users of conventional motorcycle taxi (50%) work as private sector employees, and 53.3% of GOJEK users also work in the private sector.

Table 3.Employment status of the respondents

IPT Mode	Employment Status	Users		Non-Users /Occasional Users	
		Count	***%***	***Count***	***%***
Taxi	Self-Employed	8	9%	28	17.9%
	Private Sector Employee	45	50.6%	85	54.5%
	Government Employee	36	40.4%	43	27.6%
Three-Wheeler Taxi	Self-Employed	6	17.1%	30	14.3%
	Private Sector Employee	9	25.7%	59	28.1%
	Government Employee	20	57.1%	121	57.6%
Conventional Motorcycle Taxi	Self-Employed	13	18.1%	23	13.3%
	Private Sector Employee	36	50%	94	54.3%
	Government Employee	23	31.9%	56	32.4%
GOJEK	Self-Employed	29	14.7%	7	14.6%
	Private Sector Employee	105	53.3%	25	52.1%
	Government Employee	63	32%	16	33.3%

Table 4 below shows that most user categories are concentrated in monthly income range of above Rp.5,000,001, where the percentage of taxi users is 59.6%, and the percentage of taxi non-users/occasional users is 40.4%. The percentage of three-wheeler taxi users is 45.7% and the percentage of non-users/occasional users is 47.6%.Also, the percentage of conventional motorcycle taxi users with income range of above Rp.5,000,001 is 47.2% and for non-

users/occasional users the percentage is 47.4%. On the other hand, for GOJEK users the percentage is 45.7% and for non-users/occasional users the percentage is 54.2%.

Meanwhile, the lowest monthly income range is in the category of Rp.4,000,001-Rp.5,000,000, 9% of which are taxi users and 12.8% are non-users/occasional users. As for the three-wheeler taxi users, the percentage is only 14.3% and for the non-users/occasional users the percentage is 11%. Similar proportion is indicated by conventional motorcycle taxi users and non-users/occasional users, where only 11.1% and 11.6% of them belong to the Rp.4,000,001-Rp.5,000,000 income range respectively. Meanwhile, for the GOJEK users the proportion is 13.7% and the smallest share is indicated by non-users/occasional users (2.1%).

Table 4.Respondents' monthly income range

IPT Mode	Monthly Income Range	User		Non-User /Occasional User	
		Count	*%*	*Count*	*%*
Taxi	< Rp.3,100,000	9	10.1%	43	27.6%
	Rp.3,100,001-Rp.4,000,000	19	21.3%	30	19.2%
	Rp.4,000,001-Rp.5,000,000	8	9%	20	12.8%
	>Rp.5,000,001	53	59.6%	63	40.4%
	TOTAL	**89**	**100%**	**156**	**100%**
Three-Wheeler Taxi	< Rp.3,100,000	7	20%	45	21.4%
	Rp.3,100,001-Rp.4,000,000	7	20%	42	20%
	Rp.4,000,001-Rp.5,000,000	5	14.3%	23	11%
	>Rp.5,000,001	16	45.7%	100	47.6%
	TOTAL	**35**	**100%**	**210**	**100%**
Conventional Motorcycle Taxi	< Rp.3,100,000	12	16.7%	40	23.1%
	Rp.3,100,001-Rp.4,000,000	18	25%	31	17.9%
	Rp.4,000,001-Rp.5,000,000	8	11.1%	20	11.6%
	>Rp.5,000,001	34	47.2%	82	47.4%
	TOTAL	**72**	**100%**	**173**	**100%**
GOJEK	< Rp.3,100,000	41	20.8%	11	22.9%
	Rp.3,100,001-Rp.4,000,000	39	19.8%	10	20.8%
	Rp.4,000,001-Rp.5,000,000	27	13.7%	1	2.1%
	>Rp.5,000,001	90	45.7%	26	54.2%
	TOTAL	**197**	**100%**	**48**	**100%**

Table 5.Monthly income range by employment status

	Self Employed		Government Employee		Private Sector Employee	
Monthly Income Range	*Count*	*Percent*	*Count*	*Percent*	*Count*	*Percent*
< Rp.3,100,000	20	55.6%	11	13.9%	21	16.2%
Rp.3,100,001-Rp.4,000,000	5	13.9%	25	31.6%	19	14.6%
Rp.4,000,001-Rp.5,000,000	1	2.8%	5	6.3%	22	16.9%
>Rp.5,000,001	10	27.8%	38	48.1%	68	52.3%
Total	**36**	**100%**	**79**	**100%**	**130**	**100%**

The conclusion of the data shown in Table 3 and Table 4 is, the respondents with monthly income of above Rp.5.000.001 are predominantly- private sector employees (52.3%) and the lowest income or below Rp.3.100.000 is mostly earned by respondents whose job is self-employed (55.6%). The domination of respondents that belong in the highest income category is the reflection of the fact that most users do not have a problem with spending money on IPT mode services.

Table 6.Respondents' weekly transportation expense

IPT Mode	Weekly Transportation Expense	User		Non-User /Occasional User	
		Count	***%***	***Count***	***%***
Taxi	< Rp.100,000	44	49.4%	118	75.6%
	Rp.100,001 – Rp.200,000	7	7.9%	5	3.2%
	Rp.200,001 – Rp.300,000	19	21.3%	14	9%
	>Rp.300,001	19	21.3%	19	12.2%
	TOTAL	**89**	**100%**	**156**	**100%**
Three Wheeler Taxi	< Rp.100,000	20	57.1%	142	67.6%
	Rp.100,001 – Rp.200,000	0	0%	12	5.7%
	Rp.200,001 – Rp.300,000	8	22.9%	25	11.9%
	>Rp.300,001	7	20%	31	14.8%
	TOTAL	**35**	**100%**	**142**	**100%**
Conventional Motorcycle Taxi	< Rp.100,000	39	54.2%	123	71.1%
	Rp.100,001 – Rp.200,000	3	4.2%	9	5.2%
	Rp.200,001 – Rp.300,000	10	13.9%	23	13.3%
	>Rp.300,001	20	27.8%	18	10.4%

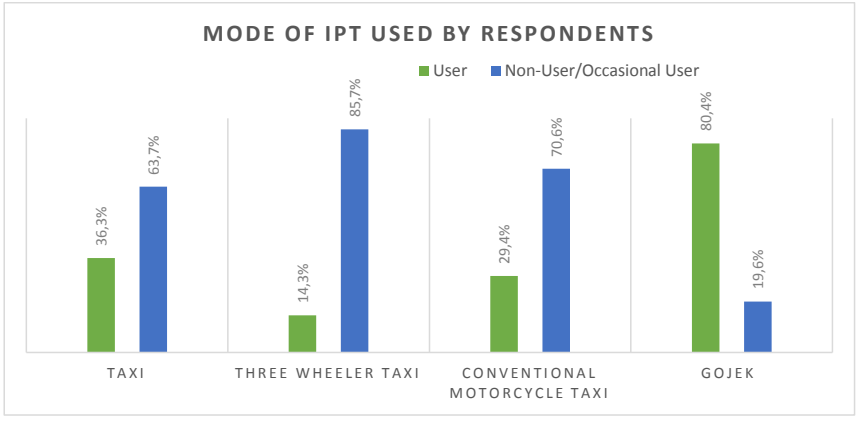
IPT Mode	Weekly Transportation Expense	User		Non-User /Occasional User	
		Count	*%*	*Count*	*%*
	TOTAL	**72**	**100%**	**173**	**100%**
GOJEK	< Rp.100,000	130	66%	32	66.7%
	Rp.100,001 – Rp.200,000	11	5.6%	1	2.1%
	Rp.200,001 – Rp.300,000	26	13.2%	7	14.6%
	>Rp.300,001	30	15.2%	8	16.7%
	TOTAL	**197**	**100%**	**48**	**100%**

Interestingly, even though more than 40% of all user categories have the highest income, Table 5 shows that the majority of taxi users (49.4%), three-wheeler taxi users (57.1%), conventional motorcycle taxi users (54.2%), and GOJEK users (66%) only spend less than Rp.100,000 per week for their routine transport.

4.2.3 Respondents' Trip Characteristics

Respondent's trip characteristics data includes the purpose of travel for each mode of transportation used, mode of transportation chosen, travel frequency, and reasons for combining IPT modes in their trips. Transportation modes used by respondents include private vehicle, bus, GOJEK, conventional motorcycle taxi, three-wheeler taxi, and train. Bicycles are not included as the primary mode of transportation because of the associated risk of sharing the same path or road space with other motorized vehicles and the absence of separate bicycle track infrastructure. This research also reveals that most of the respondents combine and use different IPT to travel inside the city. Of all IPT modes, GOJEK has the biggest share of users compared to other IPT modes.

Chart 1. Mode of IPT used by respondents

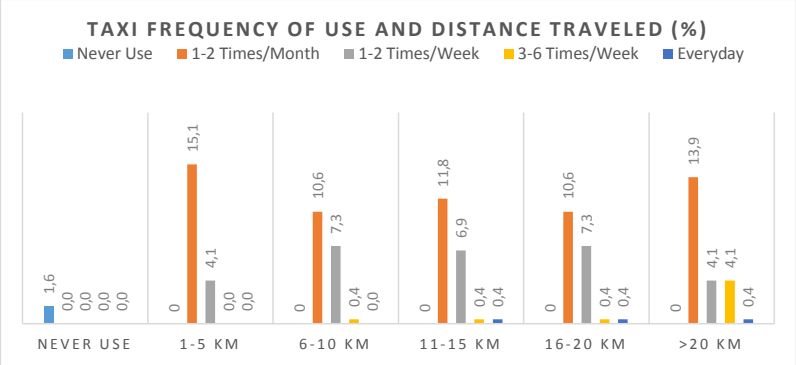


Based on the Chart 1, it can be concluded that three-wheeler taxi is the least-chosen IPT mode. Only 14.3% of the users prefer to use threewheeler taxi for daily traveling, and 85.7% of non-users/occasional users do not choose three-wheeler taxi as their preferred IPT mode. As the data shows, GOJEK has the biggest number of users (80.4%), followed by taxi (36.3%), and conventional motorcycle taxi (29.4%) as alternative IPT modes to travel inside the city.

4.2.3.1 Taxi usage frequency and travel distance

The chart below shows that most taxi users are occasional users who use taxi 1-2 times a month, followed by users who use it 1-2 times a week. The majority of the occasional users (15.1%) use taxi for short distance (1 km – 5 km), followed by above 20 km (13.9%), 11-15 km (11.8%), 16-20 km (10.6%), and 6-10 km (10.6%). Most users who use taxi 1-2 times a week also use taxi for 16-20 km and 6-10 km distance (7.3% respectively), followed by the distance of 11-15 km (6.9%), and 1-5 km (4.1%). On the other hand, the majority of users who use taxi 3-6 times a week (4.1%) use taxi for long distance or above 20 km, while in other groups of travel distance the user number is below 1%. The data is interesting because the use of the taxi is distributed almost evenly in each group of travel distance, especially in the occasional user category.

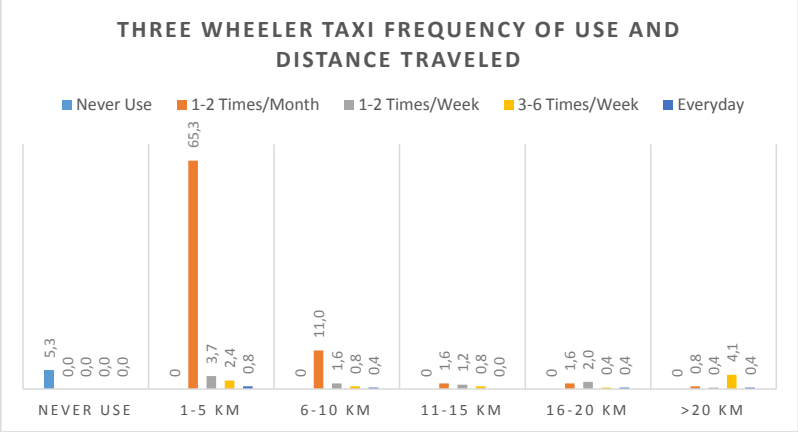
Chart 2. Taxi usage frequency and travel distance



4.2.3.2 Three-wheeler taxi usage frequency and travel distance

Comparable with the taxi use, three-wheeler taxi also was not patronized for daily basis transport. Most of the three-wheeler taxi users are in the category of occasional users who use it 1-2 times a month (65.3%) and use it for short distance (1 km – 5 km), followed by 6 km – 10 km distance (11%). For the long travel distance or above 20 km, the percentage of users who use three-wheeler taxi 3-6 times a week is 4.1%, followed by the travel distance of 1 km – 5 km (2.4%). Meanwhile, most three-wheeler taxi users who use it 1-2 times a week (3.7%) use it for 1 km – 5 km travel. ~~in~~ The rest of the user category and travel distance, the number of three-wheeler taxi users is below 2%.

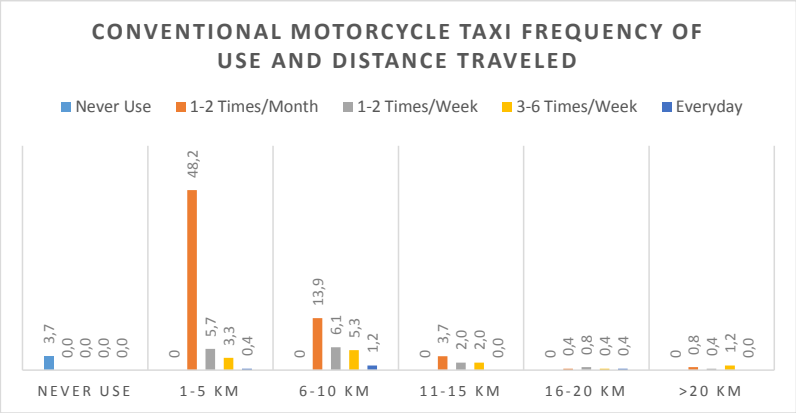
Chart 3. Three-wheeler taxi usage frequency and travel distance



4.2.3.3 Conventional motorcycle taxi usage frequency and travel distance

A similar trend to the three-wheeler taxi usage is also shown by conventional motorcycle taxi usage. The majority of the users belong to the occasional user category (48.2%) who use it for short distance or 1 km – 5 km, and followed by the travel distance of 6 km – 10 km (13.9%), and 11 km - 15 km (3.7%). Meanwhile, most users who use conventional motorcycle taxi 1-2 times a week (6.1%) use it for 6 km – 10 km travel distance, and 5.7% of them use it for 1 km – 5km travel distance. Most users who patronize the conventional motorcycle taxi (3-6 times in a week) use it for 6 km – 10 km distance (5.3%), followed by 1 km – 5 km distance (3.3%), and 11 km – 15 km distance (2%). As for the rest of the user category and travel distance, the number of three-wheeler taxi users is below 2%.

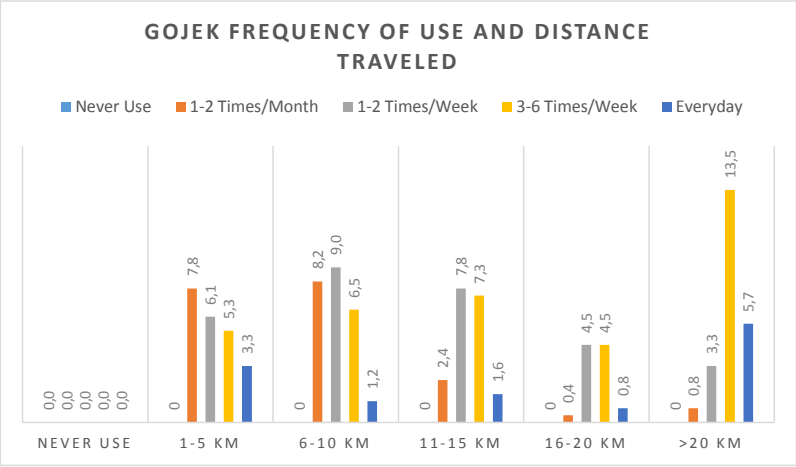
Chart 4. Conventional motorcycle taxi usage frequency and travel distance



4.2.3.3 GOJEK usage frequency and travel distance

Comparatively, based on the data in Chart 5 ~~there is no one among the~~all respondents ~~who never~~ uses GOJEK for their ~~daily~~ activity. Most of the users use GOJEK 3-6 times a week (13.5%) and use it for long distance or above 20 km distance,followed by users who use GOJEK 1-2 times a week (9%) who use it for 6 km - 10 km distance, and users who use GOJEK for daily basis (5.7%) who use it for above 20 km distance. Meanwhile, the majority of the occasional users (8.2%) use GOJEK for 6 km – 10 km distance.

Chart 5. GOJEK usage frequency and travel distance



It can be assumed from the data above that the respondents prefer to use GOJEK for daily travel compared to taxi, conventional motorcycle taxi, and three-wheeler taxi. The users of GOJEK also use it for various weekly travel distance category except for the occasional users who

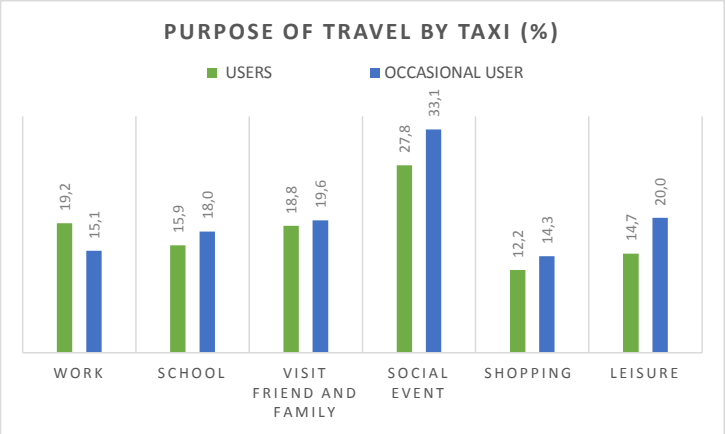
mainly use GOJEK for 1 km – 10 km travel distance. On the other hand, the three-wheeler taxi is the least preferred IPT mode and is mainly used for short distance by the occasional users.

4.2.3.2 Travel purpose by taxi

The survey shows that respondents use different IPT for different trip purposes. In terms of purpose, the types of travel can be divided into three main groups i.e. social activity, economy activity, and education activity, which cover the work purpose, school or study purpose, visiting friend or family purpose, social event purpose, shopping purpose, and leisure purpose (Racca and Ratledge, 2004).

By IPT mode type, taxi is mostly used by respondents for attending social events. 27.8% of users and 33.1% of occasional users use taxi as the preferred mode of transport for social events.

Chart 6. Purpose of travel by taxi



Besides social event purpose, the majority of users prefer to use taxi for work purpose (19.2%), visiting family and friend purpose (18.8%), school purpose (15.9%), leisure purpose (14.7%). The least taxi usage is for shopping activity purpose (12.2%).

The research also shows similar trend among occasional users. Besides social event activity, occasional users also use taxi for leisure purpose (20%), visiting family and friend purpose (19.6%), school purpose (18%), work purpose (15.1%), and the smallest number of occasional users use taxi for shopping purpose (14.3%).

Chart 7. Taxi travel distance for each travel purpose

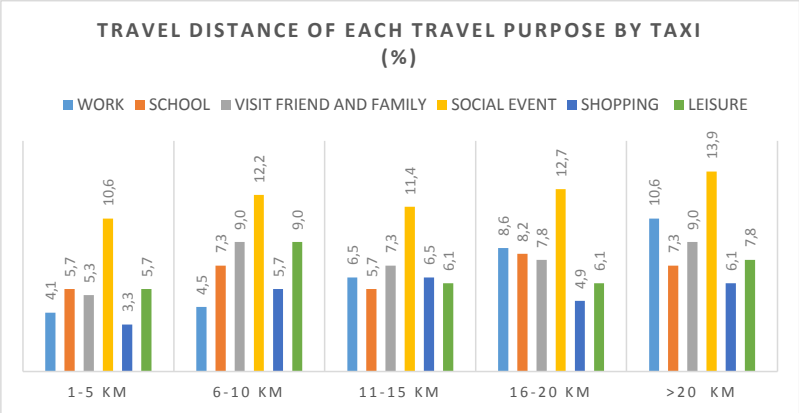


Chart 7 shows the travel distance of each travel purpose by taxi users and occasional users; it shows that there is no significant difference in number of users in the group of travel distance range. It can be said that taxi usage is generally preferred for long distance travel between 16 km – 20 km and above 20 km where most users are still within the social event purpose category.

4.2.3.3 Travel purpose by three-wheeler taxi

Unlike taxi users, the number of users of three-wheeler taxi is relatively very small compared to other IPT modes, because the number of three-wheeler taxi users and occasional users is below 5%. The majority of the users take three-wheeler taxi for work purpose (4.9%), followed by shopping purpose (2.9%), school purpose (2.4%), visiting family and friend purpose (2.4%), social event purpose (1.2%), and leisure purpose (0.4%). As for the occasional users, the majority of them (2.9%) use it for shopping purpose, followed by school purpose and visiting friend and family purpose, which is about 2.4% respectively, work purpose (1.2%), and leisure purpose (0.8%).

Chart 8. Purpose of travel by three-wheeler taxi

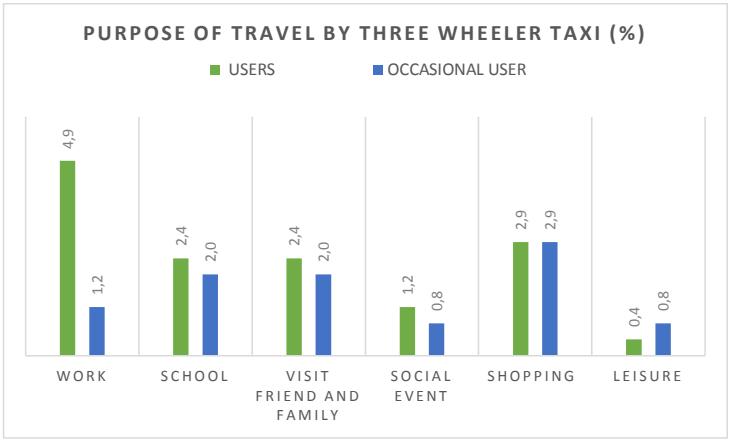


Chart 9. Three-wheeler taxi travel distance for each travel purpose

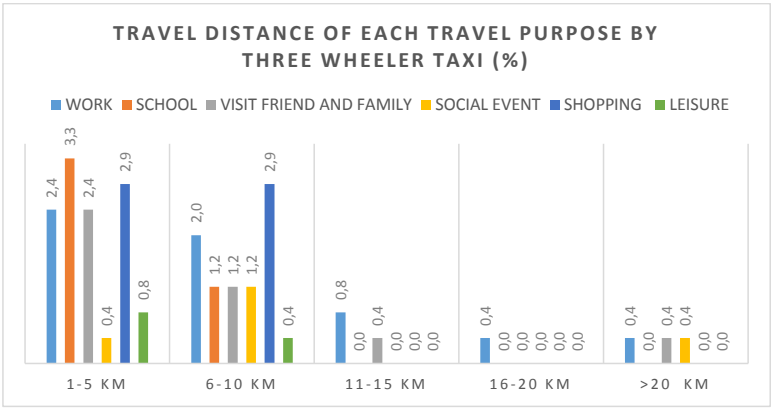


Chart 9 shows that there is a significant difference in the groups of travel distance range where the three-wheeler taxi users and occasional users mostly use it for short distance between 1 km – 5 km and 6 km – 10 km. Most users in those groups of travel distance range take three-wheeler taxi for school, shopping, and work purposes.

4.2.3.4 Travel purpose by conventional motorcycle taxi

The use of conventional motorcycle taxi among all of the respondents is mostly for school and work purposes. As shown in Chart 8, the majority of conventional motorcycle taxi users take it for work purpose (12.7%), followed by school purpose (10.2%), visiting friend and family purpose (4.9%), shopping purpose (3.3%), social event purpose (2.4%), and for leisure purpose is 1.6%.

As for occasional users, the majority of them (18.4%) use conventional motorcycle taxi for school, and 6.1% of them use it for work. Lower rate of conventional motorcycle taxi use is for visiting friend and family purpose (5.7%), and it can be observed that the number of occasional users is not significant for other travel purposes, because only 4.1% of them use it for social event purpose, shopping purpose, (2.4%) and leisure purpose (2%).

Chart 10. Purpose of travel by conventional motorcycle taxi

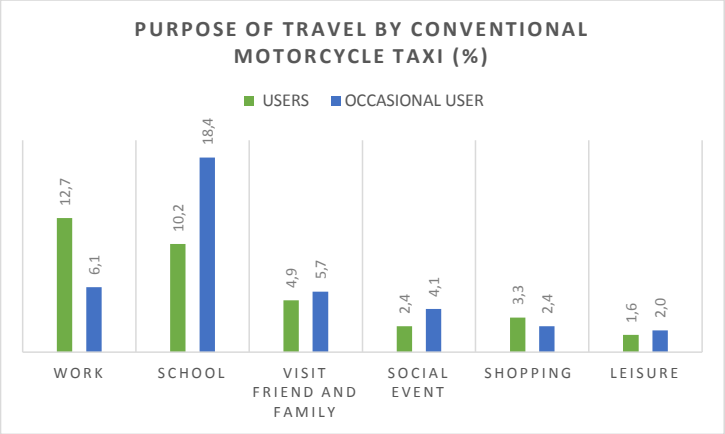


Chart 11. Conventional motorcycle taxi travel distance for each travel purpose

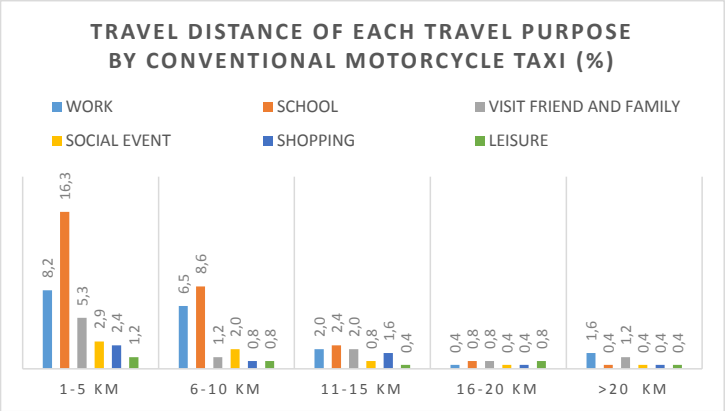


Chart 11 shows that there is a significant difference in the groups of travel distance range. The conventional motorcycle taxi users and occasional users mostly use it for short distance between 1 km – 5 km and 6 km – 10 km, while most users in those groups of travel distance range use conventional motorcycle taxi for school and work purposes.

4.2.3.4 Travel purpose by GOJEK

As shown in Chart 12, the users mainly use GOJEK for work purpose (60%), followed by shopping purpose that includes online shopping purpose (56.3%), and for visiting family and friend purpose (49.4%). 24.5% of them use GOJEK for social event purpose, 22% take GOJEK for leisure purpose, and 17.6% take GOJEK for school purpose.

Interestingly, the data shows that only a few respondents use GOJEK occasionally. The majority of occasional users use GOJEK for shopping purpose (8.2%), followed by work purpose (7.3%), visiting friend and family purpose (6.9%), school purpose (3.3%), leisure purpose (2.9%), and 2.4% of them use it for social event purpose.

Chart 12. Purpose of ~~travel by~~travel by GOJEK

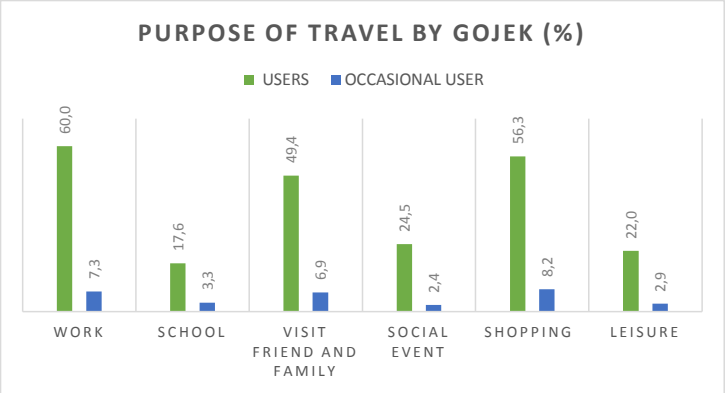


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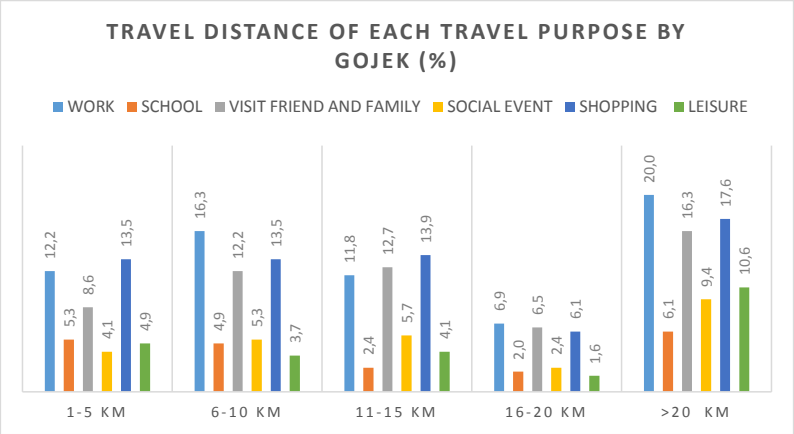
Chart 13. GOJEK travel distance for each travel purpose

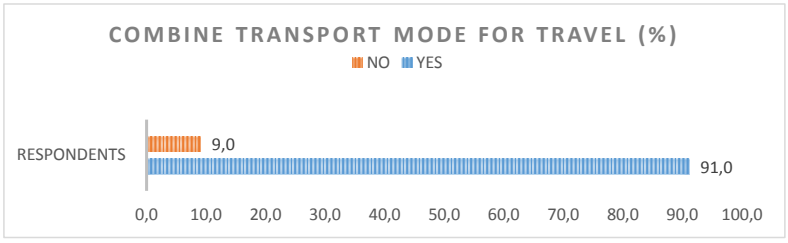


It can be seen from Chart 13 that even though the number of users and occasional users use GOJEK in various travel distance ranges, most of them take GOJEK for travelling in long distance or more than 20 km. The use of GOJEK is mainly for work, visiting family and friend, and shopping purposes.

4.2.3.5 Combining transport modes for daily travel

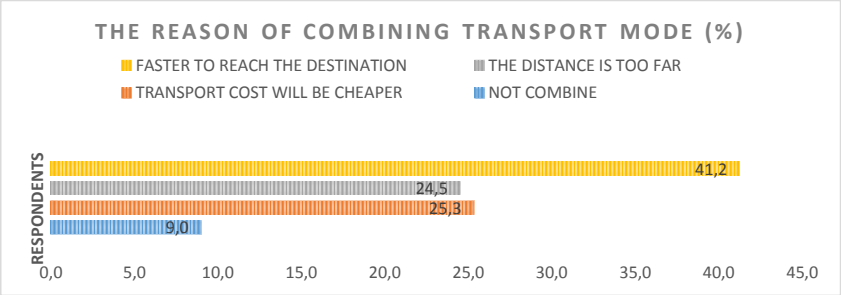
For various reasons such as cheaper cost, time efficiency, less accessible destination, and location that is too far for a single mode of transport, respondents combine multiple modes of transport certain travel purposes. The combined transport modes include taxi, three-wheeler taxi, conventional motorcycle taxi, GOJEK, private vehicle, minivan, and bus. Chart 10 shows that 91% of the respondents combine their modes of transport to reach their destinations.

Chart 14. Combining transport mode



The reasons for combining transport modes are concentrated in three groups i.e. the transport will be cheaper if it is combined, the destination location is too far which requires combining of transport modes, and combining the transport modes shortens the travel time. As Chart 11 shows, the main reason why the respondents combine their transport mode is that it is faster for them to reach the destination location (41.2%).

Chart 15. Reasons for combining IPT modes



4.2.4 Inferred Respondents' Travel Characteristics

Based on the discussion above, the observation finds that taxi, conventional motorcycle taxi, and GOJEK are mostly used by people who work as private sector employees, while three-wheeler taxi is mostly used by government employees. The majority of the respondents who use taxi, three wheeler taxi, conventional motorcycle taxi, and GOJEK has salary of more than Rp.5,000,000, but most of them spend only less than Rp.100,000 per week for transportation. Of all IPT modes, GOJEK is the transport mode used the most by the respondents, followed by taxi, conventional motorcycle taxi, and three-wheeler taxi which is the least used by the commuters. Interestingly, if the respondents are grouped into user categories, only GOJEK is mostly used by the routine users compared to taxi, three-wheeler taxi, and conventional motorcycle taxi, which are used by the majority of occasional users.

Based on the travel purpose, it can be said from the discussion above that for taxi usage, both user categories are concentrated in the social event purpose. Meanwhile, for three-wheeler taxi usage, users mainly use it for work, and occasional users mainly use it for shopping. As for the conventional motorcycle taxi, users take it for work purpose, while occasional users use it for school purpose. On the other hand, the majority of GOJEK users use it for work purpose, and the occasional users use GOJEK mostly for shopping purpose.

As for the travel distance, most taxi users tend to use it without considering travel distance as the main issue. This is unlike three-wheeler taxi users who tend to use it for short distance, as well as the conventional motorcycle taxi users who travel for 1 km – 10 km. Meanwhile, similar to taxi usage, GOJEK users do not have any particular distance to consider when traveling inside the city.

4.3 Commuters' perception of Level of Service of the IPT Modes

4.3.1 Method of Analysis

As explained by the theory of planned behaviour, perception has a significant role in affecting the individual's decision-making process, including leading them to a particular behaviour in their mobility choice. Perception may come from collective information from various sources, then all of this information is processed in the individual's mind and at the end this information produces a certain conclusion or decision related to his/her particular needs. Even though the information may or may not have a solid foundation or less reliable, the perception may significantly impact how the individual perceives the maximum advantages in traveling and

how they examine the travel modes. Therefore, the use of the IPT modes in Jakarta as the main transportation for commuters is significantly affected by the commuter's perception related to the level of services.

The purpose of this section is to answer the second sub-question of 'Does the perception of IPT users significantly differs than the perception of the non-users/occasional users related to commuting by a particular IPT mode in Jakarta?' This question can be answered by investigating how the level of service of the IPT modes is rated by different categories of respondents. Therefore, to proof this observation, the respondents were asked to rate the IPT level of service which includes some factors such as safety, reliability, availability, crew attitude, vehicle condition, and price. These factors were then elaborated into specific indicators that allow the respondent understand the questions more easily. The safety factor was elaborated as the safety from traffic accident and safety from crime while riding the IPT modes. The comfort factor was assessed as the comfort on board when the respondent used or would use the IPT modes. Reliability, on the other hand, is rated by indicators such as the number of IPT modes in operation, waiting time to catch the IPT modes, travelling time, driver's obedience to the traffic regulations, and pick up adherence and punctuality. Meanwhile, the availability factors were related to the IPT modes operation hours in one day and how wide the IPT operation area was. This section also investigates the crew attitude toward their passengers which is broken down into the politeness of the driver indicator and willingness of the driver to help the passenger indicator, for example, the driver is willing to help the passenger bring their luggage. The vehicle condition rating mainly comprised of the appearance and equipment of the IPT modes and its mechanical condition. Lastly, the fare was rated based on the cost of fare that the commuters need to pay for using its service.

The data to answer the sub-question is sourced from the questionnaire in Section II about respondent's perception of the IPT level of service. Respondents were asked to rate this level of service indicators on a scale from 1 to 5, with very poor being assigned as the lowest mark of 1 point and excellent being assigned as the highest mark of 5 points. A simple statistical analysis was conducted to determine the mean score and to formulate the general answer or result of the respondent perception of the IPT level of service.

4.3.2 Level of Service Rating among the Respondents

4.3.2.1 GOJEK level of service rating

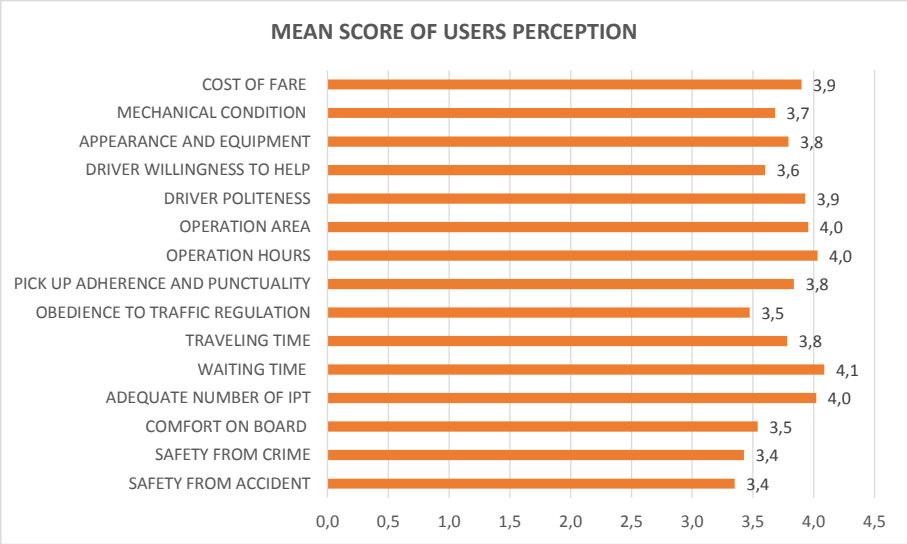
— ***Level of service of GOJEK based on users' perception***

Respondents who patronize GOJEK on daily basis, 3 – 6 times a week, and 1 – 2 times a week do not have significantly different perception compared to respondents who are non-users/occasional users. GOJEK's level of service in most factors is good. Similar to other user categories, the users think that the number of vehicles in operation (M = 4.0), waiting time (M = 4.1), and price (4.1) were 'good'. It is also supported by the score of waiting time (M = 4.4), operating area (M = 4.0), and operating hours (M = 4.0) which are considered as 'good'. Safety is still the most concerned factor by the users, the image of safety from accident (M = 3.3) is still considered as 'average' and needs to be improved, as well as safety from crime (M = 3.4), and driver's obedience to traffic regulations (M =3.5). Both of these safety indicators still have the lowest score compared to other level of service indicators.

On the other hand, the vehicle condition factors such as mechanical condition (M = 3.7) and vehicle appearance and equipment (M = 3.8) are considered as 'above average' by the users. The crew attitude factors such as driver's politeness (M = 3.9) and driver's willingness to help (M = 3.6) are perceived better by the users than non-users/occasional users. A similar trend is

also shown by the pick-up adherence and punctuality indicators, which are considered 'almost good' (M = 3.8) by the users. Lastly, as for the fare indicator, the users perceive the fare as 'almost good' (M = 3.9) or reasonable for the service they receive.

Chart 16. Users' perception of GOJEK level of services



— ***Level of service of GOJEK based on non-users/occasional users perception***

As explained in section 4.3.1, non-users/occasional users are the category of respondents who use GOJEK 1-2 times a month and who never use GOJEK before. According to the perception of non-users/occasional users, GOJEK's performance is 'good' in terms of vehicle number in operation with a mean score of 4.1. This is also supported by broad coverage of the operation area (M = 3.9) and operation hours (M = 3.9). The non-users/occasional users perceive the fare of GOJEK as low and reasonable for the service they received. Meanwhile, other GOJEK's level of service mean scores such as mechanical condition (M = 3.5), appearance and equipment (M = 3.6), driver politeness (M = 3.8), and waiting time (M = 3.9), are above average and can be considered as almost good.

However, the mean score of other factors such as safety from crime (M = 3.2), safety from accident (M = 3.1), obedience toward regulations (M = 3.1), and comfort on board (M = 3.1), in the users' perception is 'average' and inconspicuous like other level of service factors. Driver's politeness is rated as polite enough (M = 3.7) and driver's willingness to help the passengers (M = 3.4) is rated as 'above average.'

Chart 17. Non-users/occasional users' perception of GOJEK level of services

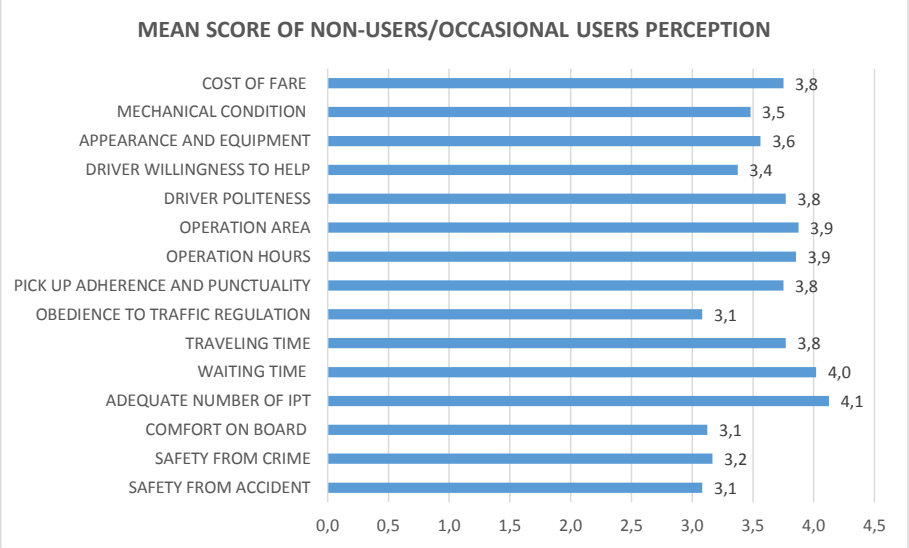
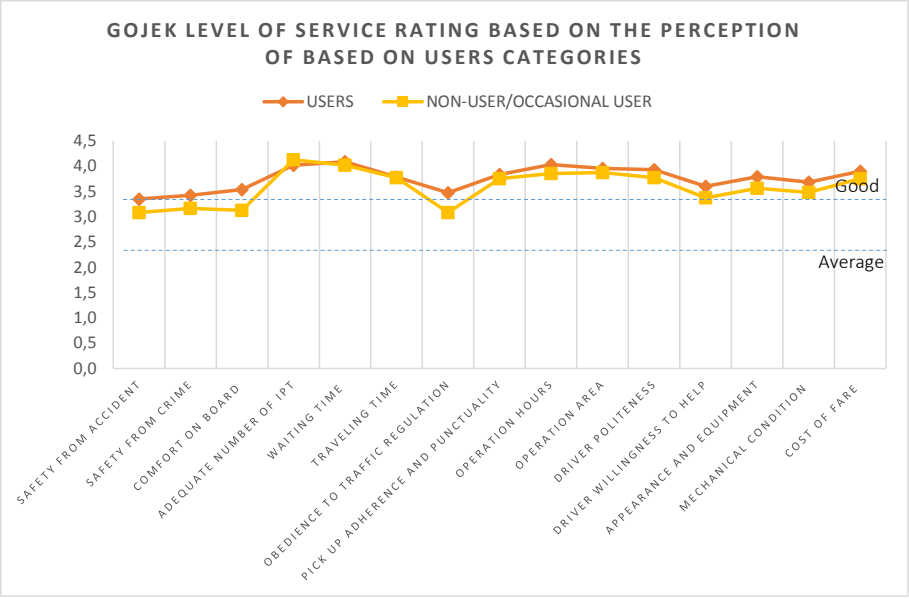


Chart 18. The level of service rating in all user categories based on perception



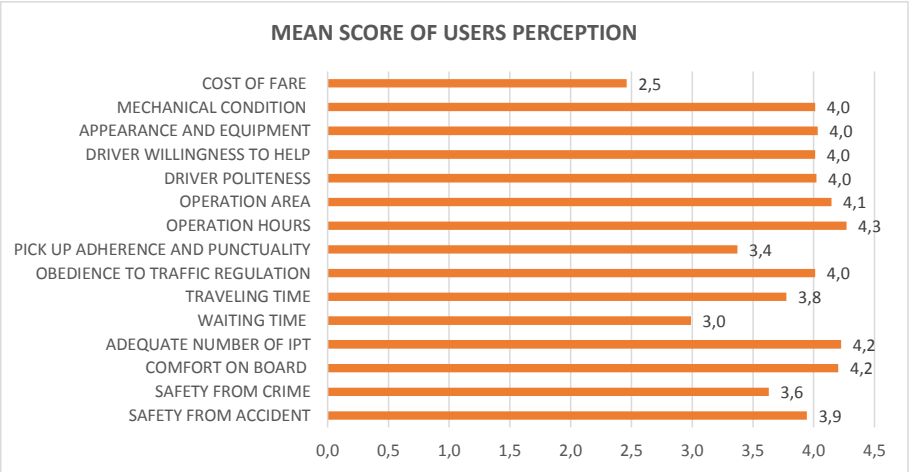
It can be observed from Chart 18 that the mean score for all level of service indicators is between M = 3.1 and M = 4.1 or between 'average' and 'good.' In general, based on the perception of both user categories, there is no significant gap between the mean scores for each indicator even though non-users/occasional users tend to give a lower mean score compared to users.

4.3.2.2 Taxi level of service rating

— ***Level of service of taxi based on users' perception***

According to users' perception, taxi shows its best performance in terms of its operating hours (M = 4.3), vehicle number in operation (M = 4.2), comfort on board (M = 4.2), and its broad coverage of operating area (M = 4.1). The users also think that vehicle's mechanical condition and vehicle's appearance and equipment is in good condition by giving a mean score of M = 4 to each factor. The crew's attitude is also rated as 'good' by the users by rating the driver's willingness to help, driver's politeness, and driver's obedience to regulation as M = 4. As for the taxi's safety, the users think that taxi has good safety from accident (M = 3.9), but they score the safety from accident as above average (M = 3.6). Even though the users perceive that the taxi travelling time is fast enough (M = 3.8), they feel that waiting time is not short enough by rating it as above average (M = 3.4). Overall, the users asses the taxi level of service as above average except for the cost of fare, which they consider as expensive (M = 2.5).

Chart 19. Users' perception of taxi level of services



— ***Level of service of taxi based on non-users/occasional users' perception***

According to non-users/occasional users, comfort on board (M = 4.1), adequate vehicle number (M = 4), operation hours (M = 4), and vehicle appearance and equipment (M = 4) are the best indicators shown by taxi. It is also supported by large coverage operation area (M=3.9), safety from accident (M = 3.9), and good mechanical condition (M = 3.9). The non-users/occasional users assess the driver as polite (M= 3.9) and has a good willingness to help (M = 3.8) and

obey traffic regulations (M = 3.8). In terms of safety from crime indicator, the non-users/occasional users think that taxi is safe enough by giving a score of M = 3.6.

However, the non-users/occasional users perceive that taxi's pickup adherence and punctuality scores are not so impressive by rating it as 'average' (M = 3.2). The waiting time is considered as not short enough (M = 3.2). Moreover, the non-users/occasional users think that taxi fare is expensive as an IPT mode (M = 2.2).

Chart 20.Non-users/occasional users' perception of taxi level of services

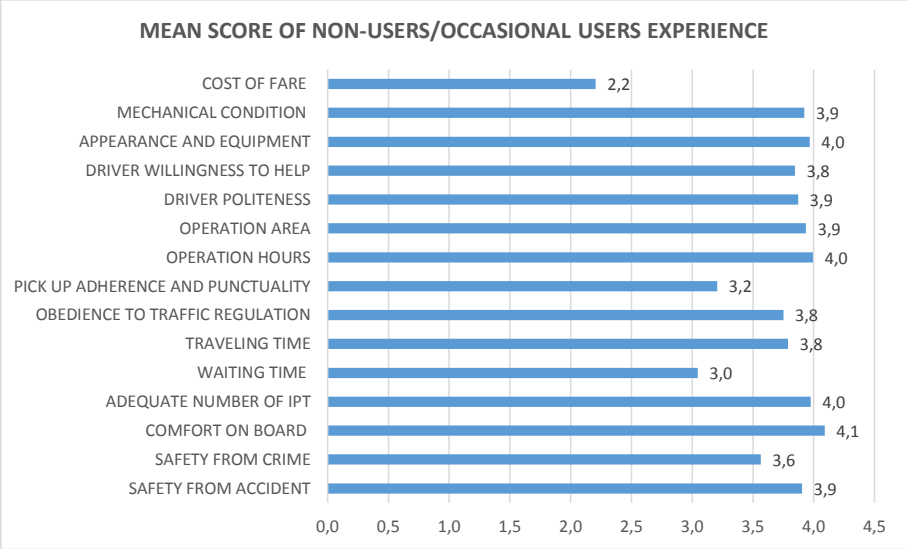


Chart 21. Taxi level of service rating in all user categories based on perception

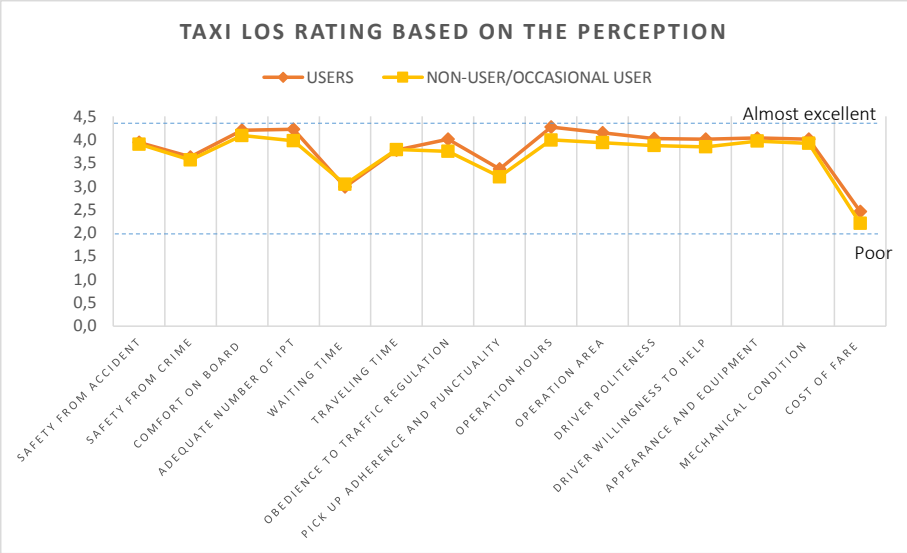


Chart 21, shows that the mean score is between M = 2.2 and M = 4.3 or between 'poor' and 'almost excellent.' In general, there is no significant gap between the mean scores of users and non-users/occasional users even though non-users/occasional users tend to give a lower rating than users.

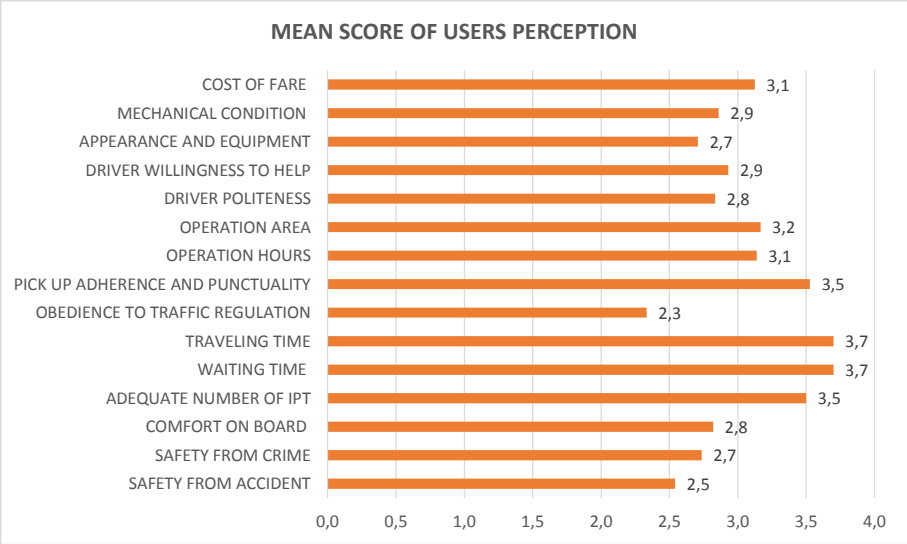
4.3.2.3 Conventional motorcycle taxi level of service rating

— ***Level of service of conventional motorcycle taxi based on users' perception***

Based on Chart 22 below, conventional motorcycle taxi shows its best indicators in travelling time (M =3.7) and waiting time (M = 3.7), rated as 'short enough' by users. Users think that the number of vehicles in operation is sufficient (M = 3.5) and pick up adherence and punctuality (M = 3.5) is rated as above average. As for conventional motorcycle taxi availability, users perceive that the operation area is wide enough (M = 3.2) and the operation hours is long enough to accommodate their mobility (M = 3.1) even though the cost of fare is considered moderately cheap.

However, users perceive the vehicle condition as below average where the mechanical condition is rated as M = 2.9 and vehicle appearance and condition is rated as M = 2.7. The crew attitude is also considered as not impressive by users since they give a score of M = 2.9 for driver's willingness to help and M = 2.8 for driver's politeness. This negative impression is compounded by the disobedience of the driver to traffic regulations (M = 2.3). As for comfort on board (M = 2.8), users rate it as below average. Users also assess that motorcycle taxi is not safe enough from crime (M = 2.7) and the safety from accident is considered poor (M = 2.5).

Chart 22. Users' perception of conventional motorcycle taxi level of services



— ***Level of service of conventional motorcycle taxi based on non-users'/occasional users' perception***

According to non-users/occasional users, conventional motorcycle taxi shows its best performance in short waiting time (M =3.8). Non-users/occasional users perceive that the number of motorcycle taxi in operation is adequate enough (M = 3.3), pick-up adherence and punctuality (M = 3.3) is considered as moderately good, and traveling time is moderately short (M = 3.3). As for crew attitude, non-users/occasional users perceive that driver's politeness (M = 3) and willingness to help (M = 2.9) are moderately good or average. A similar trend is also shown by the vehicle condition, where non-users/occasional users think that the mechanical condition (M = 2.8) and vehicle appearance and equipment (M = 2.7) are below average. This condition is aggravated by the low score of comfort on board (M = 2.6). Non-users/occasional users also think that motorcycle taxi is not completely safe from crime (M = 2.7) and is not safe from accident (M = 2.6). They are also unhappy with the motorcycle taxi's cost of fare, which they consider expensive enough (M = 2.6).

Chart 23. Non-users/occasional users' perception of conventional motorcycle taxi level of services

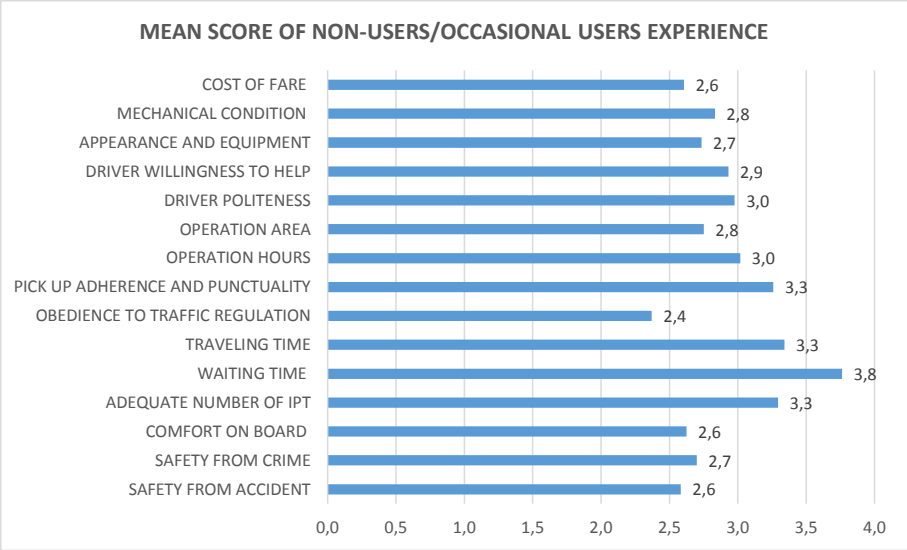
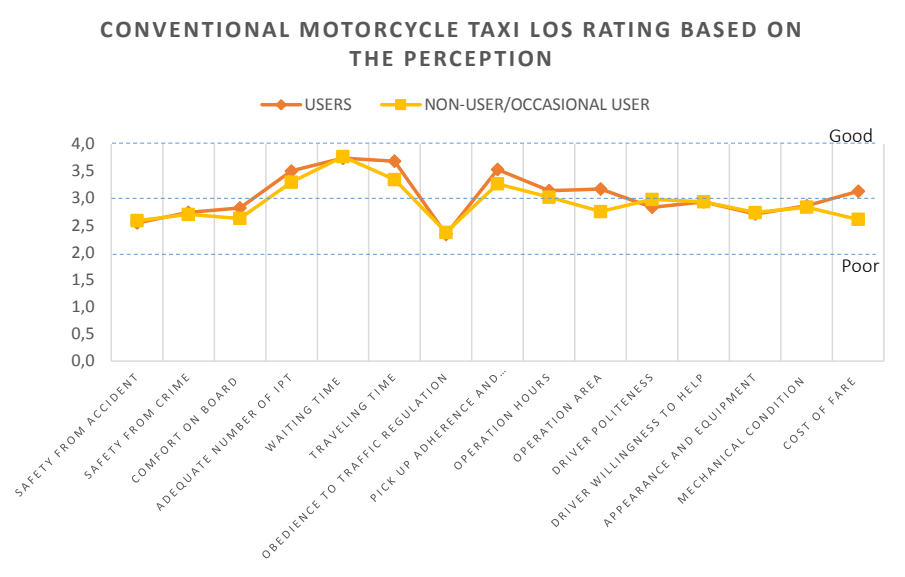


Chart 24 below shows that the mean score of conventional motorcycle taxi level of service is between M = 2.5 and M = 3.8 or between ‘poor’ and ‘almost good.' In general, there is no significant gap between the mean score of users and non-users/occasional users even though non-users/occasional users tend to give a lower rating than users especially for the cost of fare indicator.

Chart 24. Conventional motorcycle taxi level of service rating based on perception



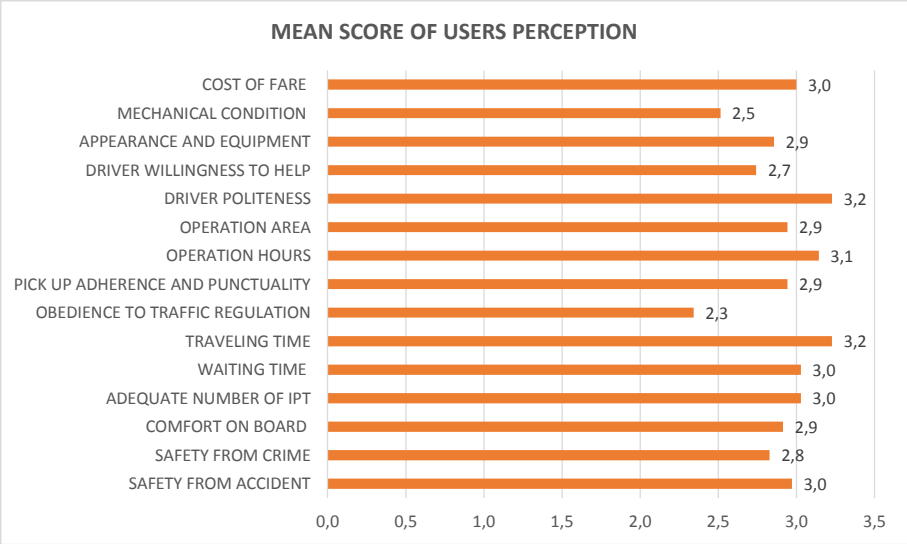
4.3.2.3 Three-wheeler taxi level of service rating

— ***Level of service of three-wheeler taxi based on users' perception***

According to users of three-wheeler taxi, travelling time of three-wheeler taxi is moderately short (M = 3.2), and the waiting time is also moderately short (M = 3.2). This is also supported by the moderately sufficient vehicle number (M = 3) and the moderately good pick-up adherence and punctuality. In contrast, users perceive that the three-wheeler taxi driver ignores the traffic regulations (M = 2.3). The users think that they are safe enough from accident (M = 3) when riding three-wheeler taxi, even though its safety from crime is perceived as below average (M = 2.8).

The operation hours is moderately sufficient (M = 3.1) and the operation hours is moderately long to accommodate their travel need. The driver is considered as moderately polite (M = 3.2) but lacking the willingness to help the passengers (M = 2.7). Most of the users are unhappy with the vehicle condition; they rate the vehicle appearance and equipment as below average (M = 2.9), just like the mechanical condition (M = 2.5) which is the main problem of three-wheeler taxi. However, users think that the three-wheeler taxi fare is affordable enough (M = 3) for their daily transportation.

Chart 25. Users' perception of three-wheeler taxi level of services



— ***Level of service of three-wheeler taxi based on non-users/occasional users' perception***

According to the non-users/occasional users of three-wheeler taxi, its travelling time is moderately short (M = 3.2), even though the waiting time is not as short as the travelling time (M = 2.8). The number of vehicle in operation is sufficient enough (M = 3.1), and the pick-up adherence and punctuality is moderately good (M = 3). However, non-users/occasional users think that the driver is not obeying traffic regulations (M = 2.3).

Non-users/occasional users think that three-wheeler taxi is not safe enough from accident (M = 2.8) and crime. (M =2.8). They also think that three-wheeler taxi has limited operation area (M = 2.3), and it does not have enough operation hours (M = 2.7). However, they perceive that the driver is polite enough (M = 3), but lacks the willingness to help the passengers (M = 2.5). Non-users/occasional users also complained about the vehicle condition, since they rate it as 'poor' (M = 2.4) and they rate the vehicle appearance and equipment as 'below average' (M = 2.5). The three-wheeler taxi fare is not the cheapest among the IPT modes, but the non-users/occasional users think that it is affordable enough (M = 2.9).

Chart 26. Non-users/occasional users' perception of three-wheeler taxi level of services

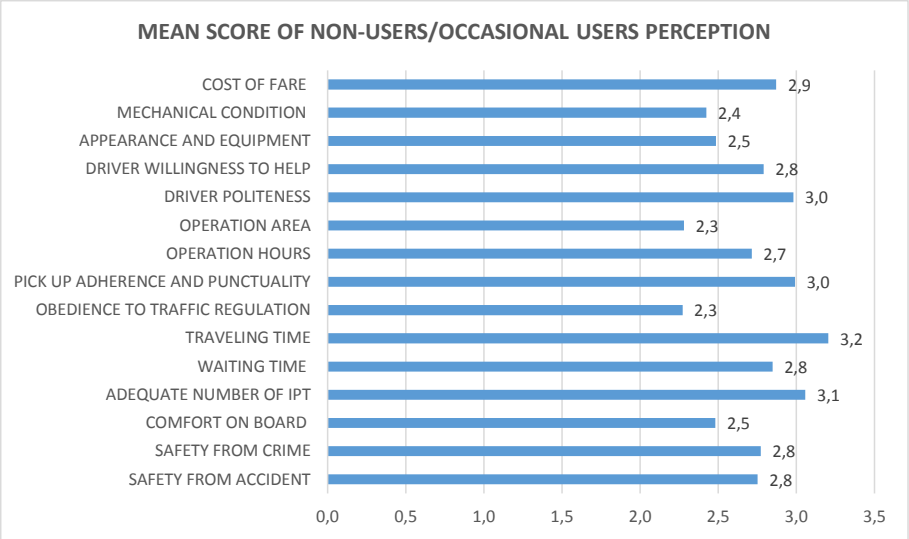


Chart 27. Three-wheeler taxi level of service rating based on perception

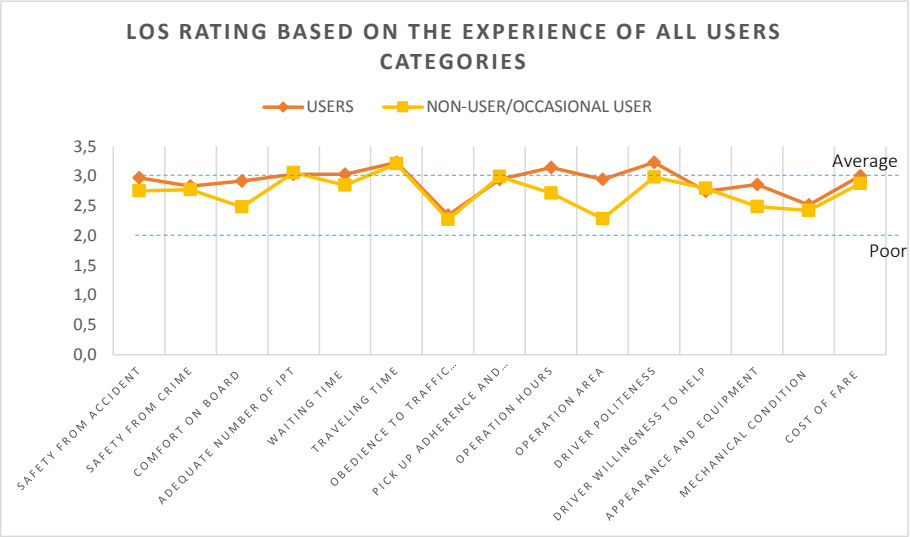
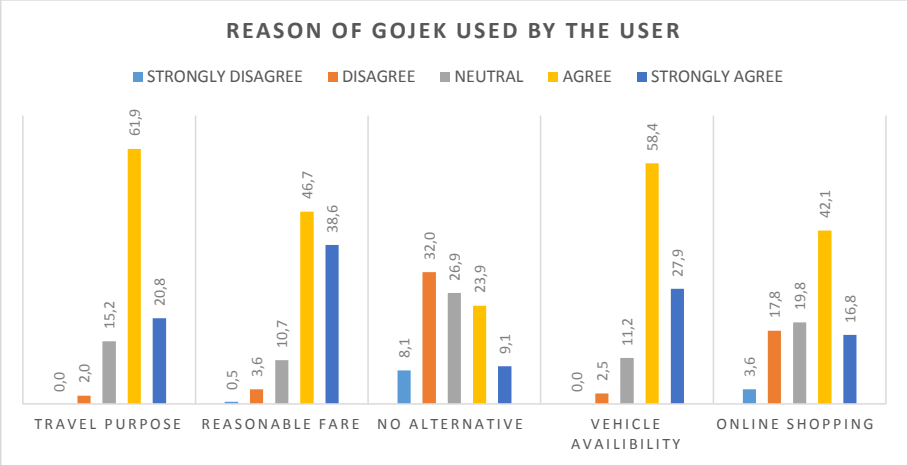


Chart 27t shows that the mean score of the three-wheeler taxi level of service is between M = 2 and M = 3.2 or between ‘poor’ and ‘average’. There is a significant gap between the mean score of the users and non-users/occasional users especially in terms of comfort on board, operation area coverage, and vehicle appearance and equipment where non-users/occasional users tend to give a lower rating than users.

4.3.3 Level of Sservice ~~Rating~~Rating among the Respondents

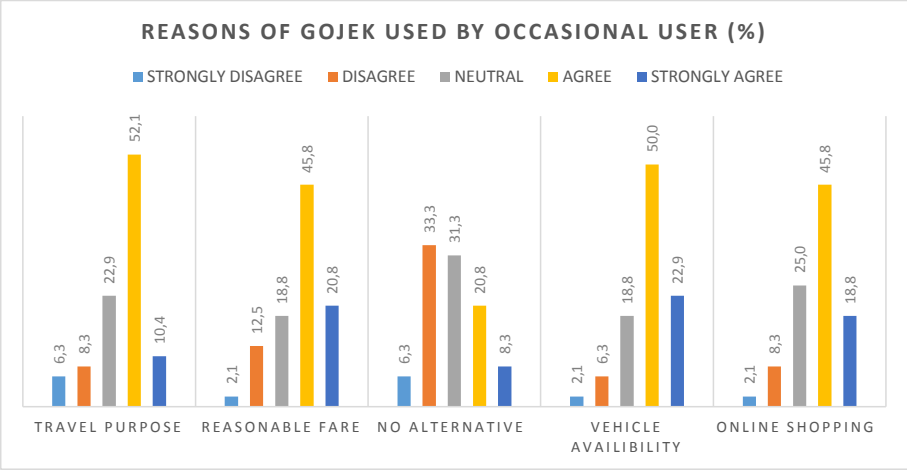
This study also tries to find out the reasons that influence the users to use GOJEK. It was revealed that the majority of the users (61.9%) agree that they patronized GOJEK because of the trip purpose. They also agree (58.4%) that the availability of the vehicles in operation every day was adequate to transport them, while 46.7% of them also agree that they patronized GOJEK due to the reasonable price. It is also supported by the fact that GOJEK uses per-kilometre system where the users will be informed about the exact price before GOJEK pick them up. The users also agree that they use GOJEK's additional services such as online shopping to buy groceries and food (42.1%). On the other hand, the majority of users disagree (32%) that they use GOJEK because they do not have other alternative of IPT modes. This is not surprising since the IPT modes operate almost in every part of Jakarta.

Chart 28. Users' reasons for using GOJEK



A similar trend is also shown by non-users/occasional users, who agree (52.1%) that they use GOJEK because of their travel purpose and they also agree (50%) that GOJEK's availability was the main advantage that persuades them to use GOJEK. This is not surprising since GOJEK vehicle number reached 100,000 units in 2015 in Jakarta alone. The affordable price and the convenience of online shopping (45.8% respectively) also play a significant role in attracting non-users/occasional users to use GOJEK service. Interestingly, non-users/occasional users also disagree that they have a tendency to use GOJEK because they lack IPT mode options.

Chart 29. Non-users/occasional users' reasons for using GOJEK



There is no significant difference between users and non-users/occasional users related to their reasons for using GOJEK–. Vehicle availability is still the main reason why users and non-users/occasional users consider GOJEK as their main option of travel mode.

This trend is also supported by respondents' statements as follows:

> *"The fact that taxi and GOJEK can be booked via online application or phone is very convenient for me as a customer because I can order their service easily. But considering the price and speed factors, GOJEK is the best option for me. Comfort is not always what I get or feel while on board, but getting to the office on time and avoiding the crazy traffic congestion of Jakarta at reasonable price is the real comfort for me." –Jeany, 26 years old, works as Travel Agent.*

> *"GOJEK is everywhere. They spread and operate to the every corner of Jakarta, and it's easy to identify them. I can use their service whenever I need by clicking the application on my smartphone. I just sit and relax inside my house, and they will pick me up in a very short time. I can't say that GOJEK price is the cheapest. I think bus and minivan are the cheapest transport. But if I consider all the advantages that I get during my trip and considering the purpose of my travel, GOJEK price makes sense even if it is compared to ojek (conventional motorcycle taxi) and Bajaj (three-wheeler taxi)" – Rosita, 23 years old, works as bank staff.*

> *"I don't use GOJEK for transport routinely, but GOJEK is the only transport mode that allows me to use it as delivery services. Sometimes I'm just too lazy to go outside to buy my daily needs. GOJEK makes my life easier by providing online shopping service. I can buy groceries and order specific foods anytime I want, and GOJEK is available until the last minute of the mall or store opening hours." – Kristin, 27 years old, works as a kindergarten teacher.*

4.3.4 Inferred Perception of Level of Service among the User Categories

The study reveals that all user categories think that the number of GOJEK unit in operation, operation area, operation hours, waiting time, traveling time, price, and driver politeness are the strong points of this mode of transport. They rate these indicators as ‘almost good’ and ‘good’. However, indicators like safety from crime, safety from accident, comfort onboard, and the driver’s obedience to traffic regulations are still the main concern for both users and non-users/occasional users. Interestingly, even though non-users/occasional users give the lowest score to these safety from accident, safety from crime, comfort on board, and obedience to traffic regulations indicators, the mean score is still in the ‘average’ or ‘moderately good’ category.

As for the taxi, both of the user categories agree that safety from accident, comfort on board, number of vehicles in operation, short travelling time, driver’s obedience to traffic regulations, operation hours, operation area, driver’s politeness, driver’s willingness to help, vehicle appearance and equipment, and vehicle mechanical condition are the strong points. Both users and non-users/occasional users rate those indicators as ‘almost good’, ‘good’, and ‘almost excellent’. However, the waiting time and pick up adherence and punctuality indicators are only rated as ‘average’ by the users and non-users/occasional users. Both of these user categories also think that the taxi fare is expensive. This indicator has the lowest score compared to all other indicators.

On the other hand, vehicle number, travelling time, pick up adherence and punctuality are the strong points of conventional motorcycle taxi. The users and non-users/occasional users’ categories rated those indicators as ‘above average’ and ‘almost good’. Meanwhile, operation hours, operation area, driver’s politeness, and driver’s willingness to help are rated as average. The users and non-users/occasional users consider that the safety from accident, safety from crime while riding, vehicle appearance and equipment, and mechanical condition are ‘below average’. The lowest score is given to the driver obedience to traffic regulations indicator. However, the users have different opinions related to the fare. The users think that the conventional motorcycle taxi fare is moderately inexpensive, while the non-users/occasional users think the fare is expensive.

Meanwhile, for the three-wheeler taxi, the users and non-users/occasional users agree that the best performance is shown by the number of vehicles, travelling time, driver’s politeness, and fare, which are rated as ‘average’. On the other hand, there are different opinions between users and non-users/occasional users related to the level of service of three-wheeler taxi. The users rate the comfort on board and operation area as ‘average’. In contrast, the non-users/occasional users rate those indicators as ‘poor’. However, both of the user categories agree that the three-wheeler taxi driver ignore traffic regulations.

This observation is also supported by more detailed investigation about respondents’ reasons for using GOJEK based on their experience. Their reasons for using GOJEK among others are because of their travel purpose, reasonable fare, vehicle availability, online shopping, or because they do not have transport alternatives besides GOJEK. The users and non-users/occasional users agree that the main reason for them to use GOJEK is GOJEK’s availability and ease of access to the service. Both of the user categories disagree that they take GOJEK because they do not have other transportation alternatives to accommodate their travel needs. It seems that the reasonable fare and additional services such as the opportunity for online shopping are the supporting reasons why the users and non-users/occasional users use GOJEK as their main preference.

4.4 Perception of Level of Service between the Commuter Categories

4.4.1 Data Analysis

To ascertain the reliability of indicators used on the Likert scale to establish level of service related indicators, Cronbach's alpha test was conducted on the data to establish the determined values were enough to measure the level of service ratings of the respondents. The alpha (α) coefficient of 0.905 (68 items) was determined. This demonstrates that the indicators used were sufficient to measure the level of service ratings since the alpha coefficient is greater than 0.7. This makes the data internally reliable. MANOVA was employed in establishing the significance of relationships across the data sets, and Multiple Regression was used to investigate the connection between level of service indicators and a choice of mode trough commuter's perception.

4.4.2 The Method of Analysis and Its Indicators

Some literature explains that the demographic factor, livelihood, and individual condition have a part in determining the mobility habit. This section supports the answer of the second sub-question of 'Does the perception of IPT users significantly differ from the perception of the non-users/occasional users with regard to commuting by a particular IPT mode in Jakarta?' The result of this section is used to find out whether there is a significant difference between the perceptions of level of service indicators among the commuter's categories and how each category perceives the IPT service delivery. The result of this section will provide a brief explanation about the most important level of service indicator considered by the commuters when using an IPT mode. MANOVA was used as the method of analysis. In this method, each level of service indicator was compared to several factors such as gender, user categories, employment status, and respondent's monthly income to investigate the relationship significance between the indicators.

For example, the safety and crew attitude indicators are compared to the gender factor while comfort and reliability indicators are compared to the user's categories, and the price indicator is compared to the respondent's monthly income. Porter (2008) explains that male and female have different experience in traveling by public transportation system. The gender difference in transportation system varies grossly depending on the countries.

The mobility option, plan, and decision are the results of the city quality, for example, the safety problem related to criminal activities and inefficiency of the transportation system in preventing accidents are the results of government's failure in providing affordable, adequate, and safe public transport to the public. This condition affects most women, especially during rush hours and at night (Mashiri et al. 2007; Odufuwa 2009). On the other hand, safety is not the only issue related to the gender factor. A study by Mashiri, (2001) reveals that the transport crew's friendly attitude including the politeness in talking and behaving is perceived differently by male and female users. While males are generally indifferent about the transport crew's attitude, most women consider the attitude of the transport crew as important.

Moreover, several studies in the literature examined the travel pattern among workers based on their employment status. Garden (2012) reviewed that the particular workers who are more active and whose working places are far more distant tend to have a particular preference of transport mode. The availability of transport mode becomes crucial for the active workers, besides the number of vehicles and its routine operation mechanism such as shift, transit,

operation hours, and the coverage of the operation area. These factors will determine how flexible and how far all the availability factors support their mobility.

On the other hand, high transport cost prevents people who are already in employment and earn routine income from choosing this kind of transportation. There is strong evidence that the fare of transport mode affects the demand of the transport mode itself. Naturally, when the transport mode fare increases and people's monthly income cannot compensate, they tend to choose the affordable transport mode based on their ability and willingness to pay. Even though people's perception and ability to pay the transport fare depend on each individual (Balcombe et al., 2004), the rate of monthly income could use a standing point to measure people's capability to pay the particular transport fare.

Many studies on transportation subject examined the effect of various measures on level of service of choice of mode at disaggregated level which can take into account various characteristics of transport users. Since the impact of various measures are likely based on traveler's characteristics (gender, employment status, and income) as well as the level of service, it is necessary to investigate the impact and the connection of various level of service indicators on not only the people's choice of travel mode but also the user categories. A previous study by Iseki et al., (2006) shows that the change of the level of services such as reliability, comfort, and vehicle condition has a more direct impact on the ridership than the change of price. The user categories may provide certain information related to their assessment and perspective of reliability, comfort, and the vehicle condition.

4.4.3 Perception of Level of Service

Based on the observation, the following hypothesis was formulated and tested to investigate the significance of the difference in perception rating of IPT modes among genders, IPT user categories (users and non-users/occasional users), employment status, and monthly income range.

It can be concluded that:

1. There is a difference in perception indicators of comfort on board, traveling time, waiting time, driver's obedience to traffic regulations, IPT pickup adherence and punctuality, IPT appearance and equipment, and IPT mechanical condition among the user categories of the IPT modes;
2. There is a difference in perception indicator of fare among users of IPT modes of different monthly income ranges ;
3. There is no difference in perception of safety from crime, safety from accident, vehicle number, operation hours, operation area, driver's politeness, and driver's willingness to help indicators;
4. IPT user categories have no influence on perception of vehicle number indicator;
5. Employment status has no influence on perception of operation area and operation hours indicators;
6. Gender has no influence on perception of safety from traffic accident, safety from crime while riding, driver's politeness, and driver's willingness to help indicators.

Table 7.MANOVA result of respondent's experience of the IPT modes level of service

	MANOVA (Pillai's Trace)							
Level of Service SUB-VARIABLE	**Level of Service Indicators**		**Value**	**f**	**Hypo-thesis df**	**Error df**	**Sig.**	**Partial η^2**
Safety	Safety from traffic accident	Between genders	.023	1.4	4	240	.235	.023
	Safety from crime while riding	Between genders	.029	1.78	4	240	.133	.29
Comfort	Comfort on board	Between Taxi User Categories	.03	1.8	4	240	.125	.03
		Between Three-Wheeler Taxi User Categories	.83	5.4	4	240	.000	.083
		Between Conventional Motorcycle Taxi User Categories	.036	2.24	4	240	.065	.036
		Between GOJEK User Categories	.066	4.2	4	240	.002	.066
Reliability	Adequate number of IPT	Between GOJEK User Categories	.015	.918	4	240	.454	.015
		Between taxi User Categories	.49	3.09	4	240	.017	.049
		Between Conventional Motorcycle Taxi User Categories	.026	1.62	4	240	.170	.26
		Between Three Wheeler Taxi User Categories	.03	1.827	4	240	.124	.03
	Travelling time	Between Taxi User Categories	.27	1.67	4	240	.156	.027
		Between Three Wheeler Taxi User Categories	.52	3.27	4	240	.012	.052
		Between Conventional Motorcycle Taxi User Categories	.28	1.7	4	240	.149	.028
		Between GOJEK User Categories	.15	.897	4	240	.467	.015
	Waiting time	Between Taxi User Categories	.017	1.38	3	241	.249	.017
		Between Three-Wheeler Taxi User Categories	.043	3.63	3	241	.014	.043
		Between Conventional Motorcycle Taxi User Categories	.048	4.02	3	241	.008	.048
		Between GOJEK User Categories	.006	.453	3	241	.715	.006
	Obedience to traffic regulation	Between Taxi User Categories	.39	2.43	4	240	.048	.039

	MANOVA (Pillai's Trace)							
Level of Service SUB-VARIABLE	**Level of Service Indicators**		**Value**	**f**	**Hypo-thesis df**	**Error df**	**Sig.**	**Partial η^2**
		Between Three-Wheeler Taxi User Categories	.070	4.48	4	240	.002	.0701
		Between Conventional Motorcycle Taxi User Categories	.023	1.39	4	240	.238	.023
		Between GOJEK User Categories	.046	2.87	4	240	.024	.046
	Pick up adherence and punctuality	Between Taxi User Categories	.011	.659	4	240	.621	.011
		Between Three-Wheeler Taxi User Categories	.009	.572	4	240	.683	.009
		Between Conventional Motorcycle Taxi User Categories	.049	3.1	4	240	.016	.049
		Between GOJEK User Categories	.012	.72	4	240	.576	.012
Availability	Operation hours	Employment status	.055	1.70	8	480	.095	.028
	Operation area	Employment status	.063	1.94	8	480	.052	.031
Crew Attitude	Driver's politeness	Between gender	.01	.608	4	240	.657	.01
	Driver's willingness to help passengers	Between gender	.006	.364	4	240	.834	.006
Vehicle Condition	IPT vehicle appearance and equipment	Between Taxi User Categories	.009	.561	4	240	.692	.009
		Between Three Wheeler Taxi User Categories	.095	6.32	4	240	.000	.095
		Between Conventional Motorcycle Taxi User Categories	.018	1.07	4	240	.371	.018
		Between GOJEK User Categories	.039	2.42	4	240	.049	.039
	Mechanical condition	Between Taxi User Categories	.027	1.67	4	240	.158	.027
		Between Three-Wheeler Taxi User Categories	.033	2.03	4	240	.091	.033
		Between Conventional Motorcycle Taxi User Categories	.025	1.54	4	240	.189	.025
		Between GOJEK User Categories	.045	2.8	4	240	.025	.045
Price	Cost of Fare	Monthly Income	.126	2.62	12	720	.002	.42

The test result from MANOVA indicated that there was a significant difference in how the user categories who use three-wheeler taxi perceive the level of service in terms of comfort on board among four IPT modes. Pillai's Trace = .083, $F(4, 240) = 5.4$, p = .000, partial $\eta^2 = .083$. A

separate ANOVA was conducted for each dependent variable, which each ANOVA evaluated at an alpha level of .0125. There was a significant difference between the three-wheeler taxi user categories' perception of comfort on board of three-wheeler taxi, $F(1, 243) = 8.9$, $p = .003$, partial $\eta^2 = .035$, with the non-users/occasional users (M = 2.4) scoring higher than the users (M = 2.3). Similar trend was also shown by the three-wheeler user categories. There is a significant difference in terms of the three-wheeler taxi comfort on board, $F(1, 243) = 9.7$, $p = 0.002$, partial $\eta^2 = .039$, with the non-users/occasional users (M = 2.9) scoring higher than the users (M = 2.3).

The analysis also indicated that there was a significant difference in how the user categories who use GOJEK perceive the level of comfort on board the IPT modes. Pillai's Trace = .066, $F(4, 240) = 4.2$, $p = .002$, partial $\eta^2 = .066$. A separate ANOVA was conducted for each dependent variable. There was a significant difference between the GOJEK user categories on comfort on board of GOJEK, $F(1, 243) = 13.4$, $p = .000$, partial $\eta^2 = .052$, with the non-users/occasional users (M = 3.5) scoring higher than the users (M = 3).

Related to the traveling time of the IPT modes, there was a significant difference in how the user categories who use three-wheeler taxi perceive the IPT mode traveling time. Pillai's Trace = .52, $F(4, 240) = 3.27$, $p = .012$, partial $\eta^2 = .052$. A separate ANOVA was conducted for each dependent variable. There was a significant difference between the three-wheeler taxi user categories on the travelling time of conventional motorcycle taxi, $F(1, 243) = 6.5$, $p = .011$, partial $\eta^2 = .026$, with the users (M = 3) scoring higher than the non-users/occasional users (M = 2.6).

Related to the waiting time of the IPT modes, there was a significant difference in how the user categories who use conventional motorcycle taxi perceive the IPT mode waiting time. Pillai's Trace = .048, $F(3, 241) = 4.02$, $p = .008$, partial $\eta^2 = .048$. A separate ANOVA was conducted for each dependent variable. There was a significant difference between the conventional motorcycle taxi user categories on the waiting time of the conventional motorcycle taxi, $F(1, 243) = 11.2$, $p = .001$, partial $\eta^2 = .044$, with the users (M = 3.6) scoring higher than the non-users/occasional users (M = 3.1).

There was a significant difference in how the user categories who use taxi perceive the driver's obedience to traffic regulations. Pillai's Trace = .039, $F(4, 240) = 2.43$, $p = .048$, partial $\eta^2 = .039$. A separate ANOVA was conducted for each dependent variable. There was a significant difference between the taxi user categories on the taxi driver obedience to the traffic regulation, $F(1, 243) = 6.34$, $p = .012$, partial $\eta^2 = .025$, with the users (M = 4) scoring higher than the non-users/occasional users (M = 3.7).

There was also a significant difference between the three-wheeler taxi user categories on the obedience to the traffic regulations of the IPT. Pillai's Trace = .070, $F(4, 240) = 4.48$, $p = .002$, partial $\eta^2 = .070$. A separate ANOVA was conducted for each dependent variable. There was a significant difference between the three-wheeler taxi user categories on the taxi driver obedience to regulations, $F(1, 243) = 8.71$, $p = .003$, partial $\eta^2 = .035$, with the non-users/occasional users (M = 2.2) scoring higher than the users (M = 2). Similar trend also occurs for the obedience to the traffic regulation of the conventional motorcycle taxi driver, $F(1, 243) = 9.6$, $p = .002$, partial $\eta^2 = .038$, with the non-users/occasional users (M = 2.1) scoring higher than the users (M = 2).

Still related to obedience to regulation, there was also a significant difference between the GOJEK user categories on the IPT drivers' obedience to traffic regulations. Pillai's Trace = .046, $F(4, 240) = 2.87$, $p = .024$, partial $\eta^2 = .046$. A separate ANOVA was conducted for each dependent variable. There was a significant difference between the GOJEK user categories on

the taxi driver's obedience to regulations , $F(1, 243) = 0.008$, p = .008, partial $\eta^2 = .000$, with the users (M = 3.38) scoring higher than the non-users/occasional users (M = 3.3).

The MANOVA analysis also reveals the significant difference between the user categories who use the conventional motorcycle taxi on the IPT pick up adherence and punctuality. Pillai's Trace = .049, $F(4, 240) = 3.1$, p = .016, partial $\eta^2 = .049$. A separate ANOVA was conducted for each dependent variable. There was a significant difference between the conventional motorcycle taxi user categories on the pick-up adherence and punctuality of the conventional motorcycle taxi, $F(1, 243) = 8.85$, p = .003, partial $\eta^2 = .035$, with the users (M = 3.5) scoring higher than the non-users/occasional users (M = 3.1).

A significant difference is also present between the user categories who use the three wheeler-taxi on the appearance and equipment of the IPT modes. Pillai's Trace = .095, $F(4, 240) = 6.32$, p = .000, partial $\eta^2 = .095$. A separate ANOVA was conducted for each dependent variable. There was a significant difference between the three-wheeler taxi user on the appearance and equipment of the taxi, $F(1, 243) = 16.89$, p = .000, partial $\eta^2 = .065$, with the non-users/occasional users (M = 2.4) scoring higher than the users (M = 2.3). It is also significant to the appearance and equipment of three-wheeler taxi, $F(1, 243) = 7.98$, p = .005, partial $\eta^2 = .032$, with the users (M = 2.8) scoring higher than the non-users/occasional users (M = 2.3).

There was a significant difference between the user categories who use GOJEK on the IPT appearance and equipment. Pillai's Trace = .039, $F(4, 240) = 2.42$, p = .049, partial $\eta^2 = .039$. A separate ANOVA was conducted for each dependent variable. There was a significant difference between GOJEK users on the appearance and equipment of GOJEK, $F(1, 243) = 7.8$, p = .006, partial $\eta^2 = .031$, with the users (M = 3.8) scoring higher than the non-users/occasional users (M = 3.5).

The MANOVA analysis also shows that there was a significant difference between the user categories who use GOJEK on the IPT mechanical condition. Pillai's Trace = .045, $F(4, 240) = 2.8$, p = .002, partial $\eta^2 = .042$. A separate ANOVA was conducted for each dependent variable. There was a significant difference between GOJEK users on the mechanical condition of GOJEK, $F(1, 243) = 6.6$, p = .011, partial $\eta^2 = .026$, with the users (M = 3.6)scoring higher than the non-users/occasional users (M = 3.4).

Lastly, MANOVA also indicated that there is a significant difference in how the respondents perceive the level of service in terms of fare based on their monthly income with regard to all IPT modes. Pillai's Trace = .126, $F(12, 720) = 2.62$, p = .002, partial $\eta^2 = .42$.

Based on the ANOVA evaluation at an alpha level of .0125, there was a significant difference between respondent's income range and the fare of three-wheeler taxi, $F(3, 241) = 5.42$, p = .001, partial $\eta^2 = .063$, with the income range of Rp.4,000,001-Rp.5,000,000 (M = 3.03) scoring higher than income range of >Rp.5.000.001 (M = 2.97), income range of Rp.3,100,001-Rp.4,000,000 (M = 2.4), and income range of < Rp.3,100,000 (M = 2.28); respondent's income range on fare of GOJEK, $F(3, 241) = 6.01$, p = .001, partial $\eta^2 = .07$, with the income range of Rp.4,000,.001-Rp.5,000,000 (M = 4.07) scoring higher than income range of >Rp.5,000,001 (M = 4.02), income range of Rp.3,100,001-Rp.4,000,000 (M = 3.75) and income range of <Rp.3,100,000 (M = 3.51).

4.4.4 Interference of the Commuters Perception of -IPT Mode's Level of Service

The definition of level of service is challenging to describe deeply because of the different emphasis used by different researchers in various concepts in different areas of study. According to the discussed literature, this research is using the safety, reliability, availability,

crew attitude, vehicle condition, and fare to measure the level of service. These six variables are then elaborated into 15 indicators of the IPT's modes level of service as a measurement tool.

Based on the Likert scale of very poor to excellent, commuters measured the IPTs level of service based on what they think. The commuters' evaluation revealed that the three-wheeler taxi users and non-users/occasional users think differently related to comfort on board indicator of the taxi and three-wheeler taxi. The non-users/occasional users think that taxi and three-wheeler taxi are more comfortable than what the users think. Still related to the comfort on board indicator, the analysis within the user categories of GOJEK shows that GOJEK non-users/occasional users think that GOJEK is more comfortable compared to what the users think.

As for the traveling time indicators, the evaluation revealed that the three-wheeler taxi users and non-users/occasional users think differently with regard to the conventional motorcycle taxi traveling time. The three-wheeler taxi users think that the traveling time is shorter compared to the users' opinion. On the other hand, the conventional motorcycle taxi users and non-users/occasional users have different perception related to the waiting time of the conventional motorcycle taxi. The users perceive that the conventional motorcycle taxi waiting time is shorter compared to what the non-users/occasional users think.

Interestingly, the user categories of taxi, conventional motorcycle taxi, and GOJEK also have different perceptions of IPT driver's obedience to traffic regulations. The taxi users perceive that the taxi driver is more obedient to traffic regulations compared to what the non-users/occasional users think. On the other hand, the non-users/occasional users of three-wheeler taxi perceive that the taxi driver and conventional motorcycle taxi driver is more obedient to traffic regulations compared to users' perception. Moreover, the GOJEK user categories also have different perception related to the obedience to regulation indicator. GOJEK users think that the taxi driver is more obedient to the traffic regulations compared to the opinion of GOJEK non-users/occasional users.

As for the pickup adherence and punctuality, different perceptions occur among the user categories of conventional motorcycle taxi. The conventional motorcycle taxi users think that conventional motorcycle taxi is more punctual and adherent in picking up the passengers compared to what non-users/occasional users think.

Commuters' perception related to the IPT vehicle condition is also analyzed. The result shows different perceptions within the three-wheeler taxi user categories related to taxi and three-wheeler taxi's appearance and equipment. The non-users/occasional users of three-wheeler taxi perceive that taxi has better appearance and equipment compares to the users' perception. However, three-wheeler taxi users think that three-wheeler taxi has better appearance and equipment compared to what non-users/occasional users think. On the other hand, GOJEK users perceive that GOJEK has better appearance and equipment compared to the perception of GOJEK non-users/occasional users. The analysis also shows different perceptions related to IPT mechanical condition especially within GOJEK user categories. GOJEK users think that GOJEK's mechanical condition is good compared to what non-users/occasional users think.

Also, with regard to fare indicator, commuters of different range of monthly income think differently. Commuters with income range of > Rp.5000~~,001~~,001 think that the three-wheeler taxi fare is more affordable compared to what commuters of other income range think. Interestingly, commuters with income range of Rp.4,000,000 – Rp.5,000,000 think that GOJEK fare is more affordable than what commuters with higher income think. The result related to fare is not surprising, considering 54.3% of the commuters whose income is more than Rp.5,000,001 and 60.7% of commuters whose income is Rp.4,000,000-Rp.5,000,000 only

spend <Rp.100.000 weekly for transportation. The study also reveals that there is a different perception related to how the user categories think about the IPTs mechanical condition.

4.5 The Influence of Level of Service on the Choice of Mode

4.5.1 Method of Analysis

The purpose of this section is to answer the third sub-question of 'How do commuters perceive the different aspects of service level of different IPT modes in Jakarta?' This research employs the multilinear regression method to reveal and explore how the perception of level of service indicators determines the choice of IPT modes. Based on the MANOVA result, the perception of level of service shows that there is a significant difference in comfort on board, traveling time, waiting time, driver's obedience to traffic regulation, IPT pickup adherence and punctuality, IPT appearance and equipment, IPT mechanical condition, and IPT fare. Thus, since there is a significant result related to the level of service indicators as mentioned above, the multilinear regression method is employed for each perception of level of service of a choice of mode. To determine the result of the analysis, the data was sourced from the questionnaire in Section II about the respondents' perception and Section III which is related to the choice of mode.

4.5.2 The Main Factor in Perception of Level of Service that Influences the Choice of Mode

Table 8. Model Summary and ANOVA of the level of service perception that influences the choice of mode

Perception	Model Summary	ANOVA			
	R^2	df regression	df residual	F	Sig.
Taxi	**.37**	**1**	**243**	**9.3**	**.003**
Three-Wheeler Taxi	**.189**	**3**	**241**	**18.75**	**.000**
Conventional Motorcycle Taxi	**.06**	**1**	**243**	**15.55**	**.000**
GOJEK	**.056**	**1**	**243**	**14.38**	**.000**

Table 9.Coefficient result of perception of the level of service perception that influences the choice of mode

Taxi			Three-Wheeler Taxi			Conventional Motorcycle Taxi			GOJEK		
Model	**B**	**Sig.**	**Model**	**B**	**Sig.**	**Model**	**B**	**Sig.**	**Model**	**B**	**Sig.**
(Constant)	2.9	.000	(Constant)	.221	.441	(Constant)	1.1	.006	(Constant)	2.13	.141
Cost of Fare	.715	.003	Operation Area	.471	.000	Cost of Fare	.537	.024	Comfort on Board	1.547	.000
			Comfort on Board	.581	.000						
			Mechanical Condition	-.429	.001						

To find a strong connection between perception of level of service and choice of mode, the stepwise was selected as a method. Since overfitting is a concern in this research, only the selected variables in the model that explain the additional variance will be used. The stepwise involves analysis at every step to determine the contribution of the level of service indicators entered previously into the equation. This way, it is possible to understand which indicators significantly contribute to the choice of mode and which indicators have no significant contribution. The level of service indicators can be taken or eliminated based on their statistical data that was shown in the SPSS output.

A multiple regression was calculated to predict the taxi usage frequency based on the indicators of perception of level of service i.e. safety from crime, safety from traffic accident, comfort on board, adequate number of vehicles, waiting time, travelling time, obedience to traffic regulations, pick up adherence and punctuality, operation hours, operation area, driver's politeness, driver's willingness to help passengers, appearance and equipment, mechanical condition, and fare. However, based on the stepwise analysis, it is stated that only the perception of taxi fare significantly affects the taxi usage level. A significant regression equation was found $F(1, 243) = 9.3$, $p = .003$, with R^2 of .37. The predicted taxi usage level is equal to 2.9 (Constant) + .715 (Comfort on Board), where comfort on board is coded or measured as 1= very uncomfortable up to 5 = very comfortable. The taxi usage level increases for each point of increase in comfort on board.

The result of analysis for three-wheeler taxi shows that the perception of operation area, comfort on board, and mechanical condition has significantly affected the usage level of three-wheeler taxi. A significant regression equation was found $F(3, 241) = 18.75$, $p = .000$, with R^2 of .189. The predicted level of use of three-wheeler taxi is equal to .221 (constant) + .471 (Operation Area) + .581 (Comfort on Board) - .429 (Mechanical Condition), where operation area is coded or measured as 1 = very limited up to 5 = very wide, comfort on board is coded or measured as 1 = very uncomfortable up to 5 = very comfortable, mechanical condition is coded or measured as 1 = poor up to 5 = excellent. The level of use of three-wheeler taxi increases for each point of increase the operation area and comfort on board. However, the level of use tends to decrease if the mechanical condition point is getting lower.

As for the conventional motorcycle taxi, the result shows that the perception of fare has a significant influence on the level of use of conventional motorcycle taxi. A significant regression equation was found $F(1, 243) = 15.55$, $p = .000$, with R^2 of .06. The predicted level of use of conventional motorcycle taxi is equal to 1.1 (Constant) + .537 (Fare), where fare is

coded or measured as 1 = very expensive up to 5 = very affordable. The frequency of taxi usage increases for each point of increase in fare.

Lastly, the analysis result for GOJEK shows that the perception of comfort on board contributes significantly to the level of use of GOJEK. A significant regression equation was found F(1, 243) = 14.38, p = .000, with R^2 of .056. The predicted level of use of GOJEK use is equal to 2.13 (Constant) + 1.547 (Comfort on Board), where comfort on board is coded or measured as 1= very uncomfortable up to 5 = very comfortable. The level of use of taxi increases for each point of increase in comfort on board.

4.5.3 Interference of the Influence of Level of Service on the Choice of Mode

Out of 15 indicators of level of service from commuters' perception, only a few influence commuters' choice of mode. Supported by multiple regression method of analysis, it reveals that from commuters' perception, fare is the determinant factor which influences them in using taxi. Meanwhile, operation area, comfort on board, and mechanical condition, are the main factors in choosing three-wheeler taxi as transportation mode. Similar to the taxi determinant factor, ~~fare significantly~~fare significantly influences the commuters in choosing conventional motorcycle taxi as a mode of transport. As for GOJEK, comfort on board seems to be the main determinant in using GOJEK.

Based on the result discussed above, it can be said that the factors in choosing transport mode from commuters' perception were treated differently by the commuters depending on level of service provided. The result clarifies the theory in literature review that the image of transport mode involves different factors in commuters' transportation mode decision-making process.

Chapter 5: Conclusions and Recommendations

5.1 Introduction

This chapter outlines the main findings and conclusions of the field study in line with the research objective, main question, and sub-research questions. The end of this chapter provides recommendation for policy formulation.

The aim of this study is to explain why commuters in Jakarta prefer the specific IPT mode for their daily transport. This study attempts to find the answer to the main research question, namely 'Which factors explain the choice of Intermediate Public Transport mode for commuting in Jakarta, ~~Indonesia?'But~~Indonesia?' But most importantly, this study generates the reasons from the users to make a recommendation for transport policy formulation in Jakarta.

5.2 Travel by IPT

The finding from the study indicates that all respondents have been using GOJEK at least once in a month, and the majority of the respondents also use a taxi, three-wheeler taxi, and conventional motorcycle taxi as the alternatives modes. It is observed that three-wheeler taxi is the least preferable IPT mode among the respondents. The majority of the respondents use the IPT mode for a specific travel purpose. As discussed in the literature (Racca and Ratledge, 2004), the travel purposes can be divided into work, visiting friend and family, school, social event, shopping, and leisure. Data from previous chapter shows that taxi is mainly used for social event purposes (wedding, funeral, community gathering, etc.), three-wheeler taxi is mostly used for work purpose even though the number of the three-wheeler taxi users are relatively low, while the conventional motorcycle taxi is mostly used for school purpose. On the other hand, GOJEK is mainly used for work purpose and shopping purpose (including trading and online shopping) by the majority of users in all categories.

More than 90% of the respondents agreed that they combine the IPT modes with other transport modes for their daily activity. The combinations of transport modes include private car, private motorcycle, bus, minivan, taxi, three-wheeler taxi, conventional motorcycle taxi, and GOJEK. The main reason why the majority of respondents combine transport modes is because they will reach the destination location faster, especially in rush hour.

5.3 Perception of Level of Service of IPT Modes

Although in general the IPT modes perform well in meeting the transport needs in Jakarta, it is recommended to consider the perceptions of the commuters to improve their service quality. This study reveals that the commuters' perceptions play a significant role in determining the choice of mode. Lai and Chen (2011) suggest the transport providers to improve the service quality and management. By knowing the commuters' thoughts about the level of service, it is necessary for IPT operators to improve their IPT image so that the commuters put more trust in IPT service. The commuters' perception of the level of IPT service provides a comprehensive information about the factors to be improved in order to meet the commuters' desired level of service.

The final analysis explains the influence of level of service on the probability of user's choice when there is a service improvement. The result of the analysis needs to be considered not only

by IPT providers, but also by transportation policy makers because it contains some important suggestions about the transport system in Jakarta.

As the main focus of this study, the analysis of IPT modes provides significant information based on commuters' perception. Based on the reviewed literature, this study measured the perception of level of service based on components such as safety, comfort, reliability, availability, crew attitude, vehicle condition, and fare. These seven variables were elaborated to cover 15 indicators by which the IPT modes' level of service was measured.

From the previous discussion, it is revealed that all of the respondents have used GOJEK at least 1-2 times in a month but not all of the respondent necessarily use taxi, three-wheeler taxi, and conventional motorcycle taxi. Each of the IPT modes has different usage characteristics by the commuters. For instance, taxi is mainly used for social event, three-wheeler taxi is mainly used for work and shopping, conventional motorcycle taxi is used for work and school, and GOJEK is mainly used for work and online shopping. Particularly for three-wheeler taxi and conventional motorcycle taxi, both of these IPT modes are mainly used for short and medium-distance travel, while taxi and GOJEK is used for various distance range.

Several studies (Joewono and Kubota, 2008; Joewono and Kubota, 2007; Sumaedi et al., 2012; Gray, 2008) confirm the influence of level of service on the choice of mode and consequently patronage of IPT mode. Beirão and Sarsfield Cabral (2007) highlight the importance of asking the perception of each user categories, including the non-users, about their transportation options; how they would feel if they have to use a particular transportation mode and also what would make them shift to another mode.

The main goal of this study was to explain the reasons why commuters prefer to use a specific IPT mode compared to the others. The study related to the commuters' perception shows that each IPT mode has a particular attribute of level of service that needs to be improved. For example, in commuters' perception, GOJEK's safety, comfort on board, and its driver's obedience to traffic regulations are the main attributes that needs to be improved. As for the taxi, the commuters see that the fare is too expensive. Meanwhile, the conventional motorcycle taxi has some issues in terms of safety, appearance and equipment, mechanical condition, and driver's obedience to traffic regulations. As for the three-wheeler taxi, lack of comfort on board and driver's ignorance to traffic regulations are the main problems.

To deeply investigate the connection between the level of service and choice of mode, multiple regression analysis is conducted and the result shows that fare plays the biggest role in the usage of taxi and conventional motorcycle taxi as daily transportation, while the range of operation area, comfort on board, and mechanical condition were the significant determinant factors for three-wheeler taxi. As for GOJEK, comfort on board is the main factor that influences commuters' transport decision. This result confirms and amplifies the analysis result from the commuters' perception of the level of service, since the indicators to be improved as perceived by commuters are not different from the indicators to be improved when the level of service is connected to the choice of mode. However, even though each of the IPT modes has its own issues to solve, the commuters' perception shows that taxi and GOJEK have the best overall level of service compared to three-wheeler taxi and conventional motorcycle taxi. Moreover, based on the level of use indicators (frequency of use and distance of use), it can be said that GOJEK is the preferred IPT mode among the commuters in Jakarta.

Based on the overall result, it can be said that in general the IPT comfort on board, fare, operation area, and mechanical condition are the determinant factors that significantly influence commuters' choice of mode in Jakarta. To achieve the objective of providing adequate transportation system in Jakarta, it is very important for policy makers and transport

system operators to consider commuters' perception related to transportation system provision. Hence, learning from how GOJEK becomes a preferable transportation mode, a review of GOJEK's level of service may be very helpful for the operators in managing the transport system and provide further information for the policy makers in formulating adequate transport system regulation in Jakarta without decreasing the commuters convenience.

5.4 Recommendation and Conclusion

This study reveals the commuters' perception and expectation of each IPT mode characteristics, and the factors that seems to be ignored by the decision makers when formulating the policy. Winder et al. (2005) explains that the national authorities need to focus on the way their citizens perceive the impacts of their regulations. In other words, the government should confirm whether their transport policy is perceived as something beneficial by their citizens, as expected by the government when they formulate the policy. This research shows that the commuters' perception is very useful in policy formulation. Not only are the findings in this research useful for the government in improving public transportation in the future, they also suggests that in order to attract commuters to use IPT, the operators should be able to provide a positive image and valuable level of service.

Several recommendations are provided in this study as an input and consideration for the government when formulating the policy, and as much as possible without sacrificing passengers' convenience, while still accommodating the IPT operators' interests.

First, as Cervero (2000) explained, the absence of regulation and weak law enforcement has caused uncontrolled growth of IPT and informal transportation modes whereas most IPT delivery service in Jakarta remains poor. On the other hand, the existing regulation number 22/2009 about the road traffic and land transportation is neither accommodating nor forbidding the use of motorcycle as an IPT mode. Thus, the government needs to consider revising this regulation since GOJEK and conventional motorcycle taxi helps the commuters' mobility due to lack of adequate public transportation.

Second, in the context of IPT in Jakarta, individuals who own IPT such as three-wheeler taxi and conventional motorcycle taxi are common. This type of ownership leads to poor service delivery and maintenance due to severe competition. On the other hand, a single publicly owned entity may provide good level of service, but the cost tends to be expensive (Kyte, 2012). The government needs to regulate the IPT operation so that the IPT can be incorporated into a legal cooperative or organization under government supervision. The government can take GOJEK management system as an example, where GOJEK as a single public entity plans the network and sets the level of service, with lots of individual operator acting as members providing services under a clear and structured contract. This kind of management allows a balance of public good need with the efficient operational of the IPT. In addition, management system by a cooperative or organization is expected to create regulation enforcement and programs that can provide a better level of service and positive image.

Third, Beirão and Sarsfield Cabral (2007) confirm that if the public transportation is unreliable in service, lacking in comfort and availability, people are not likely to perceive it as a decent public transportation alternative. This study reveals that attributes such as mechanical condition, operation area, and comfort on board play a significant role in shaping commuters' perception, especially for the users of three-wheeler taxi and GOJEK. Thus, through a

cooperative or organization, the government will have an instrument to implement the regulation and monitor the benchmark of the transportation level of services.

Fourth, Joewono and Kubota (2008) in their study about paratransit in Indonesia confirm that fare is the most important factor in determining the choice of mode. It does not mean that the fare must always be low, but it needs to be considered carefully. This study also reveals that most users of IPT mode are the respondents who have the highest income range or more than Rp.5,000,000, and most of the respondents spend little money or less than Rp.100,000 per week for the IPT cost. However, at the moment there is no standard of pricing for IPT except for taxi. The government can cooperate with the Indonesian Land Transport Organization (ORGANDA) and/or IPT cooperative to set the standard price for three-wheeler taxi, conventional motorcycle taxi, and GOJEK. Pricing standardization is expected to reduce friction among IPT operators and create price certainty, especially for three-wheeler taxi and conventional motorcycle taxi passengers.

Fifth, the majority of the respondents (41.2%) combine the transportation mode because it will be faster for them to reach their destinations. Zahavi (1979) confirms that not only does the speed of travel influence the travel duration, it also influences the travel distance. The shorter the travel time is, the greater the commuters' motivation to use public transportation will be. In the context of IPT modes, GOJEK, conventional motorcycle taxi, and three-wheeler taxi can be functionalized as the BRT feeder. For example, since GOJEK already has its own application system to pick-up the passengers, the government can use the application system to include the BRT schedule and the nearest location of BRT station. With the integrated system, GOJEK can pick-up and transport the passengers to the station or terminal with the fastest bus arrival. As for three-wheeler taxi and conventional motorcycle taxi, since both of them are used for short distance (1 km – 5 km) and are mostly used for work and school purposes, the government can provide a particular station or post which is not too far from the BRT station and office and residential areas. The distribution of the operation areas based on the station or post may help prevent three-wheeler taxi from parking on the roadside and prevent conventional motorcycle taxi from parking on the sidewalk to wait for the passengers. Meanwhile, the integration of BRT system and IPT mode will help shorten travel time.

Lastly, the government argues that the safety factor is the main issue that makes motorcycle unsuitable to become an IPT mode (Wijaya, 2015). However, Joewono (2006) explains that driver's understanding and awareness of transport safety and security is the most important aspect in improving the transport safety, which can be achieved by training and education. Learning from GOJEK case; the government can develop a safety and security measurement manual for IPT, encourage the cooperative or operator to provide training for the drivers, develop a benchmark to evaluate the safety and security of the IPT mode and develop a certification to operate the IPT mode.

This study shows that by considering the perception of level of service, the government may provide some strategic policy which can help the improvement of future transport system in Jakarta, minimize friction among IPT operators, and at the same time accommodate commuters' travel needs without sacrificing their convenience.

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Appendix 1: Provisional main research question and sub research questions.

1.3 Research Objective

The study is designed to explain the main factor and reasons that shape the commuters' perception in using GOJEK as Intermediate Public Transport in Jakarta.

1.4 Main Research Question

Which factors explain the choice of Intermediate Public Transport mode for commuting in Jakarta, Indonesia?

1.4.1 Sub Research Questions

1. Does the experience-based opinion significantly different from the overall perception-based opinion about commuting by IPT in Jakarta?
2. How do commuters perceive the level of service of different IPT modes in Jakarta?

Appendix 2: Test of between-subject effects (ANOVA) among the commuter's categories.

Test of Between-Subject Effect								
LOS SUB-VARIABLE	**LOS Indicators**		**IPT mode**	**df**	**Error df**	**F**	**Sig**	**Partial η^2**
Safety	Safety from traffic accident	Between Genders	Taxi	1	243	.247	.62	.001
			Bajaj	1	243	.179	.673	.001
			Ojek	1	243	1.27	.261	.005
			GOJEK	1	243	4.93	.027	.02
	Safety from crime while riding	Between Genders	Taxi	1	243	5.19	.024	.021
			Bajaj	1	243	.715	.398	.003
			Ojek	1	243	.101	.751	.000
			GOJEK	1	243	.003	.949	.000
Comfort	Comfort on board	Between Taxi User Categories	Taxi	1	243	1.4	.24	.006
			Bajaj	1	243	1.6	.2	.007
			Ojek	1	243	4.7	.03	.019
			GOJEK	1	243	.89	.34	.004
		Between Three Wheeler Taxi User Categories	Taxi	1	243	8.9	.003	.035
			Bajaj	1	243	9.7	.002	.039
			Ojek	1	243	3	.083	.012
			GOJEK	1	243	5.5	.019	.022
		Between Conventional Motorcycle Taxi User Categories	Taxi	1	243	.44	.5	.002
			Bajaj	1	243	1.7	.19	.007
			Ojek	1	243	4.9	.019	.022
			GOJEK	1	243	1	.22	.006
		Between GOJEK User Categories	Taxi	1	243	1.5	.7	.001
			Bajaj	1	243	.065	.8	.000
			Ojek	1	243	1.76	.18	.007
			GOJEK	1	243	13.4	.000	.052
Reliability	Adequate number of IPT	Between GOJEK User Categories	Taxi	1	243	1.76	.185	.007
			Bajaj	1	243	1.45	.228	.006
			Ojek	1	243	1.95	.164	.008
			GOJEK	1	243	.033	.857	.000
		Between Taxi User Categories	Taxi	1	243	5.21	.023	.021
			Bajaj	1	243	.029	.865	.000
			Ojek	1	243	.154	.695	.001
			GOJEK	1	243	.996	.319	.004
		Between Conventional Motorcycle Taxi User Categories	Taxi	1	243	.207	.65	.001
			Bajaj	1	243	1.18	.27	.005
			Ojek	1	243	5.32	.022	.021
			GOJEK	1	243	.005	.942	.000
		Between Three Wheeler Taxi User Categories	Taxi	1	243	5.18	.024	.021
			Bajaj	1	243	.688	.408	.003
			Ojek	1	243	.007	.93	.000
			GOJEK	1	243	2.42	.121	.010
	Travelling time	Between Taxi User Categories	Taxi	1	243	.219	.64	.001
			Bajaj	1	243	.894	.345	.004
			Ojek	1	243	1.17	.280	.005
			GOJEK	1	243	1.83	.177	.008

		Between Three Wheeler Taxi User Categories	Taxi	1	243	.001	.977	.000
			Bajaj	1	243	2.9	.089	.12
			Ojek	1	243	6.5	.011	.026
			GOJEK	1	243	3.63	.058	.015
		Between Conventional Motorcycle Taxi User Categories	Taxi	1	243	.805	.37	.003
			Bajaj	1	243	4.75	.03	.019
			Ojek	1	243	1.43	.23	.006
			GOJEK	1	243	.21	.64	.001
		Between GOJEK User Categories	Taxi	1	243	.044	.834	.000
			Bajaj	1	243	.046	.829	.000
			Ojek	1	243	.135	.714	.001
			GOJEK	1	243	3.2	.066	.014
	Waiting time	Between Taxi User Categories	Taxi	1	243	.014	.906	.000
			Bajaj	1	243	3.39	.067	.014
			Ojek	1	243	.54	.461	.002
			GOJEK	1	243	.014	.906	.000
		Between Three Wheeler Taxi User Categories	Taxi	1	243	4.32	.039	.017
			Bajaj	1	243	.003	.956	.000
			Ojek	1	243	4.86	.028	.02
			GOJEK	1	243	4.32	.039	.017
		Between Conventional Motorcycle Taxi User Categories	Taxi	1	243	.057	.81	.000
			Bajaj	1	243	.549	.45	.002
			Ojek	1	243	11.2	.001	.044
			GOJEK	1	243	.057	.81	.000
		Between GOJEK User Categories	Taxi	1	243	.245	.614	.001
			Bajaj	1	243	1.19	.275	.005
			Ojek	1	243	.209	.648	.001
			GOJEK	1	243	.245	.614	.001
	Obedience to traffic regulations	Between Taxi User Categories	Taxi	1	243	6.34	.012	.025
			Bajaj	1	243	1.62	.203	.007
			Ojek	1	243	3.48	.063	.014
			GOJEK	1	243	.020	.888	.000
		Between Three Wheeler Taxi User Categories	Taxi	1	243	8.71	.003	.035
			Bajaj	1	243	1.9	.168	.008
			Ojek	1	243	9.6	.002	.038
			GOJEK	1	243	1.06	.303	.004
		Between Conventional Motorcycle Taxi User Categories	Taxi	1	243	3.74	.054	.015
			Bajaj	1	243	.539	.463	.002
			Ojek	1	243	.384	.563	.002
			GOJEK	1	243	.454	.501	.002
		Between GOJEK User Categories	Taxi	1	243	.008	.008	.000
			Bajaj	1	243	.679	.679	.003
			Ojek	1	243	1.64	1.64	.007
			GOJEK	1	243	9.68	9.7	.038
	Pick up adherence and punctuality	Between Taxi User Categories	Taxi	1	243	1.76	.19	.007
			Bajaj	1	243	.493	.48	.002
			Ojek	1	243	.04	.84	.000
			GOJEK	1	243	.10	.74	.000
		Between Three Wheeler Taxi User Categories	Taxi	1	243	1.05	.306	.004
			Bajaj	1	243	.50	.478	.002
			Ojek	1	243	.084	.772	.000
			GOJEK	1	243	1	.316	.004
		Between Conventional Motorcycle	Taxi	1	243	2.76	.098	.011
			Bajaj	1	243	.553	.45	.002
			Ojek	1	243	8.85	.003	.035

		Taxi User Categories	GOJEK	1	243	.001	.973	.000
		Between GOJEK User Categories	Taxi	1	243	.40	.52	.002
			Bajaj	1	243	.26	.60	.001
			Ojek	1	243	.33	.56	.001
			GOJEK	1	243	1.97	.16	.008
Availability	Operation hours	Between Employment Status	Taxi	2	242	2.23	.110	.018
			Bajaj	2	242	1.71	.183	.014
			Ojek	2	242	.058	.944	.000
			GOJEK	2	242	.64	.528	.005
	Operation area	Between Employment Status	Taxi	2	242	.401	.067	.003
			Bajaj	2	242	4.12	.017	.033
			Ojek	2	242	2.25	.107	.018
			GOJEK	2	242	1.72	.181	.014
Crew Attitude	Driver's politeness	Between Genders	Taxi	1	243	.073	.787	.000
			Bajaj	1	243	.905	.342	.004
			Ojek	1	243	1.73	.188	.007
			GOJEK	1	243	.84	.359	.003
	Driver's willingness to help passenger	Between Genders	Taxi	1	243	.749	.388	.003
			Bajaj	1	243	.609	.436	.002
			Ojek	1	243	.097	.756	.000
			GOJEK	1	243	.474	.492	.002
Vehicle Condition	IPT appearance and equipment	Between Taxi User Categories	Taxi	1	243	.47	.492	.002
			Bajaj	1	243	.16	.689	.001
			Ojek	1	243	.23	.631	.001
			GOJEK	1	243	1.09	.302	.004
		Between Three Wheeler Taxi User Categories	Taxi	1	243	16.98	.000	.065
			Bajaj	1	243	7.98	.005	.032
			Ojek	1	243	.945	.33	.004
			GOJEK	1	243	.006	.93	.000
		Between Conventional Motorcycle Taxi User Categories	Taxi	1	243	2.71	.10	.011
			Bajaj	1	243	.311	.57	.001
			Ojek	1	243	.701	.40	.003
			GOJEK	1	243	.041	.84	.000
		Between GOJEK User Categories	Taxi	1	243	.018	.89	.000
			Bajaj	1	243	.63	.42	.003
			Ojek	1	243	.17	.67	.001
			GOJEK	1	243	7.8	.006	.031
	Mechanical condition	Between Taxi User Categories	Taxi	1	243	1.21	.27	.005
			Bajaj	1	243	.031	.86	.000
			Ojek	1	243	3.0	.08	.013
			GOJEK	1	243	2.0	.15	.008
		Between Three Wheeler Taxi User Categories	Taxi	1	243	5.15	.024	.021
			Bajaj	1	243	1.55	.21	.006
			Ojek	1	243	1.20	.27	.005
			GOJEK	1	243	.32	.57	.001
		Between Conventional Motorcycle Taxi User Categories	Taxi	1	243	2.5	.115	.01
			Bajaj	1	243	1.22	.27	.005
			Ojek	1	243	1.33	.25	.005
			GOJEK	1	243	.026	.87	.000
		Between GOJEK User Categories	Taxi	1	243	.095	.75	.000
			Bajaj	1	243	2.9	.08	.012
			Ojek	1	243	.15	.7	.001
			GOJEK	1	243	6.6	.011	.026
Price	Fare	Between Income Range	Taxi	3	241	1.34	.263	.016
			Bajaj	3	241	5.42	.001	.063

			Ojek	3	241	3.39	.019	.041
			GOJEK	3	241	6.01	.001	.070

Appendix 3: Estimated marginal means of LOS Experience

	Estimated marginal means					
LOS SUB VARIABLE	LOS Indicators		Taxi	Bajaj	Ojek	GOJEK
Safety	Safety from traffic accident	Male	3.89	2.7	2.42	3.16
		Female	3.93	2.64	2.56	3.42
	Safety from crime while riding	Male	3.75	2.56	2.7	3.35
		Female	3.5	2.68	2.65	3.36
Comfort	Comfort on board	Taxi User	4.2	3.8	4.1	4.16
		Taxi Non-User/Occasional User	4	4.1	4	4.12
		Bajaj User	2.3	2.3	2.4	2.45
		Bajaj Non-User/Occasional User	2.4	2.9	2.6	2.41
		Ojek User	2.7	2.6	2.5	2.4
		Ojek Non-User/Occasional User	2.4	2.9	2.8	2.6
		GOJEK User	3.5	3.5	3.5	3
		GOJEK Non-User/Occasional User	3.4	3.1	3.3	3.5
Reliability	Number of IPT	Taxi User	4.2	3.7	4	4
		Taxi Non-User/Occasional User	3.9	4.1	4	4.2
		Bajaj User	2.84	3	3	2.8
		Bajaj Non-User/Occasional User	2.87	2.8	2.8	3
		Ojek User	3.28	3.2	3.5	3.1
		Ojek Non-User/Occasional User	3.21	3.2	3.1	3.4
		GOJEK User	3.9	3.8	4	4
		GOJEK Non-User/Occasional User	4	4	4	4
	Travelling time	Taxi User	2.98	3.03	2.9	3.03
		Taxi Non-User/Occasional User	3.04	3.02	3	3
		Bajaj User	2.6	3	3	2.74
		Bajaj Non-User/Occasional User	2.8	2.6	2.6	2.7
		Ojek User	3.7	3.2	3.7	3.62
		Ojek Non-User/Occasional User	3.5	3.7	3.6	2.56
		GOJEK User	3.97	3.8	4.08	4
		GOJEK Non-User/Occasional User	4	4	4.04	3.9
	Waiting time	Taxi User	3.77	3.5	3.76	3.8
		Taxi Non-User/Occasional User	3.78	3.8	3.79	3.7
		Bajaj User	3.4	3.22	3.3	3.2
		Bajaj Non-User/Occasional User	3.1	3.23	3.2	3.1

	Estimated marginal means					
LOS SUB VARIABLE	LOS Indicators		Taxi	Bajaj	Ojek	GOJEK
		Ojek User	3.4	3.7	3.6	3.3
		Ojek Non-User/Occasional User	3.3	3.2	3.1	3.2
		GOJEK User	3.77	3.5	3.76	3.8
		GOJEK Non-User/Occasional User	3.78	3.8	3.8	3.7
	Obedience to traffic regulations	Taxi User	4	3.4	3.6	3.84
		Taxi Non-User/Occasional User	3.7	3.9	3.9	3.85
		Bajaj User	2	2.3	2	2.1
		Bajaj Non-User/Occasional User	2.2	2.1	2.1	2.2
		Ojek User	2.1	2.7	2.3	2.2
		Ojek Non-User/Occasional User	2.3	2.1	2.2	2.1
		GOJEK User	3.38	3.5	3.4	3.4
		GOJEK Non-User/Occasional User	3.36	3.3	3.3	3
	Pick up adherence and punctuality	Taxi User	3.4	3.1	3.1	3.2
		Taxi Non-User/Occasional User	3.2	3.3	3.3	3.1
		Bajaj User	2.8	2.9	2.9	2.8
		Bajaj Non-User/Occasional User	2.9	2.8	2.7	2.9
		Ojek User	3.22	3.28	3.5	3.3
		Ojek Non-User/Occasional User	3.25	3.23	3.1	3.1
		GOJEK User	3.78	3.7	3.8	3.8
		GOJEK Non-User/Occasional User	3.82	3.8	3.8	3.6
Availability	Operation hours	Self Employed	3.83	2.72	3.02	4.11
		Gov't employee	4.17	2.81	2.94	3.94
		Private Sector Employee	4.11	2.51	2.96	3.93
	Operation area	Self Employed	3.91	2.61	3.19	4.16
		Gov't Employee	3.97	2.39	2.70	3.81
		Private Sector Employee	4.06	2.10	2.81	3.93
Crew Attitude	Driver's politeness	Male	3.91	2.78	2.75	3.82
		Female	3.93	2.90	2.92	3.89
	Driver's willingness to help passenger	Male	3.84	2.58	2.81	3.5
		Female	3.94	2.69	2.85	3.57
Vehicle Condition	IPT appearance and equipment	Taxi User	4	3.5	3.9	4
		Taxi Non-User/Occasional User	3.9	4	4	3.9
		Bajaj User	2.3	2.8	2.5	2.3
		Bajaj Non-User/Occasional User	2.4	2.3	2.4	2.5
		Ojek User	2.6	2.7	2.7	2.6
		Ojek Non-User/Occasional User	2.65	2.6	2.6	2.5
		GOJEK User	3.66	3.7	3.73	3.8

	Estimated marginal means					
LOS SUB VARIABLE	LOS Indicators		Taxi	Bajaj	Ojek	GOJEK
		GOJEK Non-User/Occasional User	3.75	3.7	3.71	3.5
	Mechanical condition	Taxi User	4	3.7	3.86	3.94
		Taxi Non-User/Occasional User	3.9	4	4	3.97
		Bajaj User	2.3	2.5	2.2	2.2
		Bajaj Non-User/Occasional User	2.32	2.2	2.3	2.5
		Ojek User	2.6	2.9	2.9	2.76
		Ojek Non-User/Occasional User	2.8	2.7	2.7	2.7
		GOJEK User	3.5	3.5	3.63	3.6
		GOJEK Non-User/Occasional User	3.6	3.6	3.62	3.4
Price	Fare	<Rp.3,100,000	2.11	2.28	2.30	3.51
		Rp.3,100,001 – 4,000,000	2.22	2.4	2.42	3.75
		Rp.4,000,001-5,000,000	2.28	3.03	2.82	4.07
		>Rp.5,000,001	2.41	2.97	2.87	4.02

Annex 1: Research Instrument

QUESTIONNAIRE

Perception of Intermediate Public Transport as mode of choice in Jakarta, Indonesia

I am a student of Erasmus University, Rotterdam. This study intends to investigate the perception of Intermediate Public Transportation related to its service delivery which affects its usage as the mode of choice in Jakarta. It would be appreciated if you can take some time to help complete the following survey. It should only take about 15 (fifteen) minutes of your time. Please be assured that all your responses are voluntary and will be treated confidentially. All responses in this survey will be analyzed as a group and unidentified individually. Thank you for your participation.

Part I. Respondent Characteristic

Q. No.	Questions	Options
1.	Gender	[ ] Male [ ] Female
2.	How old are you?	[ ] 15 – 19 [ ] 20 – 29 [ ] 30 – 39 [ ] 40 – 49 [ ] 50 – 59 [ ] > 60
3.	What is your employment status?	[ ] Self-Employed [ ] Government Employee [ ] Private Sector Employee
4.	Please indicate your monthly income range	[ ] < Rp. 3,100,000 [ ] Rp. 3,110,000 – Rp. 4,000000 [ ] Rp. 4,010,000 – Rp. 5,000,000 [ ] Rp. > Rp. 5,010,000
5.	Please indicate your weekly expenses for IPT	[ ] < Rp. 100,000 [ ] Rp. 101,000 – Rp. 200,000 [ ] Rp. 201,000 – Rp. 300,000 [ ] > Rp 300,000

Part II. Perception of commuting by IPT

In this part, this study want to investigate your perception related to the service quality of the IPT, regardless of whether you never use, use the IPT, or get information of the IPT operation from any source, including positive or negative information from friends, family, news, or even advertisements related to such transportation. Please provide your rating on the type of transportation below using numbers 1, 2, 3, 4, and 5. Rating number 1 indicates the lowest value / worst value and Rating number 5 indicating the best value / highest value

6. How safe from the travel accident do you think is commuting by following IPT mode in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					
Three-Wheeler Taxi					
Conventional Motorcycle Taxi					
GOJEK					

7. How safe from the crime on board do you think is commuting by following IPT mode in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					
Three-Wheeler Taxi					
Conventional Motorcycle Taxi					
GOJEK					

8. How comfortable on board do you feel when commuting by following IPT mode in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					
Three-Wheeler Taxi					
Conventional Motorcycle Taxi					
GOJEK					

9. How sufficient do you think is the number of the operational IPT on the road for commuting by following IPT mode in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					
Three-Wheeler Taxi					
Conventional Motorcycle Taxi					
GOJEK					

10. How fast you do you think is commuting to your destination by following IPT mode in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					
Three-Wheeler Taxi					

Conventional Motorcycle Taxi					
GOJEK					

11. How long do you think is the waiting time to get on board by following IPT mode in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					
Three-Wheeler Taxi					
Conventional Motorcycle Taxi					
GOJEK					

12. How vast do you think is the operation area which includes the location of station distribution for commuting by following IPT mode in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					
Three-Wheeler Taxi					
Conventional Motorcycle Taxi					
GOJEK					

13. How adequate do you think is the operation hours for commuting by following IPT mode in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					
Three-Wheeler Taxi					
Conventional Motorcycle Taxi					
GOJEK					

14. What do you think of the delay time to pick up the commuters by following IPT mode in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					
Three-Wheeler Taxi					
Conventional Motorcycle Taxi					
GOJEK					

15. How obedient to the traffic regulation do you think is the driver of the following IPT mode in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					
Three-Wheeler Taxi					
Conventional Motorcycle Taxi					
GOJEK					

16. How polite do you think is the driver of the following IPT mode in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					

Three-Wheeler Taxi					
Conventional Motorcycle Taxi					
GOJEK					

17. How strong do you think is the driver's willingness to help the commuters (eq. carrying the luggage) while using the following IPT mode in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					
Three-Wheeler Taxi					
Conventional Motorcycle Taxi					
GOJEK					

18. How good do you think is the vehicle equipment and the appearance for commuting by the following IPT mode in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					
Three-Wheeler Taxi					
Conventional Motorcycle Taxi					
GOJEK					

19. How good do you think is the vehicle physical condition for commuting by the following IPT mode in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					
Three-Wheeler Taxi					
Conventional Motorcycle Taxi					
GOJEK					

20. How worth do you think the fare of the following IPT mode for commuting in Jakarta?

IPT Modes	**1**	**2**	**3**	**4**	**5**
Car Taxi					
Three-Wheeler Taxi					
Conventional Motorcycle Taxi					
GOJEK					

Part III. Choice of IPT Mode

21. How often do you use the selected modes of transport (answer for applicable modes only)

Mode of transport	**Everyday**	**3-6 days a week**	**1-2 days a week**	**1-2 times a month**
Car Taxi				
Three-wheel taxi				
Conventional Motorcycle Taxi				
GOJEK				

22. How long do you travel by using IPT to support your trip per week?

Mode of transport	1km – 5km	6km – 10 km	11km - 15km	16km – 20km	> 20 km
Car Taxi					
Three-wheel taxi					
Conventional Motorcycle Taxi					
GOJEK					

As a guide:

- The distance from Blok M Plaza to Hotel Indonesia via Jenderal Sudirman Street is about 7 km
- The distance from Blok M Plaza to Presidential Palace via Jenderal Sudirman Street is about 11 km
- The distance from Blok M Plaza to Station Kota via Jendral Sudirman Street and Gajah Mada Street is 20 km

23. What mode of transport do you usually use to travel? (Please tick as applicable, the answer can be more than 1)
    [ ] Car Taxi
    [ ] Three Wheeler Taxi
    [ ] Conventional Motorcycle Taxi
    [ ] GOJEK

24. Do you combine modes for any of purpose of travel indicated in the table above?

    [ ] Yes [ ] No

25. If yes, which combination of modes do you use? (answer can be more than 1 for each purpose of mode use)

Purpose of mode use	Car Taxi	Three wheel taxi	Conventional Motor-cycle Taxi	GOJEK	Bus	Mini-van	Private Car	Private Motor-Bike
Work/office								
School								
Visiting family and friends								
Social events (eq. funeral, wedding etc.)								
Shopping/trading								
Recreation/leisure								

26. Why do you combine modes?
    [ ] The price will be affordable if the IPT are combined
    [ ] Distance is too long
    [ ] It is faster to get to the destination location

Please indicate your level of agreement with the statement below with the following rating

27. The number of times I use the IPT is because of:

Motivation for using GOJEK	**Strongly Agree**	**Agree**	**Neither agree nor disagree**	**Disagree**	**Strongly Disagree**
The purpose of my trips					
Availability at my origin and destination					
Transport fare is affordable					
Inadequate alternatives mode					
For teleshopping/courier /groceries and other additional services					

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