Analysis of the economic and social parameters of the Three-Wheeler Taxi service in Sri Lanka

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Analysis of the economic and social parameters of the Three-Wheeler Taxi service in Sri Lanka

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Abstract

Sri Lanka has an extensive Three-Wheeler Taxi service comprised of around 300,000 vehicles. These vehicles, which first made an entry to Sri Lanka’s roads in the early 1980s, account for around 15% of the active motor vehicle fleet at present. Three-Wheelers Taxis also account for around 6% of the passenger kilometres. These vehicles are mostly individually operated with some owned by the operator and others hired on a monthly or daily basis. The industry is unregulated with vehicle registration and driving licenses being the only instruments of regulation. Fares are unregulated. However, most operators belong to associations which are loose collections of operators found in a given locality. These associations impose a degree of self-regulation with respect to fares. They also tend to demonstrate oligopolistic behaviour.

The paper is based on a survey of 200 operators and 100 passengers from a Divisional Secretariat area in Colombo District. The survey covered a number of details pertaining to ownership, management and fare structures, as well as opinions on the service attributes by users. The survey also covered perceptions of operators to determine the social, economic and transport implications of the services provided. Details were also obtained on the profiles of the operators and their expectations.

The paper provides the results of the analysis of this data and draws a number of conclusions on the economics of the industry as well as the social aspects associated with it. It also discusses the characteristics of the users of these three wheelers as well as their typical use. The analysis also investigates complementarily of service provision between three wheelers as an access mode to buses and railways. This analysis has been used to develop an understanding of the manner in which the industry has grown over the last two decades and how it is being operated today. It also identifies areas wherein the industry has become inefficient and assesses the degree of overpricing that exists due to this. The data also helps to determine the relationship between unemployment and provision of self-employed transport services.

The paper concludes with a synopsis of the profile of the industry and its role within the wider transport sector and with respect to ownership. It also discusses the positive and negative impacts of the lack of regulation on the industry.

1. Introduction

Informal Public Transport (IPT) is a widespread social phenomenon in Sri Lanka which over the last three decades has become an integral part of the land transport sector. The most common and visible mode of IPT in Sri Lanka is the Three-Wheeler (TW). Three Wheelers are low horse-powered 2 or 4 stroke machines, which are approved to carry two adults in addition to the driver. As shown in Fig. 1, they have a frame covered by canvas with a rear mounted engine and a motor cycle type of control.

1.1. Emergence of Informal Public Transport (IPT) modes

Scholars have presented several factors that contribute to the emergence of IPTs. Firstly, IPT modes have emerged spontaneously to fill gaps in the conventional transport of the urban areas (Hilling, 1996, pp. 212–225). Secondly, the increase of per capita incomes has greatly influenced the rapid increase of demand for mobility and transport within the urban areas. Thirdly, overcrowding, insufficient maintenance, poor management, and inadequate...
investment in existing transport infrastructures have lead to the conversion of the higher income groups in public transport into IPTs (Shimazaki & Rahman, 1996).

For instance, in the mid-1970s, privately owned mini-buses were introduced in Kuala Lumpur as the conventional bus services were insufficient to satisfy the growing demand. The introduction of mini buses was a new investment opportunity for local entrepreneurs and a viable job market. Moreover, since being non-unionised, the mini-buses had flexibility to provide services for routes that had been excluded by the scheduled transporters.

Some of the recently established IPTs of Asia have common characteristics such as: (a) being privately owned; (b) mostly informal and loosely organised; (c) poorly regulated or unregulated or in some cases illegal; and (d) more flexible and adaptable than public transport to individual (market) needs (Valenzuela, Schweitzer, & Robles, 2005; Veras, Filepe, & Macario, 2008). However, each country has its own distinctive forms of informal transport modes based on a set of unique circumstances that have led to its establishment. Examples of these circumstances are the type of market gap created, level of unemployment, quality and quantity of public transport services, availability of suitable vehicles at affordable cost, transport regulations, political patronage for small entrepreneurs, ease of obtaining finance etc.

The passenger carrying capacity of motorised IPT modes commonly found across cities in Asia varies from 20% to more than 50% of total public transport demand. For example, this is estimated as 70% in metro Manila, Philippines, 50% in Jakarta, Indonesia, 40% in Kuala Lumpur, Malaysia and 21% in Bangkok Thailand (Shimazaki & Rahman, 1996). However, these shares have decreased in more recent times with the introduction of higher quality public transport such as rapid transit systems in cities like Kuala Lumpur, Bangkok and New Delhi.

1.2. Three-Wheelers in Sri Lanka

Shimazaki and Rahman (1996) as well as Hilling (1996), classify IPTs into two types: non-motorised and motorised and each of them sub-classified into three types based on their seating capacity such as Individual Type (seating capacity less than 4), Shared Type (seating capacity 5–10), and Collective Type (seating capacity 11–20). In this respect Three Wheelers used in Sri Lanka fall within the definition of individual motorised IPTs.

Three-Wheeler IPTs are seen in several Asian countries and are called by different names e.g., Auto-Rickshaws in India; Tuk-Tuks in Thailand and Trishaws or Three-Wheelers in Sri Lanka. These TWs ply alongside other IPTs in Sri Lanka such as organised private cab/taxi services and individually owned vans or buses that provide pre-arranged transport services to school children and office workers for a monthly fee.

Sri Lanka’s TW fleet at present comprises of an estimated 342,286 vehicles accounting for around 15% of the active motor vehicle fleet (Central Bank of Sri Lanka, 2008). It is estimated that TWs also accounts for around 6% of the passenger kilometres. This is significant considering that scheduled modes of public transport, namely buses and trains, carry 68% of the passenger kilometres (Kumarage & Jayaratne, 2009). TWs are mostly individually operated with some owned by the operator and others hired on a monthly or daily basis. The industry, including hire fares, is mostly unregulated with vehicle registration, driving license and vehicle insurance being the only instruments of government regulation. However, most operators belong to unions which are loose collections of operators found in a given locality. There are informal barriers and external elements that control parking places of TWs for hire in a given locality, unless permission from these unions is obtained.

The annual registration of new TWs has averaged 20% during the last two decades. In 2006 this reached a high of 31%, and has consequently dropped partly due to the high price of fuel, the economic recession and in some instances, the oversupply in the market.

1.2.1. Three-Wheeler sub-culture

Three-Wheelers in Sri Lanka are very notable as they are embellished with gaudy decorations, mirrors, inscriptions and are often the loudest vehicles on the road. As a result of such appearances TWs are seen as a unified sub-cultural unit of the mass culture. This sub-cultural unit has their own set of dialects, popular music, radio shows and clothing and accessory styles. During the field survey, the loud music that was played in the TW from big speakers set up right besides the rear passenger seat was inevitable. Furthermore, passenger seats had been modified with cushions and covers, while the original driver’s seat has been removed and replaced with a driver’s seat of a car or van and interior walls of the TW were posted with inscriptions, posters of popular artists, pictures of babies, and sometimes decorated with artificial flowers. At the front of the drivers’ compartment a display of a religious figure was often found, and side mirrors were decorated with various stickers. Drivers of TWs are mostly dressed in shorts, denims, sarongs, and sleeveless shirts, t-shirts or shirts. Often, young TW drivers tend to have long hair, pierced ears and body tattoos. By dressing in a particular way, these drivers have created an identity for themselves which, according to their perspective, have positive and negative impacts on their lives.

1.2.2. Public perception of TWs

Even though TWs have become a significant part of the vehicle fleet over the past three decades, Sri Lankan society by and large consider it as a nuisance. Its contribution to traffic congestion, noise and air pollution, frequent association with illegal activities and price irregularities are the primary negative public perceptions. On the other hand they are becoming a popular mode of para-transport due to their availability, provision of door to door service, ease in contacting and a perception of being “affordable”.

However in most cases, the stereotypical TW driver is perceived as a thug or gangster who plays loud music, smuggles drugs, and even dresses like a thug. These perceptions have created a barrier for a typical TW driver to fully participate in day to day social activities. For instance certain five star hotels prohibit TWs entering the hotel premises. As a result, passengers even though they may be...
1.2.3. Regulations for Three-Wheelers

Regulations for TWs are the same as for all motor vehicles. The owners are required to register their vehicle and also obtain a driving license to operate a TW; both of which can be attended to at the Commission of Motor Traffic (CMT). Every year thereafter, they are required to obtain an annual revenue license from the provincial CMT. No special permission process is required for deploying a TW for hire. Such regulations were in force for omnibuses until 1978, when they were struck off the legislation in order to make way for unconstrained entry of IPTs to serve the growing demand for transport which saw a big spike in demand soon after the Sri Lankan economy was deregulated in 1977.

The local governments such as municipalities that are authorized by statute to regulate parking and other matters have not stipulated much control. The mid level of government namely Provincial Councils that have the authority to regulate transport within a province have promulgated regulations that have yet not taken effect in the face of the political sensitivities since TW drivers and owners are politically a considerable force, nationally or at local level and are a primary source of income to around 5% of all households in Sri Lanka.

The National Transport Commission (2009) in its role in advising the Central Government on transport policy has proposed government intervention with respect to: (a) Imposition of Standards for Vehicles; (b) Standards for Registered Operators; (c) Imposition of standards for registrations and cancellations for Operators; (d) Imposition of Standards for Managers of Registered Operators; (e) Imposition of Standards for Hiring Vehicle Drivers and Other Employees; and (f) Imposition of Standards for Members and Employees of the Regulatory Authority.

1.2.4. Operation of Three-Wheelers

TWs are mostly unregulated, and this has led to the entry of large numbers of individual operators to the market. In order to meet local concerns, operators of a given locality have formed into loose associations or in some instances, into organised associations which have a constitution, representation of district membership and office bearers. In general, TW fares are negotiated for each trip. Although there have been some discussions regarding the implementation of meters, previous attempts have failed.

2. Scope and objectives of study

This paper is based on a survey of 200 TW operators and 100 TW passengers from the Moratuwa Divisional Secretariat area located in the southern end of the Colombo District. The survey covered details pertaining to the fare, market behaviour, trip purpose, customer preference and personal opinion of the service attributes as perceived by the users and the perceptions of operators to determine the social, economic and personal views of the service they provide. Details were also obtained on the profiles of the operators and their job aspirations.

This paper discusses the results of the analysis of this data and draws a number of conclusions on the economic and social aspects of the TW industry. Its also discusses the characteristics of its users and their trip profiles. The paper provides an understanding of the manner in which the industry has grown over the last two decades and how it is being operated today. It also discusses the pricing structures and identifies areas wherein the industry has become inefficient. The data also helps to understand facets of the relationship between unemployment and provision of self-employed transport services commonly seen in developing countries.

3. Analysis of questionnaires

The questionnaire has been analysed with respect to the TW market, the TW operator and the passenger.

3.1. Three-Wheeler market

The TW operation in Sri Lanka demonstrates characteristics of a cartelised service provision featuring oligopolistic market behaviour. It was revealed from the surveys that 74% of TW operators are registered at a particular TW park having an informal unionised operation, while the rest park their vehicles at different locations and are not among the unionised TWs.

Even though TWs demonstrate localised cartels, the fact that there is no formal barrier for entry has caused the constant increase of TWs in an area thereby creating an oversupply and the consequent reduction of revenues which results in overall inefficiencies and subsequent increases in fares to maintain minimum revenues if operators are not willing to exit the industry. The study found that 63% of operators were in favour of limiting the number of TWs in a particular area, while the others were not in favour.

3.1.1. Socio-economic issues related to TW industry

This survey affirmed that TWs in Sri Lanka are playing a vital role in the mainstream transport sector. When analysing passenger trip purpose, it is evident that transport needs that cannot be met by scheduled public transport and the on-demand nature of mobility, reinforces the existence and growth of the TW market. However, there are many socio-economic issues embedded in this market.

Identification of barriers in informal public transport has been researched based on empirical observations and literature reviews (Veras et al., 2008). The study therefore investigates the prevalence of entry barriers to Three-Wheeler markets in unregulated environments. It is disclosed that there are no barriers to enter the wider market, but up to 64% of operators state that there are several barriers to enter a particular unionised parking place. Operators reveal that such barriers are made up of:

- having to pay the union a compulsory fee;
- having to obtain membership of the union;
- influences imposed by other operators; and
- having to make a payment to a third person who is often not a member of the union, but someone who exerts some form of legal, forceful or political control of the parking lot.

During the survey it was discovered that when a new TW driver, who is not a native of the given locality, attempts to enter the TW market, he faces threats, arguments, and sometimes political influences to move the TW to a new locality. Therefore, in this particular market, freedom to establish and the survival of a new service is determined by locality, political connections, and some sort of introduction by a fellow TW stand member.

3.1.2. Pricing of TW services

In formal transport markets, due to the non existence of an exact supply function, pricing is usually carried out by the respective
regulatory body. But in the case of unregulated transport markets, pricing of a service is determined entirely by the operator who has full freedom regarding the cost he levies from his customer. The TW market falls into this latter category. The mechanism by which TW fare is decided in the market was studied, and it was concluded that around 43% of operators have rates that are determined by them. Furthermore 29% report a significant influence from the local unions in the parking areas with around 25% reporting that they bargain with passengers.

3.1.3. Variations in fare

The variation of fares, which is based on distance, the average, minimum and maximum fares, has been analysed using both operator and passenger responses. On analysing the mean as well as the trend, it is observed that fares increase with travel distance. The fare of Rs 42.71 for the first km (around US$ 0.40) is approximately seven times that of the bus fare for the same distance and around two times the financial cost of running a passenger car for a distance of 1 km. The marginal average fare of Rs 29 per additional km (US$ 0.27) is also high. However, this is likely to be because the industry structure does not allow return hauls from TW stands which are reserved for the TWs in that locality. The high empty return trips are confirmed by many traffic surveys that consistently show average vehicle occupancy in TWs to be less than one passenger.

There is a lower variation in fares for short distances which is explained by the fact that short distance passengers are regular users and are fully aware of the fare charged by the operators, therefore over charging is unlikely. The higher variation proves that occasional users, out of town users etc are more likely to pay twice or three times the fare charged for regular passengers.

3.1.4. Fares at night time

Around 74% of the TW operators responded that they regularly provide night time services. Of these, however, 33% of the operators and 42% of passengers indicated that there is fare discrimination at night time. The most likely reason for this is that night time services of regulated public transport operations are usually under provided. This enables TW services to charge a higher fare relative to daytime operation. Another reason is that operators state that night time operations have higher perceived risks due to muggings and vehicle theft. Other instances of higher fares were times when it is raining (10%), when there were no other TWs available (5%), and when the passenger requests mid journey stops.

3.2. Personal profiles of operators

The result of the analysis of personal profiles of TW drivers have been analysed with respect to age, marital status, employment type, educational level, ownership of vehicle, income and job satisfaction. The summary of these as mutually exclusive percentages is given in Table 1.

It was found that 67% of the drivers had started their career when they were between 18 and 21 years old. This result correlates with their stated education attainment and the age at which they entered the TW market, which indicates that in most cases, most of them enter the trade two to three years after leaving school. This assumption can be justified with the survey findings where 34% said that they became TW drivers as it was difficult to find any other job. A further 35% said they considered this as an easy job, and 14% stated that they took up driving because the income is good.

3.2.1. Education

The lack of alternatives for school dropouts or students who barely pass the GCE Ordinary Level (10th Grade) examination makes operating a TW a viable option. Therefore, operating a TW should also be considered as a temporarily solution for unemploy ment among GCE (O/L) school leavers in particular.

It was also found that over 50% of TW drivers had passed the 10th Grade or more, specifically the General Certificate of Education—Ordinary Level (GCE-O/L), but have not attempted the 12th Grade or GCE Advance Level examination. It was found that in fact many TW operators consider this as a temporary job as they have the aspiration to start their own business or save up money to go abroad or to find another job. Therefore, operators' perceive their job as a transition job only. However, from their employment history it is apparent that many such TW operators have been unable to fulfil their job aspirations and have continued in the trade.

The age profile indicates that less than 10% of drivers are older than 50 years; hence the industry is dominated by younger drivers. Whether this is because TWs became popular only over the last 15 years or if it is because older drivers have become owner — hirers is still not determined.

It was also observed that 72% of TWs were owned by the driver and the other 28% owned by another party. The hiring charge of a TW per day averages around Rs 300. Many drivers who do not own TWs consider owning a TW an achievement and attainment of a social goal. Such TWs are often seen to be highly decorated and personalized. In addition, owning a TW also guarantees a steady income which provides an alternate mode of income for them even if they choose not to drive it themselves. The study also shows that 47% of owners had financed the ownership themselves while the balance had either leased or obtained loans for the purchase.

The increasing number of TWs entering the market has made leasing of TWs a primary target market for financial institutions.
3.2.2. Income

The total revenue of any goods or services provided is important to sustain the operation of the production process. In this respect, the study found that the mean daily income of a TW operator was reported as Rs 750 while the expenditure was given as Rs 613.50, thus leaving a profit of around Rs 136.50. By comparison this is lower than most daily paid labour jobs. But unlike daily paid labourers this is a guaranteed income where one could work every day of the month. This corresponds with the statement of 65% of drivers that opting to drive a TW was ‘Easy Work’. Another reason for accepting lower incomes is that driving a TW gives more status and also that it provides the freedom of self employment. There were however (1%) respondents who stated that there are some days that they take risks and engage in transport of drugs and prostitutes for which they make over Rs.1000 per trip.

3.3. Passenger profile

A summary of the profile of the TW passengers is given in Table 2. The socio-economic characteristics of commuters are analysed in terms of their gender, age, occupation, monthly expenditure, method of contacting TW and whether they own a private vehicle or not.

The age structure of the respondents shows that 60% of the commuters belong to the age group of 21–40 years. This possibly explains the predominance of using TWs for shopping, getting to work, as access to bus or railway and when public transport is unavailable. A noteworthy result is that 48% of the users indicated that they had access to a private vehicle. This would imply that the passenger clientele of TWs belong to the middle or higher income groups. The fact that 26% of trips are made by housewives and a further 11% by students may represent passengers from households where the own vehicle would have been unavailable as it would have been used by the male in the house for going to work or for business purposes.

Table 2
Summary of passenger profile.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
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<tr>
<td>Female</td>
<td>53</td>
</tr>
<tr>
<td>Male</td>
<td>47</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>16–20</td>
<td>8</td>
</tr>
<tr>
<td>21–30</td>
<td>29</td>
</tr>
<tr>
<td>31–40</td>
<td>31</td>
</tr>
<tr>
<td>41–50</td>
<td>16</td>
</tr>
<tr>
<td>51–60</td>
<td>11</td>
</tr>
<tr>
<td>61–70</td>
<td>3</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
</tr>
<tr>
<td>Students</td>
<td>11</td>
</tr>
<tr>
<td>Housewives/unemployed</td>
<td>26</td>
</tr>
<tr>
<td>Office workers</td>
<td>24</td>
</tr>
<tr>
<td>Non-office workers</td>
<td>24</td>
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<tr>
<td>Self employed</td>
<td>15</td>
</tr>
<tr>
<td>Private vehicle ownership</td>
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<tr>
<td>Owns a vehicle</td>
<td>48</td>
</tr>
<tr>
<td>Do not own a vehicle</td>
<td>52</td>
</tr>
<tr>
<td>Hire arrangement method</td>
<td></td>
</tr>
<tr>
<td>Hire from stand</td>
<td>28</td>
</tr>
<tr>
<td>Contact by mobile phone</td>
<td>21</td>
</tr>
<tr>
<td>Verbal contract</td>
<td>8</td>
</tr>
<tr>
<td>Hailing on street</td>
<td>19</td>
</tr>
<tr>
<td>Combinations of above</td>
<td>24</td>
</tr>
</tbody>
</table>

The most preferable method (28%) of hiring a TW appears to be by going to a TW stand. The popularity of mobile phones use seems to be a newer form of communicating with known drivers (21%). This method of hire arrangement is also encouraged by the TW drivers as they can get hires out of turn when waiting in the park. Thus the use of mobile phones enables TW drivers to detach themselves from unions and to reduce the power of unions over them. Moreover, from the commuter’s perspective, many prefer to ride with a known TW driver. Such preferences can be justified as there is a general fear among the public due to the repeated incidents reported through the media regarding the use of TWs in abductions, rapes, robberies, and drug smuggling. Empty TWs returning to the stand after a hire can be hailed on the street. This has also become a popular practice, with 19% of hires obtained this way.

This study also focuses on different aspects of consumer preference to the characteristics of a particular mode of transport. In the context of TWs, 76% of consumers revealed that they would be concerned with the appearance of the driver and 46% indicated they would be concerned about the appearance of the vehicle. Data also reveals that monthly personal expenditure on use of TWs is as follows.

As shown in Table 3, 67% of passengers interviewed spend less than Rs 1000 per month for TW services. It can therefore be concluded that most passengers are not regular customers of the service. This is confirmed by the minimum average fare of Rs 42, which would not allow for more than 20 trips per month. This would mean that very few people use TWs on a daily basis unlike in the case of scheduled services such as trains and buses. Those who appear to use TWs regularly have to be those who are spending more than Rs 3000/month of which there are less than 7%.

3.4. Passenger perceptions of TW services

3.4.1. Fares

In survey, 20% of passengers stated that they are not satisfied with TW fares, while 39% said that they are somewhat satisfied. When asked why they are not satisfied, 34% of them stated that TW fares are high and unreasonable, 24% that there is no standard price and a further 42% that TWs increases their fares disproportionally when the price of fuel is increased. However, it is interesting to note that 41% of commuters are mostly satisfied (including completely satisfied commuters) with the TW services. When studying the profile of this group of satisfied commuters, it was found that their method of arranging TW hire is by going to a TW stand, where all TW drivers charge the same amount for the similar distances. Therefore, there is very little chance for commuters to witness price differences.

3.4.2. Passenger perception of the overall service provided by TWs

The survey discovered that 67% of the commuters surveyed are happy with the overall service of the TWs in the Moratuwa Division. However, 23% said that they are unhappy with the TWs due to reasons such as reckless driving, disobeying traffic rules and...
4. Conclusions

Three-Wheel Taxis (TWs) used in Sri Lanka, fall within the definition of individual motorised IPTs. Sri Lanka’s TW fleet comprises of an estimated 342,286 vehicles accounting for around 15% of the active motor vehicle fleet and 6% of the passenger kms. It has been growing at around 20% per annum but has recently dropped due to the high price of fuel, the economic slow down and, in some instances, oversupply in the market.

TWs are becoming a popular mode of para-transport due to their ready availability, provision of door to door service, ease in contacting and a perception that they are “affordable”. Since TWs are mostly unregulated, this has led to the entry of large numbers of individual operators to the market. The TW operation in Sri Lanka demonstrates characteristics of a cartelised service provision featuring oligopolistic market behaviour. TW drivers are seen as a unified sub-cultural unit of the mass culture demonstrated by their own fashion, vehicle design, music selection and speech.

Over 74% of TW operators are registered at a particular TW park having an informal unionised operation. The majority claim that there are barriers to entering a particular parking place even though there are technically no government regulations preventing the deployment of a TW for hire at a locality. Hence 63% of operators were in favour of limiting the number of TWs in a particular area. Almost all TW drivers are less than 50 years old. In general they enter the industry two to three years after sitting their GCE (O/L) examination and after they have been unsuccessful in more permanent jobs. They find that driving a TW is relative to other employment options an ‘Easy Job’. Overall, 69% of TW drivers are satisfied with their job.

Even though 43% of operators have pre-determined fares, there is a significant influence from the local unions in this regard. The present fare for the first km is approximately seven times the bus fare for the same distance and around two times the financial cost of running a passenger car. The average fare of each additional km is also high. This is due to low kilometrage, high proportion of empty runs, and the high informal cost of parking stands. Additionally, there is high variation in fares for the same trip where occasional users, out of town users etc are more likely to pay twice or three times the fare charged from regular passengers. TWs operators usually increase fares at night time, when raining, when there are no other TWs available, or when the passenger requests mid journey stops.

There is a predominance of use of TWs for shopping, getting to work, as access to bus or railway, or when public transport is unavailable. However, there is no evidence that many passengers use TWs on a daily basis. 48% of the TW users indicated that they had access to a private vehicle. The popularity of mobile phones use seems to be a newer form of communicating with known drivers. 67% of the TW passengers are satisfied with the overall service of the TWs in the Moratuwa division and the others stated that they are unhappy with the TWs due to various reasons. It could be concluded that at least 40% of users would not use TWs if there was better public transport.

Acknowledgement

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References


