



A COMPARATIVE STUDY OF TOLL COLLECTION SYSTEMS AT KHERKI DAULA TOLL PLAZA , GURUGRAM (HARYANA)

Dr. Shakti Singh¹ and Rakhi Yadav²

¹ Assistant Prof. , Dept. of Commerce MDU, Rohtak.

² Research scholar, Dept. of Commerce MDU, Rohtak.

ABSTRACT

Tolls have become a necessity in today's world especially in a big country like India. In India, toll plazas play major role in recovering the investment made by the private construction companies, which were being hired by the government to construct expressways and national highways in the country. But toll booth brings obstruction to traffic by slowing down the movement of vehicles on the roads. Also the commuters don't feel pleased to spend money to cross the road and get stuck in the traffic jam for that. But with the time toll collection systems have also changed, now apart from the conventional methods of paying the toll tax there are many others like FASTag, RFID etc. which can reduce the waiting time at the toll plaza. The critical purpose of the research paper is to explore and investigate the different toll collection present at the KherkiDaula toll plaza Gurugram and compare users' view about the various toll collection options present at toll plaza. Both primary and Secondary data has been used in the study.

KEYWORDS: Tolls, FASTag, Investment.

INTRODUCTION

Thousands of commuters pass daily through the Kherki Duala toll plaza as it is the connecting road to gurugram. Toll fees are implemented so as to recuperate the road construction cost. The vehicle drivers need to wait in a long queue due to inefficient toll fee collecting methods. This problem can be solved to optimize the results. After obtaining the requisite data from Delhi-Gurgaon Economic Times of toll plaza, the parameters are calculated concerning the waiting time in the long queue, service rate, utilization rate, arrival rate, total and average vehicles in the queue, using Multi-server M/M/m model Queue system. By performing such Toll Booth queue model, it can provide the most effective way to solve the problem, shown in the research methodology (Amin, et al., 2014).

There are too many places on the Gurgaon highway specifically marked for their nasty incidences to recount them now and here. This is the latest information published by BagishJha, through TNN, on Jan 21, 2018, regarding the rage expressed by Gurgaon people over the Dwarka e-way matters and the toll shift postponement that made people spills into the street. The extended postponement concerning the Dwarka Expressway completion and also the impediments in shifting the toll plaza from section of KherkiDaula prompted a four hour protest by almost 250 new home owners on Saturday, 20 January, 2018. The people staying near the Express Highway of KherkiDaula, criticized the government for their inefficiency and delaying the twin projects indefinitely despite several assurances. The previous expressway, and now the national highway, went through several litigations and hurdles, thus remained unfinished even after eight years after starting the project. There was absolutely no progress towards the toll plaza shifting,



people alleged. The Toll Plaza bouncers and the police force had to intervene to prevent people from making more problems for the highway vehicular movement. The protesters thereafter returned on submitting an official memorandum to NHAI near the toll plaza (Jha, 2018). The research paper focuses in studying the various toll paying options present at the KherkiDaula toll plaza and compare the options to know the commuters views for the same.

GENERAL INFORMATION ABOUT VARIOUS METHODS OF PAYING TOLL TAX:

1. Convention method: In this method the toll is paid in cash at the toll window to the toll collector. Many time it create long traffic jams due to the unavailability of change or slow working of the toll operator.
2. RFID Method: RFID chip is like a barcode reader as it reads the number plates of the vehicles. The chip can read 2000bytes of data or less. It provides a unique identification to the objects. It is a wireless communication technology. As the data processed by the RFID is correct and does not take more then few seconds to read the product it is very helpful in collecting toll tax eclectronically.
3. FASTag: FASTag also uses the RFID(radio frequency identification device) technology for making toll payments directly from the prepaid account linked to it. It is a appropriate solution for a hassle free journey on highways and comfort of cashless payment at tolls.

LITERATURE REVIEW:

In 2008, the 29km very remarkable road construction project of Delhi - Gurgaon highway was opened, as it connects international and domestic airports of Gurgaon and Delhi, sponsored by DDA- Delhi Development Authority; NHAI - National Highway Authority, India; CRRI - Central Road Institute of Research; and HUDA - Haryana Urban Development Authority (JIL, 2010). Committee of Rakesh Mohan Reported on Infrastructure (2010) as they reviewed the infrastructure project framework to make recommendations. This committee assessed the needed investments the State, Central Governments, PSU - Public Sector Undertaking and private sectors in all the major highway project construction, infrastructure during the 12th Five Year Plan, and suggested to get the requisite private investments by creating an adjacent investor-friendly business project environment.

Gunjeet Kaur et al (2010) undertook RBI recommendations to develop basic infrastructures, which were critical necessity for roadway growth needs of the whole country. Such huge financing for all India infrastructure cannot be congregated by governments, hence, the private sector involvement can meet the challenges. Askar and Gab-Allah (2002) had summarized several advantages of public and private sector involvement and specified that the private sector finance can provide new capital source, hence reduces public borrowing to improve the government credit rating, as the ability can accelerate the project development, which otherwise need to wait for external resources. The private-sector initiative for funding, capital, and technical know-how can reduce construction cost of project schedules and improve operational efficiency.

Thereon, Satpathy and Das (2007) highlighted the risks involved to project objectives to complete due to multiple source interference, including social, economical, legal, environmental, technical, and political issues, due to the complex nature of the public agencies, disciplines, and stakeholder involvement. Both public and private sectors need to take allocated equitable risk so as to gain better outcomes from the project.

A comparative study conducted by NayanPermaret.al.(2018) researched about the various toll paying options available for the commuters to pay the fees for crossing through the toll roads. The researchers discussed about the conventional method, FASTag method, RFID method and pay using by phone method in the study. The researchers suggested to use high quality cameras to use at the plazas so that they can easily capture the number plates of the vehicles and deduct the toll tax on real time basis.

OBJECTIVES:

The study is conducted to:

- Check the awareness level of commuters about the various payment systems at kherkidaula toll plaza.
- Compare users opinions about the available toll payment options at the toll plaza.
- Recommend the best possible option to pay tolls at the toll plaza.

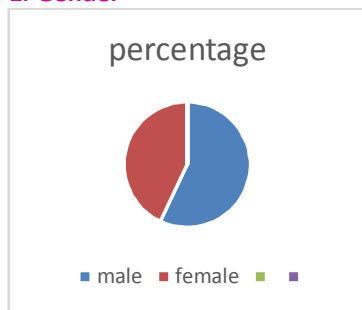
RESEARCH METHODOLOGY:

In this research paper the researchers have used both exploratory and descriptive research techniques. The data was collected through questionnaire toll on random sampling basis. A total of 60 commuters were approached for collecting the required information and out of the 60 questionnaires 8 were found incomplete so final sample size was 52 respondents.

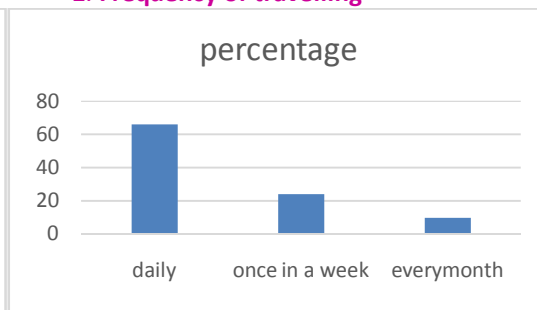
Data Analysis and Findings:

A. Descriptive analysis:

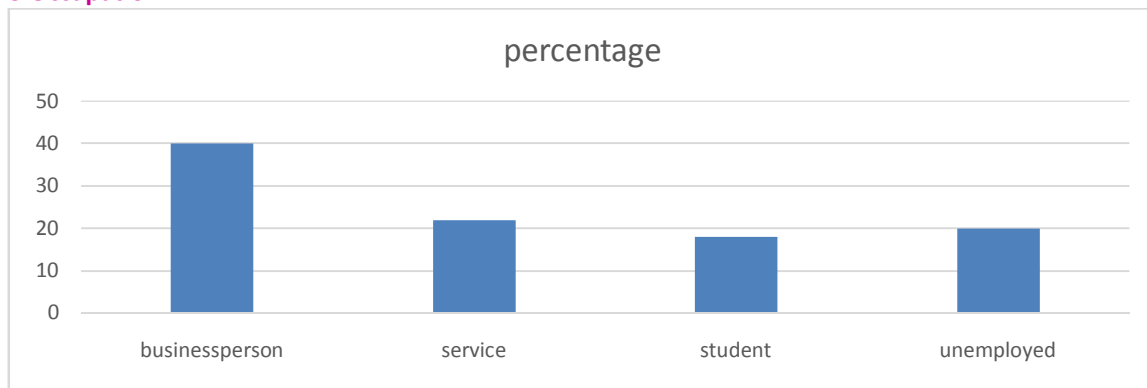
1. Gender



2. Frequency of travelling



3. Occupation:

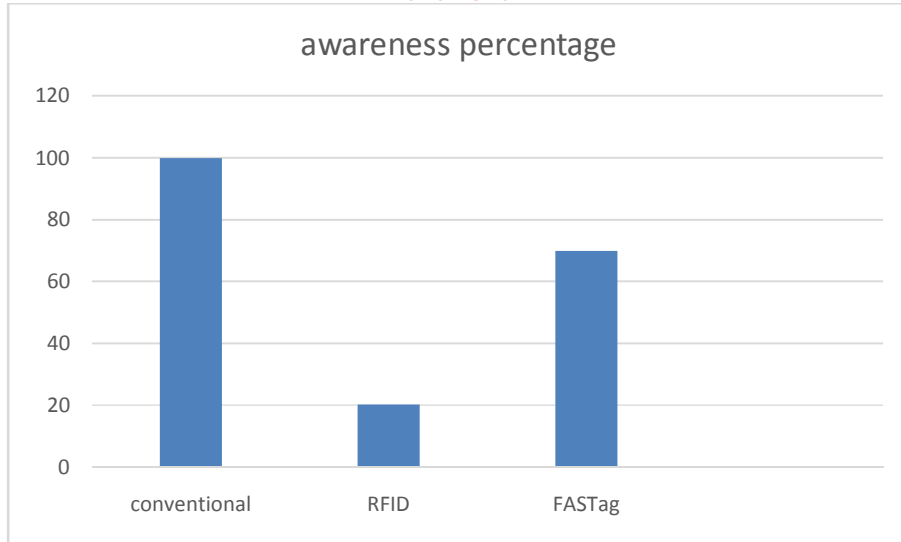


B) 1.) Comparison of various toll payment systems:

| | Conventional method | RFID | FASTag |
|--------------|---------------------|---------|---------|
| Waiting time | High | Average | Low |
| Fuel wastage | High | Average | Low |
| Congestion | High | Low | Low |
| Payment mode | Cash | Online | Online |
| Processing | High | Low | Average |

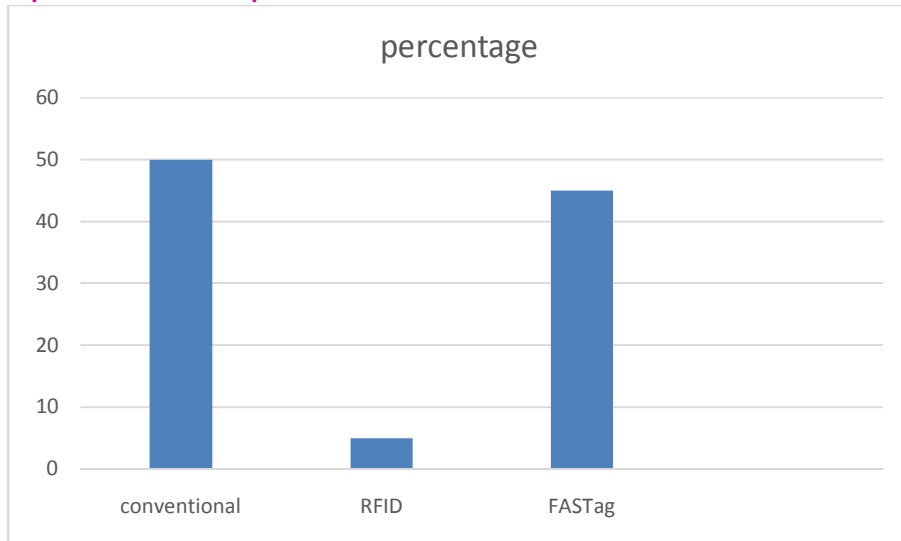
In the conventional method the waiting time, fuel wastage and traffic problems are high but the processing time is also high. In the RFID mode the waiting time and fuel wastage is average and in the FASTag the waiting time, fuel wastage as well as congestion is low.

2.) Awareness of commuters about different toll paying systems:



From the above graph it can be seen that all the respondents(100%) were aware about the conventional method of payment , only 20% know about the RFID and 70% respondents know about the FASTag. Awareness level of the commuters about the Fastag services is high.

3.) Commuters’ preference of toll options:



It can be seen that 50% people prefer to pay by conventional method , inly 5% want to pay by RFID method and 45% want to pay by Fastag method.

CONCLUSION AND RECOMMENDATIONS:

The basic intention of the study was to investigate and compare the various paying options available at the kherkidaula toll plaza and it was found that regardless of traffic waiting half of the people still prefer to pay in cash at the toll plaza. Government should make more efforts to make people adopt the cashless paying options. Yet the awareness level about the fastag is quite high. The study was limit to only one toll plaza of gurugram city and also the sample size was small. There is scope to conduct more studies which involves many toll plazas and larger sample size.

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