

Assesment of Motor Vehicle Inspection Service With Drive Thru System and Conventional System (Case Study Of Unit Motor Vehicle Inspection Province Of Dki Jakarta, Bekasi Regency, Bogor Regency, And Depok City)

Tri Bowo Leksono^{1*}, Suripno², Adenan Suhalis³

^{1,2,3}Institut Transportasi dan Logistik Trisakti, Jakarta, Indonesia

*Corresponding Author: tribowoleksono86@gmail.com

Abstract

Currently, the Executing Unit of Motor Vehicle Periodic Testing totals 335 units throughout Indonesia who have performed the task that can not afford more as much as 139 units and has been equipped with tools as many as 196 units. Regarding the Periodic Test service, do not know which one is the most optimal between a conventional drive system. In this study, the mix methods used to make a work to converse conventionally and Drive Thru. The conventional observation is done in Motor Vehicle Inspection Unit Unit of Depok City, while Drive Through Motor Vehicle Testing Unit of DKI Jakarta Province. Results from research and test mark test. It is known that there is a significant difference between the number of vehicles tested on Motor Vehicle Testing with conventional system, from test sign test result got $X_n = 4.083$ value from $\alpha = 0,05$ (3,841), with value of higher vehicle number in drive system Through, the larger number of vehicles on the drive drive are compared significantly and are relevant. Based on the results of service analysis, the service on Motor Vehicle Testing encourages the 87.6% system which is in the rankings using the rating scale which is categorized as "excellent". While the service time on the credit system drive of 37 minutes.

Keywords: Uji Berkala Kendaraan Bermotor; Drive Thru;Konvensional;Uji Sign Test, Rating Scale.

1. INTRODUCTION

According to WHO's (World Health Organization) data in 2010 showed that the number of people dying from traffic accidents on the road is very worrying, as many as 1.3 million people die per year, or about 3,600 people die per day, or around 150 people die per hour, or about 2 - 3 people die every minute. If it is not handled through more seriously, in the next decade it is predicted to increase to 2.4 million per year, or about 6,600 people die per day, or around 275 people die per hour, or around 4-5 people die every minute (Ministry of Transportation RI data, 2017). The United Nations (UN) concern about

traffic accidents prompted this world organization to declare the Decade of Action For Road Safety in 2011-2020. The UN Declaration is intended to control and reduce the fatality rate of accident victims on the road globally.

The demand for improving the quality of public services continues to grow along with the increasing awareness that citizens have the right to be served satisfyingly, while the government's obligation is to provide the best service to the community. One form of public service provided by the government is testing motor vehicles. Based on the Academic Study of the Compilation of Law Number 22 Year 2009 concerning road traffic and transportation, wherein in this law it is explained that every vehicle, both passenger transportation vehicles, goods and special vehicles, must conduct a feasibility test every 6 (six) months conducted by the transportation service and other relevant agencies. At present, there are 335 units of Periodic Motorized Test Implementing Units in Indonesia that have provided 139 units with details not yet equipped with 139 units and equipped with 196 units of equipment.

The Implementing Unit for Periodic Vehicle Testing, whether owned by the Regency / City Government, DKI Jakarta Provincial Government, Brand Holder Agents, or Private Legal Entity, is required to carry out testing in accordance with accreditation, carried out by motorized vehicle examiners who have the competence according to the level of competence proven with a competency certificate and a sign of the technical qualification of the examiner, maintaining the quality of the tests held, making plans and reporting periodically to the Minister of Transportation, using testing equipment and following the testing system and procedures. The purpose of the motorized vehicle testing or also called the kir test is to provide certainty that motorized vehicles operating on the road have fulfilled the technical and roadworthy requirements and do not pollute the environment or air pollution, so that land transportation can be in accordance with the feasibility of being on the road and also so that land transportation

customers feel safe, comfortable, fast / smooth, and orderly / regular so that they are more confident in the transportation used. (Pratama et al., 2015).

The unit of periodic testing of motorized vehicles currently has several strategies in serving the community, one of which is testing motorized vehicles that use the drive thru system and using conventional systems. This difference can be examined to find out the effectiveness and efficiency of the motorized vehicle testing service.

Based on the description above, this research will focus on:

1. How do periodic testing services on conventional systems?
2. How is the periodic testing service on the drive thru system?
3. What is the difference between testing a conventional motorized vehicle system and a drive thru system?

2. METHOD

2.1 Research Location

The provinces of The Special Region of Jakarta and three other district (Bogor, Bekasi and Depok) are regions with a high number of vehicles, so it is necessary to provide fast and satisfying public services. This is one of the reasons in determining the location of the study.

1.1 Research Flow Chart

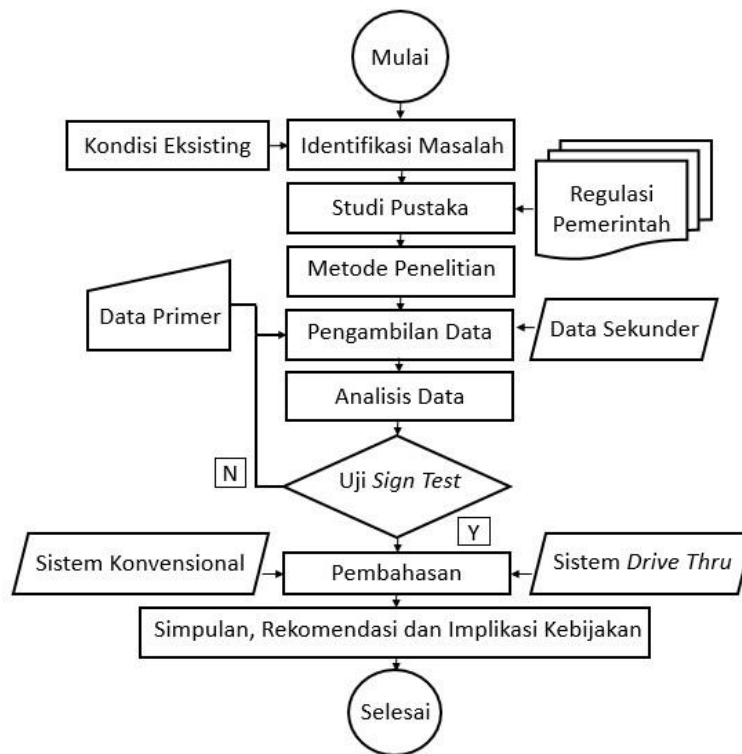


Figure 1. Research Flow Chart

2.3 Population and Sampling Techniques

The population in this study is secondary data, namely 2016 data from January to December about the number of vehicles tested based on conventional system services and 2017 data from January to December is the number of vehicles tested based on the service of the drive thru system, so the population in the form of a month for 24 months.

Sampling technique is how to sampling the data in this study using purposive sampling which is in the data used according to the will of the researcher (Sugiono, 2012: 160) the number of samples used is the same as the population or known as saturated samples.

2.4 Data Collection Techniques

This research data collection method uses:

1. Observation, namely through field observations to the company to find out about motor vehicle testing services both conventionally and Drive Thru. Conventional observations are carried out at the Depok City Motor Vehicle Testing Service Unit, while Drive Thru at the DKI Jakarta Province Motor Vehicle Testing Unit;
2. To interview and complete the required data, the researchers conducted interviews with both conventional and Drive Thru examiners;
3. Secondary data collection, which is the company's internal data per testing;
4. Questionnaire data, the authors use a questionnaire that is used to assess service performance. Questionnaire is an information collection technique that allows analysts to learn attitudes, beliefs, behaviors, and characteristics of several key people in an organization that can be affected by the proposed system or by an existing system. In this study the questionnaire was used to determine differences in service quality in the Technical Unit of Motor Vehicle Testing between the Drive Thru and conventional systems. The popular service quality concept is ServQual which is believed to have 5 dimensions, namely tangible, reliability, responsiveness, assurance and empathy (Irawan, 2008: 37)

2.5 Description of Variables

1. Conceptual Definition

Conceptual definition is a limitation on variable problems which are used as guidelines in research so that it will be easier to operate in the field. To understand and facilitate in interpreting the many theories that exist in this study, it will be determined some conceptual definitions related to the items to be studied, including:

- a. Motorized Vehicle Testing the Drive Thru system is a motorized vehicle testing service system in which vehicle owners do not need to go down to test, vehicle owners simply drive their own vehicle to the testing area;
- b. Motorized Vehicle Testing Conventional system, is a motorized vehicle testing service system in which the vehicle is operated directly by the testing officer.

2. Operational Definition

An operational definition is a clue to how a variable is measured. By looking at the operational definition of a study, a researcher will be able to find out a variable to be studied. The operational definition in this study uses the comparative study method with a sign test.

3. Variable Operations / Instrument Lattices

Operational variables or instrument lattices in this study are Standard Operational Procedure (SOP), number of vehicles and service time.

4. Instrument Testing Calibration

Validity test is conducted to determine the validity level of the instrument (questionnaire) and then used in collecting data obtained by correlating each score of the respondent's answer variable with the total score of each variable, then the correlation results compared with the critical value at significance level 0.05 and 0.01. The high and low validity of the instrument will show the extent to which the data collected does not deviate from the description of the variable in question. For the Hypothesis itself H_0 : Invalid data and H_a : Valid Data, Sig. (2-tailed) shows the significant level of items tested. If the significant value is between 0.00 - 0.05, so the Hypothesis H_a , this criterion indicates that the item tested is valid, whereas if the significant value is > 0.05 , then H_0 is accepted, this indicates that the item tested is invalid.

While to know reliable data or not done by looking at the Reliability Statistics value is positive or negative with Alpha reliability quality criteria < 0.6 : Not

convincing, Alpha 0.6 < α < 0.7: Sufficiently Reliable, Alpha 0.7 < α < 0.8: Reliable, Alpha 0.8: Very Reliable.

2.6 Data Analysis Techniques

The method of data analysis that the researcher uses uses a sign test that is to test two different objects with the same method or the same object with a different system. In this study, it can be proven that there are differences or no differences with the data collected. The testing steps use a comparative method.

1. HO's initial hypothesis: $\pi < 0$ there is no difference between objects with each other, HA: $\pi > 0$ there are differences between objects with one another;
2. Determine r count that determines the biggest positive value;
3. Looking for r table that is using a cumulative binomial table by determining α for example 5% and determining a positive value of 50% or = 0.5.
4. Conclusion
 - a. r count < r table then HO is accepted HA is rejected, meaning there is no difference or object with other objects.
 - a. r count > r table then HO is rejected HA is accepted, meaning there is a difference between one object and another object.

For determining the system performance category, a value scale or range of assessments is made using the general statistical formula for calculating the rating scale with the following stages: Calculating Range (R)

Formula:

$$R = \text{Maximum} - \text{Minimum}$$

$$\text{Maximum score} = \text{Highest point} \times \text{Number of items}$$

$$\text{Minimum score} = (\text{Highest points} \times \text{Number of items}) / (\text{Maximum Score}) \times 100\%$$

Calculating Interval (I) Formula:

$$I = R / K \text{ Information:}$$

R = Range, K = Number of criteria compiled, I = interval

Enter the calculation results in the assessment category

Formula: Rating Criteria = % Highest Total Score - Interval

3. ANALYSIS AND DISCUSSION

3.1 Conventional Test Analysis

Based on the recap data on the number of Pulo Gadung Motor Vehicles in 2016, vehicles that pass are higher than those which do not pass, with an average of 8233 units of vehicles passing, while for vehicles that do not pass on average there are 1492 vehicles. The percentage of vehicles passing by not passing is 85% compared to 15%. The number of vehicles passed for Motor Vehicle Inspection in Depok City is 31,413 units, while for vehicles that do not pass is 236 units. The difference between the vehicles that pass and not pass is very far based on a percentage analysis of 99.25% for vehicles passing and for vehicles not passing by only 0.75%, this is due to the number of requests for submission to adjust to the conditions of time and holidays on the month that. The number of Passed Motor Vehicles in Bogor Regency was 41,201 units, while for vehicles that did not pass were 506 units. The difference between the vehicles that passed and did not pass was very far based on the percentage analysis of 98.79% for graduated vehicles and for vehicles not passing by only 1.21%. As for the number of Motorized Vehicles tested in Bekasi Regency, it was 55,013 vehicles. The highest number of vehicles was in November with a total of 5,550 vehicles, while the lowest number of vehicles in February was 4,050 vehicles.

The service system in Motorized Vehicle Testing that uses Conventional Systems, Based on the local Regency Government Regulation through the Department of Transportation of the Vehicle Testing Technical Management Unit which still uses conventional systems, the Motor Vehicle Testing Standard has standard requirements, costs and target testing time. Related to motorized vehicle testing

services that still use conventional systems, the author divides the questions into several variables, the author distributes questionnaires to the community incidentally and obtains the following analysis results The popular service quality concept is ServQual which is believed to have 5 (five) dimensions namely tangible, reliability, responsiveness, assurance and empathy (Irawan, 2008: 37).

Triangulation which is a data validity checking technique that utilizes something other than data for the purpose of checking or comparing data. The aim is to look for priorities, interventions and solutions from all parties. In the drive thru and conventional system questionnaires, the triangulation analysis used is the same. The following are expert informants used as resource persons and validation of data validity:

Table 4.1 Triangulation analysis

No.	Name	Position	Description
1.	Yusuf Nugroho, ST., MT.	Head of Periodic Motor Vehicle Inspection Subdit.	Informant I
2.	Dr. Fatchuri	Head of Sub Unit Administration of Technical Unit Motor Vehicle Inspection in Pulogadung	Informant II
3.	Muslim Akbar	Chairman III Informant	IPKBI DPP Source: Results of analysis, 2018

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From the results of the questionnaire and interview analysis, service equipment data was obtained in the Motor Vehicle Testing building. The number of service officers in the service building was also sufficient and served with hospitality when performing services. Information equipment is sufficiently available at the testing location, the service time is in accordance with the Standard Operational Procedure (SOP), and the knowledge of the staff is also good when problems occur in the field.

Table 4.2 Results of conventional system testing scores

Problem Description	1 A	Problem 2 A	Problem 3 A	Problem 5 A	Problem 7 A	Problem 8 A	Problem 1 B	Problem 2 B	Problem 4 B	Problem 5 B	Total Score
Total score	24	15	20	15	20	20	82	83	86	90	455
Max value.	25	25	25	25	25	25	100	100	100	100	550
Min value.	5	5	5	5	5	20	20	20	20	20	110
The average score is	4.8	3	4	3	4	4	4.1	4.15	4.3	4.5	39.85

Source: Results of analysis, 2018

From the results of the questionnaire analysis conducted by researchers using the Field review method and manual analysis, for the conventional testing system of 13 (thirteen) questions there were 3 (three) invalid item items, namely questions number 4 and 6 related to the assessment form and question number 3 related to a research questionnaire filled by the community.

So that, it can be calculated how much the performance of a conventional vehicle motorized vehicle testing service and which category of performance calculation results are, namely:

The total score weighted (α) = 39.85

Rating value category = $\alpha / (\text{Maximum score}) \times 100\%$
= $39.85 / 50 \times 100\% = 79.7\%$

Table 4.3. Range, Interval and Lower Limit in performance assessment

Rating Scale	Range	Lower Limit	Interval
Very Good	80%	16%	84%
Good	60%	12%	72%
Enough	40%	8%	52%
Less	20%	4%	24%
Very Less	0%	0%	0%

Source: Results of analysis, 2018

Rating category value = 79.7% when compared to the category value scale is at intervals of 72% - 83.99% Therefore it can be concluded that the Performance of Motorized Vehicle Testing System with conventional systems is "Good". Based

on the Local District Government Regulation through the Department of Transportation, the Vehicle Testing Technical Management Unit, which still uses conventional systems, the Motor Vehicle Testing Standard has a standard requirement, cost and target testing time. Regarding service time, for testing motor vehicles with a conventional system has a standard service time of 55 minutes

3.2 Analysis of Drive Thru System Testing

Analysis of drive thru testing is only carried out at the Motor Vehicle Testing Unit in Pulogadung, this is because the Motor Vehicle Testing Unit of Depok City, Bekasi City, Bogor City is currently still using a conventional system. The number of vehicles in the Pulogadung Motorized Vehicle Testing Unit in 2017 amounted to 105,218 units of vehicles, with the number of vehicles passing by 83,186 units of vehicles with the highest number in November with the number of 7,815 units of vehicles, while the lowest in December was 4,258 units of vehicles. For vehicles that did not pass a total of 22,032 units of vehicles with the highest number in August with a total of 2,180 and the lowest in December with a total of 459 vehicles. So it can be concluded that the number of vehicles tested is fluctuating. While the percentage for vehicles passed was 79% and vehicles did not pass by 21%. The percentage of vehicles that passed was more than vehicles that did not pass, but please note that the number of vehicles that did not pass a total of 21% is a fairly high number, vehicle owners are not expected to maintain the vehicle properly, so when tested the vehicle does not pass and then vehicles are required to repair the vehicle in accordance with government regulation standards and retest.

Operational Standards Service on the drive thru system on Pulogadung Motorized Vehicle Testing is clear and detailed so that vehicle owners are not confused in running the system, from the start of the test booking the owner then carries the vehicle and registers and payments, after that, the vehicle owner immediately carries out the technical inspection process and roadworthiness without getting

off the vehicle, then the printing process and ratification of the test results. Based on the results of the testing equipment questionnaire analysis in the building, the service is very complete, the number of officers is also in accordance with the needs, the officers also have a friendly manner in providing services, and the officers have sufficiently high knowledge / competence in service to the community.

Table 4.3 Results of scoring the drive thru system test

Problem Description	1 A	Problem 2 A	Problem 3 A	Problem 4 A	Problem 6 A	Problem 7 A	Problem 8 A	Problem 1 B	Problem 4 B	Problem 5 B	Total Score
Problem	25	20	25	25	21	21	20	85	86	77	405
Max value.	25	25	25	25	25	25	25	100	100	100	475
Min value.	5	5	5	5	5	5	20	20	20	20	95
The average score is	5	4	5	5	4.2	4.2	4	4.3	4.3	3.9	43.8

Source: Results of analysis, 2018

From the results of the questionnaire analysis carried out by the researchers using the Field review method and manual analysis, for the conventional testing system of 13 (thirteen) questions there were 3 (three) invalid items, namely question number 5 (five) related to the assessment form and questions number 2 (two) and 3 (three) related to a research questionnaire filled by the community. So that, it can be calculated how much the performance of the Motorized Vehicle Drive thru System Testing service and which category the results of the performance calculation, namely:

The total score is weighted (α) = 43.8

Rating value category = $\alpha / (\text{Maximum score}) \times 100\%$

= $43.8 / 50 \times 100\% = 87.6\%$

Valuation category value = 87.6% when compared to the category value scale is at intervals of 84% -100% Therefore it can be concluded that the Performance of Motorized Vehicle Testing System with drive thru system is "Very Good". Whereas with regard to service time, for testing motorized vehicles with a drive thru system, having a standard time for testing motorized vehicles with Standard Operating Procedures is around 37 minutes.

3.3 Comparative analysis

From the results of the analysis it can be seen that testing with a drive thru system is better than conventional systems. Although both have clear Standard Operational Procedure (SOP), there are still gaps in the service system. The drive thru system service is faster, this is because the applicant does not have to get off the vehicle when the applicant's vehicle is to be tested. Related to the sign test, based on Z value (2.598) which is greater than the value of $Z_{0.05}$ (1.64) the results of the decision are the same. In accordance with the initial hypothesis, $H_0: B = 0$; there is no difference between the conventional kir test and the IR drive thru test and $H_a: B > 0$; there is a difference between conventional Motor Vehicle Inspection test and drive thru test, so it is proven that there is a difference between conventional test and drive thru test, while proving that Drive Thru method is better than conventional method based on performance assessment analysis using rating scale method. Here is the comparison matrix:

Table 4.4 Comparison Matrix Comparative Assessment Service

(Rating Scale)	Total Service Time (minutes)	Number of vehicles (1 year)
Conventional System	79.7% (Good)	55 minutes 103,391
Drive Thru System	87.6% (Very Good)	37 minutes 105.218
Validation / Reliability	0.69025 (> 0.6 = usable / reliable enough)	Constructional
Validation X_n	$= 4.083 > \alpha = 0.05$	(3,841)
Source: Results of analysis, 2018		

Based on the table above, it can be seen that the drive thru system is superior to all aspects of the service system, the total service time and the number of vehicles the above values have been validated using a measuring instrument. So that the value of the above data can be used. based on the analysis of the service system, it gets 79.7% which in the rating uses rating scale, the value is in the "good" category. While the service time on conventional testing systems is 55 minutes. Based on the results of the service analysis, the service for Motorized Vehicle Testing of the drive thru system obtained a value of 87.6%, which in the assessment used rating scale that value was categorized as "very good". While the service time on the drive thru testing system is 37 minutes.

4. CONCLUSIONS, RECOMMENDATIONS AND POLICY IMPLICATIONS

4.1 Conclusions

The conventional system of Motor Vehicle Testing, based on the analysis of the service system, gets a score of 79.7%, which in the rating uses a rating scale, the value is in the "good" category. While the service time on conventional testing systems is 55 minutes. The drive thru service system that is applied to Motorized Vehicle Testing can have an impact on improving the quality of service on the Testing of Motorized Vehicles. From the results of the analysis, there is a significant difference between the number of vehicles tested in Motorized Vehicle Testing and conventional systems, from the results of the sign test got a value of $X_n = 4.083 > \text{from } \alpha = 0.05 (3.841)$, with a higher number of vehicles in the drive thru system, meaning that the higher number of vehicles in the drive thru system vehicle testing is significant and relevant or it can be concluded that testing the drive thru system with a conventional system has an effect to increase the number of vehicles. Based on the results of the service analysis, the service for Motorized Vehicle Testing of the drive system received a value of 87.6%, which in the rating used rating scale, the value was in the "very good" category. While the service time on the drive thru testing system is 37 minutes. There is a significant

difference in the number of vehicles in the drive thru and conventional service systems, apart from the service aspect there is also a difference in value, namely the drive thru system of 87.6 and the conventional system of 79.7%, while the service time aspect of the system drives more fast which is 37 minutes compared to conventional systems for 55 minutes.

4.2 Recommendations

Recommendations related to conventional systems include: service times in conventional systems can be accelerated, so that they are able to compete with the drive thru system and vehicle building testing service officers. While recommendations related to the Drive Thru system include: The author recommends that testing motor vehicles that still use conventional systems switch to drive thru systems, testing officers on the drive thru system must be more professional at work, because officers do not hold or drive the vehicle directly, so in conditions The vehicle safety must be maintained, service equipment in the motorized vehicle testing building that is complete and good, hopefully to be maintained, maintained and calibrated, this aims to support motorized vehicle testing services. While recommendations related to services in Motor Vehicle Testing include: information services on motorized vehicle testing that are still unclear need to be improved, testing officers must have sufficient knowledge in service, faster service time, is expected not to reduce the quality of motorized vehicle testing services, because it needs reliable, professional and competent personnel.

4.3 Policy Implications

Policy implications related to conventional systems include: 1) testing motorized vehicles for conventional systems should switch to the drive thru system, 2) there needs to be improvement in technology, human resources, and infrastructure that support services, 3) there needs to be socialization to the local community, so this will impact on more budget needs. While the policy implications related to the drive thru system include: 1) based on the results of the analysis it can be

concluded that the testing of motorized vehicles with a drive thru system is superior to conventional systems. For policy implications related to the service of Motorized Vehicle Testing include: 1) if the service time is faster, it is feared that the quality of the performance of the officers in performing the tasks is reduced, therefore it is necessary for qualified, competent and professional human resources in accordance with their fields. 2) in addition to socialization to the public, officers also need to be trained and educated if testing motorized vehicles with conventional systems is to switch to the drive thru system. 3) The government needs to regulate regulations, so that testing of motorized vehicles can be one system and integrated. 4) Please note that the indicators used to assess motorized vehicle testing are not only the speed of handling, but there are also aspects of service and conditions of facilities, infrastructures.

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