

THE IMPACT OF LARGE-SCALE SOCIAL RESTRICTION AND TRAFFIC COMPLIANCE ON URBAN TRANSPORTATION OPERATIONS (CASE STUDY IN JABODETABEK 2020)

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Abstract. The aim of this research is to study and analyze the impact of the large-scale social restriction and traffic compliance during COVID-19 pandemic that happens on the land transportation sector, especially on urban transportation in the city of Jabodetabek in 2020. This research was conducted in the Jabodetabek area in June 2020. The method used in this research was quantitative descriptive, and the method of data collection was questionnaire to the respondents who qualify the criteria. The research was done by using descriptive statistics and multiple linear regression of existing data obtained from respondents' answers and various literatures. From 23,75 million of population, 400 samples were obtained using the Slovin formula with 5% margin error, and probability sampling technique. The result of this research indicates that there is negative influence between Large-scale Social Restriction, Traffic Compliance with Urban Transportation Operation mobility, which means the practice of large-scale social restriction results in the decrease of urban transportation operation. The same thing also happens to traffic compliance. The decrease of urban transportation operation causes the increase of traffic compliance.

Keywords: Large-scale Social Restriction, Traffic Compliance, Urban Transportation, Covid-19, Transportation, PSBB, Government, Lockdown

Introduction

COVID-19 or Coronavirus Disease 2019 is an infectious disease caused by a newly discovered virus. A virus named as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) by WHO. Few species of coronavirus known as viruses cause respiratory tract infection (World Health Organization, 2020). Indonesia is one of the affected countries of the outbreak of this virus. Up to now, more than 20,000 people were confirmed COVID-19 in Indonesia. Following up on this, the Indonesian government stated that the Corona virus problem has become a non-natural national disaster.

The local government has done a lot of communication strategies to the community through coercive, informative, canalizing, educative, persuasive and redundancy techniques in packaging the messages in the form of instructions to the public to prevent the transmission of COVID-19 in their territory. However, there is still no coercive technique up to the stage of imposing sanctions as a deterrent effect for offenders (Zahrotunnimah, 2020). The Indonesian government then applied the large-scale social restriction or lockdown (Yunus & Rezki, 2020), a regulation issued by the Ministry of Health (Kemenkes) listed in Minister of Health Regulation No. 9 of 2020. The large-scale social restriction is a restriction of people's activities that causes crowds in regions that are infected by COVID-19. The restriction avoids coronavirus spreading people to people. Large-scale social restriction held in the longest incubation time of the virus and will extend when found a new case or disease spreading (Kemenkes, 2020), which then also impacts on the obedience of traffic. Traffic obedience is a form of compliance with the law that reflects behavior formed through a series of processes that demonstrate compliance and order with the rules of social norms (Kulanthayan et al., 2000).

Since the implementation of the large-scale social restriction from 10 to April 23 there was an increase of 1,696 cases or an average of 130.4 cases every day during the first phase of the large-scale social restriction taking place in Jakarta. This number is higher than two weeks before the large-scale social restriction was implemented, namely an increase in 1,153 positive

cases from March 27 to April 9 (CNN Indonesia, 2020). While in Jawa Barat, COVID-19 positive cases decreased by 50% (Gugus Tugas Percepatan Penanganan COVID-19, 2020)

The COVID-19 pandemic had an enormous impact on many aspects of the transportation business. Especially urban transport or city transportation, because urban transport is a crucial means of transportation in the movement of people and goods in urban areas. City transportation defines the unity of parts that support each other and work together to meet the urban transportation system. Urban transportation consists of several systems that support each other, namely the system of activities, traffic movement systems, and institutional systems (YASA, 2006).

Meanwhile, the policy in the transportation sector has changed. The Transportation Ministry has issued two regulations at the minister's level of policy. Both: Regulation of the Minister of Transportation 18/2020 concerning Transportation Control in the Context of Preventing the Spread of COVID-19 on April 9, 2020 and Regulation of the Minister of Transportation 25/2020 on Transportation Control During Eid Al-Fitr 1441 Hijri in the context of Preventing the Spread of Corona Virus Disease 2019 on April 23, 2020. This changing of policy has a profound effect on public land transportation actors.

The question arose based on this condition was: How is the impact of the large-scale social restriction and the traffic compliance in it towards the fluency of urban transportation in the city of Jabodetabek in 2020?

Methods

This research was conducted in the Jabodetabek area in June 2020. The method that used in this research was quantitative descriptive, and the method of data collection was questionnaire to the respondents who qualify the criteria.

The research was done by using descriptive statistics and multiple linear regression of existing data obtained from respondents' answers and various literatures. Descriptive statistics allowed the data presented concisely and neatly and gave the main information from a set of data. The information obtained from these descriptive statistics included the size of data concentration, the size of data distribution, and also the tendency of a data group. From 23,75 million of population, 400 samples were obtained using the Slovin formula with 5% margin error, and probability sampling technique. Slovin's formula was used to calculate an appropriate sample size from a population. It was computed as $n = N / (1 + Ne^2)$. Probability sampling was a random sampling method. By this sampling method, all of the population was assumed to have the same opportunity to be selected as research samples. Through this research, the outcome is a study of information and analysis of the large-scale social restriction and traffic compliance during COVID-19 on urban transportation in the city of Jabodetabek in 2020.

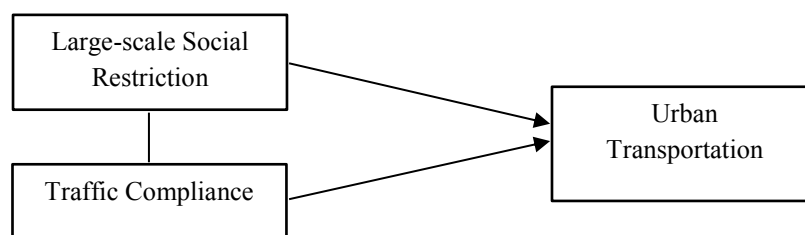


Figure 1. Conceptual Framework

Discussion and Result

1. Population and Sample

The populations in this research were 23,75 million people of Jabodetabek. Then, using Slovin sample calculation method with 5% margin of error, the samples were 400 people.

The samples were taken using probability sampling technique, which results in 472 people as respondents.

2. Respondent Criteria

In this research, the respondent criteria were living in Jabodetabek, having or often using public transportation, having or often using goods transportation, working, studying or travelling to Jabodetabek area.

3. Respondents Profile

Respondents who filled the questionnaire of this study were coming from the Jabodetabek area with the following details, 38.1% respondents from Jakarta, 6.6% from Bogor, 12.1% from Depok, 15.9% from Tangerang, and 29% from Bekasi. In general, the respondents consisted of 77.1% female and 22.9% male.

Respondents were dominated by ages between 15-24 years and had titles as students. 63.6% of respondents had an income of fewer than 2 million rupiahs. During the large-scale social restriction period, 54.2% of respondents used public transportation less than three times, and 85.8% of respondents used goods transportation less than three times.

4. Validity and Reliability Test

Validity and Reliability test is a tool to measure a questionnaire that becomes the indicator of a variable or construct. To test the reliability, this research used Cronbach Alpha technique. This technique is to test the consistency of answer in all of items in the questionnaire. A construct or variable is reliable if it has the value of Cronbach Alpha $> 0,60$ (Ghozali, 2005).

As for the result of the test is explained below:

The output result of reliability test shows the value of Cronbach Alpha from each of the variables meets the criteria of Cronbach Alpha $> 0,60$ (Ghozali, 2005), therefore it can be concluded that the measuring instrument in this research is reliable.

5. Multiple Linear Regression Analysis

Output of regression analysis shows the value of correlation (R) is 0,462. From that output, the coefficient of determination (R square) is 0,214 which means the influence of Large-scale Social Restriction and Traffic Compliance during the restriction time towards the fluency of urban transportation is 21,4%. Meanwhile, the remain of 78,6% is influenced by other variables that are not being analyzed.

From that output, it is known the value of F arithmetic = 63,770 with the significance level of $0,000 < 0,50$, then the regression model can be interpreted that there is the influence of variable X to variable Y.

Referring to the coefficient output, it can be seen that the significance value of the variable X_1 (Large-scale Social Restriction) = 0,000 is less than 0,05 and X_2 (Traffic Compliance) = 0,000 is less than 0,05. Then the regression coefficient of $X_1 = -0,275$ and $X_2 = -0,200$ are both negative.

6. Large-scale Social Restriction Variable

a. Respondents Response to Disciplinary Sub Variable

In the disciplinary sub variable, 60.8% of the respondents stated strongly agree, 22% agreed, 8.7% neutral, 4% disagree, and 4.4% strongly disagree that they were at home during the large-scale social restriction period and left only in an emergency during the large-scale social restriction period.

b. Respondents Response to Prevention Sub Variable

In the prevention sub-variable, 30.7% of respondents stated strongly agree, 33.5% agreed, 26.1% neutral, 7% disagree, and 2.8% strongly disagree that public transport operations had taken COVID-19 precautions against passengers, such as checking body temperature, checking the use of masks, and giving hand sanitizer. The public transportation drivers, who interact with passengers, had implemented a prevention protocol using essential personal protective equipment such as masks and gloves.

c. Respondents Response to Activity Restrictions Sub Variable

In the activity restrictions sub-variable, 26.3% of respondents stated strongly agree, 32% agreed, 29.2% neutral, 6.8% disagreed, and 5.7% strongly disagreed that the implementation of the large-scale social restriction protocol had applied to the public transportation. The protocol implemented to the public was to restrict the number of passengers and provided distance to passengers. Respondents also stated that they received monitoring through the large-scale social restriction monitoring posts held by the government at several road points.

7. Traffic Compliance Variable

a. Respondents Response to Driving Behavior Sub Variable

In the driving behavior sub-variable, respondents generally stated that during the large-scale social restriction period, public transport drivers drove well and obeyed the rules. 28.2% of respondents strongly agreed, 39.8% agreed, 23.7% neutral, 5.1% disagreed, and 3.2% strongly disagreed that public transport drivers drove well and obeyed traffic rules during the large-scale social restriction period.

b. Respondents Response to Driving Completeness Sub Variable

In the driving completeness sub variable, 33.7% of respondents stated strongly agree, 33.7% agreed, 19.7% were neutral, 6.4% disagreed, and 2.5% strongly disagreed that the public transport driver already had driving helmets, seat belts, and other protective equipment.

c. Respondents Response to Vehicle Completeness Sub Variable

In the vehicle completeness sub variable, 30.5% of respondents stated strongly agree, 34.5% agreed, 28.2% were neutral, 4% disagreed, and 2.8% strongly disagreed that public transportation had vehicle completeness and had a proper condition.

8. Urban Transportation Variable

a. Respondents Response to Accessibility Sub Variable

In the accessibility sub variable, 35.4% of respondents stated strongly agree, 34.3% agreed, 19.1% were neutral, 6.8% disagreed, and 4.4% strongly disagreed, that respondents found it easy to go to their destination because of the quiet road due to the large-scale social restriction implementation. However, the movement of transportation modes in certain areas was limited.

b. Respondents Response to Mobility Sub Variable

In the mobility sub variable, 27.8% of respondents stated strongly agree, 34.5% agreed, 26.1% neutral, 8.7% disagreed, and 3% strongly disagreed that respondents found it was hard to get public transportation during the large-scale social restriction period and difficult to travel due to unavailability transportation in several places. However, respondents found it was easy to get transportation of goods. This might occur because the spread of COVID-19 through goods had a smaller percentage, and

could be prevented through the protocol of handling goods. That was why the amount of transportation of goods was more common than public transportation.

c. Respondents Response to Availability Sub Variable

In the availability sub-variable, 34.1% of respondents stated strongly agree, 37.5% agreed, 18% neutral, 7% disagreed, and 3.4% strongly disagreed that the public transport schedules were limited during the large-scale social restriction period. It means that the number of public transportation could not meet the number of passengers.

d. Respondents Response to Reliability Sub Variable

In the reliability sub variable, 12.1% of respondents stated strongly agree, 24.6% agreed, 38.1% neutral, 17.2% disagreed, and 8.1 strongly disagreed that the information on the arrival and departure schedules of public transportation during the large-scale social restriction could be known easily than before the large-scale social restriction.

Conclusion

Based on the study, variable X_1 (Large-scale Social Restriction) with disciplinary indicators by limiting activities to the community, has a negative influence on the Y variable (Fluency of Urban Transportation). This is due to activity restrictions, such as reducing activities and social distancing in public areas. Transportation restrictions are also implemented in both passengers and goods. Therefore, the number of the transportation sector is decreasing, especially in urban areas. Accessibility during the large-scale social restriction has decreased in several places due to restrictions in transportation modes. Many transportation companies also reduce the operation of transportation modes. In general, restrictions have applied for many transportation modes, but not for defense and security sectors, which has the aim to uphold national sovereignty and maintain territorial integrity. Of course, this is done by considering health protocols and regulations.

Meanwhile, Variable X_2 (Traffic Compliance) has a negative influence on the variable Y (Fluency of Urban Transportation). It shows that during large-scale social restriction, community traffic compliance is affected by the decline of urban transport operations. According to the study results, the community has become more obedient in traffic even though the road is in quiet condition due to large-scale social restriction. It is also affected by the large-scale social restriction monitoring posts at several main points of the busy streets crossed. This monitoring post becomes the point of monitoring the movement of the community during the large-scale social restriction period. The checks are conducted by officers including checking the completion of the driving certificate, driving attributes, driving equipment, and personal protective equipment (masks). Cars passengers are also required to keep the distance between the driver and passenger. Meanwhile, for motorcycle riders, they are not permitted to bring passengers from other areas.

References

CNN Indonesia. (2020). *Evaluasi LARGE-SCALE SOCIAL RESTRICTION DKI: Positif Corona Bertambah Lebih Banyak*. CNN Indonesia. <https://www.cnnindonesia.com/nasional/20200424073954-20-496789/evaluasi-Large-scale-Social-Restriction-dki-positif-corona-bertambah-lebih-banyak>

Ghozali, I. (2005). *Analisis Multivariate dengan program SPSS*. Badan Penerbit Universitas

Diponegoro.

- Gugus Tugas Percepatan Penanganan COVID-19. (2020). *LARGE-SCALE SOCIAL RESTRICTION Jawa Barat, Angka Kasus COVID-19 Turun*. Covid19.Go.Id. [https://covid19.go.id/p/berita/Large-scale Social Restriction-jawa-barat-angka-kasus-covid-19-turun](https://covid19.go.id/p/berita/Large-scale-Social-Restriction-jawa-barat-angka-kasus-covid-19-turun)
- Kemenkes. (2020). *Peraturan Menteri Kesehatan Republik Indonesia Nomor 9 Tahun 2020 Tentang Pedoman Pembatasan Sosial Berskala Besar Dalam Rangka Percepatan Penanganan Corona Virus Disease 2019 (Covid-19)*. 28. http://hukor.kemkes.go.id/uploads/produk_hukum/PMK_No_9_Th_2020_ttg_Pedoman_Pembatasan_Sosial_Berskala_Besar_Dalam_Penanganan_COVID-19.pdf
- Kulanthayan, S., Radin Umar, R. S., Ahmad Hariza, H., Mohd Nasir, M. T., & Harwant, S. (2000). Compliance of proper safety helmet usage in motorcyclists. *The Medical Journal of Malaysia*.
- World Health Organization. (2020). Q&A on coronaviruses (COVID-19). In *Who*.
- YASA, J. (2006). Karakteristik Operasional BRT (Bus Rapid Transit) Di Jalan Teuku Umar Bandar Lampung Setelah Dilakukan Pelebaran Jalan. *Universitas Lampung*, 2013, 2013.
- Yunus, N. R., & Rezki, A. (2020). Kebijakan Pemberlakuan Lock Down Sebagai Antisipasi Penyebaran Corona Virus Covid-19. *SALAM: Jurnal Sosial Dan Budaya Syar-I*. <https://doi.org/10.15408/sjsbs.v7i3.15083>
- Zahrotunnimah, Z. (2020). Langkah Taktis Pemerintah Daerah Dalam Pencegahan Penyebaran Virus Corona Covid-19 di Indonesia. *SALAM: Jurnal Sosial Dan Budaya Syar-I*. <https://doi.org/10.15408/sjsbs.v7i3.15103>