

SWITCH POTENTIAL OF THE USERS FROM USING PUBLIC TRANSPORTATION TO PRIVATE TRANSPORTATION AS AN IMPACT OF PANDEMIC COVID - 19 (CASE STUDY IN JABODETABEK 2020)

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Abstract. The number of private transport users in DKI Jakarta is currently increasing, while the number of public transport users is decreasing. This happens because, at this time during the pandemic Covid - 19, many people have switched from using public transportation to private transportation. This study is aimed to determine the cause of the community switching from public transportation to private transportation. The research was conducted in June 2020 and located in JABODETABEK. This research uses quantitative methods and the data collection is done by distributing questionnaires to respondents who meet the research criteria. The type of data used is primary data and secondary data. Data analysis was done using descriptive statistical methods, expected to be able to present data concisely and be able to provide core information from existing data. The expected outcome from the research is information which includes the analysis of the users switch from public transportation to private transportation during the Covid-19 pandemic in JABODETABEK in 2020. The characteristics of the respondents in this study consist of male 35.9% and the female is 64.1%, and people who still travel both before PSBB and at PSBB, and they use different modes of transportation. Factors affecting public transportation users to switch modes of transportation are passenger restrictions on public transportation, restricted public transportation operating hours and a feeling of insecurity and inconvenience in using public transportation. the expected result is a study of information and analysis of the movement of users of public transportation to private transportation during the Covid-19 pandemic in JABODETABEK 2020.

Keywords: switch potential, public transportation, private transportation, Covid -19.

Introduction

The Background

The challenge faced in the operation of public transportation today is the effort to keep the passengers to continue using public transportation without switching to their private transportation. According to the reason, public transport operators must be able to maintain the quality of the services they have. Public transportation that used as city transportation today is a public passenger car that operates on several routes that have been determined by the DKI Jakarta Transportation Agency. Public transportation that is still operating at this pandemic time is based on the Decree of the Head of the DKI Jakarta Transportation Agency No. 105 of 2020 that regulates the control of the transportation sector for the prevention of Covid-19 during the transition to a healthy, safe and productive society. In the second dictum of the letter, it also regulates the control of transportation capacity for the use of transportation modes for the movement of people. Public transportation need to limit the number of people to a maximum of 50 percent of transportation capacity. In addition, operational time for public transportation is also decreased during the PSBB implementation in the transition period (Frans, Pah, & Ikun, 2017).

Based on Article 13 paragraph (10) letter a Permenkes 9/2020, "Passenger transportation modes, both public and private, taking into account the number of passengers and maintaining distance between passengers." The 50% passenger capacity policy also applies to private cars. This is in

accordance with Article 18 paragraph (4) letter d of the Governor of Jakarta 33/2020.(Limitation, Scale, In, Acceleration, & Corona, 2020)

Based on the data, the problems that appear in the public transport sector in the pandemic era Covid-19 is the transfer of users or switch from public transportation to private transportation because of the impact of covid-19 and an increase in the number of private transport users.

In this condition, the potential switch of users from public transportation to private transportation increases due to government regulations that restrict passengers in each mode of transportation and the community prioritizes their health so that the chain of distribution of Covid-19 is broken. This study specifically discusses the users switch from using public transportation to private transportation.

The public transportation fleet is no longer focused on how to transport as many passengers as possible, but rather on the capacity of the fleet. The Head of Advocacy and Society of the Indonesian Transportation Society (MTI) Center said, transportation now needs to emphasize the aspects of security, comfort, safety, and health by applying health protocols. Public transportation during the new normal period must ensure the safety and health of passengers while using public transportation, and to reduce the potential exposure of the Covid-19 virus when having to switch transport. Based on the Institute for Business Value (IBV) Survey of 14,000 people revealed that a number of people reconsidered their ways of traveling with public transportation, travel services, and private transportation.

During the New Normal period, it is necessary to have a public campaign to the public that with social restrictions and health protocols, public transportation is still convenient to use and it is also necessary to implement targeted transportation subsidies in order to increase the financial feasibility of logistics development and passenger transportation ("The effect of human mobility and control measures on the COVID-19 epidemic in China," 2020)

This research refers to several things from previous studies, deepen the stages and methods of existing research. All stages in previous research can be used as benchmarks so that the research conducted has a high degree of renewal.

Some of researchs that use as the comparison are studies which conducted by Arinda Leliana and Hera Widyastuti on the analysis of modal shifts or switch from motorbikes and private cars to public transportation at Madiun station. From this study, it was concluded that the transfer or switch from public transport passengers to private transportation as a result of Covid-19 is influenced by age. John H. Frans conducted research on the transfer of modes of public transportation to private transportation in the city of Kupang. From this study, it was concluded that the movement of public transport passengers to private transportation as a result of Covid-19 was influenced by the lack of public transport and the waiting time for transportation that was too long. Moh Taufik Almajazi, Wahyu Widodo, and Muchlisin analyzed probability of switch mode from private transport to Trans Jogja bus using binary logit analysis, the conclusion from their study is the users' switch from public transport to private transport as Covid-19 affection is influenced by gender and the need of using public transport.

Based on the research about the effects of human mobility and control measures on the Covid-19 epidemic in China conducted by Moritz UG Kraemer, Chia-Hung Yang, Bernardo Gutierrez, Chieh-Hsi Wu, Brennan Klein, David M. Pigott, it is concluded that the switch from public transport passengers to private transport as a result of Covid-19 are influenced by human mobility. Based on the research of the relationship between trends in Covid-19 prevalence and traffic levels in South Korea conducted by Hocheol Leea, Sung Jong Parkb, Ga Ram Leec, Ji Eon Kimc, Ji Ho Leea, Yeseul Junga, Eun Woo Namd, it is concluded that the transfer from

public transport passengers to private transport as a result of Covid-19 are influenced by the national daily traffic level.

The purpose of this study is to find out and analyze the potential switch in the use of public transport to private transport which has a large impact, the effect of passenger restrictions on public transportation determined by the government, government solutions in dealing with the impact on public transportation during the Covid-19 pandemic.

Theoretical basis

1. Covid - 19

Covid-19 is an infectious disease caused by a virus called SARS-COV-2, or often called the Corona Virus. Corona virus itself is a very large family of viruses. Some infect animals, such as cats and dogs, but there are also types of Corona Virus that are transmitted to humans, as happened in Covid-19 (World Health Organization, 2020).

Covid-19 is an infectious disease caused by a newly discovered type of coronavirus. This is a new virus and a disease previously unknown before the outbreak in Wuhan, China, October - November 2019 (World Health Organization, 2020).

2. Transportation

Transportation is the transfer of goods and people from the place of origin to the destination. Transportation is one type of activity that involves increasing human needs by changing the geographical location of goods and people so that it will cause a transaction (emadwiandr, 2013).

Transportation makes the value of goods higher at the destination than at the place of origin. This additional value is in the form of a place value because the value at the destination will be higher and the time value because the goods can be utilized at the time required.

3. Personal Transportation

Private vehicles, a mode of transportation that is devoted personally, is free to use it anywhere and whenever he wants, maybe even he does not use it at all such as bicycles, motorbikes, cars and even aircraft.

4. Swift Operation of Public Transportation

According to (emadwiandr, 2013) the Book of Transportation Management in Studies and Theories, Public Transport is a transportation for small and medium-sized communities so that they can carry out their activities in accordance with their duties and functions in society.

Passengers of Public Transportation are mass so that transportation costs can be charged to them and it has the lowest cost per person. As a mass transit, similarities are needed between the passengers, including the similarity of origin and destination. This similarity is achieved by collecting at the terminal and or stopping place and in purpose it does not always mean in common. Mass public transportation or mass transit has a fixed route and departure schedule. Passengers of public transport services will run well if there is a balance between availability and demand. Therefore, the government needs to intervene in this matter.

5. Transfer or switch from Public Transport to Private Transport

Displacement is the movement from the origin zone to the destination zone. Stopping by chance is not considered a destination of movement even if it is forced to make a change of route. Although it is often interpreted by the movement back and forth, in the science of transportation usually the analysis of the two must be separated.

Factors that influence the selection of transportation modes are (Oliver, 2019) :

1. Travel characteristics. The variables are; travel destination, travel time and trip length.
2. Characteristics of the travel agent. The variables are; income, vehicle ownership, vehicle condition (new, old, good, bad, clean, etc.), other socio-economic variables (family structure and size, age, gender, social status, lifestyle, type of work, location of work , belongs to the driving license as well as all variables that affect mode selection).
3. Factors characteristic of the transportation system. The variables, namely; travel time variables ranging from the length of time waiting for transportation at the terminal, running time to the terminal and time in transportation, variable travel costs, service level variables, variable level of access or ease of reaching the destination, variable levels of public transport reliability in terms of time, space availability parking and rates.
4. Factors characteristic of cities and zones, for example the distance of residence to the place of activity.

Method

To see how the potential switch of modes of transportation from public transportation to private transportation as a result of the Covid-19 pandemic, the survey method is considered the most appropriate method to use. The survey is conducted by collecting responses from respondents of users of public and private transportation through questionnaires and survey questionnaire distributed via Google Form. This research was conducted in June 2020 at JABODETABEK. The type of research used is quantitative research and the method used in this research is quantitative descriptive. This research was conducted using descriptive statistics from data obtained from respondents' answers and various literatures. Out of 10.66 million people (Solid, 2012) 326 sample collected using Slovin formula and convenience sampling technique.

Discussion and Result

After obtaining data from the results of the questionnaire distributed to 326 respondents, an analysis of the description of the potential for the users of transportation to private transportation is carried out as a result of the Covid-19 pandemic.

Characteristics of respondents in this study consist of respondents with the male 35.9% and the female 64.1%. The distribution of respondents from their education in general is D4 or Strata 1 with 46.3%. The distribution of respondents from their jobs in general is students with data 32.8%.

Origin and Destination of Travel

TABEL 1 : Origin - Destination Crosstabulation

<i>Origin - Destination Crosstabulation</i>						
	Destination					Total
	Jakarta	Bogor	Depok	Tangerang	Bekasi	

<i>Origin</i>	Jakarta	42.9%	3.1%	0.6%	3.1%	6.7%	56.4%
	Bogor	6.7%	0.6%	0.0%	0.9%	0.0%	8.3%
	Depok	5.2%	0.0%	0.0%	0.0%	0.3%	5.5%
	Tangerang	8.6%	0.0%	0.3%	0.6%	0.0%	9.5%
	Bekasi	15.6%	0.6%	0.6%	0.6%	2.8%	20.2%
<i>Total</i>		79.1%	4.3%	1.5%	5.2%	9.8%	100.0%

Based on the crosstabulation, the trips generally originate from Jakarta and from Bekasi while the destination of the trip is to Jakarta and followed with Bekasi is in the second rank. From table 1, it can be seen that the origin of Jakarta trips to be around Jakarta has the highest percentage of 42.9% and it can be stated that the respondents only take a ride for short distances or are local in nature. The origin and destination of the second trip is from Bekasi to Jakarta by 15.6%. From the data of 326 respondents, the origin and destination of the trip in this study are Tangerang with 8.6%, Bogor with 6.7% and Depok with 5.2%.

Transfer/Switch Mode of Transportation

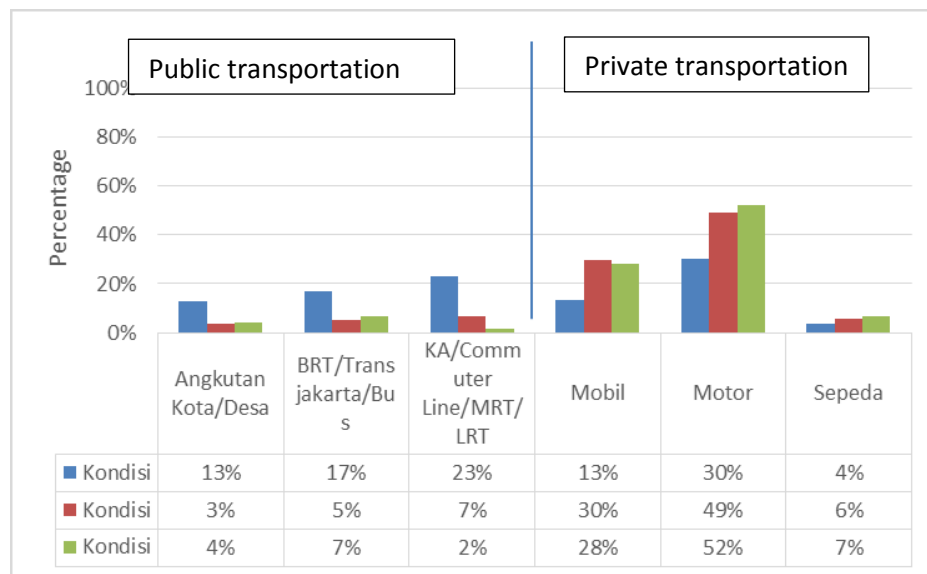


Table 2: (source: processed by the author) : Transportation modes used

Based on the above data, the condition at the time before PSBB for public transport users of urban or rural transportation is 13%, the condition at the time of PSBB is decreased by 3%, and the condition in New Normal is increased by 4%. Users of BRT/Transjakarta/Bus condition before PSBB is 17%, it is decreased 5% in PSBB, and also 7% decreased during New Normal. The condition for KA/Commuter Line users at the time before the PSBB is 23%, the condition at the time of the PSBB is decreased by 7%, and the condition at the New Normal is decreased by 2%.

The condition before PSBB for private car users is 13%, the condition at the time of PSBB is

decreased in 30%, and the condition in New Normal is decreased by 28%. Private motorbike users before PSBB is 30%, the number is increased at PSBB by 49%, and at New Normal it is increased by 52%. Bicycle users before PSBB is 4%, at PSBB it is increased by 6%, and at New Normal it is increased by 7%.

Travel Frequency

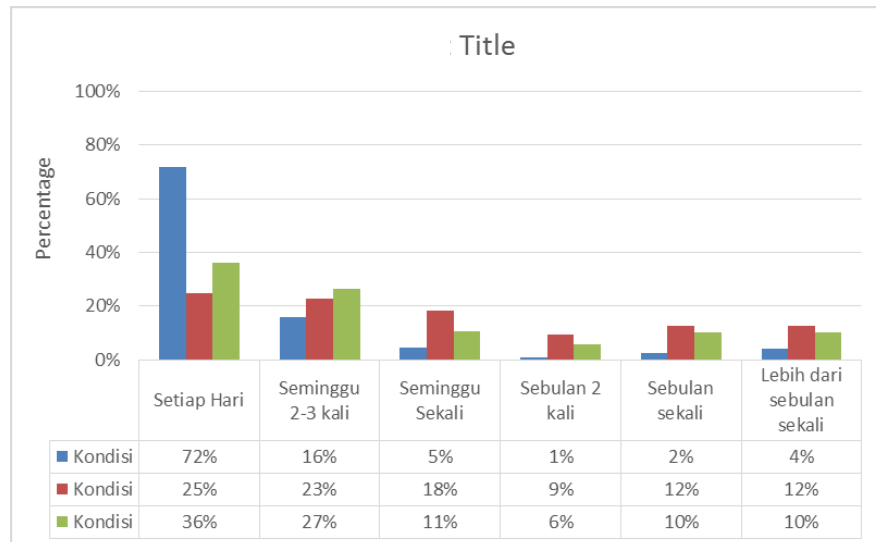


Table 3: community's travel frequency

Based on the data obtained by the condition before the PSBB as shown in Table 3, the community traveled 72% every day. There is 16% of them take a ride in 2-3 times a week and 5% of them do in once a week. There is only 1% of them take a ride in 2 times a month, 2% once a month, and it is 4% of them do more than once a month. At PSBB 25% of them still travel daily, 23% twice a week, 18% once a week, 9% twice a month, 12% once a month, and 10% once a month or more than a month. In New Normal, 36% of people still travel every day, 27% in twice a week, 11% in once a week, 6% in twice a month, and as same as 10% in once a month, and more than once a month.

The data shows that people are still traveling both before PSBB and at PSBB by using different modes of transportation. Before PSBB, there are still many people who used public transportation while at PSBB the community they switch the modes of transportation from public transportation to private transportation such as cars and motorbikes.

Based on the results of research and the distribution of questionnaires, it can be seen that the public takes private transportation as a mode of transportation used for traveling when PSBB more than public transportation. In accordance with government regulations regarding the introduction of PSBB, service providers must limit the number of passengers up to 50% of the capacity of the number of passengers before PSBB. Restricting the number of passengers in public transportation is an effective way to prevent Covid-19 transmission. With the implementation of PSBB, public transportation service providers must provide services, facilities and infrastructure for public transportation in accordance with health protocols established by the government so that public transport users feel safe and comfortable when using public transportation during the pandemic. In addition, public transportation officers must have Covid-19-free letters and are able to observe and inform the passengers to always concern and maintain their health with the health protocols such as always wearing masks and keeping the physical distancing among passengers in public transportation.

Not only the government but also transportation service entrepreneurs who have problems in managing public transportation in this pandemic Covid-19. The problems that arise for the public transportation sector is the low profit or income because people prefer to using private modes of transportation at this pandemic, time of transportation operations the public becomes limited, and not all types of public transportation are given permission by the government to operate (Aminah, 2004)

To overcome this problem, the government's anticipation strategy is needed to be able to increase the numbers of public transportation users during New Normal. Anticipatory strategies that can be done are to improve services in public transportation such as completing the physical facilities of public transportation services, arranging passenger seats, giving handsanitizers to passengers before boarding in public transportation, checking the body temperature of public transportation users, and always maintaining the cleanliness of public transportation so that when using public transportation, users of public transportation feel comfortable and safe (Bagus & Al, 2015).

In addition, the government can also make anticipatory strategies such as preparing the facilities and infrastructure needed in large quantities. These facilities and infrastructure include a stock of handsanitizers and disinfecting liquids for routine spraying on vehicles before public transportation is used (Arifin, n.d.)

Conclusion

The results of data analysis above conclude that the potential switch of passengers from public transportation to private transportation in JABODETABEK during the Covid-19 pandemic. It shows that the declining public transportation users and many public transportation users who change modes of transportation into private transportation because to reduce the chain of transmission of the Covid-19 virus.

The factors affecting public transportation users to switch modes of transportation are passenger restrictions on public transportation, restricted public transportation operating hours and a sense of insecurity and inconvenience feeling in using public transportation.

People are still traveling along PSBB by changing their modes of transportation from public transportation to private transportation. Furthermore, the government must carry out anticipatory strategies to increase the use of public transport during New Normal, such as completing the physical facilities of public transportation services, arranging passenger seats, providing hand sanitizers to passengers before boarding on public transportation, checking the body temperature of public transport users, and always maintaining cleanliness public transportation so that when using public transportation users of public transportation feel comfortable and safe.

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