



## Transportation Modes During Pandemic Covid-19 in Indonesia

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### Abstract

The purpose of this study is the selection of transportation modes during the pandemic in Indonesia. This study uses an analysis of the SEM (Structural Equation Model) analysis technique, with a Partial Least Square (PLS) approach. The results of the analysis show that the cost and safety variables do not significantly affect the choice of transportation mode, this is due to the Covid-19 pandemic which resulted in changes in variables community priorities in the selection of transportation modes. While the variables of comfort and compliance with health protocols have a significant effect on the choice of transportation modes which have an impact on reducing the risk of being exposed to COVID-19. Therefore, it is necessary to study the improvement of minimum service standards in order to increase the convenience of users of transportation services and carry out supervision to ensure the implementation of minimum service standards in order to improve comfort and compliance with health protocols.

**Keywords:** Cost, Security, Convenience, Protocol Compliance, Mode Selection. Reducing the Risk of Being Exposed to Covid-19

### PRELIMINARY

Transportation is a daily activity carried out by humans, because transportation activities are related to the transfer of goods (load) and passengers (people) from one place to another (Pamungkas, S., & Hidayat, W. 2020). Public transport travel during the Covid-19 pandemic is limited Maemunah, S., & Weather, H. (2021). Government policies through the establishment of health protocols, such as washing hands with soap or hand sanitizer, not carrying out operations in areas designated as areas of strict control, maintaining distance, and wearing masks when riding public transportation. The choice of the type of transportation is difficult to identify (Ricardianto et al., 2021), because it is related to the choice of the type of transportation associated with different needs, comfort and human satisfaction (Permana, & Laskmi, K2019).

Cost is the amount of sacrifice needed to be issued to produce a production of transportation services. The greater the cost, the better the service that Nasir gets (2017). Costs influence a person in the choice of mode (Ricardianto et al., 2022, Purnomo et al., 2021) the use of public transportation is the most desirable choice in the use of transportation modes. However, this needs to be re-examined, considering that during a pandemic, people are afraid to use public transportation.

Based on previous research, problems in choosing transportation modes during the Covid-19 period are difficult to identify. The first research, according to Gamilar (2020) regarding the Analysis of the Selection of Transportation Types in the Range-Tanjung Balai with Binary Logit Difference Modeling. The second research according to Ramadhan (2021) is regarding Changes in Online Ojek Travel Behavior During the Covid-19 Pandemic in Palembang City. The third research according to Nasir (2017) regarding the Analysis of the Selection of Public Transportation Modes in Supporting Socioeconomic Activities of the Community in the City of Enrekang.

The problem of mode selection becomes a complex and complex challenge as a study material because it relates to someone's personal decisions that are difficult to know. (Rusmandani et al., 2021) from socio-economic factors, travel distance, specifications and types of vehicles. This research is related to the choice of mode of safety, cost, convenience, protocol compliance, reducing the risk of exposure to Covid-19.

## **METHOD**

This study uses an analysis of the SEM (Structural Equation Model) analysis method, with the Partial Least Square (PLS) approach. Partial Least Square (PLS) method. SEM is a second-generation multivariate analysis technique that combines factor and path analysis. Researchers estimate and simultaneously test the relationship of multiple exogenous and endogenous with various indicators.

## **RESULTS AND DISCUSSION**

H1 test (it is suspected that the cost variable affects the choice of mode).

Based on the results of statistical analysis, it can be concluded that the cost perception construct does not significantly influence the choice of transportation mode. It can be seen from the T-statistic of 1.582 which is smaller than the T-table value of 1.96. Thus the hypothesis H1 in this study was rejected.

This is different from the theory put forward by Tamin (2000) that one of the factors that influence the choice of mode is cost. This is caused by several factors that affect the results of this study, including:

- a. The time of the study was carried out during the pandemic.
- b. The variables of comfort and compliance with health protocols significantly influence the choice of mode.

H2 test (supposedly the safety variable affects the mode selection)

Based on the results of statistical analysis, it can be concluded that the construct of security perception does not significantly influence the choice of transportation mode. It can be seen from the T-statistic of 0.016 which is smaller than the T-table value of 1.96. Thus the hypothesis H2 in this study was rejected.

The results of this study are the same as previous research conducted by Devi (2014) and Arthani (2018) which states that the safety factor does not significantly influence the choice of transportation mode. Where in the conditions of the Covid-19 pandemic, people who use transportation services prioritize other factors in choosing transportation modes.

H3 test (presumably the comfort variable affects the choice of mode).

Based on the results of statistical calculations, it can be concluded that the construct of perceived comfort significantly influences the choice of transportation mode with a T-Statistic value of 4.278, which is greater than the T-table of 1.96. Hypothesis H3 in this study was accepted.

The results of this study are in accordance with the results of research by Nasution (2010) and Devi (2014) which state that comfort has a significant effect on the choice of transportation mode. The results of research on transportation services have advantages in providing services, so that users of transportation services feel comfortable, consumers tend to use these transportation services.

H4 testing (presumably the health protocol compliance variable affects the choice of mode)

It is concluded that the perception construct of health protocol compliance significantly influences the choice of transportation mode with a T-Statistic value of 2.110, which is greater than the T-table of 1.96. Hypothesis H4 in this study was accepted.

In the current condition of the Covid-19 pandemic, people tend to consider compliance with health protocols in choosing a mode of transportation. People will tend to choose the mode of transportation that applies strict health protocols compared to modes of transportation that ignore health protocols.

H5 test (it is suspected that the mode choice variable affects the reduction in risk of being exposed to Covid-19).

It was concluded that the perception construct of health protocol compliance had a significant effect on reducing the risk of being exposed to Covid-19 with a T-Statistic value of 4.985 which was greater than the T-table of 1.96. Hypothesis H5 in this study is accepted. This is in line with research conducted by Sufiyanto, Yuniarti and Andrijono (2020) which states that there are 3 causes of the risk of being infected outside the home, namely: 1. Touching objects touched by other people (89%), 2. Going outside (86.3 %) and 3. Shake hands with other people (46.3%).

This is in accordance with the results of the analysis using SmartPLS where the total effect of choosing a transportation mode (Y) on reducing the risk of being exposed to Covid-19 (Z) is 0.473. This means that if the choice of transportation mode (Y) increases by one unit, the reduced risk of being exposed to Covid-19 (Z) can increase directly by 47.3%. This influence is positive.

H6 testing (allegedly the health protocol compliance variable affects the risk reduction of being exposed to Covid-19)

The construct of perception of the choice of transportation mode significantly affects the reduction in the risk of being exposed to Covid-19 with a T-Statistic value of 3.630 which is greater than the T-table of 1.96. Hypothesis H6 in this study was accepted. Based on the results of the analysis conducted by the researchers, it was found that compliance with health protocols affects the direct reduction of the risk of being exposed to Covid-19 by 41.7%.

## CONCLUSION

Based on the results of data analysis in this study, the following conclusions can be drawn:

Travel agents in DKI Jakarta are mostly male with a percentage of 64%. The largest percentage of transportation travel agents in DKI Jakarta is aged 31 - 40 years at 32%. The largest educational background is Diploma IV/Bachelor S1 by 42%. The largest type of work is PNS/TNI/Plori with 51%. The largest amount of income is Rp. 3 million - Rp. 3.9 million by 34%, those who use the largest mode of transportation are working at 73%.

The results of the analysis of the general perception of respondents stated that the cost and safety variables did not significantly influence the choice of transportation mode. Where the cost variable has an effect of 7% and the security variable has an effect of 0.1% on the choice of transportation mode.

The general perception of respondents stated that the comfort variable, and compliance with health protocols had a significant effect on the choice of transportation mode during the pandemic, which played an important role in determining the risk reduction of Covid-19 exposure.

From the results of the analysis carried out, it can be seen that the hypothesis of the convenience variable on the choice of transportation mode (H3) and health protocol compliance with the choice of transportation mode (H4) can be accepted. This is indicated by the T-Statistic value which is higher than the T-table (significant level 5% = 1.96), thus identifying the two variables that significantly affect the choice of transportation mode and has an impact on reducing the risk of being exposed to COVID-19.

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