Available *online* at: http://journal.unj.ac.id

Jurnal Pensil | Pendidikan Teknik Sipil

Journal homepage: http://journal.unj.ac.id/unj/index.php/jpensil/index

INTENSITY OF TRANSPORTATION MOVEMENT IN DKI JAKARTA PSBB AND PPKM POLICIES DURING THE COVID-19 PANDEMIC

Iskumaila Khoirunnisa[1], Mega Novetriskha Putri[2], Darmawan Listya Cahya[3], Dayu Ariesta Kirana Sari[4]*
[1,2,3,4] Program Studi Perencanaan Wilayah & Kota Fakultas Teknik Universitas Esa Unggul, Jl. Arjuna Utara No. 9, DKI Jakarta, 11510, Indonesia
[1] iskumailak@gmail.com [2] mega.novetrishka@esaunggul.ac.id [3] darmawan@esaunggul.ac.id [4] dayu@esaunggul.ac.id

P-ISSN: 2301-8437
E-ISSN: 2623-1085

ARTICLE HISTORY
Accepted:
27 Juli 2022
Revision:
7 September 2022
Published:
30 September 2022

ARTICLE DOI:
10.21009/jpensil.v11i3.28369

Abstract

Currently, the conditions that are happening in Indonesia and even the world are, the outbreak of the Covid-19 virus (Covid-19 Pandemic), which has changed the arrangement in the activity of human social life. Based on the policies imposed, namely PSBB and PPKM by the government, it has an impact on human behavior patterns in daily life, especially in terms of transportation movements. This research will discuss these problems and raise "Analysis of the Intensity of Transportation Movements in DKI Jakarta During the Covid-19 Pandemic Period of 2020-2021". The purpose of this study is to analyze the intensity of transportation movements during the period when the PSBB and PPKM policies were implemented during the Covid-19 pandemic. The method used is quantitative descriptive statistics with correlation analysis techniques followed by normality tests and Kolmogorov Smirnov tests. By using the variables of travel frequency, travel distance, travel time, travel intent, travel location, mode of transportation, and transportation cost fares. In this study, it was shown that there were four variables that experienced changes in several variables between the implementation of the PSBB and PPKM policies, namely weekend frequency, travel time, travel location, and transportation cost rates. There is a decrease in frequency change from very frequent to rare, in the variable distance travel there is a slight increase in mileage, travel time there is a decrease in the range of > 2 hours to 1-2 hours. As for the purpose, location, mode of transportation, and cost fares tend to have small changes.

Keywords: Covid-19 Pandemic, PSBB, PPKM, Transportation Movement, Population Socio-Economic

Introduction

Mobility or human movement can be facilitated and measured from the location of origin to the destination (Wahab & Andika, 2019). This is directly proportional to the supportive accessibility, the more increased the accessibility will be the higher the mobility of people, goods and goods that come from the zone of origin to the purpose of carrying out activities. The supporting tool for human mobility used in this modern era is the improvement of transportation. Where transportation is a tool used in driving which is driven by machines or humans which are used so that human daily needs can be met (Wu et al., 2019).

There are factors driving the occurrence of human movement intensity activities in order to meet daily needs. The driving activity to carry out activity bags the intensity of human movement is also influenced by social activities, economic activities, educational activities, entertainment recreational activities, and cultural activities (Nur et al., 2021; Torre-Bastida et al., 2018; Wu et al., 2019).

Of course, many more empirical papers thus far have studied activity-travel behavior in the short to medium term because the outbreak of the virus only started in late 2019 in China and in 2020 in most other parts of the world (De Haas et al., 2020). The Covid-19 pandemic in general has implications for all levels of society and sectors that are the backbone of the economy, one of which is transportation (Anggraeni, 2021; Purwoko et al., 2022). The intensity of the movement of people in Jakarta must understand about the movement of the people who live in it in order to meet the needs of public transportation modes in the city of Jakarta, both by personal transportation and public transportation is the two main choices for people's travel users in their daily movements (Farda & Lubis, 2018; Syahbandi, 2020). The rapid development of the population is followed by an increase in population activities in various fields and also causes complex problems in the city of Jakarta (Darmawan et al., 2021; Munandar, 2015). In the current era, conditions are happening in Indonesia and even the world, namely, the outbreak of the *Covid-19* virus (Muhyiddin & Nugroho, 2021), which has changed the arrangement in the activity of human social life. The changes that occur have an impact on changes in human behavior patterns in carrying out new activities that have not been previously carried out to become commonplace that must be done. Social changes as a result of this pandemic cannot be predicted by humans in all aspects of life. *The Covid-19 virus* was first discovered, namely a case at the end of 2019 found in Wuhan Country, and almost every country felt the effects of the *Covid-19* virus until it felt overwhelmed in prevention efforts (De Haas et al., 2020). A novel strain of coronavirus belonging to the same family of viruses that cause severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS), as well as the 4 human coronaviruses associated with the common cold, was subsequently isolated from lower respiratory tract samples of 4 cases on 7 January 2020 (Cucinotta & Vanelli, 2020). Indonesia itself is also a country that is classified as having increasing cases of *Covid-19* infection, starting from the entry of the virus into Indonesia, namely February 2020 to now in 2021, it has been almost 2 years. Data as of August 2020, the number of Covid-19 cases in Indonesia is 121,226 cases. Meanwhile, in the year as of August 2021, there were 3,989,060 total positive cases, 3,571,082 recoveries, and 127,214 deaths. There have been increases and decreases during this nearly two-year interval. The number of cases of death due to the relatively fast and dangerous spread of the Covid-19 virus in Indonesia has caused the Indonesian government to lockdown (Pangaribuan & Munandar, 2021; Widyarini et al., 2022). The definition of lockdown is an urgent protocol that is usually used to restrain people from leaving a place or area (Kennedy et al., 2020). Lockdown is meant to prevent the spread of the Covid-19 virus (Lau et al., 2020; Yunus & Rezki, 2020).

Based on the policies imposed by the government, it has an impact on human behavior patterns in everyday life (Baloch et al., 2020). Changes in human behavior patterns will cause socio-economic changes in society (Saputra & Salma, 2020). In addition, in terms of transportation movements, which are human activities, they will also undergo changes and will not be free. This implies interrelated impacts in daily activities and the handling of the activity process. Therefore, the research that is being carried out has the aim of analyzing population characteristics related to socio economics, and the dynamics of Movement Intensity which is hampered from the daily activities of humans living in DKI Jakarta during the transmission period of the *Covid-19* pandemic. Based on the problems that arise due to the Covid-19 pandemic in DKI Jakarta, this study will discuss these problems and raise the title "*Analysis of the Intensity of Transportation Movements in DKI Jakarta PSBB and PPKM Policies During the Covid-19 Pandemic Period of 2020-2021*".

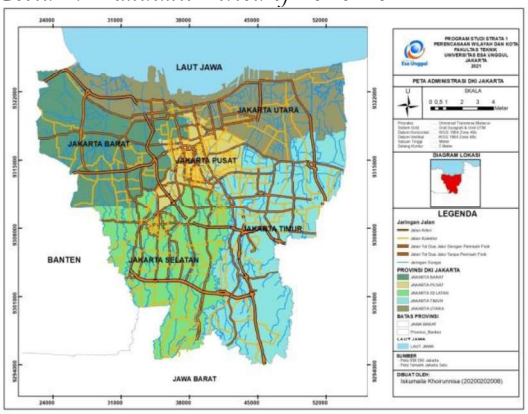

Figure 1. DKI Jakarta Administration

Research Methods

Research Approach and Paradigm

This study discusses the quantitative approach. This approach has a focused attention on the symptoms of the population, social, and economic characteristics of a region or region in the research that develops in human life, and is named variable. The technic analysis used is correlation (Arifin, 2020). The method used is quantitative descriptive statistics with correlation analysis techniques followed by normality tests and kolmogorov-smirnov tests (Enterprise, 2014).

Population and Sample

The study used population focused on the total population of DKI Jakarta Province, namely 10,562,088 people who were sampled using the questionnaire data collection method which was distributed on weekdays and weekends. This study, determines how many samples are intended for respondents by calculating the Jacob Cohen formula below (Suharsimi, 2006):

$$N = \frac{L}{F^2} + u + 1$$

N = sample size

= Effect Size

u = The number of changes related in the study

L = Power function of u = 0

The calculation results are as follows:

L = Power function from u, obtained from the table Power (p) = 0.95 and effect size (F^2)

The price of L table with t.s 1% power 0.95 and u=5 is 19.76

$$N = \frac{19,76}{0,1} + 5 + 1$$

= 197.6 + 5 + 1

= 203.6 people

= 205 people

The sampling technique is *probability sampling* with *a simple random sampling* method. *Probability sampling* is a way of taking a sample where the sample is given as an opportunity with the same status by each population number in order to be selected as part of the sample. The population density variation by time has a significant relation with the traffic volume (Arimura et al., 2020).

Table 1. Research Variables

Research Objectives	Variable	Indicators
Identifying the characteristics of DKI Jakarta Residents based on social and economic aspects	Characteristics of the population, social and economic	a. Gender b. Age range c. Final education d. Employment e. Monthly income f. Monthly expenses g. Ownership of the vehicle, and h. Ownership of a Driver's License.
Identifying the Intensity of Transportation Movements during the Covid-19 pandemic in the implementation of PSBB and PPKM	Intensity of Transport movement	PSBB : a. Travel frequency b. Travel distance c. Travel time d. Purpose of the trip e. Location of the destination of the trip f. Selected mode of transportation. g. Transportation cost fares
		PPKM : a. Travel frequency b. Travel distance c. Travel time d. Purpose of the trip e. Location of the destination of the trip f. Selected mode of transportation. g. Transportation fares

Data Analysis Method

The data analysis method is an important stage in a process carried out by the researcher. This research broadly requires quantitative descriptive analysis, where in the operation used, namely the analysis techniques described below:

A. Socio-Economic Population Characteristics of DKI Jakarta

Population Characteristics discussed in this study discuss related to supporting variables

B. Transportation Movement Analysis
   - Travel frequency (weekdays and weekends)
   - Travel distance
   - Travel time
   - Purpose of the trip
   - Travel location
   - Destination location
   - Mode of transport used
   - Transportation fare

C. Quantitative Descriptive Statistics

Quantitative data analysis method is a data analysis method that relies on the ability to calculate data accurately and is expected to interpret complex data (Singh, 2007). In this quantitative descriptive data analysis, it uses the basic data of the questionnaire results that were distributed to a number of respondents.

Results and Discussion

Covid-19 Pandemic Case Data

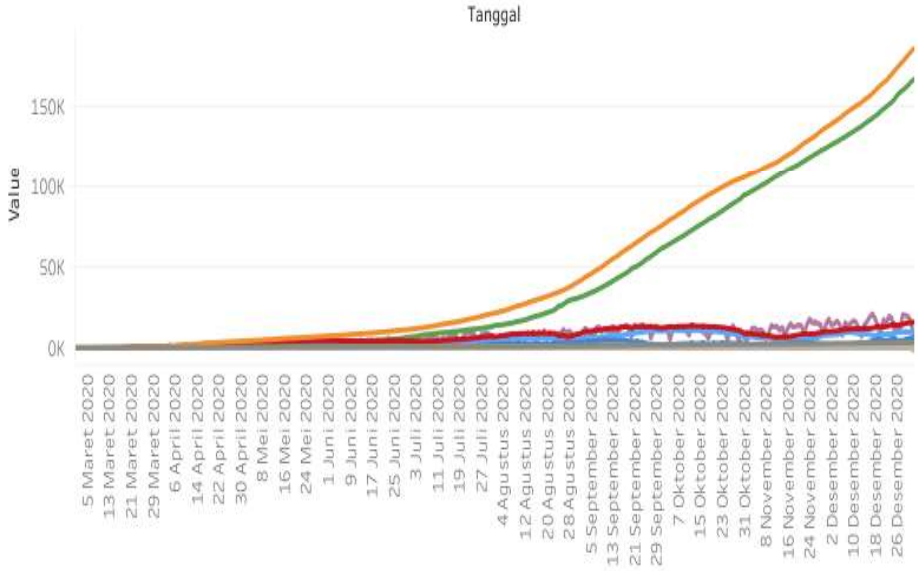

Figure 2. Graph of Covid-19 Pandemic Cases in 2020

Daily positive cases based on ter pcr from the beginning of the year in March to December 2020 were found to increase sharply from the middle of the year to the month of December. It can be seen that positive cases increased sharply starting from June which lasted until the end of 2020.

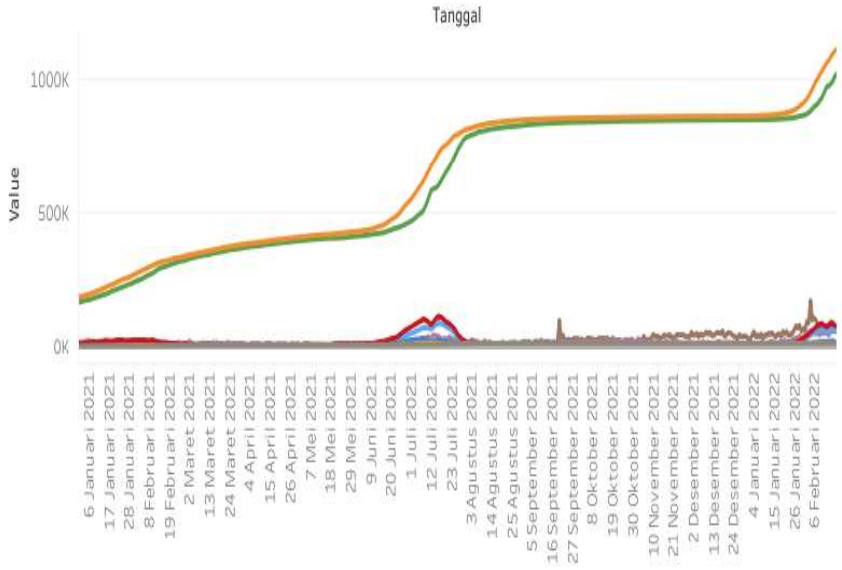

Figure 3. Graph of Covid-19 Pandemic Cases in 2021

In early to mid-2021, positive cases of covid experienced a constant and steady increase. However, in mid-June 2021, covid-19 cases increased sharply with the virus variants getting stronger and more diverse until the end of 2021.

Population-Socio-Economics Characteristic

The characteristics of socio-economic population in DKI Jakarta are divided into several variable descriptions, namely gender, age range, last education, occupation, monthly income, vehicle ownership, and driver's license ownership. The following are the results of the questionnaire:

Table 2. Characteristics of Socio-Economic Population

Variable	Value	Sample (%)
Gender	Man	52
	Woman	48
Age Range	16-25	56.59
	26-35	30.24
	36-45	8.29
	46-55	4.39
	56-65	0.49
Recent Education	SD/Equivalent	0
	Junior High School/Equivalent	0.49
	High School/Equivalent	22.93
	College (D3/S1)	70.73
	College (S2/S3)	5.85
Work	Not Working Yet	22.44
	Civil Servants/TNI/Polri	19.02
	Businessman	5.85
	Educators	2.93
	Medical Personnel	4.88
	Employee	44.88
Monthly Income	under Rp. 3,000,001	25.85
	Rp. 3,000,001 to Rp. 6,000,000	31.22
	Rp. 6,000,001 to Rp. 9,000,000	17.56
	Rp. 9,000,001 to Rp. 12,000,000	7.32
	Rp.12,000,001 to Rp. 15,000,000	6.34
	above Rp. 15,000,000	11.71
Vehicle Ownership	Own	60.49

Variable	Value	Sample (%)
	Not Owned	27.8
	Not Having	11.71
Driver's License Ownership	SIM A	8.87
	SIM C	29.76
	SIM A and SIM C	49.76
	Don't Have a Driver's License Yet	11.71

Respondents who dominated in the age range characteristics were 16-25 years old (56.59%). This age can be classified as a young age and productive work. This is continued at the dominating level of education, namely higher education graduates (D3 / S1) of (70.73%), with the majority of jobs spread across DKI Jakarta, one employee (44.88%), with the dominance of the largest salary, which is in the range of Rp. 3,000,001, - to Rp. 6,000,000, - (31.22%). In relation to transportation support, respondents who have the largest vehicle ownership status are their own, amounting to (60.49%). As for the ownership of a driver's license or driver's license with the most ownership, namely having a SIM A and a SIM C of (49.76%).

Based on these results, the sample obtained was dominated by the young age of productive work in the city of Jakarta. This provides an opportunity to travel more intensely and can be said to have a dense activity compared to the age of being unproductive at work. Such results can make it easier for researchers to determine the intensity of transportation movements carried out by samples during the PSBB and PPKM policies of the Covid-19 pandemic in Jakarta City.

Test The Data

Validity Test

Standardization from high to low level of validity of the data tested is seen from how far the data has high validity.

Table 3. Comparative Results of PSBB Policy Validity Test

Variable	R Calculate	R Table	Result
Weekday Frequency	0.150	0.136	Valid
Weekend Frequency	0.299	0.136	Valid
Mileage	0.327	0.136	Valid
Travel Time	0.359	0.136	Valid
Purpose of Travel Destination	0.882	0.136	Valid
Travel Destination Location	0.922	0.136	Valid
Modes of Transportation	0.594	0.136	Valid

Variable	R Calculate	R Table	Result
Transportation Fee Fare	0.149	0.136	Valid

Table 4. Comparative Results of PPKM Policy Validity Test

Variable	R Calculate	R Table	Result
Weekday Frequency	0.142	0.136	Valid
Weekend Frequency	0.293	0.136	Valid
Mileage	0.234	0.136	Valid
Travel Time	0.296	0.136	Valid
Purpose of Travel Destination	0.924	0.136	Valid
Travel Destination Location	0.921	0.136	Valid
Modes of Transportation	0.635	0.136	Valid
Transportation Fee Fare	0.161	0.136	Valid

Reliability Test

Reliability tests have the main purpose so that the instruments used in the questionnaire can reach a reliable or reliable level.

Table 5. Results of PSBB Policy Reliability Test Operation using SPSS Application

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.576	.742	8

The reliability test of transportation movements during the implementation of psbb is classified as reliable or consistent because the cronbach alpha value (0.576) > the table r value (0.136).

Table 6. Operation Results of PPKM Policy Reliability Test using SPSS Application

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.616	.733	8

The reliability test of transport movements when the normality test with Kolmogrov-Smirnov results in that the data tested are not normally distributed. This was obtained because the significance result was < 0.05 which can be interpreted that it is not normally distributed. Therefore, to test the next analysis using a non-parametric test with the Wilcoxon Signed Rank Test method to find out whether each variable has changes during the PSBB and PPKM policies in DKI Jakarta (Astuti, 2020).

Wilcoxon Signed Rank Test

Table 7. Wilcoxon Signed Rank Test

	Z	Asymp. Sig. (2-tailed)
Weekday Frequency	-1,919[b]	0,055
Weekend Frequency	-2,506[b]	0,012
Travel Distance	-1,078[b]	0,281
Travel Time	-7,151[b]	0
Travel Intent	-121[b]	0,903
Travel Location	-2,837b	0,005
Modes of Transportation	-1,472[b]	0,141
Transportation Fee Fare	-2,331[b]	0,02

There are four variables that obtain an Asymp.Sig (2-tailed) value < 0.05. This has an intepretation that these variables have changed between the PSBB and PPKM policy periods. These variables include weekend frequency, travel time, travel location, and transportation cost tariffs. Meanwhile, those who obtained the Asymp.Sig (2-tailed) value > 0.05 had no change between the PSBB and PPKM policy periods. These variables are weekday frequency, travel distance, travel intent, and mode of transportation.

Intensity of Transportation Movement during PSBB and PPKM Policy Period

The results of the data sample obtained by the researchers showed that the existence of the Covid-19 pandemic changed the order of behavior and travel activities of the community. There was a significant decrease in the movement of transportation from the PSBB policy to PPKM. Many activities that are carried out outside the home offline are changed to online activities at home. The following is the result of an analysis of each variable that affects the intensity of transportation trips in the city of Jakarta during the COVID-19 pandemic.

Frequency of Weekday Trips During PSBB and PPKM

Table 8. Travel Frequency During PSBB and PPKM Policy

Travel Frequency During PSBB Policy	
Mean	**S.D**
2,81	1,075
Travel Frequency During PPKM Policy	
Mean	**S.D**
2,68	0,961

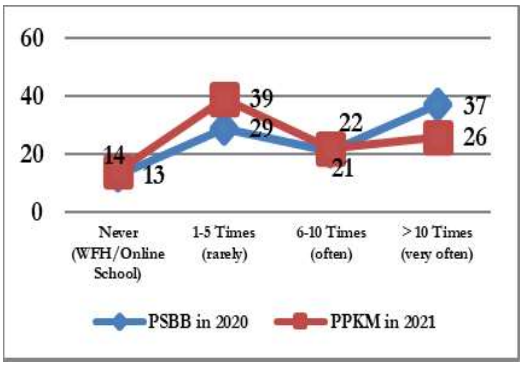

Figure 4. Weekday Travel Frequency for One Month

PSBB and PPKM policies were implemented Stay-at-home requests, which require changing one's travel patterns and practicing self-restriction for non-essential activities, fall squarely into the realm of travel behavior analysis (Parady et al., 2020). During the PSBB policy, which dominated the movement which was quite high or frequent, namely > 10 times the percentage of 36.59% as many as 75 people. While the lowest is never or do WFH or online school, the percentage of 13.17% is 27 people. During the PPKM policy, which dominated the movement of about 1-5 trips or rarely traveled, a percentage of 38.68% was 82 people. While the lowest is never WFH or online schooling 13.68% as many as 29 people.

The people of DKI Jakarta when implementing the PPKM policy less often carry out movement activities using

transportation because the regulations are tightened compared to when the implementation of the PSBB policy which had experienced a new normal so that it gained temporary leeway. Offline activities are being replaced more with online activities during the pandemic. The weekly frequency of WFH and SFH is mainly weekdays more often carried out at home during the high spike in covid-19 cases during the PPKM policy.

Weekend Frequency during PSBB and PPKM

Table 9. Frequency of Weekend Trips During PSBB and PPKM

Travel Frequency During PSBB Policy	
Mean	**S.D**
2,54	0,894
Travel Frequency During PPKM Policy	
Mean	**S.D**
2,4	0,808

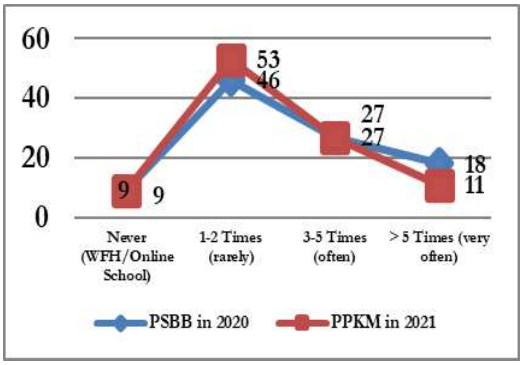

Figure 5. Frequency Graph od Travel Within a Weekend for One Month

The frequency of travel within a period of one month on holidays, namely Saturday to Sunday. During the PSBB policy period, the frequency of trips made by respondents almost had a percentage of shocks that had almost no difference. Where when PSBB and PPKM have similar movement intensities that dominate rarely travel, which is only 1-2 trips. It increased from (46%) up by 7% to (53%). The least sample chose to never WFH / online school because during holidays or weekends there was no school or work activity, and spent more time on resting and refreshing. Entertainment activities at home are increasing so that on weekends it will be reduced when the PPKM policy is tightened at the end of 2021.

Travel Distance During PSBB and PPKM Policies

Table 10. Travel Distance During PSBB and PPKM

Travel Distance During PSBB Policy	
Mean	**S.D**
3,41	1,424
Trabel Distance During PPKM Policy	
Mean	**S.D**
3,35	1,373

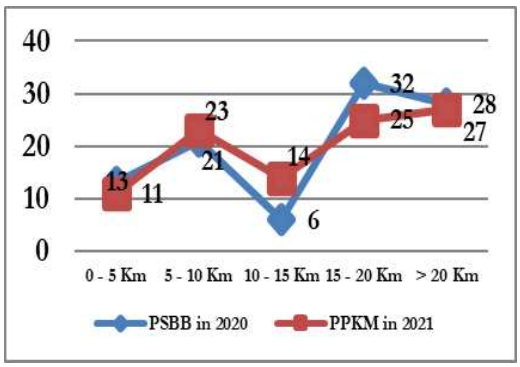

Figure 6. Graph for Average Travel Mileage for One Month

The average travel distance in the journey is one month. The distance traveled by respondents is classified as fluctuating, namely an increase and decrease. Travel distance can determine the amount of travel length that humans take in activities during a pandemic. The PSBB policy period is classified as traveling long distances, namely (32%) with a distance intensity of 15-20 km. Decreased to (25%) during the PPKM policy. In the PSBB Policy, the lowest travel distance intensity is at a moderate distance with a percentage (5%) and an increase in the PPKM policy to (14%). So it can be concluded from the PSBB to PPKM policy

that there is an increase in the intensity of medium travel distances and a decrease in the intensity of long distances.

The existence of leeway during the new normal (which does not last long) makes there is a little freedom in activities triggering to travel long distances. The decrease in the intensity of travel distances is directly proportional to the recommendations of the government to limit long-distance travel in order to reduce the spread of cases inside and outside the city of Jakarta.

Travel Time During PSBB and PPKM Policies

Table 11. Travel Time During PSBB and PPKM

Travel Time During PSBB Policy	
Mean	**S.D**
2,53	0,697
Travel Time During PPKM Policy	
Mean	**S.D**
2,92	0,926

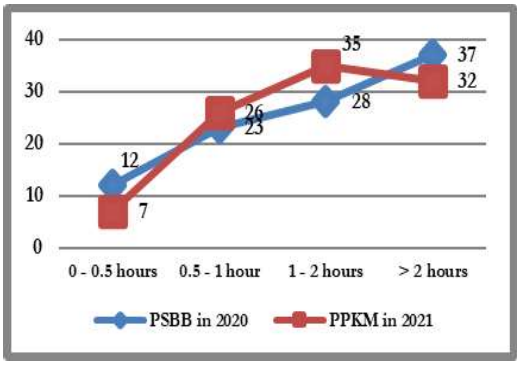

Figure 7. Graph of Average Length of Travel Time for One Week

Travel time during the PSBB policy period is classified as doing the highest travel time, which is a very long category of (37%) with a time intensity of > 2 hours, followed by a travel time intensity of 1-2 hours (28%). Meanwhile, the PPKM policy prefers the intensity of the length of time in traveling 1-2 hours (25%). Where when the PPKM policy has a slightly lower time range than during the PSBB. This indicates that when PPKM is implemented, the people of Jakarta reduce the intensity of travel time and travel if it is felt very urgent to meet their needs.

Intends to Travel During PSBB and PPKM

Table 12. Travel Meanings During PSBB and PPKM

Purpose of Travel Destination During PSBB	
Mean	**S.D**
16,52	16,185
Purpose of Travel Destination During PPKM	
Mean	**S.D**
16,46	16,913

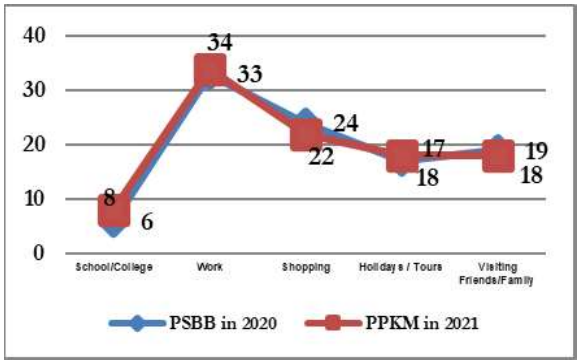

Figure 8. Purpose of Travel

The primary purpose of traveling/outdoor trips is the main reason for which people travel during their daily life (Abdullah et al., 2020). The purpose of travel during the PSBB and PPKM policies is still aligned or classified as having the highest travel time, namely the category of work activities, each of which is a percentage (33%) and (34%). Continued shopping activities, namely (24%) and (22%), respectively. Work activities are most chosen because almost most of the respondents are workers in productive age, while shopping activities are carried out to meet daily needs.

Both activities are the main activities carried out by humans in their daily lives even in a state of social restrictions. Where

most of the samples obtained are a worker. In addition, shopping is an activity that Jakartan like to unwind. During the COVID-19 pandemic, online schools were implemented nationwide which had a major impact on the purpose of travel activities to schools/universities. This is different from the implementation of work from home whose application is still alternating, so the purpose of working is still very often aimed at.

Travel Location During PSBB and PPKM

Table 13. Travel Location During PSBB and PPKM

Location of Travel Destinations During PSBB	
Mean	**S.D**
25,04	25,402
Location of Travel Destinations During PPKM	
Mean	**S.D**
21,78	22,141

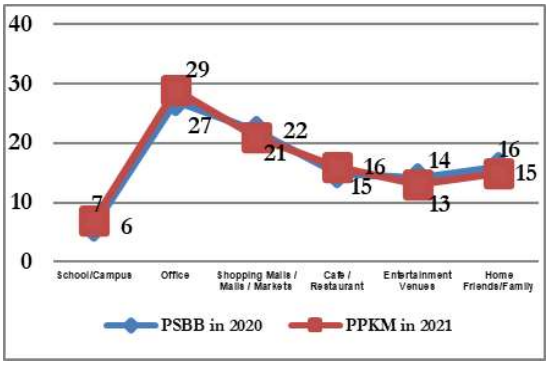

Figure 9. Travel Destination

Travel locations during the PSBB and PPKM policies are classified as the highest travel locations, namely the location of offices and shopping centers, each of which has a percentage (33%) and (34%). Continued shopping activities, namely (27%) and (29%), respectively. The most chosen office location because almost most of the respondents are workers, while shopping activities are carried out to meet daily needs as well as travel intention variables (Miao et al., 2021; Shamshiripour et al., 2020; Srinivasan & Rogers, 2005). Both activities are the main activities carried out by humans in their daily lives even in a state of social restrictions. Work activities are the main activity in meeting the needs of life. In addition, it is balanced with activities in shopping centers / malls / markets that have a high demand in big cities, especially in the city of Jakarta. The implementation of PSBB and PPKM uses a work from home system but is still carried out alternately in accordance with the conditions of the surge in Covid-19 cases.

Modes of Transportation During PSBB and PPKM

Table 14. Modes of Transportation During PSBB and PPKM

Modes of Transportation Used During PSBB	
Mean	**S.D**
12,98	14,841
Modes of Transportation Used During PPKM	
Mean	**S.D**
11,93	13,94

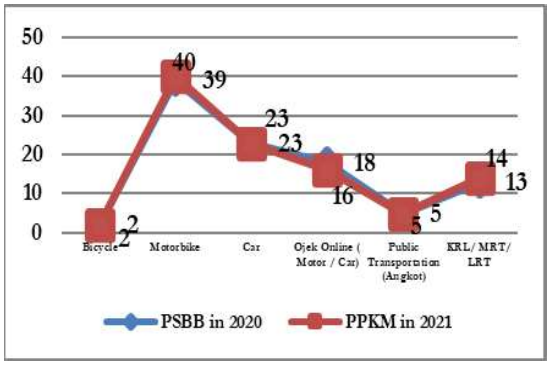

Figure 10. Selected Modes of Transportation

Transportation is a means of transporting goods or goods from one place to another using a vehicle driven by machines or humans (Kurniati, 2020). The choice of modes of transport is based on utility theory which has the assumption that preference towards alternatives of choice is captured by a value that gives satisfaction of

choosing alternatives that give the greatest satisfaction (Irjayanti et al., 2021). Higher grades of education, stimulate a tendency to use cars (Reynaldy et al., 2022). The mode of transportation during the PSBB and PPKM policies is classified as choosing a motorcycle transportation mode, which has a percentage (39%) and (40%), respectively. Followed by private car transportation modes, each of which is (23%). The private mode of transportation is considered safer compared to public transportation that is used by many people so that the spread of the virus can be easily (Luthfiyah & Miro, 2020; Sultan et al., 2020). The most influencing criterion in choosing the mode of transportation is the safety factor (Sipangkar & Sitindaon, 2018). Public transport operators should focus on making public transport a safer way of travelling and aiming to provide a minimum service to meet the demand for essential travel (Gajendran, 2020). This will undoubtedly affect how people respond to their mobilities, one of which is the use of public transportastion modes during the Covid-19 pandemic (Yetmi & Yetmi, 2021). Although according to warpani the cost of private vehicles is more expensive compared to public vehicles, private vehicles are still chosen. Many residents of DKI Jakarta are prepared by traveling using private vehicles, besides being safer, but also more effective on the way. In addition, the most important thing is to reduce crowding to prevent the transmission of covid-19.

Transportation Cost Rates During PSBB and PPKM

Table 15. Transportation Cost Rates During PSBB and PPKM

Transportation Costs During PSBB Policy	
Mean	**S.D**
1,99	1,12
Transportation Costs During PPKM Policy	
Mean	**S.D**
1,87	1,032

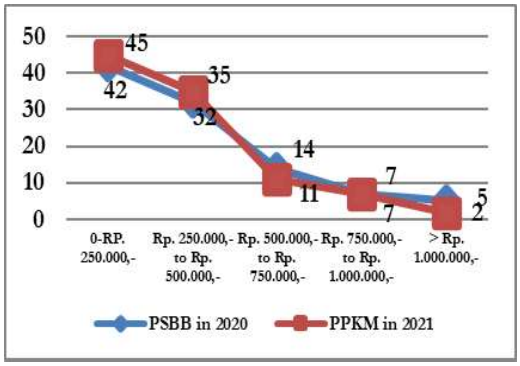

Figure 11. Transportation Cost Fares Within a Month

In the chart above, you can find out that during the PSBB policy period, the expenditure used for transportation (42%) which is classified as a very small cost, amounting to 0-Rp. 250,000, - and experienced a slight increase during the PPKM policy to 45%. Because the tariff for transportation costs or vehicle fuel has a constant price, besides that, people also limit their space for movement so that it is very small to spend increasing transportation costs. the tariff also indicates that the tariff for the motorbike transportation mode for one month is still affordable for respondents. Determination of transportation cost rates based on the scope of travel distance and vehicle maintenance costs (Nasruddin & Rakhmatulloh, 2014). The farther and more expensive the cost of maintaining the vehicle, the more expensive the transportation costs incurred.

Conclusion

The results of the analysis discussion can be concluded that there is an analysis of the Intensity of Transportation Movement in DKI Jakarta during the implementation of PSBB and PPKM, namely in 2020 and 2021, in the analysis of the Intensity of Transportation Movement in DKI Jakarta during the implementation of PSBB and PPKM, namely in 2020 and 2021. The PSBB policy period leading to PPKM resulted in a decrease in frequency change

from very frequent to rare, in the travel distance variable there was a slight increase in mileage, travel time there was a decrease in the range of > 2 hours to 1-2 hours. As for the purpose, location, mode of transportation, and cost fares tend to have small changes. Based on the Wilcoxon Signed Rank Test, namely there are four variables that have changed between the PSBB and PPKM policy periods. These variables include weekend frequency, travel time, travel location, and transportation cost rates.

References

Abdullah, M., Dias, C., Muley, D., & Shahin, M. (2020). Exploring the impacts of COVID-19 on travel behavior and mode preferences. *Transportation Research Interdisciplinary Perspectives*, *8*, 100255.

Anggraeni, D. (2021). Dampak pandemi COVID-19 terhadap sektor moda transportasi darat (Bus AKAP). *Jurnal Indonesia Sosial Teknologi*, *2*(7), 1146–1154.

Arifin, Z. (2020). Metodologi penelitian pendidikan. *Jurnal Al-Hikmah*, *1*(1).

Arimura, M., Ha, T. V., Okumura, K., & Asada, T. (2020). Changes in urban mobility in Sapporo city, Japan due to the Covid-19 emergency declarations. *Transportation Research Interdisciplinary Perspectives*, *7*, 100212.

Astuti, W. (2020). *Implementasi Wilcoxon Signed Rank Test untuk Mengukur Efektifitas Pemberian Video Tutorial dan Power Point Text terhadap Nilai Teori Mata Pelajaran Komputer dan Jaringan Dasar-(SKP. PTI 0015)*. universitas Muhammadiyah Tasikmalaya.

Baloch, S., Baloch, M. A., Zheng, T., & Pei, X. (2020). The coronavirus disease 2019 (COVID-19) pandemic. *The Tohoku Journal of Experimental Medicine*, *250*(4), 271–278.

Cucinotta, D., & Vanelli, M. (2020). WHO declares COVID-19 a pandemic. *Acta Bio Medica: Atenei Parmensis*, *91*(1), 157.

Darmawan, B., Dwiyanti, M., Fatkhan, A., & Safitri, D. (2021). Edukasi Penggunaan Transportasi Publik DKI Jakarta Di masa Pandemi Covid-19. *Abdimas Unwahas*, *6*(1).

De Haas, M., Faber, R., & Hamersma, M. (2020). How COVID-19 and the Dutch 'intelligent lockdown'change activities, work and travel behaviour: Evidence from longitudinal data in the Netherlands. *Transportation Research Interdisciplinary Perspectives*, *6*, 100150.

Enterprise, J. (2014). *SPSS untuk Pemula*. Elex Media Komputindo.

Farda, M., & Lubis, H. al-R. (2018). Transportation system development and challenge in jakarta metropolitan area, indonesia. *International Journal of Sustainable Transportation Technology*, *1*(2), 42–50.

Gajendran, N. (2020). Impact of novel Coronavirus (COVID-19) pandemic on travel pattern: A case study of India. *Indian Jour-Nal of Science and Technology*, *13*(24), 2491–2501.

Irjayanti, A. D., Sari, D. W., & Rosida, I. (2021). Perilaku Pemilihan Moda Transportasi Pekerja Komuter: Studi Kasus Jabodetabek. *Jurnal Ekonomi Dan Pembangunan Indonesia*, *21*(2), 125–147.

Kennedy, P. S. J., Tampubolon, E., & Fakhriansyah, M. (2020). Analisis Strategi lockdown atau Pembatasan Sosial dalam menghambat penyebaran Covid-19. *IMAGE*, *9*(1), 48–64.

Kurniati, N. L. W. R. (2020). Dampak Ekonomi Pengoperasian Transjakarta Ditinjau dari Persepsi Pengguna. *Jurnal Penelitian Transportasi Darat*, *22*(2), 194–205.

Lau, H., Khosrawipour, V., Kocbach, P., Mikolajczyk, A., Schubert, J., Bania, J., & Khosrawipour, T. (2020). The

positive impact of lockdown in Wuhan on containing the COVID-19 outbreak in China. *Journal of Travel Medicine*.

Luthfiyah, T. S., & Miro, F. (2020). Pengaruh COVID-19 Terhadap Transportasi Di Daerah Jabodetabek. *Jurnal Thalita Sahda*, 1–6.

Miao, L., Im, J., Fu, X., Kim, H., & Zhang, Y. E. (2021). Proximal and distal post-COVID travel behavior. *Annals of Tourism Research*, *88*, 103159.

Muhyiddin, M., & Nugroho, H. (2021). A year of Covid-19: A long road to recovery and acceleration of Indonesia's development. *Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning*, *5*(1), 1–19.

Munandar, A. (2015). Pemilihan Moda Transportasi Setelah Adanya Kereta Comuter Line (Studi Daerah Penyangga Jakarta). *SPATIAL: Wahana Komunikasi Dan Informasi Geografi*, *13*(1), 41–49.

Nasruddin, N., & Rakhmatulloh, A. R. (2014). Perbandingan Biaya Umum Transportasi Angkutan Umum dan Sepeda Motor sebagai Moda Transportasi oleh Mahasiswa (Studi Kasus: Kampus Universitas Diponegoro Tembalang). *Teknik PWK (Perencanaan Wilayah Kota)*, *3*(3), 406–417.

Nur, N. K., Rangan, P. R., Mahyuddin, M., Halim, H., Tumpu, M., Sugiyanto, G., Radjawane, L. E., Ahmad, S. N., Rosyida, E. E., & Watrianthos, R. (2021). *Sistem Transportasi*. Yayasan Kita Menulis. https://books.google.co.id/books?id=8Mo7EAAAQBAJ

Pangaribuan, M. T., & Munandar, A. I. (2021). Kebijakan Pemerintah DKI Jakarta Menangani Pandemi Covid-19. *Government: Jurnal Ilmu Pemerintahan*, *14*(1), 1–9.

Parady, G., Taniguchi, A., & Takami, K. (2020). Travel behavior changes during the COVID-19 pandemic in Japan: Analyzing the effects of risk perception and social influence on going-out self-restriction. *Transportation Research Interdisciplinary Perspectives*, *7*, 100181.

Purwoko, B. A., Chotib, C., & Yola, L. (2022). Strategi Integrasi Layanan Transportasi di Stasiun Kereta Api Bekasi Pasca Pandemic Covid-19. *Jurnal Transportasi Multimoda*, *20*(1), 8–18.

Reynaldy, R., Kasikoen, K. M., Cahya, D. L., & Putri, M. N. (2022). The Relationship Between The Characteristics Of The Choice Of Transportation Modes In The City Of West Jakarta During The Covid-19 Pandemic. *Jurnal Pensil: Pendidikan Teknik Sipil*, *11*(2), 186–206.

Saputra, H., & Salma, N. (2020). Dampak PSBB Dan PSBB Transisi Di DKI Jakarta Dalam Pengendalian COVID-19. *Media Kesehatan Masyarakat Indonesia*, *16*(3), 282–292.

Shamshiripour, A., Rahimi, E., Shabanpour, R., & Mohammadian, A. K. (2020). How is COVID-19 reshaping activity-travel behavior? Evidence from a comprehensive survey in Chicago. *Transportation Research Interdisciplinary Perspectives*, *7*, 100216.

Singh, K. (2007). *Quantitative social research methods*. Sage.

Sipangkar, D. I., & Sitindaon, C. (2018). Kajian Pemilihan Moda Transportasi Rute Bandara Kuala Namu–Medan. *Jurnal Rekayasa Konstruksi Mekanika Sipil*, *1*(2), 108–127.

Srinivasan, S., & Rogers, P. (2005). Travel behavior of low-income residents: studying two contrasting locations in the city of Chennai, India. *Journal of Transport Geography*, *13*(3), 265–274.

Suharsimi, A. (2006). Prosedur penelitian suatu pendekatan praktik. *Jakarta: Rineka Cipta*, 120–123.

Sultan, M. A., Gaus, A., Wahab, I. H. A., & Abdullah, A. M. (2020). Dampak Pandemi Covid-19 Terhadap Tingkat Pelayanan Moda Transportasi Speedboat Tidore-Sofifi. *Jurnal Rekayasa Konstruksi Mekanika Sipil*, *3*(2), 89–96.

Syahbandi, M. (2020). *Kecenderungan Pemilihan Moda Kendaraan Pribadi dan Transportasi Publik Masyarakat Kota Tangerang Selatan*. Institut Teknologi Sumatera.

Torre-Bastida, A. I., Del Ser, J., Laña, I., Ilardia, M., Bilbao, M. N., & Campos-Cordobés, S. (2018). Big Data for transportation and mobility: recent advances, trends and challenges. *IET Intelligent Transport Systems*, *12*(8), 742–755.

Wahab, W., & Andika, P. (2019). Studi Analisis Pemilihan Moda Transportasi Umum Darat di Kota Padang antara Kereta Api dan Bus Damri Bandara Internasional Minangkabau. *Jurnal Teknik Sipil ITP*, *6*(1), 30–37.

Widyarini, G., Pamungkas, W. G., & Pratiwi, Y. I. (2022). Pemilihan Moda Transportasi Saat Pandemi Covid-19 dengan Metode Promethee (Studi Kasus: Ruas Jalan Pemuda Kota Semarang). *Teknika*, *17*(1), 12–20.

Wu, Y., Rowangould, D., London, J. K., & Karner, A. (2019). Modeling health equity in active transportation planning. *Transportation Research Part D: Transport and Environment*, *67*, 528–540.

Yetmi, U. S., & Yetmi, Y. S. (2021). Analisis Strategi Persaingan Transportasi Online Yang Berbasis Aplikasi Selama Pandemi Covid-19. *EKONOMI BISNIS*, *27*(1), 601–615.

Yunus, N. R., & Rezki, A. (2020). Kebijakan pemberlakuan lock down sebagai antisipasi penyebaran corona virus Covid-19. *Salam: Jurnal Sosial Dan Budaya Syar-I*, *7*(3), 227–238.