

THE COMPARATIVE ANALYSIS OF *MUDIK* MODE TRANSPORTATION: A CASE OF PT ADIRONA NIRMANA LESTARI EMPLOYER, INDONESIA

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ABSTRACT

Public transportation is a service to move people or goods to support mobility from one place to another. The use of public transportation is still one of the favorite transportation for migration from village to City or from City to village (*mudik*). Homecoming has become one of the traditions that occur every year in Indonesia. However, the increase in the number of public transportation passengers ahead of homecoming makes it challenging to get tickets and public transportation, so it is necessary to find alternative transportation so that homecoming is still carried out. The purpose of making this paper is to find out the factors that affect PT. Adirona Nirmana Lestari (ANL) is sustainable in selecting homecoming (*mudik*) transportation between buses and motorbikes. The method is to spread the questionnaire to 100 respondents, and then the questionnaire result data is analyzed using the spider chart method. The results showed that of the ten parameters asked in the questionnaire, the parameter greatly influenced the selection of homecoming transportation for ANL employees was the cost of travel.

INTRODUCTION

Economic growth and development due to the rapid development of cities in the world have increased the need for human mobility. This raises problems in the transportation system, so solutions are needed to overcome them. The role of public transport transportation, in this case, is quite natural in providing access to adequate opportunities and can provide credible solutions for all communities (Al-Rashid, Nahiduzzaman, Ahmed, & Akgün, 2020). people to travel inside and outside the City. The existence of bus transportation is very beneficial for people whose areas are not traversed by train transportation. Although the benefits of using buses for individuals and communities are enormous, the use of buses in Ho Chi Minh city is still limited and insufficient. People are still more likely to choose private vehicles instead of buses because of their inconvenience (Nguyen, 2019).

In Indonesia, public bus transportation has begun to take advantage of technological advances and the internet. Using technology and the internet in transportation can reduce traffic congestion and improve safety, mobility, comfort, convenience, and quality of service (Sutandi, 2019). The existence of an online-based ticket booking system is an example of the use of information technology. As a result, online tickets make it easier for passengers to plan trips. However, implementing the online ticket booking system could be more optimal. There are often grabs for seats booked with passengers who buy tickets directly on the bus. One way that can be done to support bus transportation in the increasing public interest is to use e-ticketing (Soegoto, Setiawan, & Jumansyah, 2020).

The Comparative Analysis of Mudik Mode Transportation: A Case of PT Adirona Nirmana Lestari Employer, Indonesia

The ANL is a consulting company in building construction and interior buildings in the City of Bekasi. As a city that has a strategic position, the construction of public transportation facilities is the focus of the city government. Trans patriots are one example of supporting the mobility of citizens and migrants. The existence of high community movement must be balanced with adequate transportation facilities and infrastructure, such as by providing good public transportation to reduce private vehicles (Hartono, Purba, & & Fuady, 2022). The growth of private vehicles, especially motorcycles, in Bekasi city continues to increase because it is the destination city for nomads from various regions. Motorcycles are becoming the preferred mode of transportation by drivers and users for relatively short distances, the ability to navigate more easily through congested roads, and the avoidance of waiting times for users (Aluko, 2018).

Bekasi bus terminal is one of the most crowded terminals when Eid mudik time arrives, and this is because there are many bus routes from Bekasi, especially to the east of Java. Compared to the Pulo Gebang Bus Station when going home for Eid al-Fitr, The Bekasi Bus Station is still the first choice for travelers who use buses. As a result, travelers must be ready to grab tickets that can cost 2x the regular price or book in advance. However, the problem is that the bus fleet often experiences delays until it is terminated due to annual homecoming traffic jams. The impact is that the time required during the homecoming trip is far from what was expected. Therefore, the selection of private motorbikes is a choice used by practical travelers who can leave at any time. Motorcycles have become the most popular mode of transport due to economic factors and ease of mobility, mainly through heavy traffic conditions (Idris, Hamid, & Hua, 2019).

The phenomenon of homecoming is closely related to cultural reasons that concern three main things, namely the cultural need to visit parents and families, make pilgrimages to the graves of relatives, and look at the legacy of the family residence in the place of origin (Arribathi & Aini, 2018). Traffic jams during homecoming may be inevitable, seeing the continued increase in the number of nomads from the region, but there may be ways to keep homecoming comfortable. The purpose of making this study is to compare the efficiency of using the mode of transportation used for homecoming and also the factors that influence the choice of homecoming mode of transportation between buses and motorbikes so that the homecoming trip remains comfortable.

LITERATURE REVIEW

Public Transportation

Public transportation, also known as public transportation, is a means of transportation or service to move people or goods that can be used together, allowing access to all regions. In short, public transportation is transportation where people move not using private vehicles. The existence of public transportation facilitates the movement of goods and people, thereby improving the regional economy. The increase in the regional economy and the good public transportation services will be directly proportional to the growth of development, and income will also increase. The use of transportation is closely related to time and distance. Usually, the longer the distance traveled, the more people prefer public transportation (Alkharabsheh, Moslem, & Oubahman, 2021).

One of the most critical aspects of need in transportation is improving the quality of transport for passengers and goods carried. The quality of public transportation can increase people's interest in switching from private vehicles to public transportation. Moreover, the impact of the development of public transport systems can reduce congestion and pollution due to the reduced use of private vehicles. So, in addition to functioning for mobility, the use of public transportation is also a form of effort to live more environmentally friendly by reducing

The Comparative Analysis of Mudik Mode Transportation: A Case of PT Adirona Nirmana Lestari Employer, Indonesia

air pollution from vehicle emissions (Davidich, Kush, Galkin, Davidich, & Tkachenko, 2019)(Alkharabsheh, Moslem, & Oubahman, 2021).

Services for pedestrians, bike lanes, and public transport are things to be aware of in a transport planner. In addition, in transportation planning, things that must be taken into account are the purpose of the trip, travel time, and costs. In addition, the thing that must be considered is the type of general transportation planned. When viewed from the types of objects transported, general transportation includes passenger transportation and freight transportation. Examples of passenger transportation are buses, trains, and planes. Examples of freight transportation are cargo ships and expedition service cars. Planning The public transportation system will form the basis for economic development and a means of community interaction. Planning An ineffective transportation system will limit economic and social opportunities (Yatskiv & Budilovich, 2017).

Promoting public transport must align with the strategy of promoting the use of land already planned in urban planning. The use of social media to promote something has been widely used, one of which is for public transportation. Usually, marketing people will pair the promotion of public transportation with the surrounding occupancy or public facilities. This is effective because, in one promotion, there are 2 or 3, and the facilities are offered to the community. For example, the LRT station with the LRT city apartment in Bekasi (Santos, Silva, Fernandes, & Marsden, 2020)

Public transport transportation as a sustainable approach has received wider attention, especially in developed and developing countries. Indications of the development of public transport transportation are the country's focus, namely with the increase in places where passengers rise and fall. For example, renovating stations, terminals, and airports to improve public facilities, rejuvenate buildings, and open new routes. The route is a General Motor Vehicle track for transportation services, which has a fixed origin and destination of travel, as well as a fixed track, both scheduled and unscheduled (UULAJ Article 140). In this article, public transportation that includes routes are cross-border transportation, intercity transportation between provinces, intercity transportation within the province, urban transportation, and rural transportation (Murad, Abbas, Trisetarso, Suparta, & Kang, 2018)

Buses and Motorbikes

A bus is a motorized vehicle with four or more wheels in the category of large vehicles that function as public transportation that can carry many passengers simultaneously. The punctuality of local public bus transportation contributes to the quality of service. It impacts the selection of bus modes to become public transportation in great demand by the general public. The ease of booking tickets is still one of the factors that buses are still in great demand. Purchasing tickets that can be bought impromptu on the bus is beneficial for people who travel suddenly because there is a very urgent matter (Csiszár & Sándor, 2017).

The use of public transportation, such as bus rapid transit, buses, or subways, becomes a priority solution when there are severe traffic jams in urban areas (Munawar, Irawan, Fauziah, & Belgium, 2022). Public transportation in Indonesia, especially buses, is experiencing rapid development. One of the indicators is the increasing level of class in bus services. There are 6 class levels in public bus transportation: economy class, business (patas), VIP, executive, super executive, and sleeper. The development of the bus industry must be connected to the efforts of bus companies that continue beautifying their bus fleets, be it interiors, exteriors, or existing features. In addition, there is the role of automotive reviewers and bus mania who continually promote the latest bus fleets to the public.

Bus public transportation in Indonesia still needs to be improved regarding direct service to bus passengers and road traffic safety aspects. In the capital city of Jakarta, One of the efforts in improving services is the return to the operation of pinky buses. Pinky bus is a

The Comparative Analysis of Mudik Mode Transportation: A Case of PT Adirona Nirmana Lestari Employer, Indonesia

Trans Jakarta bus specifically for a female to ensure passengers' comfort and safety from rampant sexual harassment. The improvement in services can also be seen in the intercity and interprovincial (AKAP) buses, where bus companies have started using an online-based ticket booking system. Although the implementation still has to be improved so that optimal service no longer has to grab seats (Suraji, Djakfar, & Wicaksono, 2021).

In addition to public transportation that is often used to travel, private vehicles are still one of the leading choices, one of which is motorcycles. A motorcycle is a two-wheeled motorized vehicle that can be used as transportation for passengers and goods in limited quantities. A maximum of 2 adults can only use motorcycles. Motorbikes are the preferred transportation option by all circles. Its main reason is the possession of a simple mode and economical operation. The purchase of a motorbike is classified as a low-cost motor vehicle and can be obtained through an easy credit method. The growth rate of motorcycles always increases every year this is because everyone new to work mostly buys it as a form of achievement (Utami, Torro, & Lumingkewas, 2018)

Motorcycles dominate as a mode of transportation of relatively short and medium travel time for workers. The small shape becomes the advantage of motorcycles when traffic congestion, so it becomes the primary choice for workers in big cities such as Jakarta. When viewed from the transmission type, motorcycles are divided into manual and automatic transmissions. Manual transmission is divided into two more types: semi-automatic (without clutch) and clutch. Along with the development of the times, automatic motorcycles that use automatic transmissions are more in demand than manual transmission vehicles, and this is due to the ease of driving (Hansa & Susilowati, 2020)

Homecoming (*Mudik*)

Homecoming is an activity of overseas workers when deciding to return home. Homecoming is a tradition of returning nomads ahead of religious holidays such as Eid al-Fitr and Eid al-Adha from City to hometown to gather with family, especially with parents. This Eid moment is used to celebrate with family and pilgrimage to the ancestral grave. For the nomads of Eid homecoming, especially Eid al-Fitr, it is eagerly awaited. After almost a month of fasting, they want to spend the last days of Ramadhan and celebrate the day of victory together with their families (Iriany, Pasciana, & Ramdhani, 2019).

When Eid mudik arrives, the interest of public transportation users is so much that it must be balanced with the number of transportation fleets that operate to accommodate passengers and luggage. Bus companies usually operate their tourist bus fleets as a homecoming reserve fleet. In addition to the high number of passengers, the price of tike also increased when the homecoming time arrived. The ticket price can be two times the regular price. According to the Bus Company Owners, the price increase has been arranged and is reasonable because when the homecoming arrives, the bus fleet only brings passengers from the City. Therefore, the number of bus passengers is less than when departing from the City (Narti & Setiyadi, 2020).

In 2020 and 2021, the government banned going home or leaving the City due to the covid19 virus pandemic in Indonesia. The existence of a regulation prohibiting homecoming due to covid19 can undeniably make the transportation system fail. The entire transportation sector, land, sea, and air, are affected. The long-awaited homecoming season because usually, the income becomes many times more suddenly becomes empty of income. Many bus companies reduce the number of their fleets that operate on weekdays. The bus fleet, which remained in operation amid the homecoming ban, was ordered to make a U-turn by authorities back to the City where it departed. (Andaka, 2020)

The ban on Eid homecoming in the previous two years has impacted Eid homecoming in 2022. People who have not returned home for almost two years must make an extra effort

The Comparative Analysis of Mudik Mode Transportation: A Case of PT Adirona Nirmana Lestari Employer, Indonesia

when booking tickets for available public transportation. According to the Ministry of Transportation, the number of travelers in 2022 is the highest compared to the Eid periods in the last ten years. It was recorded that the number of travelers reached 85 million, 14 million of whom came from Jabodetabek. As a result, homecoming 2022 is one of the worst homecomings, congestion occurs everywhere, and many bus fleets cannot leave as scheduled. All that is willing to be done to gather with the extended family after Eid did not meet two times.

The phenomenon of homecoming other than in Indonesia also occurs in several countries, one of which is Turkey. Eid al-Fitr in Turkey is known as Bayram. This is because, during Eid al-Fitr, Turkish Muslims will say greetings to each other, "Bayraminiz Kutlu Olsun", "Mutlu Bayramlar", or "Bayraminiz Mubarek Olsun". Unlike the case in Saudi Arabia, the form of Eid celebrations is by holding arts such as theater performances. From the perspective of religion, a homecoming is a form of implementing noble human values such as forgiving and sharing (Arribathi & Aini, 2018).

METHOD

This research was conducted in November 2022 with a study location in the office and workshop of ANL, precisely in Bekasi, and the location of the project carried out by PT. Adirona Nirmana Lestari. The ANL is in the office of the Mayor of East Jakarta Administration and the East Jakarta female's Krida studio building. This research was attended by ± 100 respondents who were staff employees and workers of PT. Adirona Nirmana Lestari.

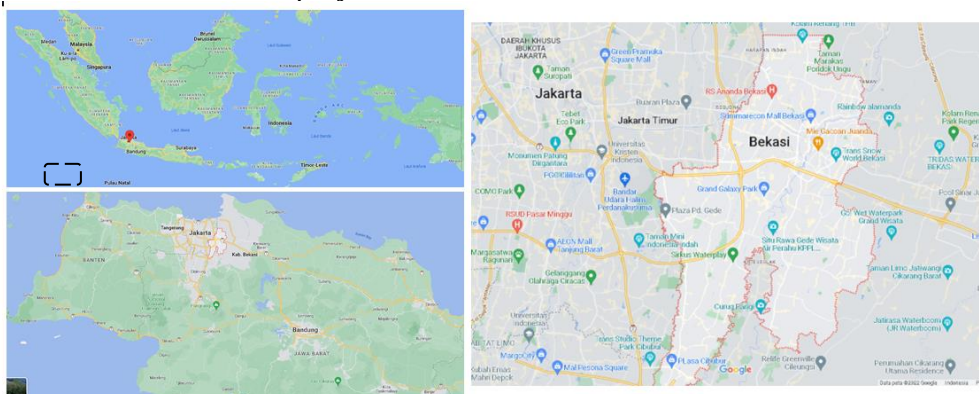


Figure 1. Research Location

In this study, primary data collection was carried out by distributing questionnaires using a google form which was followed by as many as 100 respondents who filled out online using the internet. The research method uses quantitative research methods so that analysis is related to the processing of numbers. The parameters used in this study can be seen in the following table:

Table 1. Public transport selection parameters

Parameter s	Source
Travel Cost	(Engebretsen & Dauzère-Pérès, 2019)
Service Quality	(Silalahi, Handayani, & Munajat, 2017)
Travel Time	(Ralston & Geyer, 2017)
Comfort	(İmre & Çelebi, 2017)
Safety and Security	(Olojede, Daramola, & Olufemi, 2017)
availability of transportation	(Wong, Szeto, Yang, Li, & Wong, 2018)
Tangible	(Knob, 2019)
Reliability	(Sharma, Pandit, & Bose, 2020)
Information	(Sharma, Pandit, & Bose, 2020)
Brand image	(Onibala, Moniharapon, & Raintung, 2020)

The Comparative Analysis of Mudik Mode Transportation: A Case of PT Adirona Nirmana Lestari Employer, Indonesia

The results of this variable selection come from field observations by seeing and feeling directly as a user. Each respondent was given ten options to submit a questionnaire. With a value scale of 1-10, where the value scale of 1 is considered very influential, and a value of 10 is very influential.



Furthermore, the data obtained is used as primary data for processing using the spider chart method. From the results of the spider chart, the parameters or factors behind the selection of motorcycle and public transportation modes as modes of transportation for homecoming trips by PT employees and workers can be seen. Adirona Nirmana Lestari.

RESULT AND DISCUSSION

Many respondents then filled out the questionnaire using Google Forms and distributed it on social media. From office employees and workshops of ANL, the mayor of East Jakarta, and the Sangkrini building maintenance project team, the respondent started obtaining 100 samples for processing the virgins to be carried out. The analyses used include: First, the characteristics of respondents/travelers. Second, analyze the movement characteristics of respondents/ travelers. Third, the analysis of the characteristics of interests that are a priority in choosing the use of homecoming transportation modes will be discussed separately in the discussion in this sub-chapter

Respondent characteristic analysis

The analysis of respondents' characteristics explained the characteristics of respondents in the form of vehicle ownership and socioeconomics consisting of gender, age, educational background, and income in a month which are included in the variables that influence respondents in choosing a mode of transportation for homecoming. The results of the analysis can be seen in the following table:

Table 2. Respondent Characteristic Analysis

Variables	Category	Frequency	Relative Frequency
Gender	Male	63	63%
	Female	37	37%
Age	17 - 20	7	7%
	21 - 30	80	78%
	31 - 40	7	7%
	41 - 50	6	6%
	Over 50	0	2%
Education Background	Junior High School	63	63%
	Senior High School	22	22%
	Associate's Degree (D3)	7	7%
	Bachelor's degree (S1)	5	5%

The Comparative Analysis of Mudik Mode Transportation: A Case of PT Adirona Nirmana Lestari Employer, Indonesia

Variables	Category	Frequency	Relative Frequency
Income/month	Master's Degree (S2)	3	3%
	< IDR 2,000,000, -	7	7%
	IDR 2,000,000, - ~ IDR 5,000,000, -	63	63%
	IDR 5,000,000, - ~ IDR 10,000,000, -	28	28%
	> IDR 10,000,000, -	2	2%
Vehicle ownership	Motorcycle	76	76%
	Car	21	21%
	Etc.	3	3%

The analysis table above shows that most of the respondents who filled out the questionnaire were male, with a percentage of 63%. In addition, the respondent was between the ages of 21-30, with a percentage of 80%. Furthermore, for their educational background, many respondents are junior high school (SMP) graduates, with a percentage of 63%, who are the majority of whom work as handymen and workers. Finally, for vehicle ownership, the majority of vehicles owned by respondents are motorcycles, with a percentage of 76%.

Movement characteristics Analysis

Analysis of respondents' movement characteristics explained the characteristics of respondents' movements in the form of transportation or vehicles used for homecoming, homecoming destinations, time, and distance traveled during homecoming, which is included in the variables that affect respondents in choosing a mode of transportation for homecoming. The results of the analysis can be seen in the following table:

Table 3. Movement characteristics Analysis

Variables	Category	Frequency	Relative Frequency
Homecoming Transportation	Motorcycle	29	29%
	Car	26	26%
	Public Transportation	45	45%
Destination area	West Java	56	56%
	Central Java	28	28%
	East Java	4	4%
	Banten	2	2%
	DIY Yogyakarta	6	6%
	Outside Java	4	4%
commuting time	Under 5 hours	33	33%
	5 - 10 hours	53	53%
	10 - 15 hours	14	14%
	Over 15 hours	0	0%
commuting distance	Under 50 KM	17	17%
	50 - 100 KM	26	26%
	100 - 300 KM	32	32%

The Comparative Analysis of Mudik Mode Transportation: A Case of PT Adirona Nirmana Lestari Employer, Indonesia

Variables	Category	Frequency	Relative Frequency
	300 - 500 KM	16	16%
	Over 500 KM	9	9%

From the respondents' movement analysis table, it can be seen that public transportation is the majority of transportation used for respondents' homecoming trips with a percentage of 45%, and West Java is the most homecoming destination with 56% with a travel time of 5-10 hours.

Interest Characteristics Analysis

Furthermore, based on the data from the questionnaire, an analysis of the opinions of each respondent was carried out. The characteristics of the interests used consist of interests in travel costs, quality of service, time efficiency, comfort, safety and security, availability of transportation modes, ease of transportation modes, reliability, information, and brand image. The data processed from the survey results are divided into two categories: male and female. The 100 respondents comprised 63% male and 37% female. They, moreover, made two analyses based on two modes of transportation used for homecoming to be a comparison in the selection of homecoming transportation modes. The results of the analysis can be seen in the figure below.

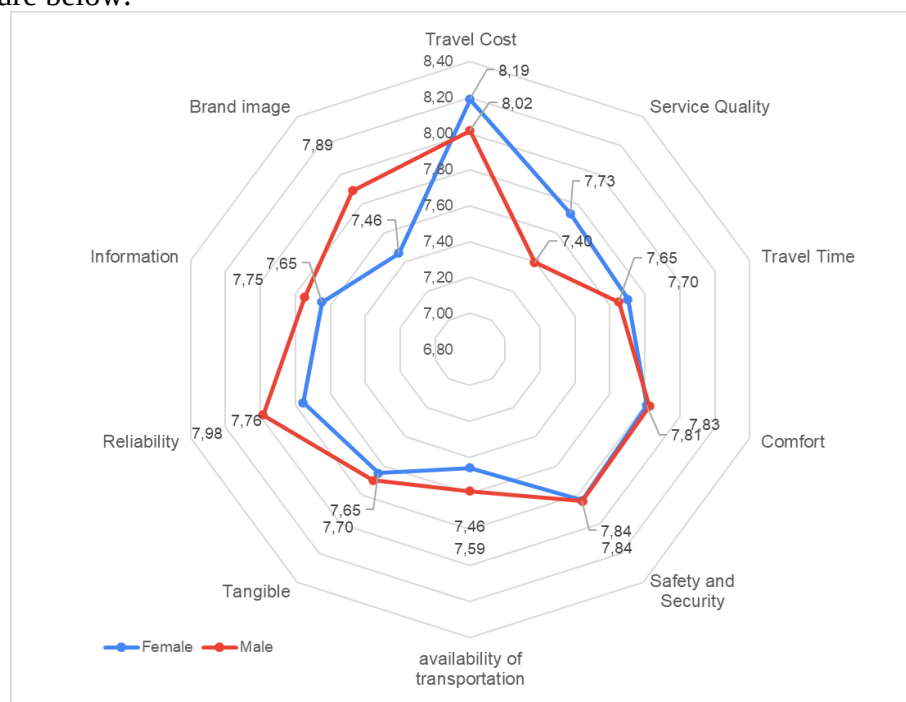


Figure 3. Spider chart of public transportation

From Figure 3, the first parameter is the cost of travel. Travel expenses are the amount of rupiah that must be spent on bus tickets, meals, etc. From the data from the questionnaire results filled with 100 respondents, a male got an average score of 8.02, and a female got an average score of 8.19 on a scale of 1-10. From Figure 3, it is known that the parameter of travel costs is a very influencing factor in the choice of transportation mode. The second parameter is the quality of service. In this study, is the level of influence of the friendliness of the conductor or driver in handling passenger complaints. From Figure 3, the quality of service is the least influential parameter for men, with an average value of 7.40, while the average female value for this parameter is 7.73 out of 10.

The Comparative Analysis of Mudik Mode Transportation: A Case of PT Adirona Nirmana Lestari Employer, Indonesia

The third parameter travels time, is the time needed to arrive at the destination. The analysis results show that men's average value was 7.65 and female's 7.70. The fourth parameter is comfort. From Figure 3, this parameter is very influential for males and females, with evidence of average values of 7.81 and 7.83. Comfort on the bus is one of the most influential factors for long trips. The fifth parameter, namely the level of safety and security in this research, includes the condition of the bus fleet operating and the availability of equipment for emergencies. From Figure 3, it can be seen that males and females agree that this parameter is a parameter that affects the selection of buses as a mode of transportation for homecoming, with an average value of 7.84 for females and men.

The sixth parameter, namely the availability of transportation modes, is the existence of a bus route or route to the destination of homecoming. From Figure 3, the average value for males is 7.59, and for females is 7.46 on a scale of 1-10. The seventh parameter, namely the ease of obtaining transportation modes in this research, includes the number of bus fleets operated for bus trips. From Figure 3, this parameter affects an average value for males at 7.70 and females at 7.65. Finally, this study's eighth parameter, reliability, include the waiting time for other passengers and departure accuracy. From Figure 3, for men, this parameter is one of the most influential in choosing buses as homecoming transportation, with an average value of 7.98, while for females, the average value is 7.70 on a scale of 1-10.

The ninth parameter, namely the ease of obtaining information in this study, includes the ease of obtaining information in terms of getting tickets and information if there is a change in schedules and fleets that operate when going home. From Figure 3, the average value for males is 7.75, while for females, it is 7.65. Moreover, the last parameter, brand image in this study, includes the image of the bus company, which is one of the influential factors in choosing a bus as homecoming transportation. Again, the average value for males is 7.89. At the same time, for females, it is the parameter that has the lowest average value among ten other parameters, with a value of 7.46 out of 10.

From the description above, it can be seen from some parameters that the parameter of travel costs is a very influencing factor in the selection of buses as homecoming transportation. On the other hand, the employees and workers of ANL are a parameter whose influence is small on selecting buses as homecoming transportation from the description above. According to men, namely the parameter of service quality, while according to females, it is the parameter of brand image.

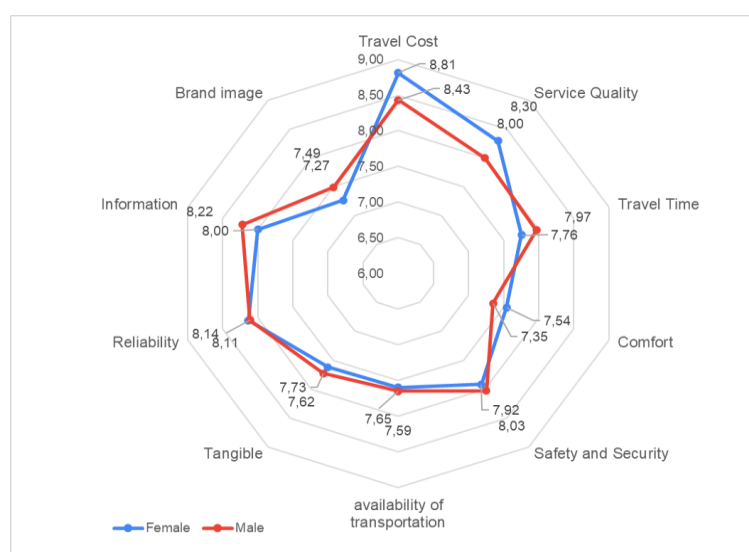


Figure 4. Spider chart of Motorcycles

The Comparative Analysis of Mudik Mode Transportation: A Case of PT Adirona Nirmana Lestari Employer, Indonesia

In addition, this study also analyzed the factors that influence the selection of motorcycles as homecoming transportation with the same parameters. The results of the analysis for motorcycles can be found in Figure 4. Spider chart of Motorcycles can be seen as the same as the analysis on the selection of buses as homecoming transportation. The travel parameter is the most influential parameter also on the selection of motorcycles, with evidence of the average value of this parameter above the average value of other parameters in both male and female respondents. The average score for males is 8.43, while for females, it is 8.81 out of 10. In the second position, there is a parameter of service quality with an average score for males of 8.0 and females of 8.30. After that, in the third position, there is an information parameter in the study, including the ease of obtaining alternative routes/roads when there is congestion that often occurs during homecoming.

While the parameter with the lowest average value is brand image, this study includes the brand of motorcycle used during homecoming, which is considered not too influential in choosing a motorcycle as transportation for homecoming, with an average value for males which is 7.49 while for females it is 7.27. In addition to the parameters of the brand image, the comfort parameters are also considered to have little effect. In this research, comfort parameters include the comfort of riding using a motorcycle with a reasonably long travel time. This parameter is considered too influential, with an average value for males of 7.35 and females of 7.54 out of 10.

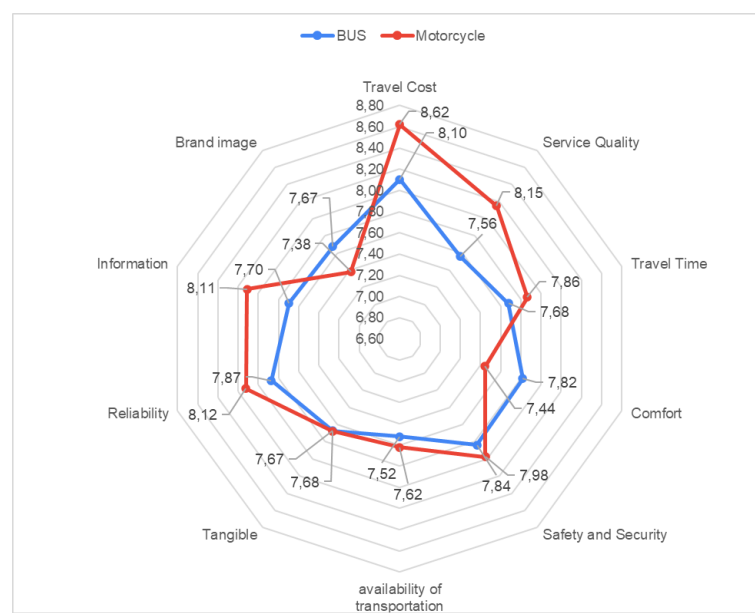


Figure 5. Spider chart of comparison Bus and Motorcycles

From Figure 5, the parameters of travel costs are very dominant in the influence of choosing the mode of homecoming transportation, both using buses and motorcycles, with an average value of 8.62 for motorcycles and 8.10 for public transportation buses. In addition to the trip, the three parameters that are sufficient to affect the choice of buses as a mode of homecoming transportation are the reliability or reliability of the bus transportation fleet, with an average value of 7.87. Furthermore, there is a parameter for the level of safety and security using bus transportation, with an average value of 7.84. The following parameter is the level of comfort on the bus during the trip, with a value of 7.82. As for the parameter with the lowest value for buses, namely the availability of bus public transportation modes, with a value of 7.52 on a scale of 1-10.

Meanwhile, it is a dominant parameter for motorcycle vehicles, in addition to travel costs. Three other parameters also quite influential in selecting motorcycle vehicles as

The Comparative Analysis of Mudik Mode Transportation: A Case of PT Adirona Nirmana Lestari Employer, Indonesia

homecoming transportation are the quality of motorcycle vehicles with a value of 8.15. Then the second parameter is reliability in driving using a motorcycle, with a value of 8.11. The third is the ease of obtaining information by looking for alternative routes or roads if traffic jams often occur during homecoming trips. Meanwhile, the brand is the lowest influencing motorcycle selection, with a value of 7.38.

CONCLUSION

The study results show that the travel cost parameter is dominant in influencing the choice of the homecoming transportation mode. For bus users, the average importance is 8.10. Meanwhile, motorbike users have an interest rate of an average of 8.62. Therefore, homecoming travelers have no objection to using public transport provided that the parameters of travel cost, safety and security, and service quality can be met.

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The Comparative Analysis of Mudik Mode Transportation: A Case of PT Adirona Nirmana Lestari Employer, Indonesia

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