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ANALYSIS OF FACTORS AFFECTING POPULATIONS WHO COMMUTER TO MEDAN CITY (CASE STUDY: DELI SERDANG – BINJAI)

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ABSTRACT
Medan is one of Indonesia's third-largest cities, located in the province of North Sumatra. Medan's attraction extends to the adjacent districts, including the Deli Serdang district and Binjai municipality. One of the reasons people relocate is because their income in the city influences their expectations for things like job opportunities and better education. If the value of a utility's territory varies, it can impact the economic conditions in one region, leading individuals to seek alternative areas that better meet their needs. It increases population density while also creating social and economic difficulties. Increased commuting activity is one factor contributing to congestion. The goal of this research is to discover the characteristics of the population that commutes in the Mebidang area (Medan, Binjai, and Deli Serdang). We used snowball sampling to acquire samples from up to 100 respondents. This study employs the Structure Equetion Model Analysis Method (SEM). The results of this study show that transportation factors and economic and social conditions have a significant influence on the population that commutes to the City of Medan.
Keyword : Commuter, Economic Aspects, Social Aspects, Transportation.

INTRODUCTION

Medan City is expanding rapidly as urban activity spreads to the surrounding area. This activity has created a metropolitan area known as Mebidang (Kota Medan, Kota Binjai, and Kabupaten Deli Serdang). The Mebidang area came into existence in the 1980s. The Mebidang area is now the center of economic growth in the province of North Sumatra, and it also serves as a gateway to the entry of goods. We expect the development of highly dynamic urban activity to continue changing the boundaries of the Mebidang metropolitan area. This development can continue to extend beyond the territory that already exists today. The Central Government, in collaboration with the Government of the Province of North Sumatra, is currently undertaking a planning process to develop the metropolitan urban area of Medan, Binjai, Deli Serdang, and Karo District (Mebidangro), reinforcing this possibility. The development of urban activity in the Mebidang Metropolitan Area leads predominantly to the western part and towards the east and north. Urban activity in Mebidang does not depend on the physical development of the existing transport network. Structural roads and railway networks connect the core area to the periphery's urban centers. In the city of Medan itself, the development of public land transport is progressing due to the growing variety of

public ground transport options. The town of Medan provides a variety of transportation modes to support all community activities. The city of Medan's population continues to grow every year, necessitating adequate facilities, including highways. This condition provides an opportunity for the inhabitants of the town of Medan to undertake various activities, including study and work. People engage in this activity by commuting or working from home. As a major city, Medan also grapples with the issue of population density, which is in line with the communal population in the surrounding area. According to the Indonesia Statistics Bureau (BPS), the city's population in 2023 will be 2,494,512 people. This number consists of 1,242,313 men and 1,252,199 women. According to data from the Bureau of Population Statistics (BPS) for the year 2019, there was an increase in the number of Komuters, specifically workers and students, from Deli Serdang district, which accounted for 296.724 people, and from Binjai Municipality, which accounted for 25.404. The rise in the number of people commuting to the City of Medan is believed to be a result of transportation technology development. The convenience of using public and private transport means there is almost no boundary between the urban area and the surrounding area..(Chotib, 2019; Warsida, Adioetomo, & Pardede, 2013). However, besides transportation, there must be other factors that influence the driving force of commuter activity. Some other opinions mention that the decision to commute is also influenced by social conditions such as networking expansion (Mårtensson, 2015; Sandow, 2011; Zhang et al., 2011), house equity(Bloze & Skak, 2016), income (Bjerke & Mellander, 2022; Senesky, 2003), family income (Abe, 2011; Carta & Philippis, 2018). However, there is no research that observes how the impact of transportation, economic conditions, and social conditions influences the decision to make commuters to the city. Based on the above exposure, the author is interested in observing the greatest factors influencing the decision to make commuters from Binjai and Deli Serdang region.

METHOD

This research uses a method of descriptive analysis using primary data. The sample used in this study is snowball sampling. The small units concerned with this study are the students/students of 50 respondents and 50 respondent employees who commuter to the City of Medan. In this study, the data analysis method used is structural equation modeling-partial least squares (SEM-PLS) using SmartPLS software.

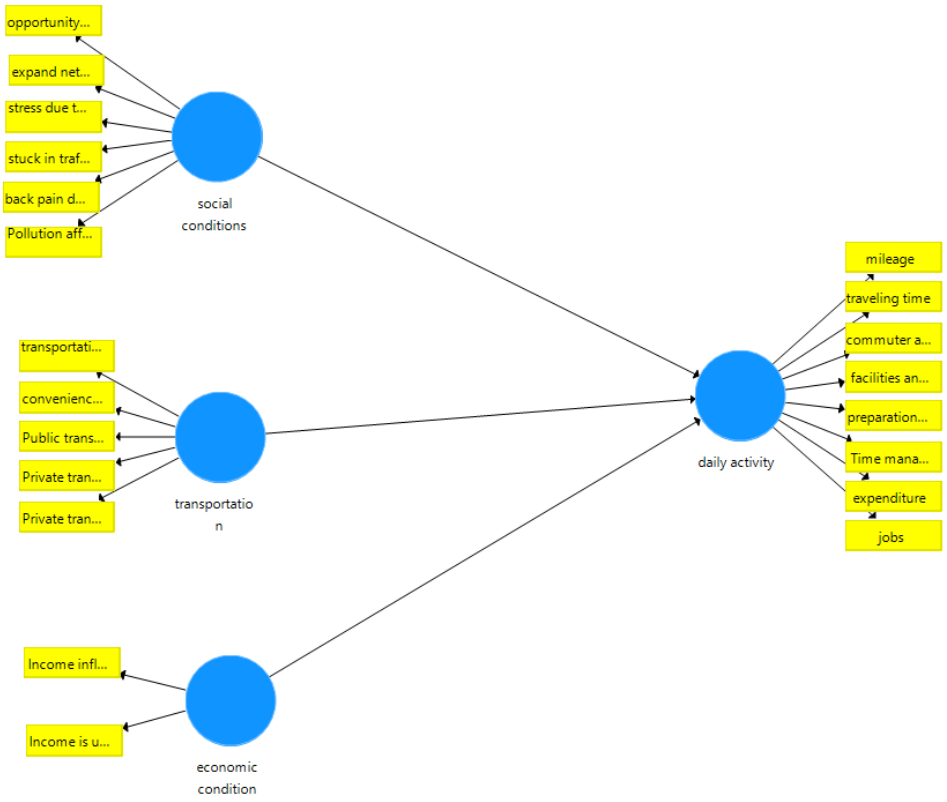

Figure 1.1 Construct Model

RESULTS

Medan City grows with the rapid growth of urban activity spreading to the surrounding area. The development of this activity has formed a metropolitan area known as Mebidang (Medan, Binjai, and Deli Serdang). The number of private vehicles also continues to increase every year, but the capacity of the roads remains unchanged. The denser a city, the greater the mobility of the people crossing the road. The congestion in Medan City can lead to increased greenhouse gas emissions, which in turn contribute to global warming.

Realibility and Validity

Tabel 1.1 Fisrt Step Result – Realibility and Validity

Variabel	Composite Reability	Keputusan	Average Veriance Extracted (AVE)	Keputusan
Transportation	0,790	Reliable	0,653	Valid
Social Aspect	0,794	Reliable	0,570	Valid
Daily Activity	0,786	Reliable	0,480	Valid

Economic Aspect	0,811	Reliable	0,518	Valid

Source: data processing, 2024

We rate and display the outer models as worthy. The next stage of evaluating construction validity is based on the average variance extracted (AVE). According to Sugiyono (2017:125), the standard value of validity is 0.3. If the correlation number obtained is greater than the default value, then the question is valid or significant. (Sugiono, 2017). Dunakhri (2019) assesses construction rehabilitation using composite reability as a measure of internal consistency, which requires a value above 0.6. According to the table above, the composite reliability measurement result exceeds the 0.6 threshold, indicating that it is a feasible outcome. It implies that the data has been consistent, capable of explaining the model, and reliable.

Multikolinerity

Tabel 1.2 Result of Multikolinerity Test

Variabel	VIF
SOS 1 (sosial interaction opportunity)	1.441
SOS 2 (Networking)	1.411
SOS 4 (Congestian)	1.094
Y4 (Infratructure)	1.354
Y6 (Time Manajemen)	1.215
Y7 (Consumption)	1.412
Y8 (Job opportunity)	1.321
T 2 (Public Transportation)	1.317
T 3 (Trafic Jam)	1.148
T 4 (Private Transportation)	1.311
Source: data processing, 2024	Source: data processing, 2024

Sumber : data processing, 2024

In addition, multicolinerity tests are also used in research to test strong correlations between two or more free variables in a model. Based on the above table it can be seen that the whole variable free of the multicolinerity element has a VIF value less than 5.

Model Measurement

We assess the model's external and internal feasibility. Figure 2. shows the model this study has constructed. The first stage of the outer measurement of the model determines convergence validity by taking into account the loading factor's value. To make the model fit, we removed several indicators, including T1 (use of transportation more than twice), KS3 (stress while traveling), KS5 (health problems), KS6 (air pollution), Y1 (range of transport), Y2 (time of transportation), Y3 (commuter activity), and Y5 (preparation for commuting). To ensure convergence validity, we remove an indicator with a loading factor value less than 0.3. We repeat this process several times until we find no loading factor below 0.3 (Sugiyono, 2017).

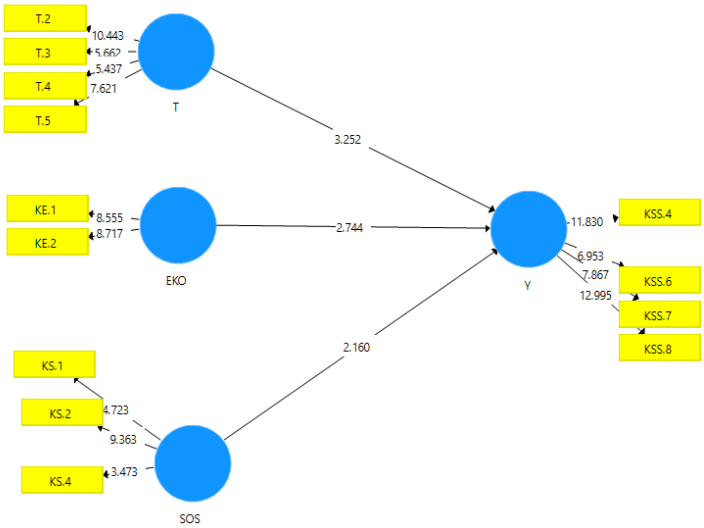

Figure 2 Final Construction result Loading Factor

Source: data processing, 2024

Based on the validity test of the loading factor, it is known that all loading values >0.3 have qualified for validity based on the load value.

Hypothesis Testing

Tabel 1.3 Result Hypothesis testing

Variabel	Standard Devitiation	T Statistics	P Values	Result
H1 : Economic Aspect -> Commuting	0,107	2,795	0,005	Significantly
H2 : Social Aspect -> Commuting	0,083	2,160	0,031	Significantly
H3 : Transportation-> Commuting	0,109	3,305	0,001	Significantly

Source: data processing, 2024

We can explain its direction of influence as follows 1) Economic aspect have a significant influence on commuter activity variables. The P value is 0,005 > α 0,000, and the parameter coefficient value is 3,252; 2) Social aspect have a significant influence on commuter activity variables. The P value is 0.031 > α 0,000, and the parameter coefficient value is 2,744; 3)Transportation has a significant influence on the commuter activity variable. The P value is 0,001 > α and the parameter value is 2,160.

DISCUSSION

Explanation of Discussion 1

Discussion following hypothesis 1, Research findings indicate that economic conditions significantly influence population consumption patterns, particularly among students and workers who engage in daily commuter activities. This is demonstrated by the income question point, which influences my decision to use public transportation or private vehicles. Todaro (2006) explains that migration is fundamentally an economic phenomenon. If the workers' income in the destination area is high, they will migrate. Income has a significant influence on student commuter behavior. Students with high incomes will be able to cover the cost of living, including housing, transportation, and education costs.

Explanation of Discussion 2

According to research findings, social condition variables, such as students and workers who perform daily commuter activities, have a significant influence on population consumption patterns. Engaging in commuter activities can broaden an individual's network. On our commute, we can chat with other passengers and maximize our time. Social networking on the commuter journey can be a beneficial way to build professional relationships, expand networks, and learn about new opportunities. When it comes to networking during commuter travel, there are certain challenges. These challenges include casual social networking, building a strong social network, and utilizing online and social media platforms.

Explanation of Discussion 3

Transport variables have a significant influence on population consumption patterns, such as students and workers who do day-to-day commuter activities. This is demonstrated in the question point. Because private transportation is more timely, flexible, and cost-efficient, it has a significant impact on commuter activity. But the more people use private vehicles, the greater the increase in congestion. In comparison, those who use local transport are less likely (compared to using private vehicles) to choose courses based on their travel (Coutts et al., 2017).

CONCLUSION

The study's findings indicate that the economic aspects have a significant impact on the population, including students and workers who carry out daily commuter activities. Social aspects of the population, such as students and workers who carry out daily commuter activities, have a significant impact. The last, transportation, has a significant influence on the population, such as students and workers who carry out daily commuter activities.

Mebidang residents (Medan, Binjai, and Deli Serdang) engage in commuter activities in the City of Medan with the goal of obtaining better jobs and education. However, economic aspects, transportation, and social conditions influence this activity. The research results suggest that the city government should implement a policy to decrease the use of private transportation and transition to public transportation, thereby reducing congestion. Additionally, they should provide improved facilities for students and workers who engage in daily commuter activities.

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