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THE INFLUENCE OF CITY FACILITIES AND INFRASTRUCTURE ON RESIDENTIAL PREFERENCES IN BATANG KUIS DISTRICT

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Abstract

Batang Kuis District, located in Deli Serdang Regency, plays a strategic role as a buffer zone (urban fringe) for Medan City. With the increasing development of urban infrastructure and facilities, this area shows increasing potential as a residential location. This thesis aims to analyze the influence of urban infrastructure and facilities on the residential preferences of residents in Batang Kuis District. This study uses a quantitative approach with a survey method involving respondents from the local community (revealed preference) and outsiders (stated preference). The variables studied include urban facilities, infrastructure conditions, residential environments, and access to employment. The results show that urban facilities—especially trade, education, and health—are the most influential factors in residential choice. Infrastructure elements such as roads and clean water also play an important role, although their influence is at a lower level. Regression analysis shows that perceptions of urban facilities have a stronger and more significant influence on outsiders' desire to settle in Batang Kuis than infrastructure. Conversely, local residents prioritize aspects of affordability, environmental comfort, and proximity to family. These findings demonstrate the importance of a balanced regional development strategy that balances improvements to urban infrastructure and amenities to attract new residents and maintains comfort and affordability for existing residents.

Keywords: ***residential preferences, infrastructure, city facilities, Batang Kuis, revealed preference, stated preference***

INTRODUCTION

1.1. Research Background

Batang Kuis District, located in Deli Serdang Regency, is a strategic area with an important role as a buffer zone for Medan City, where this area directly borders the Districts of Pantai Labu, Tanjung Morawa, Beringin, and Percut Sei Tuan. With an area of 40.34 km² and a population density of 1,699 people per km² in 2024 (Batang Kuis District in figures, 2023), this area shows great potential for residential development in the urban fringe area. Significant population growth reflects the high attractiveness of this area, driven by the location factor that allows easy access to Medan City and the support of infrastructure and city facilities that continue to develop. Infrastructure development, particularly in transportation, such as roads, toll roads, and railways, has been a key driver in increasing public preference for Batang Kuis as a residential location. This infrastructure not only improves accessibility to Medan City and its surrounding areas but also accelerates resident mobility, a vital aspect in residential development in urban fringe areas. Furthermore, the presence of city facilities such as Kualanamu International Airport and sports facilities like the North Sumatra Sport Center further enhances Batang Kuis's appeal, making it an attractive residential alternative for workers in Medan City and the area surrounding the airport. However, despite the ongoing development of urban infrastructure and facilities, this growth has not been fully distributed across the sub-district. Therefore, this study aims to understand how the

availability of urban facilities and infrastructure influences residents' residential preferences in Batang Kuis Sub-district. This understanding is expected to provide a clearer picture of the city's infrastructure and facility needs, which can enhance the area's attractiveness as a comfortable and high-quality residential area.

1.2. Research Problem Limitations

The problem limitations in this research aim to ensure the research process has focus. These limitations include:

1. Area Coverage: This research was conducted in Batang Kuis District, Deli Serdang Regency. The focus of the study was to examine the potential of the area, which is inseparable from the surrounding districts that support Medan City.
2. City Facilities and Infrastructure Aspects: The city facilities and infrastructure examined in this study include transportation facilities (highways, toll roads, and railways), as well as accessibility to Kualanamu International Airport. Other aspects outside of city facilities and infrastructure, such as social, cultural, and economic factors, are not discussed in depth.
3. Settlement Preferences: The settlement preferences analyzed in this study are limited to community preferences in choosing a place to live in Batang Kuis District.
4. Data Period: The data used in this study is limited to the most recent data available up to 2024. Historical data prior to that year will not be analyzed, unless deemed relevant to provide supporting context.
5. Research Respondents: Respondents in this research focused on the general public who do not yet live in Batang Kuis District, to see how much interest there is in the community to live in the Batang Kuis District area.

1.3. Formulation of the problem

The problem formulation of this research is as follows:

1. What city facilities and infrastructure do people consider most important in determining their choice of residence in Batang Kuis District?
2. How does the infrastructure condition in Batang Kuis District influence people's interest in settling in the area?
3. How do the available city facilities influence people's preferences in choosing a place to live in Batang Kuis District?

1.4. Research purposes

The main objectives of this research are as follows:

1. Identifying city facilities and infrastructure that are considered most important by the community in determining where to live in Batang Kuis District.
2. To examine the impact of available infrastructure in Batang Kuis District on people's interest in settling in the area.
3. Analyzing the influence of city facilities on community preferences in choosing a place to live in Batang Kuis District.

1.5. Benefits of research

This research on the influence of city facilities and infrastructure on residential attractiveness is expected to provide both theoretical and practical benefits. Some of these benefits can be detailed as follows:

1. Theoretically: This research is expected to enrich theoretical studies on the influence of urban facilities and infrastructure on people's residential preferences. The results of this study can contribute to the development of theories on factors influencing residential decisions, particularly in urban areas that serve as buffer zones for large cities.
   This research can also serve as a reference for further studies that wish to explore the relationship between infrastructure development and settlement dynamics, as well as broaden understanding of the role of accessibility to activity centers in determining the attractiveness of an area.

2. Practically: The results of this study can be used by local governments and regional planners as a reference in planning the development of urban infrastructure and facilities in Batang Kuis District. By understanding community housing preferences, policymakers can design more targeted development strategies.

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For property developers and the housing industry, this research can provide valuable information regarding the factors that increase the attractiveness of the Batang Kuis area as a residential area. This can help them determine the appropriate locations and facilities for housing developments that meet community needs.

1.6. Framework of Thinking

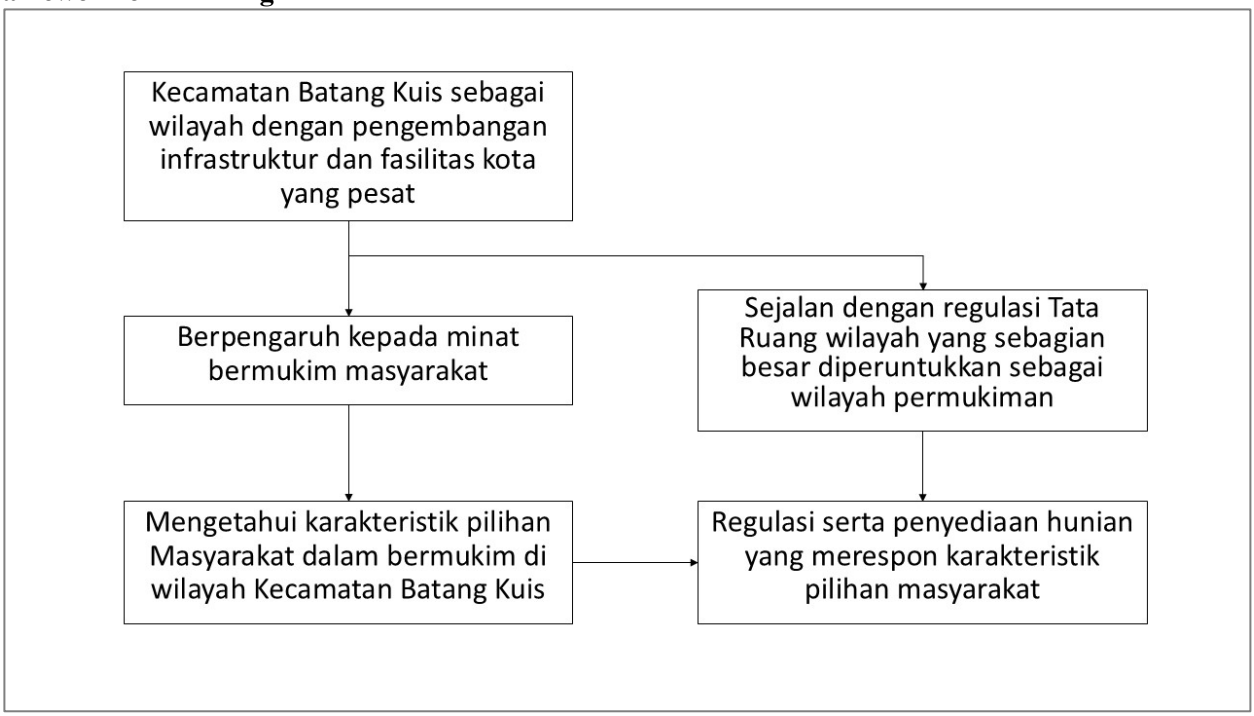

Figure 1.1. Thinking Framework.
Source: Author, 2025

LITERATURE REVIEW

2.1. Infrastructure

According to the Big Indonesian Dictionary (KBBI), infrastructure can be defined as public facilities and infrastructure. Facilities are generally known as public facilities, for example, hospitals, roads, sanitation facilities, bridges, bus stops, etc. Infrastructure can be defined as basic facilities or structures, equipment, and amenities built and needed to support the functioning of a community's social and economic systems. According toRozy et al (2017), infrastructure plays a vital role in the smooth running of various social and economic activities, by providing the necessary foundation for development and meeting the needs of society. This definition is also supported byAstami et al (2015)which emphasizes the importance of infrastructure in supporting broader systems in society. Infrastructure is the main service of the state that can help economic activities and community activities so that they can run by building infrastructure and other supporting facilities.(Agustin et al, 2023)As a facility provided by the government for the public, the public can use infrastructure for their economic activities. In other words, infrastructure development can advance a country's economy.

The primary function of infrastructure is to improve interregional connectivity, support economic growth, and enhance public welfare. Good infrastructure facilitates the mobility of goods, services, and people, and attracts investment that drives the development of key sectors such as industry, agriculture, and tourism. Furthermore, basic infrastructure such as clean water, electricity, and healthcare facilities contribute to improved quality of life, poverty reduction, and environmental sustainability. Therefore, infrastructure is a key pillar in creating inclusive and sustainable development.(Hartini et al., 2023; Situmorang et al, 2023). In the context of regional development, the quality of road infrastructure plays an important role in increasing mobility, efficiency of goods distribution, and the attractiveness of the area for investment and settlement.Nasution et al. (2025)In his research in Teluk Nibung, he emphasized that a strategy for improving roads based on local needs, drainage, and connectivity can drive economic growth and strengthen regional competitiveness. Furthermore, infrastructure encompasses various key components, as outlined by the American Public

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Works Association.(Stone, 1974 in Kodoatie, 2005), which includes water supply systems (such as reservoirs and water treatment facilities), wastewater and solid waste management systems, flood control and irrigation facilities, transportation facilities such as roads, rail, and airports, public transit systems, electricity production and distribution systems, natural gas facilities, public buildings such as schools and hospitals, public housing facilities, city parks, and communications infrastructure. The existence and quality of these components are important indicators in assessing a region's readiness to support socio-economic activities and sustainable development.

2.2. City Facilities

Facilities are generally defined in two different basic senses. First, facilities are defined as physical objects installed in and constituting part of infrastructure. Second, facilities are defined as things necessary for life, which can be physical objects or non-physical objects such as public services. Examples of infrastructure facilities include air conditioning, elevators, lighting, electrical installations, and others. Examples of physical facilities include sports stadiums and others. Examples of non-physical facilities include catering services.(GPO, 2015; Sapri et al, 2013; Wikipedia, 2016). Study by(Dalimunthe et al, 2024)Studies show that the availability of public facilities such as clean water, sanitation, transportation, and health services significantly impacts the quality of life of people living in slum areas. In the context of Simarito, limited access to these facilities directly impacts the community's health, education, mobility, and economic well-being.

1. Facilities in the form of complementary installations for an infrastructure
   Virtually all infrastructure has physical installations attached to it; these facilities are necessary for the infrastructure to function or operate properly. Examples of facilities within infrastructure are presented in Table 2.1 below.

Table 2.1. Examples of Facilities as part of Infrastructure
Source: GPO, 2015; Sapri et al, 2013; Wikipedia, 2016

Infrastructure	**Facility**	
Office Building	Electrical installation	Lights, Switch Cables, On/Off Buttons
	Sanitation Installation	Faucets, Sinks, Pipes
	Equipment	Telephone, Computer, Door, Window, Elevator, Stairs
Road	Signs & Markings	Warning Signs, Prohibition Signs, Command Signs, Guidance Signs, Broken Line Markings, etc.
	Complement	Street Lights, Street Name Signs, Sidewalks, Bus Stops, Pedestrian Bridges, Corner Mirrors, Road Safety Fences

2. Facilities in the form of physical objects are necessary for life.
   The physical objects needed for daily life can vary greatly, ranging from educational facilities, health facilities, sports facilities, and so on. Examples of these facilities and their completeness are presented in Table 2.2 below.

Table 2.2. Examples of Physical Object Facilities
Source: GPO, 2015; Sapri et al, 2013; Wikipedia, 2016

No.	**Facility**	**Component**
1.	Senayan Sports Hall Facilities	Main Stadium, Middle Stadium, Basketball Stadium, Road Network, Parking Lot
2.	School Bus Facilities	School Bus, Bus Stop, Bus Depot
3.	Amusement Park Facilities	Water fountain, Play area, Canteen, Public toilet
4.	Public Health Facilities	Integrated Health Posts, Community Health Centers, Hospitals, Pharmacies

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3. Facilities in the form of non-physical objects are necessary for life.
   Non-physical objects that are needed for daily life are usually in the form of a service. Examples of non-physical object facilities are presented in Table 2.3.

Table 2.3. Examples of Non-Physical Object Facilities
Source: GPO, 2015; Sapri et al, 2013; Wikipedia, 2016

No.	Facility	Component
1.	Catering Services	Cutlery, Stand table, Guest table, Waiter
2.	Cleaning Service	Exterior cleaning: – Glass, terrace, parking floor, planting, trash can Interior cleaning: – Floors, glass walls, carpets, sofas, furniture, air conditioning, lift facilities, toilets
3.	Banking Services	Payment services, transfer services, deposit acceptance services, loan services, safe deposit box facilities
4.	Laundry Services	Laundry and ironing services, dry cleaning services, ironing services
5.	Accommodation Services	Airport pick-up and drop-off, laundry service, currency exchange, internet access using wifi, 24-hour security system, extended stay, breakfast

2.3. Housing and Settlements

According to the Law of the Republic of Indonesia Number 1 of 2011 concerning Housing and Residential Areas, Article 1 paragraph 1 states that Housing and residential areas are a unified system consisting of development, housing management, residential area management, maintenance and repair, prevention and improvement of the quality of slum housing and slum settlements, land provision, funding and financing systems, and the role of the community. Housing is a collection of houses as part of a settlement, both urban and rural, which is equipped with infrastructure, facilities, and public utilities as a result of efforts to fulfill habitable houses. Residential areas are part of the environment outside protected areas, both urban and rural areas, which function as a residential environment or residential environment and a place of activity that supports life and livelihood. In settlement planning, the connectivity and land transportation infrastructure aspects play an important role in ensuring accessibility and the smooth running of economic and social activities in the community.(Sinar et al., 2023)emphasized that road network development in urban areas of Padang Lawas Regency must be directed towards supporting production distribution, increasing population mobility, and strengthening inter-regional integration. With a SWOT analysis-based strategy, infrastructure planning needs to consider local strengths and opportunities such as land potential, strategic locations, and access to ports and airports. Housing and settlement are often considered synonymous, although they have slightly different meanings. Housing comes from the English word "housing," which refers to a house or residence along with the surrounding infrastructure and facilities. On the other hand, settlement refers more to human settlement, which encompasses not only the house but also the social, cultural, and economic aspects associated with the residence. Housing tends to emphasize physical elements or inanimate objects, such as houses and land settlements, while settlements encompass a broader dimension, including the dynamics of community life within them.(Handryant, 2011). In addition to paying attention to social and cultural aspects in settlements, aspects of building quality and environmental sustainability are also highlighted in the development of modern housing.Wardani et al. (2024)This study demonstrates that while subsidized housing offers affordability, residents' quality of life can be improved by integrating green building principles, such as energy efficiency, proper water management, and the use of environmentally friendly materials. This combination of affordability and sustainability is a recommended approach to improving housing quality for low-income communities.

2.4. Definition of Settlement

Based on Law No. 1 of 2011 concerning housing and residential areas, a settlement is part of a residential environment consisting of more than one housing unit that has infrastructure, facilities, public utilities, and supports other functional activities in urban or rural areas. The word "settlements" comes from the translation of the word "settlements,"

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which means the process of settling. A settlement can be defined as a housing complex or collection of houses, along with all the related elements and activities within the settlement.(Handryant, 2011)A settlement is a residential environment that encompasses humans and the surrounding environment, designed to support daily needs and survival. Each settlement can have its own unique characteristics, depending on the interactions between the people.(Maulana et al., 2021). Settlements give the impression of settlers or groups of settlers along with their attitudes and behavior in the environment, so that settlements emphasize something that is not physical or inanimate, namely humans.Handryant (2011)This is in line with the findings of a study on the character of rural housing environments in Mandailing, which is based on the concept of space-attachment. Residential environments demonstrate not only attachment to physical places, but also attachment to non-physical and contextual spaces. This character is reflected in aspects of legibility, the diversity of spatial functions, temporal dimensions, and suitability to geographical conditions. Social interactions, including gender-based spatial differentiation such as bincar and bonom spaces, indicate that spatial structures in settlements are strongly influenced by the culture and customs of the local community.(Nuraini & Suprayitno, 2021). The meaning of space in rural settlements is not only limited to physical functions, but also reflects the local spiritual and cultural values that live in society.Nuraini et al. (2023)shows that in rural mountain communities such as Mandailing, Bali, and Kampung Naga, settlement structures are based on a cosmological understanding of three worlds (upper, middle, and lower) and binary spatial concepts such as east-west or sunrise and sunset (bincar-bonom). These spatial patterns reflect the community's relationship with nature, ancestors, and beliefs, thus demonstrating that settlement planning must consider contextual, non-physical dimensions.

2.5. Preference Theory and Attractiveness Factors of Settlement

Preference refers to a person's taste or tendency in choosing among various available alternatives,(Stępień et al, 2021)This concept also applies to residential location selection, known as residential preference. Residential preference is the desire to live in a particular location, influenced by various factors. In general, factors such as location quality, security, accessibility, and social conditions are primary considerations in choosing a place to live.(Stępień et al, 2021). Selecting a residential location involves understanding the characteristics of the voter and their suitability to the chosen environment.(Rapoport in Furlan et al, 2016). In general, factors that influence residential preferences can be grouped into two, namely housing/settlement environmental factors (housing/settlement attributes) and individual factors (household attributes).(Armela, 2016)The environment in which one lives also has a significant influence on one's choice of habitat. Individuals tend to choose environments that meet their needs and avoid those that do not.

2.6. Review of Spatial Planning Documents for Batang Kuis District

Referring to the Deli Serdang Regency Spatial Planning Plan (RTRW) for 2021-2024, this area is included in the strategic sports and cultural areas, as well as a strategic area for urban settlement development.

METHODOLOGY

3.1. General Concept

In this study, quantitative methods are used with reference to the viewsCreswell (2018), which emphasizes that quantitative research aims to objectively examine relationships between variables through numerical data collection and statistical analysis. According to Creswell, quantitative approaches are often based on a postpositivist paradigm, which seeks to identify patterns or causal relationships by reducing research variables to data that can be measured and processed mathematically.Creswell (2018)identified two main approaches in quantitative methods, namely surveys and experiments (quasi-experiments), each of which has specific characteristics and objectives: This research will specifically use a survey-based quantitative method as its primary approach. The survey approach is used to collect data from a large population or sample over a specific period of time. Surveys allow researchers to measure and analyze public preferences or views on specific variables.(Creswell, 2018)In this study, a survey approach will be applied to understand the residential preferences of residents in Batang Kuis District. Data will be collected using a structured questionnaire, designed based on variables such as city facilities, infrastructure, and accessibility. The survey results will be statistically analyzed to identify patterns or trends in residential choice in the area. The survey approach was chosen due to its relevance in collecting data from a broad population and its ability to describe patterns of community housing preferences based on research variables. With this approach, the data obtained is expected to provide valid and reliable information on the influence of city facilities and infrastructure on community housing preferences in Batang Kuis District.

3.2. Research Sample

This research applies a sample design with a purposive sampling method, namely a sample selection technique carried out with certain considerations to ensure that the samples obtained are relevant to the research objectives.(Kumar, 2018; Nuraini, 2019, 2024)In this method, respondents are selected selectively based on predetermined criteria, rather than randomly, to obtain data that is more representative of the focus of the study. The criteria used to determine respondents in this study included their residency status in the Batang Kuis District. Respondents included individuals who had resided in the Batang Kuis District and those who had not yet resided in the area, allowing the perspectives of both groups to be compared and examined within a relevant context. Through this approach, it is hoped that the collected data will provide in-depth insights appropriate to the context of the study area and the research objectives. Determining the sample size in a study is a crucial step that must be considered before conducting the research, as it plays a role in reducing the risk of analysis failure and increasing the validity of the research results. When determining the sample size, it should be adjusted to the population size. Therefore, this study used the Slovin method to determine the sample size.

$$n=N/(1+Ne^2)$$

With:
n :number of samples
N :population size
e : limiterror tolerance

To use this formula, first determine the margin of error. This margin of error is expressed as a percentage. The smaller the margin of error, the more accurately the sample represents the population. In this study, the population sampled was all residents of Medan City and Deli Serdang Regency, within the WHO's young age category of 25-44 years. Therefore, the calculation can be as follows:

N : 1.420.556 Jiwa
e : 10 %

n : Jumlah Sample yang dibutuhkan
N : Jumlah Popolasi
e : Marjin of Eror

$$n = \frac{1.420.556}{(1+2193510*0.1^2)}$$

$$n = \frac{1.420.556}{21.936}$$

$$= 64,76 \text{ Sample}$$

3.3. Research Variables

This study uses three main variables compiled based on literature reviews and survey instruments, namely:

1. Infrastructure
   This variable encompasses community perceptions of the condition, satisfaction, and types of infrastructure considered important in choosing a place to live. Infrastructure includes roads, drainage, public transportation, clean water, electricity, and digital networks (internet and telecommunications). Data were collected from two groups of respondents:
   - Batang Residents Quiz (Revealed Preference): assessed through questions about satisfaction and actual conditions.
   - Outsiders (Stated Preference): assessed based on perceptions and priorities of ideal infrastructure.
2. City Facilities
   This variable refers to the public's perceptions and priorities regarding city facilities such as education, health, shopping centers, green open spaces, transportation, and environmental security. Similar to infrastructure, this variable is explored through:

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- Batang Residents Quiz (Revealed Preference): assess the condition and satisfaction with existing city facilities.
- Outside Residents (Stated Preference): express preferences regarding the facilities expected to be available at the residential location.

3. Settlement Preferences
   This variable describes the factors that influence people's decisions to choose or be interested in living in Batang Kuis District.
   Aspects analyzed include:
   - Main reasons for choosing to stay (local residents)
   - Interest in settling (foreign citizens)

The determination of these variables refers to a survey framework that is differentiated based on respondent groups and types of questions, in order to obtain a comprehensive understanding of the main factors that shape residential preferences in the study area.

3.4. Data collection technique

This study employed a quantitative approach utilizing two types of data: primary and secondary data, collected through structured techniques. Primary data were obtained through the distribution of an online questionnaire to respondents who met the research criteria. The questionnaire was designed based on derivatives of predetermined operational variables, so that each question reflects a specific aspect to be measured in this study. The online distribution of the questionnaire was conducted to reach respondents more widely and efficiently, while ensuring rapid and organized data collection. Furthermore, this study also utilizes secondary data, which is data readily available from various credible and relevant sources. This secondary data includes information obtained from official publications, such as reports from the Central Bureau of Statistics (BPS), reference books, scientific journals, previous research articles, and other documents related to the research topic and subject. The use of secondary data aims to strengthen the analysis, provide context, and ensure the validity of the research results through data triangulation. With a combination of primary data obtained directly from respondents and secondary data from trusted sources, this data collection technique is expected to provide a solid foundation for answering research questions comprehensively.

3.5. Data Analysis Techniques

Data analysis in this study was conducted systematically to ensure the accuracy and relevance of the results. The analysis process began with data simplification, which involved grouping similar or similar data. The data collected from the questionnaires were analyzed through several technical stages, starting with data sorting and classification, data editing, and data coding. These steps were taken to facilitate data processing, build an effective analysis structure, and enable the use of computer software for further data analysis.(Nazir, 2011). For data that requires further investigation, confirmation and further analysis are carried out in accordance with the discussion of the research results.(Nazir, 2011)In this case, raw data in the form of statements or sentences were grouped and coded to facilitate processing. The questionnaire data were then grouped and graded using a Likert scale. Respondents' responses were graded from very positive to very negative, with categories such as very good, good, average, bad, and very bad.(Rachman et al., 2019)A Likert scale was used to measure respondents' attitudes or perceptions toward the variables studied, particularly those related to their place of residence. Furthermore, simple linear regression analysis was used to measure the relationship between residential desire and perceptions of city facilities and infrastructure. This analysis aimed to determine the extent of influence each variable had on the interest of outsiders in settling in Batang Kuis District. The final stage of analysis is drawing tentative conclusions. These initial conclusions are tentative and may change if new evidence is discovered during data collection in the field. However, if new evidence supports the initial conclusions, they can be considered credible and valid.(Rachman et al., 2019)With this stage, data analysis is expected to produce accurate results that align with the research objectives.

RESULTS AND DISCUSSION

This research was conducted using a two-pronged preference approach: revealed preference (RP) and stated preference (SP). RP reflects the actual decisions of residents already living in Batang Kuis District, while SP reflects the desires and expectations of nonresidents who have not yet moved in but are interested in relocating. By examining both, this study

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aims to understand what drives residential sustainability and what attracts new residents. This approach provides a more comprehensive picture of the factors influencing residential preferences in the Batang Kuis area.

4.1. Local Residents' Perceptions and Preferences for Housing (Revealed Preference)

This section discusses the perceptions and residential preferences of 11 local respondents who have lived in Batang Kuis District. This data reflects revealed preferences, or preferences reflected in residents' actual actions in choosing to live in the area.

4.1.1. Assessment of Actual Conditions and Satisfaction

In this section, regarding the assessment of current conditions and satisfaction levels, residents were asked to rate two key aspects directly related to their quality of life: city facilities and infrastructure. Based on the survey results, city facilities received an average actual condition score of 3.82 on a scale of 1 to 5, while the satisfaction level was slightly lower at 3.73. This indicates that the majority of residents considered city facilities to be in fairly good condition, with most feeling adequate to very satisfied. However, some residents still felt that the condition of city facilities was not entirely ideal. Meanwhile, infrastructure received an average actual condition score of 3.45 and a satisfaction score of 3.55. These scores indicate that residents rated the infrastructure slightly below city facilities in terms of quality, but their satisfaction with the infrastructure was slightly higher. This suggests that while the quality of the infrastructure is considered less than optimal, residents' expectations for infrastructure may not be as high as those for city facilities, thus maintaining a fairly good level of satisfaction. Overall, both city facilities and infrastructure are viewed by residents as adequate, although there is still room for improvement.

4.1.2. Preferences for Infrastructure Elements and City Facilities

This section examines local residents' preferences for specific elements of city infrastructure and facilities that are considered important in considering residential choices. In the city facilities category, the most frequently mentioned item was commercial facilities, with eight respondents emphasizing the importance of local economic centers. Education and healthcare facilities also received significant attention, cited by seven and six respondents, respectively. Furthermore, several residents considered security and public services (five respondents), transportation services (four respondents), and green open spaces (three respondents) as elements of a city that support a comfortable living environment.

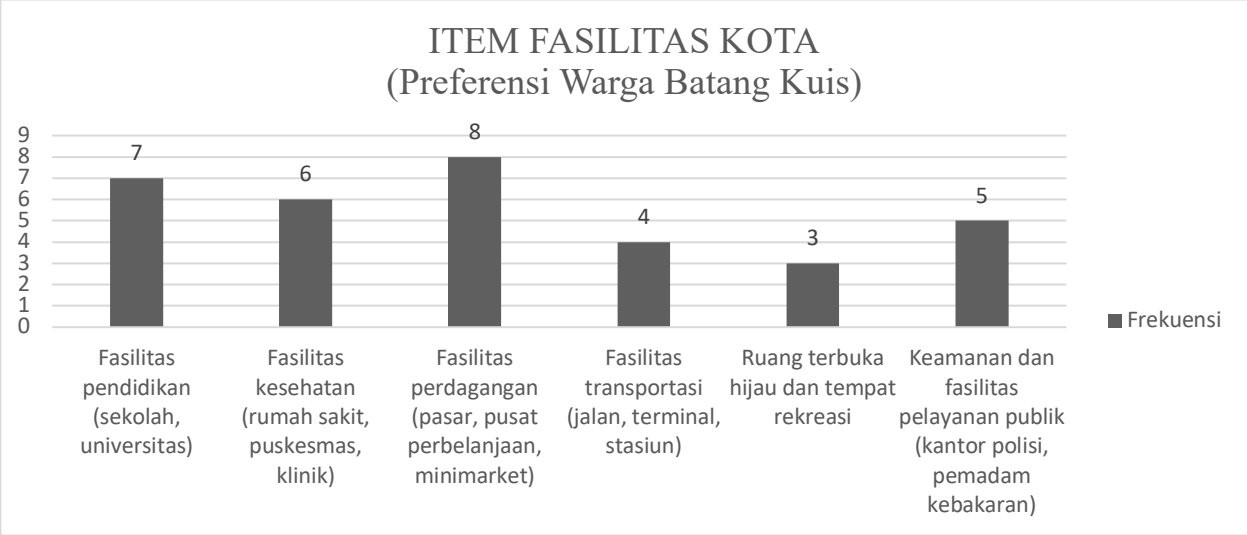

Figure 4.1. City Facility Items – Batang Quiz Residents' Preferences

Meanwhile, in terms of infrastructure, good roads were the most dominant element mentioned by local residents, with 9 respondents stating this as a priority. The availability of clean water was also a key concern, with 8 respondents citing it. Next in line were a stable electricity network, water and drainage channels, and good public transportation, each receiving attention from 6 respondents. Conversely, digital infrastructure such as internet and telecommunications

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networks ranked lower in priority, with only 3 respondents citing internet and 1 respondent citing telecommunications as a primary need.

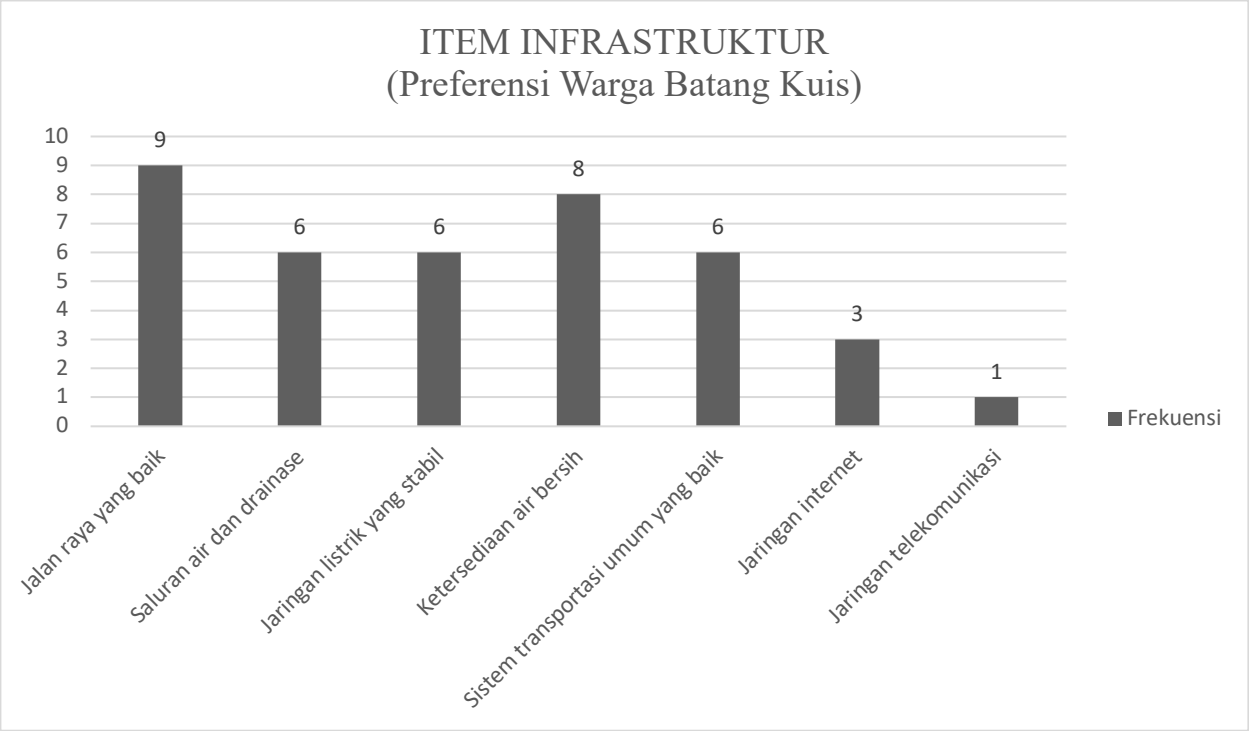

Figure 4.2. Infrastructure Items – Batang Quiz Residents' Preferences
Source: Author's Analysis, 2025

These findings indicate that local residents are still more focused on the need for infrastructure and basic facilities that directly affect their daily physical and social lives, compared to digital needs that tend to increase in groups of people who are more mobile or connected to technology-based jobs. This finding is in line with research byHarmoko et al. (2024)which emphasizes that the provision of basic infrastructure such as community-managed sanitation not only improves environmental quality, but also strengthens the sense of ownership and social responsibility within residential communities.

4.1.3. Local Residents' Housing Preferences

In this section, related to local residents' housing preferences, the survey also explored the primary reasons why they chose to settle in Batang Kuis. The three main factors most frequently cited by respondents were affordable housing or rental prices, a comfortable environment, and proximity to family or relatives. Five respondents each mentioned these three factors, indicating that economic reasons, environmental comfort, and social ties were the primary considerations in choosing a place to live.

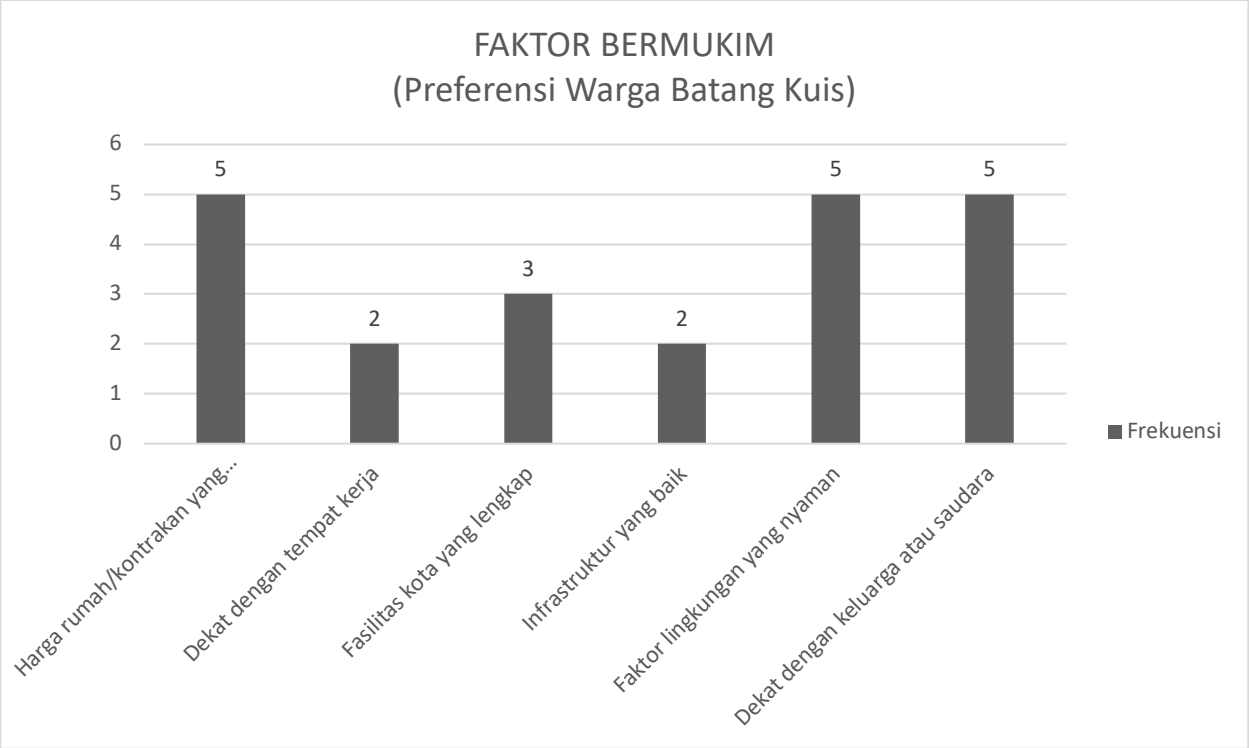

Figure 4.3. Settlement Factors – Batang Quiz Residents' Preferences
Source: Author's Analysis, 2025

On the other hand, factors such as complete city facilities, good infrastructure, and proximity to the workplace received fewer mentions. Complete city facilities were mentioned by three respondents, while good infrastructure and proximity to the workplace were each mentioned by two respondents. These findings indicate that local residents' decisions to live in Batang Kuis are more influenced by personal social and economic factors (convenience, proximity to family, and housing costs) than by the quality of city facilities or infrastructure. This aligns with their moderate perceptions of the quality of both aspects.

4.2. Perceptions and Preferences of Outsiders (Stated Preference)

To understand the interest of outsiders in settling in Batang Kuis District, a survey was conducted with 70 respondents who did not yet live in the area. This data reflects stated preferences, which are preferences based on statements or assessments of aspects considered important in choosing a place to live.

4.2.1. Simple Linear Regression Analysis

In this study, respondents from outside Batang Kuis District were asked to assess the availability of city facilities and infrastructure in the area based on their perceptions. They were also asked to rate their interest or desire to live in the area. The collected data were then analyzed using simple linear regression to determine the extent to which perceptions of city facilities and infrastructure influence residential interest. This analysis aims to measure the strength of the relationship between perceptions of the area's supporting elements and the community's tendency to choose Batang Kuis as a residential location. The first regression model shows that the availability of city facilities has a strong positive relationship with the desire to settle, with the regression equation: Desire to settle = 1.2536644 + 0.5919832 * City Facilities. The coefficient of determination (R^2) value of 0.683642 indicates that approximately 68% of the variation in perceptions of city facilities can be explained by the desire to settle, with a very strong correlation ($r = 0.826827$) and a very high level of significance ($p < 0.0001$). The second model tested the relationship between residential intention and perceptions of infrastructure. The results showed a regression equation: Residential intention = 0.662477 + 0.6824034 * Infrastructure. In this model, the R^2 value of 0.590947 indicates that approximately 59% of the variation in perceptions of infrastructure is explained by residential intention, with a strong correlation ($r = 0.768731$) and a high significance value ($p < 0.0001$). From the results of both models, it can be concluded that perceptions of city facilities have a greater

influence on residential intentions than perceptions of infrastructure. This is evident from the higher regression coefficients and stronger relationships in the city facilities model.

4.2.2. Preferences for Infrastructure Elements and City Facilities

This section examines residents' preferences for specific elements of city infrastructure and facilities considered important when considering their choice of residence. The results indicate that, in terms of infrastructure, clean water was the most prioritized element, with 58 respondents citing it. This was followed by good roads (56 respondents), drainage systems (52 respondents), electricity availability (47 respondents), internet service (28 respondents), and finally, telecommunications services (12 respondents).

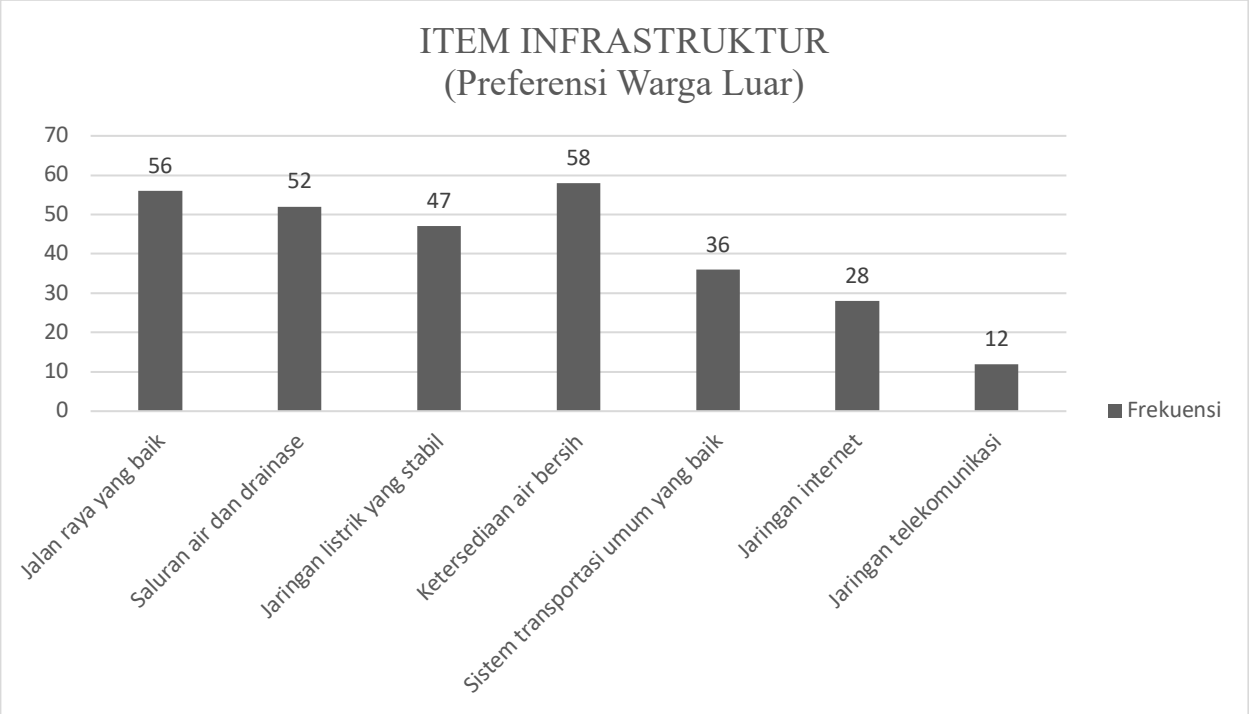

Figure 4.4. Infrastructure Items – Residents' Preferences
Source: Author's Analysis, 2025

These findings indicate that basic needs such as water, roads and drainage are still a major concern for outsiders considering living in an area.

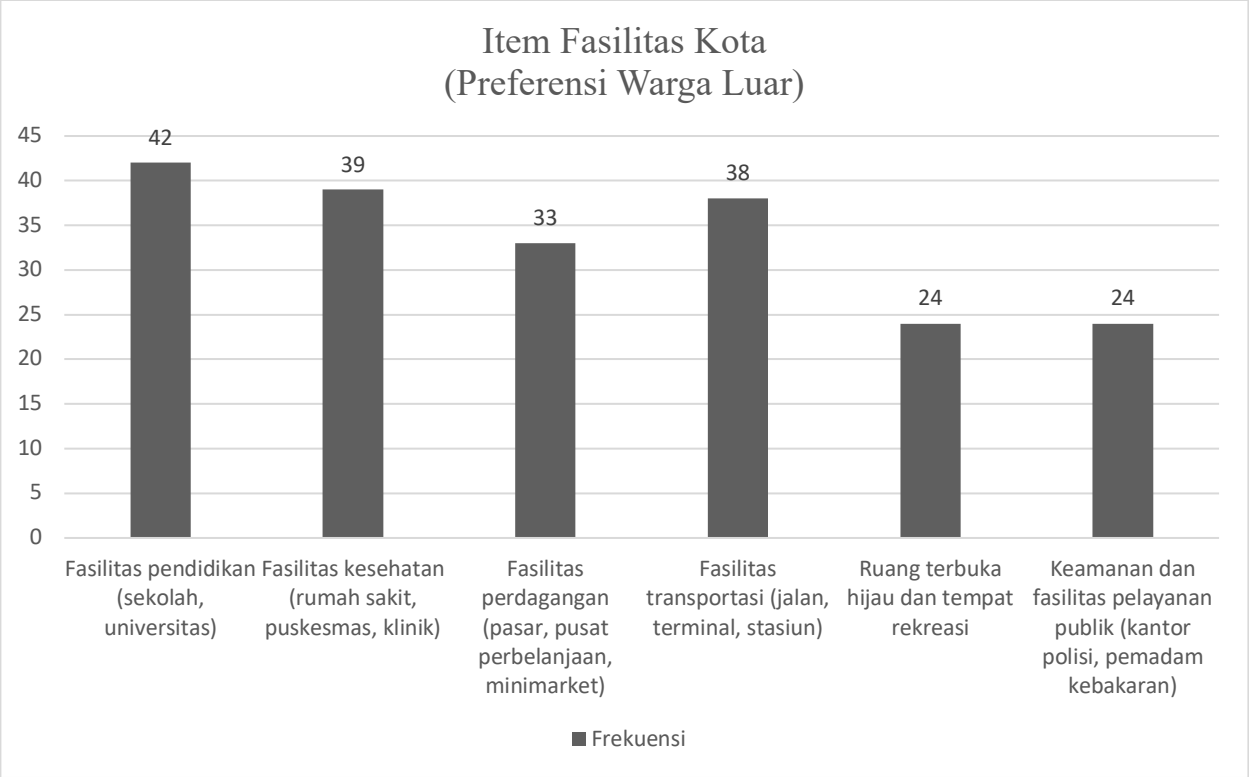

Figure 4.5. City Facility Items – Residents' Preferences
Source: Author's Analysis, 2025

Meanwhile, in the category of city facilities, education ranked top with 42 respondents choosing it as a priority, followed by healthcare facilities (39 respondents), public transportation (38 respondents), commercial centers (33 respondents), and open spaces and environmental safety, each mentioned by 24 respondents. Overall, these results reflect that outsiders tend to consider the quality of basic infrastructure and the availability of key public services such as education and healthcare in their decision to settle in an area.

4.2.3. Settlement Decision Factors

This analysis aims to identify the key factors influencing outsiders' decisions to settle in an area, particularly Batang Kuis. By understanding these factors, city planners and policymakers can formulate more appropriate strategies to attract new residents and improve housing quality.

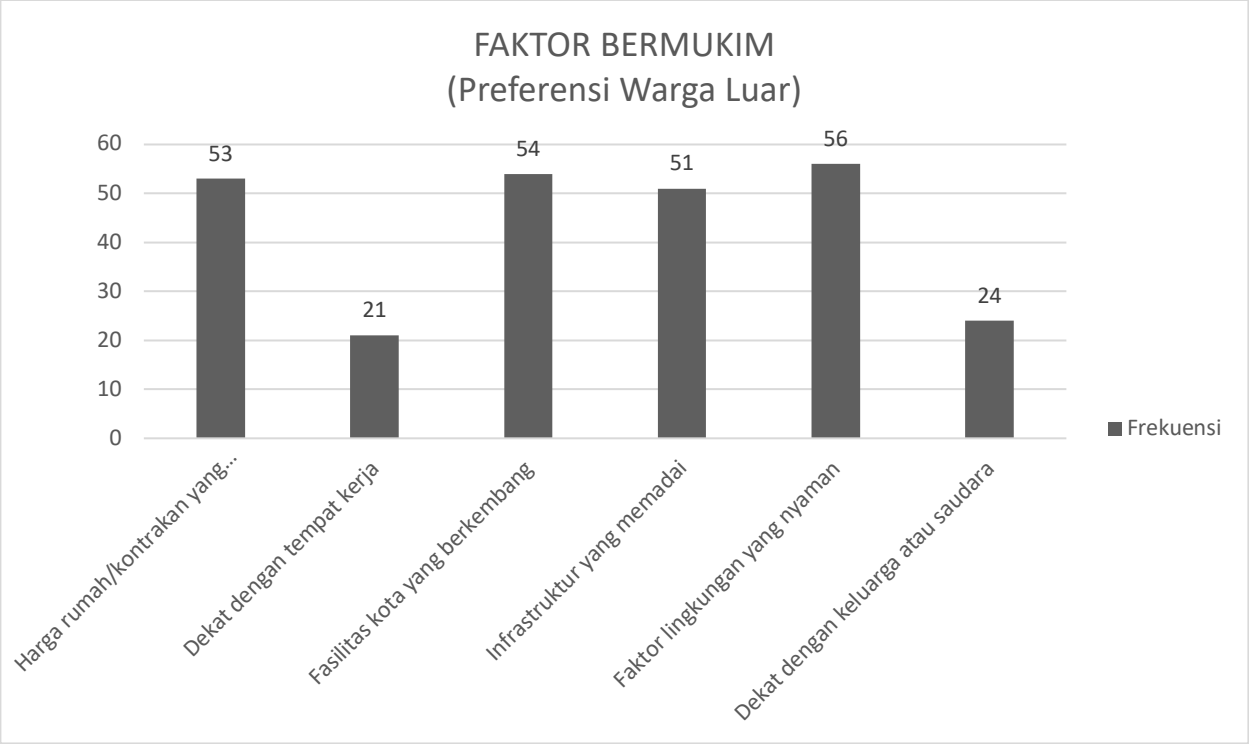

Figure 4.6. Residence Factors – Preferences of Outside Residents
Source: Author's Analysis, 2025

The analysis showed that a comfortable environment was the most dominant factor influencing residential decisions, with 56 respondents choosing it. This was followed by the availability of developed city facilities (54 respondents), and affordable housing (53 respondents). These three factors demonstrate that social aspects and comfort of living significantly influence the decisions of outsiders. While adequate infrastructure was also considered important, with 51 respondents citing it, it ranked slightly below social and economic factors that are more directly related to the quality of daily life. Meanwhile, proximity to work (21 respondents) and family (24 respondents) ranked lower on the priority list. This suggests that nonresidents prioritize environmental quality and public facilities over personal ties or job location when deciding where to live.

4.3. Comparison of Preferences: Local Residents vs. Foreign Residents

The analysis in this section aims to compare the preferences of local residents and nonresidents in choosing a place to live, using a revealed preference (RP) approach for local residents and a stated preference (SP) approach for nonresidents. The comparison results show significant differences in consideration patterns between the two groups.

Local residents, according to the RP, tend to choose to remain in Batang Kuis for non-structural reasons. Factors such as environmental comfort, affordability of housing or rentals, and proximity to family or relatives are the main reasons. In this case, city facilities and infrastructure are not a primary consideration in their decision to settle. This suggests that the sustainability of local residents' housing depends more on their quality of life related to daily social and economic aspects. Conversely, outside residents, through the SP, expressed interest in living in Batang Kuis if there was assurance of the availability and quality of city facilities and infrastructure. They placed greater emphasis on education and healthcare services, as well as access to clean water and good roads. This suggests that Batang Kuis's attractiveness to outsiders is heavily influenced by perceptions of the quality of the city's facilities and infrastructure. Thus, it can be concluded that regional development strategies need to consider both approaches in a balanced manner: improving the quality of infrastructure and public facilities to attract outside residents, as well as maintaining comfort and affordability to retain local residents.

TEMPORARY CONCLUSION

5.1. City facilities and infrastructure that are considered most important by the community:

Residents, both those already living in and those planning to move to Batang Kuis District, consider city facilities such as commerce, education, and healthcare to be the most important for supporting daily life. In terms of infrastructure, good roads and clean water availability are key elements considered crucial by both locals and outsiders. However, outsiders tend to place greater emphasis on education and healthcare facilities, while locals prioritize basic and practical needs.

5.2. The influence of infrastructure conditions on interest in settling:

Based on the results of the regression analysis, perceptions of infrastructure were significantly related to the desire to settle among outsiders, but not as strongly as the influence of city facilities. This suggests that infrastructure serves as a basic prerequisite, but not a primary motivating factor in settlement decisions. For local residents, infrastructure is at a moderate level of satisfaction and condition, and is not a primary factor in their decision to settle.

5.3. The influence of city facility conditions on residential preferences:

Regression results show that city facilities have a greater and more significant influence on outsiders' desire to settle than infrastructure. Complete and developed city facilities are considered to improve the quality of life and are a major factor attracting new residents. Local residents also consider city facilities to be in good condition and important, although this is not their primary reason for settling.

5.4. Residence preferences:

Residential preferences of outsiders and locals show different patterns. Outsiders are more interested in living in Batang Kuis District if complete city facilities (education, healthcare, shopping centers) and adequate infrastructure (roads, clean water, transportation) are available, as they prioritize the quality of public services. Conversely, locals are more influenced by non-structural factors such as environmental comfort, affordable housing, and proximity to family. Elements such as proximity to work or family are not a primary consideration for outsiders, who tend to view the area rationally based on quality of life. These findings suggest that regional development needs to balance improving facilities and infrastructure to attract outsiders while maintaining comfort and affordability to retain local residents.

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