

Analysis of the Effect of Hedonic Price Attributes on Land Values in the Peri Urban Area of Batang Kuis Subdistrict, Deli Serdang Regency

Naudur Rahmasari Siregar¹, Khaira Amalia Fachrudin², Yeni Absah³

¹(Universitas Sumatera Utara, Indonesia)

²(Universitas Sumatera Utara, Indonesia)

³(Universitas Sumatera Utara, Indonesia)

Abstract: The development of the area in the periphery, causing changes in the use of agricultural land to housing, while in the downtown area, changes in land use from housing to non-housing, namely trade in services and commercial trade. Rapid growth in the city of Medan in the past five years has made it less available for affordable housing for the lower middle class. This has led to the emergence of new residential areas in the peri urban areas of Medan City such as the Batang Kuis area and its surroundings. This study examines and analyzes the factors that influence land value in the peri-urban area of Batang Kuis Subdistrict, Deli Serdang Regency. The factors studied were physical factors consisting of land area, building area and design. Location factors consisting of road width, distance from CBD, availability of transportation and environmental factors consisting of housing utilities are hedonic factors, which affect the value of land in Batang Kuis Subdistrict, Deli Serdang Regency. The population in this study was some housing in the Batang Kuis District of Deli Serdang Regency. The type of data used in the form of cross section data were analyzed using Multiple Linear Regression Statistics. This research was conducted from February 2016 to the end of June 2016. The results showed that the land area had a significant effect on land values, building area had a significant effect on land values, house design had a significant effect on land values, road width had a significant effect on land values, CBD distance had a significant negative effect on land values, public transportation had a significant effect the value of land and utility have no significant effect on land value. Based on the research, it can be concluded that the land value in Batang Kuis Subdistrict, Deli Serdang Regency is influenced by land area, building area, house design, road width, distance from the CBD, and public transportation. The implication for people who will buy land in this research area should pay attention to these factors. For the appraisal profession can use a regression model produced in this study as a reference to estimate the value of land around Batang Kuis Subdistrict, Deli Serdang Regency. For the government, it is expected to further develop infrastructure in this area because this area is growing rapidly as a new economic area. For investors to consider the facilities and infrastructure in the residential area to be built.

Keywords: Hedonic Price, Peri Urban, Land Area, Building Area, House Design, Road Width, Distance From CBD, Public Transportation, Utility and Land Value

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I. Introduction

The population continues to increase in developing countries, the world's population currently reaches 7 billion people and will continue to increase every year. Indonesia is currently ranked 4th in the country with the largest population in the world. The phenomenon of growth and population growth will affect the availability of land.

Land needs in urban areas are increasing in line with population growth and the accompanying socio-economic activities. Increasing land requirements is an implication of the increasingly diverse functions in urban areas caused by its superiority in the availability of public facilities and ease of accessibility.

The dynamics of activities in urban areas lead to competition between land users which leads to the conversion of land with higher intensity. The development of the area in the periphery, causing changes in the use of agricultural land to housing, while in the downtown area, changes in land use from housing to non-housing, namely trade in services and commercial trade.

The transformation of the land conversion process runs so fast due to urban productivity. This activity was extended to the suburbs. Suburban areas need serious attention because of the importance of the area to the lives of residents both cities and villages.

Suburban areas are areas known as urban-fringer or peri-urban areas. The peri-urban area is a zone in which there is a mixed structure between the rural land structure and the urban land structure. The peri-urban

area that has a different character between the characteristics of the countryside and the city is inseparable from the influence of urban areas to the outside or known as urban-sprawl.

The spread of urban physical appearance takes place in major cities in the world which causes the construction of new cities in the periphery. In general, the development phenomena of peri-urban areas are indicated by the increase in the number of settlements at large initiation of developers.

The hedonic price method is the relationship between the environment and utilities. The hedonic price method is widely applied in the study of environmental economics, because in the study of environmental economics many of the prices of goods are not real (implicit) but are attached to the goods. For example the influence of air pollution on property prices, as well as the clean environmental influence on property prices to estimate home prices.

Medan City, as one of the centers of development in Indonesia, has experienced rapid urban growth. The consequence of the development of a big city, not only requires more land but also facilities and accessibility. Like other large cities that are developing, the result that arises is migration to suburban areas. The presence of migrants requires urban facilities such as housing, education, water, electricity, transportation and so on.

Rapid growth in the city of Medan in the past five years has made it less available for affordable housing for the lower middle class. This has led to the emergence of new residential areas in the peri urban areas of Medan City such as the Batang Kuis area and its surroundings.

The emergence of new housing areas in the Batang Kuis and surrounding areas has caused an increase in land prices in the area. In 2008 the price of land in this area ranged from Rp. 50,000 to Rp. 100,000 per meter². In 2014 there was a 10-fold increase in prices to around Rp. 600,000 to Rp. 1,000,000 per meter varies based on the location and location of the land.

The land that used to be empty turned into a residential area. Residential buildings, multi-storey shophouses, mini markets in the last few years have increasingly emerged. Construction of arterial roads connecting the Batang Kuis area, Tanjung Morawa to Kuala Namu, the construction of the Meteorological road, the construction of the Lau Dendang Batang Kuis road, the construction of the Medan Tebing Tinggi Toll road, the construction of the new Sei Rotan road to Batang Kuis, the Sei Batang Kuis bridge construction and construction roads and bridges in the area of the quiz stem caused the quiz to cause the area to become crowded so that economic activity also increased. This also causes land prices in the area to increase.

Research Purposes

In accordance with the formulation of the problem, this study aims:

1. To find out and analyze the influence of land area factors on land values in the Peri Urban area of Batang Kuis Subdistrict, Deli Serdang Regency
2. To find out and analyze the influence of building area on the value of land in the Peri Urban area of Batang Kuis Subdistrict, Deli Serdang Regency
3. To find out and analyze the influence of house design on land values in the Peri Urban area of Batang Kuis Subdistrict, Deli Serdang Regency
4. To find out and analyze the influence of road width on land values in the Peri Urban area of Batang Kuis Subdistrict, Deli Serdang Regency
5. To find out and analyze the influence of CBD distance on land values in the Peri Urban area of Batang Kuis Subdistrict, Deli Serdang Regency
6. To find out and analyze the influence of the availability of transportation on land values in the Peri Urban area of Batang Kuis Subdistrict, Deli Serdang Regency
7. To find out and analyze the influence of utilities on land values in the Peri Urban area of Batang Kuis Subdistrict, Deli Serdang Regency

II. Theoretical Review

2.1 Development of Urban Fairy Regions

The increasing population has an effect on population growth and density. This resulted in a rapid process of land conversion due to expanded urban activities to the city boundaries. Suburban areas are areas known as urban-fringe or peri-urban areas, which are areas of intersection between cities, villages and areas with rapid growth.

Together with the strong urban flow in urban areas, it will automatically encourage the birth of spatial transformations in peri-urban areas. This is because of the limited capacity in the city. To fulfill the capacity of the increasingly overflowing community, urban areas are forced to develop around the peri-urban area. This is undeniable, because peri-urban (urban fringe) is an area that is on the outskirts of the city. This region which is really very important for the lives of residents in the future, both in the village and in the city.

2.2 Prices, Costs and Value

Price is a sum of money requested, offered or paid for an asset. Cost is the amount of money needed to obtain or create an asset. While value is an opinion of the economic benefit of asset ownership, or the price most likely to be paid for an asset in exchange so that value is not a fact. Assets are also defined as goods and services.

2.3 Factors Affecting Property Values

According to Hidayati and Harjanto (2001) the determination of the value or price of land is strongly influenced by certain factors that give a picture of the high and low values of land. Factors that determine the high and low prices of land are environmental conditions, namely whether the land is free of inundation or vice versa, whether the area has a drinking water network, there is a drainage system, good environmental sanitation, there is sufficient telephone network, healthy and comfortable environment, complete and infrastructure, and so on.

Furthermore, with the change or increase in the determinants of the value of the land, this will cause a tendency to increase land prices. In addition to these determinants, on land also inherent the influence of land as commodity goods, land review as commodity goods arises due to the existence of more value held by land, which causes land to have the potential to be invested as capital.

Factors that influence land value or a land value system can be divided into four categories, namely economic, social, legal, government and political factors, as well as physical, environmental and location factors:

a. Economic factors

In an economic perspective, land value is the result of interaction or price balance of demand and supply of land. Demand variables that affect land values include ownership status, income / salary level, fund availability, interest rates, transaction costs. Bidding variables include the availability of land, maintenance costs, construction costs, taxation, and other ownership costs.

b. Social factors

Social factors are factors related to behavioral patterns and sociology of the community in managing land / land. Directly or indirectly the level of civilization and the culture of the people influence the pattern of land use.

c. Legal factors, government policy, and politics.

Legal factors, government policy and politics are very influential and decisive because they can increase the demand for land. Good policies can improve maintenance efficiency and land / land use. At the national level, economic conditions, monetary policy and taxation can accelerate or slow down economic growth and influence demand for land.

d. Physical factors, environment and location.

Physical, environmental and location factors have a strong influence on the value of land. Site / physical factors are endogenous factors because they are inherent in a plot of land, for example the size, topography and physical characteristics that make up the plot. Site / physical factors affect the value of land because the owner can use / utilize resources that are the nature of the land

2.4 Hedonic Price Method

According to Bajari and Benkard (2005) hedonic prices are tools whose prices are related to utility and convenience (amenity). The origin of this method is to connect the value of the characteristics of the residence with the amenities of the residential environment. This method is used mostly to predict the willingness to pay for a property because of the presence or absence of special environmental attributes, such as air quality, noise, and natural scenery. By comparing the market value of two properties that have different degrees of specific attributes, analysts extract the implicit value of these attributes from property sellers and buyers.

III. Materials and Method

3.1 Types of Research

This type of research is quantitative research, where phenomena can be classified, relatively fixed, concrete, observable, measurable and causal symptoms. The hypothesis is tested through data collection. The collected data was analyzed using statistics and econometrics, so it can be concluded that the formulated hypothesis was proven or not (Sugiyono, 2012).

3.2 Location and Time of Research

This research was conducted in the peri-urban area of Batang Kuis Subdistrict, Deli Serdang Regency, starting from January 2016 to June 2016.

3.3 Population and Samples

The population in this study were all housing in the Batang Kuis District. Target Population is Housing that has more than 50 houses. The housing taken as the target population is 50 units of Cattalaye Ampera Mansion, 71 units of Griya Tasya Asris, and 190 units of Beautiful Permaisebuis. As many as 78 units of Griya Simas, 98 units of Griya Bambu Hijau, 78 units of Griya Mutiara Development, 130 units of Graha Batang Kuiss, 160 units of Regency Regency Paya Gambar, and 65 Griya Kri Asri. The target population is 920 units, then the number of samples to be examined are 92 houses.

3.4 Data Analysis Method

This study uses descriptive qualitative analysis method to determine the existence of relationships between dependent variables and independent using inductive statistics correlation with multiple regression analysis. The qualitative descriptive objective in this study is to provide a systematic, factual and accurate description of certain facts.

a. Descriptive Analysis

Sugiyono (2012) explains that qualitative research methods are research methods used to examine natural objects, where researchers are key instruments, while data collection techniques are conducted by interview methods, data analysis is inductive, and the results of qualitative research emphasize meaning rather than generalization.

b. Multiple Linear Regression Analysis

This analysis is conducted to see if there is a causal relationship between the two variables or examine how large one variable affects the other variables. Relationship between variables that describe the function, namely: $y = f(x)$. This function explains the relationship between the dependent variable (Y) and the free variable (X). Hypothesis testing using t test, F test, r squared test.

IV. Results and Discussion

a. Effect of Land Area on Land Value

Based on the results of the study it was found that the size of the land had a significant negative effect on the value of the land. Based on the analysis of the data above, it appears that the value of t count for the variable size of land is equal to -3.783. With the value of Sig. 0,000 is smaller than the value of α (0.05) so it is interpreted that the land size variable has a significant effect on the value of the land. The size of the land has a significant influence on the value of shop houses. Area of land is an important factor determining property prices, where the greater the area, the more significant influence on property prices. Soil size has a positive influence on property values.

Land prices are influenced by intrinsic value including land area. This theory is also influenced by people's perceptions. Land has long been identified as an element of welfare, where land ownership shows a level of welfare.

Land development activities cause land values to increase. The entry of migrants from various regions created a renewal of the atmosphere, from the minus region to an urban area. At first, the land in Batang Kuis District was very cheap, only around Rp. 50,000 - Rp.100,0000 per m² and functions as a moor or rice field. The residents who lived were only a few, before the immigrants gradually entered to turn this open space into a built-up space.

The size of land that is less than 200 m² is very suitable to be used as housing, because the price of land for this area is still affordable by the community. The ideal use of land according to the size of the allocation is not the same. The community buys land with needs and uses based on a certain broad size, so that the broad factor of its influence on the value of land depends on the size that is considered ideal for the purpose of use.

b. Effect of Building Area on Land Value

The results of the study indicate that building area affects the value of land. Based on the analysis of the data above, it appears that the value of t count for the variable size of the building is 2,770. This value is greater than the value of t table for N = 92 which is equal to 1.9879 so it is interpreted that the building size variable has a significant effect on the value of the land.

According to Tanugara and Anastasia (2014) building area has a significant effect on the market value of shop houses in Surabaya. The land and building area had a significant effect on property values in Surabaya.

Respondents in this study were young families less than 40 years old (75%), with the reason that there was no need to bother to renovate the house. So that respondents prefer houses with larger building area. Another reason for respondents to buy a house in peri-urban areas is to be able to get a larger house. Separating

boys and girls' rooms is also a reason for respondents to choose larger houses. The goal is that all the functions of the house can be used by all residents.

Variable size of house building also has a significant effect on land value. The area of the building will affect the area of each room in one house. The wider the house building, the higher the comfort level of the occupants of the house. The level of comfort will affect the value of the property.

c. Effect of Design on Land Value

Based on the results of the research design has a significant effect on the value of the land. Based on the analysis of the data above, it appears that the value of t calculated for the building design variable is 3.571. The value above t table value for $N = 92$ which is equal to 1.9879 so that the building design variable has a significant influence on land values. The results of this study support the opinion of Mindra (2000) which states that design has a significant effect on home value. States that design affects the value of houses in the UGM campus area and IKIP Yogyakarta. Research conducted design affects the value of residential property in the Jakarta area.

Home design will affect the comfort of those who live in it. A good home design and the use of good building materials will increase the comfort of its residents. The model of the house that people are interested in is generally young couples is a design with a minimalist appearance. Purchasing a house with a design that is in accordance with the tastes of the occupants, causes them no longer need to change the design of the house. Changing the design of the house will certainly require a fee. That is why respondents prefer houses with the designs they want.

Building design is more determined by the usefulness of the building and the tastes of the people who use it, the use of building construction, the selection of good materials, how to install and conformity with the environment.

d. Effect of Road Width on Land Value

Road width has a significant effect on land value. Based on the analysis of the data above, it appears that the value of t count for the variable width of the road is 7.756. This value is above the value of t table for $N = 92$ which is equal to 1.9879 so that it is interpreted that the road width variable has a significant effect on the value of the land.

Kwanda et al. (2002) the width of the road has a significant effect on the price of lots in several housing estates in Surabaya. The market value of land will increase due to accessibility factors to reach a location. Thus the market value of land will develop according to development. ease of accessibility and connectivity.

The width of the road will affect the value of land in a place. This is because the width of the road affects comfort, speed and traffic safety. Roads that are too narrow will cause ineffectiveness due to frequent congestion. This causes the mileage achieved to be longer. Congestion also causes noise, thereby reducing the comfort of residents around the road.

One of the good road conditions can be seen from the width of the road, the wide road provides a better level of service for the community in traffic. A residential environment that has a wide road will be a special attraction and has a positive impact on the sale value of land that is around it.

e. Effect of Distance to CBD on Land Value

Distance from traditional markets has a significant negative effect on land value. Based on the analysis of the data above, it appears that the value of t count for the variable distance to CBD is -6,711 with the value of Sig. 0,000 is smaller than the value of α (0.05) so it is interpreted that the variable distance to traditional markets has a significant effect on land value.

According to von Thunen, the proximity of the land to the marketing area, as well as the urban area which has a relatively large population will cause the value of the profit margin of land sales to be higher compared to other locations far from the marketing area.

The distance from the CBD has a significant effect on the value of urban land in Surabaya. The location of land to the center of business or the city has a significant effect on the value of land in Rimbo Bujang and Rimbo Tengah Districts.

Distance from traditional markets has a significant negative effect on land value. This increase in the distance of one unit from the traditional market area will reduce the value of land. Land near the CBD or city center is more expensive because land near the center of the city has more value than far from the city center Land near the CBD besides being a residential area can also be used as a commercial area.

In addition, the land near the city center also has better facilities and infrastructure, so that the facilities can be greater. Land that is close to the economic area is of higher value because the more distance the transportation

cost will be traveled.

f. Effect of Public Transport on Land Value

Public transportation influences the value of land. Based on the analysis of the data above, it appears that the value of t count for the public transport variable is 2,136. This value is above the value of t table for N = 92 which is equal to 1.9879 so it is interpreted that the public transport variable has a significant effect on land value.

According to Sutawijaya (2014) the availability of public transportation has an effect on the value of land in the city of Semarang. The availability of public transport will make it easier for residents of housing to achieve the places to carry out activities and routines and to meet their needs. Transportation makes it easier for people to carry out economic activities and interact socially. Public transportation that crosses the research location is the Dirgantara, Ultra and Wulan public transportation. This transportation crosses Batang Kuis City to Medan Mall and Labu Beach to Medan Mall.

The role of transportation is community effort in overcoming distance. If a city has good accessibility or transportation what happens is the distribution of facilities. The development of the city spread rapidly along existing transportation routes. Settlement land prices follow transportation routes.

g. Effect of Utilities on Land Value

Utilities affect land value. Based on the analysis of the data above, it appears that the value of t count for the utility variable is 0.969. This value is less than the value of t table for N = 92 which is equal to 1.9879 so that it is interpreted that the utility variable has a non-significant effect on land values.

Clean water utilities, electricity networks, telephones, and the availability of playgrounds available for garbage can affect the selling value of simple houses in Palu City. Ghana and Navastara (2012) utility of transportation networks, electricity networks, clean water networks, educational facilities and health facilities influence the dynamics of land prices in West Surabaya.

Completeness of public utilities and household facilities is needed in everyday life so that it can facilitate the fulfillment of human needs, such as electricity networks, communication links and the availability of clean water. Public utilities have an influence on land prices where the more complete and good facilities that support the activities and needs of the community, the higher the land price.

Based on the completeness of the utilities specified by the Minister of Home Affairs Regulation No. 9 of 2009, generally the housing that was used as the sample fulfilled these requirements. For electricity facilities available between 900 watts to 1300 watts. Availability of Clean Water generally uses drill wells and some housing uses PAM water. Telephone facilities generally use cell phones with good signals. Almost all Telecommunications Providers can be accessed in the area. The gas network is not yet available. Generally respondents use gas cylinders measuring 3 and 12 kilograms. Roads of fires in the complex are also sufficient because roads in the complex are generally passable by fire engines. Electric lighting for public facilities is available but some are poorly maintained.

In this study the utility has no significant effect on land value. This is because available utilities such as clean water networks actually already exist, but housing that uses clean water through PAM can be substituted with clean water from the wellbore. Likewise for the electricity network, in each housing actually already equipped with an electricity network, only the power that is owned by housing is different. Telecommunication networks are generally owned by each housing.

V. Conclusion and Suggestion

Conclusion

Based on the results of this study, it can be concluded the following matters:

1. Variable land area, building area, house design, road width, distance from CBD, public transportation simultaneously influence the relationship in Subdistrict Batang Kuis Deli Serdang Regency.
2. The area of land has a significant effect on the value of land in the Batang Kuis District of Deli Serdang Regency.
3. Building area has a significant positive effect on the value of land in Batang Kuis Subdistrict, Deli Serdang Regency.
4. House Design has a significant positive effect on the value of land in Batang Kuis District, Deli Serdang Regency.
5. The width of the road has a significant positive effect on the value of land in Batang Kuis Subdistrict, Deli Serdang Regency.
6. Distance from CBD has a significant negative effect on the value of land in Batang Kuis District, Deli Serdang Regency.

7. Public transportation has a significant positive effect on land values in Batang Kuis Subdistrict, Deli Serdang Regency.
8. Utilities have no significant effect on land values in Batang Kuis Subdistrict, Deli Serdang Regency.

Suggestion

Based on the results of the study, the suggestions that the authors can give are as follows:

1. For people who are going to buy land or invest in property in the Batang Kuis Subdistrict of Deli Serdang Regency, it is recommended that considering the width of the road, the distance to the main road and the distance from the business center (CBD) remind this factor that affect the value of land.
2. For appraisal professions, the regression model produced in this study can be used as a reference in estimating the value of land around Batang Kuis Subdistrict, Deli Serdang Regency.
3. For the government to further develop infrastructure around the Batang Kuis District, especially road infrastructure. In general, the community of money domiciled in the area still works in the city of Medan so that congestion on the main road is very pronounced especially in the morning and evening.
4. For investors who will develop property around the Batang Kuis District, Deli Serdang Regency to pay attention to location and environmental factors. Good environmental management will certainly increase the value of land.
5. For the next researchers who will conduct research in this research area, it is recommended to carry out research on allocation and legality variables.

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