

## **Analysis of Effect of Land Area, Distance to Toll Gate, Distance to Industrial Estate and Distance to Central Business District on Land Value (Case Study of Muliorejo Village, Sunggal District, Deli Serdang Regency)**

Roy Sulaiman Batubara<sup>1</sup>, Khaira Amalia Fachrudin<sup>2</sup>, Yeni Absah<sup>3</sup>

<sup>1</sup>(Universitas Sumatera Utara, Indonesia)

<sup>2</sup>(Universitas Sumatera Utara, Indonesia)

<sup>3</sup>(Universitas Sumatera Utara, Indonesia)

Corresponding Author: Roy Sulaiman Batubara

---

**Abstract:** Land value in the context of the property market is a fair market value that is the value determined or determined by the buyer who wants to buy something and the seller wants to sell something based on the agreement or agreement of both parties in a reasonable condition without pressure from outside parties on the sale and purchase transaction process so that agreement. The purpose of this study was to test the influence of land area, distance to toll gate, distance to industrial estate and distance to central business district to land value in the Muliorejo Village. The present study is quantitative research. The population in this study is the plots of vacant land around Muliorejo Village which is administratively included in the Sunggal District, Deli Serdang Regency. The type of data used is a cross-section data that is analyzed using multiple linear regression statistics. This study was conducted from February 2018 to the end of July 2018. The results of this study indicate that land area has a significant negative effect land value, which is the result of a value, from this variable are  $< 0,05$  or  $< 5\%$ , distance to toll gate has an insignificant positive effect on land value, distance to industrial estate has a significant positive effect on land value, and distance to central business district has a significant negative effect on land value.

**Keywords:** Land Area, Distance to Toll Gate, Distance to Industrial Estate, Distance to Central Business District, Land Value

---

Date of Submission: 09-10-2019

Date of acceptance: 25-10-2019

---

### **I. Introduction**

Along with the development of the population in urban areas, the need for land or land either for residential or residential areas as well as business and industrial areas becomes higher. The high price of land in urban areas has made business people and housing buyers shift their interest towards urban outskirts. As explained in the Basic Agrarian Law No. 5 of 1960 that land is a type of real property that has economic value for its owner so that land can be an attractive investment for everyone who has the ability to own it. Land value is unique. The uniqueness of land values is due to the unique nature of the land that is not moving, can not be destroyed and there are no similarities (Ratcliff, 1972 in Oetomo, 2006). so rapidly will increase the need for land parcels, while the availability of land parcels on earth is fixed, so that it will affect the value of land.

The development of the value of a land or land is a direct effect resulting from the development of an area. As referred to in the Directorate of Land Survey and Potential Technical Guidelines, Deputy of Survey, Measurement and Mapping of the Republic of Indonesia BPN, values can also be interpreted as estimated prices paid under certain conditions as well. The economic concept of value reflects the market's view of the advantages of someone who has it when evaluating openly.

Medan Binjai Toll Road is one part of the Sumatra Toll Road program. In practice, this toll road section is expected to shorten the travel time from Medan to Binjai, primarily to avoid traffic congestion in the Kp area. Lalang One of the exits is the Sei Semayang Toll gate whose territory is included in the Muliorejo Village area.

With the toll road being built, surely the accessibility of a location to transportation infrastructure will be better. But the area around the toll road cannot directly access the toll road without the toll booth. Opening a toll gate somewhere will make it easier for the public to access the toll road. For example, from a previous study conducted by Lumban Gaol, S (2008) it was found that there was an increase of 49.66% from the estimated land value in 2004 to 2007 in the Jati Asih Kelurahan due to the construction of the Jati Asih toll gate, as which also

found by Taslim (2004) that the toll gate has a positive and significant effect on the value of the surrounding land on the Haji Anif toll gate section.

The next factor that supports an increase in the value of a land is the closeness to economic activity or the central business district. From previous research conducted by Bogie (2015) it is known that proximity to economic activity, in this case the center of business activity (industrial estate) will have a significant impact on land values.

Industrial estate is an area that is dominated by industrial activities that have a combination of facilities consisting of plant equipment (industrial plants). Industrial development is important to increase economic growth. Good economic growth certainly has a positive impact on employment, both from the area around the industrial area and also outside the area. But in addition to the positive impacts caused by employment, industrial areas that are very close to residential areas can also cause potential such as noise and the impact of industrial waste (Safitri, 2016).

With the opening of the Medan-Binjai toll road section in 2017, in this case through the exit of the Sei Semayang Toll gate, which is located in the Muliorejo Village area, is expected to provide stimulus to the economic development of the region with the growth of new industries. The Muliorejo Village area is one of the villages included in the Sunggal Deli Serdang Sub-district, where the growth of the region began to shift from an agricultural area to an industrial area, which was marked by the growing number of new industries in the region. In accordance with BPS data, in 2017, then in the Sunggal District area, Deli Serdang, the Muliorejo Village area is one area where there are many industries both large, medium and small scale. When viewed from the outside appearance, industries in the Muliorejo Village area are industries with minimal waste impact, thus causing the price of land in the area to also increase.

The same thing happened to the land owned by Mr. Dedi Prayogo who in 2010 bought the land with a price range of Rp. 400,000 / meter which is located on SMP 2 road in the same village as Ibu Praningsih, in 2015 there was a bid of around Rp. 800,000 and last in 2017 last December there was a bid and Mr. Dedi Prayogo sold it at Rp. 1,428,571 per square meter. This means that the range of increase is relatively high where for Pak Dedi Prayogo's own land the increase in 2010 to 2015 reached 20% per year while in 2015 to 2017 the price of land increased by 26% per year.

This is an interesting phenomenon, considering that the report on residential property survey conducted by Bank Indonesia itself that the expected natural increase is around 12% -16% per year means that the increase in land prices around the Sei Semayang Toll gate is relatively high compared to the normal increase stipulated by Bank Indonesia.

Based on the results of this Bank Indonesia survey, this research was conducted in the Muliorejo Village area which is an administrative area of Sunggal District, Deli Serdang Regency, while the population of land taken is all vacant land without buildings on it and which will be sold using the saturated sample method.

## **II. Literature Review**

### **2.1 Land Value**

Land value is important information for management decisions in both the public and private sectors. Government, for example is the local government, requires information on land value as a basis for the imposition of land and building taxes imposed on the community. The private sector, for example, is the developer and appraiser assets need information about values to determine the location of housing and as a basis for determining adjustment factors in the analysis. The value of land is unique. The unique value of land is due to the unique nature of the land that is immovable, cannot be destroyed and there is no similarity (Ratcliff, 1972 in Oetomo, 2006). The uniqueness of land value is what drives experts to conduct research and formulate theories about what factors affect land value. Theories of land values have been known since the 19th century which were first introduced by David Ricardo in his book "Principles of Political Economy and Taxation". Land is something that is unique. In general, the designation of land in our daily life can be used in various meanings, therefore in its use it needs to be limited so that it can be known in what sense the term is used.

Factors Affecting Land Value:

#### **a. Economic Factors**

Economic factors are related to global / international, national, regional and local economic conditions. Demand variables that affect the value of land include labor force, wage level, income level and purchasing power, financial availability, interest rates and transaction costs .

#### **b. Social Factors**

Social factors shape the pattern of land use in an area. Population density, level of education, level of crime and pride of ownership (prestigious area) and patterns of behavior and culture (sociological) are social factors that affect land values.

#### c. Government Factor

Government policies in the field of law and politics affect land values, national levels, economic conditions, monetary and taxation policies that can accelerate or slow down economic growth and affect land demand. Some examples of policies that can affect the cost and allocation of land use which in turn will increase land prices, include; land ownership policy, spatial planning regulations with zoning determination, taxation regulations, licensing regulations.

#### d. Physical Factors

Physical, environmental and location factors have a strong influence on land values. Site / physical factors are endogenous factors because they are inherent in a plot of land. There are two concepts that must be understood in physical and environmental factors, namely site and situation. The definition of site is all internal traits or characteristics of a particular parcel or area, including the size, shape, topography and all physical conditions on the parcel of land. Whereas what is meant by the situation is those relating to external properties. The situation of a place is closely related to the relation of that place to the places around it in the same geographical space. Included in the situation understanding are size, topography, accessibility (distance to shopping centers (CBD), distance to schools, distance to hospitals, etc.), availability of facilities and infrastructure (city utilities) such as transportation networks, telephone connections, electricity, etc.

### **2.2 Existence of Toll Gates**

Roads are land link infrastructure that are intended for vehicle, person and animal traffic. Roads are grouped according to specific roads. Public roads are roads that are designated for public traffic roads. Special roads are roads that are included in addition to public roads.

Toll roads are public roads that are subject to the obligation to pay toll users and are alternative existing public road crossings. Toll roads are organized with a view to accelerating the realization of the road network with some or all of the funding coming from road users to ease the burden on the government.

### **2.3 Industrial Estates**

Industrial estate is an area that is dominated by industrial activities that have a combination of facilities consisting of industrial equipment, research facilities and laboratories for development, office buildings, banks, and social facilities and public facilities (Dirdjojuwono, 2004). The development of industrial estates is important to increase economic growth. Through economic growth, one percent can absorb a workforce of around one hundred thousand people (Soeling, 2007). The industrial estate development policy set out in Presidential Decree No. 41 of 1996 is a step taken by the central government in encouraging increased investment in the industrial sector as well as providing legal certainty and regulating the management of industrial estates in an area. However industrial zones which are very close to residential areas can cause potential such as noise and the impact of industrial waste (Safitri, 2016), it certainly has an impact on the desire of the community to live close to the industrial area. On the basis of this demand, it is probable that land values around the area will also be affected.

### **2.4 Central Business District (CBD)**

Economic activity is the central business district (CBD). The concept of CBD in this case is interpreted more broadly as an area of economic activity in a land value zone that includes or is related to the location of activity centers for shopping, education, offices, terminals, hotels, recreation areas and other centers of economic activity. With the increase in transportation, infrastructure, facilities and infrastructure built by the government as a support in urban areas

It can be explained that the closeness to the CBD can significantly increase a land value, it can be seen because the need for land in the area of economic activity is increasing because land adjacent to economic activity is not only for residential or residential use, but can also be made a place of business businesses that add value to a land.

## **III. Research Methods**

### **3.1 Types and Nature of Research**

This research is quantitative research, that is research data in the form of numbers or numbers. This study is causality in which this research seeks an explanation in the form of a causal relationship between two or more variables.

### **3.2 Research Location and Time**

As mentioned previously, this research was conducted in the Mulioarjo Village area of Sunggal District, Deli Serdang Regency.

### 3.3 Population and Samples

The population of this research is all vacant land without buildings on it which will be sold in the Sei Semayang Toll Gate area, Muliorejo Village, Sunggal District, Deli Serdang Regency. In this study the saturated sample method was used, meaning that the sample was chosen intentionally according to the intended use. As for the vacant land in the Muliorejo Village amounted to  $\pm 75$  vacant lots without any building on it. While the target population (sample) is 35 vacant lots whose status is being sold.

### 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.

### Multiple Linear Regression Analysis

The data analysis method used in this study is multiple regression analysis (Sugiyono, 2004). Therefore the research formulation in the path analysis framework only revolves around the independent variable ( $X_1, X_2, \dots, X_k$ ) influencing the dependent variable Y, or how much direct, indirect, and total influence or simultaneous set of independent variables ( $X_1, X_2, \dots, X_k$ ) to the dependent variable Y. Hypothesis testing using t test, F test, r squared test.

## IV. Results and Discussion

### 4.1 Results

#### Coefficient of Determination

Table 1 R Square shows 77.3, which means that the influence of the variables  $X_1 - X_4$  to the land value variable is 77.3% while the remaining 22.7% is influenced by other variables not included in the study.

**Table 1 Determination Coefficient Test**

Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.879 <sup>a</sup>	.773	.743	100292.246

a. Predictors: (Constant),  $X_1, X_2, X_3, X_4$

b. Dependent Variabel: Y

**Source: Research Results, 2018 (Data Processed)**

#### Simultaneous Significance Test (Test f)

In Table 2, the f count is 25.552 with a significance value of 0.000, this shows that the significance value is smaller than  $\alpha = 0.050$ , so it can be concluded that the variables  $X_1 - X_4$  simultaneously have a significant effect on the variable land value.

**Table 2 Simultaneous Test (Test f)**

ANOVA<sup>b</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.027E12	4	2.567E11	25.522	.000 <sup>a</sup>
	Residual	3.018E11	30	1.006E10		
	Total	1.329E12	34			

a. Predictors: (Constant),  $X_1, X_2, X_3, X_4$

b. Dependent Variabel: Y

**Source: Research Results, 2018 (Data Processed)**

#### Significance Test of Individual Parameters (t Test)

Based on Table 3, it can be seen that the significance value for the variables for all variables is smaller than the required significance (0.050), so the t test results have a partially significant effect on all variables on the variable land value.

**Table 3 Partial Test (t Test)  
Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.525E6	91348.413		16.693	.000
X <sub>1</sub>	-354.787	173.624	-.211	-2.043	.050
X <sub>2</sub>	13.632	14.536	.111	.938	.356
X <sub>3</sub>	191392.918	50040.312	.489	3.825	.001
X <sub>4</sub>	-45.279	9.594	-.514	-4.719	.000

a. Dependent Variabel: Y

**Source: Research Results, 2018 (Data Processed)**

Further analysis of the results of the estimated regression is explained as follows:

a. Land area regression coefficient value of -0.221 and t arithmetic of -2.043 where p-value < 0.05. statistically negative regression coefficient values indicate the influence is not unidirectional so that the land area variable has a negative and significant effect on the land value variable.

b. Distance to toll gate regression coefficient value of 0.111 and t arithmetic for 0.983 where p-value > 0.05. statistically positive regression coefficient values indicate a direct effect so that the toll gate variable has a positive but not significant effect on the land value variable.

c. Distance to industrial estate regression coefficient value is 0.489 and t arithmetic is 3.825 where p-value < 0.05. statistically positive regression coefficient values indicate a direct effect so that the industrial area variable has a positive and significant effect on the land value variable.

d. Distance to central business district regression coefficient value of -0.514 and t arithmetic of -4.719 where p-value < 0.05. statistically the value of the negative regression coefficient indicates the influence is not unidirectional so that the CBD variable has a negative and significant effect on the land value variable.

## 4.2 Discussion

### Effect of Land Area on Land Value

The land area variable has a regression coefficient of -354,787 with sig. of 0.050 and t -2043. Results of regression analysis of land area variables were found to have no significant effect on the value of land in the study area.

The influence of land area is significant to the land value at this research location because the area of the samples studied is in the form of effective land area for house and housing sites, with a wide range between each research sample that is not much different.

The negative effect of land area on land value can be interpreted if the greater land area makes the price of the meter cheaper than if the land was purchased with a smaller size. Land sales in large areas tend to be greatly influenced by the ability of potential consumers, so the greater the area of land offered for sale will affect the lower price of land per square meter in addition, land that has a large land area affects the low liquidity of the land.

The results of this study are in line with where the results of the study show that land area has a negative effect on land prices because the more land is offered, the land price also increases, but if it is calculated per meter, the actual price offered decreases if the land is intended for housing .

### Effect of Distance to Toll Gate on Land Value

The toll gate variable has a regression coefficient of 13,632 with sig. amounted to 0.356 and tcount 0.938. The results of regression analysis of toll gate variables do not significantly influence the value of land in this study area, meaning that there is no impact from the existence of toll booths for surrounding land values. This is due to the opening of the toll gate for the Sei Semayang area, the effect is not instant, it takes several years to have an impact on the value of the land, considering that the Sei Semayang toll gate is not very vital for the surrounding community, given the economic conditions of the Muliorejo village community inhabited by the middle to lower classes so that it is opened or whether or not the Sei Semayang toll gate does not make any added value for them.

Judging from the samples in the east and west of the toll gate, the effect on toll road construction is not too significant, for example only on land owned by Mr. Dedi Prayoga whose land is in the western region of the toll gate precisely on SMP 2 road, the land value is Rp. 1,450,000 while for the eastern region such as land owned by Mr. Fikri Mahir who is on the bright star road the tip of the land value is Rp. 1,398,347 means that

there is a difference but it is not significant compared to other variables in research conducted in the Muliorejo Village area.

One of the functions is the opening of the Sei Semayang toll gate so that people from other regions can easily get to the area, but this condition is not supported by the desire of people from other regions to go to the village of Muliorejo considering that the village of Muliorejo is now more of a village that is starting to be filled with warehouses and factories. large factories for example PT. HOCKS so that people from the city of Medan prefer to get out of the toll booth at Binjaiketimbang at the Sei Semayang toll gate.

#### **Effect of Distance to Industrial Estate on Land Value**

Dummy variable of industrial estate has a regression coefficient of 191392,918 with Sig. of 0.001 and tcount of 3,825 Results of regression analysis of industrial dummy variables have a positive and significant effect on the value of land in the study area, meaning that, if close (dummy 1) to the industrial area, land prices will increase by Rp. 191,392.

Based on the research results there is a positive effect caused by where the land around the industrial area attracts more prospective buyers because of a clearer market for employees and the impact of lighting lamps, road width and the absence of fears of pollution and waste generated from the industry. in Muliorejo, on average, there are industries with little waste and pollution. This is different from the research conducted by Safitri (2016) where the conclusion obtained from his research is that the industrial estate has a negative impact on land values, because the location which is very close to the industrial area has the potential to experience the impact of noise and the impact of industrial waste. industries in the Muliorejo area are industrial estates with minimal or almost no waste scale.

#### **Effect of Distance to Central Business District on Land Value**

The distance variable with CBD has a regression coefficient of -45,279 with sig. amounted to 0,000 and t -0.514. The results of the regression analysis of distance variables with CBD have a negative and significant effect on land values in the study area. it means that the land which is close to the CBD will proportionally increase the land value by Rp. 45,279 per square meter.

The test results of this study are in line with the results of this study with Von Thunen's theory which says that land prices are based on metric distances to the center of socioeconomic activity. The hedonic value theory expressed by Muth, Lancaster and Rosen states that land prices are determined by the location factor of distance to the center of economic activity or socioeconomic facilities. The results of the study are also in line with research conducted where the results of the study show that CBD negatively affects the value of land, meaning that the closer the location of the land to the CBD, increases the price of the land given the people's desire to buy property that is close to the economic center. As stated by William Alonso (in Yunus, 2000:77) about the theory of bid-rent analysis, where the spatial distribution of industrial activities is located between housing and retail. The closer to the city center (trade center), the price (rent) of land is higher, and vice versa. In other words, rent offered by people to pay for land per square meter, decreases following its distance from the city center (commercial / commercial).

## **V. Conclusion and Suggestion**

### **5.1 Conclusion**

Based on the results of this study, it can be concluded as follows:

- 1.The independent variables of land area, distance to toll gate, distance to industrial estate, distance to central business district as well as the simultaneous explanation of changes in the dependent variable variability or the regression model are not appropriate or appropriate.
- 2.The land area has a negative influence and significant in relation to land value around the village of Muliorejo.
- 3.The distance to toll gate has a positive influence and non-significant in relation to land value around the village of Muliorejo.
- 4.The distance to industrial estate has a positive influence and significant in relation to land value around the village of Muliorejo.
- 5.The distance to central business district has a negative influence and significant in relation to land value around the village of Muliorejo.

### **5.2 Suggestion**

Based on the results of research, suggestions that writers can give are as follows:

- 1.For prospective investors or the general public who will engage in vacancies or investment in the field of work around the village of Muliorejo, it is expected that the consideration of the results of research that shows that the land is in close proximity to industrial and CBD areas, the value is relatively adequate to the land area and is to be developed in the area where the land needs to be developed in the region and in the region.

2.The regression model obtained from the results of this study, is expected to work for the assessors, as one of the references in estimating the value of areas around the village of Muliorejo.

3.For the Deli Serdang Regency Government, as the local regional authority, can immediately revise NJOP and map the speculators or land brokers in this village area because at this time there is a very high gap between prices in NJOP compared to the market price of selling land around the village of Muliorejo in connection with the rapid development of this area as one of the economic regions of the village. new in the Deli Serdang area.

4.For the next researchers who will conduct research in this research area, it is recommended to conduct further research on the variable of legality by dramatically specifically the difference between the types of ownership of land owned by the HGU PTPN Perkebunan II.

### Reference

- [1]. Bogie, Irwan. (2015). Analisis Faktor-faktor yang Mempengaruhi Nilai Tanah (Studi Kasus di Kecamatan Medan Timur Kota Medan). Tesis Magister Manajemen Penilaian Properti, Universitas Sumatera Utara.
- [2]. Dirdjojuwono, Roestanto W. (2004). Kawasan Industri Indonesia - Sebuah Konsep Perencanaan dan Aplikasinya. Bogor: Wirausahamuda.
- [3]. Lumban Gaol, S. (2008). Pengaruh Keberadaan Pintu Tol terhadap Nilai Tanah di Kelurahan Jati Asih, Studi Kasus di Kelurahan Jati Asih Kecamatan Jati Asih Kota Bekasi. Tesis Program Pasca Sarjana Universitas Gajah Mada.
- [4]. Oetomo. (2006). Manajemen Sumber Daya Manusia. Jakarta: UI- Press.
- [5]. Nursolikin. (2005). Keterkaitan Perubahan Penggunaan Lahan terhadap Pengenaan Pajak Bumi dan Bangunan. Studi Kasus Kelurahan Cisarante Kidul, Kecamatan Rencasari Kota Bandung. Tesis Institut Teknologi Bandung.
- [6]. Safitri, Budisusanto, Deviantari, dan Dedyono. (2016). Analisis Pengaruh Lokasi Central Business District terhadap Nilai Tanah di Daerah Sekitarnya (Studi Kasus: Daerah Industri di Surabaya). Jurnal Teknik ITS, Vol 5, No 2, Institut Teknologi Sepuluh November.
- [7]. Soeling, Pantius D. (2007). Pertumbuhan Bisnis dan Tanggung Jawab Sosial Perusahaan. Jurnal Ilmu Administrasi dan Organisasi, Bisnis dan Birokrasi.
- [8]. Sugiyono. (2004). Metode Penelitian. Bandung.
- [9]. Taslim. (2014). Analisis Pengaruh Luas Tanah, Jarak dari Pintu Tol, Lebar Jalan, Bentuk Tanah dan Legalitas Tanah terhadap Nilai Tanah di Sekitar Pintu Tol Haji Anif. Tesis Magister Manajemen Penilaian Properti Universitas Sumatera Utara.
- [10]. Yunus, Hadi Sabari. (2000). Struktur Tata Ruang Kota. Penerbit Pustaka Pelajar Offset, Yogyakarta.

Roy Sulaiman Batubara" Analysis of Effect of Land Area, Distance to Toll Gate, Distance to Industrial Estate and Distance to Central Business District on Land Value (Case Study of Muliorejo Village, Sunggal District, Deli Serdang Regency)" IOSR Journal of Business and Management (IOSR-JBM), Vol. 21, No. 10, 2019, pp. -74-80