

## Effect of Infrastructure on the Level of Capitalization of Housing Property in Medan Selayang District

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**Abstract:** The level of capitalization plays an important role in the process of valuing a property, where the community can easily calculate a property value by converting the income value of a building to the capitalization rate. In Medan Selayang district is a district that used to have fertile or andosol soils, so that there is a lot of agricultural land found. Along with the development of property, population growth and economic growth that continues to grow in the city of Medan, especially in Medan Selayang district, the space or availability of land in the Medan Selayang district has changed into a commercial residential area. The growth of the housing complex in Medan Selayang district has offered supplies to the market. The various types of houses offered cause different rental prices and house prices, so the level of capitalization will also be different. The possibility of this happening is caused by age factors, building area, land area, road width and sports infrastructure. This study took a sample of nine housing complexes in Medan Selayang district, namely Puri Tanjung Sari Housing, Graha Tanjung Sari Housing, Griya Kenanga Sari Housing, Taman Perkasa Indah Housing, Villa Manila Indah Housing, Stella Residence Housing, Setia Budi Vista Housing, Debang Housing Taman Sari, Griya Nusa Tiga Housing with a total of 45 (forty five) respondents. The selection of respondents' data was carried out with the target population, with the sample criteria being that the houses for rent were also planned to be sold. Based on the results of the study, it was found that the building age variable, road width and sports infrastructure significantly affected the capitalization rate, while the factors of land area and building area did not have a significant effect on the level of housing capitalization.

**Keywords:** Level of Capitalization, Infrastructure, Land Area

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### I. Introduction

The need for housing and settlements continues to grow, this is due to the phenomenon of very rapid population growth accompanied by a significant economic growth rate. Housing in the form of land and buildings is the most dominating asset of property valuation. Development that relates to residence and facilities and infrastructure is given priority considering that residence is one of the basic needs, in addition to food and clothing needs. According to Hidayati and Harjanto (2003), increasing population is the main factor that causes increased property demand. Increasing the population of a city or region will cause more demand for houses, office space, shops, industries, and others.

Some literature on property and valuations reveal that investment in property has advantages, both financially and non-financially. Financial advantages include: (a) operating income in the form of rent; (b) appreciation of land values which are capital gains; (c) higher return on investment due to the use of loan funds; (d) protection against inflation; (e) is a safe long-term investment.

In improving social development and regional economic activities, public infrastructure is important. Development cannot run smoothly if infrastructure is not good. Every aspect of social and economic life has its own infrastructure, which is the largest unit and the main tool in various activities. Therefore, in the success of development in each region, in this case every social institution and local government is required to be able to build and pay attention to the existing infrastructure in each region and their respective regions. The Infrastructure Sector is one of the vital sectors to spur economic growth, which is basically an intermediate sector that connects various types of economic activities. The construction of road-shaped infrastructure is one example of a very important infrastructure subsector, which has an accessibility function to open less developed areas and function of mobility to spur development in developing or developing regions (Pranoto, 2007).

The development of the city of Medan as the capital of the provincial level I North Sumatra is one of the metropolitan cities that has a tendency as other metropolitan cities. Medan City as a functional core city has a strong spatial relationship with the surrounding area. The intensity of development in the city of Medan is

increasing, causing the need for land for the construction of housing and shopping centers is also increasing, along with that there is also the development of land values, both social and economic values.

The Medan Selayang Subdistrict area is a sub-district that used to have fertile soil and andosol so that it is found in agricultural land. Along with the development of property and densely populated existing in the city of Medan, Medan Selayang Subdistrict turned into various housing and shop complexes, this is due to the very high population density that can be seen from 2011 with a population of 99,982 to 2014 amounting to 100,455 people.

Residential houses that are in the same location in housing but different rental prices and selling prices, so the level of capitalization will also be different. The possibility of this happening is caused by infrastructure factors in the housing, and also the possibility of capitalization rates will be different in other housing complexes in Medan Selayang District.

## **II. Theoretical Review**

### **2.1 Capitalization Rate**

Capitalization rate is the ratio between net income generated from a property and its property value. In the practice of valuing property with an income approach. The capitalization rate is used to convert the income generated by a property to property value. There are two methods commonly used to determine capitalization rates, namely direct capitalization and yield capitalization. The difference between the two is the assumption used. Direct capitalization assumes that the income received in the coming years is the same as reflected by income in the year of valuation. While the yield capitalization includes assumptions regarding factors such as the rate of return expected by investors. The remaining economic life, tenure and anticipation of depreciation / appreciation.

### **2.2 Infrastructure**

There are several definitions of infrastructure put forward by experts and researchers. But in language, in a large dictionary Indonesian language infrastructure can be interpreted as public facilities and infrastructure. Facilities in general can be known as public facilities such as hospitals, roads, bridges, sanitation, telephone and so on. Furthermore, in economics infrastructure is a manifestation of public capital formed from investments made by the government. Another definition of infrastructure, namely that infrastructure refers to physical capital facilities and includes an organizational framework, knowledge of technology that is important for community organizations and their economic development. Infrastructure includes laws, education systems and public health; water distribution and maintenance system; waste collection and waste, processing and disposal; public safety systems, such as fire and security; communication systems, transportation systems and public utilities (Pranoto, 2007).

According to The World Bank infrastructure can be divided into three parts, namely:

#### **1. Economic Infrastructure,**

Physical infrastructure needed to support economic activities, including public utilities, consisting of electricity, telecommunications, water, sanitation and gas. Public work includes roads, dams, canals, irrigation and drainage. And the transportation sector includes roads, rails, ports, airports and so on.

#### **2. Social Infrastructure,**

This infrastructure includes education, health, housing and recreation areas.

#### **3. Administrative Infrastructure,**

This infrastructure includes law enforcement, administrative control and administrative coordination.

Canning and Pedroni (2004: 11) state that infrastructure has the nature of externalities. Various infrastructures such as roads, education, health have positive externalities that can increase the productivity of all inputs in the production process. Positive externalities in infrastructure are in the form of overflow effects in the form of increasing production of companies without having to increase capital and labor inputs / also raising the level of technology. With the construction of infrastructure, the level of productivity of the company will increase. One of them that is seen is road construction.

### **2.3 Inter Variable Mechanisms of Research**

#### **a. Effect of Land Area on the Level of Capitalization of Housing Property**

Based on previous research, it is suspected that there is a positive effect between land area and the level of capitalization of residential property. It can be said that the wider the land will be the higher the capitalization rate of residential property in Medan Selayang District.

#### **b. Effect of Building Area on the Level of Capitalization of Housing Property**

Based on previous research, it is suspected that there is a positive effect between building area to the capitalization level of residential property. It can be said that the more the building area will increase the rate of capitalization of residential property in Medan Selayang District.

#### **c. Effect of Road Width on the Rate of Capitalization of Housing Properties**

The width of the road is the width of the road in front of the land and the building that is the main access. The wider the road in front of the property, the higher the rent value. Based on the description, it is assumed that there is a positive effect between the width of the road to the capitalization rate of the capitalization of residential property in Medan Selayang District.

#### **d. Effect of Distance to Sports Facilities on the Rate of Capitalization of Housing Properties**

It is suspected that there is a positive effect between the distance to sports facilities to the capitalization level of residential property. It can be said that the farther the distance to sports facilities will increase the capitalization rate of residential property in Medan Selayang District.

### **III. Materials and Method**

#### **3.1 Types of Research**

This type of research according to the level of exploration is quantitative descriptive. Sugiyono (2004) states that, explanation level research is the level of explanation. This study intends to explain the position of the variables studied and the relationship between one variable with another variable while descriptive research is research conducted to determine the value of independent variables, either one or more variables (independent) without making comparisons, or relationships with other variables. The nature of this research is descriptive explanatory. Sugiyono (2004) states that, explanatory research is a study that intends to explain the position of the variables studied and the relationship between one variable and another.

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

The research was conducted in several housing complexes in the Medan Selayang sub-district, Medan City. The study was conducted from May 2016 to July 2016.

#### **3.3 Population and Samples**

The population in this study were all residential houses in a housing complex in Medan Selayang District, Medan City.

Sampling is done by sampling techniques The target population is a population that has been determined according to research problems, and the results of research from the population want to be concluded (Target Population). The reason for using this technique is that the sample chosen is expected to represent the population so that it can provide acceptable results. The target population criteria sampled in this study are:

1. Residential house located in a housing complex.
2. Residential houses for sale or rent.

Given the limitations of the researcher, to facilitate research by not ignoring the research objectives, sample criteria and conditions in general, sampling for this study was carried out by considering the availability of data on the sale and rental of residential houses in each housing in Medan Selayang District, Medan City. The amount of data available for sale and lease obtained by researchers, then the number of samples in this study were 45 (forty five) samples taken from 9 (Nine) housing in Medan Selayang District, Medan City.

#### **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 (2004) 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**

### **4.1 Descriptive Analysis**

From the observation data totaling 45 respondents, it can be obtained an overview of the rental prices of each respondent, where most of the observation data as much as 18% have a rental price of Rp. 20,000,000, - / year with the number of 8 housing units, followed by 13% or as many as 6 housing units with a rental price of IDR 15,000,000, then 11% or as many as 5 housing units with a rental price of IDR 25,000,000 with the average rental price is Rp.23,700,000. The minimum rental price on observation data is Rp.8,500,000. The maximum rental price on observation data is Rp. 23,000,000, - and the average rental price is Rp.72,500,000, -

Most of the observation data as much as 11% have a house selling price of Rp. 700,000,000, - / year with the number of 5 housing units, followed by 9% or as many as 4 housing units with the selling price of Rp.800,000,000, - then the price of Rp.750,000,000, - and Rp.550,000,000, - 7% or 3 units each, with an average selling price of Rp.823,400,000. The minimum selling price on observation data is Rp.275,000,000. The maximum selling price on observation data is Rp. 2,860,000,000, - and the average selling price is Rp. 823,350,000.

From the observational data which amounted to 45 data on rental housing in the research housing complex, an illustration of the age of the building from each of the lowest building age data was 1 year, the highest building age in the research observation data was 15 years, and the average age of buildings in Research observation data is 7.5 years. From the observation data, which amounted to 45 data on rental houses in the research housing complex, it was found that most of the observation data had a land area of 120 M<sup>2</sup> with a total of 9 housing units (20%).

The next most observational data is with a land area of 160 M<sup>2</sup> and 200 M<sup>2</sup> with a total of 4 units, equivalent to 9%, then the land area of 110 M<sup>2</sup> as many as 3 units or a total of 7%. The average land area of the research observation data is 177 M<sup>2</sup>. Most observation data has a building area of 120 M<sup>2</sup> with a total of 12 housing units (27%). The next most observational data is with a building area of 144 M<sup>2</sup> with a total of 4 housing units (9%). and 104 M<sup>2</sup>, 150 M<sup>2</sup>, 160 M<sup>2</sup> and building area of 180 M<sup>2</sup> with a total of 3 units or equivalent to 7. The average building area of the research observation data is 158 M<sup>2</sup>. From the data it is known that most of the observation data with a width of 5 meters are 5 housing units with a percentage of 11%. Observation data with a width of 6 meters as many as 4 housing units with a percentage of 9%. Observation data with a width of 7 meters as many as 9 housing units with a percentage of 20%. Observation data with a width of 8 meters as many as 16 housing units with a percentage of 36%. Observation data with a width of 9 meters are 5 housing units with a percentage of 11%. Observation data with a width of 10 meters are 6 housing units with a percentage of 13%. The average road width of the research observation data is 7.5 (seven point five) meters.

Based on observations in the field that the average distance of respondent housing units to sports infrastructure is as far as 107 meters, the lowest distance of the research sample house to sports facilities in the housing complex is 15 meters far and the farthest distance between the research sample houses and sports facilities in housing research sample is as far as 245 meters.

Based on data that the average Capitalization Rate of respondent's housing units was 1.53% in the respondents in Setia Budi Vista housing, the highest Capitalization Rate rate was 5.50% for respondents in Griya Kenanga Sari housing, with an average Capitalization Rate of 3.04%.

### **4.2 Results and Discussion**

#### **a. Effect of Building Age on the Capitalization of Housing Property**

Building age is the age of the building since it was built until the year of the study, related to the magnitude of the physical shrinkage level of the building. According to Fullerton (1968), the economic life of residential buildings ranged from 40 years to 50 years.

In this study the results of the building age on the Capitalization of Housing Property in Medan Selayang District have a significant effect. This is confirmed by the Building Age regression result ( $X_1$ ) which has a prob value. t-statistic 0.005 is smaller than 0.05, it can be said that the Building Age effect ( $X_1$ ) directly affects the capitalization rate of rented house value (Y) significantly. This study supports the research stated by Kusuma (2014) that building age has a significant effect on the Capitalization Rate.

In a theoretical view, it is stated that the age of a certain period of building and certain utilization has a significant effect on the value of buildings, this occurs because the demand for residential buildings is indicated by the demand which in turn will be met with supply.

**b. Effect of Land Area on the Capitalization Rate of Housing Property**

In this study, the results show that the area of land on the Capitalization Rate of Housing Property in a research housing complex has no significant effect. This is confirmed by the results of Land Area ( $X_2$ ) having a prob value. t-statistic 0.300 greater than 0.05, it can be said that the effect of Land Area ( $X_2$ ) directly on the Capitalization Rate of Housing Property (Y) is not significant, this is because the more land leased interest from the lessee becomes less capitalization rate for the house.

This research contradicts the research stated by Kusuma (2014) that the land area has a significant effect on the Capitalization Rate.

**c. Effect of Building Area on the Capitalization Rate of Housing Property**

In this study, the results show that the building area of the Capitalization Rate of Housing Property in a research housing complex has no significant effect. This is confirmed by the results of Building Area ( $X_3$ ) having a prob value. t-statistic 0.207 greater than 0.05, it can be said that the effect of Building Area ( $X_3$ ) directly on the Capitalization Rate of Housing Property (Y) is not significant. .

This study contradicts the research stated by Arifin (2011) that the land area has a significant effect on the Capitalization Rate.

Based on observations in the field that the respondent did not make the building area as the basis for determining the rental house, but rather the average market price of the house where the respondent's house was located, the average bidding for the rental house at the research location came from young families who were newly married, so that a larger building area does not become a bargaining power over the rental price.

**d. Effect of Infrastructure Width of Road Against Capitalization Rate of Housing Property**

In this study, the results showed that the infrastructure width of the road to the Capitalization Rate of Housing Property in the research housing complex had a significant effect. This is confirmed by the results of the Road Width Infrastructure ( $X_4$ ) having a prob value. t-statistic 0.047 is smaller than 0.05, it can be said that the effect of Road Width Infrastructure ( $X_4$ ) directly on the Capitalization Rate of Housing Property (Y) is very significant.

This study supports the research stated by Bayuprima (2015) that road width has a significant effect on the Capitalization Rate.

Based on observations on the ground that a larger road width will affect the basis for determining rental houses and the level of market interest. The wider the access road to the house will further increase the rental rate and the capitalization of the house property.

**e. Effect of Sports Infrastructure on the Capitalization Rate of Housing Property**

In this study, the results show that the sports infrastructure towards the Capitalization Rate of Housing Property value leased in the research housing complex has a significant effect. This is confirmed by the results of Sports Infrastructure ( $X_5$ ) having a prob value. t-statistic 0.042 is smaller than 0.05, it can be said that the effect of Sports Infrastructure ( $X_5$ ) directly on the Capitalization Rate of Housing Property (Y) is very significant.

This study supports the research stated by Bayuprima (2015) that public facilities have a significant effect on the Capitalization Rate.

Literally the closeness of the house to sports facilities makes more value for the house, so that if a house close to sports facilities will increase the capitalization of residential property, in other words the interest in the housing market to housing close to sports facilities is very high.

**V. Conclusion and Suggestion**

**Conclusion**

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

1. Building Age significantly effect the Level of Capitalization of Housing Property in Medan Selayang District.
2. Land area does not significantly effect the Level of Capitalization of Housing Property in Medan Selayang District.
3. Building Size does not significantly effect the Level of Capitalization of Housing Property in Medan Selayang District
4. Road Width significantly effect the Level of Capitalization of Housing Property in Medan Selayang District.
5. Distance to Sports Facilities has a significant effect on the Level of Capitalization Housing Property in Medan Selayang District.

### **Suggestion**

Based on the results of the study, the suggestions that I can give as a researcher are as follows:

1. For the general public who are interested in renting houses in the area around the housing in Medan Selayang District, Medan City, it is recommended that the results of this study be considered
2. For the Appraisal profession can use a regression model produced in this study to be taken into consideration in assessing the value of renting a house to live in the area around the housing in Medan Selayang District, Medan City.
3. For future researchers who will conduct research in this research area it is recommended to use other variables as independent variables in factors that affect the level of capitalization of residential property.

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