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ANALYSIS OF FACTORS THAT AFFECT THE DETERMINATION OF THE RENTAL VALUE OF THE PLACEMENT OF AN AUTOMATED TELLER MACHINE IN MEDAN CITY

Erwandi Martinus Sembiring, Elisabet Siahaan, Parapat Gultom
Universitas Sumatera Utara Medan
Email: erwandisembiring@gmail.com

ABSTRACT

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This study analyzes the factors influencing the determination of rental values for Automated Teller Machine (ATM) placement in Medan City. The research is motivated by the need to optimize State Property (BMN) utilization and improve the efficiency of valuation practices, particularly through the adoption of a desktop-based valuation model (DKPS). Using a quantitative approach with multiple linear regression analysis, this study examines 38 ATM rental data points collected in 2024. The variables tested include distance to the Central Business District (CBD), transaction year, rental object type, ATM room type, rental period, accessibility, zoning designations, and road type. The results indicate that the regression model has strong explanatory power, with an R-squared value of 0.8542, meaning 85.42% of rental value variation is explained by the model. Simultaneously, all variables significantly affect rental value. However, partially, only rental period, ATM room type, and transaction year show significant influence at the 5% level. Specifically, longer rental periods and certain room types (e.g., ATM galleries) are associated with higher rental values. Meanwhile, variables such as distance to CBD, accessibility, and zoning factors do not show significant individual effects. These findings suggest that contractual aspects and space characteristics play a more dominant role than locational factors in determining ATM rental values in Medan. The study contributes to improving valuation accuracy and supports the implementation of a standardized, efficient, and objective DKPS-based assessment model for government appraisers.

Keywords: *ATM rental value, BMN utilization, multiple regression, valuation factors, Medan City*

INTRODUCTION

Optimization of State Property (BMN) is a problem that must be solved immediately through the acceleration of valuation transformation. Based on data from the 2019 Audited Central Government Financial Statements (LKPP), *the* total value of assets is IDR 10,467.53 trillion with a fixed asset value of IDR 5,949.59 trillion. From the results of the audited LKPP , the issue arises on how to optimize State Property with a value of Rp5,949.59 trillion. Based on data from the Financial Audit Agency, namely the Audit Report on the Central Government's Financial Statements from 2020 to 2023, it shows an upward trend in the revenue sector from the use of BMN from 2020 of IDR 513,738,203,370 to IDR 729,641,737,527, or an increase of 42.03% in the last 4 years. Although there has been an increase in revenue from the BMN utilization sector, it is still very small when compared to the *return on assets* which is only 0.01%. Answering the issue of how to optimize BMN, the Government has actually determined that in order to optimize BMN it is carried out through BMN utilization activities. Based on Government Regulation Number 27 of 2014 concerning the Management of State/Regional Property article 1 paragraph (10), utilization is the utilization of BMN that is not used for the implementation of the duties and functions of Ministries/Institutions and/or optimization of BMN by not changing the ownership status. Based on the Minister of Finance Regulation Number 115/PMK.06/2020 concerning the Utilization of State Property, one type of BMN utilization is BMN rental. According to (Riyanto, 2020) the rental scheme is the easiest to optimize BMN that has not been utilized and idle because the procedure is relatively simpler compared to other schemes.

One of the BMN rental objects that is often submitted for assessment is the rental of part of land and/or buildings. Based on data from the Medan State Property and Auction Service Office (KPKNL), the application for a partial lease assessment of land and/or buildings from January to In June 2024, there will be around 78 (seventy-eight) applications. Of the 78 (seventy-eight) applications, quite a lot of them are rented out and significant in value is the rental value of the placement of ATM machine rooms. According to (Tadesse, 2018) An Automated Teller Machine (ATM) is an automated electronic device designed to receive and withdraw cash using a plastic

card and, at the same time, to realize payments for various services, pay loans and perform other banking operations without the presence of a bank employee/bank teller.

It can be concluded that the application for an assessment of the rental value of the placement of ATM room machines is still quite a lot and significant in value compared to the rental value of part of the land for kiosks/canteens in Medan City. The use of banking services in North Sumatra Province is still relatively dominant. This is in accordance with data released by Bank Indonesia's Payment System and Financial Market Infrastructure (SPIP) Statistics (2024), ATM service users as of September 2024 reached 22.82 million people.

Based on the results of the pre-survey conducted by the author on Government Appraisers at KPKNL Medan in June 2024, empirical evidence was obtained that the assessment of the rental of the placement of ATM machine rooms still uses conventional methods, where government appraisers go down to carry out field surveys to the assessment object. This is contrary to the Decree of the Director General of State Assets Number 547/KN/2022 concerning the Preparation, Determination, and Use of the List of Components for Rent Valuation of State Property for the Placement of Automated Teller Machine and Technical Bulletin for Modeling Analysis in the context of the Preparation of the List of Rental Valuation Components (DKPS) of State Property, where government appraisers should use the DKPS model using *the desktop valuation* method to conduct an assessment of the rental of ATM machine placement space in the city of Medan.

The urgency of the research model to be carried out is first, to accelerate *the Standard Operating Procedure* (SOP) for the service of completing assessment applications, second, to reduce the bias of government appraisers in determining adjustments in the market approach to assessing the rental of the placement of ATM machine rooms, and third, to save the official travel budget of each work unit of the Ministry/Institution. In general, BMN rental assessment is carried out using a market approach with a market data comparison method. In this method, it is necessary to conduct a comparative analysis between the assessment object and the comparable comparative object using quantitative and qualitative techniques. Based on the Regulation of the Director General of State Assets Number 4 of 2021 concerning Technical Guidelines for Rent Valuation by Government Appraisers within the Directorate General of State Assets, one of the techniques for determining adjustments in the market approach is to use statistical analysis (*Appraisal Institute,* 2020). Statistical analysis is a combination of several economic theories, economic mathematics, economic statistics, and statistical mathematics which is hereinafter referred to as econometrics.

Appraisers can develop and apply a set of adjustment factors to control various adjustments by creating a simple linear regression model and then using the regression results as a means of inferences of size adjustments for properties from the range of data (*Appraisal Institute*, 2020). Instructions related to the use of regression analysis in market data comparison have been carried out by (Robey *et al*., 2019) using 12 variables which are a combination of quantitative and qualitative variables and research conducted by comparing *the Multiple Regression Analysis* (MRA) method with the conventional property valuation method to assess a residential building in Udupi, Karnataka, India by (Shetty *et al*., 2020).

Several studies that have been conducted to test what factors affect the rental value of the placement of ATM machine rooms have been carried out by (Riyanto, 2020) examining the factors that affect the determination of property rental values for the placement of Automated Teller Machines (ATMs) using multiple linear regression models. The results showed that the rental term and location had a positive effect on the rental value, while the distance of the property to the CBD, the number of residents, and the one-way traffic flow had a negative effect on the rental value of the placement of ATM machines in DKI Jakarta Province. Meanwhile, based on research conducted by (Ajitama and Asrihapsari, 2023), it is stated that the factor that affects the rental value of ATM space placement is the distance from ATM to *the Central Business District* (CBD) in the city of Surakarta. The latest research conducted by (Luthfi. F, 2023) identified a number of factors that affect the rental value of ATM machine room placement in Pekanbaru City, namely accessibility, position and layout, location and attractiveness, and environment and facilities. Among these four factors, accessibility is the most influential factor. (Lestari, A. E., & Muhasan, I., 2023) also conducted a similar study in Bukittinggi City stating that the most influential factors on the rental value of ATM machine space placement are location and accessibility factors. Research conducted by (Partoho, *et al*., 2024) states that the factors that affect the rental value of the placement of ATM machine rooms in Manado City are influenced by the factors of location, distance of CBD, and accessibility.

Based on the previous research, there are research gaps that have not been explored on the factors studied to find out whether there is a relationship between the factors tested, and how these factors affect the rental value of the placement of ATM machine rooms, especially in the city of Medan. According to (Riyanto, 2020), the occurrence of multicollinearity between factors or even the possibility of main factors affecting values that have not been considered is also a problem in itself. This is because previous research focused on their respective regions such as Pekanbaru City, Manado City, Surakarta City and Jakarta, so that a *population gap* arises. The research method used by the previous researchers was a descriptive quantitative method with multiple regression analysis using e-views *data processing instruments*. Therefore, it is considered necessary to conduct a test on aspects that affect the fair value of the rental of the placement of ATM room machines in the city of Medan, so that the value produced reflects fair market conditions. In addition, the factors that have been identified will be

created in a model called DKPS (List of Rental Valuation Components) that can make it easier for Government Appraisers to carry out desktop-based *valuation* assessments.

Based on the phenomenon and research gaps described in the background above, these things are the basis for the author to conduct a research entitled ***"Analysis of Factors Affecting the Determination of the Rental Value of the Placement of Automated Teller Machines (ATMs) in Medan City".***

Problem Formulation

In this regard, based on the phenomenon in the form of government appraisers at KPKNL Medan who still use conventional methods in carrying out the assessment of ATM machine placement rentals, and the research gap in the form of population gaps researched by previous researchers, it is considered necessary to analyze the factors that affect the rental value of ATM machine placement in Medan City to produce a fair value for accurate rental based on *desktop valuation* by using DKPS so as to help Government Appraisers at KPKNL Medan to improve the efficiency, effectiveness, and accountability of the results of ATM fair rent assessments.

Based on the descriptions in the background above, there are several research questions that will be answered in this study, which are as follows:

1. Does the Distance to the Center of Economic Activity/CBD have a significant effect on the rental value of ATM machine placement in Medan City?
2. Does the Transaction Year have a significant effect on the rental value of ATM machine placement in Medan City?
3. Does the Rental Object have a significant effect on the rental value of the placement of ATM machines in the city of Medan?
4. Does the Type of ATM Room have a significant effect on the rental value of ATM machine placement in Medan City?
5. Does the Rental Period have a significant effect on the rental value of ATM machine placement in Medan City?
6. Does accessibility have a significant effect on the rental value of ATM machine placement in Medan City?
7. Does the Shopping Center *Designation* have a significant effect on the rental value of ATM machine placement in Medan City?
8. Does Commercial Designation have a significant effect on the rental value of ATM machine placement in Medan City?
9. Does the Public Service Allocation have a significant effect on the rental value of ATM machine placement in Medan City?
10. Does the Road Type Designation have a significant effect on the rental value of ATM machine placement in Medan City?
11. Do these factors simultaneously have a significant effect on the placement of ATM machines in Medan City?

1.1 Problem Limitations

To focus the discussion and make the research more directed, several limitations of the problem are set as follows:

1. This study only examines the factors that affect the determination of the rental value of the placement of ATM machines located in the city of Medan.
2. The object of the research was limited to ATM machines placed outside bank office buildings (*off-site* ATMs) such as in shopping centers, hospitals, campuses, shops, and other strategic places.
3. The data analyzed is ATM placement rental data in the 2024 period to illustrate the current conditions.
4. The respondent is a Government Assessor at KPKNL Medan.
5. The study only analyzed ATMs from conventional commercial banks registered with the Financial Services Authority (OJK), excluding Islamic bank ATMs.

The above limitations are set to provide a clear focus on the research and ensure that the results of the research can make a significant contribution in determining the rental value of ATM placement in Medan City.

1.2 Research Objectives

Based on the formulation of the problems in this study that have been described, the author can formulate the objectives of this research in the form of the following statement:

1. To find out and analyze whether the Distance to the Center of Economic Activity/CBD has a significant effect on the rental value of the property that will be used for the placement of ATM machines in the city of Medan.
2. To find out and analyze whether the Transaction Year has a significant effect on the rental value of the property that will be used for the placement of ATM machines in the City of Medan.
3. To find out and analyze whether the Rental Object has a significant effect on the rental value of the property that will be used for the placement of ATM machines in the City of Medan.
4. To find out and analyze whether the Type of ATM Room has a significant effect on the rental value of the property that will be used for the placement of ATM machines in the city of Medan.

5. To find out and analyze whether the Rental Period has a significant effect on the rental value of the property that will be used for the placement of ATM machines in the City of Medan.
6. To find out and analyze whether Accessibility has a significant effect on the rental value of the property that will be used for the placement of ATM machines in the City of Medan.
7. To find out and analyze whether the Shopping Center *Designation* has a significant effect on the rental value of the property that will be used for the placement of ATM machines in Medan City.
8. To find out and analyze whether Commercial Designation has a significant effect on the rental value of the property that will be used for the placement of ATM machines in the city of Medan.
9. To find out and analyze whether the Public Service Allocation has a significant effect on the rental value of the property that will be used for the placement of ATM machines in the City of Medan.
10. To find out and analyze whether the Road Type Designation has a significant effect on the rental value of the property that will be used for the placement of ATM machines in Medan City.
11. To find out and analyze all of these factors simultaneously have a significant effect on the rental value of ATMs in Medan City.

1.3 Research Benefits

From the results of the research conducted, it is hoped that it can provide direct and indirect benefits. The benefits include:

a. For Government Appraisers, this study is expected to be one of the literature reviews that can be used as a reference to provide relevant information on the factors that affect the rental value of ATM machine placement.
b. For KPKNL Medan, this research is expected to be a consideration to use a DKPS-based assessment model that can replace conventional assessments, especially the rental value of ATM machine placement.
c. For academics, it is hoped that this research can be developed and refined again in terms of the scale of research to determine the fair value of rent for the determination of rental rates in other provinces throughout Indonesia.
d. For the author, this research is a life experience that is expected to increase the ability to think and write a work.
e. For banks, this study is expected to help provide a reference in determining a reasonable rental value for ATM placement, help optimize ATM rental costs, and support decision-making in the selection of new ATM locations, especially in Medan City.
f. For property owners/managers, this study is expected to help provide guidance in determining competitive rental values, help understand the factors that banks consider in choosing ATM locations, and increase the revenue potential from renting space for ATMs.

RESEARCH METHODS

Place and Time of Research

This research was conducted on the appraisers of the Medan KPKNL government, which is located at the State Finance Building Unit II Medan, Jl. Pangeran Diponegoro No.30A, Madras Hulu Village, Medan Polonia District, Medan City, North Sumatra Province. The time for this research was carried out for approximately 3 months, from October 2024 to December 2024.

Types and Properties of Research

The research method according to (Sugiyono, 2019) is a scientific way to obtain data with specific purposes and uses. In this study, the author used a quantitative research method. Quantitative research according to (Sugiyono, 2019) is a research method based on the philosophy of positivism, as a scientific method because it has fulfilled scientific principles concretely or empirically, objectively, measurably, rationally, and systematically. The analysis method in this study uses a descriptive quantitative approach that is carried out by describing or describing an object being studied through sample or population data, without intending to make generalizable conclusions The researcher chooses to use a qualitative descriptive design because the researcher wants to better describe the circumstances to be observed in the field in a more specific, transparent, and in-depth manner. The nature of this study is associative. Where, according to (Sugiyono, 2019) associative research is research that aims to find out the relationship between two or more variables, looking for roles, influences, and causal relationships, namely between independent variables and dependent variables. The author wants to know how the effect of the free variable on the bound variable in this study.

Population and Research Sample

Population

Population according to (Sugiyono, 2019) is a generelized area consisting of objects/subjects that have certain quantities and characteristics that are determined by the researcher to be studied and then conclusions are drawn. The data used is data on ATM rental transactions and/or offers in Medan City which is part of the work area of the Medan State Wealth and Auction Service Office. Data is obtained from the ATM's

owner bank through correspondence, interviews, and other secondary data collection, and followed up by conducting a direct survey to obtain primary data such as spatial data (coordinate points) and other physical data from the ATM that has been verified and tested for validity. So that the population of this study is all ATM rental data in Medan City in 2024.

Sample

According to (Sugiyono, 2019) a sample is a part of the number and characteristics that a population has when the population is large, and it is impossible for researchers to study everything in the population, for example due to limited funds, energy and time, so researchers can use samples taken from that population. Samples taken from the population as research must be truly representative. The sampling technique uses a saturated sampling technique. According to (Sugiyono, 2019) saturated sampling is a sample selection technique if all members of the population are used as samples. So in this study the research sample is the research population. The quality of a research is not determined by the size of the sample, but by the solidity of the theoretical foundations, the research design, and the quality of its implementation and processing.

Based on the Technical Bulletin of Assessment-01/KN.6/2020 concerning the Technical Bulletin of Modeling in the Context of the Preparation of the List of Components of the Assessment of State Property for the Placement of ATM Machines, further provisions are stipulated regarding the amount of data that must be used. The minimum amount of data required in the analysis process is 30 (thirty) data from the minimum number of large samples. There are several advantages of data processing in large samples, one of which is that the lack of 1 observation variable will not have serious consequences, but can make a noticeable difference in small samples (Wooldridge vide Gujarati and Porter, 2010). If a regency/city does not obtain a minimum amount of data, then a combined model is formed from several regencies/cities in the KPKNL work area. Based on the results of the pre-survey conducted by the population of 38 data, the number of samples is 38 data.

Prosed your Research

Research procedures are the steps used to collect data to answer research questions asked in the research/thesis proposal, with discussions such as: location and subject of the population/research sample, research design (preparation stage, implementation stage and reporting stage) and justification, operational definition, research instrument, instrument development process, data collection techniques and rationale reasons, and data analysis (Graduate School University of North Sumatra, 2024). In this research design, the author divides into three stages of research procedures, namely data collection techniques, types and sources of data, and operationalization of variables.

Data Collection Techniques

The data collection technique carried out was by studying documentation/secondary data to government assessors who had involvement in the survey of ATM rental databases in Medan City. Government assessors have the qualifications and authority to carry out ATM database surveys in Medan City as stipulated in the Individual Performance Index.

Data Types and Sources

Secondary Data

Secondary data is an indirect source where data is provided for researchers, the data is obtained from sources that can provide research support such as from literature and documentation (Sugiyono, 2019). Researchers obtain secondary data from previous research, articles, journals and books, internet websites, and other information related to the research. Secondary data is related to information from pre-existing sources such as documents, records or historical reports that are compiled in published and unpublished archives. Secondary data from this study was obtained from the list of ATM management from the Bank in 2024 in the Medan City area.

Variable Operations

A research variable is an attribute or trait or value of a person, object or activity that has certain variations that is determined by the researcher to be studied and drawn conclusions (Sugiyono, 2019). In other words, the research variable is an object of observation that plays a role in the research to be studied. The operationalization between variables is intended to see the types and indicators of each variable in this study. In addition, operationalization is used to determine the measurement scale of each variable, so that hypothesis testing using tools can be carried out appropriately. The operationalization between variables in the quantitative approach with dependent variables in the form of the rental value of ATM machine placement in Medan City in this study can be seen in the table below as follows:

Table 1. Operationalization of Research Variables

Variable Type	Variable Definition	Indicators	Scale
Distance to Economic Activity Center/ CBD (X1)	The distance to the center of economic activity or *Central Business District* (CBD) is the closest distance to an imaginary flat obtained from the calculation of ATM rental objects and CBD coordinates. If there is more than one CBD, the calculation of the CBD distance is done by calculating the imaginary distance over the nearest CBD.	The distance from the ATM to the nearest CBD can be measured in Meters (M)	Ratio
Year of Transaction (X2)	Transaction year, is the year in which the rental object is transacted.	The year the rental analysis of the placement of ATM machines is carried out minus the year the ATM rental contract begins. (Year)	Ratio
Rental objects (D1)	The rental object can be in the form of partial rental of vacant land or partial rental of land and buildings which are types of objects rented by the bank.	0= Partial Land 1= Part of Land and Buildings	Nominal
ATM Room Type (D2)	The type of ATM room, which is the type of space used by the ATM, can be a single ATM or a gallery ATM	0= Single ATM 1= ATM Gallery	Nominal
Rental period (X3)	Rental period, is the number of years in which the ATM rental transaction takes place	The lease period of part of the land or part of the land and buildings used as the placement of ATM machines. (Year)	Ratio
Accessibility (D3)	Accessibility is the ease of reaching the ATM location.	0= Poor Accessibility 1= Good accessibility	Nominal
Shopping *center* allocation (D4)	The allocation of the area around the land/space for the placement of ATM machines, in this case is specifically for the shopping center area.	0= Not in the shopping center allocation area 1= In the shopping center allocation area	Nominal
Commercial provisions (D5)	The allocation of areas around the land/space for the placement of ATM machines, in this case is specifically for commercial areas other than shopping centers and offices.	0= Not in commercial allocation areas 1= In commercial allocation areas	Nominal
Public Service Designation (D6)	The designation of the area around the land/space for the placement of ATM machines, in this case is specifically for public service areas such as hospitals, government offices, police stations.	0= Not in the public service area 1= In the area of public service designation	Nominal
Main road type (D7)	The main type of road is an arterial or collector road	0= Arterial Road 1= Collector's Road	Nominal

Source: BTA-01/KN/06/2020

Data Analysis

Data Analysis Techniques

In this study, the author uses quantitative data analysis techniques using descriptive statistics by describing or describing the data that has been collected as it is or by not making generalized or generalized conclusions. According to Arikunto (2013), descriptive statistical analysis can be used if the researcher only wants to describe the sample data, and does not want to make conclusions that apply to the population where the sample was taken.

The analysis was carried out by conducting multiple regression analysis based on BTA-01/KN.6/2020, namely the Technical Bulletin of Modeling in the Context of the Preparation of the List of Components of Assessment of State Property Leases for the Placement of ATM Machines (Independent Teller Machines) published

by the Directorate of Assessment. The tool used in this study to perform multiple linear regression was *E-views* 12. Several tests such as normality tests, heteroscedasity tests, autocorrelation tests, and multicollinearity tests were used by the authors in accordance with general standards/provisions regarding data that can be processed in each test.

Research Model

Multiple Regression Analysis is increasingly being applied in property valuation because it has less bias and human error. The method is widely accepted by practitioners and academics because this methodology has been used for a long time (Zurada *et al*., 2011). MRA relies on econometric modeling, which replicates fluctuations in market value by taking into account market behavior based on a probability framework (Chaphalkar N B and Dhatunde M, 2015). Unknown parameters in the model can be estimated using regression analysis. Various factors influence the valuation of a property, and each factor has a different degree of influence on the value of the property (Chaphalkar N. B. and Dhatunde M., 2019)

Based on the literature and previous research, the author can formulate the following research model:

Information:

$$Y = \alpha + \beta1(X1) + \beta2(X2) + \beta3(X3) + \beta1(D1) + \beta2(D2) + \beta3(D3) + \beta4(D4) + \beta5(D5) + \beta6(D6) + \beta7(D7) + e$$

Y	:	Rental value of ATM machine placement in Medan City
α	:	Constant
β	:	Koeffisien Regression
X1	:	Distance to Economic Activity Center/CBD
X2	:	Year of Transaction
X3	:	Rental Period
D1	:	Rental Objects
D2	:	Types of ATM Rooms
D3	:	Accessibility
D4	:	Shopping Center *Allocation*
D5	:	Commercial Provisions
D6	:	Public Service Designation
D7	:	Road Type
e	:	It is an error or the influence of other variables that cannot be explained in the model

RESULTS AND DISCUSSION

Normality Test

The normality test is carried out to find out whether the residual distribution is normal or not, because good data to be used in regression analysis is data that has a normal distribution. If the significance value is > 0.05 then the data is normally distributed, and if the significance value is <0.05 then the data is not normally distributed, the test tool uses *e-views* 12.

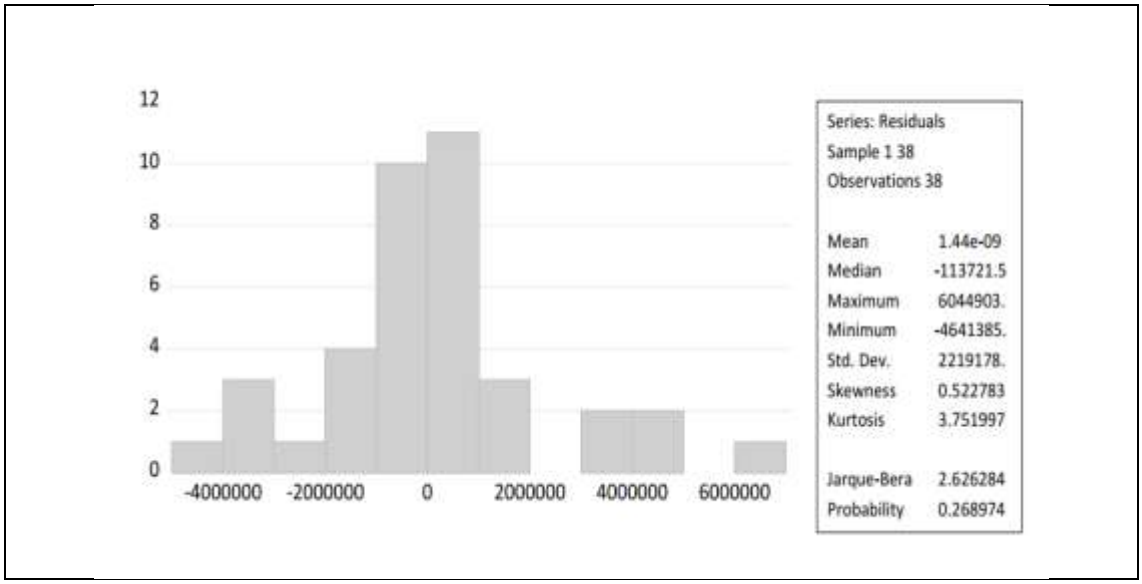

Figure 1. Normality Test

Based on Figure 4.1 above, the results of *the Jarque-Bera* normality test obtained a probability value of 0.28974. The significance value is greater than the set threshold of >0.05. This shows that the model is distributed normally.

Autocorrelation Test

The autocorrelation test is a relationship that occurs between the residual of one observation and the observation of another in the regression model. This test is used to find out whether or not there is a serial correlation in the regression and/or to find out whether there is an autocorrelation between the variables observed in the model. The autocorrelation test in this study uses the LM Test, where if the probability number is >0.05, there is no autocorrelation. The Lagrange Multiplier test is based on the concept of parameter limitation testing in statistical models. The goal was to identify whether the addition of parameters or complexity in the model significantly improved the model's fit to the data. In panel data analysis, LM tests help determine whether variation between individuals or time is significant enough to require a randomized effect model. The interpretation of the results *of the Lagrange Multiplier* (LM) test is as follows, where the hypothesis proposed in the LM test is: (1) H0: there is no autocorrelation, (2) Ha: there is autocorrelation. If the p value of the Chi-Square Prob value (2) > 0.05 then H0 is accepted (no autocorrelation).

Figure 2. Autocorrelation Test

Based on Figure 4.2 above, the results of the *Breusch-Godfrey Serial Correlation LM Test* autocorrelation test obtained *a Prob.Chi-Square* value (2) of 0.6806. This shows that the *Prob Chi-Square* value (2) of the model is greater than 0.05, so it passes the serial autocorrelation test.

1. Heterogeneity Test

Heteroscedasticity tests were performed to determine the occurrence of variance from residual variance for all observations in the linear regression model. If there is a difference in variance from residual from one observation to another then it is called heteroscedasticity, on the other hand, if there is no difference in variance from residual to one observation to another, it is called homoscedasticity. In the heteroscedasticity test, it is assumed that if the significance value of <0.05 is concluded that heteroscedasticity occurs, then if the significance value of >0.05 is concluded that heteroscedasticity occurs. Heteroscedasticity occurs when the perturbation variable has a different variant for each observation.

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.258344	Prob. F(2,25)	0.7744
Obs*R-squared	0.769463	Prob. Chi-Square(2)	0.6806

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 04/11/25 Time: 13:28
Sample: 1 38
Included observations: 38
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	176404.6	3968230.	0.044454	0.9649
JARAKCBD	-33.67404	529.3359	-0.063616	0.9498
TAHUNSEWA	-85828.08	619233.9	-0.138604	0.8909
OBJEKSEWA	-89248.10	2269948.	-0.039317	0.9689
JENISRUANG	-229732.9	1741859.	-0.131889	0.8961
PERIODE	112403.6	1002302.	0.112146	0.9116
AKSESBILITAS	40862.07	1231420.	0.033183	0.9738
SHOPPINGCENTER	111070.0	2042647.	0.054376	0.9571
KOMERSIAL	114279.6	1504141.	0.075977	0.9400
PELAYANANPUBLIK	56872.76	1390555.	0.040899	0.9677
JENISJALAN	-85155.45	1105750.	-0.077011	0.9392
RESID(-1)	-0.118716	0.214019	-0.554698	0.5840
RESID(-2)	-0.107512	0.209020	-0.514361	0.6115

R-squared	0.020249	Mean dependent var	1.44E-09
Adjusted R-squared	-0.450031	S.D. dependent var	2219178.
S.E. of regression	2672273.	Akaike info criterion	32.70026
Sum squared resid	1.79E+14	Schwarz criterion	33.26048
Log likelihood	-608.3049	Hannan-Quinn criter.	32.89958
F-statistic	0.043057	Durbin-Watson stat	1.996056
Prob(F-statistic)	0.999999		

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	2.125735	Prob. F(10,27)	0.0582
Obs*R-squared	16.73899	Prob. Chi-Square(10)	0.0803
Scaled explained SS	11.62806	Prob. Chi-Square(10)	0.3107

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 04/11/25 Time: 13:31
Sample: 1 38
Included observations: 38

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.00E+13	1.04E+13	-1.913251	0.0664
JARAKCBD	2.10E+08	1.39E+09	0.150961	0.8811
TAHUNSEWA	3.98E+12	1.60E+12	2.487179	0.0194
OBJEKSEWA	6.15E+12	5.98E+12	1.027834	0.3131
JENISRUANG	4.27E+12	4.51E+12	0.946350	0.3524
PERIODE	3.38E+12	2.62E+12	1.293453	0.2068
AKSESBILITAS	-6.93E+12	3.22E+12	-2.151854	0.0405
SHOPPINGCENTER	-6.38E+12	5.31E+12	-1.202933	0.2394
KOMERSIAL	-2.04E+12	3.95E+12	-0.516421	0.6098
PELAYANANPUBLIK	-6.96E+11	3.66E+12	-0.190129	0.8506
JENISJALAN	6.19E+12	2.90E+12	2.136917	0.0418

R-squared	0.440500	Mean dependent var	4.80E+12
Adjusted R-squared	0.233277	S.D. dependent var	8.06E+12
S.E. of regression	7.06E+12	Akaike info criterion	62.24569
Sum squared resid	1.35E+27	Schwarz criterion	62.71973
Log likelihood	-1171.668	Hannan-Quinn criter.	62.41435
F-statistic	2.125735	Durbin-Watson stat	2.098459
Prob(F-statistic)	0.058169		

Figure 4.3 Heteroscedasticity Test

Based on Figure 4.3 above, a *Prob* (*F-Statistic*) result of 0.0582 was obtained, meaning that the value is greater than 0.05 so that there is no heteroscedasticity in the model.

1. Multicollinearity Test

   The Multicollinearity test is used to test whether there is a correlation between independent variables in the regression model. Multicollinearity is a state that shows that one or more explanatory variables can be expressed as a linear combination of other explanatory variables. The Multicollinearity test was carried out with the Variance Inflation Factors Test. If the test results obtained are Centered VIF < 10, it can be concluded that the data passed the Multicollinearity test.

Variance Inflation Factors
Date: 04/11/25 Time: 13:30
Sample: 1 38
Included observations: 38

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	1.48E+13	83.27894	NA
JARAKCBD	262183.5	5.618094	1.707174
TAHUNSEWA	3.48E+11	32.55949	3.660503
OBJEKSEWA	4.84E+12	25.12589	1.983623
JENISRUANG	2.76E+12	4.493087	3.192456
PERIODE	9.26E+11	22.50990	1.647066
AKSESBILITAS	1.40E+12	4.989071	1.838079
SHOPPINGCENTER	3.81E+12	6.777706	4.637378
KOMERSIAL	2.11E+12	9.695240	1.785965
PELAYANANPUBLIK	1.82E+12	5.652668	2.528825
JENISJALAN	1.14E+12	4.042622	1.489387

Figure 4.4 Multicollinearity Test

Based on Figure 4.4 above, the Multicollinearity test was carried out with the Variance inflation factors test and based on the test results, a *Centered* VIF value was obtained < 10 so that it can be concluded that the data passed the Multicollinearity test.

2. Linearity Test

The linearity test was performed to determine whether there is a significant linear relationship between variables in the regression model. For linear regression, data is needed in the form of an independent variable (X) that has a linear relationship with the bound variable (Y). A model is declared to have passed the Linearity test if the results of *the Ramsey Reset Test* result in a *Probability F-statistic* value of > 0.05.

Figure 4.5 Linearity Test

Based on Figure 4.5 above, a Prob (*F-Statistic*) value of 0.3263 > 0.05 was obtained, indicating that the model passed the linearity test.

Hypothesis Testing

Ramsey RESET Test
Equation: UNTITLED
Omitted Variables: Squares of fitted values
Specification: NILAISEWA C JARAKCBD TAHUNSEWA OBJEKSEWA JENISRUANG PERIODE AKSESBILITAS SHOPPINGCENTER KOMERSIAL PELAYANANPUBLIK JENISJALAN

	Value	df	Probability
t-statistic	1.000454	26	0.3263
F-statistic	1.000907	(1, 26)	0.3263
Likelihood ratio	1.435409	1	0.2309

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	6.75E+12	1	6.75E+12
Restricted SSR	1.82E+14	27	6.75E+12
Unrestricted SSR	1.75E+14	26	6.75E+12

LR test summary:

	Value
Restricted LogL	-608.6936
Unrestricted LogL	-607.9759

Unrestricted Test Equation:
Dependent Variable: NILAISEWA
Method: Least Squares
Date: 04/11/25 Time: 13:31
Sample: 1 38
Included observations: 38

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-9680346.	9991917.	-0.968818	0.3416
JARAKCBD	522.1003	559.3995	0.933323	0.3592
TAHUNSEWA	6968724.	3244714.	2.147716	0.0412
OBJEKSEWA	-1412461.	2204771.	-0.640638	0.5274
JENISRUANG	7426900.	3625865.	2.048311	0.0508
PERIODE	3126478.	1525768.	2.049117	0.0507
AKSESBILITAS	-1745962.	1401292.	-1.245966	0.2239
SHOPPINGCENTER	-4080818.	2827459.	-1.443281	0.1609
KOMERSIAL	3205161.	2171941.	1.475713	0.1520
PELAYANANPUBLIK	-1950055.	1621249.	-1.202811	0.2399
JENISJALAN	76347.98	1088628.	0.070132	0.9446
FITTED^2	-1.73E-08	1.73E-08	-1.000454	0.3263

R-squared	0.859612	Mean dependent var	18089042
Adjusted R-squared	0.800218	S.D. dependent var	5811997.
S.E. of regression	2597789.	Akaike info criterion	32.63031
Sum squared resid	1.75E+14	Schwarz criterion	33.14744
Log likelihood	-607.9759	Hannan-Quinn criter.	32.81430
F-statistic	14.47288	Durbin-Watson stat	2.237803
Prob(F-statistic)	0.000000		

Simultaneous Significance Test (Statistical Test F)

The F test was carried out to see the influence of independent variables on the bound variables as a whole (Riyanto, 2020). For this F test, the following hypothesis is used:H0 : β1 = β2 = ... = βk = 0 (no effect)H0 : β1 = β0 (no effect) for l = 1 ... k.

The F test is performed by comparing the value of the F-count with the F-table. If F-calculates > F-table then H0 is rejected, meaning that the independent variables together affect the dependent variables. If F- calculates ≤ F-table, then it fails to reject H0, meaning that the model is not significant overall.

Dependent Variable: NILAISEWA
Method: Least Squares
Date: 04/11/25 Time: 13:28
Sample: 1 38
Included observations: 38

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-453977.4	3845802.	-0.118045	0.9069
JARAKCBD	296.7138	512.0386	0.579476	0.5671
TAHUNSEWA	3776587.	589646.1	6.404838	0.0000
OBJEKSEWA	-1284413.	2201090.	-0.583535	0.5644
JENISRUANG	4202026.	1660302.	2.530880	0.0175
PERIODE	1942007.	962445.1	2.017785	0.0537
AKSESBILITAS	-996788.5	1184446.	-0.841565	0.4074
SHOPPINGCENTER	-2034674.	1952369.	-1.042157	0.3066
KOMERSIAL	1589890.	1452812.	1.094353	0.2835
PELAYANANPUBLIK	-1048580.	1347809.	-0.777989	0.4433
JENISJALAN	296393.0	1066196.	0.277991	0.7831

R-squared	0.854208	Mean dependent var	18089042
Adjusted R-squared	0.800211	S.D. dependent var	5811997.
S.E. of regression	2597832.	Akaike info criterion	32.61545
Sum squared resid	1.82E+14	Schwarz criterion	33.08949
Log likelihood	-608.6936	Hannan-Quinn criter.	32.78411
F-statistic	15.81954	Durbin-Watson stat	2.170375
Prob(F-statistic)	0.000000		

Figure 4.6 Rental Value Model

Based on Figure 4.6 above, information can be obtained that in terms of fit the R-squared value of 0.8542 shows that it means that 85.42% of the variation in *rental value* can be explained by independent variables in the model. The rest (14.58%) was explained by factors other than the model. In line with this, the adjusted R-squared value is 0.8002 This value indicates that the model remains strong even though it has been corrected against the number of variables. This value > 0.75 → interpretation: a **strong and fit** model. Related to simultaneous test **F-statistic = 15.82; Prob(F) = 0.000,** This result is significant at α = 0.05 indicating that **simultaneously**, independent variables **have a significant effect on the rental value.**

Partial Influence Significance Test (t-test)

The t-test is used to partially test each variable. The results of the t-test can be seen in the table of coefficients in the sig (*significance) column*. If the probability of t-value or significance ≤ 0.05, then it can be said that there is an influence between the independent variable on the partially bound variable. However, if the probability of t-value or significance > 0.05, then it can be said that there is no significant influence between each of the independent variables on the bound variable.

Based on Figure 4.6 on page 49, it is found that there are only 3 independent variables that have a p-value of <0.05 as follows:

Variable	Coefficient	*p-value*	interpretation
Rental Years	3.776.587	0.00	Each addition of 1 year of the lease contract will increase the rental value by ±3.78 million (ceteris paribus).
Room Type	4.202.026	0.01	Certain types of spaces (perhaps business spaces) tend to have a higher rental value of around ±4.2 million compared to other categories.
Era	1.942.007	0.05	Marginal significance (at the 5% limit), indicates that the rental time

			period affects the rental value of around ±1.94 million.

Table 4.2 *P-value*

CONCLUSION

Based on the results of multiple linear regression analysis of 38 observation units, this study found that there are several variables that significantly affect the amount of rental value. The model used shows a strong level of goodness of fit with a determination coefficient value (R-squared) of 0.8542, which indicates that 85.42% of the variation in rental value can be explained by independent variables included in the model.

Partially, the variables LEASE YEAR, TYPE, and PERIOD were proven to have a significant effect on the rental value at a significance level of 5%. This shows that the aspect of rental time and the characteristics of the rental space have a dominant influence in determining the rental price. In contrast, variables such as SPACING, ACCESSIBILITY, SHOPPING CENTER, COMMERCIAL, PUBLIC SERVICE, and street art did not show a statistically significant influence in this model, indicating that spatial and accessibility factors have not directly affected rental values in the context of the analyzed data.

Thus, it can be concluded that the main determinant in the formation of rental value relies more on contractual aspects and spatial functions, rather than solely on the location or existence of surrounding facilities.

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