The Impact of Market Activity on Property Valuations in Digital Real Estate Through a Quantitative Analysis of Bidding and Sales Dynamics

Jeffri Prayitno Bangkit Saputra[1,*], Nadya Awalia Putri[2]

[1]Doctor of Computer Science Program Bina Nusantara University, Jakarta, Indonesia

[2]Magister of Computer Science, Universitas Amikom Purwokerto, Purwokerto, Indonesia

ABSTRACT

This study investigates the impact of market activities, specifically the number of bids and sales, on property prices in digital real estate markets. With the rise of virtual environments and digital assets, understanding the factors that drive property valuations in these markets has become increasingly important. Utilizing a dataset of 2,000 property transactions, this research employs correlation and regression analyses to explore how competitive bidding and sales frequency influence prices. The results indicate a significant positive correlation (r=0.38r = 0.38r=0.38) between the number of bids a property receives and its final sales price, suggesting that properties attracting more bids are perceived as more valuable, leading to higher prices. The regression analysis further supports this, showing that each additional bid is associated with an increase of 6.63×10216.63 \times 10^{21}6.63×1021 in the sales price (p<0.001p < 0.001p<0.001). Conversely, the study finds a negative relationship between the frequency of sales and property prices, with a correlation of r=0.02r = 0.02r=0.02 and a regression coefficient of –4.85×1021-4.85 \times 10^{21}–4.85×1021 (p<0.001p < 0.001p<0.001), indicating that properties traded more frequently tend to decrease in value, possibly due to market saturation or perceptions of diminished uniqueness. The trend analysis reveals considerable volatility in market activities and property prices over time, reflecting the dynamic and evolving nature of digital real estate markets. These findings have important implications for investors, platform operators, and researchers. Investors should monitor bidding activity as an indicator of property value while being cautious of properties with high turnover rates. Platform operators are encouraged to manage market dynamics carefully to maintain a stable investment environment. This study underscores the importance of market activity in determining digital property prices and highlights the need for continued research into the unique factors influencing valuations in virtual environments.

Keywords Digital Real Estate Markets, Property Valuation, Market Activity, Competitive Bidding, Virtual Property Prices

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Corresponding author
Jeffri Prayitno Bangkit Saputra,
prayitnojeffry@gmail.com

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INTRODUCTION

The rapid development of digital and virtual environments has led to the emergence of digital real estate markets, where virtual properties are bought, sold, and traded similarly to physical real estate. These markets, though still in their infancy, have shown significant growth, attracting investors, developers, and enthusiasts who see the potential for substantial returns in these virtual spaces [1]. As with any emerging market, understanding the factors that influence property valuations is crucial for participants seeking to maximize their

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investments and navigate the market effectively [2].

In traditional real estate markets, property values are influenced by a variety of factors, including location, demand, economic conditions, and the physical characteristics of the property [3]. However, the dynamics of digital property markets introduce new variables that can significantly impact prices. Unlike physical real estate, digital properties do not have tangible attributes, and their value is often derived from factors such as scarcity, location within the virtual world, the presence of desirable features, and market sentiment. Additionally, the ease of trading digital assets introduces unique market dynamics that differ from those observed in physical real estate [4].

One of the key aspects of digital real estate markets is market activity, which includes the number of bids a property receives and the frequency with which it is sold. Bidding activity, in particular, can be a strong indicator of a property's perceived value, as properties that attract more bids are often seen as more desirable. Similarly, the number of times a property is sold could reflect its liquidity or popularity within the market. However, frequent sales might also indicate a property's diminishing value or market saturation, where an oversupply of properties leads to reduced prices [5].

Despite the growing interest in digital real estate, there is a limited understanding of how these market activities specifically influence property prices. Most studies and analyses have focused on broader trends in digital asset markets, with little attention given to the micro-level dynamics of individual property transactions [6]. This study seeks to fill this gap by investigating the relationship between market activities—specifically, bidding and sales frequency—and property prices in digital real estate markets. By analyzing a dataset of 2,000 property transactions, this research aims to provide insights into the factors that drive property valuations in virtual environments.

The findings from this study have important implications for various stakeholders in the digital real estate market. For investors, understanding the drivers of property prices is crucial for making informed decisions and maximizing returns [7]. For platform operators, insights into market dynamics can help in managing and stabilizing the market, ensuring a sustainable and attractive environment for participants. Moreover, this study contributes to the broader body of knowledge on digital asset markets, offering a detailed analysis of the specific factors that influence property prices in these unique and evolving spaces [8].

This research aims to shed light on the key factors that influence property prices in digital real estate markets, with a particular focus on market activity. By exploring the relationships between bidding, sales frequency, and prices, this study provides valuable insights that can guide both academic research and practical decision-making in the growing field of digital real estate [9].

Literature Review

The Emergence of Digital Real Estate Markets

The concept of digital real estate has gained significant traction with the advent of blockchain technology and the increasing popularity of virtual worlds such as Decentraland, Cryptovoxels, and The Sandbox. These platforms allow users to purchase, develop, and trade parcels of virtual land, often using cryptocurrency.

Digital real estate markets, while relatively new, have demonstrated substantial growth, with some virtual properties being sold for millions of dollars [10]. The allure of these markets lies in the potential for high returns on investment, driven by the scarcity of virtual land and the expanding user base of these platforms.

Research on digital real estate is still in its early stages, with much of the existing literature focusing on the technological aspects of blockchain and the economic potential of virtual worlds. Dowling [11] highlights the role of non-fungible tokens (NFTs) in establishing ownership and transferability of digital assets, which has been a critical factor in the rise of digital real estate markets. Additionally, studies by Serrano [12] and Ante [13] have explored the economic implications of virtual property ownership, noting that the value of digital real estate is influenced by factors such as platform popularity, user engagement, and the development of virtual infrastructure.

Factors Influencing Property Prices in Digital Markets

The determinants of property prices in digital markets differ significantly from those in traditional real estate markets. While location, physical characteristics, and economic conditions are central to the valuation of physical properties, digital real estate values are primarily driven by factors such as scarcity, the perceived utility of the land, and market sentiment. According to Dowling [14], the scarcity of virtual land is a major driver of price increases, as the limited supply of land on platforms like Decentraland creates a high demand among investors and users seeking to establish a presence in these digital spaces.

Market sentiment, driven by speculative behavior, also plays a crucial role in shaping property prices in digital markets. In their study on cryptocurrency and digital asset markets, Dowling [15] found that investor sentiment can significantly impact the prices of digital assets, including virtual properties. The speculative nature of these markets often leads to price volatility, with periods of rapid price increases followed by sharp declines. This volatility is further compounded by the nascent and evolving nature of digital real estate markets, where regulatory frameworks and market structures are still being developed.

Bidding activity is another key factor influencing property prices. Properties that attract a high number of bids are often perceived as more desirable, leading to higher final sales prices. This dynamic is similar to traditional real estate markets, where competitive bidding can drive up property values. Research by Lin and Wu [16] on auction dynamics in digital markets suggests that the number of bids received by a property is a strong indicator of its perceived value, with higher bid counts correlating with higher sales prices.

Market Activity and Its Impact on Property Valuation

The relationship between market activity and property prices has been extensively studied in traditional real estate markets, where factors such as transaction volume, buyer competition, and market liquidity are known to influence property values. However, the impact of these factors in digital real estate markets is less well understood. In traditional markets, high transaction volumes can either signal a healthy, active market or indicate an oversupply of properties, leading to price declines [17]. Similarly, the frequency of sales, or turnover rate, can impact property values, with high turnover rates sometimes being associated with lower prices due to market saturation.

In the context of digital real estate, the frequency of sales may also reflect the liquidity of the market and the desirability of specific properties. According to Saengchote [18], properties that are frequently traded in virtual markets may be viewed as either highly liquid assets or as properties that lack long-term value, depending on the context. This dual interpretation of sales frequency underscores the complexity of digital real estate valuation and highlights the need for further research into the specific factors that drive property prices in these markets.

Bidding behavior in digital markets also warrants further investigation. As highlighted by Lin and Wu [16], competitive bidding is often a key driver of price increases in digital property markets. However, the relationship between bidding activity and final sales prices can vary depending on the platform, the specific property, and the broader market conditions. For instance, in highly speculative markets, a property may receive numerous bids, driving up the price, only to see its value decline shortly after the transaction is completed due to market corrections.

While the existing literature provides valuable insights into the dynamics of digital real estate markets, several gaps remain. First, there is a lack of comprehensive studies that specifically analyze the impact of market activity—such as bidding and sales frequency—on property prices. Most existing studies focus on broader market trends or the technological underpinnings of digital real estate but do not delve into the micro-level dynamics of individual transactions. Additionally, the role of external factors, such as platform developments, user engagement, and broader economic conditions, in shaping digital property values is not well understood. As digital real estate markets continue to grow and evolve, understanding these factors will be crucial for both market participants and researchers.

Method

Research Design

This study adopts a quantitative research design aimed at investigating the intricate relationship between market activities—specifically bidding behavior and sales frequency—and property prices within digital real estate markets. The choice of a quantitative approach is justified by the need to analyze numerical data, identify statistical relationships, and generate generalizable insights that can inform broader market understanding. By employing statistical techniques such as correlation and regression analysis, the research seeks to uncover the extent to which these market activities influence the valuation of digital properties. The research is meticulously structured to address core questions surrounding the impact of bidding and sales activities on property prices, and to identify trends that emerge over time. The dataset, consisting of 2,000 property transactions from a leading digital real estate platform, serves as the foundation for this analysis, offering a representative sample of market behaviors.

Data Collection

Data Source. The data for this study was sourced from a prominent digital real estate platform, known for its active user base and substantial transaction history. This platform allows users to engage in various activities, including buying, selling, and trading virtual properties, which provides a rich dataset for

in-depth analysis. The platform was selected due to its market significance and the availability of comprehensive transactional data, which is crucial for understanding the dynamics of digital property valuation.

Dataset Description. The dataset analyzed in this study comprises 2,000 distinct property transactions, each representing a unique sale within the digital market. Key variables in the dataset include the sales price, bids count, and sales count, among others. The sales price variable represents the final amount at which each property was sold, expressed in the platform's native cryptocurrency. The bids count variable reflects the total number of bids placed on a property before its final sale, serving as an indicator of competitive interest. The sales count variable indicates the number of times a property has been sold, providing insight into its turnover rate and potential market liquidity. Additionally, the dataset includes a timestamp for each transaction, which is used for analyzing trends over time. The dataset also contains other property attributes, such as location within the digital environment and proximity to significant landmarks, which, while recorded, are not the primary focus of this study.

Data Preprocessing. Prior to conducting the analysis, the dataset underwent rigorous preprocessing to ensure its quality and consistency. The first step involved outlier detection and removal. Transactions with sales prices or bid counts that were significantly outside the normal range were identified as potential outliers. These outliers were carefully examined to determine whether they represented errors or extreme but valid market behaviors. Where necessary, outliers were removed to prevent them from skewing the results. Next, the dataset was checked for missing values in critical variables. Missing data points were addressed using appropriate imputation techniques, or, in cases where imputation was not suitable, the affected transactions were excluded from the analysis. Finally, data transformation was performed on relevant variables. For example, the timestamp was converted into a standard datetime format to facilitate trend analysis, and the sales price was standardized by adjusting for fluctuations in cryptocurrency value over time. This ensured that prices were comparable across different periods, allowing for more accurate analysis.

Data Analysis

Descriptive Statistics. The analysis began with the computation of descriptive statistics for the key variables: sales price, bids count, and sales count. These statistics included measures of central tendency, such as the mean (x¯\bar{x}x¯) and median, as well as measures of dispersion, such as the standard deviation (σ\sigmaσ) and range. Additionally, the distribution of these variables was assessed using skewness and kurtosis. Descriptive statistics provided a comprehensive overview of the dataset, revealing general trends in market activity and property prices. This initial analysis was critical for understanding the distribution of data and identifying any anomalies or patterns that could influence the results. Furthermore, the descriptive analysis served as a foundation for more complex statistical analyses, guiding the exploration of relationships between variables and helping to ensure that subsequent findings were grounded in a thorough understanding of the data.

Correlation Analysis. Following the descriptive analysis, a correlation analysis

was conducted to explore the relationships between the number of bids, sales frequency, and property prices. Pearson's correlation coefficient (rrr) was used to assess the strength and direction of the linear relationships between these variables. Specifically, the analysis examined the correlation between bids count and sales price to determine whether properties that received more bids were likely to sell at higher prices. Additionally, the correlation between sales count and sales price was analyzed to explore whether properties sold more frequently tended to have higher or lower prices. The relationship between bids count and sales count was also examined to see if there was a link between how often a property was sold and the level of bidding activity it attracted. The correlation coefficient (rrr) is calculated as:

$$r = \frac{\sum(x_i - \bar{x})\,(y_i - \bar{y})}{\sqrt{\sum(x_i - \bar{x})^2\ \sum(y_i - \bar{y})^2}} \quad (1)$$

Where:

x_i and y_i are the individual data points for the two variables being compared

$\bar{x}$ and $\bar{y}$ are the means of the variables xxx and yyy

r ranges from -1 to +1, indicating the strength and direction of the correlation

The correlation analysis provided preliminary insights into how these market activities might influence property prices, with correlation coefficients indicating the strength and direction of these relationships.

Regression Analysis. To quantify the impact of market activities on property prices, a multiple regression analysis was performed. In this analysis, sales price served as the dependent variable, while bids count and sales count were the independent variables. The regression model was specified to examine how variations in bidding activity and sales frequency could predict changes in property prices. The analysis utilized Ordinary Least Squares (OLS) estimation to determine the coefficients for each independent variable, indicating how much the sales price would change with each unit change in bids count or sales count. The regression model can be expressed as follows:

$$\text{Sales Price} = \beta_0 + \beta_1 \times \text{Bids Count} + \beta_2 \times \text{Sales Count} + € \quad (2)$$

Where:

Sales Price is the dependent variable representing the property's final sale price

Bids Count is the independent variable representing the number of bids received

Sales Count is the independent variable representing the number of times the property was sold

β_0 is the intercept, representing the baseline sales price when bids count and sales count are zero

β_1, β_2 are the coefficients for the independent variables, indicating the change in sales price associated with each unit change in bids count and sales count, respectively

€ is the error term, capturing the influence of other unobserved factors

The overall fit of the model was assessed using the R^2 statistic, which measured the proportion of variance in sales price explained by the model. The adjusted R^2 was also calculated to account for the number of predictors in the model. The significance of the regression coefficients was tested using t-tests, with p-values indicating whether the relationships between the variables were statistically significant. Assumptions underlying the regression analysis, such as linearity, homoscedasticity, independence of errors, and normality of residuals, were also tested to ensure the validity of the model.

Trend Analysis. To gain insights into how market activities and property prices evolved over time, a trend analysis was conducted. This analysis involved generating time series plots to visualize changes in bids count, sales count, and sales price over the study period. The trend analysis aimed to identify any seasonal patterns or cycles that could influence market activities or prices. Additionally, the degree of price volatility was analyzed by observing fluctuations in sales prices, which helped identify periods of heightened market activity or price instability. Significant events within the digital platform, such as the introduction of new features, technological updates, or major sales, were also noted and correlated with observed trends in the data. This analysis provided a deeper understanding of the temporal dynamics of the digital real estate market, highlighting periods of growth, stability, or volatility.

Limitations

Data Scope. One of the primary limitations of this study is its reliance on data from a single digital real estate platform. Although this platform is representative of a large segment of the market, the findings may not be fully generalizable to other platforms with different user bases, transaction mechanisms, or market dynamics. The study's focus on a single platform may limit the applicability of the results to the broader digital real estate market. Future research could address this limitation by incorporating data from multiple platforms, providing a more comprehensive understanding of market dynamics across different virtual environments.

Variable Selection. Another limitation of the study is the selection of variables. The research focuses on two specific market activities—bidding behavior and sales frequency—as primary predictors of property prices. While these variables are crucial for understanding market dynamics, they do not capture the full range of factors that may influence property valuations in digital environments. For instance, property characteristics such as location within the virtual world, adjacency to important landmarks, or broader economic conditions were not included in the regression model. These factors could have significant effects on property prices and should be considered in future studies to provide a more holistic view of the determinants of digital property value. Including these additional variables could improve the explanatory power of the model and offer deeper insights into the complex factors that influence digital real estate markets.

Temporal Limitations. The analysis is also limited by the temporal scope of the data. The study is based on the data available at the time of research, which may not fully capture long-term trends or emerging patterns in digital real estate markets. As these markets are rapidly evolving, the findings may not reflect

future market conditions, particularly if there are significant changes in platform policies, technological advancements, or shifts in market sentiment. The dynamic nature of digital real estate means that market conditions can change quickly, and what is true today may not hold in the future. To address this limitation, future research should consider longitudinal studies that track market activities over extended periods to better understand the long-term dynamics of digital real estate. Such studies could provide valuable insights into how digital property values evolve over time and how they respond to various market forces.

Ethical Considerations

This research was conducted in strict accordance with ethical standards for data collection and analysis. The dataset used in this study was fully anonymized to protect the privacy and confidentiality of all individuals involved in the transactions. No personal or identifiable information was included in the dataset, ensuring that the analysis was conducted on aggregate data only. This approach minimizes the risk of privacy breaches and ensures that the study adheres to ethical guidelines regarding data use.

Moreover, the research was designed to minimize any potential harm or risk to participants. The findings are reported in a manner that respects the integrity of the digital property market and its participants, avoiding any undue influence on market behavior. This is particularly important in emerging markets such as digital real estate, where the publication of research findings could potentially influence market dynamics. The study also adheres to the principles of transparency and reproducibility. All methodological details, including data preprocessing steps, statistical analyses, and trend evaluations, are thoroughly documented to allow for replication and verification by other researchers. Any assumptions made during the analysis are clearly stated, and limitations are acknowledged to provide a balanced interpretation of the results. This transparency ensures that other researchers can follow the same steps and achieve similar results, contributing to the credibility and reliability of the research.

The methodological approach employed in this study is both rigorous and comprehensive, combining descriptive statistics, correlation and regression analyses, and trend analysis to explore the impact of market activities on digital property prices. By focusing on key variables such as bidding behavior and sales frequency, this research provides valuable insights into the dynamics of digital real estate markets.

The descriptive statistics offered a foundational understanding of the dataset, highlighting key trends and patterns. The correlation analysis provided initial evidence of the relationships between market activities and property prices, while the regression analysis quantified the impact of these activities, allowing for a deeper understanding of how bidding and sales frequency influence property valuations. The trend analysis added a temporal dimension to the research, revealing how market activities and property prices evolve over time.

While the study has certain limitations, particularly regarding the scope of the data and the selection of variables, the insights gained from this research are significant. They offer a foundation for future studies and practical guidance for market participants. By highlighting the importance of competitive bidding and

the potential effects of sales frequency on property prices, this study opens new avenues for exploring the complexities of digital real estate and informs strategies for navigating this emerging market. Future research can build on these findings by incorporating additional variables, expanding the temporal scope, and exploring the dynamics of digital property values across different platforms and market conditions.

Result and Discussion

Descriptive Statistics

The analysis began with an exploration of the dataset, which consists of 2,000 records representing individual property transactions in a digital real estate market. Each transaction is characterized by several key variables, including the sales price, number of bids, and number of sales. The summary statistics provide an overview of the market's general activity and valuation trends.

The average sales price was 3.40×10223.40 \times 10^{22}3.40×1022, with a standard deviation of 8.50×10228.50 \times 10^{22}8.50×1022, indicating substantial variation in the value of properties sold. This variation is further emphasized by the wide range between the minimum sales price (3.28×10193.28 \times 10^{19}3.28×1019) and the maximum sales price (1.36×10241.36 \times 10^{24}1.36×1024). The high standard deviation suggests that the market is highly dynamic, with significant disparities in property valuations.

The number of bids per property, which averaged 1.29, also showed considerable variability, with some properties receiving up to 13 bids, while others received none. The number of sales per property averaged 1.79, with some properties being sold as many as 10 times. These statistics suggest a diverse and active market, where properties vary widely in attractiveness and liquidity.

Table 1 Descriptive Statistics

Variable	Mean	Standard Deviation	Min	Max	Median
Sales Price	3.40 x 10²²	8.50 x 10²²	3.28 x 10¹⁹	1.36 x 10²⁴	1.65 x 10²²
Bids Count	1.29	2.13	0	13	0
Sales Count	1.79	1.13	1	10	1

Correlation Analysis

To understand the relationships between market activities and property prices, a correlation analysis was conducted. This analysis focused on the relationships between sales price, bids count, and sales count. The results, presented in Table 2, provide initial insights into how different market activities might influence property valuations.

The correlation between bids count and sales price was found to be 0.38, indicating a moderate positive relationship. This suggests that properties that attract more bids tend to be sold at higher prices. The underlying economic rationale for this relationship could be linked to the competitive nature of bidding processes, where higher demand (more bids) drives up prices. This finding aligns with conventional market theory, where increased demand for a good typically results in higher prices.

In contrast, the correlation between sales count and sales price was only 0.02, a very weak positive correlation. This suggests that the frequency with which a property is sold does not have a strong direct impact on its price. This weak relationship might indicate that repeated sales do not necessarily enhance or diminish a property's value in this digital market. Instead, factors such as the property's inherent characteristics or its location within the digital world might play a more significant role.

The positive correlation of 0.44 between bids count and sales count suggests that properties receiving more bids are also more likely to be sold multiple times. This could be indicative of high-interest properties that are frequently traded due to their perceived value or strategic importance within the digital ecosystem.

Table 2 Correlation Matrix

Variable	Sales Price	Bids Count	Sales Count
Sales Price	1.00	0.38	0.02
Bids Count	0.38	1.00	0.44
Sales Count	0.02	0.44	1.00

Trend Analysis

The trend analysis aimed to explore how market activity and property prices evolved over time. By plotting the time series data for bids count, sales count, and sales price, several key trends were observed.

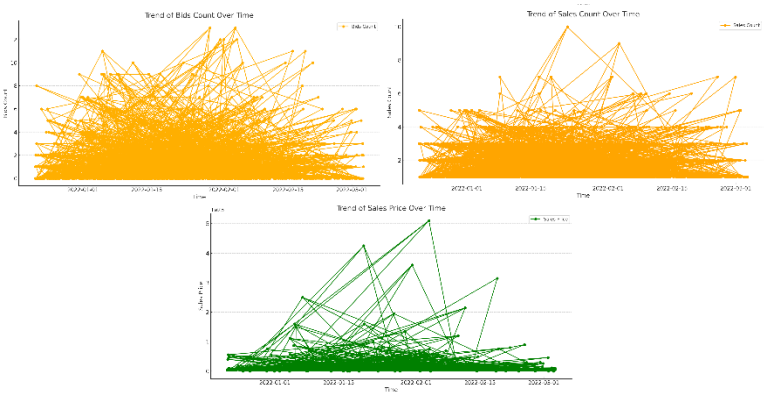

Figure 1 Trend of Sales Price Over Time

The bids count showed significant variability over time, with periods of heightened bidding activity followed by lulls. This pattern may reflect the episodic nature of interest in digital properties, possibly driven by external

events such as new developments in the digital world, platform updates, or broader economic conditions that influence investor behavior. Notably, spikes in bidding activity often coincided with increases in sales prices, supporting the correlation findings that link bidding activity with higher property valuations.

Sales count also exhibited fluctuations, though the variability was less pronounced than that seen in bids count. Periods of high sales count did not always correspond with high sales prices, suggesting that while certain times may see a higher volume of transactions, these do not necessarily involve higher-value properties. This could indicate that during these periods, lower-value properties might be more actively traded, or there might be market conditions that facilitate the quick turnover of properties without significantly affecting their prices.

Sales prices themselves showed a degree of volatility, with several notable peaks and troughs. These fluctuations suggest a dynamic market where prices are influenced by a combination of factors, including but not limited to, market sentiment, the release of new digital property features, or shifts in investor interest. The trend analysis reinforces the notion that the digital property market is subject to various influences that can cause significant changes in price levels over relatively short periods.

Regression Analysis

To quantify the impact of market activities on property prices, a regression analysis was conducted using bids count and sales count as independent variables and sales price as the dependent variable. The regression model, detailed in Table 3, provides a more nuanced understanding of how these variables interact.

The regression analysis produced an R2R^2R2 value of 0.170, indicating that the model explains approximately 17% of the variability in sales prices. While this is a modest proportion, it suggests that bids count and sales count are significant factors, though other unmeasured variables likely also play important roles in determining property prices.

The coefficient for bids count is positive and statistically significant ($\beta = 6.63 \times 10^{21}$, $p < 0.001$$\beta = 6.63 \times 10^{21}, p < 0.001$$\beta=6.63×1021,p<0.001$). This result confirms that an increase in the number of bids is associated with a higher sales price. The magnitude of this effect is substantial, indicating that competitive bidding can significantly elevate the value of digital properties. This finding is consistent with economic principles, where increased competition among buyers drives prices upward.

Interestingly, the coefficient for sales count is negative and also statistically significant ($\beta = -4.85 \times 10^{21}$, $p < 0.001$$\beta = -4.85 \times 10^{21}, p < 0.001$$\beta=–4.85×1021,p<0.001$). This suggests that properties sold more frequently tend to have lower sales prices, a finding that may reflect market saturation effects. One possible interpretation is that properties that are frequently traded may be perceived as less desirable or as having lower long-term value, leading to lower prices. This could also indicate that such properties are being sold under duress or that they are in less desirable locations within the digital landscape, thereby commanding lower prices.

Table 3 Regression Coefficients

Variable	Coefficient	Standard Error	t-value	p-value
Constant	1.21 x 10²²	1.18 x 10²¹	10.25	<0.001
Bids Count	6.63 x 10²¹	3.29 x 10²⁰	20.16	<0.001
Sales Count	-4.85 x 10²¹	6.23 x 10²⁰	-7.80	<0.001

Discussion

The results of this study provide valuable insights into the dynamics of digital property markets, highlighting the critical role that market activity plays in determining property prices.

Bids Count as a Price Driver

The positive relationship between bids count and sales prices underscores the importance of competitive bidding in the digital real estate market. Properties that attract more bids are likely to see their prices driven up, reflecting high demand. This finding aligns with traditional real estate markets, where bidding wars often result in higher final sale prices. In the digital context, this could be influenced by the perceived scarcity of desirable properties or the strategic value of certain locations within the digital world.

Sales Count and Market Saturation

The negative impact of sales count on prices presents an intriguing contrast to the positive influence of bids. This suggests that while bidding drives prices up, frequent sales might indicate a declining perception of value. This could occur for several reasons. Properties that are traded often may be seen as less stable investments, leading buyers to lower their bids. Alternatively, high turnover rates might be associated with properties in less desirable areas, where frequent sales reflect attempts by owners to offload undervalued assets. The negative coefficient for sales count also raises questions about market liquidity and the potential for over-trading in digital environments.

Market Volatility

The trend analysis revealed considerable volatility in both market activity and prices, reflecting the dynamic nature of the digital property market.

Conclusion

This study explored the intricate dynamics of digital property markets, with a focus on understanding how market activities, such as the number of bids and sales, influence property prices. The findings underscore the complexity of digital real estate valuation, where traditional economic principles intersect with the unique characteristics of virtual environments.

The analysis revealed that competitive bidding plays a crucial role in driving up property values in digital markets. Specifically, there is a significant positive correlation between the number of bids a property receives and its final sales

price. This suggests that properties attracting more bids are perceived as more desirable, leading to higher sales prices. This trend mirrors traditional real estate markets, where bidding wars often result in elevated property values, emphasizing the importance of demand in determining price levels.

In contrast to the positive impact of bidding activity, the study found a negative relationship between the number of times a property is sold and its price. Properties that are frequently traded tend to lose value, which may indicate market saturation or a perception of reduced uniqueness. This phenomenon highlights the importance of market turnover as a factor in digital property valuation. Frequent trading could be seen as a signal of instability or lower long-term value, suggesting that such properties may be less attractive investments.

The trend analysis further revealed significant volatility in both market activity and property prices over time. This volatility reflects the dynamic nature of the digital real estate market, where prices are influenced by a myriad of factors, including market sentiment, technological advancements, and broader economic conditions. The frequent fluctuations in prices suggest that digital property markets are still in a developmental stage, with values subject to rapid changes based on evolving market conditions.

These findings have important implications for various stakeholders in the digital real estate market. For investors, understanding the drivers of property prices is essential for making informed decisions. Bidding activity should be closely monitored as a signal of property value, while caution should be exercised with properties that have been frequently traded, as these may represent less stable investments. For platform operators, the volatility and dynamics identified in this study suggest the need for careful management of market activities to maintain a stable and attractive investment environment. This might involve enhancing transparency around property characteristics and market conditions or introducing features that mitigate the effects of market saturation.

Declarations

Author Contributions

Conceptualization: J.P.B.S., N.A.P.; Methodology: J.P.B.S.; Software: J.P.B.S.; Validation: N.A.P.; Formal Analysis: J.P.B.S.; Investigation: J.P.B.S.; Resources: J.P.B.S.; Data Curation: N.A.P.; Writing Original Draft Preparation: J.P.B.S.; Writing Review and Editing: J.P.B.S.; Visualization: J.P.B.S., N.A.P.; All authors have read and agreed to the published version of the manuscript.

Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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