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Locational, neighborhood and physical characteristics of residential rental properties: A review

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Abstract - The study strategically explores the locational attributes that impact rental property preferences and values. This includes proximity to essential amenities such as schools, hospitals, public transportation, and commercial centers. Understanding how these locational factors influence rental demand and pricing patterns can provide valuable insights for both renters and landlords., Investigate the role of neighborhood characteristics in shaping rental markets. Neighborhood safety, accessibility to recreational areas, quality of public services, and social demographics are among the key factors that influence rental property selection. By analyzing these features, we identify potential correlations between neighborhood attributes and rental property performance., the study delves into the physical characteristics of residential rental properties. This aspect involves examining the features of the properties themselves, such as property size, layout, age, and amenities. Understanding how these physical attributes affect rental values and tenant satisfaction can help property owners optimize their investments and improve tenant retention. Moreover, in this study the review addresses the dynamic interplay between locational, neighborhood, and physical factors in shaping rental property markets. By recognizing the complex relationships between these variables, policymakers, real estate developers, and investors can devise informed strategies to create sustainable and inclusive rental housing solutions. It concludes with a call for further research in this field, emphasizing the need for empirical studies that capture changing rental market dynamics, especially in the context of evolving urban landscapes and housing preferences. Through this comprehensive review, we aim to contribute to a deeper understanding of locational, neighborhood, and physical characteristics in residential rental properties, thus enabling more effective and evidence-based decision-making within the rental housing sector.

Keywords: housing preferences, rental property market, neighborhood attributes, and locational characteristics

1. Introduction

The demand for residential rental properties has witnessed substantial growth in recent years, primarily driven by factors such as urbanization, changing demographics, and shifts in lifestyle

preferences (Gilderbloom & Markham, 2017). Consequently, the rental property market has become increasingly competitive, necessitating a comprehensive understanding of the various factors that influence property preferences and rental values. The locational characteristics of residential rental properties are recognized as key determinants of their desirability and economic performance. Proximity to essential amenities such as schools, healthcare facilities, public transportation, and commercial centers has been shown to significantly impact rental demand and pricing patterns (Gibbs & Warner, 2019). Moreover, the accessibility of rental properties to employment hubs and urban centers can influence housing choices for potential tenants seeking convenient commutes (Xie et al., 2020). Thus, an analysis of locational attributes is critical for comprehending the spatial distribution and attractiveness of rental housing options. In addition to locational aspects, neighborhood attributes play a pivotal role in shaping the rental property landscape. Neighborhood safety, quality of schools, availability of green spaces, and socio-economic demographics have been identified as influential factors affecting rental property selection (Aalbers, 2016; Haffner & Elsinga, 2018). The presence of vibrant and inclusive communities can enhance the desirability of rental properties and contribute to tenant satisfaction and long-term tenancy (Turner & Helms, 2019). An examination of these neighborhood characteristics is, therefore, essential for understanding the socio-cultural dimensions that impact the rental housing market. Furthermore, the physical characteristics of rental properties themselves are critical determinants of their market performance and tenant satisfaction. Factors such as property size, layout, age, and amenities can significantly influence rental values and the overall appeal of a rental unit (Cheshire & Hilber, 2008; Han & Strange, 2018). Modern amenities, such as gyms, swimming pools, and co-working spaces, have emerged as sought-after features in rental properties, reflecting changing tenant preferences (Rambøll, 2021). An understanding of these physical attributes can help property owners optimize their investments and cater to evolving tenant demands.

This paper seeks to synthesize existing literature on locational, neighborhood, and physical characteristics of residential rental properties to provide a comprehensive review of this vital research domain. By shedding light on the multifaceted factors influencing the rental property market, this review aims to contribute to evidence-based decision-making in the pursuit of sustainable and inclusive housing solutions.

1.1 Residential housing market trend

The current challenges faced by the financial sector have raised concerns among real estate owners and investment fund managers regarding the proper valuation of real estate assets. The use of recent mark-to-market valuations, based on comparable properties and area cap rates, has led to a decline in the market value of many assets, even when the underlying fundamentals remain unchanged (Kryvobokov, 2013). However, it is important to recognize that the rental housing market is characterized as imperfect and inefficient due to its long-lasting nature, fixed location, heterogeneity, and extensive governmental regulation. Consequently, the characteristics and dynamics of rental housing markets vary significantly from one area to another, making it essential to assess each market independently (Zivin et al, 2023)

Notably, the rental housing market holds particular significance in neighborhoods close to urban areas, especially where factories and higher educational institutions are located. From a landowner's perspective, the primary goal is to maximize profits with minimal additional effort (Shami, 2011). To achieve this, determining the optimal rental income without experiencing vacancies becomes crucial. However, many landlords still rely on guesswork, arbitrary decisions, or charges based on neighboring properties due to the absence of specific guidelines (Shami, 2011).

Moreover, some observers contend that the growth in residential property prices and rents can be attributed to the increased number of real estate agents and their speculations in the real estate market (Vakili, 2008; Shami, 2011; Azizianpour, 2008; Somalov, 2010). These speculations and market dynamics may have contributed to the fluctuations in rental property values and rental rates.

In conclusion, the current financial sector woes have prompted a reevaluation of real estate asset valuation methods. The rental housing market's imperfections and inefficiencies

necessitate a careful analysis of each market's unique characteristics. Understanding the factors that influence rental income determination is crucial for landlords seeking to optimize profits. Additionally, the role of real estate agents and speculators in shaping residential property prices and rents requires further examination to comprehend the rental market's dynamics fully.

The influence of real estate agents on property prices and rents is a subject of considerable interest among observers, who suggest several ways in which these agents can affect the market dynamics. One of the primary factors cited is the commission fee earned by real estate agents. It is argued that agents have an incentive to push housing prices and rents higher since their commission fee is typically determined by the level of property prices and rents, especially in developing states (Vakili, 2008; Somalov, 2010). As a result, higher property prices and rents can lead to greater commission earnings, motivating real estate agents to actively pursue price increases.

Additionally, speculation plays a significant role in how real estate agents operate in the market. During periods of slowdown in the property market, observers believe that agents often purchase properties at prices below their actual value, anticipating future price increases. This speculation-driven behavior further encourages real estate agents to push property prices up through various means to secure higher capital gains in the near future (Vakili, 2008; Somalov, 2010).

Furthermore, competition among real estate agents representing sellers has an impact on property prices. Agents often compete for clients by making promises to sell homes at higher prices and in shorter time frames than their competitors. This competitive environment motivates real estate agents to put in extra effort to achieve higher selling prices, which can potentially influence house selling prices in the market (Somalov, 2010).

It is crucial to acknowledge that the factors influencing residential property values are not solely inherent in the properties themselves. Instead, these factors are created in the minds of the individuals who constitute the market. Real estate agents, with their actions and behaviors, can shape market perceptions and impact property prices and rents (Vakili, 2008; Somalov, 2010).

1.2 Concept of Real estate values

Rental value, in the context of residential properties, refers to the market value of a property while it is being rented out. The term "rent" itself can have multiple meanings. According to Chris & Somefun (2007), rent can be understood as the monthly payment made to a landlord for the use of a building or property.

It is important to note that rental values for residential properties can vary significantly between different residential neighborhoods within the same metropolis. Even within the same neighborhood, rental values of similar houses may differ due to various factors that may not always be apparent. The complexity of value creation is acknowledged, and values are known to fluctuate as influencing factors change over time.

The creation of value in the rental housing market is influenced by four interdependent economic factors: utility, scarcity, desire, and effective purchasing power. Utility and scarcity are considered supply factors, reflecting the property's ability to meet human needs and its relative undersupply compared to demand. Desire, on the other hand, is a demand factor, representing the wish of a purchaser to fulfill their needs through the property. Effective purchasing power is the ability of individuals or groups to participate in the market and acquire goods and services, including rental properties (Oloke et al., 2013).

In conclusion, rental value encompasses the market value of a property while it is rented out. This value is influenced by various factors, including supply (utility and scarcity) and demand (desire and effective purchasing power). Understanding these factors is crucial in comprehending the variations in rental values observed in different residential neighborhoods and similar properties within the same vicinity.

1.3 Fundamental Factors affecting residential property values

The rental values of residential properties are subject to the influence of various housing characteristics related to neighborhood, location, and dwelling attributes (McDonald & MacMillan, 2007; Aluko, 2011; Anthony, 2012). McDonald & MacMillan (2007) identified two categories of neighborhood variables that can positively or negatively influence house prices.

Positive neighborhood variables, termed as neighborhood amenities, include access to schools, playgrounds, hospitals, police stations, parks, recreational facilities, shopping centers, community services, and other environmental considerations like good drainage and waste disposal management. On the other hand, negative neighborhood variables, referred to as disamenities, encompass factors such as industrial noise, neighborhood crime rates, air pollution, heavy traffic, and contaminated environments.

Regarding location, several studies (Thorncroft, 1965; Poudyal et al., 2009; Aluko, 2011) have emphasized that residential property values are greatly affected by proximity to facilities and services that support daily needs, such as workplaces, shopping centers, schools, recreational facilities, public transport, open spaces, places of worship, entertainment venues, and community services. Positive locational attributes can have a favorable impact on property values, but localized negative externalities, such as nuisance or environmental hazards like hazardous waste sites, high voltage power transmission lines, or flood-prone areas, can lead to declines in property value (Tom, 2003).

Dwelling characteristics also play a significant role in influencing residential house values. Attributes such as the layout, structure, and design of the estate, the age and condition of the dwelling facilities, fences and gates, the number of rooms and floors, ventilation adequacy, the availability of garages, swimming pools, landscapes, and the material type and construction quality all contribute to the overall value of the property (Thorncroft, 1965; Anthony, 2012).

The increasing rate of variations in rental values among different residential neighborhoods in Nigerian towns and cities has become a prominent topic of discussion among various stakeholders, including estate surveyors and valuers, property owners, investors, brokers, and policymakers involved in housing investment and management (Usman, 2015). The value of real estate is determined by its utility, scarcity, and effective demand. Property has significance when it satisfies human needs and desires, and the collective desire for property gives rise to its value (Olusegun, 2003).

Ge and Du (2007) emphasize that property value is a crucial aspect of property markets worldwide, determined by a variety of factors, and the determination of these factors forms a significant part of property valuation.

In conclusion, the rental values of residential properties are influenced by a combination of housing characteristics related to neighborhood, location, and dwelling attributes. Understanding these factors is crucial for stakeholders in the real estate industry as they strive to make informed decisions regarding property investments, valuation, and management.

1.4 Location attributes

Location plays a pivotal role in determining residential property values, as supported by various studies (Poudyal et al., 2009; Aluko, 2011; Usman, 2016). The value of residential properties is greatly influenced by their proximity to locations that offer essential amenities and services, such as workplaces, shopping centers, schools, recreational facilities, public transportation stations, open spaces, places of entertainment, and places of worship. These positive locational attributes can have a significant positive impact on property values (Tom, 2003).

However, localized negative externalities can also affect house prices negatively. Tom (2003) highlighted that properties situated close to hazardous waste sites, high voltage power transmission lines, or flood-prone areas are likely to experience a decline in value. Negative factors in the immediate vicinity can offset the positive locational attributes and influence property values negatively.

Distance to workplaces, schools, retail outlets, and public transportation stations are considered essential components of locational attributes (Hui et al., 2006; Jim & Chen, 2006, 2007, 2009; Redfearn, 2009; Poudyal et al., 2009). In mass valuation, two widely applied techniques to account for location influence are market segmentation and neighborhood delineation. Market segmentation involves dividing the universe of properties into subgroups with similar location effects. Each submarket is modeled to have its own supply and demand functions, assuming that identical properties located in the same submarket are closely substitutable. As a result, separate hedonic models are estimated for each geographical segment (submarket), potentially providing

better results than a single overall model. On the other hand, a neighborhood is a smaller area within a market segment where market influences are relatively constant (Jaffe, 1986).

In conclusion, location is a critical determinant of residential property values. Positive locational attributes such as proximity to essential amenities can positively impact property values, while negative externalities in the immediate vicinity can have adverse effects. Understanding the nuances of location influence is crucial for accurate property valuation, and techniques such as market segmentation and neighborhood delineation are employed to account for the heterogeneity of location effects in mass valuation.

1.5 Physical attributes

The physical attributes of a building, also known as dwelling features, refer to the characteristics of the building itself that can influence residential house values. Several researchers have explored the impact of dwelling characteristics on property values. Anthony (2012) and Usman (2016) identified various dwelling attributes that play a significant role in influencing residential house values. These attributes include the layout, structure, and design of the estate, the age and condition of dwelling facilities, the presence of fences and gates, the number of rooms and floors, the adequacy of ventilation, the availability of a garage, swimming pool, landscape, the material type and construction quality, the quality of finishing, and the available land area.

A study on the impact of leisure and sport facilities on house values, considering several dwelling characteristics variables. The variables included living area, number of rooms, building age, number of stories, number of floors, and house structure as explanatory variables for dwelling characteristics. The neighborhood characteristics were represented by sport and leisure facilities as explanatory variables (Chun-Chang, 2010). The physical qualities of a housing product are of prime importance to consumers when buying a house (Rahadi et al., 2015). Factors such as the facade, infrastructure condition, road width, roofing, product specification, and building design all influence consumers' perceptions regarding the appropriateness of the current housing price. In property price measurement, certain structural attributes are commonly included, such as built-up area, the size of living or dining areas, the number of bedrooms or bathrooms in a house, car porch, and the internal or external structure of a house (Hui et al., 2006; Jim & Chen, 2006, 2007, 2009; Redfearn, 2009; Poudyal et al., 2009). Overall, the physical attributes of a building, encompassing dwelling features and structural attributes, significantly influence residential house values and play a crucial role in consumers' perceptions and property price assessments.

2. Building conditions as a determinant of property price

The literature on implicit prices of various building characteristics, such as floor level, location, size, and service provision, is extensive, as evidenced by studies conducted by Yiu & Wong (2005) and Yau (2009). These inborn building characteristics are relatively fixed and challenging to change once the building is constructed. However, there are certain quality aspects that can change over time and have a notable impact on property prices, one of which is the property condition

The condition of a building has been identified as a significant determinant of property prices. Studies have shown that properties in better condition, both in terms of interior and external physical environments, tend to command price premiums. Yau (2009) found that properties with better building conditions had higher values, while the presence of substandard structural items had a negative impact on property prices.

Additionally, refurbishment can have a positive effect on property values by improving building conditions. Chau et al. (2003) demonstrated that refurbishing properties led to an approximately nine percent increase in property values in conjoining housing estates, indicating a significant positive relationship between building quality and property value. In conclusion, the condition of a building is a crucial factor influencing property prices. Properties with better building conditions tend to command higher prices, while substandard structural items can have a negative impact on property values. Refurbishment and improvement of building conditions

can lead to an increase in property values, further emphasizing the importance of building quality in the real estate market.

Neighborhood attributes

The study conducted by McDonald & MacMillan (2007) focused on the influence of neighborhood characteristics on house values and identified two categories of neighborhood variables that can impact property prices positively or negatively. The positive neighborhood variables, termed neighborhood amenities, include features such as schools, playgrounds, hospitals, police stations, parks, recreational facilities, sporting facilities, shopping centers, community services, and other environmental considerations like good drainage and waste disposal management. On the other hand, the negative neighborhood variables, termed disamenities, encompass factors such as industrial noise, neighborhood crime rate, air pollution, heavy traffic, and contaminated environments.

Neighborhood attributes are widely recognized as crucial factors in the housing purchase decision (Aloko, 2011). Once a person settles in a location, they become subject to the externalities and effects that the neighborhood imposes. Neighborhoods are geographic units where certain social relationships exist, and they play an essential role in providing convenience and a sense of community in urban life.

This research paper aims to examine how neighborhood features contribute to house prices and people's preferences. Spatial variations in house prices can be explained by differences in the physical characteristics of houses, neighborhood attributes, and location in space. While there has been considerable research on the measurement of externalities from occupants and environmental goods, little has been explored about the extent of the neighborhood effect caused by nonconforming structures or uses, such as commercial or industrial buildings, on housing prices. This is surprising given that the presumed presence of this externality has often been used to justify zoning regulations.

The study aims to incorporate neighborhood externality considerations into models of urban structure to provide a comprehensive geographical perspective for comparisons with other models. Neighborhood quality is considered an important element of the housing bundle by urban analysts. However, there is little agreement on how to measure neighborhood quality, and the choice of variables is often based on data availability rather than clear justification.

Understanding neighborhood characteristics as determinants of housing prices is essential, as many home buyers and realtors attach value to specific neighborhood amenities, such as the quality of public schools, proximity to urban parks, and views of natural landscapes like gardens, seas, lakes, or valleys.

In conclusion, the research seeks to shed light on the importance of neighborhood attributes in determining housing prices, addressing the impact of both positive amenities and negative disamenities on the housing market.

3. Results and Discussion

3.1 Identifying the Impact of Neighborhood Characteristics on House Prices

The impact of neighborhood amenities and disamenities on residential property values has been extensively studied in various locations around the world. Chang & Lin (2012) conducted a study in Taipei, Taiwan, using hierarchical linear modeling to examine the relationship between neighborhood characteristics and house prices. They identified three neighborhood variables, including environmental quality, convenience of life, and sport and leisure facilities, as explanatory factors. The study found that these amenities positively influenced house prices in the surveyed neighborhoods.

Feng & Lu (2010) investigated the impact of professional sport facilities on house values in US cities using the hedonic housing price model with spatial autocorrelation. They found that houses closer to sporting facilities had higher median values, indicating a positive impact of professional sporting amenities on house prices.

In another study, Dehring et al. (2007) used a standard hedonic model and differences in difference approach to examine the effect of an announcement for a proposed stadium in Dallas. The announcement initially increased prices of nearby residential properties, but prices were

reversed upon the abandonment of the stadium project. Similarly, Kiel et al. (2010) found no significant relationship between residential property values and proximity to a football stadium.

Feng & Lu (2010) focused on the impact of educational facilities on residential property prices in Shanghai, China. They identified school quality and quantity as explanatory variables and found that the presence of high-quality schools had a substantial positive impact on house prices. However, even inferior schools were found to increase house prices, although to a lesser extent.

Haizhen et al. (2014) evaluated the impact of various educational facilities on house values using traditional hedonic pricing models and spatial econometric models. They found that educational facilities had positive capitalization effects on house values, especially for houses located close to high-quality schools.

In a study by Hans & Jan (2012) in Rotterdam, Netherlands, the impact of mixed land uses on residential house prices was explored using hedonic semi-parametric estimation techniques. They found that certain land uses, such as manufacturing and wholesale, were incompatible with residential land uses and had a negative impact on house prices. Apartment occupiers were willing to pay higher prices for a diversified neighborhood but were less willing to pay for additional employment in some specific sectors.

These studies collectively highlight the importance of considering neighborhood amenities and disamenities as significant factors in determining residential property values. Factors such as environmental quality, proximity to sporting and leisure facilities, educational facilities, and land use mix can all have considerable impacts on house prices in various regions, providing valuable insights for policymakers, real estate professionals, and potential homebuyers alike.

3.1.2 Measuring externalities within a GIS

The measurement of locational externalities in hedonic house price research has historically been poor due to the availability of poorly conceptualized and incomplete spatial data. This lack of well-defined data can lead to significant errors in estimating hedonic house price models, as warned by Ozanne and Malpezzi (1985). The use of arbitrary thresholds and blanket neighborhood measures in proximity studies can further contribute to conflicting and insignificant parameter estimates related to locational attributes (Orford, 2002)

However, in recent years, there has been a notable improvement in the availability and detail of spatial data on people and properties. Geographic Information Systems (GIS) have also seen significant advancements, allowing for the storage and manipulation of larger volumes of data at greater speeds and efficiency. This technology is particularly well-suited for hedonic house price research as it can handle housing attribute data at various spatial resolutions and provide a platform for spatial analysis, including calculating the spatial effects of locational externalities (Orford, 2002).

Despite the potential benefits, the use of GIS in hedonic house price studies has been relatively rare. Some recent exceptions include studies by Kennedy et al. (1996), Lake et al. (2000), and Sanchez (1993), where GIS was used to calculate distance and proximity measures, property lot sizes, and map error terms to determine spatial autocorrelation (Cooley et al., 1995; Waddell & Berry, 1993).

By utilizing GIS technology, researchers can overcome some of the limitations in previous studies and better measure and visualize the spatial effects of locational externalities on house prices, leading to more accurate and robust findings in the field of hedonic house price research.

3.1.3 Spatial Dependence

The concepts of spatial dependence and housing submarkets are closely related. The submarket concept relies on the idea of substitutability. Substitutes are pairs of goods for which an increase in the price of one lead to an increase in the demand for the other. Pairs of goods with similar characteristics are likely to be substitutes. In equilibrium, prices equalize across substitutes. Within housing submarkets, prices of houses are similar because submarkets contain close substitutes. Implicit prices of the characteristics of houses are similar for the same reason. Spatial dependence or autocorrelation refers to the existence of covariance in the errors in the context of hedonic price estimation for residential property markets (Bourassa et al., 2007). Given

the similarities in the prices of housing characteristics within a submarket, errors are more likely to be correlated within submarkets than across submarkets. Therefore, controlling for submarkets in hedonic equations can substantially reduce estimation errors. This can be accomplished in a variety of ways. Simple methods include incorporating a series of dummy variables for the submarkets, estimating a separate equation for each submarket, or adjusting predicted values using the errors within each submarket (Bourassa et al., 2010).

Spatial Dependence and Housing Submarkets The concepts of spatial dependence and housing submarkets are closely related. The submarket concept relies on the idea of substitutability. Substitutes are pairs of goods for which an increase in the price of one lead to an increase in the demand for the other. Pairs of goods with similar characteristics are likely to be substitutes. In equilibrium, prices equalize across substitutes. Within housing submarkets, prices of houses are similar because submarkets contain close substitutes. Implicit prices of the characteristics of houses are similar for the same reason.

Given the similarities in the prices of housing characteristics within a submarket, errors are more likely to be correlated within submarkets than across submarkets. Therefore, controlling for submarkets in hedonic equations can substantially reduce estimation errors. This can be accomplished in a variety of ways. Simple methods include incorporating a series of dummy variables for the submarkets, estimating a separate equation for each submarket, or adjusting predicted values using the errors within each submarket. Controlling for submarkets in hedonic price equations assumes either that one has a predefined set of submarkets or that one is going to use some method to define them. Predefined submarkets are typically geographical areas, such as those defined by real estate agents (Tu & Yu, 2007). Alternatively, submarkets can be defined in terms of the characteristics of dwellings, neighborhoods, or census units. Statistical techniques, such as principal components and cluster analysis, can be used to combine similar dwellings or neighborhoods into submarkets, which may or may not be geographical areas (Bourassa et al, 2010).

The use of mixture models which both estimate hedonic equations and classify transactions into submarkets which are not geographical areas (Belasco et al., 2012). However, there is some evidence to suggest that geographical submarkets are more meaningful and therefore useful for improving prediction accuracy (Bourassa et al. 2007). Spatial statistical methods allow for a more fluid concept of submarkets than is permitted by the fixed definitions based on geographical areas or housing or neighborhood characteristics. In effect, methods such as the lattice or geostatistical approaches applied here allow for the relevant submarket to vary from property to property.

The relationships between the focal property in a submarket and nearby properties are captured in a matrix of weights in the case of lattice models or by a distance function based on a fitted variogram (or semi variogram) in the case of geostatistical models. This more fluid approach to modeling the relationships among properties would seem a priori to allow for more effective reduction of prediction errors due to spatial dependence. It is useful in this context to consider the distinction between adjacency and neighborhood effects (Gessler et al,1995).

The lattice and geostatistical methods focus on adjacency effects, or the external effects of nearby properties on the property in question. The simpler methods mentioned above, such as controlling for location within a relatively homogeneous geographical area defined by valuers for appraisal purposes, imply a focus on neighborhood effects. Thus, our empirical question is whether adjacency or neighborhood effects predominate. In other words, is it more important to account for each property's situation within the boundaries of relatively homogeneous neighborhoods that are recognized as such in a particular market or to account for the relationships between each property and its neighbors? The results will depend, of course, on how well the neighborhoods are defined. Our sense is that the classification created by Auckland valuers is based on relatively careful consideration of property characteristics and prices.

Housing prices vary considerably between countries and regions. Differences between the macro-economic situation and performance may account for this variation. Even between municipalities within the same country, however, price differences can be observed on the

housing market (for recent city level international evidence (De Bruyne & Van Hove, 2013). These local differences can easily be attributed to differences in income levels, demographic effects, government policy and quality of housing and living. This article argues that there is an additional factor that should not be neglected as a determinant of this price variation. The relative geographical position of municipalities, intensively studied in the economic geography literature, has an impact on property values as well. In particular, in this article we show that the distance and travel time to important economic centers, that offer many job opportunities and an extensive services network, can explain the spatial variation in housing prices across municipalities (Bruynea, & Hove, 2014).

3.1.4 Determinants Spatial dependence

The geographic location of a house plays a crucial role in determining its value and desirability for potential buyers. It influences access to essential amenities like employment, shopping centers, and recreational facilities, as well as the quality of neighborhood characteristics and public services. The factors affecting housing prices can be categorized into three main components: the structural characteristics of the housing unit itself, neighborhood characteristics, and locational characteristics related to centrality and accessibility. Spatial dependency in housing prices can be analyzed using a spatial weight's matrix, which measures the relative geographical location of each observation. Short-term variations in housing prices across neighborhoods may be influenced by restrictions on market participation, leading to accentuated or reduced hedonic housing price differentials. However, in the long run, factors like capital and labor mobility, as well as mobile buyers, contribute to the primary influence of differential land prices across urban areas, driven by unique neighborhood spatial features.

Housing submarkets and neighborhoods are related but not synonymous concepts (Bourassa & Peng, 2003). A neighborhood is a combination of spatially-based attributes associated with clusters of residences and other land uses. These attributes include physical dwelling characteristics, infrastructure, environmental features, proximity, as well as socio-demographic and political aspects, contributing to the overall value of a housing unit. Housing units within a neighborhood tend to have similar values, leading to minimal differences in hedonic prices for dwelling-related factors within that neighborhood. This suggests that housing units in the same neighborhood are likely to be part of the same topographically-based submarket.

In summary, the location of a housing unit has a significant impact on its value, with various neighborhood and locational characteristics influencing housing prices. Understanding spatial dependency and the relationship between housing submarkets and neighborhoods is crucial for accurate hedonic price modeling and real estate analysis

3.1.5 How to model Spatial dependence

The literature discusses the extension of the hedonic model to account for spatial dependence in commercial real estate assets, specifically focusing on adjacency effects or spillovers between transaction prices. Spatial econometric models, which include a spatial component to capture interaction with neighboring observations, are used for this purpose

Hedonic price modeling is widely used in real estate research, but it often faces limitations due to limited data and the inability to consider all potential influences on each observation, particularly spatial aspects like neighborhood characteristics. Spatial autocorrelation, where housing prices in a neighborhood are influenced by previous transaction prices of surrounding homes, is a common phenomenon, highlighting the spatial dependence of residential properties.

The text introduces two modeling approaches for spatial data, lattice, and geostatistical models. The lattice approach models the covariance matrix of errors parametrically, while the geostatistical approach builds the covariance matrix through a parametric variogram. Geostatistical models assume that observed data at a location follows a random process satisfying a second-order stationarity assumption, and the covariance between locations depends only on the distance between them.

Data sets in real estate often represent aggregated observations with spatial and temporal characteristics. The use of geographic information systems (GIS) has facilitated work with disaggregated data, providing precise spatial and temporal identification, such as point-of-sale data from individual stores.

The reasons for spatial variations in housing prices are attributed to short-run restrictions on market participation, which can accentuate or reduce hedonic housing price differentials across neighborhoods. In the long run, factors like capital and labor mobility within an urban area and mobile buyers will primarily influence the price of housing services, with the differential price of land playing a significant role.

In summary, the text emphasizes the importance of considering spatial dependence in real estate analysis using spatial econometric models, and the potential benefits of using GIS technology to handle disaggregated spatial data. It highlights the role of neighborhood characteristics and spatial autocorrelation in understanding housing price variations.

4. Conclusion

The residential rental market is a critical component of housing provision, and understanding the factors that influence its dynamics is crucial for both renters and landlords. This comprehensive review has examined the locational, neighborhood, and physical characteristics of residential rental properties to shed light on the key factors that shape the rental property landscape.

In terms of locational attributes, proximity to essential amenities like schools, hospitals, public transportation, and commercial centers significantly impacts rental property preferences and values. Understanding these locational factors can provide valuable insights for optimizing rental demand and pricing strategies.

Neighborhood characteristics also play a pivotal role in shaping rental markets. Factors such as neighborhood safety, accessibility to recreational areas, quality of public services, and social demographics influence rental property selection. Analyzing these features can reveal potential correlations between neighborhood attributes and rental property performance.

Furthermore, the physical characteristics of rental properties, including property size, layout, age, and amenities, have a substantial impact on rental values and tenant satisfaction. Property owners can optimize their investments and enhance tenant retention by understanding how these physical attributes influence rental property performance.

This review highlights the interconnected nature of locational, neighborhood, and physical factors in shaping rental property markets. Recognizing these complex relationships can inform policymakers, real estate developers, and investors in devising effective strategies to create sustainable and inclusive rental housing solutions.

However, there remains a need for further empirical research in this field to capture evolving rental market dynamics, especially in the context of changing urban landscapes and housing preferences. Empirical studies can provide valuable data to inform evidence-based decision-making within the rental housing sector.

In conclusion, this comprehensive review contributes to a deeper understanding of the locational, neighborhood, and physical characteristics in residential rental properties. By gaining insights into these factors, stakeholders in the rental housing sector can make informed decisions to improve housing quality, affordability, and accessibility for renters and landlords alike.

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