

THEME

Valuing Livelihood, Land use and Habitat

Park Characteristics and House Valuation: A Conceptual Framework

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Abstract

Rapid urbanization and growing pressure on housing in the metro areas of Delhi have placed huge pressure on green spaces which then tend to be crowded out (Mayor *et al.*, 2009). In fact, according to some projections, Delhi is supposed to become the most populous city in India (Sharma, 2019).

It is generally accepted that plants and green spaces improve our health and well-being, restore the water cycle, clean the air we breathe, and boost ecological diversity (Gangadharan, 2016). Parks can make cities and neighbourhoods more appealing and attractive (Chiesura, 2004). Government, local authorities, developers, planners, property buyers, and residents among others are interested in property prices and the things that add to its valuation (Shukur *et al.*, 2012). However, in developing countries, poor planning and governance result in an increasing backlog in infrastructure; besides poor maintenance of existing ones, for example, public and community parks (Banerji, 2013).

To encourage greening of the urban spaces, we need to assess the value that residents place on green spaces. The study provides a conceptual framework for the characteristics of a park and its relationship with houses near it.

Keywords: Valuation; green spaces; park; residential; homeowners; urbanization

1 Introduction

The value of real estate in a region represents the economic and social preferences of the people inhabiting it. Real estate properties are neither “homogeneous” nor are they assets that are bought and sold often like gold and bonds (Adair *et al.*, 1996). This implies that the task of valuation or the price tag to put on a specific real estate property is often complex. Asset valuation serves many purposes, one of them being

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to enable the process of buying and selling. Besides this, there are related aspects such as loans, insurance, tax, etc. require asset valuation for them to function efficiently. The real estate market does not have a central trading market and the “opaqueness” of the market implies that a property’s valuation would not be an imminent result. This is where investors in the real estate market rely on valuers and appraisers who use a variety of techniques to calculate a property’s value (Crosby *et al.*, 2018). A property’s value is influenced by a range of variables such as its location, topography, economic and legal factors. Often sidelined, factors such as those related to geology also become crucial in a property’s valuation (Er & Ozdarici-Ok, 2023).

In modern times, parks have emerged as one of the key variables that buyers look for in residential properties. Besides their visual and aesthetic appeal, parks provide recreational, health, and networking benefits. Through these opportunities, parks hold the potential to maintain and develop social ties besides contributing to better asset valuation. In a study on urban parks in Hong Kong by Zhang *et al.* (2022), it was revealed that physical activities had a positive correlation with parks and their amenities. It is also true that most urban spaces are managed by private developers and tend to become more commercialised (Mandeli, 2019). At the same time, the increase in car sales had led to most of the public spaces in cities being prioritised for parking complexes. This has led to cities losing their cultural value and little scope for developing social ties as fewer resources are allocated for the maintenance of public spaces (Kazmierczak, 2013).

1.1 The Indian Real Estate Market

By 2030, the real estate sector in India is predicted to reach US\$ 1 trillion in market size which would be a huge jump from US\$ 200 Billion in 2021. Moreover, the sector will also contribute about 13% to the GDP of India by 2025. Similarly, other sectors such as retail and hospitality are also seeing rapid growth and are collectively providing crucial infrastructure for India’s growing needs. In the year 2022-23, the residential property market in India saw its value of home sales reach an all-time high of US\$ 42 Billion, which was a 48% year-on-year increase. The volume of sales showed a strong growth with nearly 380,000 units being sold (IBEF, 2023).

The Indian real estate market is on track for noteworthy transformation soon. The sector is being pushed forward by a multitude of factors that are increasing the demand for new commercial developments. Rapid technological advancements and their quick adaptation and usage and the advent of digital platforms have completely changed the way properties have been sold and brought traditionally. Simultaneously, the worldwide push for a more sustainable society and “green building” practices have gained importance among consumers as well as investors. The government has also induced affordable housing for the people as well as the development of infrastructure through various policies such as “Smart Cities Mission” and “Housing for All” both of which have had positive effects on urban settlements (CREDAI,

2023). The upsurge of India's Tier 2 and 3 cities also shows the growth of the real estate sector in India given their immense potential, affordability, and commitment to sustainability (Concorde, 2023)

There are many reasons as to why the demand for housing has been rising. First, due to rapid urbanisation, more people are migrating to such areas for opportunities which have led to an increase in the housing sector (Trask, 2022). Second, the middle class has witnessed rapid growth in their income levels (Eggimann & Kendzia, 2022). Third, infrastructure development is getting a huge push from the government, making it easy for people to live and work in urban cities (Agrawal, 2020). This has increased the demand for housing. Lastly, more and more people are looking at real estate as a potential investment and this has led to an increase in demand for housing (Yagnik, 2023). The COVID-19 pandemic has also had a significant impact on the real estate sector. Lockdowns, travel bans, and people working from home for extended periods reduced the need and usage of physical space and furniture, leading to a decrease in residential properties being let out. Cumulatively, this led to a reduced rate of return on investments in the real estate sector (Yadav & Yadav, 2021). In the post-pandemic world, the effects of these factors will continue to impact the housing markets and the tastes and preferences of investors and consumers. Besides these, demographic shifts and new technologies are expected to further affect the housing demand in the future (Singh, 2023).

Amid this urban housing boom, green spaces in urban cities in India are still not adequate. According to Hwang *et al.* (2020), cities in India are short on the "greenspace per capita" as per WHO rules. The available green spaces are often exposed to degradation and ruin due to lack of maintenance and overuse besides being usurped by property developers. The case in the rest of the country is no different. India faces an imbalance between the built and natural spaces which is causing a worsening of the thermal environment, further exacerbating the ramifications of climate change (Imam & Banerjee, 2016). This paper attempts to postulate a conceptual framework on the different characteristics of a park and their contribution to the valuation of a house nearby through a literature review of different papers on park valuation. Following the introductory section, sections 2 and 3 are on Literature Review and Research Methodology, respectively followed by a Discussion and section 5 on Conclusions.

2 Literature Review

Modern valuation methods of any asset have been classified into three methods, namely, Traditional, Statistical, and Advanced valuation methods. For house

valuation, the most common method among them is the Hedonic Pricing Model which comes under statistical valuation methods (Owusu-Ansah, 2013).

In recent times, researchers have given various models which attempt to provide a base for property valuation. Fisher & Martin (1994) revealed that factors related to construction such as its type, quality, style, and other structural factors all directly affect the value of a structure. This ultimately impacts the valuation of the property as it affects its “prestige” i.e. how they look and feel. Therefore, having better construction elements affects the valuation of a property.

According to Ustaoglu (2003), construction elements and the availability of interior services which are furniture, decorations, ventilation, heating, etc., also add to the valuation of the property. Physical deterioration due to the “aging and wear effect” decreases the price of the house and thus requires maintenance which increases the cost of the property. Selim (2009) in their study on house prices in Turkey used hedonic regression and artificial neural networks to provide certain key factors that influence the value of houses such as the number of rooms available, size of the property, type, etc. Gosavi & Dwivedi (2023) in their study on the Indian property market state find that the “local market conditions” which consist of mortgage availability, interest rates, economic boom or slowdown also have an important role when valuing a property.

Therefore, these factors that affect house valuation are the “physical” features (such as the size of the property and material quality), “functional” features of residential properties (such as rooms and storage area) as well as “external influential” factors (such as local conditions as mentioned before and proximity to amenities like parks, schools and hospitals) (Ferlan et al., 2017). One of these external influential factors is the presence of a “park”. It is generally accepted that plants and green spaces improve the health and well-being of residents, restore the water cycle, clean the atmosphere, and boost ecological diversity (Gangadharan, 2023). Park can make cities and neighborhoods more attractive places to live. They can contribute to community identity, provide active and passive recreational opportunities, appeal to all ages, contribute to the health and wellness of a community and create valuable green space. Those who are interested in property prices and the things that add to its valuation such as the government, local authorities, developers, planners, property buyers, and residents among others should value parks as it has a positive correlation with their house valuation (Shukur et al., 2012).

Houses that are near parks and green spaces are valued at 8-20% more than other properties (Wolf, 2010). Crompton (2001) reviewed data from over 30 studies and observed that on average, if a house is located within a 20-foot distance from a park, then it is sold for \$2,675 more than a house located 2,000 feet away from the park. A similar study by Vaidya (2021) conducted in the United Kingdom highlighted that houses near 500 meters of a park can add around £2,349 to their valuation.

The presence of Urban Green Spaces (UGS) is necessary, especially in countries like India which are undergoing rapid development and suffer from high pollution levels. Urban spaces like parks play an important role in curbing pollution levels and improving the air quality of the cities (Suhane *et al.*, 2023). They also maintain “microclimate” and keep a check on the “urban heat island” phenomenon. Moreover, reduction in soil erosion and noise pollution can also be curbed by USGs (Ramaiah & Avtar, 2019). Foster & Iaione (2016) provide a collaborative design wherein all the stakeholders come together to manage the public spaces such that everyone benefits from it. Alkhani (2020) states that the government needs to incentivize the private sector to pursue sustainable strategies. In recent times the agenda of Environmental Social and Governance (ESG) has induced the private sector to be more aware of public spaces and their effective management (Ahmad *et al.*, 2023). Moreover, for the private sector adopting ESG policies has led to innovation, value generation, and an increase in business performance (Henisz *et al.*, 2019).

In the urban development context, having green spaces is important as they can help in improving the quality of life. Equally important is providing proper maintenance and management of public spaces from both the public and private sectors. When green spaces are available and properly maintained they will add value to the residential properties near them.

3 Research Methodology and Analysis

The research methodology involves identifying the key variables identified in the literature and developing a conceptual framework that identifies thematic areas and elements in each of them to further enhance the relationship between parks and house valuation.

The literature review brings out how green spaces such as parks play a substantial role in adding to the value of the houses nearby. In developing countries, poor planning and governance result in an increasing backlog in infrastructure; besides poor maintenance of existing ones, for example, public and community parks (Banerji, 2013). The public parks witness their value addition to the houses reduced to the minimal and in some cases negatively affect such valuation. For example, a poorly maintained park would eventually become a space of ruin and refuse leading to the spread of diseases, ultimately harming house valuation. Similarly, the value of a home diminishes if it is overgrown with weeds (Crompton, 2001). The Sustainable Development Goals (SDGs), especially SDG 11 which focuses on “Sustainable Cities and Communities” advocates for facilitating universal access to safe, inclusive, and accessible green and public spaces, particularly for women, children, differently abled and senior citizens. This implies that just the presence of a park is not enough,

its properties, infrastructure, accessibility and how it is built are also important to the people and ultimately the valuation of nearby houses.

Therefore, this requires the need for a robust in-depth conceptual framework that provides a deeper relationship between parks and houses. For this, the following papers were reviewed and analyzed for the identification of variables:

Shukur et al. (2012) examined the significance of parks to household residents and developers in Selangor, Malaysia. Following is some of the variables from the study:

- Locational topography
- Presence of Benches
- Tree Shade
- Jogging path
- Privacy and security of neighborhoods or major road
- Accessibility to highways
- Design of park

Lin (2016) have used hedonic pricing models to assess the effects of parks on surrounding properties.

- Presence of water body
- Presence of Indoor Facility
- Children playground
- Presence of Basketball, Tennis and Volleyball courts

Chen et al. (2023) have looked into the association between housing prices and green space characteristics in Beijing, China. Following is some of the variables from the study:

- Distance to Central Business District
- Window orientation
- Storey

Mayor et al. (2009) analyzed the value of parks in the Dublin area. Following are some of the variables from the study:

- Density of Green Spaces
- Distance to Park

All of these studies postulate that there is more to park valuation than it meets the eye. The valuation is affected more by the characteristics of a park and each of these characteristics individually affect the valuation of a house.

Such models have various implications for policy, the environment and valuation. For the government, providing public parks and their accessibility is essential as we have discussed before, therefore, it is these models that provide the government with

what needs to be prioritized when constructing public parks. Similarly, parks are the symbols of green spaces in urban cities and therefore act as an antithesis to the troubles that urbanization and environmental deterioration bring. These models are beneficial for the accurate and effective valuation of houses and resilient infrastructure.

Through reviewing the models, four thematic areas have been identified, namely: Park Architecture, Social, House Proximity and Non-Park Factors, where different characteristics of a park can add value to the nearby houses

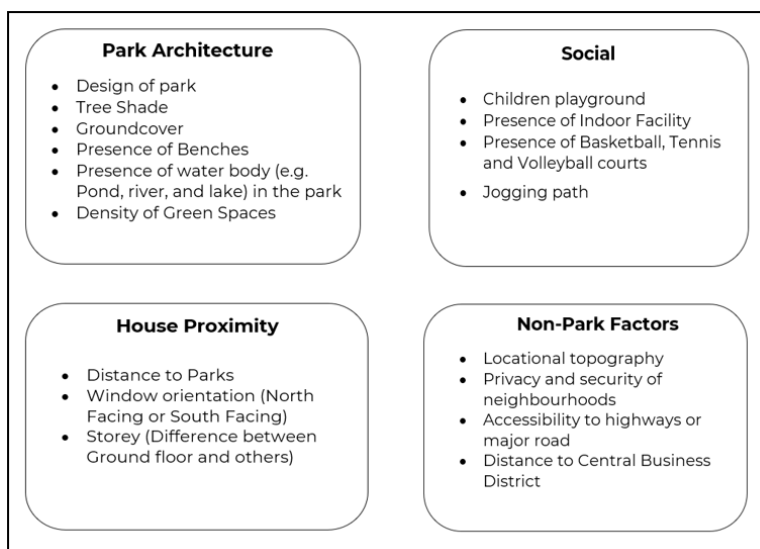


Fig. 1. Four Thematic Areas

Source: Identified by the Authors from Chen et al. (2023); Mayor et al. (2009); Shukur et al. (2012); Lin (2016)

3.1 Park Architecture

The first thematic area is “Park Architecture”. This refers to how the park has been built and what are its core features that might be attractive to people.

- Design of the Park: The shape and the overall park outline
- Tree Shade: How much is the tree shade in the park?
- Groundcover: how much area is covered by trees, and tracks

- Presence of Benches: Availability of Benches in the park
- Presence of Water Bodies: The existence of water bodies in the park such as ponds, rivers, lakes, etc.
- Density of Green Spaces: How densely green is the park?

3.2 Social

The second thematic area is “Social”. This refers to the physical and personal human connection with the park.

- Children’s Playground: Park having children’s play areas
- Presence of Indoor Facility: Indoor Facilities for public to use
- Presence of Basketball, Tennis and Volleyball Courts: Park has sport areas
- Jogging Path: Jogging track availability

3.3 House Proximity

The third thematic area is “House Proximity”. This refers to the relationship between the house and the park

- Distance to Park: The distance of the park from the house
- Window Orientation: North or south-facing window
- Floor/ height: Floor on which the house is located

3.4 Non-Park Factors

The fourth thematic area is “Non-Park Factors”. This refers to the factors which are not directly related to the park.

- Locational Topography: Physical features of the locality
- Privacy and Security of Neighborhoods: Security measures of the locality
- Accessibility to Highway or Major Roads: Access to major roads and highway
- Distance to Central Business District: Access to nearby markets and businesses.

There can be variations when applying this framework in different settings. For example, perhaps we would find that parks provide less valuation in an area where there is already an abundance of green space than in an area that has relatively less green space availability. Another variation can occur in the demographic domain. For example, for younger people parks might not play a bigger role than people who are middle-aged or older. This might be because younger people are more focused on their careers, whereas people who are middle-aged or older have families and would prefer to have a common area like a park.

Following are some examples of variation:

- A park's type can have variations in the valuation. For instance, if there is a "Woody" park with more trees and natural essence and another which is a "Grassier" park with fewer trees but a more beautified environment. For some people the former might be more appealing to them than the latter and for others the reverse. This implies that there can be variations in the tastes and preferences of the people and how they perceive what a park should be. For one person a house near a woody park would have more value than a house near a grassy park and vice versa.
- The lifestyle choices of people can also make variations. If people are not into fitness, then for them park and its characteristics would not be significant than a person who is health conscious.
- Ownership of vehicles can also affect the significance of parks. If a person has their vehicle, then in most instances proximity to the park would not be an issue.

4 Discussion

The thematic areas discussed in the previous section lay out the different aspects of a park when discussed in great detail. The variables used in the conceptual framework developed provide their usefulness to many parties as there are many stakeholders when it comes to the presence of parks. Some key stakeholders here are investors, valuers, surveyors, developers, and government.

4.1 Relevance in the context of Government

As countries take on more development projects, the conceptual framework and its variables become important for government planners to take into account when planning for public infrastructure. The redevelopment and urbanisation of underdeveloped areas like slums would provide the scope for such variables. The Government of India's "Smart Cities Mission" aims to provide the necessary infrastructure to its citizens so that they can get a decent quality of life. One of those areas is green spaces for the public to use and this is where such variables would become relevant to the government.

This would further lead to the achievement of a "Green Economy" i.e. achieving growth and development as well as simultaneously having advancements in environmental and social well-being (Söderholm, 2020). This would have a direct connection with the achievement of Sustainable Development Goals and Environmental Social and Governance (ESG) objectives.

4.2 Relevance in the context of Sustainability

As stated previously, the Sustainable Development Goals (SDGs), especially SDG 11 which focuses on “Sustainable Cities and Communities” advocates for facilitating universal access to safe, inclusive and accessible green and public spaces, particularly for women, children, differently abled and senior citizens. In other words, urban green spaces such as parks should not just be developed for the sake of existing but rather, they must be made sure to be made available to everyone to use safely including its interior services such as playgrounds, tennis courts, ponds, jogging tracks, etc. Therefore, this conceptual framework and the identified variables become relevant in the urban context where most of the green spaces are in the form of parks for the public to use.

4.3 Relevance in the context of Built Environment and Real Estate Valuations

These variables are very relevant to the built environment as they are informative and useful when planning and constructing properties and infrastructure in the private and public sectors. According to Samuel & Watson (2023), the social value of the built environment has been increasingly given more importance in recent times and has become as important as well-being and quality of life. Since we know parks provide an avenue for social recreation (Manning & More, 2002), this framework would be beneficial for built environment models by adding another layer to real estate valuation, especially in the modern context where green spaces are limited in urban cities.

5 Conclusion

Green spaces have always historically been a common place for everyone in society to access and interact with one another, making them an essential part of everyday life. The modern world with rapid urbanisation, has witnessed the rise of Urban Green Spaces (UGS) such as parks, which are green spaces existing in urban cities. As discussed previously, having them in urban cities is highly beneficial for a variety of reasons, the most important being curbing pollution levels and reducing a phenomenon called “Urban Heat Island”. Overall having access to parks can contribute to a citizen’s health, wealth and overall welfare. However, not everyone would benefit in the same proportion as the number of UGS and their quality is lower in poor socio-economic areas status (De Haas *et al.*, 2021). The sustainable development goals also advocate for countries to ensure that green spaces are available to all and that they are inclusive and resilient.

The conceptual framework of this studies to aims to contribute to the field of valuation. By using different characteristics of a park, the framework attempts to add a different dynamic to the already existing house valuation frameworks and models. For example, by giving more depth to the presence of parks near a residential

property, perhaps, the valuation of the property might experience a change which previously was not possible.

However, it is to be noted that what a park can be variations in their outcome. For example, if an area is already rich in greenery and natural forests, then parks hold little value to people. Another potential factor is that when the value of a property rises, it may lead to higher property taxes which might dissuade people from buying the property (Crompton, 2001). Similarly, the significance of parks to people differs across age groups with parks being more significant to older people than younger people who would mostly be busy in building their careers. Another interesting factor can be vehicle ownership as people with access to personal vehicles can go to parks at a longer distance from their homes and thus would be indifferent to the parks near their homes.

For future research, the conceptual framework developed in this paper can be empirically tested to evaluate how much these factors individually affect the valuation of a house. Moreover, new factors such as inclusivity i.e. inclusion of all and accessibility i.e. restrictions in public space usage can also be identified in future studies which could then be added to this framework to enhance it further.

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