Proceeding Paper

An Investigation of Parameters Affecting Affordable Housing Location Choice

Nishat Afshan [*], **Rajan Chandra Sinha**

Department of Architecture and Planning, Birla Institute of Technology, Mesra, Ranchi, India; rajanchandrasinha@bitmesra.ac.in
* Correspondence: phdar10005.21@bitmesra.ac.in
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Abstract: The provision of affordable housing has become a major concern for policymakers and urban planners, especially in developing nations of the world. One of the key challenges in this domain is the identification of suitable locations for the development of affordable housing. Appropriate locations of affordable housing will improve the housing satisfaction of residents by increasing the social and economic benefits for low-income residents, providing better accessibility to opportunities and services, and reducing poverty concentration. A bidirectional relationship exists among affordable adequate housing and health, and has been recognized as an essential sustainable development component. Therefore, this research aims to identify the factors that govern the spatial location choice of affordable housing. The determinants were derived through an exploratory study of relevant literature studies encompassing different geographical contexts, socio-economic backgrounds, and technological and economic advancement levels. A total of 61 parameters were identified, each of which lies in one of the following six categories: neighbourhood characteristics, urban characteristics, social factors, economic parameters, demographic factors, and housing quality. The findings indicate that the location choice of users varies with regard to the context of an urban area. Broadly speaking, most of the prior studies have considered accessibility, transport-related factors, and housing prices as important attributes in determining the optimal location for siting affordable housing. However, parameters such as socio-economic criteria, accessibility to various facilities, and employment opportunities have greater significance in developing nations. Contrasting results are observed in the case of several developed nations, wherein factors such as safety, environmental aspects, and dwelling type were emphasized over elements of accessibility. The identified parameters can be considered by the policymakers to evaluate optimal locations for siting affordable housing projects, thereby ensuring that low-income residents reside in neighbourhoods that promote social and economic sustainability.

Keywords: affordable housing; location choice; optimal locations; parameters; sustainability

1. Introduction

As the global population continues to burgeon and urbanization accelerates, the challenge of ensuring adequate and affordable housing for all has become imperative, especially in developing nations. One of the key challenges in this domain is the identification of suitable locations for the development of affordable housing. Appropriate locations of affordable housing will improve the housing satisfaction of residents by increasing the social and economic benefits for low-income residents, providing better accessibility to opportunities and services, reducing poverty concentration, and positively impacting health conditions (Sharghi et al. 2021, Olanrewaju and Wong 2019). The housing location choice not only defines the interaction of the built environment and the households but also influences their lifestyle and travel patterns (Ayoola et al. 2023). To gain insights into

housing demand and spatial allocation issues, it's imperative to delve into users' housing preferences, as it is a fundamental factor in addressing the mismatch between housing supply and household needs. It has been acknowledged by experts and researchers that the placement of affordable housing at optimal sites is critical in determining its viability and effectiveness (Sener et al. 2011). Therefore, this research aims to identify the factors that govern the spatial location choice of affordable housing. By examining a diverse array of factors, both individual and contextual, we aim to contribute to a more comprehensive understanding of the dynamics governing these choices. In doing so, we hope to offer insights that can inform policy development, urban planning strategies, and affordable housing provision practices to create more equitable and sustainable urban environments.

2. Methodology

This research adopts an exploratory literature review of peer-reviewed journal articles and conference proceedings by investigating identified keywords that are residential location choice, affordable housing, location suitability, and parameters on several electronic databases, including Google Scholar, Scopus, ScienceDirect, and SpringerLink. A manual assessment of the titles and abstracts of articles was carried out to decide their inclusion in the study. Altogether, 48 research papers from peer-reviewed journals and three conference proceedings articles were identified as relevant to the aim of this research. Through these sources, 61 parameters associated with the housing location choice of the residents were gathered. Among these, 45% were carried out in developing countries notably China, Malaysia, and India, while the remaining were from high-income and technologically advanced nations, including the United States of America and the United Kingdom.

3. Results and Discussions

3.1. Parameters Identified Through Literature Review

The housing choice of a household is described as selecting a dwelling unit or its spatial setting from a range of alternatives with various characteristics based on considerations involving their needs, preferences, and available resources along with existing housing market constraints (Brown and King 2005, Mulder and Hooimeijer 1999). However, there exists a notable absence of a standardized method for categorizing attributes utilized for defining residential location choices. Addressing this drawback, a structured classification of parameters influencing location choices of households is developed in this study, comprising the following six distinct categories, namely neighbourhood characteristics, urban characteristics, social factors, economic parameters, demographic factors, and housing quality (Table 1).

1. **Neighbourhood Characteristics:** The notion of neighbourhood may be characterized as a collection of spatially related features, including a diverse array of attributes, such as infrastructure, accessibility and proximity to various facilities, environmental conditions, and transportation network traits or connectivity (Galster 2001, Cao et al. 2006).

2. **Urban Characteristics:** The term urban characteristic is a location-related attribute that is defined by the geometries and dimensions of physical objects. It involves the function of population size and density, the spatial extent of the built area, the variations in land prices across the area, and a mix of different land uses (Weeks 2010).

3. **Social Factors:** Social characteristics comprise a wide range of societal and cultural attributes (such as ethnic groups and social status), demographic, and interpersonal attributes that shape the identity, behavior, and relationships of individuals within a group or community (Seo and Kwon 2017).

4. **Economic Parameters:** Apart from social factors, economic aspects have gained greater prominence in influencing urban land-use patterns. Economic value has been a critical factor in the allocation of land resources, influencing the overall affordability

of a housing project (Deng et al., 2010, Zheng et al. 2015). Price of land and construction and labour market attributes are some specific economic parameters that are mostly included in studies of residential location choice set.

5. **Demographic Factors:** Demography deals with the study of human populations and facilitates in determining the response of various demographic groups to housing location choice factors (Sener et al. 2011). Variables such as ethnic diversity and the household size average at the zonal level are often associated with spatial alternatives of location choices.

6. **Housing Quality:** Though housing quality encompasses multidimensional indicators, the factors representing the distinctive physical characteristics of a dwelling unit, along with other measures of building services such as water supply, waste management, and drainage systems have been incorporated in studies assessing the location choice of households.

Table 1. List of parameters identified from literature review, Source- Compiled by Author.

S. No.	Category	S. No.	Sub-Category	Related Indicators	Selected References
1	Neighbourhood Characteristics	1.1	Neighbourhood Attributes	Aesthetic views, Poverty incidence, Level of education, Crime rate, Neighbourhood satisfaction	Jaramillo et al. 2020, Rohayah and Dawood 2019, Ayoola et al. 2023, Mulliner et al. 2013
		1.2	Accessibility and Proximity to Various Facilities	Accessibility and proximity to transit stops, Accessibility and proximity to educational facilities (elementary and primary schools), Accessibility and proximity to public safety (fire rescue and police stations), Accessibility and proximity to healthcare facilities, Accessibility and proximity to recreational spaces, Accessibility and proximity to retail	Ayoola et al. 2023, Ghumare et al. 2020, Olanrewaju and Wong 2019, Frenkel et al. 2013, Mulliner et al. 2013
		1.3	Infrastructural Coverage	Coverage of physical infrastructure facilities like water supply, waste management, drainage system; and, Coverage of social infrastructure such as availability of schools, hospitals, recreational spaces	Sharghi et al. 2021, Ghumare et al. 2020, Rohayah and Dawood 2019
		1.4	Environmental Aspect	Frequency of flooding, Level of air pollution,	Ayoola et al. 2023, Jaramillo et al. 2020,

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		1.5	Connectivity	Noise pollution, Land surface temperature, Vegetation cover Availability of public transportation in close proximity, Duration of travel, Transportation cost, Public transportation routes	Rohayah and Dawood 2019, Mulliner et al. 2013 Sharghi et al. 2021, Jaramillo et al. 2020, Rohayah and Dawood 2019
2	Urban Characteristics	2.1	Land use Variables	Percentage of educational, cultural, commercial, public and semi-public, open spaces and networking opportunities	Rezaei and Patterson 2016, Frenkel et al. 2013
		2.2	City Level Variables	Total built-area, Residential population density, Spatial variation in housing affordability	Ghumare et al. 2020, Frenkel et al. 2013
3	Economic Parameters	3.1	Land and Construction Cost	Land cost, Housing costs, Construction cost, Maintenance costs, Construction techniques and building materials, Transportation cost	Sharghi et al. 2021, Ghumare et al. 2020
		3.2	Labour Market	Employment availability, Unemployment rate	Sharghi et al. 2021, Jaramillo et al. 2020, Rezaei and Patterson 2016
4	Social Factors	4.1	Social Factors	Family size, Age group, Housing ownership, Employment status, Working members, Household income, Cost to income ratio, Education level	Jaramillo et al. 2020, Olanrewaju and Wong 2019, Frenkel et al. 2013
		4.2	Social Sustainability	Safety, Minimizing social segregation, Enhance the local community lifestyle, Health and well-being, Promote a positive cultural influence	Ayoola et al. 2023, Sharghi et al. 2021
5	Demographic Factors	5.1	Zonal Demographic Variables	No. of families, Ethnic composition of the population in each zone, Average household size in each zone	Ayoola et al. 2023, Rezaei and Patterson 2016
6	Housing Quality	6.1	Dwelling Unit Structure	Building Typology, Unit area, Total units (in numbers), Number of	Olanrewaju and Wong 2019, Rezaei

6.2	Services	bedrooms, Number of bathrooms, Presence of parking area, Building façade	and Patterson 2016, Frenkel et al. 2013
		Availability of drainage system and water facilities, Sufficient ventilation, Proper waste management systems, Landscaping	Mulliner et al. 2013, Ghumare et al. 2020

3.2. Comparative Analysis of Parameters in Developing and Developed Countries

The parameters related to measures of accessibility and proximity to various facilities were incorporated in the largest share of the articles reviewed (59%), highlighting its importance in influencing choice behaviour. Apart from this, transportation-related factors, connectivity, and the distribution of employment zones are prioritized in the housing location decisions particularly by lower-income communities (Boschmann 2011, Glaeser and Resseger, 2010). High-density areas tend to attract residents due to the presence of abundant job opportunities and well-established infrastructure (Frenkel et al. 2013). Social factors such as education and income level, economic sector of employment, and housing ownership type influence housing choices (Olanrewaju and Wong 2019). Through a comparison of the results, it can be stated that the parameters related to connectivity are found to be less important in developed nations as they have better public transport infrastructure coverage. Dwelling type and other dwelling unit features, building services, and environmental factors hold higher weights in most developed countries, notably the USA. Distinct preferences towards housing typology are observed depending on the household type, such as single-family or joint family and family size. Findings also suggest that clustering tendencies are evident in relation to ethnic composition and housing costs, mostly among high-income economies (Rezaei and Patterson 2016). In the context of the infrastructural level, evidence suggests that inner city locations are preferred over suburbs in developing nations due to the presence of different infrastructure services and better access to employment in informal sectors (Mulliner et al. 2013). The subcategory of attributes that were encompassed in the reviewed research papers is represented in Figure 1.

Occurrence of Indicators (in Percentage)
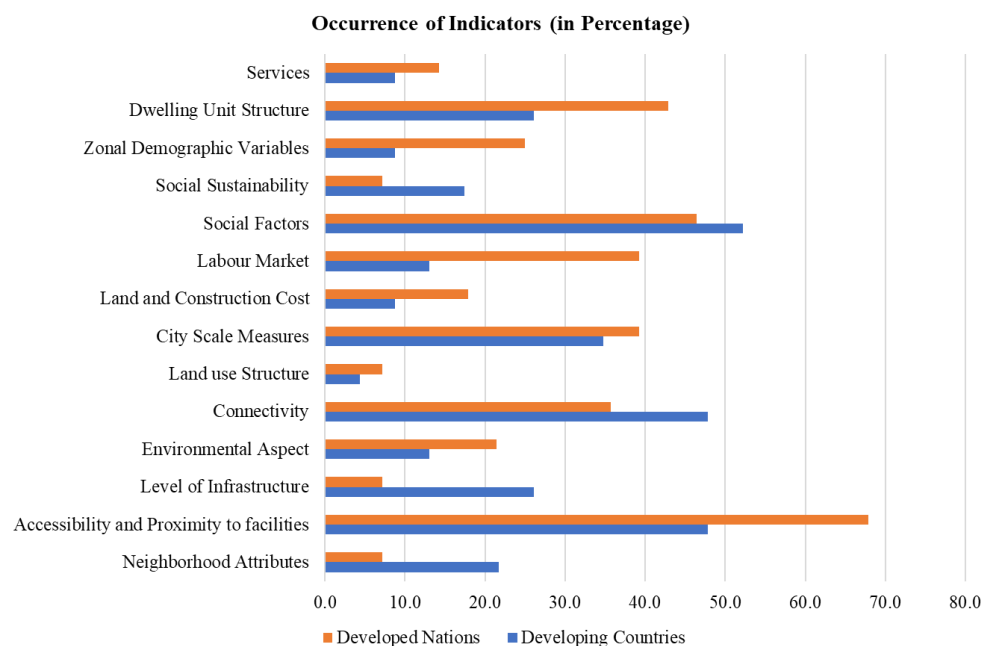
Figure 1. Occurrence of parameters in percentage in the literature reviewed, Source- Author.

4. Conclusions

In this study, the multiple attributes associated with the location choice of residents in the context of affordable housing have been examined through a review of relevant literature. Location choice can be envisioned as a decision-making process of households linked to probabilities of selection from a range of parameters correlated with a specific location that influences their everyday activities. The findings indicate that the location choice of users varies concerning the context of an urban area. The study's result can be implied in housing development policy, land use, and transportation planning. The iden-tified factors may be prioritized and considered by the policymakers to evaluate optimal locations for siting affordable housing projects as these align with the actual demand and preferences of end users, thereby addressing the housing needs of the residents. It will also ensure that low-income residents reside in neighbourhoods that promote social and economic sustainability.

Conflicts of Interest: The authors declare no conflict of interest.

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