

# Does Surrounding Environment Matter in Residential Choice? A Study in India's Urban North-East

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## Abstract

*Housing comes as a bundle of attributes and residential choices are dependent on those factors. Surrounding natural conditions [presence of lake, open sky, garden or parks] often influence the market price of several housing properties. As opposed to this, prices of houses at odd locations without adequate water supply, having dampness and darkness are generally found to be comparatively low.*

*This paper identifies the environmental factors having influence on the residential choices of urban households in North-East India. The analysis reveals significant impacts of water availability, ventilation, house direction, forest-cover and safety on housing preference through variation in monthly rent.*

**Keywords:** Housing choice, Housing attributes, Neighbouring Environment, North-East India

## Introduction

Problem of housing grows with urbanization in tune with the economic progress. It becomes acute with the migration of people from across the places with growing opportunities in the urban centres. The problem is reflected more with the lag in rising urban population and arrangements of housing for them. This is a more common phenomenon in a developing country like India where earlier urban places have been developed in an unplanned manner and newly gathered people find it difficult to immediately find a reasonable settlement in an appropriate location. Sometimes, choice becomes secondary for the scarcity of housing in the required location and very high price [rent] thereof. Hence, on several occasions they have to make a trade off with the locational choice and forced to stay in the outskirts of expanding town/city and shuttle daily for occupations, schooling of children, business centres and so on. Choice of location and a reasonable environment becomes prominent with the knowledge of location, price, increase of earning and entitlement. With rising capability and for the convenience of maintaining daily office/ business, education, marketing etc., those city dwellers also become tuned with the higher price [rent]. Thus, the location of house as well as surrounding environment become important for enjoying civic amenities and avoid various hazards. These location and environmental factors gain importance with expanding knowledge and awareness, educational and occupational status, affordability [that comes from earning] and by imitating others particularly the people staying in the neighbourhood.

As per the records, 31.16 per cent of India's population lived in

urban areas and the housing stock in urban India stands at 78.48 million for 78.86 million households [1]. Within these 78.48 million housing several are located in areas without basic civic amenities like adequate and quality drinking water, motor-able roads, electricity, drainage, sewerage, health and education facilities etc. The quality of life in a community is greatly impacted by the availability of adequate and affordable housing [2]. But as land and real estate prices increase exponentially, more and more households opt for rental housing since their dreams of owning a house becomes more difficult. Hence, rental housing has become a key housing segment especially in urban areas. Rental housing markets benefits both landlords and tenants [3]. It is particularly vital in providing the shelter needs of the migrants and urban poor for whom shelter choices are restricted in the city [4]. In India, 38 per cent of urban households lived in rented accommodations in 2008-09 [5].

Rental market and preferences for various attributes can be better explained through hedonic method [6]. Housing comes as a bundle of attributes like size, type and construction features, location in respect of various desired destination of everyday life [e.g., distance from educational institutions for the families having school/college going children, distance from workplace, market, main road of connectivity in the neighbourhood, whether having green surrounding or not etc]. Preferences of various attributes inherent in a house are reflected in the variation of prices offered for variation in such attributes and final choice by a potential buyer [tenant in the present case] is made depending on her/his capability, requirement and availability of various at-

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tributes including environmental conditions. It is observed that urban green spaces, clean water bodies and good environments provide amenities and services that contribute fundamentally to the quality of urban life and appreciate the property values [7]; [8]. As opposed to this, hazardous environmental sites are found to depreciate property values [9]. Many urban dwellers in India, particularly the poor, are either unaware or indifferent of the environmental hazards they are exposed to around them. Even if some are conscious of the hazards, many of them are compelled to live under such conditions due to lack of entitlement or for availing targeted opportunities/facilities available in the neighbourhood. However, day by day the environmental attributes are gaining importance in the residential housing selection.

Despite the universal concern for better and healthier housing environment, very little research has been carried out in order to understand and mitigate the living conditions in most urban areas, especially in developing countries like India.

Relationships between the price of a housing unit and its characteristics have been studied by Lancaster [10], who discussed the utility-bearing characteristics of a commodity, and Rosen [6] who later extended the study to include a market between buyers and sellers to obtain the equilibrium implicit prices of various attributes. Rosen's approach has been frequently used in housing demand literature because, unlike other consumption goods, the housing market is unique since it manifests the characteristics of heterogeneity, durability and spatial fixity which satisfy several wants. Housing attributes are broadly classified as structural, locational and neighbourhood or environmental attributes.

Structural attributes such as floor area or size [11], number of rooms, bedrooms and bathrooms [12], floor level [13], provision of balcony [14], have been found to significantly affect house prices positively. Good architectural design also commands a price premium [15]. Researchers also surmised that age of building is negatively related to property prices [12]. However, Li and Brown [16] found a positive effect of age on some buildings due to historical significance or vintage effects of the buildings. Forrest, Glen and Ward, [17], found that availability of garage positively impact house prices. Other empirical works found that structural quality, such as exterior structure and condition of floors; windows and walls also influence housing prices [Morris, Woods and Jacobson, 18].

In respect of neighbourhood attributes, both Chattopadhyay [19] and Zabel & Kiel [20] examined the relationship between air quality and property values and established that air pollution significantly reduces residential property values. Thus, preference for environmental or natural resource quality can be reflected in the variation in house prices [21]; [9].

The questions of hazards, security, etc., are also important criteria for people's preference of residential houses. The influence of other negative externalities have also been empirically studied: such as crime rates [22], traffic noise [23]; airport noise [24]; hazardous waste sites [9]; industrial sites [25], all are found to have statistically significant negative impacts on property values of the area.

## Background and Study Area

This article deals with how much the environmental and other factors affect the demand for rental housing in Dimapur town. Dimapur town is considered the 'gateway' of Nagaland and also occupies an important place for the neighbouring districts of Assam and the state of Manipur. Its strategic location on the railway, airway and road routes has given it a growing importance as evident by the commercial prosperity during the last few decades. Moreover, the town also performs the role of a transportation nodal point. The high influx of immigrants [after statehood of Nagaland in 1963] to Dimapur is also accentuated by the fact that it is the only place in Nagaland where Inner Line Permit [ILP] is relaxed [26]. Besides being the Commercial capital of Nagaland, Dimapur town is also an educational hub attracting many students from rural Nagaland and neighbouring states. The population of Dimapur town is 122834 consisting of 27857 households live in 23 wards. About 68 per cent of households in the study area live in rented accommodations [1].

## Objective

The present paper tried to identify if the environmental factors along with socio-economic and other conditions also influence residential choices of housing. Also, the willingness to pay for environmental attributes will be examined through the estimated rent equation. In particular, the attempt is to examine the environmental awareness of the residents and their preference for it in the residential choice.

## Data and Methodology

For the purpose of analysis, a primary survey was conducted during July, 2015 to January, 2016 for collection of data at the household level. A sample of 490 households was selected by simple random sampling without replacement from the 23 wards under Dimapur Municipal Council area, with a minimum of 20 respondents from each ward. Information on the demographic, socio-economic characteristics of the households such as age, sex, marital status, family size, community, domicile, religion, education of head and spouse, type of employment and income of head and spouse etc. were collected. Other details like duration of stay in the town and time taken for arranging first rented accommodation and number of times accommodation has been changed during the stay were also recorded. Housing qualities like size, number of rooms, house direction, safety provided by the house, water supply and storage capacity, other attachments, and monthly rent paid were also collected. Along with those, neighbourhood attributes [environmental] like sewer conditions, house dryness, ventilation, proximity to forest cover and water bodies were collected.

Thereafter, a descriptive statistics of the relevant environmental, socio-economic and structural variables in relation to the rental housing has been presented. Then bivariate Pearson's correlations among the relevant socio-economic, structural and environmental variables are computed to have an idea of relationship between the selected variables in choosing accommodations. In order to examine the impact of environmental variables on the residential demand along with other characteristics, thirteen important characteristics as independent variables have been included.

A semi-log multiple linear regression model of the type  $\text{Ln}Y_i = \alpha + \sum_1^k \beta_i X_i + U_i$  is considered where  $\text{Ln}Y_i$  represents the natural log of monthly rent paid by the  $i^{\text{th}}$  respondent,  $X_i$  the  $i^{\text{th}}$  variable representing environmental, socio-economic and structural characteristics,  $U_i$  the random disturbance term with usual classical regression properties and  $\beta$  represents the impact of a marginal change in the  $i^{\text{th}}$  explanatory variables.

### Observations and Analysis

An overview of the summary statistics of the respondents in Table 1 showed that the average family size is 4.32 and average number of families staying in same building is 3.97. Thus, on an average, 16-17 numbers of people stay in a building in the area. The average time required for getting the first accommodation

in Dimapur town is 1.34 months, and it increased from zero or hardly a week during four decades back to even 6 months at present. It is an indication of sharp rise in demand for housing in the town during last few decades. This tendency is observed from Table 2 where it can be seen that the number of new households coming to the town as well as the time required to get accommodation is increasing over the decades. Monthly family income of the respondents ranges from Indian Rupees [Rs] 5000 to Rs 75000, which is an indication of significant inequality in income across the respondents. Monthly rent paid by those individuals, as it depends significantly on their earning capability, also ranges from Rs 800 to Rs 20000. The carpet area as well as compound area ranges from a merely 120 sq. ft. and 300 sq. ft. to 5000 sq. ft. and 90000 sq. ft. respectively.

**Table 1: Summary Statistics on Accommodation, Family Size, Earning and Rent paid by the Respondents**

	Min	Max	Mean	Coeff of Var.
Time spent to get First Accommodation (Month)	0	6	1.34	86.91
Duration of Stay (years)	1	71	19.68	70.72
No of Families Staying in the Same Building	1	30	3.97	88.81
Family Size	1	10	4.32	39.78
Monthly Family Income (INR)	5000	75000	33673.47	62.30
Monthly Rent (INR)	800	20000	5620	58.20
Carpet Area (Sq.Ft.)	120	5000	662.07	71.56
Compound Area (Sq.Ft.)	300	90000	3832.98	119.85

Source: Field Survey during 2015-16.

**Table 2: Distribution of Tenants According to Duration of Stay (Year) and Time Taken for First Accommodation (Months)**

Stay Duration	0-9 Yrs	10-19 Yrs	20-29 Yrs	30-39 Yrs	40 & above
Average Time (Month)	2.22	1.66	0.89	0.49	0.14
No. of Households	147	122	94	76	51

The environmental quality in the neighbourhood impacts the quality of live to a great extent. Table 3 exhibits some important environmental quality indicators across the wards of Dimapur town. Availability of sufficient and good water is most essential for healthy living. It is observed that there is disproportionate water availability across the town. In 2 wards, less than 50 per cent of the sampled households receive unrestricted water supply throughout the day. In case of water quality, more than 90 per cent of the respondents in 7 wards are satisfied with the water while only 50 per cent of respondents are satisfied in ward 23. Open sewers which do not flow freely may pose serious environmental hazards. It is observed that except for 2 – 3 wards, a large majority of the respondents in the town are exposed to open sewer. Several residents are also found to be facing the problem of sewage clogging triggering rain floods during monsoon which has become a serious health concern.

Open space with good scenic views is a preferred option for people because it adds to their quality of live. But it is observed that respondents in 3 wards of the town have no views of green cover around their houses while in majority of the wards only a small percentage of the sampled respondents enjoy such views. This

implies that in most of the wards people are living in congested areas with no open space. Urban areas in India generate a lot of wastes [liquid as well as solid] and waste disposal systems are far below appreciable standards. The survey found that a high percentage of respondents are living near garbage dump yards and public sewages. Also, water bodies in the urban areas are usually highly polluted. It is observed that many respondents have taken residence near rivers, streams or lakes. The survey also found a high percentage of respondents residing near heavy traffic roads or junctions exposing themselves to higher air and noise pollutions.

As stated earlier, housing comes as a bundle of attributes and people make their housing choices depending on capability, availability, requirement and preferences. Therefore, though the survey found most respondents living in and around poor environmental surroundings, it may be because they are either unaware or indifferent of the environmental hazards they are exposed to. Another reason for such observation may be that the respondents compromise environmental benefits for other structural and locational conveniences. Also, it may be noted that Dimapur town is a relatively small town with lesser population

compared to most cities and so the level of pollution may still be at tolerable level. Hence, the environmental dis-amenities may not be alarming enough to dissuade people from living around such places.

**Table 3: Ward-wise Percentage Distribution of the Respondents According to Some Environmental Quality Indicators**

Ward	24Hrs Water Supply	Satisfactory Water Quality	Open Sewer	Sewage Clogging	Located near River/Lake	Flood Prone during monsoon	View of Green Cover	Located near Garbage Yard	Located near Public Sewer/Drain	Located near Polluted Stream	Located near Heavy Traffic Road
1	80	80	60	0	15	0	0	35	50	25	80
2	61.9	57.14	95.24	14.29	28.57	14.29	31.82	18.18	50	31.82	72.73
3	60	55	85	20	40	35	100	25	30	25	10
4	63.64	81.82	100	22.73	31.82	27.27	59.09	40.91	63.64	13.64	72.73
5	80	85	100	5	0	0	30	35	55	0	80
6	77.27	77.27	36.36	36.36	9.09	4.55	0	22.73	77.27	0	90.91
7	60.87	82.61	91.3	17.39	8.7	21.74	34.78	30.43	60.87	0	17.39
8	52.38	85.71	66.67	4.76	9.52	9.52	14.29	28.57	52.38	14.29	9.52
9	55	90	55	5	0	5	15	20	25	5	25
10	72.73	90.91	81.82	0	50	18.18	36.36	27.27	31.82	36.36	40.91
11	68.18	95.45	54.55	0	13.64	13.64	68.18	45.45	45.45	13.64	40.91
12	86.36	86.36	50	0	18.18	9.09	59.09	27.27	31.82	9.09	18.18
13	81.82	90.91	59.09	4.55	4.55	4.55	40.91	22.73	36.36	4.55	22.73
14	72.73	86.36	59.09	0	9.09	9.09	50	50	72.73	4.55	40.91
15	38.1	95.24	80.95	9.52	4.76	19.05	4.76	23.81	23.81	4.76	61.9
16	57.14	90.48	90.48	19.05	14.29	9.52	85.71	28.57	57.14	9.52	28.57
17	90.48	85.71	14.29	4.76	0	0	4.76	28.57	52.38	0	90.48
18	71.43	90.48	57.14	28.57	4.76	28.57	9.52	33.33	85.71	4.76	90.48
19	86.36	54.55	18.18	27.27	0	9.09	0	18.18	77.27	0	100
20	80.95	71.43	61.9	4.76	28.57	9.52	71.43	47.62	47.62	4.76	33.33
21	59.09	81.82	59.09	9.09	9.09	0	27.27	27.27	18.18	4.55	45.45
22	42.86	85.71	90.48	28.57	23.81	23.81	28.57	38.1	28.57	23.81	33.33
23	57.14	50	100	4.76	23.81	4.76	38.1	38.1	76.19	9.52	28.57

Source: Field Survey during 2015-16.

**Table 4: Correlations Among Various Environmental, Socio-Economic and Structural Variables**

	Ln-Monthly-Inc	Edu_Head	Fam_Size	Carpet Area	Water Supply	Ventilation	House Dryness	House Direction	Located_River/Lake	Dist. Forest Cover	Sewer Flow	Safety	Water Storage
LnMonthly Income	1												
Education of Head	.588**	1											
Family Size	.331**	-.079	1										
Carpet Area	.601**	.323**	.383**	1									
Water Supply	.495**	.438**	.019	.313**	1								
Ventilation	.493**	.406**	.119**	.405**	.453**	1							
House Dryness	.296**	.260**	-.030	.183**	.393**	.312**	1						
House Direction	.069	.085	-.070	-.008	.071	.078	.048	1					

Located Near River/Lake	.002	-.035	.001	.010	-.017	-.014	-.068	-.051	1				
Distance from Forest Cover	-.079	-.043	-.047	-.126**	-.052	-.111*	.077	.003	-.166**	1			
Sewer Flow	.313**	.173**	.133**	.270**	.140**	.271**	.130**	.038	.091*	-.268**	1		
Safety	.477**	.424**	.052	.301**	.599**	.473**	.386**	.071	-.103*	-.031	.226**	1	
Water Storage	.448**	.406**	.098*	.406**	.429**	.327**	.122**	-.028	.043	-.138**	.306**	.324**	1

\* & \*\* indicate that the coefficient is significant at 5% and 1% level of significance by two tailed test respectively.

Source: Field Survey during 2015-16.

Bivariate correlations among most of the environmental, socio-economic and structural variables are found to be significant [Table 4]. Family income has a significant positive correlation with education of the head of family, family size, size of house, facilities available in the house taken on rent for stay and safety. Besides family income, family size has significant positive correlation with the size of house and the quality of other housing facilities. Education of the head of family is significantly cor-

related to the desired structural variables like size of the house and quality of housing facilities but inversely to the family size, location of house near river or lake and distance from deep forest, though not statistically significant. This shows that higher educated head of households tend to have smaller family size and live closer to the main town areas and most of them are found to prefer good structural and environmental qualities besides safety.

**Table 5: Estimated Coefficients of Regression of Rent Paid on Relevant Socio-Economic, structural and Environmental Variables**

	B	t-Statistic	Sig.
Constant	3.663	14.27	.000
Family Income	.314	10.25	.000
Education Level of Head	.007	0.42	.674
Family Size	.064	6.61	.000
Carpet Area	.000	12.05	.000
Water Supply	.086	2.90	.004
Ventilation	.074	2.41	.016
House Dryness	.060	1.44	.151
House Direction	.026	1.99	.047
Located near River/Lake	-.054	-1.36	.174
Distance from Forest Cover	.000	7.64	.000
Sewer Flow	-.079	-3.02	.003
Safety	.109	3.14	.002
Water Storage	.036	1.95	.052
R <sup>2</sup> = 0.78, Adj. R <sup>2</sup> = 0.77 & F = 126.51 (.000)			

Dependent Variable: Ln Monthly Rent

Source: Field Survey during 2015-16.

From the results of the semi-log linear multiple regression analysis of variation in rent for environmental, socio-economic and structural characteristics, it is found that most of the selected variables have statistically significant impacts on the monthly rent paid [Table 5]. The R<sup>2</sup> of 0.78 reveals that 78 % of the total variation in the dependent variable is explained by the regression equation while the remaining 22 % is captured by the error term. Even after adjusting for the degrees of freedom, 77 % is explained by the equation. The two parameters are jointly significant at 1 % as shown by the F-statistic [126.51] with p-value of 0.000. Monthly family income, family size, carpet area of the house, water supply, ventilation, house direction, distance from forest cover, safety and water storage capacity are found to have positively significant impacts on monthly. Proper ventilation is

essential in a hot place like Dimapur and so the positive coefficient is on expected line. Water is not only one of the essential items for survival but it is also essential for cleanliness and people face significant problem in collecting water from various sources in growing urban centres and sometimes have to buy from vendors. Hence, a house having good water supply and greater water storage capacity is expected to charge more rent. The safety status is found to have a significant positive impact on rent. By convention, certain direction which the house faces are preferred by people and in India it is observed that most people have a stronger preference for south-facing and east-facing houses and least prefer a house which faces west. The result of this study reinforced that observation which implies that people pay more rent for such preferences. However, coefficient of sew-



er flow is found to be significantly negative. People especially the servicemen and business community like to stay near town and intend to pay more rent for the communication and other advantages of township, as evident from the positive coefficient of distance from forest cover. Therefore, even though the sewer flow is not good around the main town there seems to be some kind of compromise in favour of other benefits.

## Conclusion

This article reveals that residential choices by the households and the monthly rents are significantly influenced by environmental amenities, social-economic conditions and structural characteristics of the house. Monthly family income and family size are found to significantly affect the monthly rent in a positive way. In choosing the type of house to stay, it is observed that size of the house has significant positive impact on rent as expected. People are also found to be willing to pay higher rent for those houses facing south or east in contrast to houses facing north and west. With regard to the environmental and other amenities available in and near the house which impact the health and quality of life, it is found that ventilation, water supply, water storage capacity, distance from forest cover and safety provided by the house has significant positive impacts while sewer flow has significant negative impact on the monthly rent paid. Thus, the study found that residents have a preference for good and hygienic houses but are not impacted much by the environmental qualities around their housing units in their residential choice.

## References

- Vupru, V. (2019). Environmental Factors and Residential Choice in Dimapur Town, Nagaland. *International Journal of Research in Social Sciences*, 9(4), 1064-1077.
- Das, B. (2014). A Study of the Rental Housing Demand in Polk County, Iowa.
- Kumar, S. (2001). Social relations: Rental housing markets & the urban poor in India. Report to the infrastructure & urban development department, Department for International Development (DFID).
- Desai, R., & Mahadevia, D. (2013). Land and housing development processes as determinants of rental housing for the urban poor: The case of Guwahati City. Center for Urban Equity and Faculty of Planning, CEPT University, Ahmedabad, Working Paper, 19August.
- De, U. K., & Vupru, V. (2017). Location and neighbourhood conditions for housing choice and its rental value: Empirical examination in an urban area of North-East India. *International Journal of Housing Markets and Analysis*, 10(4), 519-538.
- Rosen, S. (1974). Hedonic prices and implicit markets: product differentiation in pure competition. *Journal of political economy*, 82(1), 34-55.
- Van Herzele, A., & Wiedemann, T. (2003). A monitoring tool for the provision of accessible and attractive urban green spaces. *Landscape and urban planning*, 63(2), 109-126.
- Chiesura, A. (2004). The role of urban parks for the sustainable city. *Landscape and urban planning*, 68(1), 129-138.
- Deaton Jr, B. J., & Hoehn, J. P. (2002). The effect of hazardous waste sites on property values in zones of high industrial activity: A hedonic approach (No. 375-2016-20164).
- Lancaster, K. J. (1966). A new approach to consumer theory. *Journal of political economy*, 74(2), 132-157.
- Carroll, T. M., Clauretje, T. M., & Jensen, J. (1996). Living next to godliness: Residential property values and churches. *The Journal of Real Estate Finance and Economics*, 12, 319-330.
- Rodriguez, M., & Sirmans, C. F. (1994). Quantifying the value of a view in single-family housing markets. *Appraisal Journal*, 62, 600-606
- So, H. M., Tse, R. Y., & Ganesan, S. (1997). Estimating the influence of transport on house prices: evidence from Hong Kong. *Journal of property valuation and investment*, 15(1), 40-47.
- Wing Chau, K., Kei Wong, S., & Yim Yiu, C. (2004). The value of the provision of a balcony in apartments in Hong Kong. *Property Management*, 22(3), 250-264.
- Millhouse, J. A. (2005). Assessing the effect of architectural design on real estate values: A qualitative approach (Doctoral dissertation, Massachusetts Institute of Technology).
- Li, M. M., & Brown, H. J. (1980). Micro-neighborhood externalities and hedonic housing prices. *Land economics*, 56(2), 125-141.
- Forrest, D., Glen, J., & Ward, R. (1996). The impact of a light rail system on the structure of house prices: a hedonic longitudinal study. *Journal of Transport economics and Policy*, 15-29.
- Morris, E. W., Woods, M. E., & Jacobson, A. L. (1972). The measurement of housing quality. *Land Economics*, 48(4), 383-387.
- Chattopadhyay, S. (1999). Estimating the demand for air quality: new evidence based on the Chicago housing market. *Land Economics*, 22-38.
- Zabel, J. E., & Kiel, K. A. (2000). Estimating the demand for air quality in four US cities. *Land Economics*, 174-194.
- Leggett, C. G., & Bockstael, N. E. (2000). Evidence of the effects of water quality on residential land prices. *Journal of Environmental Economics and Management*, 39(2), 121-144.
- Thaler, R. (1978). A note on the value of crime control: evidence from the property market. *Journal of urban economics*, 5(1), 137-145.
- Nelson, J. P. (1982). Highway noise and property values: a survey of recent evidence. *Journal of transport economics and policy*, 117-138.
- Nelson, J. P. (1980). Airports and property values: A survey of recent evidence. *Journal of transport economics and policy*, 37-52.
- Abreu, M., De Groot, H. L., & Florax, R. J. (2004). Space and growth: a survey of empirical evidence and methods.
- Kumar, R., & Kaul, R. (2013). Management Plan for Intanki National Park. Wildlife Trust of India.

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