

# CUSTOMERS HOUSE PURCHASING DECISION FACTORS IN KATHMANDU VALLEY

Yogesh Man Shrestha,<sup>1</sup> Ramesh Kumar Joshi<sup>2</sup>

**Abstract:** *A house is taken as one of the major basic needs of human beings. Urbanization is noticeable in Nepal for a long time. The construction business regarding dwelling has been a major activity in this country. So for builders as well as for customers, knowing the factor those influence purchasing decision is a prime concern. This study explores the factors of House purchasing decision by applying the Exploratory Factor Analysis Method for data collected from 313 respondents through Structured Questionnaire. ‘Connectivity’, ‘Design and Construction’, ‘Interiors’, ‘Exteriors’ and ‘Advertisement and Promotional’ factors were identified as major factors considered by Consumers while taking house purchasing decision.*

**Keywords:** Exploratory Factor Analysis, House Purchasing Decision, KMO, Sphericity, PCA, Promax

## Introduction:

The shelter is one of the major needs of Human Being. Prehistoric form of shelter were trees and caves. The shelter was a means for security and comfort, but now, it's also the symbol of prestige.

A house is taken as the basic need for every individual. The house is usually defined as a place where most of the human created or developed events happen in community [3]. Apart from it, a house depicts cultural and social principles accumulated by the human civilization. It has taken a long run to develop current form of shelter which meet the requirement and expectations of the dwellers thus, to develop a housing unit that accommodates the requirement of customers, it is necessary to recognize the house buyer's characteristics.

## Background of Study:

It is obvious fact that the housing sector is considered a basic activity in any economy [9]. To analyze the housing needs and wants requires a detailed information on criteria of homebuyer's choice and the characteristics towards housing choices so they can satisfy consumer's needs and wants. Ensuring existence and survivability in the housing market, the builders and marketers must improve the standards that meet the needs of homebuyers, attracts attention of home buyers, and flexibility in choice which are prime [20].

<sup>1</sup>Tri-Chandra College, Tribhuwan University, Kathmandu, Nepal

<sup>2</sup>Author for correspondence: shresthayogeshman@gmail.com

This study attempts to explores the housing attributes that have a direct and indirect impact on house buyers purchasing decisions. Identifying the housing attributes is marked as the basic stage to define the importance of consumers. Basically, housing attributes include intrinsic and extrinsic attributes. Intrinsic attributes include the type of housing, age of the housing, number of living rooms, number of bedrooms, number of bathrooms, house styles, house design, housing topology, and others. Extrinsic attributes involve exterior space, environmental attributes, location of facilities and services, and neighborhood that affect the purchasing decision of houses [8,7].

Consumer behavior is all about the decision of consumers to buy and use products and services. Many actors are involved in a customer's buying decision, any one of which can become the deciding factors. They are spending millions of rupees in understanding the consumer's behavior because it can help you be more effective in marketing, design, product development, and every other initiative that impacts your customers. It is known that consumer behavior is the study of the behavior of the consumer in terms of their consumption [15]. Likewise, retailers and manufacturers are always interested in evaluating how shopper make their purchase decision and also about when, why, and where. This information is very much important for them to formulate the strategy required for planning and implementing the marketing strategies [2]

The housing purchasing decision is affected by intrinsic housing attributes [8,10,11]. Others indicate that the housing purchase decision is affected by extrinsic attributes [1].

### Purchase Decision

Customer behavior is an important research topic in recent decades. There is also a clear shift from rational factors to psychological factors and social decision factors. There is a link between the "intention to purchase" to "decision to purchase" of customers, especially the decision related to real estate. Purchase decision process includes several stages. The stages are as follows:

Problem Recognition Stage

Searching for Information

Evaluation of Alternatives

Purchase Decision

Post Purchase Decision

Pieces of literature identify different factors while purchasing a house.

Location is considered one factor [14]. Also, access to recreational facilities and access to main roads are proposed [13]. Financial status is much significant to customer house choice. Besides, financial status bases on a combination of house price, mortgage loans, income, and payment term [16]. One of the important factors affecting individual decision making to buy a house is location [14]. The location of the house influences people's purchase choice. Location of the house to choose the house can be affected by the width of the adjacent road, distance to the central business center, distance to work, distance to school, distance to the hospital. In addition, access to recreational facilities and access to main roads are proposed [13]. The feature of the building structure itself is an important determinant of a household's choice of residence. Also, it is confirmed that the feature has significant effects on customer's house purchase decision-making process [19]. Likewise, advertisement and promotional activities and living space also have a direct influence on the house purchasing decision.

The urban population of Nepal is increasing every year. Doubtlessly the demand for houses in every area is growing too. Due to rapid urbanization, increase in income through many sources, and attraction toward houses with modern facilities, the house-building business is taking the lead. Identifying the factors of Customer is the need of not only builders but also of Planner too.

### **Objectives:**

The objectives of the study is as follows.

-to identify the factors affecting customers when purchasing house in Kathmandu Valley

### **Method and Materials**

The target population for this study was the people of Kathmandu Valley who were interested in the purchase of houses in Kathmandu. The people who had the experience of purchasing the house or the people who visited the corporate office of the housings with purchase Interest constituted the Population. The closed Structured Questionnaire was prepared and distributed to the possible respondent explaining the purpose of the Research. The structured Questionnaire produces data with fewer errors as compared to Open-Ended Questionnaires [4]. The questionnaire had two parts: the first part relates to the Personal information of the Respondent and the second part contains 35 questions related to items of House purchasing decision. About 350 persons were surveyed but after the screening, 37 questions were found not to be suitable for analysis. The reason

behind discarding these questionnaires was mainly due to many questions unanswered and some were filled not properly thus indicating haphazardly ticking on options of questions.

The total sample size for this study was 313 respondents.

#### Data Collection Instrument

Data were collected using the self-administered questionnaire. Questionnaires included a set of written questions used to obtain and store necessary information by the researcher during the research. Questions were designed to examine the important variables for the study and were answered by respondents. The variables under consideration were decided upon questionnaire used in previous surveys.

Likert scale was used to generate statistical measurements of people's opinions. A five-point Likert scale was used in the research:

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
-------------------	----------	---------	-------	----------------

The data collected were entered by using SPSS.22. The coding of data was conducted before that. The analysis of data was done using SPSS.22 and R. While analyzing data, factor analysis technique was used.

## Results

The classical Factor Analysis passes through 3 Steps.

Assessment of the suitability of the data for factor analysis

Factor extraction

Interpretation of Extracted Factors.

#### **Step one: Assessment of the suitability of the data for factor analysis.**

The researcher needs to consider whether the particular data set is suitable for factor analysis or not, before using the data to reduce and summarize the data. There are mainly two issues: size of sample and the magnitude of the relationships between the house purchase factors. [21] recommend to have at least 300 sample size for factor analysis. Regarding the second issue – the strength of the relationships between the variables, Fidell (2012) recommends the correlation matrix for evidence of coefficients to greater than 0.30. Factor analysis may not be appropriate if few correlations are below this level. [21]. 15 items out of 32 Items showed correlation 0.3 with one or more items, thus they were discarded in the Factor Extraction Process. Bartlett's test of sphericity [6] and

the Kaiser-Meyer-Olkin (KMO) measure (Kaiser, 1974) were also generated by SPSS to assess the factorability of the data in this research. Factor analysis can be considered appropriate by a significant ( $P < 0.05$ ) Bartlett's test of sphericity. In addition, a Kaiser-Meyer-Olkin value of greater than 0.6 indicates a good factor analysis.

The sample size used for this analysis is 313>300, which is greater than the minimum required sample suggested by Tabachnick and Fidell (2012) to perform Exploratory Factor Analysis(EFA). The Kaiser\_Meyer-Olkin(KMO) test was conducted for checking Sample adequacy for EFA. The KMO was found to be 0.634 and the p-value for Barlett's test of Sphericity to 0.000, thus suggesting factorality of the data.

**Table 1: KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	634
Bartlett's Test of Sphericity	Approx. Chi-Square 5170.705
	Df 136
	Sig. .000

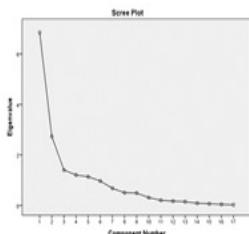


Fig 1: Scree Plot

**Step two:** Step of Factor extraction relates to determining the smallest number of factors that can be used to best represent the relationships between the variables. PCA has been employed in this research to determine the number of housing purchase factors that best describe the underlying relationships among the variables. Kaiser's criterion (i.e. eigenvalue rule) is adopted to assist in determining the number of factors to remain. The factors with eigenvalues of more than 1.0 were retained for further investigation. The study also retains variables with factor loadings greater than 0.4 in the rotated component matrix as suggested by [17].

The Items used in Factor Extraction are as follows.

**Table 2: Items used for Factor Extraction.**

Items Used for Factor Extraction	
1.Width of the street adjacent to the house	9.Quality of bathroom
2.Distance from house to school	10.External design
3.Construction duration	11.View from house

4.Additional features (garden, underground, water tank, etc)	12.Pollution free
5.Interior design and decoration	13.Does advertisement in print media attract you to purchase a house?
6.Storey of house	14.Does advertisement in online media attract you to purchase a house?
7.Size of living room	15.Does promotional programs such as fairs, workshops attract you to purchase a house?
8.Quality of bedroom	16.Security status

The method used for Extracting Factor was Principal Component in SPSS 22.0. The Eigenvalue greater than 1 was the criteria to retain the factor. Rather than fixing several components, a Scree plot (Fig 1) was generated to know the number of factors and the number of iteration fixed was 25.

### **Step three: Factor rotation and interpretation**

This research has used the factor analysis results to replace the original set of variables with a new and smaller set of variables generated from summated scales [12]. The following table depicts the components extracted the variance explained by them.

**Table 3: Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
1	6.854	40.317	40.317	6.854	40.317	40.317	4.926
2	2.733	16.077	56.394	2.733	16.077	56.394	4.076
3	1.402	8.244	64.638	1.402	8.244	64.638	3.475
4	1.203	7.078	71.717	1.203	7.078	71.717	3.864
5	1.136	6.681	78.398	1.136	6.681	78.398	2.965
6	.966	5.683	84.081				

7	.678	3.987	88.069				
8	.503	2.957	91.026				
9	.488	2.871	93.897				
10	.308	1.811	95.708				
11	.204	1.197	96.906				
12	.168	.988	97.893				
13	.145	.851	98.744				
14	.086	.509	99.253				
15	.064	.379	99.632				
16	.039	.232	99.864				
17	.023	.136	100.000				

The first factor can explain about 40% of the variance. Similarly, factor 2 can explain the variance of about 16%. These 5 factors, in total, can explain the variance of about 78%.

The table below shows the pattern matrix and corresponding loadings on different factors.

**Table 5: Pattern Matrix**

Items	Component				
	1	2	3	4	5
Width of the street adjacent to the house				0.761	
Distance from house to school				0.942	
Construction duration		0.815			
Additional features (garden, under-ground, water tank, etc)		0.694			
Interior design and decoration	0.819				
Storey of house					0.712
Size of living room					0.691
Quality of bedroom					0.931
Quality of bathroom					0.652
External design		0.692			

View from house		0.783		
Pollution-free		0.732		
Does advertisement in print media attract you to purchase a house?	0.997			
Does advertisement in online media attract you to purchase a house?	0.688			
Does promotional program such as fairs, workshop attract you to purchase a house?	0.923			
Security status	0.64			

a. Rotation converged in 9 iterations.

The factors thus extracted have been named as follows.

1. Connectivity
2. Design and Construction
3. Interiors
4. Exteriors
5. Promotional

It is seen from the table that some of the factors have just 2 items loaded on. [18] suggests that if the scale uses only one factor, a minimum of four items should be loaded while scales with more than one factor identified, as little as two items loaded are considered acceptable, depending up on the type of the study conducted. In this study, the loadings of the factor were high enough, which was important as these two factors pertained to the items concerning.

The analysis of the reliability of factors was done by calculating Cronbach Alpha. The result of Alpha for each factor has been calculated and shown below. Each Alpha  $>0.6$  indicates the internal consistency of the factors.

**Table 6: Reliability of Extracted Factors.**

Factors	Items	Cronbach Alpha
Connectivity	Width of the street adjacent to the house	0.577
	Distance from house to school	
Construction and Design	Construction duration	0.841
	Additional features (garden, underground, water tank, etc)	
	Interior design and decoration	
Interiors	Storey of house	0.645
	Size of living room	
	Quality of bedroom	
	Quality of bathroom	
Exteriors	External design	0.849
	View from house	
	Pollution-free	
Advertisement and Promotional	Does advertisement in print media attract you to purchase a house?	0.864
	Does advertisement in online media attract you to purchase a house?	
	Does promotional program such as fairs, workshop attract you to purchase a house?	
	Security status	

The following table shows the correlation between the factors extracted. There is a weak correlation between factors suggesting rationality of factors.

**Table 7: Component Correlation Matrix**

Component	1	2	3	4	5
1	1.000	.234	.242	.443	.443
2	.234	1.000	.357	.220	.117
3	.242	.357	1.000	.234	.080
4	.443	.220	.234	1.000	.242
5	.443	.117	.080	.242	1.000

## Discussion

This study has two primary goals. The first is to determine the underlying factor structure of a sixteen item scale designed to tap items influencing the house buying decision of the customer. While screening the different criteria to be followed performing EFA, 15 items got discarded. This situation has reduced the number of factors mentioned by different works of literature on this topic. But the factor extracted could explain about 78% of variation which can be taken as a positive point to note. The reliability coefficient on 4 factors is at a satisfactory level except for the factor named Connectivity. It may be due to the few numbers of loadings (2) on it. Further research could be done as connectivity is one of the major factors while buying a house. Another reason may be such that the respondents are taken from Kathmandu valley only, where the new build houses are within the easy access to many services that's why connectivity may be out of the question.

The result thus may not be generalizable for the whole of Nepal. The factors for mofussil may be different from Kathmandu. Surprisingly, financial items were not in the Factor extraction process as they failed to fulfill some criteria of EFA. A similar situation may not come for data from outside the valley. The correlation between factors is low thus validating the uniqueness of factors. Factor 1(Connectivity), factor 4(Exteriors) and factor 5(Advertisement and Promotion) showed a bit higher correlation (0.4), but they are independent of each other.

## Conclusion:

It's not easy task to tap the customer's perception via bunch of questions. But there is no alternatives too, to get information regarding customer's perception. The data. it's analysis and results obtained in this study has given us some important factors pinned by customers when they make decision on house purchase. Though the researcher assumed

many factors regarding the issue but the number of factors have been narrowed down to just few factors. Some of the factors considered by customers are ‘Connectivity’, ‘Design and Construction’, ‘Interiors’, ‘Exteriors’ and ‘Advertisement and Promotional’. This result suggest the builders to focus on these factors. Four factors are directly related to intrinsic quality of the structure where as one is related to extrinsic. Needless to say, the findings are not generalizable. Different results may be obtained for outside valley.

### **Reference:**

- [1]Alonso, F. (2002). The benefits of building barrier-free: A contingent valuation of accessibility as an attributes
- [2] Anic, I. & Rada (2006). The impact of situational Factors on purchasing outcomes in the Croatian hyper market retailer. Zagreb: The institute of Economics
- [3] Aragones. (2002). Residential Environment - Choice, Satisfaction and Behavior. London: Bergin and Gravey.
- [4] Aryal, U & Shrestha, Y.M. (2011). Biostatistics for Medical Sciences. Makalu Publication, Kathmandu
- [5]Bargh, J. A. (2002). Can You See the Real Me? Activation and Expression of the ‘True Self’ on the Internet. *Journal of Social Issues*, 58 (1): 33–48.
- [6]Bartlett, M.S. (1954). A note on the multiplying factors for various chi square approximations. *Journal of Royal Statistical Society*, 16(1), 296-298.
- [7]Bhatti, M. & Church. (2004). Home, the culture of nature and meanings of gardens in late modernity, *Housing Studies*.
- [8]Cheshire, P. & Shepperd (1995). On the price of land and the value of amenities. *Economica*, 62, 247–267.
- [9]Cox. (1998). International Housing affordability Survey. Belleville: Demographia.
- [10]Cupchik, G. C. (2003). Incidental learning of features from interior living spaces. *Journal of Environmental Psychology*, 23(2), 189-197.
- [11]Fierro K, F. T.-C. (2009). Housing attribute preference in a northern Mexico metropolitan economy. *Atlsntic Economic Journal*, 37, 159 -152.
- [12]Hair, Joseph F., William C. Black, Barry J. Babin, and Rolph E. Anderson. 2010. Multivariate Data Analysis: A Global Perspective, 7th ed. New York: Pearson.

- [13]Iman, N., Ahmad, S., & Ahmadreza, V. (2012). Housing Valuation model: An investigation of [12]residential properties in Tehran. International Journal of Housing Markets and Analysis, 5(1), 20-40.
- [14]Kaynak, Et. al. (2010). Comparative study of home buying behaviour of Atlantic Canadians. Management Research News, 5(1): 3-11.
- [15]Kollat, D. &. (1967). Customer Impulse Purchasing Behavior. Journal of Marketing Research, 21-  
of housing. International Journal of Housing Policy, 2(1), 25-44.
- [16]Opoku, R. A.-M. (2010). Housing preferences and attribute importance among low-income consumers in Saudi Arabia. Habitat International, 34(2), 219-227.
- [17]Pallant, Julie. (2011). SPSS Survival Manual: A step by step guide to data analysis using SPSS (4th ed.). England: McGraw-Hill Education.
- [18]Raubenheimer, Jacques. 2004. An item selection procedure to maximise scale reliability and validity. SA Journal of Industrial Psychology 30: 59–64.
- [19]Sengul, H., Yasemin, O., & Eda, P. (2010). The assessment of the housing in the theory of Maslow's hierarchy of needs. European Journal of Social Sciences, 16(2), 214-219.
- [20]Spetic, W. K. (2005). Willingness to pay and preferences for healthy home attributes in Canada. Forest Products Journal, 55(10), 19-24.
- [21]Tabachnick, T. G., & Fidell, L. S. (2001). Using multivariate statistics (4th ed.). Boston: Allyn & Bacon.

## **Reviewers**

Dr. Chitra Bahadur Budhathoki, Professor, Central Department of health and Physical Education, Tribhuvan University, Kirtipur, Kathmandu, Nepal.

Dr. Dinesh Prasain, Adjunct Faculty, Central Department of Anthropology and Sociology, Tribhuvan University, Kirtipur, Kathmandu, Nepal.

Dr. Govinda Subedi, Professor, Central Department of Population Studies, Tribhuvan University, Kirtipur, Kathmandu, Nepal.

Dr. Keshar Jung Baral, Professor, Faculty of Management, Tribhuvan University, Prithvi Narayan Campus, Pokhara, Nepal.

Dr. Komal Dulal, Assistant Professor, Purbanchal University, Biratnagar, Nepal.

Dr. Hari Pathak, Associate Professor, Faculty of Management, Prithvi Narayan Campus, Pokhara, Nepal.

Dr. Lekhnath Bhattacharai, Professor, Department of Economics, Tribhuvan University, Prithvi Narayan, Campus, Pokhara, Nepal.

Dr. Narayan Prasad Pahari, Professor, Central Department of Mathematics, Tribhuvan University, Kirtipur, Kathmandu, Nepal.

Dr. Surya Bahadur G.C., Assistant Professor, School of Business, Pokhara University, Pokhara, Nepal.

Dr. Nabaraj Neupane, Associate Professor, Department of English Education, Tribhuvan University, PN Campus, Pokhara.

Dr. Vikash Kumar KC, Professor, Department of Statistics, Tribhuvan University, PN Campus, Pokhara.