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Consumer perception and buyer behaviour for purchase of residential apartments in NCR

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Abstract: The motivation for this research is to identify the external and internal factors considered by buyers of residential apartments in National Capital Region of Delhi (NCR). Internal factors refer to the specifications and facilities offered by the builders within a township, whereas external factors refer to easy availability of loan, payment plans, discounts, brand name of builder, etc. This research also helps in analysing the differences in perceptions of buyers about the three important locations for residential apartments in NCR, viz. Gurgaon, Noida and Greater Noida based on parameters such as business opportunities, law and order situation, medical/educational facilities, etc. The research would further analyse the differences in perceptions about three major real estate players operating in the area, namely Unitech, Jaypee Infrastructure and Omaxe group. After conducting interviews with the assistant sales managers of a leading real estate company along with few real estate brokers, two questionnaires were designed to cover the two sets of objectives of the study. The results have been arrived at by using SPSS and Excel. The basic tools used are factor analysis, ANOVA single factor and Tukey–Kramer test.

Keywords: consumer perception; residential apartments; factor analysis; ANOVA single factor; Tukey–Kramer.

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1 Introduction

The Indian economy has transformed substantially over the past few decades. The present economic conditions in India have provided strong impetus to the real estate sector, which has been witnessing heightened activity in the recent years. The real estate growth story is more visible in urban centres such as Delhi/National Capital Region of Delhi (NCR), Mumbai and Bangalore which have acquired global standards and recognition. The demand pull factors which have contributed significantly for real estate boom are robust. In addition to this, the sustained macroeconomic growth, upsurge in business and industrial activity, significant rise in consumerism, rapid urbanisation and availability of a range of financial options at affordable interest rates have also contributed significantly to the progress of the real estate sector. Moreover, there were various supply push factors also which gave impetus to the real estate growth. Such factors include policy and regulatory reforms, positive outlook of global investors, fiscal incentives to developers, simplification of urban development guidelines, infrastructure support and development initiatives by the government. All these resulted into entry of a number of domestic and foreign players that have now led to increased competition and consumer affordability, easy access to project financing options, increasing risk appetite of developers, better quality of real estate assets, development of new urban clusters and effective utilisation of prime land in large cities.

It is estimated that by 2030, India would approximately require 10 million new housing units per year. Rapid population growth, rising incomes, decreasing household size and a housing shortage of currently 20 million units will call for extensive residential construction. In NCR, many builders have realised the enormous growth opportunity and hence are coming up with variety of options at affordable prices for the customers. This study, thus, would highlight largely as to what factors will affect buyer decisions and what do buyers think about the three cities of NCR and also about the three major real estate players prevalent in the market.

2 Literature review

Engel et al. (2005) defined consumer behaviour as ‘those activities directly involved in obtaining, consuming and disposing of products and service, including the decision processes that precede and follow these actions’. Moreover, Schiffman and Kanuk (2010) mentioned that consumer behaviour is ‘the behaviour that consumers display in searching for purchasing, using, evaluating and disposing of product, service and idea which they expect will satisfy their needs’. Therefore, knowing the factors which influence the buying behaviour for a product could increase the sales volume. Same holds true for residential apartments.

Mowen (1995) asserts that the conceptualisation of the decision-making process as 'problem-solving' by Dewey (1910) is influential in aiding understanding and analysis. The decision lies on a problem-solving continuum ranging from limited problem-solving to extended problem-solving, according to Engel et al. (2005). This is similar to the high to low involvement model by Krugman (1965), and the complex to habitual buying behaviour identified by Kotler and Amstrong (2005). Involvement means the degree of relevance perceived by the purchaser and the personal importance attached to the product and brand choice. Complex buying behaviour is evident when the product is expensive, bought infrequently, risky and highly self-expressive, and consumers are aware of significant differences among alternatives. There are significant differences among apartment alternatives, and buyers should be highly involved because buying apartment is the most costly of purchases for the majority of buyers, it is bought infrequently, it is risky in that the chosen property may prove unsatisfactory and it is highly expressive of the purchaser.

Study of decision-making process in buyer behaviour has attracted many researchers. It delves upon developing and understanding a logic as to how purchasers exercise their choice between two or more alternative products. Researchers try to understand the stages through which consumers pass when deciding which products or services to purchase and their behaviour after that choice. These matters have been extensively investigated over many years by marketers, including Howard and Sheth (1969), Engel et al. (2005), Mowen (1995), Peter and Olson (2001) and Hoyer and MacInnis (1997).

Kotler and Amstrong (2005), Mowen (1995) and Engel et al. (2005) suggest that there is a generic decision-making process. Rossi (1980), Law and Warnes (1982) and Livette (2006) have used the same model of decision-making process for evaluating housing options.

Many attempts have been made to identify factors that influence the buyer behaviour for residential apartments. The features of the apartment structure itself will be an important determinant of a household choice of residence (Quigley, 1976). Neighbourhood quality, local public services and quantity of housing services also affect the choice of residence (Friedman, 1980; Gabriel and Rosenthal, 1989; Hua Kiefer, 2007). Nechyba and Strauss (1997) found that public expenditures, tax, crime rate, commercial activity are factors influencing buying decisions.

A great deal of research in sociology and psychology points to the benefits of social interaction, as it promotes emotional and physical health (Diose and Mugny, 1984; Sampson et al., 1997). The extent of social contact between two individuals is determined by the perceived cost and expected reward derived from that interaction. In economic terms, the benefits and costs from social interactions may affect an individual's utility function (Manski, 2000). Households tend to feel less happy if they do not do well as their neighbours, which is consistent with the idea of searching for similarities; race, income, education and family size.

The buying behaviour is influenced by both internal and external factors. Internal factors such as: motivation, perception, consumer resources, knowledge, attitudes, personality, values and lifestyle exercise significant effect. Cultural background, social class, personal influence, reference group and situation also influence the decision process in buying behaviour. Reference group assembled into three components, i.e. family, friends and colleagues could also be a significant influencing factor. Housing area

in strategic location with good access would attract buyer. Moreover, pleasant environment and good building quality will enhance the attraction of the project. For low cost housing, not only the access to road but also the availability of the public transport is the very essential facility.

Connie and Fernando (2001) considered the effects of factors on residential development in PT Delta, Comoro Permai, Dilly as a case study. They included following 20 factors that might influence buying behaviour of a residential dwelling unit: building quality, design, price, building area, land area, affordable down payment, interest rate, payment period, clean, safe, aesthetic, electricity, water, telephone, linkage to the working place, accessibility to the market, short distance to the school, place for worship, sport facilities, investment and public transport.

Martin (2006) found that the majority of retirement housing purchasers undertake limited decision-making: they consider only the scheme in which a property is eventually bought, and they are very satisfied with their purchase. He also identified the reasons given by elderly people for deciding to move from the former home as: garden difficult to manage, too big, to be close to family and friends, difficult to maintain, bereavement, stairs difficult to climb, expensive to run, shops too far away, loneliness, to make new friends, to release equity, something new or different, crime/vandalism in area, lack of public transport, to live in a better area, health, security, spouses illness, retirement and distance from doctor. There is a belief among some commentators that because sheltered and retirement housing can be used in the delivery of care services, the purchaser's decision and choice is about housing and care rather than housing alone.

3 Research objectives and focus issues

The main objective of this study is to know the perception of customers about various factors affecting their choice of residential apartments as well as comparing the three cities of NCR and the major builders in NCR on certain identified parameters.

This study will help real estate developers and agents to focus on the parameters as demanded by the buyers so as to enhance the buying appeal for the properties. It will also help them in deciding which factors to be highlighted while promoting residential apartments in Noida, Greater Noida and Gurgaon.

The study attempts to seek answers for the following questions:

- Which factors play a role in affecting the purchase decision of customers for residential apartments?
- Do customers perceive any significant difference between the three cities of NCR?
- Do customers perceive any significant difference between the three major builders operating in NCR?

It will also help in determining the impact of size, price and floor preferences of buyers and the facilities offered by developers such as swimming pool, gym, landscaping, Wi-Fi, etc.

4 Methodology

To identify the following factors many exploratory interviews were conducted with sales team of Unitech (one of the major builder), real estate brokers and buyers of apartments in NCR:

External factors	*Internal factors*
Price of the apartment	Vastu compliance
Easy availability of loan	Green/sustainable development
Payment plans	Availability of store room/servant quarter
Brand name of builder	Kitchen sizes
Advertising	Customisation within the apartment
Proximity to workplace	

One questionnaire was used for capturing the perception of buyers towards these factors. The second questionnaire tried to map buyer perception about the three prime places of real estate development, namely Gurgaon, Noida and Greater Noida on parameters such as business opportunities, educational facilities, medical facilities, availability of public transport, basic facilities (power, water), and law and order.

The parameters would also determine the perceptions of people about the three builders namely Unitech, Jaypee and Omaxe on pricing of apartments, variety of flats offered, timely possession and advertising.

5 Data analysis for questionnaire 1

5.1 Reliability test (t-test) for each question

This test helps in determining whether a question is well understood and is it able to distinguish between two classes of respondents: one who wish to 'strongly agree' and the other who wish to 'strongly disagree'. For such questions the null hypothesis of a two tailed *t*-test should get rejected when applied to test if there is any significant difference between the mean responses of top quartile and the bottom quartile of respondents in an ordered list. The null hypothesis for each question in the questionnaire was rejected at 0.05 level of significance. Hence analysis was carried out for all the questions.

5.2 Results

5.2.1 KMO and Bartlett's test of sphericity

In each case Kaiser–Meyer–Olkin measure (KMO) is found to be more than 0.5 and the null hypothesis for Bartlett's test is rejected. This implies that the observed correlation matrix in each case is significantly (at 0.05 level of significance) different than an identity matrix. Hence data reduction can be carried out (Table 1).

5.2.2 Factor analysis and total variance explained

Among 11 variables (price, proximity to workplace, brand name, availability of store room, vastu compliance, green/eco-friendly apartments, advertising, kitchen size, easy loan, flexi payment plan and customisation by builders), 2 factors namely flexi payment plan and customisation by builders were removed since their communality value was less than 0.5. The total variance explained is equal to 50.612% (Table 2). The rotated component matrix of factor analysis as applied to remaining nine variables is reproduced in Table 3. After applying factor analysis, the nine factors were loaded under three components which can be labelled as:

- *Internal specifications of apartment*: This includes green/eco-friendly apartments, availability of store room and kitchen size.
- *Pull factor*: This includes brand name and advertising.
- *Other facilities*: Easy availability of loan, vastu compliance and price of apartments.

Table 1 KMO and Bartlett's test of sphericity

KMO measure of sampling		0.602
Bartlett's test of sphericity	Approximate chi square	56.876
	d.f.	36
	Significance	0.015

Table 2 Total variance explained. Extraction method: principal component analysis

	Cumulative %	
Component	*Extraction sums of squared loadings*	*Rotation sums of squared loadings*
1	19.042	18.717
2	37.206	36.764
3	50.612	50.612

Table 3 Rotated component matrix

	Component		
	Other facilities	*Internal specifications*	*Pull factors*
	1	*2*	*3*
Easy loan	*0.67*		0.152
Vastu	*−0.652*	0.237	
Price	*0.598*		0.222
Proximity work place	*0.491*	0.35	−0.203
Green apartments	−0.204	*0.721*	
Store room	−0.109	*0.703*	0.247
Kitchen size	−0.302	*−0.641*	0.282
Brand name			*0.723*
Advertising	0.258	0.117	*0.675*

Note: Figures in italics are highest values in respective rows, which show loading on a particular component.

6 Data analysis for questionnaire 2

6.1 Single factor ANOVA

At this stage, it is important to test if there is any significant difference in:

1 the three cities in NCR based on four parameters which affect their purchase decision for a residential apartment

2 the three builders determined by perception of customers towards six variables determined by the perception of customers (Table 4).

To establish the presence or absence of significant difference, the following six null hypotheses were framed for three cities (Gurgaon, Noida and Greater Noida):

H01: There is no significant difference among the three cities when it comes to business opportunities.

H02: There is no significant difference among the three cities when it comes to good colleges and schools.

H03: There is no significant difference among the three cities when it comes to law and order.

H04: There is no significant difference among the three cities when it comes to availability of public transport.

H05: There is no significant difference among the three cities when it comes to basic facilities (power, water).

H06: There is no significant difference among the three cities when it comes to good medical facilities.

Similarly, to establish the presence or absence of significant difference, the following null hypotheses are framed for three builders:

H01: There is no significant difference among the three builders when it comes to pricing.

H02: There is no significant difference among the three builders when it comes to wide variety of the offering.

H03: There is no significant difference among the three builders when it comes to timely possession of property.

H04: There is no significant difference among the three builders when it comes to advertising.

6.2 Result

Since the F (observed) value is greater than the F critical value, the null hypothesis is rejected. This implies that at least one of the cities is significantly different from the rest as far as 'business opportunities' are concerned (Table 5). Similarly, the ANOVA test was applied for other six variables for three cities and four variables for three builders. Out of the six variables, the null hypothesis was rejected in four cases (business opportunities, law and order, public transport, medical facilities) and out of five variables the null hypothesis was rejected in four cases.

Table 4 ANOVA table for business opportunities in three cities

City	*Count*	*Sum*	*Average*		*Variance*	
Gurgaon	48	192	4		0.638298	
Noida	49	186	3.795918		1.082483	
Greater Noida	47	124	2.638298		1.105458	
ANOVA						
Source of variation	*Sum of squares*	*d.f.*	*Mean sum of squares*	*F*	*p Value*	*F critical value*
Between groups	51.16197	2	25.58099	27.15844	1.05E-10	3.060292
Within groups	132.8102	141	0.941917			
Total	183.9722	143				

Table 5 Business opportunity attributes

	Gurgaon	*Noida*	*Greater Noida*
Gurgaon	–	0.4555	0.4650
Noida	0.21569	–	0.4628
Greater Noida	1.3617[a]	1.146[a]	–

[a]Values are more than Tukey–Kramer minimum significant difference. For business opportunities Greater Noida is significantly different from Noida and Gurgaon and it is better.

6.2.1 Tukey–Kramer minimum significant difference

Tukey–Kramer minimum significant difference test identifies that the cities are significantly different from the rest of the lot. As in Section 6.1, the null hypotheses got rejected, it is necessary to find out as to which of the city(s) is/are significantly different from the rest. For 'business opportunities', attribute in Table 5 captures the result of Tukey–Kramer test.

6.3 Result

As far as business opportunity is concerned (Table 5):

- Gurgaon is significantly different from Greater Noida and Noida
- Noida is significantly different from Greater Noida
- this implies that Greater Noida is significantly different from the rest
- comparison of mean values establishes that Gurgaon is superior and Greater Noida is perceived to be inferior.

7 Perception mapping for various transaction media

This has been done by taking two attributes at a time and plotting the mean values on the graph. A two-dimensional perceptual map helps in the analysis. The following pairs are formed:

1 timely possession vs. variety

2 timely possession vs. pricing

3 timely possession vs. advertising

4 variety vs. advertisements

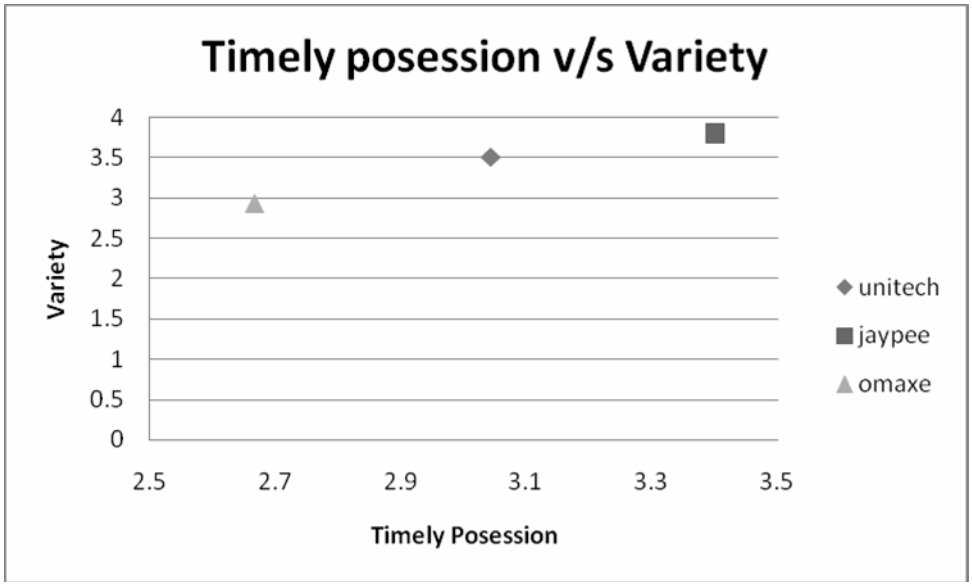
5 pricing vs. advertising

6 pricing vs. variety.

7.1 Perceptual map for timely possession vs. variety

Figure 1 displays that Jaypee is perceived to be superior in terms of timely possession and variety, Unitech ranks moderately for both of the parameters and Omaxe is ranked the least.

Figure 1 Perception map of parameter timely possession vs. variety for three builders



8 Discussion

This study brings out that the three cities and three builders are perceived to be significantly different for the four out of six parameters selected in case of cities and all the four parameters selected in case of builders. Perceptual maps of pricing vs. wide variety of flats, timely possession and advertising for three builders reveal that customers perceive Jaypee significantly different from Unitech and Omaxe. Moreover, Jaypee is perceived to be on the superior side. This concludes that Jaypee has a widespread popularity in and around Noida (Tables 6 and 7).

Table 6 Mean value, degrees of freedom, ANOVA, Tukey–Kramer tests for three cities

					One way ANOVA				
Variables (attributes)	*Gurgaon*	*Noida*	*Greater Noida*	*d.f.*	*F calculated value*	*F critical value*	*p calculated value*	*Reject H0*	*Conclusion*
Column no.	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
Business opportunities	4	3.79	2.63	2	27.158	3.06	1.05E–10	Yes	Noida and Gurgaon are significantly different from Greater Noida
Law and order	2.74	2.44	2.14	2	5.55	3.06	0.004	Yes	Greater Noida is significantly different from Gurgaon
Public transport	2.55	3.16	2.21	2	15.15	3.06	1.09E–.06	Yes	Gurgaon is significantly different from Noida and Greater Noida
Medical facilities	3.42	3.48	2.4	2	19.141	3.058	4.3E–.08	Yes	Greater Noida is significantly different from Gurgaon and Noida
Schools	3.22	3.53	3	2	3.02	3.06	0.051	No	
Basic facilities	2.55	2.93	2.77	2	1.917	3.058	0.1507	No	

Note: Column no. 4 shows degrees of freedom; column no. 5 shows the calculated values of F which can be compared with the critical (table) value of F given in the next column number 6; column no. 7 shows the calculated p value (calculated rejection area). Null hypothesis gets rejected if this calculated area is less than significance level of 0.05. In this study, for each of the six variables the null hypothesis is rejected; column no. 9 summarises the result of application of Tukey–Kramer test.

Table 7 Mean value, degrees of freedom, ANOVA, Tukey–Kramer tests for three builders

					One way ANOVA				
Variables (attributes)	*Unitech*	*Jaypee*	*Omaxe*	*d.f.*	*F calculated value*	*F critical value*	*p Calculated value*	*Reject H0*	*Conclusion*
Column no.	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
Pricing	3.26	3.42	2.89	2	4.569	3.058	0.011	Yes	There is significant difference between Omaxe and Jaypee
Wide variety of flats	3.51	3.714	3.04	2	8.078	3.0589	0.0004	Yes	There is significant difference between Jaypee and Unitech, Omaxe and Unitech, and Omaxe and Jaypee
Timely possession	3.043	3.461	2.65	2	5.71	3.0698	0.004	Yes	There is significant difference between Omaxe and Jaypee
Advertisements	3.48	3.78	2.9	2	8.293	3.067	0.0004	Yes	There is significant difference Unitech and Jaypee, and Omaxe and Jaypee

Note: Column no. 4 shows degrees of freedom; column no. 5 shows the calculated values of F which can be compared with the critical (table) value of F given in the next column number 6; column no. 7 shows the calculated p value (calculated rejection area). Null hypothesis gets rejected if this calculated area is less than significance level of 0.05. In this study, for each of the six variables the null hypothesis is rejected; column no. 9 summarises the result of application of Tukey–Kramer test.

The case was also successful in finding out 9 factors which were selected from 11 variables with the help of factor analysis, which effected the purchase decision of customers. These were clubbed under three heads as discussed above in the case: 'internal specifications', 'pull factors' and 'other facilities'. The case highlighted which city among the three is considered superior while considering parameters such as 'business opportunities', 'public transport', 'medical facilities', etc. and how should the incumbent builders and new entrants can customise their offerings to better suit the needs of customers.

Noida and Greater Noida came out to be significantly different from Gurgaon when it comes to 'business opportunities' (Gurgaon being the best). Builders should hence concentrate on such areas which are business hubs or may become hubs in future. People perceived Greater Noida to be significantly different from Gurgaon when it comes to law

and order situation thereby making it imperative for builders to concentrate more on security measures in and around the townships to be developed in Greater Noida. Similarly, availability of public transport was perceived to be a hindrance in Greater Noida and Gurgaon. Hence in future projects, the facility of shuttle buses or shared cabs should be initiated for the convenience of the residents in addition to other facilities.

Good medical facilities were also perceived to be inadequate by the respondents in Greater Noida. Hence, in future projects of Greater Noida, a hospital and medical stores inside the township would give a competitive edge to builders.

A similar analysis was done for builders as well. It was found that Jaypee was ranked better than Unitech in terms of variety of offerings and the respondents expressed the desire for more sizes in a single project along with combinations such as 3BHK + study/store room/servant quarter or terrace, etc. Respondents perceive Omaxe significantly different in terms of pricing of apartments when compared with Jaypee. Moreover, they perceive Jaypee and Unitech more or less similar. Omaxe is also perceived to be significantly different in terms of variety of offerings when compared with Unitech and Jaypee. In short, buyers think that Jaypee offers highest variety of apartments (different sizes in different ranges) to choose from when compared to Unitech and Omaxe. When it comes to timely possession of apartments there does not exist much difference among the three builders with Jaypee and Unitech almost similar.

Finally, when it comes to advertising, buyers perceive that Jaypee advertisements are effective and have better recall value when compared to Unitech and more so when compared to Omaxe. On the other hand, Omaxe ranks very poor in terms of advertising when compared with Jaypee and Unitech.

9 Conclusion

The case is quite useful for incumbent builders as well as new entrants to operate successfully in this highly competitive but high growth real estate industry in the National Capital of Delhi. The study highlights the gap in the present offerings and helps the builders to design their offerings according to the changing needs and wants of the customers which will help them to provide a competitive edge.

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