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Abstract

With housing being an important durable good consumed by the citizens, the people living in cities make their choice of residential property based on a set of factors (also, termed as determinants). Therefore, the property value is determined by multiple set factors that can be broadly categorised under - individual characteristics, internal amenities and external infrastructure. Besides, property value is also influenced by the presence of employment centres and/or proximity to them in the suburban areas of cities. Hedonic pricing models are generally applied to identify such determinants/ factors. However, the combination of these factors may also vary according to the tenure of household – 'owner-occupier' or 'tenant'.

This paper is an attempt to capture the major determinants of property value tenure-wise in Balewadi, Pune. Besides the above factors, it is hypothesized that the presence of large employment hubs like Cummins and proximity to other employment hubs like Hinjewadi may have an impact on residential property value in suburban areas like Balewadi, Pune.   Based on the field survey of a sample of residential properties in Balewadi using a structured questionnaire, the study performs data analysis using conventional regression approach to identify the significant determinants of property value in Balewadi for both tenures. It has been found that the determinant factors are different for owner-occupiers and tenants.

Keywords:Property values, Property tenure, Factors/determinants and Hedonic pricing.

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1. INTRODUCTION

The real estate sector is one of the rapidly growing and important sectors of the economy. In India, real estate sector is the second largest employer after agriculture and is slated to grow at 30 per cent over the next decade. The real estate sector comprises four sub sectors - housing, retail, hospitality, and commercial. The growth of this sector is well complemented by the growth of the corporate environment and the demand for office space as well as urban and semi-urban accommodations. The construction industry ranks third among the 14 major sectors in terms of direct, indirect and induced effects in all sectors of the economy. It is also expected that this sector will incur more investments in both short term and the long term. Bengaluru is expected to be the most favored property investment destination, followed by Ahmedabad, Pune, Chennai, Goa, Delhi and Dehradun.

India's rank in the Global House Price Index has jumped 13 spots to reach the ninth position among 55 international markets, on the back of increasing prices in mainstream residential sector (IBEF, 2017). The Indian real estate market is expected to touch US$ 180 billion by 2020. The housing sector alone contributes 5-6 per cent to the country's Gross Domestic Product (GDP). In the period FY2008-2020, the market size of this sector is expected to increase at a Compound Annual Growth Rate (CAGR) of 11.2 per cent. Retail, hospitality and commercial real estate are also growing significantly, providing the much-needed infrastructure for India's growing needs. India is expected to witness an upward rise in the number of real estate deals, on the back of policy changes that have made the market more transparent. Sectors such as IT and ITeS, retail, consulting and e-commerce have registered high demand for office space in recent times. (IBEF, 2017)

Pune is the ninth largest city in India. It has always been one of the most popular investment destination for property. Good infrastructure, cosmopolitan culture, excellent employment opportunities, reputed educational institutions and pleasant weather conditions, are some of the prominent reasons why Pune has gained popularity as a residential and investment destination. In addition to offering excellent connectivity to Mumbai, the residential projects in Pune are comparable to those in Mumbai and are available at more affordable prices.

1.1. About Balewadi, Pune

Located in the western corridor of Pune, Balewadi is one of the premier residential markets in Maharashtra. Rising up the real estate ladder in recent times from a rural town to one of the most preferred urban localities, this place has got the investors fighting for a share. The commercial sector in this area is on an upward climb as well. Also, proximity to Mumbai – Pune expressway as well as

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Hinjewadi IT hub is also contributing to its growth. Perhaps the one aspect that put Balewadi on the spotlight in recent years is its famous Shree Shiv Chhatrapati Sports Complex. This sports arena includes a wide range of courts and fields for various sports, including Balewadi Stadium. (Commonfloor, 2016). In the recent past, the development of Panchsheel IT park has opened up large employment for IT services firms such as Cummins, which has set up its campus in this IT park in Balewadi.

Balewadi is a locality that that has been witnessing a rapid development of infrastructure, especially of road development in the form of interconnected web of carefully planned and well-laid roads. Apart from the major road - Mumbai-Pune Expressway Bypass Road, Baner-Balewadi link road (also known as High Street) has led to a better connectivity to other parts of the city like Baner and Pashan. It is also covered by the bus transport services that are run by the Pune Mahanagar Parivahan Mahamandal Limited (PMPML), which connect Balewadi with the major areas in the city. Balewadi is situated at a distance of 12 km from Pune railway station, and at a distance of 20 km from the Pune Airport.

There are several factors that contributed to the growth of Balewadi as a prime locality in the past. One of the main factors is its proximity to the Hinjewadi Software Park, and several other IT parks in the vicinity. Its strategic location makes it very easy for IT professionals to set up their homes right near their offices, thereby saving time, money, and energy. The fact that Balewadi is located in close proximity to Baner and Aundh, both of which are considered to be social hubs in Pune, has also played a substantial part in its progress. This provides an easy option for working class people to have fun and socialise on weekends.

1.2. Real Estate Scenario in Balewadi, Pune

The residential property market in Balewadi has seen a steep rise in prices in the past few years. The strategic location of this place, along with many other factors has made it a prime residential target. The average price for a multi-storey apartment in Balewadi stands at around Rs. 6,330 per sq. ft. For residential houses, the average prices remain at Rs. 6,000 per sq. ft., while residential plots in Balewadi are priced at an average of Rs. 39,750 per sq. yard. Primarily a residential area, Balewadi has not seen any major developments in the commercial sector, apart from the IT parks. Commercial activity (shops and establishments) is sparsely distributed throughout Balewadi. Yet, the price of commercial property in this area is around Rs. 9,500 per sq ft, and monthly rent is priced at around Rs. 45 per sq. ft. (Proptiger, 2017).

Figure 1 shows the variation of residential real estate values in Balewadi over last 7 years.
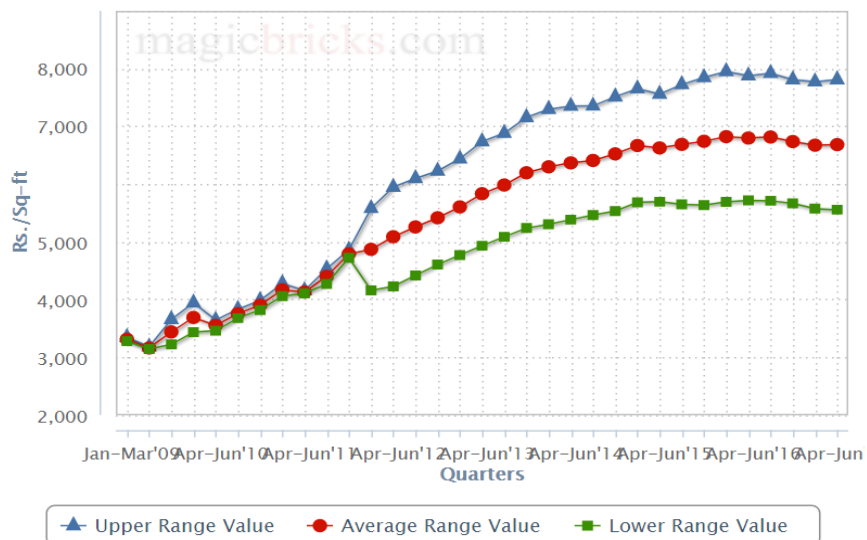
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FIGURE 1 - VARIATION IN RESIDENTIAL REAL ESTATE PRICE PER SQ. FT. IN THE LAST 7 YEARS
Source: Magicbricks (2017)

1.3. Determinants of Property Prices/Rents

Balewadi has been witnessing a vibrant property market in terms of the rising trends in property prices as well as rents due to its proximity to employment hubs like IT parks as well as the Expressway. However, there has also been a significant infrastructure development in Balewadi - Baner area in the form of commencing of Cummins office campus (large IT campus), wide range of educational institutions viz., Rabindranath Tagore School, CM International School, VIBGYOR High School. The High Street connecting Balewadi and Baner is not only attracting office spaces but also attracting entertainment centres and restaurants. Therefore, the residential property prices in the locality may be getting influenced by these developments. However, it is not much studied and therefore chosen for this research study. The conventional approach towards assessing the influence involves constructing a 'Hedonic Pricing Model (HPM)', which includes property prices/ rents and the influencing factors related to - property unit (physical factors), individual households (psychological factors) and the neighbourhood/environment (infrastructure factors). We will first review the literature concerning HPM in next section before moving to our current study.

2. LITERATURE REVIEW

Hedonic Pricing Model (HPM) is widely deployed by urban economists and policy planners in understanding the determinants of property prices as well as rents in a locality/ city/ region and the influencing factors such as internal characteristics of the good being sold i.e., property unit, and external

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factors affecting it, which include the neighbourhood/ environment, proximity to employment centres, central business district (CBD), mass transportation system etc. HPM is often used to estimate/ quantify the impact of infrastructure services and on-site amenities that directly impact on the market prices/ values of properties. This method of valuation can require a strong degree of statistical expertise and model specification, following a period of data collection.

The HPM has several advantages, including the ability to estimate values, based on concrete choices, particularly when applied to property markets with readily available, accurate data. At the same time the method is flexible enough to be adapted to relationships among other market goods and external factors. However, it also has some drawbacks; including its ability to only capture consumers' willingness to pay for what they perceive are environmental differences and their resulting consequences. For example, if potential buyers are not aware of a contaminated water supply or impending early morning construction next door, the price of the property in question will not change accordingly. HPM may also not always incorporate external factors or regulations, such as taxes and interest rates, which could also have a significant impact on prices. Yet, it provides a good modeling framework for finding the major determinants/ factors of property prices in a locality/ city/ region and evaluate them based on the results. Therefore, it is widely applied in empirical research.

International Literature

Portnov et al (2005) made a study of various factors influencing real estate properties in four new settlement areas of Israel. Using hedonic pricing model, they introduced common neighbourhood amenities as packages, rather than as separate independent variables. The results indicate a strong association between environmental factors, building characteristics, rehabilitation activity and property values. The study also offers evidence which neighbourhood amenities are most valued in newly constructed properties as well as seasoned properties, which is of interest to buyers due to concerns about new and re-sale values.

Adelaja et al (2007) focus on the valuation of "green infrastructure" in Michigan. Green infrastructure provides numerous services to the public, including quality of life benefits, increasing the attractiveness of locations for growth, and influencing the value of properties. By developing a hedonic pricing model, the influence of each considered green infrastructure on property values were isolated and estimated. Results indicate that, consistently, across the two counties and across green infrastructure types, these assets contribute positively and significantly to property values.

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Benefield (2009) also performed an empirical study of the influence of neighbourhood amenity in the form of a bundle/ package on residential property values. It was found that the neighbourhood amenities like tennis courts, club houses, boating facilities, golf courses and several other amenities impact upon residential property values significantly.

Burinskiene et al (2011) reviews the various models utilised for identifying the factors influencing the real estate prices and performs a study of the same in the context of Vilnius city, Lithuania. The study then applies hedonic pricing model to determine the various influencing factors of real estate market prices in Vilnius, Lithuania.

Naderi and Ahmad (2012) also applied hedonic pricing model approach to assess the determinants of property prices in Teheran, Iran for both property appraisers as well as buyers. Using the statistical data of property transactions obtained from local properties recordation office, they identify the influencing factors for both the categories. They find that the influencing factors/ determinants of property prices are different for appraisers and buyers, implying the differences in the framework used by them in valuation process.

Warren Myers (2012) reviews the literature on the linkages between sustainability and real estate prices. Based on the review of literature, much of which uses the hedonic pricing approach towards assessing the influence of sustainability concerns on property values, she finds that the literature points to the positive influence of sustainability on property prices but it is indeed difficult to quantify in exact numbers of the influence of sutainability.

Oloke et al (2013) study the property market forces and dynamics in Lagos area by examining property prices using implicit hedonic pricing approach. As majority of the residents have their workplaces in relatively distant locations, the travel distance and costs are expectedly significant factors that affect property value according to the propositions of rent theory. However, a contrary result implies that residents are indirectly paying more to live in the study area. It was further discovered that proximity to the highway, number and size of bedrooms, conveniences, good road and drainages as well as security are the major factors affecting property values in the study area.

Abidoye and Chan (2016) conduct a survey of professionals in real estate/property markets on the major factors influencing the property prices/ values in Lagos, Nigeria. The survey used a scaled index for scoring the importance of the various factors in Lagos city. They use the ranking criteria for the identifying the major influencing factors based on the mean scores of the various factor variables and their standard deviation.

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Indian Literature

Bhargava (2013) explored the contribution of various physical, environmental and economic factors on residential property values in Jaipur city and found the determinants of property prices using hedonic pricing model. The determinants of property prices are determined at city level, neighborhood level and unit level. One of the quantifiable attributes of these factors is proximity. Proximity of these amenities to the particular properties has revealed a range of influences on its property values. These factors influence the market value of the properties taken into consideration in a positive way. From the study it is evident that distance from these factors has a positive impact on the value.

Economic Times (2013) also analysed the factors affecting the value of real properties in India. It lists out the following factors affecting residential properties in the order of their as importance: location and amenities, infrastructure, commercial services, disposable income of households, availability of land, affordability, customisation, structure and its elements. The analysis is however applicable to the properties in general as the survey was carried out using a sample of respondents spread across the cities in country.

Gandhi et al (2016) study the factors that affect property prices in Mumbai suburbs with a focus on the impact of an upcoming metro line on property prices in the vicinity by deploying a hedonic pricing model. Using the OLS regression method, they find that property prices vary with the distance from the CBD as well as land use mix and amenities. The property prices show variation up to 52% due to the surroundings like residential built up areas, commercial areas, open spaces and other amenities in and around the property.

Nallathiga et al (2019) assess the influence of natural amenities on property prices in a suburban area of Pune city in India. Based on the questionnaire survey of the resident households in the area, they construct a hedonic pricing model to assess the influence of natural amenities on property prices as well as rents. Based on the statistical regression analysis, they find that natural amenities do have a net positive effect on the property prices as well as rents in the locality, when the properties are located next to/ proximate to them.

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3. CURRENT RESEARCH STUDY

3.1. Objectives and Methodology

The current study is an attempt to study the residential property values in and around Balewadi area located in Pune city in India with an objective of finding out the factors/ determinants that affect residential property prices and rents. The study seeks to assess the relation between the prices/rents of real estate properties in Balewadi, Pune with respect to the amenities and basic infrastructure provided in the area. Figure 1 shows the methodology used to carry out the study.
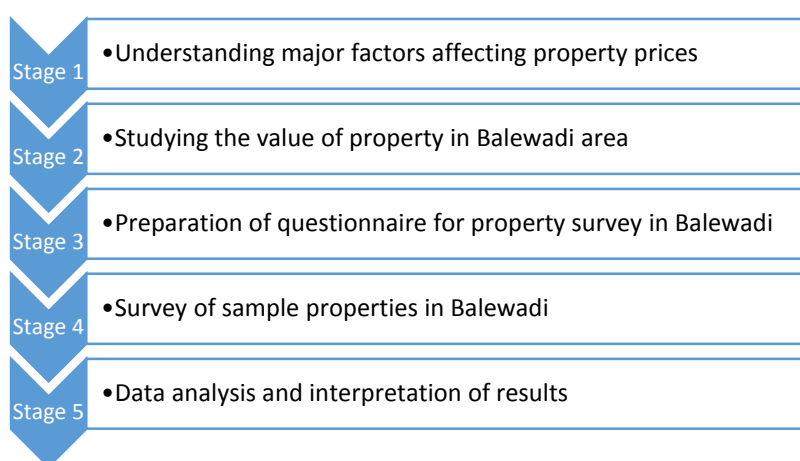

Stage 1	•Understanding major factors affecting property prices
Stage 2	•Studying the value of property in Balewadi area
Stage 3	•Preparation of questionnaire for property survey in Balewadi
Stage 4	•Survey of sample properties in Balewadi
Stage 5	•Data analysis and interpretation of results

FIGURE 1 - STUDY METHODOLOGY

3.2. Questionnaire Survey

A questionnaire was prepared for conducting field survey of households located in Balewadi. The questionnaire has been designed to collect primary data from households covering:

- General information of resident and family members
- Occupation of the resident
- Average salary of the household
- Infrastructure services in the vicinity
- Amenities provided in the living space/ building
- Living area and its rental/capital value, etc.

3.3. Sample Size and Structure

The study sample for the household survey comprised of 100 households residing in the residential properties in Balewadi area of Pune. It was ensured that the survey covered households of different income levels, diverse education and occupations. Out of the 100 respondents, 50 of them were

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tenants in rental properties, and remaining 50 living as owner-occupied properties in various parts of Balewadi. The residential properties and respondents were chosen randomly for conducting the household survey.

4. DATA ANALYSIS AND FINDINGS

For performing the analysis, the hedonic pricing model has to be specified, which is explained below. The data pertaining to the various influencing factors was obtained from the questionnaire survey of 50 samples each of owner-occupied and rented houses in Balewadi, which were converted into digital data for statistical analysis. Regression analysis is chosen as the method to find the significance of the determinants affecting prices of flats. The dependent variables chosen for constructing hedonic pricing model has been (i) Property prices expressed as Rs per unit area (sq ft) for owner-occupied properties, and (ii) Property rents expressed as Rs unit area (sq ft) for rented properties.

4.1. Model Formulation

Hedonic Pricing Model (HPM) formulation is utilized in the study for assessing the determinants/ factors influencing property values. The following shows HPM formulation:

$$Y = f \{F1, F2, F3, F4\}$$

Where Y is the dependent variable – here property price/ rent. F1 to F4 are the major bundle/ group of factors influencing. The various such factors are grouped/categorized into:

- *Infrastructure Factors* (F1), which include major infrastructural facilities in the neighbourhood;
- *Physical Factors* (F2), which include services of the property unit;
- *Household Factors* (F3), which include household characteristics ;
- *Proximity Factors* (F4), which include major developments/ connectivity to other areas

Table 2 shows the various such factors as independent variables under the above groups/ categories that are used as a part of the hedonic pricing model which is being developed.

Linear regression was used to construct the above model. Further, regression analysis is done to know which factors from the above affect the price/rent of properties most significantly. The physical and infrastructure variables are 'dummy variables' that give yes/no option for the respondents, the family members are measured in numbers, the annual income was measured in three categories i.e. upto Rs 4.5 Lakhs per annum, Rs 4.5- 7.5 Lakhs per annum, Rs 7.5- 10.5 Lakhs per annum. Travel time was to be measured in time units i.e., minutes of travel time and proximity to employment hub (Cummins) was a dummy variable as well.

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TABLE 2 - INDEPENDENT VARIABLES OF PROPOSED HEDONIC MODEL

Factors/ Determinants Group	Variable	Denotation
Infrastructure Factors (F1)	Road	X1
	Sewerage	X2
	Street lights	X3
	Water pipeline	X4
	Gas pipeline	X5
	Recreational park	X6
Physical Factors (F2)	Gymnasium	X7
	Clubhouse	X8
	Swimming pool	X9
	Playing area	X10
	Parking	X11
	CC tv	X12
	24 hour water supply	X13
	Backup power	X14
	Doctor on call	X15
Household Factors (F3)	Household income	X16
	No. of family members	X17
Proximity Factors (F4)	Travel time to work	X18
	Effect of Cummins on price	X19

4.2. Descriptive Data

Table 3 shows percentage of responses as 'YES' for the various dummy variables of the model for both tenures of property – ownership and renting:

TABLE 3 - VARIABLES AND TENURE-WISE PERCENTAGE OF 'YES' RESPONSES

Variables	Ownership Properties	Rented Properties
road	90	90
sewerage	90	90
street lights	86	86
water pipeline	82	82
gas pipeline	80	80
recreational park	42	42
gymnasium	52	52
clubhouse	32	32
swimming pool	36	36
playing area	68	68
parking	70	70
cctv	72	72
24hrs water supply	86	86
backup power	84	84
Doctor on call	56	56
Cummins effect	68	68

Figure 2 shows the distribution of average household income in the sample of responses:

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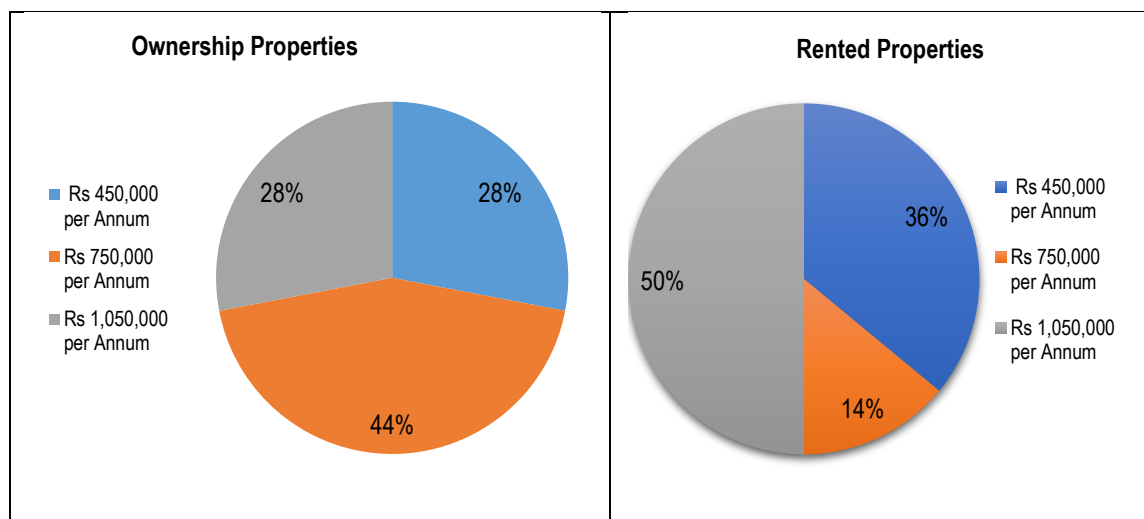
FIGURE 2 - DISTRIBUTION OF INCOME OF HOUSEHOLD RESPONDENTS

4.3. Results

4.3.1. Ownership Properties

For these set of properties, property price per unit area is the independent variable and all other factors/ determinants are independent variables. Table 4 shows the regression output.

TABLE 4 - MODEL OUTPUT 1 FOR OWNERSHIP PROPERTIES

	Non-standardized Coefficients		t	Sig.
	B	**Std. Error**		
(Constant)	4.609	0.461	9.999	0.000
Road	0.061	0.264	0.232	0.818
Sewerage	0.610	0.331	1.841	0.075
street_lights	0.319	0.225	1.416	0.167
water_pipeline	-0.559	0.225	-2.483	0.019
gas_pipeline	0.799	0.227	3.514	0.001
recreat_park	0.308	0.167	1.843	0.075
Gymnasium	0.720	0.170	4.240	0.000
Clubhouse	0.412	0.159	2.596	0.014
swimming_pool	0.068	0.131	0.514	0.611
playing_area	0.450	0.202	2.229	0.033
Parking	-0.664	0.298	-2.229	0.033
Cctv	0.490	0.223	2.199	0.036
24 hr_water	-0.765	0.324	-2.360	0.025
backup_power	0.580	0.244	2.374	0.024
Doctoron_call	-0.454	0.195	-2.323	0.027
Income	0.098	0.042	2.363	0.025
no._of_family.members	-0.058	0.062	-0.938	0.356
time_to_travel	-0.006	0.006	-1.031	0.311
effect_of_Cummins	-0.245	0.136	-1.801	0.082

R^2 = 0.885 SE (Estimate) = 0.37915

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From the above table it can be noted that R^2 value of 0.885 implies that 88.5% of the total variation in the dependent variable, i.e., property price per area unit is explained by the independent variables. F-Statistic is 12.129 and it is statistically significant. The regression output implies that the following variables are statistically significant at 5% significance level:

- Water pipeline
- Gas pipeline
- Gymnasium
- Clubhouse
- Playing area
- Parking
- CC tv
- 24 hr. water supply
- Backup power
- Doctor on call
- Income

Subsequently, we performed correlation analysis of the dependent variables to check whether there is any correlation among them. Based on the correlation matrix, we remove the variables with high correlation in order to get a better model without any possible biases. After examining the Pearson correlation matrix, we remove the '24-hour water supply' variable and again perform regression on the data. Table 5 shows the new/modified output.

TABLE 5 - MODEL OUTPUT 2 FOR OWNERSHIP PROPERTIES (MODIFIED)

	Non-standardized Coefficients		t	Sig.
	B	Std. Error		
(Constant)	4.602	0.494	9.322	0.000
Road	0.179	0.278	0.643	0.525
Sewerage	0.085	0.263	0.322	0.749
street_lights	0.295	0.241	1.224	0.230
water_pipeline	-0.524	0.240	-2.179	0.037
gas_pipeline	0.560	0.218	2.567	0.015
recreat_park	0.323	0.179	1.807	0.080
Gymnasium	0.584	0.171	3.414	0.002
Clubhouse	0.439	0.170	2.584	0.015
swimming_pool	0.088	0.140	0.625	0.536
playing_area	0.360	0.213	1.696	0.100
Parking	-0.497	0.310	-1.604	0.119
Cctv	0.406	0.236	1.720	0.095
backup_power	0.270	0.221	1.222	0.231
Doctoron_call	-0.330	0.201	-1.636	0.112
Income	0.098	0.045	2.202	0.035
no._of_family.members	-0.050	0.067	-0.750	0.459
time_to_travel	-0.003	0.006	-0.542	0.592
effect_of_Cummins	-0.167	0.142	-1.178	0.248

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From the above table we find that the following variables are statistically significant at 5%

- Water pipeline

- Gas pipeline

- Gymnasium

- Clubhouse

- Income

4.3.2. Rented Properties

For this set of properties, property rent per unit area is the independent variable and all other factors/ determinants are independent variables. Table 6 shows the regression output.

TABLE 6- MODEL OUTPUT 2 FOR RENTED PROPERTIES

	Non-standardized Coefficients		t	Sig.
	B	Std. Error		
(Constant)	2.816	3.270	0.861	0.396
SEWERAGE	6.539	2.245	2.913	0.007
STREET_LIGHTS	3.131	1.409	2.222	0.034
WATER_PIPELINE	-2.958	1.354	-2.185	0.037
GAS_PIPELINE	5.434	1.510	3.599	0.001
RECREATIONAL_PARK	1.681	1.086	1.548	0.132
GYMNASIUM	4.381	1.078	4.064	0.000
CLUBHOUSE	2.947	1.024	2.877	0.007
SWIMMING_POOL	0.996	0.930	1.071	0.292
PLAYING_AREA	2.764	1.398	1.977	0.057
PARKING	-2.569	1.870	-1.374	0.179
CCTV	4.364	1.488	2.932	0.006
BACKUP_POWER	5.865	1.640	3.577	0.001
DR_ON_CALL	-1.457	1.329	-1.097	0.281
CUMMINS_EFFECT	-0.303	0.967	-0.314	0.756
TRAVEL_TIME	0.029	0.053	0.543	0.591
AVG_INCOME_LAKHS	0.175	0.145	1.207	0.236
FAMILY_MEMBERS	-0.154	0.289	-0.535	0.596
WATER_24HRS	-6.438	2.194	-2.934	0.006

R^2 = 0.88, Std Error (Estimate) = 2.58979

From the above table it can be noted that a R^2 value of 0.880 shows that 88% of the total variation in the dependent variable, i.e., property rent per area can be explained by all the independent variables. F-statistic is 12.593 and it is statistically significant. We find that the following variables are statistically significant at 5% level of significance:

- Sewerage

- Street lights

- Water pipeline

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- Gas pipeline
- Gymnasium
- Clubhouse
- CC TV
- Backup power
- 24 hours water supply

Subsequently, we performed correlation analysis of the dependent variables to check whether there is any correlation among them. Based on the correlation matrix, we remove the variables with high correlation in order to get a better model without any possible biases. After examining the Pearson correlation matrix, we remove the '24-hour water supply' variable and again perform regression on the data.   Table 7 shows the new/modified output.

TABLE 7 - MODEL OUTPUT 2 FOR RENTED PROPERTIES (MODIFIED)

	Non-standardized Coefficients		t	Sig.
	B	Std. Error		
(Constant)	5.948	3.439	1.730	0.093
SEWERAGE	2.218	1.885	1.177	0.248
STREET_LIGHTS	2.691	1.559	1.726	0.094
WATER_PIPELINE	-2.525	1.497	-1.686	0.101
GAS_PIPELINE	3.492	1.510	2.313	0.027
RECREATIONAL_PARK	1.973	1.203	1.640	0.111
GYMNASIUM	3.359	1.135	2.960	0.006
CLUBHOUSE	2.906	1.140	2.549	0.016
SWIMMING_POOL	1.359	1.026	1.325	0.195
PLAYING_AREA	2.008	1.529	1.313	0.198
PARKING	-0.982	1.991	-0.493	0.625
CCTV	3.588	1.630	2.202	0.035
BACKUP_POWER	3.268	1.536	2.128	0.041
DR_ON_CALL	-0.570	1.440	-0.396	0.695
CUMMINS_EFFECT	-0.041	1.071	-0.038	0.970
TRAVEL_TIME	-0.009	0.058	-0.148	0.883
AVG_INCOME_LAKHS	0.160	0.161	0.998	0.326
FAMILY_MEMBERS	-0.366	0.311	-1.177	0.248

From the above table we find that the following variables are statistically significant at 5%

- Gas pipeline
- Gymnasium
- Clubhouse
- CC TV
- Backup power

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5. CONCLUSIONS

The study focused on identifying the factors that influence capital and rental values in Balewadi area, wherein the residential properties are surrounded by infrastructure development projects like Cummins India etc. The results reveal that the factors that affect the residential property values of ownership properties are related different factor groups/categories - club house and gymnasium (physical factors), water pipeline and gas pipeline (infrastructure factors) and income (household factors). Surprisingly, large employment hub of Cummins does not have any impact; so also the travel time, because of the connectivity of Balewadi area to other localities. This clearly shows that increase in property and neighbourhood amenities have positive and significant effect on residential property values. The results also reveal that the factors that affect the residential property rents of rented properties are primarily physical factors – club house, CC TV, Back up power and Infrastructure factor - gas pipeline. It clearly shows that the determinants/ factors influencing the property values/rents are different for different tenures of property – ownership and renting.. The study has a limitation of not including social infrastructure services viz., schools, hospitals and markets etc. Also, several variables e.g., roads, water and sewerage, are measured as dummy variables and a rating index for the quality of these services may lead to a better outcome.

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