Research Article

TREND OF RESIDENTIAL REAL ESTATE DEVELOPMENT AFTER METRO RAILWAY EXTENSION: A CASE STUDY OF SOME SELECTED WARDS OF SOUTH KOLKATA

Debasish Kundu*[1] and Eshita Boral[2]

[1]Research Student and Assistant Teacher, Bankra High School
[2]Department of Geography & Disaster Management, Tripura University

ARTICLE INFO	ABSTRACT
	India is emerging as an important business location, particularly in service sector. In Kolkata, an increase in residential real estate development has been observed since the last decade. After extension of Kolkata Metro Railway, real estates has emerged in leap and bound particularly in the wards through which this mass transit system traverses. In this paper, an attempt has been made to decipher the relationship of metro rail extension to the growth of residential real estates. The study establishes a positive correlation between trend of metro-passenger flow and growth of real estates in these three wards. Kolkata Metro rail as a mode of mass transit transport performs its role not only for increasing accessibility but it is also changing the cityscape through emergence of real estate properties.

INTRODUCTION

Kolkata situated on the eastern banks of the river Hoogly and is the prime economic center of eastern India. According to the 2011 Census, the population of Kolkata proper is 4.49 million with a working population of 1.7 million. Greater Kolkata has a population of 14.03 million and a working population of 4.5 million (Office of the Registrar General of India, 2011). The city stretches out in an elongated manner in the north-south direction. The traditional Central Business District (CBD) is located at the center of this elongated urban structure. Hence most of the major roads run in a north-south direction (Chatterjee, 1995) bringing passengers from the northern and southern parts of the city to the CBD. In Kolkata where the city offers a wide variety of transit options, ranging from cycle rickshaws to auto-rickshaws to buses to suburban railways to Metro Railway (D.kundu & T.K.Ray, 2014). In Kolkata, 80 percent of the trips are done through public transport system (Pucher *et al.*,2005). Out of this metro railway service has depicted a significant increase in the proportion of passenger trips in the city.

Real estate development is a multifaceted business which contributes about 3.8 percent of country's GDP (Real Estate Sector India). The southward extension of Metro railway has undoubtedly given a boost to this business because of the increased accessibility it assures that too much lesser travel time as compared to other public transport modes.

Evolution of Kolkata Metro Railway

The Metropolitan Transport Project (Rlys) was set up in 1969. The MTP (Rlys.) had prepared a Master Plan in 1971 envisaging construction of five rapid transit line for the city of Kolkata, totalling to a route length of 97.5 km. Of these, the highest priority was given to the busy North-South axis between Dum Dum and Tollygunge over a length of 16.4 km and the work on this project sanctioned on June 1, 1972. Kolkata Metro, India's first and Asia's fifth become a reality on October 24, 1984 with the commissioning of a partial commercial service covering a distance of 3.40km. Services on the entire stretch of Metro (Dum Dum to Tollygunge) were introduced from September 27, 1995 covering a distance of 16.45k (Metro Railway, Kolkata, 2004). Phase-II a length of 5.834 km from Tollygunge to Garia Bazar is completed in August-2009. The last leg up to New Garia a length of 2.851 km has been opened in October 8,2010 for commercial operation (D.Kundu & T.K.Ray, 2012). On 10th July 2013, Metro services further extended towards north from DumDum

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Corresponding author: **Debasish Kundu**
Research Student and Assistant Teacher, Bankra High School

to Noapara covering a distance of 2.091 km(Kolkata Metro Railway, 2016).

Study Area

Kolkata has 144 administrative wards that are grouped into 15 boroughs. Out of which Ward number110,111 and 112 are located in southern part of Kolkata under boroughs 11. These three wards have been selected as study area as Metro Railway extension traverses these wards.

Ward number 110 is extended from link road connecting Raja SubodhMullick Road and Eastern Metropolitan Bypass in north to Tolly's Nullah and Southern Boundary of BrijiMauza to the south and from The Eastern Railway in east to SubodhMullick road and Eastern Metropolitan Bypass in west covering 1.751 sq.km area with a population 27,470 (KMC, 2017).

Ward number 111 is bounded by Nathpara road and Tolly's Nullah in north to Kamdahari and Brahmapurmauzas in south and from eastern boundaries of kamdaharimauza in east to Bidhanpalli road, Bakshipalli road and Shekhpara road in west with an area of 2.426sq.km and population of 38,647(KMC, 2017).

Ward number 112 is stretch from Tolly'sNullah in north to Nathpara road, Brahmapur, Raynagarmauzas in south to Sarkar road, Pirpukur road in west with an area of 1.601sq.km and total population of 32,404 (KMC, 2017).All the three wards are primarily used for residential purpose and have developed much later than the northern part of Kolkata.

Objectives

- To observe the role of extended metro railway as mass transportation system in southern part of Kolkata.
- To decipher the trend of residential real estate development in ward number 110,111 and 112 after extension of Kolkata Metro Railway.
- To find out effect of metro railway in residential real estate development in those selected wards.

DATABASE AND METHODOLOGY

This paper is based on secondary as well as primary data. Secondary data has been collected from Metro Bhavan, Park Street and from Boroughs office number 11 that is situated in Baghajatin area. Primary data were collected through questionnaire survey from the residents of ward number 110,111 and 112. A sample of 120 residents has been surveyed upon and represented in percentage.

The total study uses descriptive and analytical methods. The historical evolution of the extended part of Metro Railway followed by the overall analysis of the Draft Development Plan was analyzed. A random stratified sampling method was used to undertake the questionnaire survey to analyze the impact of metro railway on the trend of residential real estate development. The analysis considers the viewpoints of the local residents adjacent to the Bansdroni, Naktola and Garia Bazar metro station area. *Data Analysis and Representation* includes the analysis of the different types of the data about residential real estate developed in the study area. This analysed data have been represented using different quantitative techniques.

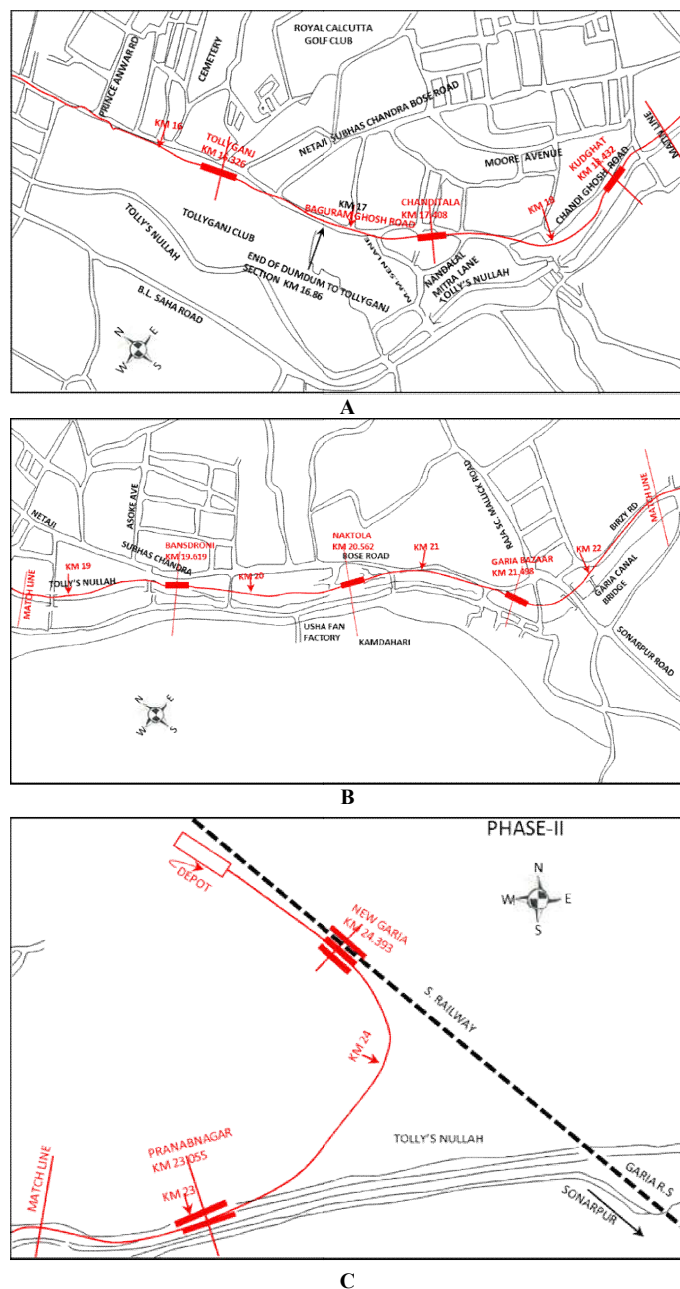*Index Plan of the Extended Part of Kolkata Metro Railway*

A

B

C

Fig 1 Index Plan (A) Extended Metro route from Tollyganj to Kudghat station and part of Ward no 111 & 112(B) Extended Metro route from Kudghat to Garia Bazar station and part of Ward no. 111 & 112 (C)Extended Metro route from Garia Bazar to New Garia station and part of ward no.110

Source: Metro Bhavan, Park Street, Kolkata

RESULTS AND DISCUSSION

Role of extended Metro Railway as mass transportation system in southern part of Kolkata

Mass transportation in any city has unparalleled importance in the overall transportation system as improved levels of personal income and socio-economic expansion contribute to demand for increased mobility. Simpson (1980) has defined mass transport as "any means of passenger transport available to anybody without restrictions as to membership of any group, provided that the conditions of the operator are met, including payment." It may be a public property or privately owned and

run regularly with a carrying capacity of minimum 20 passengers to a time table (T.Dey & S.Bhaduri, 2012).The urban space of Kolkata city has a highly complex traffic pattern characterized by a various types of public and private mass transport system.

Table 1 Movement of Passengers in Kolkata Metropolitan Area (Average Week Day)

Transport Pattern	Modes	Volume of Passengers in millions (2001)	Percentage	Volume of Passengers in millions (2011)	Percentage
Road Based Mass Transport	Private Bus	8.50	45.50	9.40	40.00
	Public Bus	1.25	6.69	1.60	6.81
	Mini Bus	1.25	6.69	1.60	6.81
	Chartered Bus	0.27	1.45	0.50	2.13
	Tram	0.25	1.07	0.50	2.13
	Total	11.47	61.4	13.60	57.88
Rail Based Mass Transport	Sub-urban railway	3.25	17.40	3.75	15.95
	Metro Railway	0.20	1.07	0.60	2.55
	Circular Railway	0.02	0.11	0.45	1.91
	Total	3.47	18.58	4.80	20.42
Para Transit	Taxi	1.10	5.89	1.70	7.23
	Auto Rickshaw	1.65	8.83	2.30	9.79
	Cycle Rickshaw	0.75	4.01	0.70	2.98
	Total	3.50	18.73	4.70	20.00
Water based transport	Ferry	0.24	1.29	0.40	1.70
	Total	0.24	1.29	0.40	1.70
Total		18.68	100.00	23.50	100.00

Source- CMDA, 2001 & 2011

Table 2 Number of Daily Commuters in the Extended Part of Kolkata Metro Railway Data

Station	Year wise Number of Passengers (in Lakhs)					
	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Netaji / Kudghat	19.07	46.38	50.4	53.48	56.02	58.4
M.S.Sen / Bansdroni	21.84	52.22	58.26	61.98	62.82	63.74
Gitanjali / Naktala	10.89	21.22	23.23	20.81	22.69	22.24
KaviNazrul / Garia Bazar	43.09	78.39	75.27	73.61	76.56	70.64
Khudiram / Pranab Nagar	-	13.67	35.66	32.43	27.71	26.92
KaviSubhas / New Garia	-	4.88	15.62	26.71	54.33	47.91

Source:-General Manager's Annual Report,Metro Railway, Kolkata.

Commuters travelling in Kolkata Metropolitan Area can opt for various modes of transport such as bus, tram, circular rail, metro rail, auto rickshaw etc. In 2001 and in 2011 volume of passengers in Kolkata Metropolitan Area in an average week day was 18.63 million and 23.50 million respectively (Table-1). Passengers' volume increased 26.14 percent in a decade with an annual growth rate of 2.61 percent (Metro Bhavan, Kolkata). Preference of private bus has been drastically reduced in 2011. Similarly suburban rail system is also less preferred by passengers. Compared to other modes of transport, a significant increase in passengers number in circular railway and in metro railway have been observed. Efficiency of metro rail services in the city has increased the preference of passengers towards this rail based mode even though it means changing of several modes to avail it (E.Boral, 2013). In 2001 volume of passengers of circular railway in week day was 0.02 million and in 2011 it increase to 0.45 million. Volume of passengers of Kolkata metro railway also increased to 138 percent in last decade with an annual growth rate of 13.8 percent (General Manager's Annual Report, Metro Railway, Kolkata). This highlights people's preference for rail based modes since city roads are overcrowded with too many types of vehicles occupying the same road space. This increase in passenger volume in metro railway is primarily due to the fact that it ensures fast movement to commuters having specified tracks. According to commuters of metro railway, travelling by metro is comfortable, time saving and relatively economical than any other public or private transportation services. Furthermore the enhanced passenger volume for this mode of transport can also be attributed to the extension of metro railway up to New Garia.

Service on the extended part of Kolkata Metro started on August, 2009. In first phase, service was provided for the passengers up to Garia Bazar station. Later, on October, 2010 two new stations, that is Pranabnagar and New Garia was added to the extended part. So after further extension New Garia became the terminal station of southern part of Kolkata. Including Noapara station in northern part of Kolkata, Metro Railway provides service to 24 stations covering distance of approximately 27 km in north south direction. Table 2 indicates year wise volume of commuters in different stations in extended part of Kolkata Metro Railway. It can be said that there is a steady increase in volume of commuters. Though metro service is relatively less flexible as it runs on a fixed track and service limited to particular stations only yet, increase in passenger volume of this mass transport confirms its popularity. A considerable number of passengers of auto and cycle rickshaw increase in Bansdroni, Kudghat, Naktola and Garia Bazar area after extension of metro railway also substantiate the preference of metro service by people of further south since it provide 'door step pick up and drop facility' from metro stations.

Trend of Residential Real Estate Development

Development of residential real estate market in Kolkata has been largely determined by rising disposable incomes, a rapid growth of middle class group, low interest rate and fiscal incentives on both interest and principal payments for housing loans, heightened customer expectation and growing number of nuclear families (Real Estate Sector India).This has led to the growth in demand of residential apartments particularly over the last two decade. This demand has further increased as Metro Railway extension up to New Garia provide better connectivity to the ward number 110,111, 112 and also to its adjacent wards. According to Kolkata Metropolitan Development Authority(KMDA), office of Boroughs 11, there is a significant growth in registration of residential apartments with in last decade(Table.3), majority of which are consist 12 to 20 flats.

Field survey conducted on local residents to find out the recent trend in development of residential apartments in the mentioned three wards reveals the preference towards growth of real estate. ShriBipin Das, ShriDebobrataHalder and ShriAnish Mukherjee are residents of Garia Park, Kamdahari road and Subodh Park area respectively. They sold their ancestral land to the residential real estate developer as they got good value of their land. ShriSatishKundu, a 40 year old self-employed person of Rajnarayan road area is of opinion that residential real estate development has taken a leap particularly in last 10 years. This increasing demand leads to rapid increase in land and flats prices.

Table 3 Development of Apartments Before and After Metro Railway Extension

Ward Number	Year wise Registered Apartments number						
	2001-02	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Ward 110	12	45	50	29	28	40	41
Ward 111	40	119	156	118	145	157	152
Ward 112	36	91	119	79	76	95	85

Data Source: - KMDA, Borough 11

Monthly rent of flats and shops also increased considerably in last few years. ShriSwapan Das, a 44 year old State Government employee and resident of Birji road area in ward 110 states that Metro Railway has provided easy and quick connectivity to central and northern part of Kolkata which attract residents as well as real estate developers to this part of the city. According to Smt. RinaMondal, a 33 year old woman, who work as housemate in Roy Nagar area for last 12 years, rapid increase in the number of apartments has been observed in last 7 to 8 years and majority of residents come from other parts of Kolkata and even from outside Kolkata. This is a typical depiction of decentralization which the city experiences. ShriSudhirJha, a self-employed 20 year old resident of Usha fan factory area is of the opinion that now a days people prefer flats rather than own house. Many old residents of Usha fan factory area have sold their land to property developer and shifted in to flats. ShriAnirbanPoddar is a 38 year old residential real estate developer and a resident of Satindrapalli area. According to him real estate developer prefers to develop apartments within 2-3km radius from metro station. Due to nearness to metro station flats get easily sold out even at relatively high price providing better profit margin to the developers.

Development of Apartments

Fig 2 Development of Apartments in different parts of Ward no. 110,111 & 112

Source: - Field Picture taken by Author

Effect of Metro Railway in Residential real estate development

In order to understand the impact that Metro railway has on the residential real estate development, a questionnaire survey has been conducted the excerpt of which are provided in Table 4.

Table 4 Classification of Respondents according to their Profile

Sl No.	Factors	Category	No. of Respondents	Percentage
1	Gender	Male	76	63
		Female	44	37
		Total	120	100
2	Age	Below 25	24	20
		26-35	40	33
		36-45	28	23
		46-55	14	12
		Above 55	14	12
		Total	120	100
3	Education	Up to Metric	19	16
		H.S	24	20
		Graduation	57	47.5
		Post Graduate	20	16.5
		Total	120	100
4	Occupation	Govt Service	21	17.5
		Private Service	37	31
		Business	29	24
		Student	15	12.5
		Household	18	15
		Total	120	100
5	Monthly Family Income	Below 10,000	10	8
		10,001-20,000	18	15
		20,001-30,000	14	12
		30,001-40,000	50	42
		Above 40,000	28	23
		Total	120	100

Data Source- Field Survey

Among the respondents 63 percent are male and rest is female. 20 percent of the respondents fall in the age group below 25 years, 33 percent respondents are from age group between 26-35 years, 23 percent and 12 percent are between age group 36-45 years and 46-55 years respectively and another 12 percent respondents are above 55 years. As far as educational status of the selected respondents are concerned 16 percent are educated up to school level, 20 percent respondents up to H.S level, 47.5 percent respondents have graduation degree and 16.5 percent are educated up to post graduate level. Occupationally 17.5 percent respondents are engaged in government service, 31 percent respondents belong to private sector, 24 percent respondents are self employed with own business, 12.5 percent respondents are students and rest of the respondents that is 15 percent are homemakers or are retired personnel. 8 percent of the respondents belong to the income bracket below Rs. 10,000, 15 percent of the respondents belong to the income group of Rs. 10,001 – 20,000, 12 percent and 42 percent respondents are from income group of Rs. 20,001 – 30,000 and Rs. 30,001- 40,000 respectively and 23 percent of the respondents are fall in income group more than Rs. 40,000. It can be concluded that most the respondents availing Kolkata Metro Railway are male, belonging to age group of 26 – 35 and are either students or working.

Table 5 Respondent's opinion regarding impact of metro rail extension on Residential Real Estate Development

Sl No.	Factors	Category	No. of Respondents	Percentage
1	Extension of Metro Railway	Good	90	75
		Indifferent	18	15
		Not Satisfactory	12	10
		Total	120	100
2	Connectivity and Accessibility	Improved	85	71
		Not Satisfactory	35	29
		Not Improved	0	0
		Total	120	100
3	Residents number increase considerably	In last 10 years	60	50
		In last 15 years	40	33
		In last 20 years	20	17
		Total	120	100
4	Preference of selecting transport modes	Metro Railway	66	55
		Bus, taxi & auto	24	20
		Circular Railway and other	30	25
		Total	120	100
5	Number of Apartments	Increase rapidly	70	58
		Increase moderately	25	21
		Increase slowly	25	21
		Total	120	100
6	Reason of increase in real estate development	Metro Railway	78	65
		JNNURM bus & taxi	30	25
		Circular railway	12	10
		Total	120	100

Data Source- Field Survey

The survey undertaken observes that 75 percent of the local residents consider metro railway extension as a good initiative which has made their daily commutation much easier. However 10 percent were not very satisfied since this extension passed through residential and crowded area and is considered to cause congestion. Another 15 percent of the respondents were indifferent on their opinion because benefits of such projects could only be judged after sometime. Out of the 120 respondents 71 percent were of opinion that metro railway extension provides better connectivity and accessibility with north and central Kolkata making movement less time consuming and comfortable. Remaining 29% of the respondents are of opinion that there are scope of improvement in connectivity and accessibility as the metro railway route can only caters to passengers moving from north to south or vice versa. In case of selecting transportation modes 55 percent respondents preferred to travel by metro railway while 20 percent preferred bus and taxi and remaining 25 percent favored circular railway and other transportation modes as metro connectivity seemed to be absent at their destinations.

Nevertheless, whether satisfactory or not, metro railway extension definitely authenticate the expansion of real estate development in these parts of the city. 50 percent of the respondents were of the opinion that residents numbers considerably increased in last 10 years, though around 33 percent and 17 percent of the respondents considered that such a trend had started gradually since last 15 years and 20 years respectively. The author therefore is left to ponder on the fact that though undoubtedly metro railway extension has given a boost to real estate development in the southern part of the city, but the trend of decentralization to these areas may also have played a catalytic role in expansion of the mass transit system to these areas. Local residents view on trend of residential real estate development in adjacent area revealed that according to 58 percent of the respondents, increase in numbers of apartments has been very rapid particularly in last decade after metro railway extension, though 42 percent respondents considered such an increase to be moderate or relatively slow compared to other parts of Kolkata Metropolitan Area. Nonetheless 65 percent of the respondents believe extension of metro railway is the prime reason for residential real estate development in ward number 110,111 and 112. Yet some 25 percent are of opinion that introduction of JNNURM bus and its newer routes and new rules in taxi service operation in the city is the main reason for such a development, whereas a significant 10 percent still believes that improvement in circular railway and increased coverage of para transit modes such as auto rickshaw attributes to be the prime reason for increase in real estate development.

Findings

Based on the summary of the analysis and interpretation of data following findings can be summarized as stated below.

1. Extension of Metro Railway up to New Garia provides better connectivity and is one of the prime reasons for rise in commuter number of metro railway.
2. Among various modes of transport metro railway is the most preferable mode of transport. Daily commuter prefers metro as it is comfortable, reliable and relatively more economic as compared to other mode of transport plying in the city roads.
3. Rapid growth in development of residential real estate took place in ward number 110,111 and 112 within last 7 to 8 years. Majority of the apartments developed within 3-4 km radius from metro stations.
4. Extension of metro railway up to New Garia has a direct impact on increase in development of apartments and growth of real estate values in the study area within last decade.

Limitation

As sample size is 120, it is not necessary that it truly represents the opinion of the entire population. Some people might not have given accurate responses, which affects the results of the study. Possibility exists that some respondents may have not taken the schedule seriously and hence, the researcher had to discard those responses where discrepancies were found.

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