



The Functional and Morphological Changes and Land Value Pattern in the City Centre of Karachi

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Abstract: City center is the commercial and financial heart of the city. The CBD, the Business Core, the Down town, the Central Commercial Area and the High Street are other names of it. The City Centre is the area which is distinct in its land use, function and land value. In the Western cities the suburban growth has changed cities from monocentric to polycentric. The non-Western cities are still monocentric. However, morphological and functional changes took place in both Western and non-Western cities. In Western Cities dispersal of retail from the City Centre has replaced retail function from business and finance. This change is also taking place in mega non-Western cities. The same is also true in Karachi City which is the largest city of Pakistan. The City Centre of Karachi emerged from the retail market of Jodia Bazar around 1860. It has now expanded on Shahra-e-Faisal. It was once the retail heart of the city but has lost that position in a marked manner. It was once the geographical center of the city which is no more. It possesses the highest land value in the city.

Keywords: City Centre, land value, city centre uses, hard core, retail

1.

INTRODUCTION

The city centre of Karachi emerged from the retail market of Jodia Bazar around 1860 (Damohi, 1998). In 1880s commercial land uses were developed in two centres. The first centre was located along and in between the M.A Jinnah Road (Bunder Road) and I.I Chundrigar Road (McLeod Road) up to Kutchery Road (Khan, 1970). The second centre in Sadar comprised shops and offices of European traders. It developed along the Zaibun-Nisa Street (Elphinstone Street), the Empress Market and the shops of Bohri Bazar. The retail markets of Sadar catered the needs of the British families residing in Sadar and the Civil Lines. With the growth of Karachi City business, finance, retail and wholesale activities increased along M.A. Jinnah Road (Bunder Road, I.I.Chundrigar Road (McLeod Road) and in Sadar. With these development the two commercial centres joined each other in 1930s (KDA, 1964). In 1950s the city centre of Karachi started to expand from Saddar to Hotel Metropole. Its expansion along M.A. Jinnah Road beyond Capri Cinema was obstructed by the cantonment and along the Ziauddin Road beyond Sheraton Hotel by the Civil Lines (Fig. 1). As a result the city centre has expanded along Shahra-e-Faisal which has turned into a business corridor dominated by business and finance. The present study is an attempt: i) to delimit the city centre of Karachi ii) to investigate the pattern of land use distribution in the city centre and iii) to quantify land value variation by applying multiple regression model to explain land value variation within the city centre.

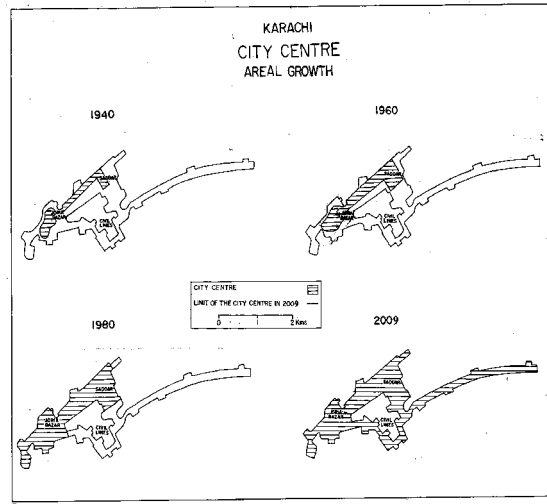


Fig. 1. Karachi city centre: area growth

2.

MATERIALS AND METHODS

There is no published data of the land use and land value of the city centre of Karachi are available. Therefore collection of data directly from field survey was done. Cadastral maps of different areas having scale 1: 5000 scale were used to record land use and land values. Real estates and offices of retail, wholesale markets and business and financial centres were found good sources of information about the land use and land value data. They provided help in understanding of land values variation. The method of "U" graph is suitable to delimit the city centres of Less Developed countries where generally percentage of non-city centre uses like residential are in high

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Table 1: Distribution of land use in the city centre of Karachi

Land Use	Ground Floor		Upper Floors		Total	
	Area (sq.kms)	Percent	Area (sq.kms)	Percent	Area (sq.kms)	Percent
City Centre Land Uses	5.04	78.65	23.61	84.53	28.65	83.43
a) Business and Finance	2.40	37.45	19.54	69.94	21.94	63.91
b) Wholesale	1.31	20.44	1.24	4.44	2.55	7.42
c) Retail	1.26	19.67	0.98	3.50	2.24	6.52
d) Personal Services	0.06	0.93	1.24	4.43	1.30	3.78
e) Newspaper Printing	0.01	0.16	0.61	2.18	0.62	1.8
Non City Centre Land Uses	1.36	21.35	4.32	15.46	5.69	16.57
Residential	0.2	3.13	4.22	15.1	4.42	12.87
Others	1.16	18.22	0.1	0.35	1.27	3.70
Total	6.408		27.93		34.33	

Source: Land use survey, 2009

The Developing Zone

The Developing zone is the area which has remained part of the city centre and the intensity of the city centre and the intensity of the city centre land uses is now on the increase. The area between the hard core and the zones of assimilation and discard is identified as the developing zone (Fig 5). It is the area where one and two storied buildings are being converted in multi-storied hotels, business plaza, retail and wholesale markets. The electronic markets of Abdullah Haroon Road, Zainab Market, Karim Centre and high quality retail shops of Zaibun-Nisa Street are located in this zone. The retail business in this area is on increase mainly because of electronic goods which are not yet decentralized. Hotel Sheraton, Hotel Marriott, Dawood Centre, Hotel Metropole, Panorama Centre, retail market of Jama Cloth, wholesale markets of auto-parts, Tibet Centre, Gul Centre, Urdu Bazar and Rimpa Plaza are other important city centre land uses of this zone. The percentage of city centre land uses in the developing zone is about 60 per cent which is lower than the hard core but higher than the zones of assimilation and discard. Business and finance is the dominant land use accounts for 31.9 per cent followed by retail i.e. 15.5 per cent and wholesale 8.1 per cent of total land use.

The Zone of Assimilation

This is the zone where city centre is advancing. It is located in the high class residential area of the city starting from Hotel Metropole to the Shaheed Millat fly-over intersection in a ribbon form along Shakra-e-Faisal. It is also called Business Avenue (Fig 5). The total area of this zone is about 1.91 sq. kms which accounts for 29.8 percent of the total city centre area. It is a newly developed part of the city centre where a large number of business plaza have been built. The city centre land uses in this zone account for 52.3 percent of the total land use and

business and finance 49.5 percent. The zone has no wholesale establishment while retail and personal services account for 1.8 percent of the total land use. The zone of assimilation is dominated by business and financial offices. The conversion of non-city centre land uses into city centre land uses is very high in this zone. Some cantonment land was also sold due to increasing land value.

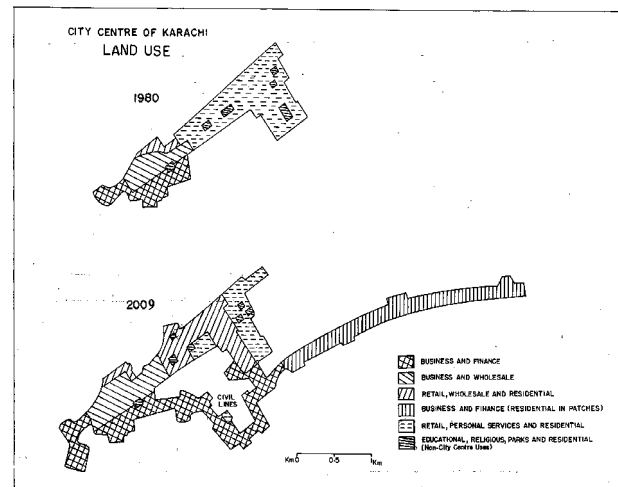


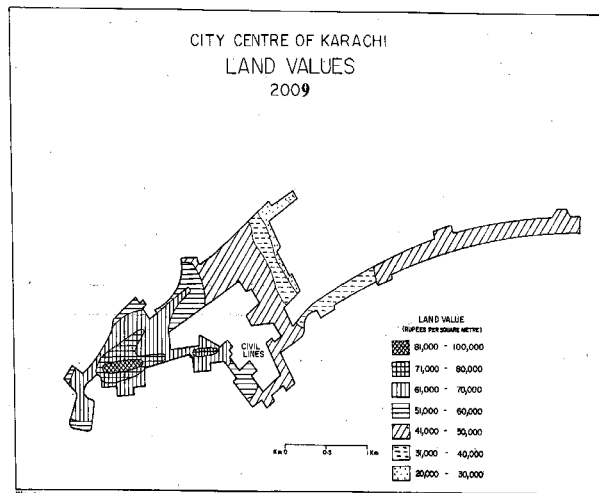
Fig 4 . City centre of Karachi: land use
The Zone of Discard

It is the zone where non-city centre land uses mainly residential are on increase. A large number of old buildings have been converted in multistoried residential apartments of which ground floor is used for retail activities and personal services. The percentage of city centre land uses is low, 30 percent comprising mainly retail and services. Low price restaurants and hotel, booking offices and terminals of inter-city bus transports, grocery, fruits and vegetables markets and personal services like laundry, hair dressers etc. are main city centre land uses. It is located at the edge of the city centre near Lines Area, a low class residential area. From Naz Shopping Centre to Taj Medical

Table.2. Distribution of city centre land uses in different zones of the city centre of Karachi

City Centre Uses	City Centre (Percent)	Hard Core (Percent)	The Developing Zone (Percent)	The Zone of Assimilation (percent)	The Zone of Discard (percent)
Business and Finance	63.91	50.5	31.9	49.5	0.1
Wholesale	7.42	26.5	8.1	--	0.1
Retail	6.52	1.0	15.5	1.3	19.8
Personal services	3.78	0.5	4.2	0.5	10.0
Newspaper	1.82	1.5	0.3	---	----
Non city centre uses	16.57	20.0	40.0	48.7	70.0
Total	100	100	100	100	100

Source: Land use survey 2009

**Fig 5. City centre of Karachi: land values 2009**

Complex on M.A. Jinnah Road and from Sea Breeze Plaza to Naval. Selection Centre including Empress Market and Bohri Bazar areas of Saddar are included in this zone. The blighted part of the city centre occupies about 0.56 sq.kms area which accounts for 8.73 percent of total area of the city centre. The retail markets of this zone were once heart of retail shopping like Bohri Bazar and Empress Market. But the dispersal of retail has adversely affected the retail trade of these markets. The new retail shopping centres in Saddar have flopped like Noman Shopping Centre, Saudi Shopping Centre, Sharja Shopping Centre etc. Some buildings which were originally planned for retail shopping have been converted in residential apartments like Naz Shopping Centre, Jinnah Shopping Centre etc.

Land Values within the City Centre

City centre is not an uniform area either in term of land use or land values. Land values within the city centre vary between and within the zones.

Hard Core: Hard core is the zone of highest land values in Karachi. Land values in the hard core varies from Rupees 60,000 to 100,000 per sq. metres. The point of highest land value i.e. 100,000 is located at Habib Bank Plaza area. In the wholesale core land values vary from Rupees 79,000 to 60,000 per sq. metres. Highest land value Rupees 79,000 per sq. metre

is found at the Bolton Market area and lowest Rupees 60,000 per sq. metre in the Light House area.

The Developing Zone: Land values in the developing zone vary from rupees 59,000 to 40,000 per sq. metre. Hotel Sheraton is the area of highest land value in this zone. It is the area where high price multi-storied hotels and business plazas are located. Zaibun-Nisa Street and Abdullah-Haroon Road are the next high land values area i.e. about Rupees 50,000 per sq. metre. Zaibun-Nisa Street is the area where high quality shopping goods are sold while Abdullah Haroon Road is famous for retail and wholesale businesses of electronic goods. The lowest land value in this zone is located in the low quality retail areas of Shahr-e-Liaquat and adjacent to the zone of discard in Saddar. Both areas have high percentage of non-city centre land uses particularly residential.

The Zone of Assimilation: Land values in the zone of Assimilation vary from Rupees 30,000 per sq. metre to Rupees 50,000 per sq. metre. The Park View is the highest land value area. The percentage of city centre land uses particularly business and finance is high in the area. It is the newly developed business avenue of the city centre. The lowest land value point i.e. Rupees 30,000 per sq. metre is located at Dada Bhai Tower where percentage of non-city centre land uses particularly residential are located. Land values on Shah-ra-e-Faisal are on increase particularly after lifting of ban on the conversion of non commercial land use to commercial uses.

The Zone of Discard: Land values in the zone of discard are generally low. The mean land value is Rupees 30,000 per sq. metre. The highest land value is in both Bazar i.e. Rupees 25,000 per sq. metre where percentage of non city centre land uses is about 70 per cent. It is the lowest land value point of the city centre.

Factors affecting Land Values within the City Centre

Land values within the city centre depend upon various factors like land use, distance from the land value peak, width of roads, parking facilities etc.

Land Use: Distribution of land values in the city centre is related with its land use. Land values are high where percentage of the city centre land uses is high. The percentage of city centre land uses is highest in the

hard core which has highest land values while zone of discard possesses lowest percentage of city centre land uses and has lowest land values. Similarly land values within the city centre are also affected by the type of city centre land uses. Land values are high in the business and financial areas followed by wholesale. Areas of retail and personal services have relatively low land values.

Distance from the Peak Land Value: The highest land value area is the heart of business and financial activities in the city. Head offices of the major banks including the State Bank and the Karachi Stock Exchange are located in this area. Business and trade are the major functions of the city centre therefore the proximity to this area is a relevant factor affecting the land values of the city centre of Karachi. Land values within the city centre generally decline with increasing distance from the land value peak (Table 3). The land value-distance relationship can be explained through Mills model. Mills in 1972 worked on Chicago City concluded that land values and distance from the peak land value within the city centre have exponential relationship and it becomes linear when land values of natural log are taken. It can be expressed mathematically as follows:

$$Y = a e^{-bx}$$

$$\ln Y = \ln a - b x$$

Where Y is land value
 X is distance within the city centre from peak land value point
 e is base of natural logarithm
 b is land value gradient

Table 3: Land values at various distance within the city centre of Karachi. (Fig.6)

Distance from the Peak Land value point (Kms)	Land value (Rupees per sq metre)
0.0	100000
0.5	80000
1.0	70000
1.5	65000
2.0	60000
2.5	55000
3.0	50000
3.5	40000
4.0	35000
4.5	30000
5.0	28000
5.5	25000
6.0	22000

Source: Estate Agencies, 2009

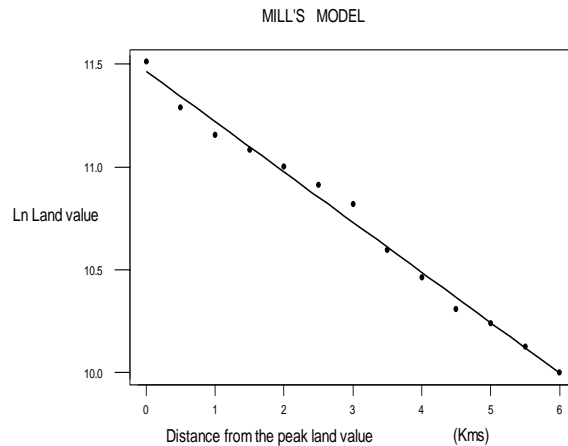


Fig. 6. MILL'S MODEL

$$Y = a e^{-bx}$$

$$\ln Y = \ln a - b x$$

$$y = 11.5 - 0.245 x$$

Predictor	Coef.	St Dev	T	P
Constant	11.4662	0.0253	453.25	0.000
x	-0.244845	0.007155	-34.22	0.000

S = 0.04827 R-Sq = 99.1% R-Sq(adj) = 99.0%

Analysis of Variance:

Source	DF	SS	MS	F	P
Regression	1	2.7277	2.7277	1170.92	0.000
Error	11	0.0256	0.0023		
Total	12	2.7533			

The graph and result of the Mill's model reveal that the model is best fit to explain land value-distance relationship within the city centre. Thus it can be said that land values within the city centre of Karachi decrease exponentially with increasing distance from the peak land value.

Width of Road: Land values are relatively higher along the wide roads of the city centre. The I.I. Chundrigar Road (Macleod Road), M. A. Jinnah Road (Bunder Road) and Shakra-e-Faisal are three widest roads of the city centre. These roads are the main transport routes which link up the city centre with the rest of city. These roads have more front foot space as compared to other roads of the city centre. The extra space is used for car parking. As a result land values along these roads are relatively higher as compared to other roads.

Parking Facilities: Land in the city centre is very expensive and limited. Front foot road parking is restricted on many roads of the city centre which are narrow or where problem of traffic jam is serious like Bohri Bazar, Empress Market, etc. As a result parking is an important problem in the city centre which affects business activities and land values. In the building laws

of the city provision of parking floor is essential for the approval of the site plan. In many cases the plan is not implemented according to law and parking floor is also utilized for other use. The front foot parking is more important for retail and wholesale activities. Therefore, those roads where parking is not prohibited price of land is relatively high like Zaibun-Nisa street and Abdullah Haroon Road.

Analysis of Factors affecting Land Value Distribution

To analyse the relationship of factors affecting the land values within the city centre multiple regression model was applied. Data about the land values, distance from the highest land value point and intensity of city centre land uses were taken from 36 sample sites in the city centre. For this purpose a grid was drawn on the map of the city centre. The intersection points were taken as sample sites. Intensity of city centre land uses were worked out as a percent of city centre land uses of the associated blocks of i^{th} location. The model can be expressed mathematically as follows.

$$Y = a - bX + cI = Se$$

Where:

Y = land value at any i^{th} location

X = distance of i^{th} location from the highest land value peak

I = intensity of city centre uses at any i^{th} location

a = constant

b and c are multiple regression coefficients explaining X and I

$i = 1, 2, 3, \dots, 36$ are the locations of which land values are taken as samples

se = standard error of estimate

Result of multiple regression model analysis

a (constant) = 45905

b(distance from highest land value point) = -3121

c(intensity of city centre land uses) = 2430

r(multiple correlation coefficient) = 0.9936

test of significance = significant

F-value = 1282

Se(standard error) = 1756

Result of Product Moment and Partial Correlation

R_{xy} (product moment correlation) = -0.892

R_{yi} (product moment correlation) = 0.875

$R_{yx.i}$ (partial correlation) = -0.783

$R_{yi.x}$ (partial correlation) = 0.735

The result of the multiple regression analysis shows that the dependent variable, land values, and independent variables, distance from the highest land value point and intensity of city centre land uses have significant relationship. Land value declines with increasing distance from the land value peak. Land value increases with increasing intensity of city centre land uses.

4. CONCLUSION

The city centre of Karachi is the commercial and financial core of the city. Therefore it is the area of highest land values in the city. City centre is not uniform in land use and land values. The hard core possesses highest percentage of city centre land uses and highest land values. The zone of discard possesses lowest percentage of city centre land uses. It is the blighted part of the city centre and has lowest land values.

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