# DYNAMICS OF ON URBAN LAND MARKET A CASE STUDY OF TIRUCHIRAPPALLI URBAN AGGLOMERATION

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### **T**NTRODUCTION

**CONOMICS** has sometimes been described as the science of satisfying the greatest amount of wants give the scare resources available. Of all economic resources, land perhaps conforms most closely to the concept of scarcity. Urban land is a scare resource that without adequate control quickly rises in value to the point where its purchase is difficult. The concept of land value may be described as the monetary evaluation of land use. It is dependent upon both the present and future use which in town, is influenced by the physical and economic characteristics of the site and the social control of land use (Clark, 1965) Lichfield (1956), has stated that values are created and changed by the same forces that create and changes uses. Clark has clarified that the value may also change before any change offices actively take place. For example, where the site posses value for a future use its potential is reflected in the present price or rent, value may, therefore, be classified a "Current Value" i.e. value for the present use of "Potential Value", i.e., value for a different and usually more valuable use at some future data. Land value can be considered in two contexts. One is the market value, which in the price of land parcel negotiated at the time of sale of the parcel, and the other is the assessed value, which is the estimated worth of the parcel made by a competent private or public assessor. The study brings out the land market in a fast growing Indian city.

The present study attempts to evaluate the urban land value and its spatial variation in Tiruchirappalli Urban Agglomeration (TUA), Tamil Nadu. It has been found in the study area also that the increase in urbanization demands more urban land to accommodate shops, factories, educational institutions, lodges and hotels, offices, theaters and new residential areas. This growing demand for urban land space against its inelastic supply tends to influence the value of urban land. This leads to conversion of agriculture land into urban human habitation. The interaction of location factors like, proximity to market, distance from residence to place of work and the structural factors relating to the type of houses, designs of building, is apparently influencing the land values in the study area and hence an analysis of much specific problems becomes necessary.

The growth of urban agglomerations is influenced by economic and non-economic factors. There is a need to examine the extent to which the above factors have influenced land values in Tiruchirappalli Urban Agglomeration, and there is a dearth of empirical study in this area. Urban land markets have complex characteristics, a systematic inquiry is essential to probe into certain issues connected to land values and land use pattern.

This study makes an attempt to examine the various factors that influence urban land value and the

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reasons for the prevalence of high land values and to analyze the fluctuation in urban land values during the last decade. The land use patterns and land values do vary from time to time, as the land values are fluctuating year after year. The pattern of fluctuation in land values is not uniform throughout Tiruchirappalli Urban Agglomeration. It varies from primary residential to mixed residential and to commercial area. The specific objectives are in order: a) to find out the spatial variation effected in urban land values in urban agglomeration in residential and commercial areas; b) to analyze the socio-economic factors influencing urban land values in residential areas and c) to study the land use pattern in urban area in the light of conversion of agricultural land for the purpose of urban human habitation.

These above objectives present specific questions to be answered by the study. The answers depend largely on the hypotheses to be empirically verified. The land values in Tiruchirappalli Urban Agglomeration shows a steady uptrend in the past decade; there is need to distinguish between guideline value and market value in land uses; there are a few major determinants for increasing land values in Tiruchirappalli Urban Agglomeration; and rising land value contributes to changes in the land use pattern; particularly the agricultural land being converted into urban human habitation.

The source of data for this study is both secondary and primary in nature. There is no agency either private or public which can supply the official data on land value except the registration office. Though the officially registered price as prevailing, this source is resorted to, mainly to study the fluctuations of land values over a decade. The Sub-Registrar's Office has guideline values and it has different values for the land in different localities in Tiruchirappalli Urban Agglomeration. Guideline values are revised from time to time by a special team of Registration staff comprising engineers, supervisors and architects. This revision is made with the help of previous sales statistics and through personal spot enquires. The present study makes into account the value in 1983 - 84 and 2004 - 05 and the recently revised value which came into force from 1984-85. However, Guideline values are strictly meant for Sub-Registrars for fixing stamp duty. This study involves collection of primary data from the real estate proprietors on land transaction and factors causing fluctuations in prices.

The land use requirements determined by these plans under various categories like primary residential, mixed residential, commercial, industrial, etc. have been analyzed by making a comparative study of the existing and proposed land uses at different points of times in the study area. The Zone regulations and building by-laws have been analyzed by obtaining data from the Tiruchirappalli Regional Town and Country Planning Tiruchirappalli. As for the urban land values in Tiruchirappalli Urban Agglomeration, data were collected from different sources: as indicated below, (i) Market values for select locations were obtained as primary source from 80 real estate proprietors through interview schedule method. (ii) Guideline values were taken as secondary source from the Government land documents of district office and sub-registrars' offices in TUA, for the period for 1983-84 and 2004-05. Field survey was also carried out to know the locations characteristics of different localities chosen for survey numbers for the study with help of real estate propertiers.

# Universe and Sample of the Land Values

The universe of the study consists of the urban land values (1983-84 and 2004-05) in Tiruchirappalli Urban Agglomeration. The urban land values are defined into different land use patterns like, primary residential, mixed residential and commercial.

- 1. The primary residential total survey number was 4,379
- 2. The mixed residential survey number was 29,538 and
- 3. The commercial survey number was 10,932.

The total survey numbers in TUA are 44,849. Out of total survey numbers 44,849, the researcher has

selected 1,200 survey numbers with 400 for each category using the random sampling technique with help of stratified random lottery method of every land uses in TUA.

Land use Classification	Total Survey Numbers	TRY1	SRI	TUA Villages
Primary Residential	4,379	0	313	3986
Mixed Residential	29,538	24,820	4,383	0
Commercial area	10,932	9,453	1,382	0
Total	44,849	34,273	6,078	3,986

 Table 1: Universe and Sample

Note: TRY1 - Tiruchirappalli Munincipality; SRI - Srirangam Municipality; TUA - Tiruchirappalli Urban Agglomeration Villages.

Land Use Classification	TRY	SRI	G. Rock	TUA Villages	Total
Primary Residential	0	32	8	360	400
Mixed Residential	338	58	4	0	400
Commercial Area	345	52	3	0	400
Total	683	142	15	360	1200

**Table 2: Areas wise Distribution of Samples** 

Note: TRY - Tiruchirappalli Munincipality; SRI - Srirangam Municipality; G. Rock - Golden Rock Municipality; TUA - Tiruchirappalli Urban Agglomeration Villages.

Analysis of data included tools such as hypothesis testing, time series trend lines. Appropriate deflators were used by using whole sale consumer price index to analyze the extent of hike in land values. Analysis before and after adjusting for inflation, is made with the help of the Wholesale Consumer Price Index. To verify the hypothesis of the study the't' distribution has been applied using the Minitab. (Software package uses to analyse statistical data). Simple percentages have been applied to identify those variables which as a whole influence the factor determined rising the land values in TUA. A Chi-square test and has been applied to test the hypothesis and to explain relative variation in values among residential and commercial areas.

# Guideline Value

Table 3: Land use and Guideline Land Value

GV	value (	l use an before a lation) 1	djusting	Land use and land value (after adjusting for inflation) 1983-84			, <b>,</b> ,			Land use and land value (after adjusting for inflation) 2004-05		
LU	М	MD	SD	М	MD	SD	Μ	MD	SD	Μ	MD	SD
PR	1.97	1.0	1.65	0.77	0.31	0.29	35.8	21	18.2	15.65	8.6	8.51
MR	9.06	8.0	5.30	2.81	2.11	1.63	156	132	76.6	66.9	57.4	41.8
CA	16.20	20	8.40	5.20	6.33	2.68	347	214	206	94.8	76.8	68.7

**Note:** GV - Guideline Value; MR - Mixed Residential; MV - Market Value; CA - Commercial areas; LEA - Land use Classification; M - Mean; SD - Standard Deviation (Values are unit free).

The land use and land values (before and after adjusting for inflation) 1983-84 to 2004-05. The land use - wise mean value, median value derivation for the sample of one thousands two hundred observation were worked out. The table shows the estimates for the three land use classification for the year of 1983-84 and 2004-05. It might be seen that the land value was the highest in commercial area, followed by mixed residential and primary residential areas. The inference is that the three rank in the descending mean value of land (in Rs./per Sq.) as: commercial area, mixed residential and primary residential and among them the commercial area has substantially larger value than others. The median value is high in the commercial areas, followed by the mixed residential and primary residential areas. Low standard deviation indicates that the observations are less dispersed and are clustered around the mean in the primary residential area. It is true that the Sub-Registrar's offices had fixed the value around 0.50 to 1.00 (in Rs./per Sq.) in the primary residential areas in the fringe areas for this year. Large standard deviation value is larger which indicated that observations are guite spread out in the mixed residential areas. It also reflects that the observations are heterogeneous in nature. High standard deviation indicates the absence of cluster around the mean in the commercial areas. It is very clear that the scores are spread out widely and are more heterogeneous. The observations cover all belts in the road fronts and the land post behind or in adding areas.

For the period 2004-05 high standard deviation for values before adjusting for inflation revealed that the scores are dispersed in the primary residential areas. It reflected that the land value has increased in the primary residential areas in the primary residential areas. It also shows that the scores are heterogeneous in nature in the primary residential area. The observations are quite spread out in the mixed residential areas and the scores are heterogeneous in nature. The standard deviation value is larger which also indicates that there is absence of cluster around the mean in the commercial areas. It is also clear that the scores are spread out widely and that they are more heterogeneous.

For the period 1983-84, high standard deviation for values after adjusting inflation indicated that the observations are less dispersed and are clustered around the mean in the primary residential area. It reveals that the observations are similar in the primary residential area. The scores are quite spread out in the mixed residential areas. The observations are dissimilar in the mixed residential. There is absence of cluster around the mean in the commercial areas. The scores are spread out widely and are more heterogeneous.

For the period 2004-05, high standard deviation for after adjusting for inflation which indicated that the observations are dispersed in the primary residential area. Large standard deviation indicated that observations are quite spread out in the mixed residential areas. It reflects that the observations are heterogeneous in nature in the mixed residential areas. High standard deviation reveals the absence of cluster around the mean in the commercial areas. It is very clear that the scores are dissimilar and are more heterogeneous.

# **Market Value**

MV	value (		d land djusting 1983-84	Land use and land value (after adjusting for inflation) 1983-84			Land use and land value (before adjusting for inflation) 2004-05			Land use and land value (after adjusting for inflation) 2004-05		
LU	Μ	MD	SD	Μ	MD	SD	Μ	MD	SD	Μ	MD	SD
PR	10.32	4.00	3.83	1.20	1.24	0.56	74.5	60	14.4	52.8	24.8	7.4
MR	12.5	10.0	9.42	4.48	3.10	4.54	242	204	146	142.1	97	53.3
CA	101.74	100	48.8	60.5	62	32.4	1200	900	182	462	412	95.0

Note: GV - Guideline Value; CA - Commercial areas; MV - Market Value; M - Mean; LEA - Land use Classification; MD - Median; PR - Primary Residential; SD - Standard Deviation (Values are unit free).

The land use and land value (before and after adjusting for inflation) 1983-84. High standard deviation indicated that the observations are dispersed and are clustered around the mean in the primary residential area. It is also indicated that the observation are quite spread out in the mixed residential areas. It reflects that the observations are heterogeneous in the mixed residential areas. There is absence of cluster around the mean in the commercial areas. It is very clear that the scores are spread out widely and are more heterogeneous.

For the period 2004-05, high standard devotion for values before adjusting for inflation indicated the observations are dispersed the primary residential area. It reflects that the scores are dissimilar in the primary residential areas. It reflects that the observations are heterogeneous in nature. The values are clustered around the mean in the commercial areas.

For the period 1983-84, large standard deviation after adjusting for inflation showed that the scores are dispersed in the primary residential area. It expressed that the scores are homogeneous in nature in the primary residential area. This denotes that the observations are spreaded out in the mixed residential areas. It reflects that the observations are heterogeneous in the mixed residential areas. The values indicated the absence of clusters around the mean in the commercial areas. The scores are spreaded out and are more heterogeneous in the commercial areas.

For the year 2004-05, high standard deviation for values after adjusting for inflation indicated that the observations are dispersed in the primary residential area. It shows that the scores are dissimilar in the primary residential area. The observations are quite spread out in the mixed residential areas. It reflects that the observations are heterogeneous in nature. There are clustered around the mean in the commercial areas.

The forgoing discussion that confirms the assumption the pattern of land use determined land values, with little scope for many major deviations from the main trend. Form the foregoing presentation of empirical evidence for the land values across three categories of classification; we infer that the land values in commercial areas are higher when compared to the other two categories. Next to this, high values are registered in the mixed residential areas followed by primary residential areas.

In regard to the standard deviations obtained, which in basically unit free, showed that this worked out to be high in almost all the categories. This suggests that the mean values obtained are not consistent, which may imply either high variation in values across different categories or small sample size.

Land use Classification	1983-84	2004-05	% Increase
Primary residential	0.77	15.65	1881.01
Mixed Residential	2.81	66.9	2280.78
Commercial area	5.20	94.8	1723.07

Table 5: Urban Land Value Appreciation for Guideline Value (Deflated Value)

Regarding appreciation and extent of variation in land values across different locations, the mixed residential areas showed an increase of 2280.78 per cent between 1983-84 and 2004-05. The average land values in commercial area in TUA based on guideline valued registered an increase of 1881.01 per cent between 1983-84 and 2004-05. The primary residential land values have increased to 1881.01 per cent during the years 1983-84 and 2004-05. The mixed residential has increased very high when compared to other land uses in the city. The mixed residential land value had increased, as the area has become an important never center for communication, transportation and other kinds of transactions. Location near this center gives easier access to every other part of the city. For self-employed households heads or families, with secondary earners, the mixed residential may be the best location. Convenient in

transportation, along with employment opportunity, to start self enterprises is a very significant function provided by the mixed residential area. The mixed residential area is located near by the educational institutions and, therefore, people of the high income group, middle income group and lower income group are attracted to reside in the mixed residential area in TUA. The primary residential stands second in the land use classification, due to an increase in supply of lands, low land values, development of the transport facilities and housing loan facilities resulting in increased land values in the primary residential area. The commercial land value is very low compared to other land uses in the city. As one third of commercial lands are possessed by various institutional trusts.

Land use Classification	1983-84	2004-05	% Increase
Primary Residential	1.20	52.8	4300
Mixed Residential	4.48	142.1	3071.87
Commercial Area	60.54	462	663.13

Table 6: Urban Land Value Appreciation for the Market Value (Deflated Value))

The primary residential land values had increased to 4300 per cent between 1983-84 and 2004-05. The mixed residential increased to 3071.87 per cent between 1983-84 and 2004-05. The values in commercial area increased only to 663.13 per cent between 1983-84 and 2004-05. The factors influencing values variations in land values in the city are indicated below: The primary residential uses stands out first in the land value appreciation. The low land value in this primary residential area is low; many middle income groups have come to reside over here. Besides the easily available housing loan facilities also encouraged the middle income group to construct houses in around the city. Moreover people generally prefer to lie in independent houses rather in apartments, as it would imply a higher status in society and a greater respectability among one's kith and kin. In the primary residential area supply of lands are more when compare to other uses in the city. Thus, the demands for lands are more in this classification leading to increased land values over the decade. The mixed residential area stands second over the period. The reason is that the housing loans play a vital role in determining the land values and for similar reason has cited above mixed residential areas. The commercial area (CBD) stands third over the ten years. The commercial land value had not increased as much as the mixed residential and primary residential in the city. Located as it is around the Temples, Churches and Mosques where considerable lands come under institutional holdings which could not be sold in the open market, due to The Urban Land (Ceiling and Regulation) Act 1976, there is hardly any land transaction in this area. Hence, the market value had not increased as much as in other classification in the city. This is a basic reason for the low appreciation in the commercial lands use. There are also many jewelry shops in and around the commercial area. For the sake of safety of those shops owners have their houses in the same locality very close to the shops. Hence, there is hardly any transaction in this area.

Land use	1983-84		Difference between		)4-05	Difference between	
classification	A1	A2	A1 and A2	A1	A2	A1 and A2	
Primary Residential	1.97	10.32	8.35	35.8	74.5	38.7	
Mixed Residential	9.06	12.5	3.44	156	242	86	
Commercial Area	16.29	101.74	85.45	347	1200	853	

Table 7: Different between Guideline Values and Market Values (Before Adjusting inflation)

Note: A1: Guideline value, A2: Market Value.

Table 7 reveals the difference between the guideline values and market values. There is a wide variation in guideline values rate per square foot of land as against the market values. The primary residential has varied to Rs. 8.35 in the year 1983-84. The difference in the mixed residential was Rs.12.5 in the year 1983-84. The commercial land values varied up to Rs. 101.74 in the year 1983-84. The primary residential varied to the extent of 38.7 rupees in 2004-05. The mixed residential varies up to Rs. 86 rupees and the difference in the commercial land value worked out to Rs. 1200 in the year 2004-05.

Land use	1983-84		Difference between	2004-05		Difference between	
classification	A1	A2	A1 and A2	A1	A2	A1 and A2	
Primary Residential	0.77	1.20	0.43	15.65	52.8	37.15	
Mixed Residential	2.81	4.48	1.67	66.9	142.1	75.2	
Commercial Area	5.20	60.54	55.34	94.8	412	317	

Table 8: Different between Guideline Values and Market Values (Deflated Value))

Note: A1: Guideline value, A2: Market Value.

Table 8 reveals the difference between the guideline values and market values after having adjusted for inflation. The primary residential values vary from Rs. 0.43 in the year 1983-84. The mixed residential values have varied Rs. 16.7 in the year 1983-84. The difference in the commercial values worked out to Rs. 55.34 in the year 1983-84. The primary residential recorded Rs. 37.75 followed by the mixed residential Rs. 75.2 and the commercial area Rs. 412 in the year 2005-05.

Hence, there is significant difference between guideline value and real estate value in commercial area. The explanation for the results of the above mentioned hypotheses is presented as follows:

The sources for the land values are the registered values given in the sale deeds and the values of allotment or as fixed by guideline values by the Sub-Registrar's offices in TUA. The guideline values hardly present a correct picture of the piece prevailing in the land market operation in TUA. There is a gross under valuation of land in order to evade registration fee (stamp duty and for income taxes). The prices obtained from REPs may reflect the market value with greater authenticity. Values as recorded in the Sub-Registrar's office may not be the same as the actual value in the transaction. It is common knowledge that the registered values are often reported as lower than the actual values (Ravindra, 1995). There is under valuation of land in official records, in spite of the Government's fixing a floor price below which the value of land will not be accepted for registration purposes. Official values as recorded in the registration offices are always less than the values as assessed by professional brokers; that in turn are less than the value imputed to the owners of land (Sebastian, 1986). However, there are some places, where the guideline is higher than market value particularly in the fringe areas. But this can be reduced with the help of giving petition to the District Revenue Officer. The REPs have expressed that the market values are always greater than the guideline values in the TUA. Market values have shown a continuous rising trend in space and time when compared to the guideline values. The reason is that the guideline values have upgraded once in a year by corporation, municipality and towns.

The REPs expressed that the guideline values are lower than the market values, for the reasons indicated below: lack of field survey by the Government, steadily increasing house rent, people and officers are not aware of open land market operation in the city, easy availability of loan facilities in the city and the individuals unwillingness to give more money to the government for his deed registration. Hence, it is common that the registered values are often reported to the lower than the actual values. Land value can be considered in two contexts. One is market value, which is the price of land parcel

negotiated at the time of sale of the parcel, and the other is assessed value, which is the estimated worth of the parcel made by a competent private or public assessor. Thus, the market value of a piece of land may be different from the assessed value. There is significant difference between primary residential land values and mixed residential land values. The reasons are indicated below: Primary residential area comes under the fringe area of the city. The low and middle class group is living in this area. It is very far away from the CBD. The reason is that the transport cost is higher compared to that in mixed residential area and commercial areas. Low income families trend to be located where land prices are the lowest in the city (Amato, 1969). On studying the changing patterns of elite residential areas in TUA suggests that luxury housing has and enhanced land values in the central city and mixed residential area, forcing out low income group to other areas. Thus, the primary residential land value is lower than that of the mixed residential land value. The schools, government, Non-governmental organization offices, Churches, Temples and Mosque are located in mixed residential area. The individuals would be encouraged to reside in this area. The mixed residential areas are a very safe place for families to live. Thus, upper and upper middle groups are ready to buy land at any cost in the mixed residential areas. But the same situation does not prevail in the primary residential areas. Hence, the mixed residential land values are greater than primary residential land values.

Hence, there is significant difference between mixed residential land values and commercial land values for the year of 2004-05. The reasons areas follows: The commercial area stands out first in higher land values in TUA. The reason is its location. There are many activities taking place in the business center. The commercial area or location land value is often referred to as the "hundred per cent corner", or the hundred per cent location' or the "peak land value intersection" (Ratcliff, 1969). If the term hundred per cent corner is used it may refer to the highest value land parcel of these surrounding the inter sector of two major streets. Marshall had introduced the concept of 'location value' which determines the land value. He had indirectly explained that the land use mutually determines the land values. Ratcliff (1949) carries forward the argument of Haig (accessibility) that utilization of land was ultimately determined by the relative efficient of the uses in various locations. In general, the different land use patterns mutually determine the land values in TUA too.

Posh A	Ireas		Slum Areas				
Areas	Guideline Value	Market Value	Areas Value	Guideline Value	Market Value		
William road and Alexchandria road	752	2500	Varaganary	70.70	120		
Yanaikatty Street	617	1600	Tharanallur	90.34	250		
Thillainagar	780	2100	Nathrshapalli Vasal	91.30	175		

Table 9: Land Values in	Posh Areas vis-a-vis Slums	2004-05 (at Current price)
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William road and Alexchandria road are a part of the city center. These two are close to the city Railway station, Bus stand and reputed educational institutions. These areas are regarded as a high status residential locality fairly close to central areas like CBD. A large number of the affluent sections of the city population reside here. These areas area located in the cantonment and other high rank government official's quarters.

Thillainagar and Puthur have developed into a major residential locality in the western part of the city. These have a very good shopping complex, health care facilities and transport facilities. These have a mixed ranging from lower middle class to the well-to-do sections.

These slums pockets are a very large residential locality located around the city center. Of late, some upper middle classes have also come to live here. The land value is a very low when compare to the posh areas in this city. The following may be reasons indicated: a poor environment condition, away from the main roads, poor sanitary facilities, etc.

### Conclusion

In the present study area, with a long urban tradition, some of the distinctive land use patterns that have emerged which can be attributed to historical factor. Temples, Churches and Mosques are located in TUA. This city are called holy town in olden days. With historical evidence the Tamil prefix "Thiru" means holy and Tiruchirappalli means a holy place. Besides these religious activities, small business centers like hotels and lodges had risen near Temples along with various kinds of religious activities. The business was growing fast in the city particularly the retail business. Then it came the establishment of schools and colleges in the city. This was one of the reasons for rapid urbanization in the city. The rural wealthy people migrated to this town in olden days for their children's education. The CBD was growing near by the temples. Effects of the past are also evident in the street pattern carrying problems for the smooth flowing traffic. Thus, people from the core city people were forced to move to sub-urban areas.

This is the one of the factors influencing urbanization in the present study area. Features such as rivers, lakes, hills and coastlines can have marked effect on urban land use pattern. In TUA, high status residential development had taken in the sub urban town Srirangam as the habitat is surrounded by the Cauvery. The commercial area stands out first in the land use patterns followed the mixed residential area, and the primary residential at surface. The commercial area lands value stand first and mixed residential stands second followed by primary residential area.

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