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RURAL URBAN CLASSIFICATION AND MODE OF TRANSPORTATION IN KERALA

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ABSTRACT

Advanced communication and transportation facilities in Kerala caused rural urban classification difficult. The present study tries to delineate the typology of settlement in Southern part of Kerala by analysing the mode of transportation chosen by the households in the region. The study depends on primary and secondary sources of information. To delineate the typology of settlement in Southern Kerala, two districts namely, Thiruvananthapuram and Kollam have been selected based on random sampling method. Based on the proportionate sampling method, of the 400 samples, data have been collected from 176 samples from Kollam and 224 households from Thiruvananthapuram districts. Multivariate technique like discriminant analysis is used to classify the rural – urban characteristics based on mode of transportation. It is found that mode of transport is a good indicator in discriminating rural - urban characteristic in the region and it is capable to delineate the typology of settlement in both the districts.

Keywords: Rural urban classification, typology of settlement, mode of transportation, discriminant analysis.

INTRODUCTION

Urbanization is a feature of the emerging world. It is the increase in the proportion of the population living in urban areas – the process of people moving to cities or other densely settled areas. It is a major topic of discussion today particularly because of the rapid and problematic growth of large cities all over the world. According to Davis and Golden (1954) "urbanization is a finite process – a cycle through which nation pass as they evolve from agrarian to industrial society. As Lipton (1978) says "urbanization remains the hope of the hopeless, the outlet of the occasional exceptional villager, but the opium of the development expert." Geyer and Kontuly (1993) have opined that urbanization process occurs in a series of stages. In the context of 'continuum of development' the urban units of various size classes in a given nation go through successive periods of fast and slow growth spurts, the effect of which are reflected in the

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evolution of urban systems in both the developed and the developing countries. Most of the emergent countries started to experience urbanization only since the middle of 20th century. Subsequently, urbanization process in emerging countries exhibits different characteristics which do not follow a smooth or linear one when compared to that of the advanced countries. The morphology, the structure, the functional fabric of an urban centre may undergo transformation in the evolution of the urban system, affecting, in turn, the socio-economic dynamics of the region. Such issues have received the attention of scholars in the various fields of social science.

Among the urban systems of India, in Kerala, there is a phenomena called rural-urban continuum that means rural-urban difference is blurred. The available literature suggests that infrastructure development plays a crucial role in the formation of such a unique spatial pattern in the State. In other parts of the country, transportation facilities alone can be used to delineate the rural urban difference. But in Kerala infrastructure development made it difficult to demarcate rural and urban spatial units. Therefore the present paper tries to find out the rural urban difference by analysing the nature of infrastructure development along with the mode of transportation used by the people in the State. To analyse the choice of people's mode of transportation in the State, the study randomly selected two southern districts namely Thiruvananthapuram and Kollam.

Urban in Indian Context

The census of India 2011, identified two types of towns based on discretionary criterion and demographic criterion. The discretionary criterion involves,

a). All places with a municipality, corporation, Cantonment board or notified town area committee, etc. so declared by the State law.

The demographic criteria implies that three conditions to fulfil. That is all other places which satisfied the following criteria.

(i) Minimum population of 5000.
(ii) At least 75 per cent of the male working population engaged in non- agricultural persuits: and
(iii) Density of population of at least 400 per sq.km

Statutory Town:- All places with a municipality, corporation, cantonment board or notified town area committee, etc. so declared by the State law is known as statutory towns which coming under the purview of State discretion or discretionary criteria.

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Census Town:- Places which satisfy the demographic criteria of defining urban centre is known as Census Towns.

Among the urban systems of India, the experience of Kerala is unique. In Kerala, there is a rural-urban continuum that means the city dominance is clearly absent. According to Sankaranarayanan (1977) the distinguishing features of Kerala's urban pattern are (i) the city - dominance is conspicuously absent, (ii) the urban influence is more widely diffused, and (iii) rural – urban distinction is blurred. The causes of urbanization are not one, but several. The most outstanding one is colonialisation and its impact on the pattern of settlements. In Kerala, the various historical processes have resulted in the emergence of a spatial form which is neither rural nor urban. The investment of British capital in the economy was chiefly in the plantations and varied steps were deliberately adopted to increase the area under commercialized agriculture (Sreekumar, 1988).

The high level of commercialization of Kerala's agriculture, which allows for a more diffused pattern of urban growth compared with industry based urbanization. Another thing is the small and highly localized industries in Kerala are mainly agro-based and thus have not given rise to urban agglomeration (Biplab Dasgupta, 2000).

With advanced communication facilities and transportation linkages, all the habitable parts in Kerala have become well connected with the less habitable areas. As a result, the demarcation of settlement system becomes more difficult (Firoz, 2012). Therefore it is found that rural urban classification is difficult especially based on infrastructure and transportation facilities.

There is a lack of literature about the nature of rural urban continuum in Kerala - in what way rural area is different from urban is not clear in the case of Kerala. Absence of micro level studies focusing on Rural Urban Continuum Development in the State is another research gap in this area.

From the forgoing review of literature, it is explicit that there are wide heterogeneities in the urbanization process in the Kerala context. It is therefore envisaged in the present study to unfold the regional and sub-regional variations in the existing pattern of urban development in Kerala. With regard to the renewed emphasis on the decentralized governance in Kerala the local bodies are entrusted to implement their own development plans by generating their own resources besides the grants from both State and Central sponsored schemes. In such a scenario, a regional level analysis of rural urban continuum development has high relevance in demarcating the rural urban characteristic which in turn will help to classify rural and urban areas more clearly. The main objective of the study is to examine the nature of mode of transportation in the Southern Part of Kerala in demarcating the typology of settlement in the region.

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METHODOLOGY

The study is primarily empirical in nature. Both primary and secondary data are collected for the study. Census reports of various years contain a mine of information on urbanization. For primary data, samples have been collected from the households of two districts namely Kollam and Thiruvananthapuram through a detailed questionnaire.

By considering the total households in these two districts as the total population for the study, the minimum sample size is calculated as 370. For the convenience of conducting survey, it is rounded to 400. Proportionate sampling method is used to select samples from each district. Hence, 176 households from Kollam and 224 households from Thiruvananthapuram are proportionately selected and data have been collected both rural and urban area of the districts. Here, there is three types of spatial units under the category of urban namely, Corporation, Municipality and Census Towns. Due to the heterogeneity of population, data have been collected separately from these spatial units.

Random sampling method is used for the selection of rural area, census town and municipality from both the districts. In Kollam, apart from Kollam Corporation, the identified census town, municipality and rural area are Mayyanadu, Paravur and Ezhukone respectively. Here each spatial units are heterogeneous units even though they fall under two categories. For getting a clear picture of each units, the total sample size of 176 is equally distributed to four spatial units. In short, 44 households each are selected from rural, census town, municipality and Corporation of Kollam. In Thiruvananthapuram, apart from Thiruvananthapuram Corporation, the identified rural area, census town and municipality are Menamkulam Panchayath, Vattiyoorkavu and Varkala respectively. Of the 224 samples, 56 samples from each units are collected from the district. Random table is used to identify the households. The list of households are taken from Assessment Register and Voters list. The survey covers the demographic, socio and economic characteristics of 1740 individuals, of which 781 individuals from Kollam and 959 from Thiruvananthapuram District. The collected data have been analysed with the help of SPSS software. Multivariate analysis like multiple discriminant analysis is used to classify the difference in the characteristics of selected variables in both areas of rural and urban units.

The discriminant analysis is a multivariate statistical method used to classify objects or records into two or more groups based on the knowledge of certain variables related to them.

A **discriminant function** is

$$Y = a + b1\ X1 + b2\ X2 + \ldots\ldots\ldots + bn\ Xn$$

Where

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Y = Dependent variable

a = Constant

b = Discriminant coefficient or weight for that

X = Independent variable or respondent's score for that variable

n = The number of predictor variables.

The discriminant function is similar to a regression equation. Here b's are unstandardized discriminant coefficients analogous to the beta's in the regression equation. It can also be used like beta weight in regression. Good predictors tend to have large values. The function is used to come up with an equation that has strong discriminatory power between groups. The number of discriminant functions is one less the number of groups. In the present analysis, there is three functions as it is four group discriminant analysis.

Discriminant Coefficients are partial coefficients that reflect the unique contribution of each variable to the classification of the groups in the dependent variable. The standardized discriminant coefficients, like beta weights in regression, are used to assess the relative classifying importance of the independent variables. Structure coefficients are the correlations between a given independent variable and the discriminant scores. The higher the value, the higher the association between the independent variable and the discriminant function.

Group centroid are the mean discriminant scores for each group in the dependent variable for each of the discriminant functions. The centroids are in a unidimensional space, one centre for each group. By connecting the centroids a canonical plot can be created depicting a discriminant function space.

Eigenvalue is called the characteristic roots, is a ratio between the explained and unexplained variation in a model. For a good model the Eigen value must be more than one. There is one eigenvalue for each discriminant function. The bigger the eigenvalue, the stronger is the discriminating power of the function. Usually, the relative percentage of the first functions will be high. If the values for the subsequent functions are small, then a single function is as good as two or more function in the classification.

Canonical Correlation is a measure of the association between the groups in the dependent variable and the discriminant function. A high value implies a high level of association between the two and vice-versa.

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Wilks's Lambda is used to test the significance of the discriminant functions. Mathematically, it is one minus the explained variation and the value ranges from 0 to 1. Unlike the F-statistics in linear regression, when the value lambda for a function is small, the function is significant.

Classification Matrix is a simple cross tabulation of the observed and predicted memberships. For a good prediction, the values in the diagonal must be high and the values off the diagonal must be close to 0. From the classification matrix, it is easy to get the cross tabulated values and came to understand the difference between the two groups.

RESULTS AND DISCUSSION

Considering this variable, the main aim is to know the choice of household's on different mode of transportation facilities for their usual travel and travel to work place. They have given different choices like public transport, private transport, own car, two wheeler, auto rickshaw, train and others. By collecting data from each spatial unit in this regard reveal the characteristic of people residing in that particular unit through the discriminant analysis. The table 1 gives the Eigen values for the variable mode of transportation. It shows that the first function reveals a strong discriminating Eigenvalue of 6.693, which accounts in a ratio of 73.3 per cent for the dispersion of the group means with canonical correlation .933 in the case of Kollam. This indicate the discriminating ability of the function. It is 0.84 in the case of Thiruvananthapuram and 0.62 in the case of both the Districts. From the table 2, the value of wilks's lambda for the first function of both the districts are less than one. It shows that the function is significant. Therefore the results reveals that the mode of transportation in this region is good enough to indicate the rural urban difference in the Southern part of the State.

Table 1: Eigenvalues

Districts		Eigenvalue	Percent of Variance	Cumulative Percent	Canonical Correlation
Kollam	1	6.693[a]	73.3	73.3	0.933
	2	2.406[a]	26.4	99.7	0.84
	3	.028[a]	0.3	100	0.165
Thiruvananthapuram	1	.840[b]	78	78	0.676
	2	.131[b]	12.2	90.2	0.341
	3	.105[b]	9.8	100	0.308
	1	.627[c]	61.6	61.6	0.621

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Kollam & Thiruvananthapuram	2	.335[c]	32.9	94.5	0.501
	3	.056[c]	5.5	100	0.231

Source:- Primary Survey, 2016

Table 2: Wilks' Lambda

Districts		Wilks' Lambda	Chi-square	df	Sig.
Kollam	1 through 3	0.037	553.283	30	0
	2 through 3	0.286	210.505	18	0
	3	0.973	4.623	8	0.797
Thiruvananthapuram	1 through 3	0.435	179.601	33	0
	2 through 3	0.8	48.153	20	0
	3	0.905	21.531	9	0.01
Kollam and Thiruvananthapuram	1 through 3	0.436	324.914	33	0
	2 through 3	0.709	134.421	20	0
	3	0.947	21.401	9	0.011

Source:- Primary Survey, 2016

The classification results reveals that the variable mode of transport is capable to predict the characteristics of rural or urban areas with an overall accuracy of 80.1 per cent in the case of Kollam district. It is 50 per cent in the case of Thiruvananthapuram district. On the other hand, the predictor variable mode of transportation, predicts the characteristics of rural or urban areas with an overall accuracy of 54% in case for combined data of Kollam and Thiruvananthapuram districts. The model gives 72 per cent accurate classification for rural whereas only 58 per cent

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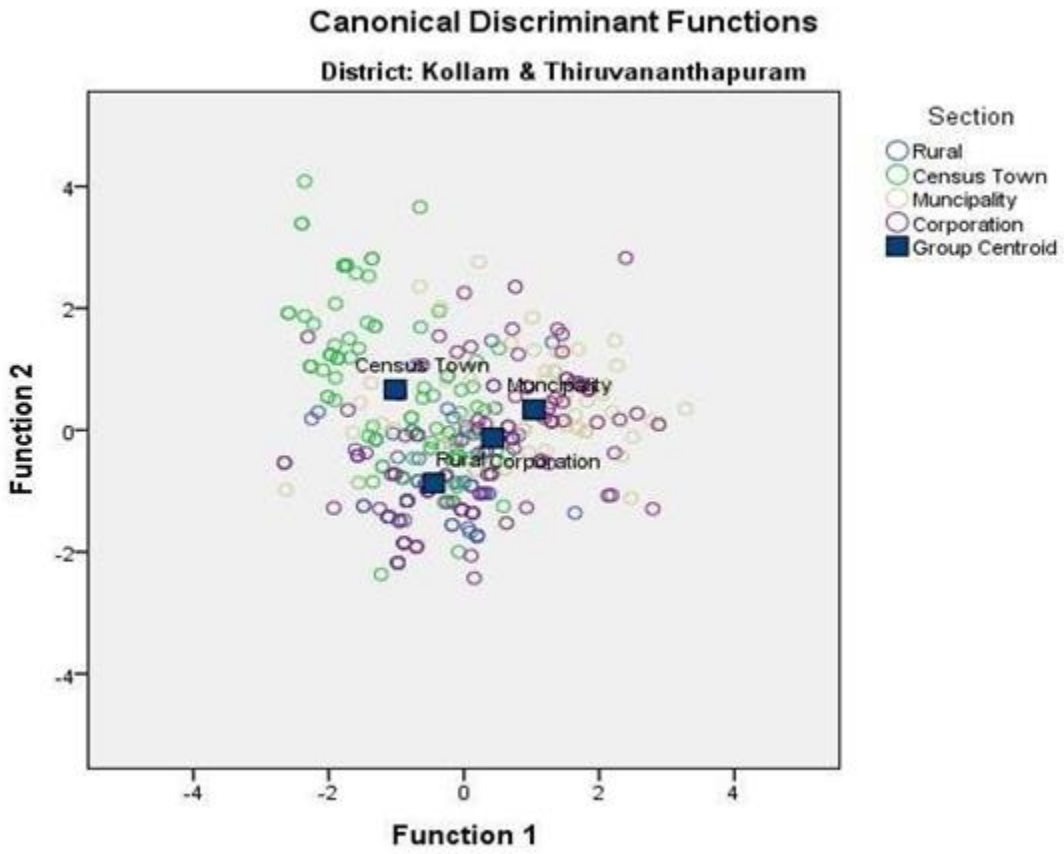
correct classification for census town. There is 65 per cent accuracy in predicting municipality characteristics and the result shows only 21 per cent accuracy in predicting corporation characteristics. Thus, as an overall view, mode of transportation explains rural and municipality characteristics better than census town and corporation characteristics for Kollam and Thiruvananthapuram districts.

Figure 1



Source:- Primary Survey, 2016

From the figure 1, the distance between centroids of rural, census town, municipality and corporation it is easy to judge the performance of the variable, mode of transportation in discriminating its characteristics of rural or urban in the Southern part of Kerala.

CONCLUSION

From the current analysis of Multivariate Discriminant Analysis, it is found that variable mode of transportation is a good discriminant in demarcating the typology of rural – urban difference in the

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Southern part of Kerala. The results reveal the same for Kollam and Thiruvananthapuram. Thus it is summarized that the variable revealed significant difference in rural and urban in both Kollam and Thiruvananthapuram District. In this light the present research reveals that the variable mode of transport is a better variant in demarcating the rural and urban characteristics of Southern Kerala. The present study of rural- urban classification in Southern Kerala is highly relevant with regard to the renewed emphasis on decentralized governance in the State. The correct classification of rural and urban, will provide an appropriate framework for implementing development programs and thereby can reduce the development disparities across the State.

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