DEMOGRAPHIC TREND OF URBAN AGGLOMERATION AND NON - URBAN AGGLOMERATION MEDIUM TOWNS IN MADURAI DISTRICT - TAMIL NADU

Arivalagan V. *, Thangamani V. **, Parthasarathy G. R.***

*Research Scholar, Department of Geography, Madurai Kamaraj University, Madurai - 21, Tamil Nadu,
**Assistant Professor, Department of Geography, Madurai Kamaraj University, Madurai - 21, Tamil Nadu,
***Professor & Head (Rtd), Department of Geography, Madurai Kamaraj University, Madurai - 21, Tamil Nadu, India*

Abstract
Demography is the study of the size, territorial distribution and composition of population, change therein and the components of such changes ("Hauser and Duncan"). Demographic trends are also important, as the size of different demographic groups will change over time as a result of economic, cultural and political circumstances. There is no universal definition of urban areas. Different countries define urban localities in terms of different factors such as size and density of population, amenities considered to be commonly available in urban areas, major economic activities of population, etc. It is generally assumed that class II and class III towns constitute medium towns while class IV, V and VI come under small towns category. Medium towns in India, particularly those with less than 50,000 people, have low per capital income due to lack of employment opportunities in the organized sector, low incidence of secondary activities and poverty induced growth of tertiary employment. Urban agglomeration is a continuous urban spread constituting a town and its adjoining out growths (OGs), or two or more physically contiguous towns together with or without outgrowths of such towns.

Keywords: *Medium Towns, Demographic Trend and Urban Agglomeration Towns.*

Introduction

Demography is the statistical explanation of varied characteristics of population in a region. In any region the understanding of these Demographic characteristics is essential since they decide the nature and pattern of development. Even though there are various parameters to study population the most significant ones are the population density, literacy, work participation rate and the distribution of the workers in various economic activities.

At present more than 50 per cent of the world population is living in urban areas. Hence study of the urban demographic characteristics has become all the more relevant. This is particularly true in the case of Developing countries which account for more than 95 per cent of the present increase of urban population. One major dimension in these studies is their strong tilt towards bigger cities. In the case of Developing countries like India there is a dire need to develop the Class II and Class III towns which are collectively termed as Medium towns. Taking these conditions as the basis the present study attempts to study the urban Demographic profile of Medium towns in Madurai District, Tamilnadu.

An additional dimension in the case of India is the role of communal structure which decides the level of development of an area. Some regions have a higher concentration of the socially deprived sections of SC/ST population while in some other areas their presence is very little or negligible. Therefore this parameter has also been included in the present study. Furthermore the impact of bigger Metropolitan city brings in variations in the profile of smaller towns. Hence an attempt has also been made in the study to analyze the variations if any in the Demographic profile between those towns included in the Urban Agglomeration and those which are not included in the Urban Agglomeration.

Study area

Madurai district is one of the important southern districts in Tamil Nadu. The district headquarters is Madurai city which is situated on the banks of the river Vaigai. It is bounded by Dindigul and Thiruchirapalli districts in the north, Sivagangai district in the east, Theni district in the west and Virudhunagar district in the south. The geographical area extends from 09^0 30' N to 10^0 30' N latitudes and between 77^0 28' and 78^0 28' E longitudes. There are 7 taluks and 13 blocks in the study area. The total geographical area of the entire district is 3697.2 sq.km.

There were 11 towns in the Class II and Class III category in the District in 2001. Avaniapuram is the only Class II town while Thirumangalam, Thirupparankundram, Anaiyur, Melur, Usilampatti, Melamadai, Vandiyur, Vadipatti, Sholavandan and Vilangudi are Class III towns. The number of medium towns in 2011 decreased to 6 because Avaniapuram, Thirupparankundram, Anaiyur, Vilangdui, Vandiyur and Melamadai towns merged with Madurai city in 2011. Paravai which was a Class IV town improved its status to Class III in 2011. Similarly Thirumangalam improved its status from Class III in 2001 to Class II in 2011. Out of these 6 medium towns in 2011, 3 are Town Panchayats and the other 3 are Municipalities. All the medium towns are located along National Highways (NH 49, NH 47, NH 45 B and NH 208) in the present study area. Among the 6 medium towns, Paravai is the only Urban Agglomeration town while the other five namely, Thirumangalam, Melur, Usilampatti, Vadipatti and Sholavandan are Non-Urban Agglomeration towns [Table 1].
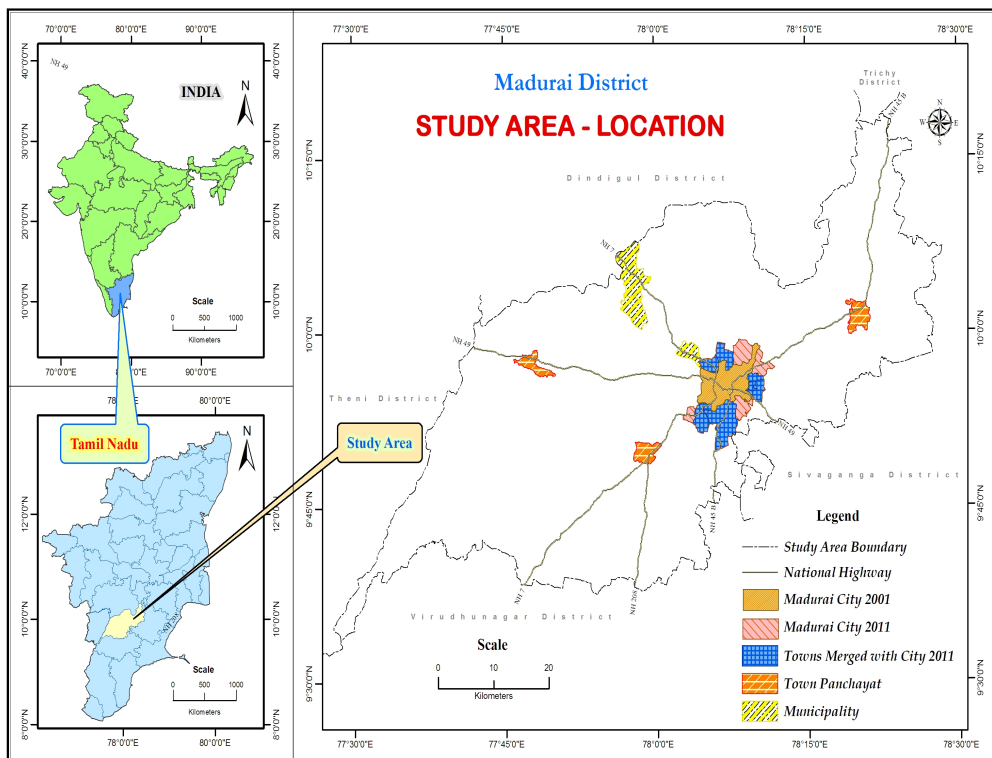

Figure 1. Study Area.

Table 1. Medium Towns in Madurai District 2001 – 2011

S. No	Name of the town	Class		Type		Agglomeration Towns	
		2001	2011	2001	2011	2001	2011
1	Melamadai	III	III	Census Town	Census Town	Urban Agglomeration towns	Towns merged with Madurai City
2	Vandiyur	III	III	Census Town	Census Town		
3	Anaiyur	III	II	Town Panchayat	Municipality		
4	Vilangudi	III	III	Town Panchayat	Town Panchayat		
5	Avaniapuram	II	II	Town Panchayat	Municipality		
6	Thiruparankundram	III	II	Town Panchayat	Municipality		
7	Thirumangalam	III	II	Town Panchayat	Municipality	Non Urban Agglomeration	Non Urban Agglomeration
8	Melur	III	III	Municipality	Municipality	Non Urban Agglomeration	Non Urban Agglomeration
9	Usilampatti	III	III	Municipality	Municipality	Non Urban Agglomeration	Non Urban Agglomeration
10	Sholavandan	III	III	Town Panchayat	Town Panchayat	Non Urban Agglomeration	Non Urban Agglomeration
11	Vadipatti	III	III	Town Panchayat	Town Panchayat	Non Urban Agglomeration	Non Urban Agglomeration
12	Paravai	IV	III	Town Panchayat	Town Panchayat	Urban Agglomeration	Urban Agglomeration

Source: Census 2001 and 2011.

Objectives of the present study

To analyze the spatial pattern of demographic characters like population, density, sex ratio, share of SC/ST population and literacy in the medium towns of Madurai district. To identify the spatial pattern of occupational structure in the study area. To assess the status of demographic parameters and occupational structure in two selected time points of study namely, 2001 and 2011. To identify specific characteristics, if any, between the urban agglomeration and non - urban agglomeration towns so as to provide planning measures for future urban growth.

Data base

SOI Topographic sheets 1: 50,000 number 58 F/ 12, 58 F/16, 58 G/6, 58 G/9, 58 G/10, 58 G/13, 58 G/14, 58 J/4, 58 J/7, 58 J/8, 58 K/1, 58 K/2, 58 K/5. Primary Census Abstracts of Tamil Nadu 2001 and 2011. Relevant literatures.
Softwares used: ERDAS IMAGINE 8.7., ARC GIS 9.3., ARC VIEW 3.2a.,

Results and Discussion

Population density

Population density is the number of persons per sq.km. in an area. Fig. 2 shows the spatial pattern of population distribution for the two time points. On the whole the density varied between a minimum of 1433 in Sholavandan to a maximum of 9700 in Melamadai in 2001. Vandiyur, Anaiyur and Thirumangalam have a comparatively higher population density than

the other medium towns. In 2011 the density varied from a minimum of 1495 in Sholavandan to a maximum of 14600 in Melamadai. Vandiyur, Anaiyur and Avaniapuram had a notable increase in the density mainly due to their merger with Madurai city [Fig.2].
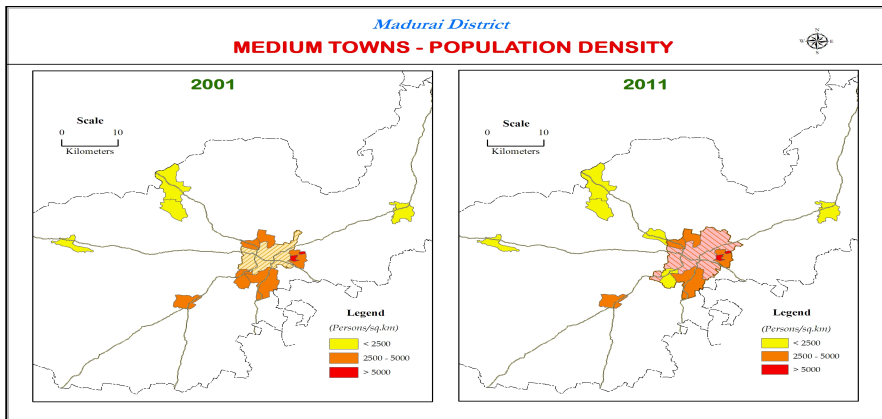

Figure 2 Population density.

Sex ratio

The sex ratio is the number of females per 1000 males in a population. The sex ratio gives the valuable information of the index of gender disparities of an area. The average sex ratio of medium towns as a whole was 979 females per thousand males in the year 2001 and it improved to 992 females per thousand males in the year 2011 [Fig. 3]. Sholavandan and Vadipatti are the only two medium towns that had positive sex ratio in 2001. Melamadai had the lowest sex ratio of 950. In 2011 Sholavandan and Vadipatti continued to have positive sex ratio while Thirumangalam and Vilangudi improved their status from negative sex ratio to positive sex ratio in 2011. Only Melur experienced a further decline in sex ratio between 2001 and 2011 [Table 2 & 3].
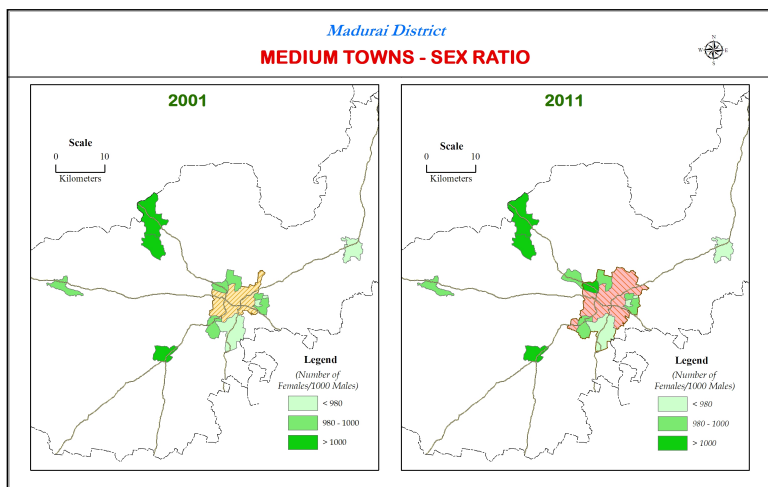

Figure 3. Sex Ratio.
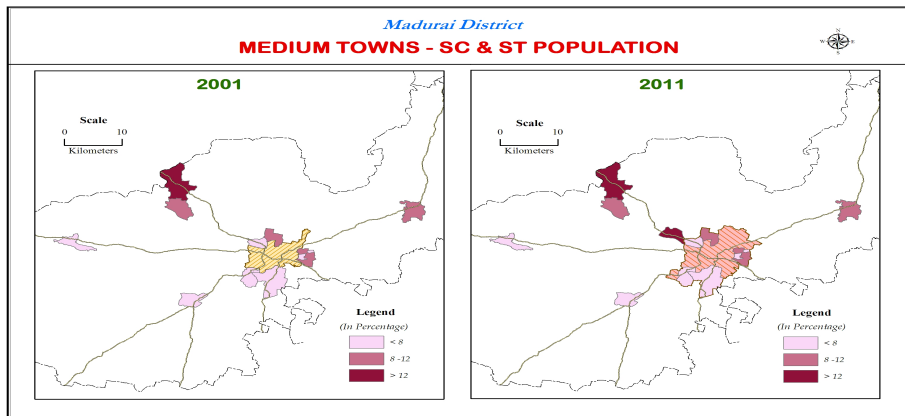
SC & ST Population

Figure 4. Sc & ST Population.

The concentration of SC/ST population indicates a comparatively lower level of social development and hence usually it is considered for any development planning. The distribution of SC/ST population during the study period does not show any appreciable change. During 2001 the share was 9.32 % and it increased slightly to 10.36% in 2011. [Fig: 4].

Literacy

Literacy is defined as the ability to read write and understanding of any language. Literacy as defined by Census of India is an initial step in the process of human resources development. Literacy is one of the significant factors influencing the social, economic, demographic and political structure of any area [Table 2 & 3].
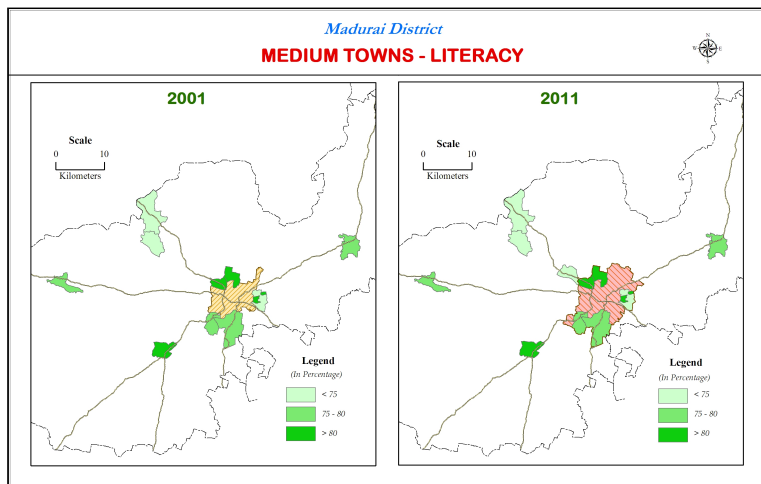

Figure 5. Literacy.

Literacy rate for the medium towns as a whole increased from 75.41 percent in 2001 to 79.51 % in 2011 [Fig.5]. Literacy rate varied from a minimum of 66.34 in Vadipatti to a maximum of 81.21 in Vilangudi in 2001. Melamadai, Anaiyur and Thirumangalam have a comparatively higher literacy rate than the other medium towns. In 2011 also the situation remained the same even though there has been a slight increase in all medium towns. Male literacy rate is higher than female literacy rate in both time points. Male literacy rate increased from 80.5% to 83.4% during the study period while female literacy also increased from 69.6% in 2001 to 75.6% in 2011.

Work participation rate
Only a small part of the total population is engaged in various types of economic activities in an area and the share of this part to the total population of the area is known as Work Participation rate. In general work participation ratio is relatively higher in the case of rural areas.

Total main workers
The work participation rate for medium towns as a whole increased from 33.90% in 2001 to 35.51% in 2011. Usilampatti has the least work participation rate of 29.9% while Vandiyur has the highest rate of 40% in 2001. Avaniapuram and Sholavandan also have a comparatively higher work participation rate. In 2011 Melur had the lowest work participation rate of 31.5% while Vandiyur continued to have the highest work participation rate 38.5%. Melamadai and Sholavandan have a comparatively higher work participation rate in 2011 than the other medium towns.

Table 2 Demographic Characteristics of Medium Towns in Madurai District - 2001

S. No	Town	Area Sq.km	Pop Density	Sex Ratio	SCST %	Literacy %	Total Main Workers %				Marg. Worker %
							Total	Culti vators	Agricul tural	House Hold	
1	Melamadai (CT)	3.0	9699	951	4.93	79.87	33.61	0.92	1.66	7.77	89.65
2	Vandiyur (CT)	4.2	5233	974	10.54	71.20	39.99	1.66	4.52	27.11	66.72
3	Anaiyur (T.P)	8.2	4672	985	10.53	78.14	33.34	1.35	7.93	1.72	89.00
4	Vilangudi (T.P)	6.2	3414	982	7.37	81.23	31.22	1.48	5.42	1.07	92.02
5	Avaniapuram(T.P)	16.0	3313	959	8.49	73.20	37.07	1.58	5.72	11.67	81.02
6	Thiruparankundram (T.P)	10.2	3828	985	7.09	74.36	32.45	0.96	4.06	2.23	92.75
7	Melur (M)	15.0	2259	965	12.18	74.86	31.09	6.64	7.79	2.00	83.57
8	Thirumangalam (M)	10.7	4078	998	6.76	78.41	34.47	1.75	4.87	1.95	91.42
9	Usilampatti (M)	13.8	2217	988	7.98	75.08	29.89	1.73	11.15	4.23	82.89
10	Solavandan(T.P)	15.1	1433	1004	12.62	70.51	36.53	6.10	44.83	1.72	47.35
11	Vadipatti(T.P)	9.9	2205	1000	19.04	66.34	32.77	6.86	51.16	2.07	39.91
			3154	979	9.32	75.14	33.90	2.53	11.12	5.99	80.37

Table 3 Demographic Characteristics of Medium Towns in Madurai District - 2011

S. No	Town	Area Sq.km	Pop Density	Sex Ratio	SCST %	Literacy %	Total Main Workers %				Marg. Worker %
							Total	Culti vators	Agricul tural	House Hold	
1	Melamadai (CT)	3.0	14599	976	6.68	81.31	36.69	0.61	0.98	5.87	92.53
2	Vandiyur (CT)	4.2	6820	990	13.03	76.57	38.71	0.65	3.10	11.31	84.94
3	Anaiyur (M)	8.2	7795	990	11.30	82.83	35.24	1.57	3.72	1.89	92.81
4	Vilangudi (TP)	6.2	4981	1014	9.74	84.18	35.33	0.49	1.40	2.35	95.77
5	Avaniapuram (M)	16.0	5602	979	7.64	78.75	38.08	0.26	2.20	8.41	89.12
6	Thiruparankundram (M)	13.4	3732	998	7.93	79.71	34.66	0.63	2.33	3.02	94.01
7	Melur (M)	15.0	2668	961	12.72	79.47	31.52	2.81	11.84	2.34	83.01
8	Thirumangalam (M)	10.7	4784	1013	7.24	81.91	35.73	0.83	2.68	1.72	94.78
9	Usilampatti (M)	13.8	2552	998	7.95	78.39	33.69	3.73	9.38	3.51	83.37
10	Paravai (TP)	9.0	2227	989	17.88	76.62	33.21	0.83	5.15	3.13	90.89
11	Sholavandan (TP)	15.1	1495	1022	14.92	74.33	36.70	4.13	40.22	2.03	53.63
12	Vadipatti (TP)	9.9	2710	1013	21.82	72.14	32.70	9.15	38.09	2.79	49.97
			4038	992	10.36	79.51	35.51	1.64	7.15	4.44	86.78

Cultivators

Since the area taken for the present study is medium towns share of cultivators to the main workers is very low and it declined from 2.53% in 2001 to1.64 % in 2011. Sholavandan is the only town which had a higher concentration of cultivators in both 2001 and 2011 while the share has declined considerably in Melur during the study period [Table 2 & 3].

Agricultural labourers

Nearly 11% of the total main workers were agricultural labourers in 2001 while this share declined to 7.2% in 2011. Vadipatti and Sholavandan towns had the highest share while Melamadai had the lowest value during both time points. Compared to the other towns Usilampatti had a slightly higher share in 2001 while Melur had a higher share in 2011.

Household industrial workers

Only 6% of the total main workers engaged themselves in various household industrial activities in 2001 and it declined to 4.4% in 2011. Vandiyur is the only major twon which has a notable concentration of this category of workers in both time points.

Other workers

Since only medium towns are taken for the present study the share of Other workers is the highest during the study period than the other categories. Nearly 80.37 percent of the main workers were under this group in 2001 while this increased to 86.78 % in 2011. Vilangudi, Thirupparankundram and Thirumangalam had more than 90% of their total workers in this category in 2001. Vadipatti and Sholavandan had the lowest share of about 50% or less in 2001. Anaiyur, Avaniapuram and Melur had more than 94% of their workers in this category in 2011. Though Sholavandan and Vadipatti had the lowest share in 2011 the percentage share in both these towns increased notably during the study period

Marginal workers

The share of marginal workers has increased from 2.3% in 2001 to 3.6 during the study period. Vadipatti and Sholavandan had a comparatively higher share of this category of workers during both time points of study [Table 2 & 3].

Inferences drawn from the study

There is a notable difference in demographic parameters between Urban Agglomeration and Non-Urban Agglomeration towns particularly in literacy and work participation rate.

Among the medium towns those located along NH7 have shown greater change than the towns located along the other National Highways.

Even in the case of NH7, Vadipatti and Sholavandan in the northwest have shown tremendous change in their demographic characters mainly due to the urban impact.

Though Melur is located along NH45B connecting Madurai with Chennai, it has not shown expected level of change in the demographic parameters.

Similarly Usilampatti located along NH49 also did not show many variations.

In the southern side of NH7 though Thirupparankundram merged with Madurai city impact along the border areas is comparatively less and Thirumangalam remains slightly away from the urban impact.

Along the northwest Paravai which is an Urban Agglomeration town has shown the maximum impact of Madurai city and this along with Vadipatti-Sholavandan towns will be the areas to be specially considered for the future urban growth. In between Paravai and the other two towns there is another Class IV town Samayanallur and this will help easier urban growth in this direction.

An earlier study on Madurai Metropolitan Area indicated that the growth of Madurai city will be more along Northeast and southern direction [Parthasarathy et al 2012]. However the present study has brought out another indication that the growth is more predominant in the northwestern direction also.

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