

SEX RATIO, A SPATIAL AND TEMPORAL ANALYSIS OF TAMILNADU

Rajeev¹,

Abstract- Sex ratio in India is calculated in terms of number of females per thousand males. Sex ratio is highly imbalanced in Indian states context).The state like Haryana is in serious conditions in this regard. Sex ratio in Haryana had declined continuously since 1981 and was recorded its lowest figure (861) in 2001. It was the lowest amongst major states of India. Average sex ratio in India was 933 females per thousands males in 2001. The situation is good in 2011 when it increased to 940 females per thousands males. The sex ratio of Tamilnadu is 986 females per thousands males according to the census of 2001. It is greater than the average sex ratio of India. . The present population of Tamilnadu is 62110839 having density 478 and sex ratio 986. Here the literacy rate is 73.47%. There are 16317 villages and 832 towns, there chief language is Tamil.

Index Terms- Demography, Health Characteristics, Sex Ratio, GIS, Census data

I. Introduction

SEX RATIO is defined as the number of females per thousands males". Sex ratio is an important social indicator to measure the extent of prevailing equality between males and females at a given point of time. It is mainly the outcome of the inter play of the sex differentials in mortality sex selective migration, sex ratio at birth and at times the sex differential in population enumeration. According to the census of india,2001, the sex ratio of India stands at 933. This is the marginal improvement from the 1991 census, which had recorded 927 females from every 1000 males. At the 2001 census the sex ratio among the major states ranged from 861in Haryana to 1058 in Kerala. The sex ratio of Tamilnadu is 986 females per thousands males. It is greater than the average sex ratio of India.

II. Objectives

The main objective of the present study remains to;

1. It is expected that there will be higher sex ratio in rural area as compare to urban area.

III. Statement of the Problem

A decline sex ratio reflects gross discrimination against one sex within society in India. It confirms what common knowledge girls are less wanted of unwanted is. One of the main reason for this seems to be a practice that demeans women the need to pay dowry to get the married. Daughter are seen as a burden because of the dowry to be paid for them and because any investment in them for their nutrition, education, health

general wellbeing- will not help the natal family's further security. The increasing deficit of girls is creating a social imbalance within society. We have pockets in the country where very few girls sare born. Since this means that there are no brides for the burgeoning son population, they are likely to import girls from other regions of the country. This has created another social problem- the purchase of young girls from poor regions. Women are thus treated as commodities, contributing to the further fall in their status in society. This can only lead to further fall in their status in society. This can only lead to further exploration and abuse of women more violence against them, increased trafficking and sex polyandry(one women married to more than one man). The cycle of discrimination and gender in equalities thus continuous, fuelled now by newer and more accurate technologies for sex selection.

IV. Methodology

The methodology of the seminar involves a temporal and spatial study to understand the changing pattern of sex ratio in Tamilnadu. Social agents reproducing the growing imbalance in sex ratio in Tamilnadu. The methodology is informed that the sex ratio is a dynamically, it is not static. I collect the data with the help of census abstract of Tamilnadu. I used internet for collecting the secondary data of sex ratio on the web-official website of Tamilnadu census. I also study some "population Books". I also used choropleth method and GIS tools. With the help of above sources I collect some secondary data. I used a statistical formula also to draw a sex ratio; we generally use the method females per 1000 males in India.

$$\text{Sex ratio} = \frac{\text{Female population}}{\text{Male population}} \times 1000$$

The sex ratio of India is 933 females per thousands males. The sex ratio of Tamilnadu is 986.

A. Data processing

The collected data is tabulated and processed with the help of simple statistical techniques such as percentage and ratio.. Similarly, population characteristics sex composition of population, was calculated and analyses with the help of simple statistical techniques. The processed data is cartographically represented by maps prepared in Arc GIS 9.3.1, Desktop editor and Arc Info. SPSS 12.1 is also used for calculation of standard

deviation and mean. AutoCAD map 2000i is also used for map digitization.

V. Study Area

Tamilnadu is a state of south east India. It covers the area of 13058 sq. km. neighboring state are Kerala, Karnataka, Andhra Pradesh, Pondicherry, bay of Bengal and Indian ocean. The present population of Tamilnadu is 62110839 having density 478 and sex ratio 986. Here the literacy rate is 73.47% There are 16317 villages and 832 towns, there chief language is Tamil. Here Hinduism, Islam, Christianity are major religions. There are 48359 school and 693 colleges, and 28 university. Palar, Kaveri, Vaigai, Cheyyar, Ponnayar, Meyar, Bhavani, Tamarapani, Chittar, Vellar, Noyal Suruli, Vaipar, etc are the main river flow in this region. Along the whole length of the western part, is the range of the western Ghats. The Palghat Gap about 25 km. in width is the only marked break in the great mountain wall. The south of the palghat gap, the range is known as Anamalai (Elephant hills) On the east are the Palani hills on which are situated the famous hill station Kodaikanal. In the famous Ootacamund area of the Nilgiris Districts, is the highest peak Doddabetta, 2640 metres above the sea level.

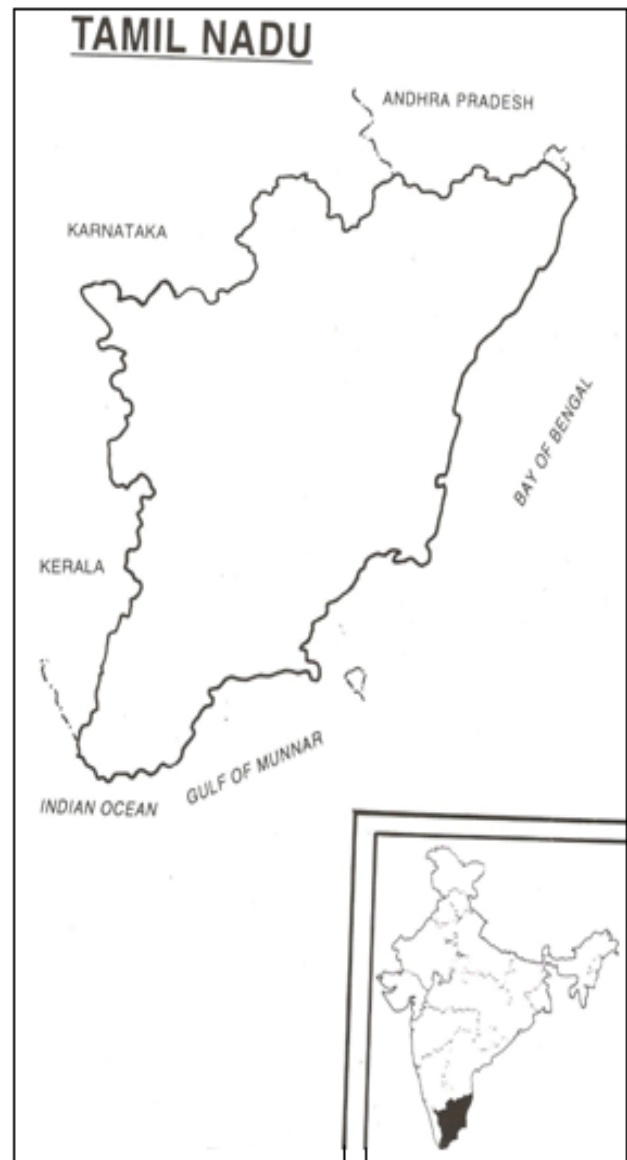


Figure: 1

VI. Districts Wise Sex Ratio 1991-2001

Table. 1 District Wise Sex Ratio, 1991-2001.

Sr.No.	Districts	1991	2001
1.	Ariyalure	985	1005
2.	Chennai	930	957
3.	Coimbatore	910	963
4.	Cuddalore	968	986
5.	Dharmapuri	944	938
6.	Dindigul	958	986
7.	Erode	960	972
8.	Kancheepuram	958	975
9.	Kanniyakumari	994	1013
10.	Karur	984	1010
11.	Madurai	972	978
12.	Nagapattinam	982	1014
13.	Namakkal	934	966
14.	Perambalur	983	1005
15.	Pudukkottai	1006	1015
16.	Ramanathapuram	1020	1035
17.	Salem	932	929
18.	Sivaganga	1029	1038
19.	Thanjavur	996	1021
20.	The Nilgiris	987	1014
21.	Theni	972	978
22.	Thiruvallur	930	971
23.	Thiruvavur	996	1014
24.	Thoothukkudi	1047	1050
25.	Tiruchirappalli	983	1001
26.	Tirunelveli	1036	1042
27.	Tiruvannamalai	982	995
28.	Vellore	987	997
29.	Viluppuram	968	983
30.	Virudhunagar	995	1012
31.	State Average	972	986

*FEMALES PER 1000 MALES

Table 1 shows that the sex ratio is calculated as number of girls per 1000 boys. In the (0-6 age group), declined from 945 girls per 1000 boys in 1991 census to 927 during the 2001 census. In 1991 Tamilnadu fell into the category of having fewer than 930 girls per 1000 males. There are only 930 girls per 1000 males. There are only one district like Coimbatore where sex ratio is 910, all the other Districts of Tamilnadu sex ratio is high as compare to this Districts. Only 11 Districts of Tamilnadu where the sex ratio is low as compare to state average 972. In 1991 highest sex ratio was found in Thoothukkudi, Pudukkottai, Ramanathapuram, Sivagana, Thoothukkudi, and Tirunelveli are the Districts where the sex ratio is higher than 1000 girls per 1000 males. In 2001 Tamilnadu have improve their sex ratio. The 2001 Tamilnadu fell into the category of having fewer than 950 girls per thousands males. There are 14 Districts where the sex ratio is higher than 1000 females per 1000 males. So in 2001 the sex ratio of Tamilnadu is good, only two Districts of Tamilnadu like Dharmapuri and Salem where sex ratio is lower than 950 girls per 1000 males. So in 2001 sex ratio is high as compare to 1991.

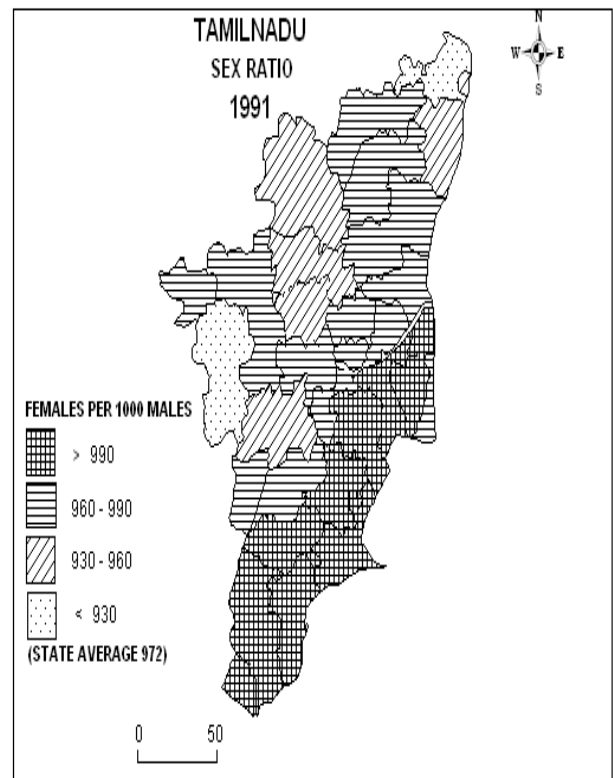


Figure. 2

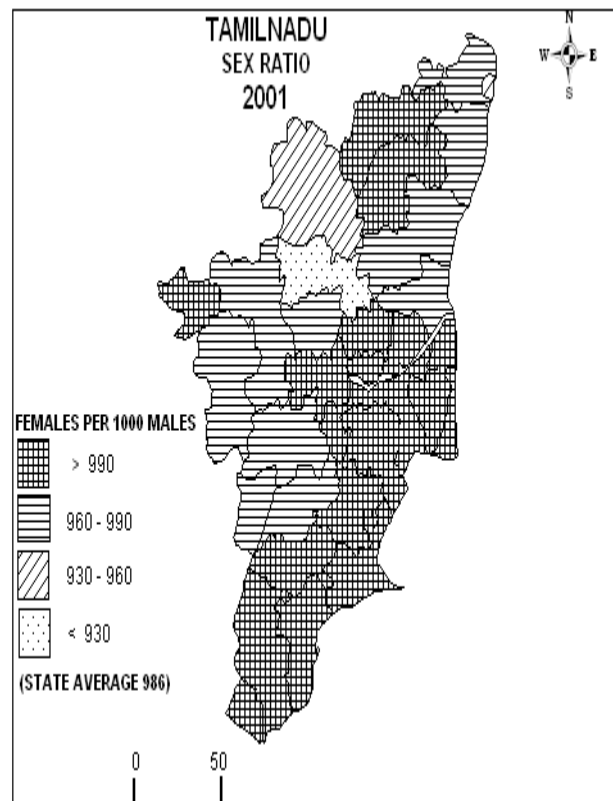


Figure.3

VII. TRENDS OF SEX RATIO 1951-2001

Table no. 2 shows the trend of sex ratio 1951 to 2001. In 1951 the sex ratio of Tamilnadu is 1007 girls per 1000 males. In 1961 the sex ratio was declined. In 1971,1981,

and 1991 the sex ratio is declined as compare to 1951. So the table is informed that the sex ratio is declined continuous, but in 2001 the sex ratio of Tamilnadu is increased.

Table. 2 Tamil Nadu, Trends Of Sex Ratio (1951-2001)

Sr. no.	Year	Sex ratio
		FEMALES PER 1000 MALES
1.	1951	1007
2.	1961	992
3.	1971	978
4.	1981	977
5.	1991	974
6.	2001	987

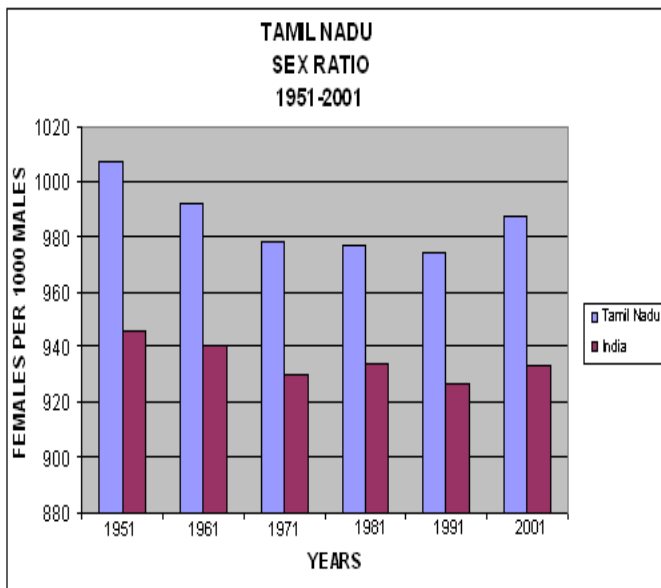


Figure.4

VIII. Tamilnadu Change in Sex Ratio 1991-2001

The table 3 shows that the changes in sex ratio in 2001 as compare to 1991. In 30 districts of Tamilnadu 28 Districts improved their sex ratio. But other two Districts the number of girls declined. Dharmapuri and Salem are the Districts where as number of girls declined as compare to 1991. Coimbatore shows highest improvement. Thiruvallur, Nagapattinam, and Naamakkal also improved their sex ratio. So the table shows that the sex ratio of Tamilnadu improved as compare to 1991. Only two Districts where the sex ratio is declined, so it is good for future. There is

positive aspects were found in Tamilnadu so the process of sex ratio is not static but it is dynamic. So the table 3 shows that the changing pattern of sex ratio in Tamilnadu.

Table. 3 Tamilnadu Change in Sex Ratio 1991-2001

Sr. no.	Districts	1991	2001
1.	Ariyalure	985	1005
2.	Chennai	930	957
3.	Coimbatore	910	963
4.	Cuddalore	968	986
5.	Dharmapuri	944	938
6.	Dindigul	958	986
7.	Erode	960	972
8.	Kancheepuram	958	975
9.	Kanniyakumari	994	1013
10.	Karur	984	1010
11.	Madurai	972	978
12.	Nagapattinam	982	1014
13.	Namakkal	934	966
14.	Perambalur	983	1005
15.	Pudukkottai	1006	1015
16.	Ramanathapuram	1020	1035
17.	Salem	932	929
18.	Sivaganga	1029	1038
19.	Thanjavur	996	1021
20.	The Nilgiris	987	1014
21.	Theni	972	978
22.	Thiruvallur	930	971
23.	Thiruvarur	996	1014
24.	Thoothukkudi	1047	1050
25.	Tiruchirappalli	983	1001
26.	Tirunelveli	1036	1042
27.	Tiruvannamalai	982	995
28.	Vellore	987	997
29.	Viluppuram	968	983
30.	Virudhunagar	995	1012
31.	State Average	972	986

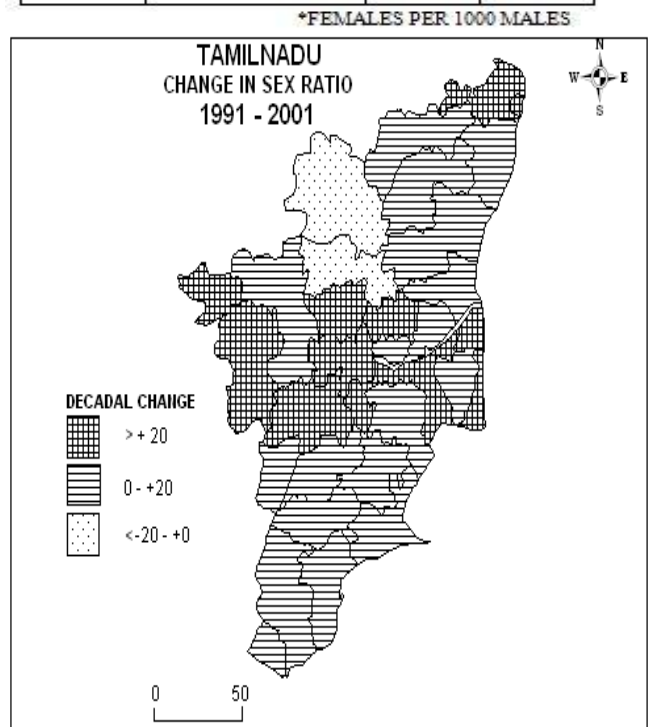


Figure.5

IX. Districts Wise Rural and Urban Child Sex Ratio (age group 0-6) 2001.

Table. 4 Districts Wise Rural and Urban Child Sex Ratio (age group 0-6) 2001.

Sr. no.	Districts	Urban	Rural
1.	Ariyalure	995	1000
2.	Chennai	972	985
3.	Coimbatore	946	962
4.	Cuddalore	945	945
5.	Dharmapuri	928	869
6.	Dindigul	943	922
7.	Erode	919	926
8.	Kancheepuram	955	968
9.	Kanniyakumari	970	962
10.	Karur	915	927
11.	Madurai	950	903
12.	Nagapattinam	948	963
13.	Namakkal	919	882
14.	Perambalur	1002	936
15.	Pudukkottai	979	962
16.	Ramanathapuram	968	963
17.	Salem	910	763
18.	Sivaganga	932	951
19.	Thanjavur	936	956
20.	The Nilgiris	998	962
21.	Theni	911	873
22.	Thiruvallur	943	965
23.	Thiruvarur	984	972
24.	Thoothukkudi	968	963
25.	Tiruchirappalli	962	939
26.	Tirunelveli	950	954
27.	Tiruvannamalai	966	949
28.	Vellore	952	929
29.	Viluppuram	966	969
30.	Virudhunagar	957	966
31.	State Average	953	940

*FEMALES PER 1000 MALES

Table no 4 shows the rural – urban variation (0-6 age group) in 2001. The urban sex ratio of Tamilnadu is high as compare to rural sex ratio. In Tamilnadu the state average of rural sex ratio is 940, but the state average of urban sex ratio is 953. In 30 Districts of Tamilnadu 17 Districts have low rural sex ratio as compare to urban sex ratio? The first time where the rural sex ratio is low as compare to urban sex ratio. In Salem the rural sex ratio of (0-6 age group) is very low as compare to other Districts of Tamilnadu. Thiruvarur have highest sex ratio in rural areas. 13 Districts of Tamilnadu where the urban sex ratio is low as compare to rural area. Permabalur have highest urban sex ratio as compare to other Districts of Tamilnadu, but Salem has low sex ratio. So this table shows that the (0-6 age group) sex ratio of Tamilnadu is low as compare to state average 986. In Tamilnadu urban sex ratio is good as compare to rural area.

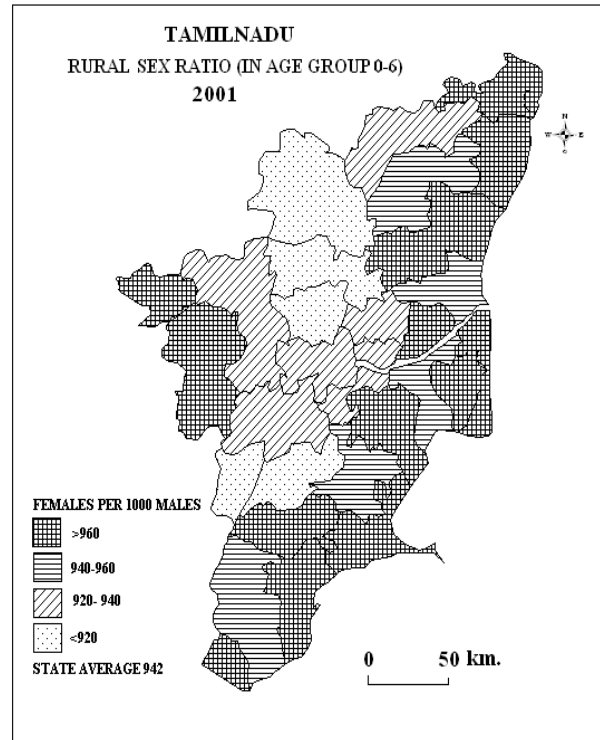


Figure.6

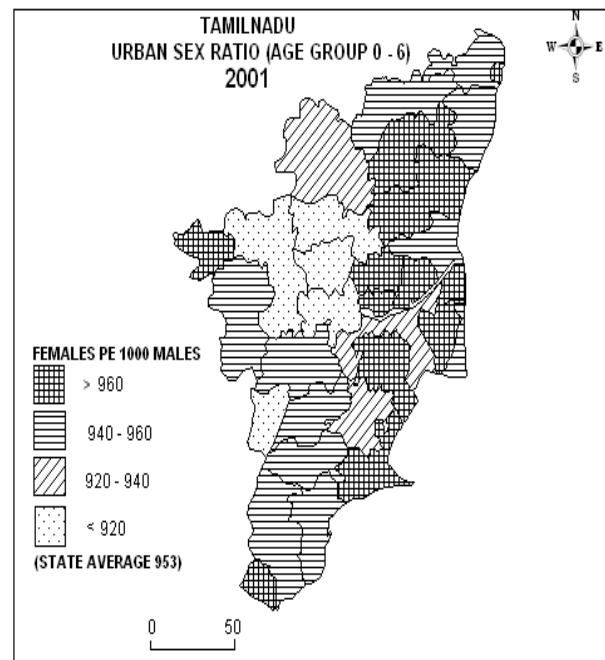


Figure.7

X. Districts Wise Change in Rural and Urban Sex Ratio in (Age Group 0-6)

Table 5 shows the rural – urban variation in sex ratio in (0-6 age group) 2001. In Tamilnadu 13 Districts of 30 Districts where as the rural sex ratio is higher than the urban sex ratio. 16 Districts of 30 Districts where as the sex ratio of urban population is higher then rural population in Tamilnadu (0-6 age group). So this table shows that the urban sex ratio is higher as comparer to rural sex ratio, but it is interesting to note that the average sex ratio of

Tamilnadu (rural- urban) have not high gap. The average urban sex ratio is 953 girls per 1000 males, but the average of rural sex ratio is 942 girls per 1000 males. So the urban sex ratio is high as compare to rural sex ratio in (age group 0-6). So the marginally variation are found in Tamilnadu in urban and rural areas.

Table. 5. Districts Wise Change in Rural and Urban Sex Ratio in (Age Group 0-6)

Sr. no.	Districts	Urban	Rural	Change
1.	Ariyalure	995	1000	5
2.	Chennai	972	985	13
3.	Coimbatore	946	962	16
4.	Cuddalore	945	945	0
5.	Dharmapuri	928	869	-59
6.	Dindigul	943	922	-21
7.	Erode	919	926	7
8.	Kancheepuram	955	968	13
9.	Kanniyakumari	970	962	-8
10.	Karur	915	927	12
11.	Madurai	950	903	-47
12.	Nagapattinam	948	963	14
13.	Namakkal	919	882	-37
14.	Perambalur	1002	936	-66
15.	Pudukkottai	979	962	-17
16.	Ramanathapuram	968	963	-5
17.	Salem	910	863	-47
18.	Sivaganga	932	951	19
19.	Thanjavur	936	956	20
20.	The Nilgiris	998	962	-36
21.	Theni	911	873	-38
22.	Thiruvallur	943	965	22
23.	Thiruvavur	984	972	-12
24.	Thoothukkudi	968	963	-5
25.	Tiruchirappalli	962	939	-23
26.	Tirunelveli	950	954	4
27.	Tiruvannamalai	966	949	-17
28.	Vellore	952	929	-23
29.	Viluppuram	966	969	3
30.	Virudhunagar	957	966	9
31.	State Average	953	942	-11

*FEMALES PER 1000 MALES

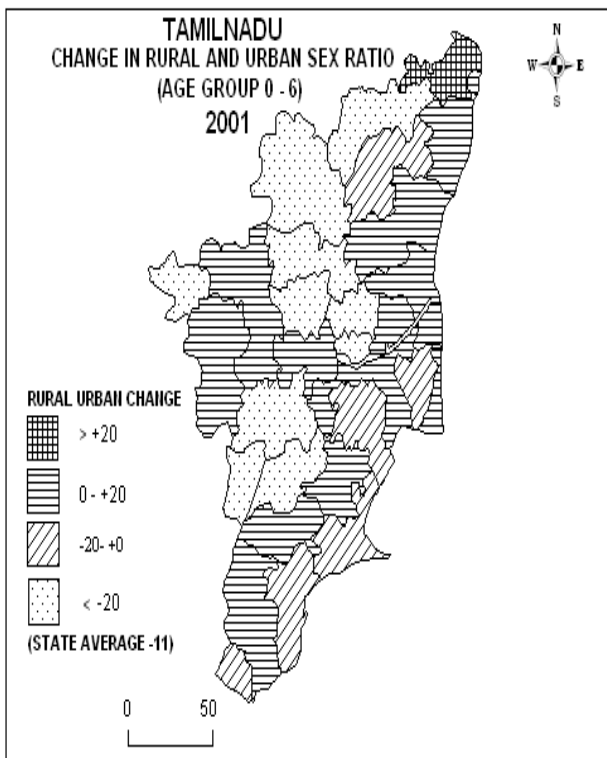


Figure.8

XI. Literacy and Sex Ratio of Tamilnadu

Table. 6 Literacy and Sex Ratio

Sr. no.	Districts Name	Literacy Rate in %			Sex Ratio
		Person	Male	Female	Female per 1000 male
State Average		73.47	82.33	64.55	986
1	Kanniyakumari	88.11	90.88	85.38	1013
2	Thoothukudi	81.96	88.66	75.64	1050
3	Chennai	80.14	84.71	75.32	957
4	The Nilgiris	81.44	89.63	73.39	1014
5	Tiruchirappalli	79.16	87.16	71.19	1001
6	Kancheepuram	77.61	84.82	70.21	975
7	Madurai	78.65	87.24	69.93	978
8	Coimbatore	76.95	83.82	69.80	963
9	Tirunelveli	76.97	85.89	68.50	1042
10	Thiruvavur	76.90	85.59	68.36	1014
11	Nagapattinam	76.89	85.61	68.35	1014
12	Thiruvallur	76.54	84.62	68.23	971
13	Thanjavur	76.07	85.45	66.95	1021
14	Virudhunagar	74.23	84.56	64.09	1012
15	Ramanathapuram	73.05	82.96	63.55	1035
16	Vellore	73.07	82.67	63.53	997
17	Sivagangai	72.66	83.70	62.12	1038
18	Theni	72.01	82.50	61.41	978
19	Pudukkottai	71.96	83.22	60.94	1015
20	Cuddalore	71.85	82.76	60.85	986
21	Dindigul	69.83	80.29	59.30	986
22	Karur	68.74	80.42	57.30	1010
23	Namakkal	67.66	78.02	57.04	966
24	Tiruvannamalai	68.22	80.14	56.31	995
25	Salem	65.72	75.25	55.61	929
26	Erode	65.51	75.49	55.26	972
27	Perambalur	65.88	77.68	54.26	1005
28	Viluppuram	64.68	76.02	53.16	983
29	Dharmapuri	59.23	68.82	49.10	938

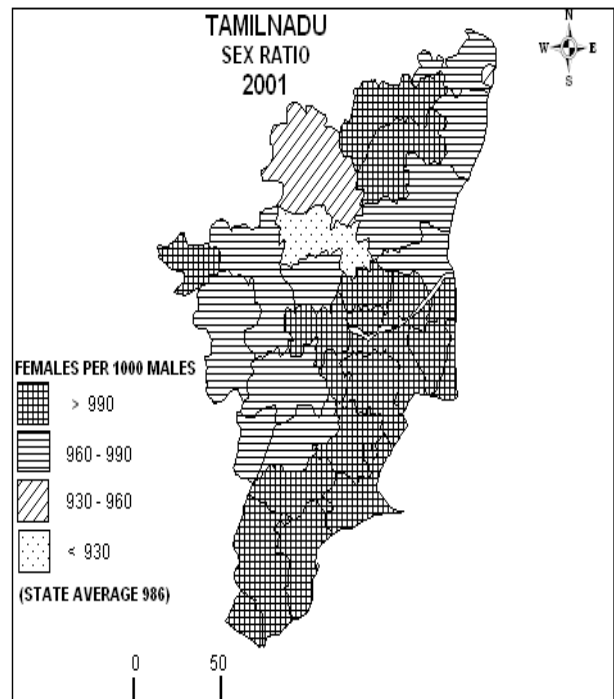


Figure.9

Table 6 shows the impact of literacy on sex ratio in 2001. In most of Districts in Tamilnadu where literacy is high the sex ratio is also high. But in some cases where literacy is high

sex ratio is very low. In Chennai, Kancheepuram, Madurai, Coimbatore etc. are the Districts where literacy is high while the sex ratio is lower. But in Perambalur, Karur, Thruvannamalai, Theni, Cuddalore and Dindigul are the Districts where the literacy is low while sex ratio is also low. So there is variation in found in many cases. In 29 Districts of Tamilnadu where 15 Districts have low literacy as compare to state average literacy. So the marginally impact of literacy on sex ratio. In Tamilnadu Toothukkudi have highest sex ratio 1050 girls per 1000 males. Salem and Dharmapuri have both low literacy and sex ratio 929 and 938 girls per 1000 males.

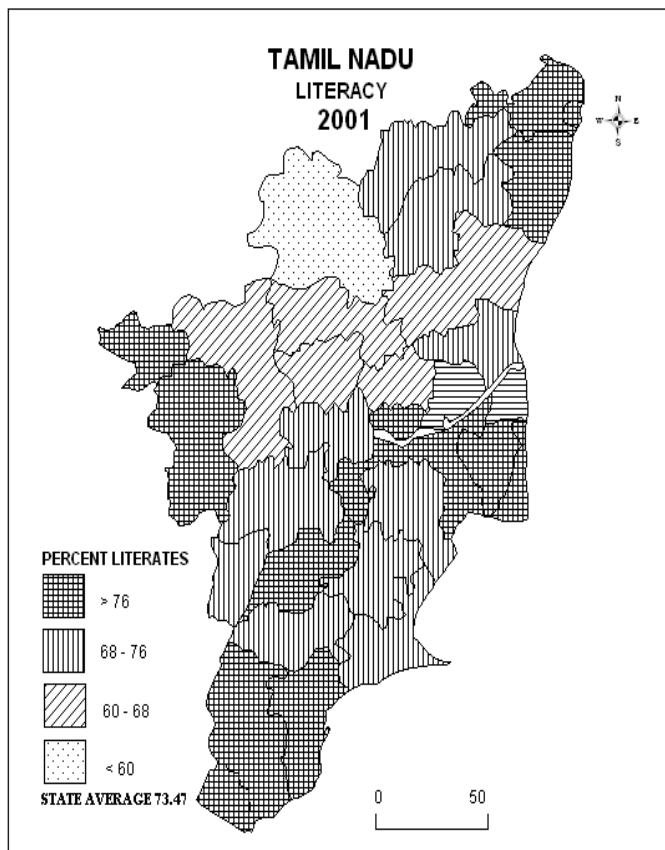


Figure.10

XII. Conclusion

Population sex ratios have increased between 1991 and 2001 in practically all districts of Tamilnadu. The only exception are Dharmapuri, where it has declined from an already low figure of 942 to 938, and Thoothukudi, where it has declined marginally from a high of 1051 to 1049- still the highest in the state. As many as 17 out of 30 districts the sex ratio in excess of the state average of 986. The southern districts – with the significant exception of Madurai and Theni the sex ratio in excess of 1000, while Chennai and its neighboring, districts of Tiruvallur and Kanancheepuram as well as Coimbatore have low sex ratio, reflecting in considerable part male in-migration from other districts for employment in industry. But there are at least two districts where sex ratio are considerably lower than the state average – Dharmapuri (938) and Salem (929) for reasons other than sex selective migration. Tamilnadu has also performed reasonably well in term of literacy growth during the decade

1991-2001. The state's literacy rate increased from 62.66 percent in 1991 to 73.47 per cent in 2001. The female literacy rate increased from 51.33 per cent in 1991 to 65.55 per cent in 2001, while the male literacy rate grew at lower pace from 73.75 per cent in 1991 to 82.33 percent in 2001. The population sex ratio for Tamilnadu has increased from 972 females per 1000 males in 1991 to 986 in 2001. However, Tamilnadu's child sex ratio –defined as the number of girls per 1000 boys in age group 0-6 years shows a decline from 953 in 1991 to 942 in 2001. The decline in child sex ratio in some districts of the state is quite alarming.

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Author Profile

Rajeev, received M.Phil Degree. in Geography from Kurukshetra University in 2012 and P.G. Diploma in Remote Sensing and GIS from Uttarakhand Open University in Uttarakhand, 2015, and currently I am working as a JRF/Project Fellow in HARSAC, Department of Science and Technology, CCS, HAU Campus, Hisar.