



CORRELATION BETWEEN LITERACY RATE AND SEX RATIO IN THIRUVANANTHAPURAM DISTRICT: A GEOGRAPHICAL STUDY

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Abstract

This paper is an attempt to analysis the correlation between literacy and sex ratio in Thiruvananthapuram District of Kerala. Literacy and sex ratio are the one of the most important components of social development in any region. Generally literacy is defined as the ability to read and write in simple language. Sex ratio means number of females per thousands of male population. This study is based on secondary data collected from census of India 2011. Two variables - literacy and sex ratio- of Thiruvananthapuram has been taken into study. The main objectives of this study are to study the spatial patterns of literacy rate and sex ratio and correlate them. Arc GIS 10.1 software is used for preparing map. The Spearman Rank correlation method has been adopted to find out the correlation between literacy rate and sex ratio. Based on this statistical method, analysis shows that there is a strong and positive correlation ($r=.66$) between literacy rate and sex ratio.

Key Words: *Literacy rate, sex ratio, Spearman Rank Correlation, social development*

I. INTRODUCTION

The concept of literacy, which varies from country to country, generally refers to minimum level of literacy skill. It is an important indicator of socio cultural development and political consciousness. In fact, it is the vehicle of the socio economic transformation as it facilitates the acquisition of specific skill, and occupational competence, and accelerate social change. According to 2001 census literacy has been defined as the ability to read and write with understanding. Literacy reflects the socio economic and cultural setup of a nation, ethnic group and social community (Majid Hussain, 2008 p.13.58). Sex ratio is the proportion between male and female population. Sex ratio may be defined as the number of female population in thousand of male population in developing countries like India. In contradictory in developed countries like England, U.S.A. they have take number of male population per thousand of female population for calculating sex ratio. The sex ratio and literacy rate are positively correlated. The literacy rate and sex ratio are the most significant components of the Human Development Index. The area which is higher in literacy rate and sex ratio that region would be higher in human development index. The separate data for male and female are important for various types of planning and analysis of various population attributes. According to Clarke, (1960) the existing sex ratio in any area is determined by three basic factors. These are sex ratio at time birth, differences in mortality rates of two sexes, at different ages in the migratory ethos of the two sex. Among the various elements of population composition literacy and sex composition has a great importance in population study (Chandana, 2002 p. 270). Thiruvananthapuram district of Kerala is favourable to female sex ratio and literacy rate is higher the national average.

II. OBJECTIVES

The main objectives of present papers are:

- To study spatial patterns of literacy rate and sex ratio in Thiruvananthapuram district.
- To examine correlation between literacy and sex ratio in the study area.

III. DATABASE AND METHODOLOGY

Present study is based on secondary data collected from census of India 2011. Two variables i.e. literacy and sex ratio of Thiruvananthapuram have been taken for the study. The methodology adopted to achieve the aim is Spearman's correlation statistical method, it is a statistical measure of the strength of a monotonic relationship between paired data. With the help of which the data analysed and obtained results are apatially represented in the form of maps with the the help of Arc GIS software.

$$r_s = \left[1 - \frac{6 \sum D^2}{N^3 - N} \right]$$

Where D is the difference between ranks of two variables, N is the total number of observations.

Spearman's correlation coefficient Spearman's correlation coefficient is a statistical measure of the strength of a monotonic relationship between paired data. In a sample it is denoted by and is by design constrained as follows

$$-1 \leq r_s \leq 1$$

And its interpretation is similar to that of Pearson's, e.g. the closer is to the stronger the monotonic relationship. Correlation is an effect size and so we can verbally describe the strength of the correlation using the following guide for the absolute value of:

- .00-.19 "very weak"
- .20-.39 "weak"
- .40-.59 "moderate"
- .60-.79 "strong"
- .80-1.0 "very strong"

IV. STUDY AREA

Thiruvananthapuram, the southernmost district of Kerala, Thiruvananthapuram, formerly known as Trivandrum, is the capital city of Kerala. It is on the west coast of India near the extreme south of the mainland. Referred to by Mahatma Gandhi as the "evergreen city of India", it is characterized by its undulating terrain of low coastal hills and busy commercial alleys is located between North latitude is $8^{\circ} 16' 59''$ and $8^{\circ} 49' 59''$ East longitude is $76^{\circ} 28' 59''$ and $77^{\circ} 16' 59''$, covers a geographical area of 2192 sq. km which house the capital city of Kerala State and falls in Survey of India degree sheets 58 D and H. The district stretches 76 Kms along the shores of Lakshadweep Sea on the west, bordered by Kollam district on the north and with Tirunelveli and Kanyakumari districts of Tamil Nadu on the east and south respectively.

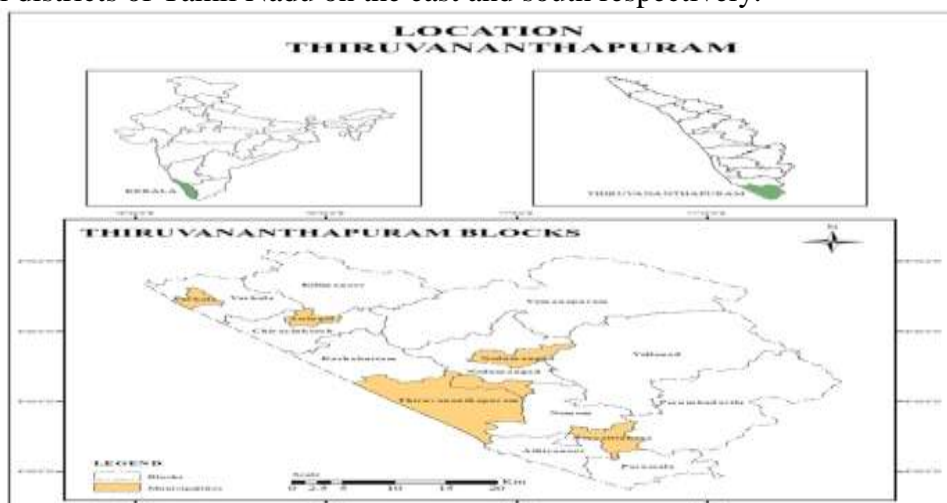


Figure 1. Location of study area.

Spatial pattern of literacy rate

As per 2011, a person aged seven and above, who can both read and write with understanding in any language is treated as literate (Year Book, 2010 p.6). The census 2011 reveals that the literacy rate of Thiruvananthapuram district is 93.02.as increased in literacy. According to the census 2011, Kilimanoor Block (93.19) shows higher the literacy rate. Literacy rate in most of the blocks are above national average. The highest literacy rates are recorded in Kilimanoor, Nedumangad, Varkala, Vamanapuram, Nemom, and Vellanad blocks, where the literacy rate is above 90 %. According to 2011 census, the Athiyannur block has lowest sex ratio (86.61). Overall the Thiruvananthapuram stands one of the literacy rate districts among the India.

Spatial pattern of sex ratio

Sex ratio means number of females population per thousand of male population. The sex ration in Thiruvananthapuram district is favourable to females. Sex is one of the most important components in the demographic attributes. Among 12 CD Blocks in the district, Thiruvananthapuram (Rural) CD Block has no rural population and hence the analysis is confined to 11 CD Block. In Thiruvananthapuram, all the blocks show the favourable sex ratio, which means female population is higher than male. The Varkala, Kilimanoor and Vamanapuram mark the highest sex ratio in this district. Here sex ratio is far better than national average (940/1000)

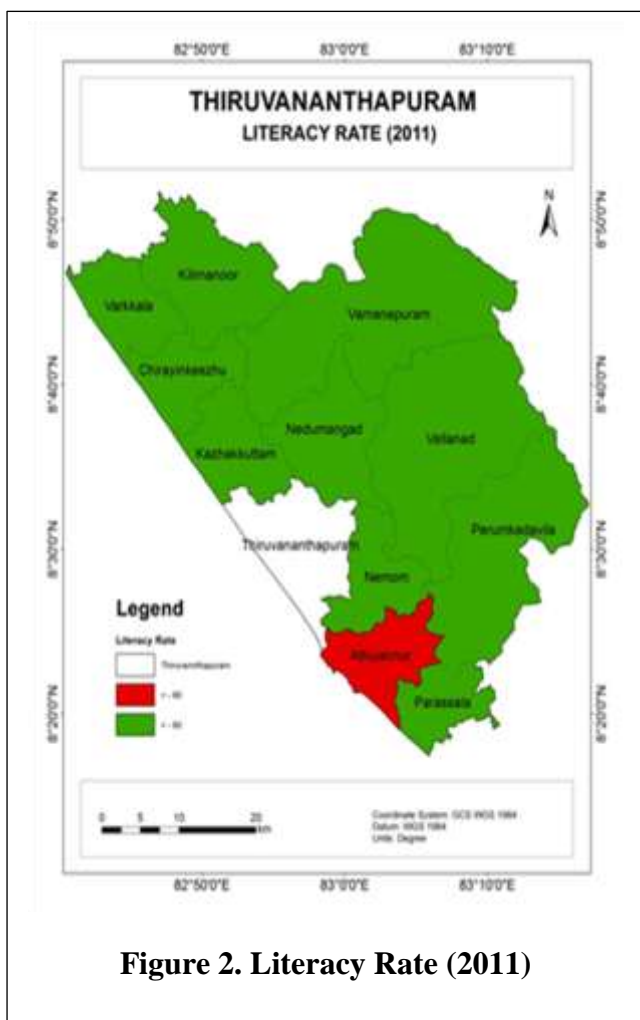


Figure 2. Literacy Rate (2011)

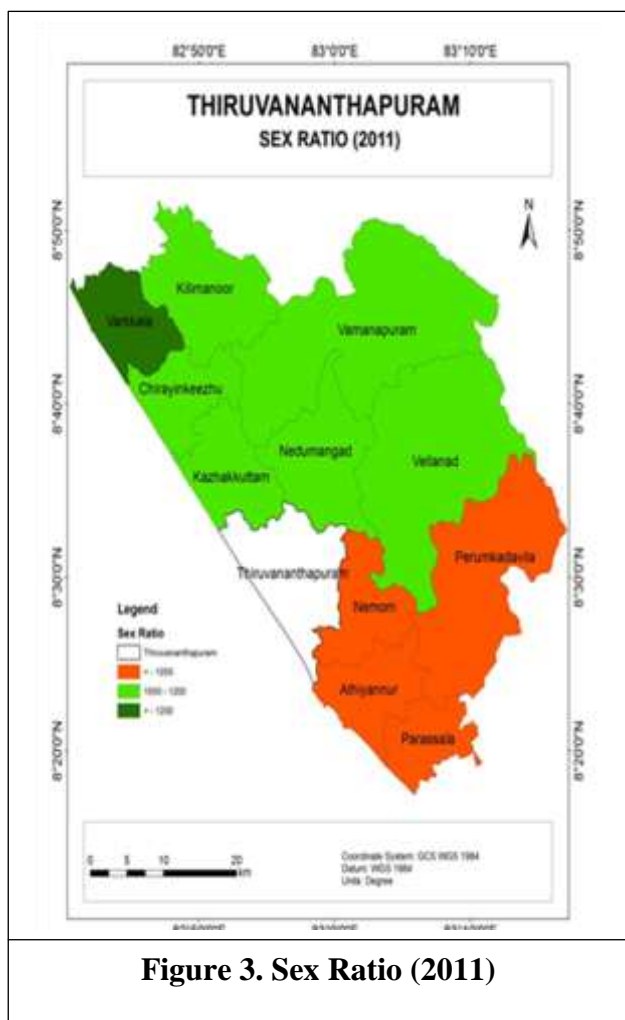


Figure 3. Sex Ratio (2011)

Table-1: Correlation between Literacy and Sex ratio in Thiruvananthapuram District

Sr. No.	Name of CD blocks	Literacy Rate	Sex Ratio	R1	R2	D (R1-R2)	D2
1	Varkala	92.93	1229	3	1	2	4
2	Kilimanoor	93.19	1174	1	2	-1	1
3	Chirayinkeezhu	90.88	1145	9	4	5	25
4	Vamanapuram	92.6	1148	4	3	1	1
5	Vellanad	91.32	1090	6	6.5	-0.5	0.025
6	Nedumangad	92.96	1090	2	6.5	-4.5	20.25
7	Kazhakkootam	90.8	1090	10	5	5	25
8	Thiruvananthapuram	0	0	0	0	0	0
9	Nemom	92.1	1044	5	9	-4	16
10	Athiyannur	86.81	1024	11	11	0	0
11	Perumkadavila	91.19	1048	7	8	-1	1
12	Parassala	90.92	1039	8	10	-2	4
Thiruvananthapuram		93.9	1087	-	-	-	97.27

Source: Registrar General and Census Commissioner, Computed from Census of India, 2011.

Correlation between literacy rate and sex ratio – The Spearman's rank difference method is used for the calculation literacy and sex ratio in Thiruvananthapuram District. It is clear that there is a strong and positive correlation i.e. $r= 0.66$ between the literacy and sex ratio in Thiruvananthapuram district.

V. MAJOR FINDINGS

Major findings are:

- Literacy rate is higher than national average (74.4).
- Sex ratio is higher than national average (940/1000).
- Thiruvananthapuram district shows the favourable sex ratio.
- Sex ratio and literacy rate have strong correlation between each other ($r=0.66$).

VI. CONCLUSION

Literacy and sex ratio is considered as the important aspect of population study. Education is necessary for personal and national development. It's found that there is strong relationship between literacy and economic status of the country. In Thiruvananthapuram, there is no much disparity between sex ratio and literacy rate (2011). The highest literacy is found in Kilimanoor block (93.19) and Lowest in Athiyannur (86.81). Hence it is very clear that literacy rate and sex ratio have strong correlation between each other.

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