CORRELATION BETWEEN URBAN LITERACY RATE AND URBAN SEX RATIO IN MAHARASHTRA

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ABSTRACT: This paper attempts to analyze the correlation between urban literacy and urban sex ratio in Maharashtra state. The education is one of the ways of accepted as a major component of human development. It makes responsible and understandable society. The census of India, 1981 defines literacy as 'ability to read and write with understanding in any language'. It is affected on various elements of the population such as sex ratio, fertility, mortality etc. Thus the correlation between literacy and sex ratio is immense significant. Sex ratio is the ratio of males to females in a population. An important social indicator to measure the extent of prevailing equity between males and females in a society at a given point of time. This has much to do with the interplay of sex differential in mortality, sex selective migration, sex ratio at birth time, sex differential in abortion and in population enumeration. It is also influence marital status, manpower the gross national product, planning regarding educational and medical services, housing etc. as well as socio cultural factors together influence the overall demographic composition of population. The percentage of literates to total population in the Maharashtra state is increased from 67.07 percent in 1991 to 78.85 percent in 2011. Thus, there has been increase of 11.78 per cent in the literacy rate during the two decades. Although the state has moved forward in the field of literacy. The urban sex ratio of Maharashtra is increase. In 1991, urban sex ratio was 874 and 2011 is 903 per 1000 females in Maharashtra state.

Spearman's Rank order method is used for analyze the correlation between urban literacy and urban sex ratio in Maharashtra state was 0.48 in 1991 and 2011 correlation is 0.37 objected.

Key word: Literacy, Sex ratio, Fertility, Correlation.

INTRODUCTION: Decreasing sex ratio has become a serious problem in our country as well in the state of Maharashtra. It is presumed that literate people can understand the consequences of lowering sex ratio. Literacy is an index of human development and quality of human life. It affects birth rate on the one hand and also indicates the level of economic development, living standards, status of women and technological development etc. sex ratio of a population refers to the balance between male and female in any population. The education is one of the ways of accepted as a major component of human development. It makes responsible and understandable

society. It is affected on various elements of the population such as sex ratio, fertility, mortality etc. Thus the correlation between literacy and sex ratio is immense significant. Sex ratio is the ratio of males to females in a population. An important social indicator to measure the extent of prevailing equity between males and females in a society at a given point of time. This has much to do with the interplay of sex differential in mortality, sex selective migration, and sex ratio at birth time, sex differential in abortion and in population enumeration. It is also influence marital status, manpower the gross national product, planning regarding educational and medical services, housing etc. as well as socio cultural factors together influence the overall demographic composition of population.

The census of India, 1981 defines literacy as 'ability to read and write with understanding in any language'. To be classified as literate, person need not have received any formal education. A person who could merely read but not write was not considered as literate and children of the age of four years or less were put in the category of illiterates.

OBJECTIVES:
1) To analyze the spatial pattern of decadal changes in urban literacy and urban sex ratio.
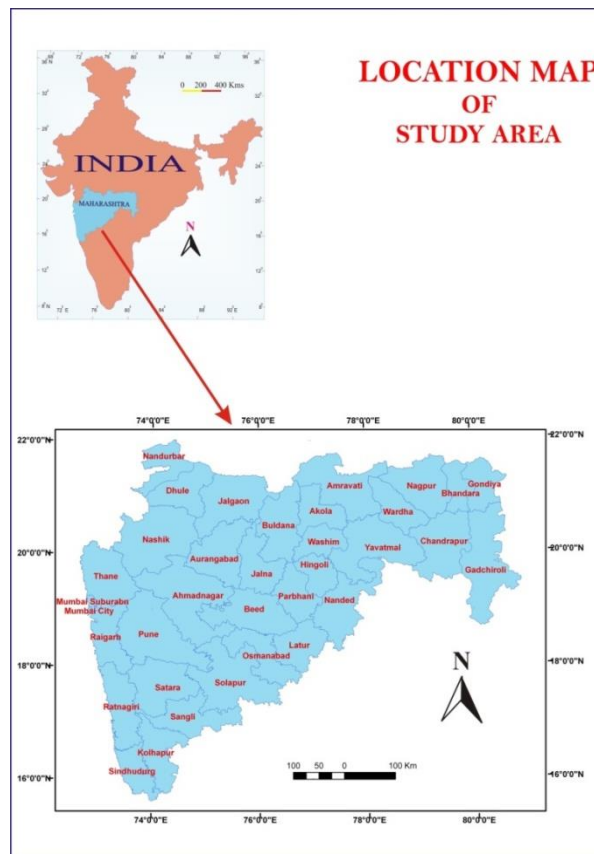2) To study the Correlation between urban Literacy and urban sex ratio.

STUDY AREA:
The State of Maharashtra extends from 15° 45' to 20° 6' North Latitude and 70° 36' to 80° 54' East Longitude with Geographical area 3, 07,713 Sq. Km. It is bounded by Arabian Sea in the west, the State of Gujarat in the Northwest. Madhya Pradesh in the North, Chhattisgarh in the East, Andhra Pradesh in the Southwest, Karnataka in the South and Goa in the Southwest. Maharashtra occupies the western and central part of the country and has a long coastline stretching nearly 720 Km along the Arabian Sea. The state has 35 districts, Tahsils 355, census town are 279.

DATA BASE AND METHODOLOGY:
The present study is based on secondary data collected from census Reports of Government of India. Covering urban literacy and urban sex ratio of Maharashtra state, census handbook (1991, 2001 and 2011), Socio-economic review of Maharashtra statistical abstract. The period from 1991 to 2011 is selected for the observation pattern of urban literacy and urban sex ratio changes. The collected data has been processed and analysed by using different quantitative, statistical technique. The tabulated data has been presented by graphs and Maps. Spearman's Rank correlation method. The formula for computing spearman's rank correlation is as follows

$$P = 1-6\Sigma d^2/n^3-n$$

Where: n= is the total number of observations.   d= is the difference in the ranks of two variables in the observation.

LOCATION MAP OF STUDY AREA

COMPARISON OF LITERACY IN MAHARASHTRA AND INDIA:

In India, the literacy of population is increasing rapidly. It is also increasing in Maharashtra. The percentage of literates to total population in the Maharashtra state is increased from 67.07 percent in 1991 to 78.85 percent in 2011. Thus, there has been increase of 11.78 per cent in the literacy rate during the two decades. Although the state has moved forward in the field of literacy.

The literacy of India is 52.2, 64.8 and 74.00 percent in 1991, 2001 and 2011 respectively. However, literacy of Maharashtra is 64.9, 76.9 and 82.9 percent respectively. As compared to India's literacy, the literacy of Maharashtra is high since 1991. Male literacy of Maharashtra and India has gap of 12.7 percent in 1991. This gap had been reducing upto 8.9 percent in 2011.

DISTRICT-WISE COMPARISON OF URBAN LITERACY:

The district wise person, male and female literacy of Maharashtra is separately calculated for the census year of 1991, 2001 and 2011.

PERSONS LITERACY:

In 1991, below 55 percent literacy was found in Hingoli, Jalna and Parbhani district. The 55 to 65 percent literacy was found in Akola, Buldhana, Washim, Latur, Nanded, Nashik, Aurangabad, Osmanabad, Beed, Chandrapur, Dhule, Gadchiroli, Sangli, Jalgaon and Nandurbar districts. Amravati, Wardha, Yavatmal, Gondia, Mumbai, Nagpur, Mumbai Suburban, Raigad, Ratnagiri, Thane, Bhandara, Ahmednagar, Pune, Kolhapur and Satara districts show the 65 to 75 percent literacy rate. Sindhudurg district shows above 75 percent literacy.

Table 1
Urban Person Literacy

Level of Literacy %	1991	2001	2011
Very Low (Below 55)	Hingoli, Jalna, Parbhani (**3**)	-	-
Low (55 to 65)	Akola, Buldhana, Washim, Latur, Nanded, Nashik, Aurangabad, Beed, Osmanabad, Dhule,Chandrapur, Gadchiroli, Sangli Jalgaon, Nandurbar (**15**)	Hingoli, Parbhani (**2**)	-
Medium (65 to 75)	Amravati, Wardha Yavatmal, Gondia Mumbai, Nagpur Mumbai Suburban, Raigarh, Ratnagiri, Thane, Bhandara, Ahmednagar, Pune Kolhapur, Satara (**16**)	Buldhana, Washim, Aurangabad, Jalna, Latur, Osmanabad, Chandrapur, Dhule, Gadchiroli, Akola, Ahmednagar, Beed, Nashik, Jalgaon, Nandurbar, Sangli, Solapur, Nanded (**18**)	Aurangabad, Beed, Hingoli, Jalna, Latur, Nanded, Parbhani, Solapur (**9**)
High (Above 75)	Sindhudurg (**1**)	Amravati, Pune, Yavatmal, Mumbai, Mumbai Suburban, Raigarh, Ratnagiri, Satara Sindhudurg, Thane, Bhandara, Gondia, Nagpur Wardha, Kolhapur (**15**)	Nashik, Amravati, Buldhana, Nagpur, Wardha, Washim, Yavatmal, Gondia, Osmanabad, Akola Mumbai, Bhandara, Mumbai Suburban, Raigarh, Ratnagiri, Sindhudurg, Thane, Chandrapur, Gadchiroli, Satara, Ahmednagar, Dhule, Jalgaon, Nandurbar, Kolhapur, Sangli, (**26**)

Source - Compiled by researcher based on census 1991, 2001 and 2011.

In 2001, there is no any district in below 55 percent literacy category. Hingoli and Parbhani districts have 55 to 65 percent literacy. Percentage with 65 to 75 persons literacy is found in Buldhana, Washim, Aurangabad, Jalna, Latur, Osmanabad, Chandrapur, Dhule, Gadchiroli, Akola, Ahmednagar, Beed, Nashik, Jalgaon, Nandurbar, Sangli, Solapur and Nanded districts. The above 75 percent persons literacy is shown in Amravati, Pune, Yavatmal, Mumbai, Mumbai Suburban, Raigad, Ratnagiri, Satara Sindhudurg, Thane, Bhandara, Gondia, Nagpur, Wardha and Kolhapur districts.

In 2011, above 75 percent literacy is shown in Nashik, Amravati, Buldhana, Nagpur, Wardha, Washim, Yavatmal, Gondia, Osmanabad, Akola, Mumbai, Bhandara, Mumbai Suburban, Raigad, Ratnagiri, Sindhudurg, Thane, Chandrapur, Gadchiroli, Satara, Ahmednagar, Dhule, Jalgaon, Nandurbar, Kolhapur and Sangli districts. The 65 to 75 percent literacy is shown in Aurangabad, Beed, Hingoli, Jalna, Latur, Nanded, Parbhani and Solapur districts. There is no any district under below 65 percent category of literacy.

In general, all districts show the remarkable growth in literacy. In 1991, three districts were found in below 55 percent literacy category, fifteen districts were in 55 to 65 percent literacy category. Sixteen districts show the 65 to 75 percent persons literacy but in 2011, there is no any district under below 65 percent person's literacy category. Nine districts are in 65 to 75 percent literacy category and all other remaining districts are in above 75 percent literacy group in 2011. In 1991, highest literacy was shown in Sindhudurg (77.64 percent) district and lowest literacy was found in Parbhani (52.65 percent) district.

MALE LITERACY:

In 1991, Jalna, Nanded, Parbhani, Solapur, Hingoli, Aurangabad, Beed, Osmanabad, Gadchiroli, Latur, Nandurbar and Akola districts show the below 70 percent literacy. Amravati, Sangli, Buldhana, Washim, Yavatmal, Jalgaon, Raigad, Thane, Chandrapur, Pune, Nagpur, Nashik, Ahmednagar and Dhule districts have 70 to 75 percent literacy. The 75 to 80 percent literacy is found in Mumbai, Satara, Ratnagiri, Bhandara, Gondia, Wardha, Kolhapur and Mumbai Suburban districts. Sindhudurg district shows 80 to 85 percent literacy. There is no any district under the category of above 85 percent literacy.

In 2001, there is no any district in below 70 percent literacy. 70 to 75 percent literacy is found in Hingoli, Jalna, Latur, Nanded and Parbhani districts. Akola, Buldhana, Washim, Raigad, Aurangabad, Beed, Osmanabad, Thane, Chandrapur, Dhule, Gadchiroli, Jalgaon, Ahmednagar, Sangli, Nandurbar, Nashik and Solapur districts show the 75 to 80 percent literacy. Amravati, Yavatmal, Mumbai, Ratnagiri, Sindhudurg, Wardha, Bhandara, Satara, Gondia, Nagpur, Pune, Kolhapur and Mumbai Suburban districts show 80 to 85 percent literacy. There is no any district under the above 85 percent literacy category in 2001.

Table 2
Urban Male Literacy

Level of Literacy %	1991	2001	2011
Low (Below 70)	Jalna, Nanded, Parbhani, Solapur , Hingoli, Aurangabad, Beed, Osmanabad Gadchiroli, Latur, Nandurbar, Akola (**9**)	-	-
Moderate (70 to 75)	Amravati, Sangli Buldhana, Washim Yavatmal, Jalgaon Raigarh, Thane, Chandrapur, Pune Nagpur, Nashik A.nagar, Dhule (**14**)	Hingoli, Jalna, Latur, Nanded, Parbhani (**5**)	Jalna, Parbhani (**2**)
Medium (75 to 80)	Mumbai, Satara, Ratnagiri, Bhandara, Gondia, Wardha, Kolhapur, Mumbai Suburban (**8**)	Akola. Buldhana, Washim, Raigarh, Aurangabad, Beed Osmanabad, Thane, Chandrapur, Dhule, Gadchiroli, Jalgaon, Ahmednagar, Sangli, Nandurbar, Nashik, Solapur (**17**)	Aurangabad, Latur, Hingoli, Beed, Dhule, Nanded, Jalgaon, Osmanabad, Solapur (**9**)
High (80 to 85)	Sindhudurg (**1**)	Amravati, Mumbai, Yavatmal, Satara, Ratnagiri,Sindhudurg, Wardha, Bhandara, Gondia, Nagpur, Pune, Kolhapur, Mumbai Suburban (**13**)	Amravati, Nagpur, Buldhana, Washim Mumbai, Kolhapur Yavatmal, Akola Mumbai Suburban, Raigarh, Thane, Bhandara, Satara Chandrapur, Pune, Gadchiroli, Sangli, Ahmednagar, Nashik, Nandurbar (**20**)
Very High (Above 85)	-	-	Ratnagiri, Gondia Sindhudurg,Wardha (**4**)

Source - Compiled by researcher based on census 1991, 2001 and 2011.

In 2011, there is no any district under the category of below 70 percent literacy. The 70 to 75 percent literacy is shown in Jalna and Parbhani districts. Aurangabad, Hingoli, Beed, Dhule, Nanded, Osmanabad, Latur, Jalgaon and Solapur districts have 75 to 80 percent literacy. Amravati, Nagpur, Buldhana, Washim Mumbai, Kolhapur, Yavatmal, Akola, Mumbai Suburban, Raigad, Thane, Bhandara, Satara Chandrapur, Pune, Gadchiroli, Sangli, Ahmednagar, Nandurbar and Nashik

districts show 80 to 85 percent literacy. The above 85 percent literacy is shown in Ratnagiri, Gondia, Wardha and Sindhudurg districts.

All districts show the remarkable growth of male literacy. In 1991, twelve districts show the below 70 percent literacy. In the 70 to 75 percent literacy group covered fourteen districts of Maharashtra. One district lies in above 80 percent literacy. In 2011, there is no any district under below 70 percent literacy. Two districts in the 70 to 75 percent literacy.

Nine districts lie in 75 to 80 percent literacy. Twenty-four districts lie in above 80 percent literacy. In the all districts of Maharashtra, Nanded, Gondia, Wardha and Ratnagiri districts show remarkable growth as compared to other districts. In 1991, the lowest literacy is shown in Jalna (62.66 percent) district and highest in Sindhudurg (82.19 percent) district. In 2011, the highest literacy is shown in Wardha (86.56 percent) district and lowest literacy is show in Parbhani (74.09 percent) district.

FEMALE LITERACY:

In 1991, below 60 percent literacy was found in Beed, Hingoli, Jalna, Nanded, Parbhani, Osmanabad, Latur, Gadchiroli, Solapur, Akola, Buldhana, Washim, Yavatmal, Aurangabad, Dhule, Chandrapur, Sangli, Ahmednagar, Jalgaon, Nandurbar, Kolhapur and Nashik districts. Amravati, Thane, Mumbai, Satara, Mumbai Suburban, Raigad, Wardha, Ratnagiri, Pune, Bhandara, Gondia and Nagpur districts showed the 60 to 70 percent literacy. Sindhudurg district had 70 to 80 percent literacy. There was no any district under the category of above 80 percent literacy.

In 2001, Hingoli, Jalna, Nanded, Parbhani and Solapur districts come in below 60 percent literacy category. 60 to 70 percent literacy is found in Akola, Buldhana, Washim, Yavatmal, Aurangabad, Beed, Latur, Osmanabad Thane, Chandrapur, Gadchiroli, Dhule Ahmednagar, Jalgaon, Nashik, Nandurbar, Pune, Kolhapur and Sangli districts. Amravati, Satara, Mumbai, Gondia, Mumbai Suburban, Raigad, Ratnagiri, Sindhudurg, Nagpur, Bhandara and Wardha districts show 70 to 80 percent literacy. In above 80 percent, there is not a single district in this category.

In 2011, above 80 percent literacy is found in Amravati, Ratnagiri, Wardha and Sindhudurg districts. The 70 to 80 percent literacy is shown in Akola, Buldhana, Washim, Nagpur, Aurangabad, Thane, Osmanabad, Dhule, Mumbai, Satara, Mumbai Suburban, Raigad, Bhandara, Chandrapur, Gondia, Yavatmal, Gadchiroli, Jalgaon, Ahmednagar, Pune, Nandurbar, Nashik, Kolhapur and Sangli districts. Beed, Hingoli, Latur, Nanded, Parbhani, Jalna and Solapur districts have 60 to 70 percent literacy. There is no any district in below 60 percent literacy.

Table 3
Urban Female Literacy

Level of Literacy %	1991	2001	2011
Low (Below 60)	Beed, Hingoli, Jalna, Nanded, Parbhani, Osmanabad, Latur Gadchiroli, Solapur, Akola, Buldhana Washim, Yavatmal, Aurangabad, Dhule, Chandrapur, Sangli Ahmednagar, Jalgaon, Nandurbar Kolhapur, Nashik, **(22)**	Hingoli, Jalna, Nanded, Parbhani Solapur **(5)**	-
Moderate (60 to 70)	Amravati, Thane, Mumbai, Satara, Mumbai Suburban, Raigarh, Wardha, Ratnagiri, Pune, Bhandara, Gondia Nagpur **(12)**	Akola, Buldhana, Washim, Yavatmal Aurangabad, Beed, Latur, Osmanabad Thane, Chandrapur Gadchiroli, Dhule Ahmednagar Jalgaon, Nashik Nandurbar, Pune Kolhapur, Sangli **(19)**	Beed, Hingoli Latur, Nanded, Parbhani, Jalna, Solapur **(7)**
High (70 to 80)	Sindhudurg	Amravati, Satara, Mumbai, Gondia, Mumbai Suburban, Raigarh, Ratnagiri, Sindhudurg, Nagpur Bhandara, Wardha **(12)**	Akola, Buldhana, Washim, Nagpur Aurangabad, Thane, Osmanabad, Dhule, Mumbai, Satara Mumbai Suburban, Raigarh, Bhandara, Chandrapur, Gondia, Yavatmal Gadchiroli, Jalgaon, Ahmednagar, Pune, Nandurbar, Nashik, Kolhapur, Sangli, **(24)**
Very High (Above 80	-	-	Amravati, Ratnagiri, Wardha, Sindhudurg **(4)**

Source - Compiled by researcher based on census 1991, 2001 and 2011.

All districts show the remarkable growth in female literacy in state. In 1991, twenty two districts have below 60 percent literacy; twelve districts show the 60 to 70 percent literacy. One district has above 70 percent female literacy but in 2011, there is no any district under category of below 60 percent literacy. Seven districts have 60 to 70 percent literacy. Twenty-four districts have 70 to 80 percent and four districts have above 80 percent literacy in 2011. In 1991, the highest female literacy was found in

Sindhudurg (73.09 percent) district and lowest literacy is shown in Parbhani (41.73 percent) district. In 2011, the lowest literacy was found in Parbhani (64.11 percent) district and highest literacy is shown in Sindhudurg (82.38 percent) district.

In 1991, below 75 percent person's literacy shown was in thirty four districts in the state but in 2011, nine districts remained in below 75 percent literacy. In 1991, below 75 percent male literacy is shown in twenty-six districts, but in 2011, two districts had remained under below 75 percent literacy. In the female literacy, there are thirty-four districts under below 70 percent literacy in 1991 but in 2011, below 70 percent literacy shown in seven districts of Maharashtra.

In the analysis of literacy of persons, male and female, it is found that the female literacy is low as compared to the male literacy in the state. It happened due the male dominated culture and gender imbalance in the society. It also shows that the literacy rate of all districts increasing rapidly. The literacy rate is increasing rapidly due to the Government policies, development in education facilities, and availability of jobs after education etc.

TABLE 4
URBAN SEX RATIO IN MAHARASHTRA

Sr. No	Name of District	1991	2001	2011
1	Nandurbar	--	930	893
2	Dhule	916	922	935
3	Jalgaon	921	920	927
4	Buldana	932	933	944
5	Akola	926	938	954
6	Washim	--	933	947
7	Amravati	923	934	957
8	Wardha	930	930	955
9	Nagpur	915	931	954
10	Bhandara	951	960	981
11	Gondiya	--	970	988
12	Gadchiroli	910	952	966
13	Chandrapur	899	919	949
14	Yavatmal	925	936	962
15	Nanded	913	925	937
16	Hingoli	--	937	946
17	Parbhani	923	937	958
18	Jalna	930	931	944
19	Aurangabad	884	905	923
20	Nashik	914	900	920
21	Thane	840	828	865
22	Mumbai Suburban	--	822	860
23	Mumbai	817	777	832
24	Raigarh	904	885	912
25	Pune	904	899	904
26	Ahmadnagar	914	908	942

27	Bid	905	923	933
28	Latur	897	916	932
29	Osmanabad	903	926	934
30	Solapur	944	957	972
31	Satara	926	928	959
32	Ratnagiri	981	944	1015
33	Sindhudurg	997	978	979
34	Kolhapur	914	919	947
35	Sangli	931	943	973

TABLE 5
URBAN SEX RATIO

Sex ratio	1991	2001	2011
Below 800	-	Mumbai (1)	-
800 to 900	Mumbai, Thane Mumbai Suburban Aurangabad Latur, Chandrapur **(6)**	Mumbai Suburban Thane, Raigad Pune, Nashik **(5)**	Mumbai, Thane Mumbai Suburban Nandurbar **(4)**
900 to 1000	Osmanabad Pune Raigad, Gadchiroli Beed, Kolhapur Nanded, Nashik Ahmednagar, Dhule Nagpur, Jalgaon Amravati, Parbhani Nandurbar, Akola, Yavatmal, Satara Jalna, Buldhana Wardha, Sangli Hingoli, Washim Solapur, Gondia Bhandara, Ratnagiri Sindhudurg **(29)**	Aurangabad, Latur Ahmednagar, Beed Chandrapur, Dhule Kolhapur, Jalgaon Nanded, Bhandara Osmanabad, Akola, Nandurbar, Wardha Nagpur, Sangli Buldhana, Jalna Washim, Hingoli Amravati, Solapur Yavatmal, Gondia Parbhani, Ratnagiri Gadchiroli, Satara Sindhudurg **(29)**	Raigad, Nashik Aurangabad, Latur Ahmednagar, Pune Chandrapur, Beed Kolhapur, Satara Jalgaon, Nanded Osmanabad, Dhule Wardha, Nagpur Jalna, Buldhana Washim, Amravati Yavatmal, Akola, Parbhani, Hingoli Sangli, Gadchiroli Solapur, Bhandara Gondia, Sindhudurg **(30)**
Above 1000	-	-	Ratnagiri **(1)**

Source - Compiled by researcher based on census 1991, 2001 and 2011.

DISTRICT WISE URBAN SEX RATIO:

Table 5 shows the urban sex ratio of Maharashtra. For considering spatial variations of urban sex ratio, the districts in the state are grouped into four categories. These are as follows:

    a) Very low sex ratio (Below 800),   b) Low sex ratio (800 to 900)

    b) c) Medium sex ratio (900 to 1000), d) High sex ratio (Above 1000)

a) **Very Low Sex Ratio (Below 800)**

In 1991, no any district under is this category. Mumbai district had below 800 sex ratio in 2001. After 2001, urban sex ratio of Mumbai was increased. In 2011, there was no any district under this category.

b) **Low Sex Ratio (800 to 900)**

There are six districts coming under 800 to 900 sex ratio in 1991. These districts are Mumbai, Thane, Mumbai Suburban, Aurangabad, Latur and Chandrapur. In 2001, Mumbai district shows the decreasing trend of sex ratio, due to this, Mumbai district shifted into below 800 sex ratio. Latur and Aurangabad districts left this category and shifted in 900 to 1000 sex ratio in 2001 and Pune, Raigad and Nashik districts came under 800 to 900 sex ratio categories. In 2011, Mumbai, Thane, Mumbai Suburban and Nandurbar districts were in 800 to 900 sex ratio categories.

c) **Medium Sex Ratio (900 to 1000)**

In 1991, there were twenty-nine districts under 900 to 1000 sex ratio category. i.e. Osmanabad, Pune, Raigad, Gadchiroli, Beed, Kolhapur, Nanded, Nashik, Ahmednagar, Dhule, Nagpur, Jalgaon, Amravati, Parbhani, Nandurbar, Akola, Yavatmal, Satara, Jalna, Buldhana, Wardha, Sangli, Hingoli, Washim, Solapur, Gondia, Bhandara, Ratnagiri and Sindhudurg districts. In 2001, Pune, Raigad and Nashik districts sex ratio was decreased and these districts shifted into 800 to 900 sex ratio category. Aurangabad district came under 900 to 1000 sex ratio category in 2001. Raigad and Pune districts came under this category and Nandurbar district shifted into 800 to 900 in 2011. Urban sex ratio of Ratnagiri district was increased, due to this it shifted into above 1000 sex ratio.

d) **High Sex Ratio (Above 1000)**

In 1991 and 2001, there is no any district belonged to this category. In 2011, Ratnagiri district had above 1000 sex ratio.

Table 5 Mumbai, Thane, Mumbai Suburban, Aurangabad, Latur and Chandrapur districts show the below 800 urban sex ratio. Mumbai, Thane, Mumbai Suburban, Aurangabad, Latur and Chandrapur are the most urbanized districts, so migration of male workers is more towards urbanized area of the these districts. The above 1000 urban sex ratio is shown in the of Ratnagiri district in 2011, due to the migration of male population from the Ratnagiri district towards the Mumbai, Mumbai Suburban and Thane districts. The families of this population lived in rural area. In 1991, the lowest sex ratio found in Mumbai (817) district and highest ratio was shown in Sindhudurg (997) district. In 2011, the lowest sex ratio was found in Mumbai (831) district and highest ratio was shown in Ratnagiri (1014) district. In 1991 to 2011, the urban sex ratio of Mumbai and Ratnagiri districts was increased but the sex ratio of Sindhudurg district was decreased.

Table- 6
Correlation between Urban Literacy and Urban Sex ratio in Maharashtra 1991

Sr. No	Name of District	Urban Literacy Rate	Urban Sex Ratio	R_1	R_2	d	d^2
1	Greater Bombay	71.67	818	1	30	29	841
2	Thane	67.01	841	12	29	17	289
3	Raigarh	67.41	905	11	23	12	144
4	Ratnagiri	72.66	981	3	2	1	1
5	Sindhudurg	77.63	998	2	1	1	1
6	Nasik	63.22	915	18	16	2	4
7	Dhule	62.99	917	19	15	4	16
8	Jalgaon	63.81	921	15	14	1	1
9	Ahmadnagar	65.05	915	14	17	3	9
10	Pune	68.65	904	7	24	17	289
11	Satara	69.37	926	6	9	3	9
12	Sangli	62.82	932	20	6	14	196
13	Solapur	57.75	945	25	4	21	441
14	Kolhapur	67.73	914	10	19	9	81
15	Aurangabad	60.79	884	22	28	6	36
16	Jalna	53.21	931	29	7	22	484
17	Parbhani	52.64	923	30	13	17	289
18	Bid	56.74	906	27	22	5	25
19	Nanded	55.03	913	28	20	8	64
20	Osmanabad	57.94	904	24	25	1	1
21	Latur	56.81	898	26	27	1	1
22	Buldhana	61.67	933	21	5	16	256
23	Akola	63.81	926	16	10	6	36
24	Amravati	68.11	924	9	12	3	9
25	Yavatmal	65.53	925	13	11	2	4
26	Wardha	70.91	931	4	8	4	16
27	Nagpur	68.55	915	8	18	10	100
28	Bhandara	69.71	952	5	3	2	4
29	Chandrapur	63.51	899	17	26	9	81
30	Gadchiroli	59.41	910	23	21	2	4
							Σ 3732

(R_1= Rank of sex ratio, R_2= Rank of density, d= differences in the rank of two variables)

$$P = 1 - 6\Sigma d^2 / n^3 - n$$
$$P = 1 - 6 \times 3732 / (35)^3 - 35$$
$$P = 1 - 22392/42875 - 35$$
$$P = 1 - 22392/42840$$
$$P = 1 - 0.52$$
$$P = 0.48$$

Table no. 6 is observed correlation between urban literacy rate and urban sex ratio in 1991. Form the above calculation that there is positive correlation between urban literacy rate and urban sex ratio i.e. 0.48. The very high differences observed in three districts are Greater Bombay, Jalna and Solapur district i.e. 29, 22 and 21 respectively, and very low differences observed in five districts i.e. Ratnagiri, Sindhudurg, Jalgaon, Osmanabad and Latur districts i.e. 1.

Table 7
Correlation between Urban Literacy and Urban Sex ratio in Maharashtra 2011

Sr. No	Name of District	Urban Literacy Rate	Urban Sex Ratio	R_1	R_2	d	d^2
1	Nandurbar	76.32	893	25	32	7	49
2	Dhule	76.43	935	24	23	1	1
3	Jalgaon	75.54	927	26	27	1	1
4	Buldana	78.18	944	19	20	1	1
5	Akola	80.85	954	11	14	3	9
6	Washim	77.17	947	22	17	5	25
7	Amravati	82.05	957	5	11	6	36
8	Wardha	83.71	955	2	12	10	100
9	Nagpur	81.81	954	7	13	6	36
10	Bhandara	81.91	981	6	3	3	9
11	Gondiya	82.24	988	4	2	2	4
12	Gadchiroli	80.14	966	12	7	5	25
13	Chandrapur	79.47	949	15	15	0	0
14	Yavatmal	81.34	962	8	8	0	0
15	Nanded	72.22	937	33	22	11	121
16	Hingoli	74.18	946	30	18	12	144
17	Parbhani	69.21	958	35	10	25	625
18	Jalna	69.94	944	33	19	14	196
19	Aurangabad	74.71	923	28	28	0	0
20	Nashik	77.72	920	20	29	9	81
21	Thane	78.53	865	18	33	15	225
22	Mumbai Suburban	80.96	860	10	34	24	576
23	Mumbai	81.31	832	9	35	26	676
24	Raigarh	80.09	912	13	30	17	289
25	Pune	79.11	904	16	31	15	225
26	Ahmadnagar	77.44	942	21	21	0	0
27	Bid	74.45	933	29	25	4	16
28	Latur	72.93	932	32	26	6	36
29	Osmanabad	75.35	934	27	24	3	9
30	Solapur	73.46	972	31	6	25	625
31	Satara	79.76	959	14	9	5	25
32	Ratnagiri	83.43	1015	3	1	2	4
33	Sindhudurg	83.91	979	1	4	3	9
34	Kolhapur	79.02	947	17	16	1	1
35	Sangli	77.06	973	23	5	18	324
							Σ 4503

(R₁= Rank of sex ratio, R₂= Rank of density, d= differences in the rank of two variables)

$$P = 1 - 6\Sigma d^2/n^3 - n$$
$$P = 1 - 6 \times 4503/(35)^3 - 35$$
$$P = 1 - 27018/42875 - 35$$
$$P = 1 - 27018/42840$$
$$P = 1 - 0.63$$
$$P = 0.37$$

Table no. 7 is observed correlation between urban literacy rate and urban sex ratio in 2011. Form the above calculation that there is positive correlation between urban literacy rate and urban sex ratio i.e. 0.37. The very high differences observed in four districts are Mumbai, Solapur, Parbhani and Mumbai Suburban district i.e. 26, 25, 25 and 24 respectively, and no differences observed in four districts i.e. Chandrapur, Yavatmal, Aurangabad and Ahmadnagar i.e. zero differences. This shows that there is significant positive correlation between these two variables.
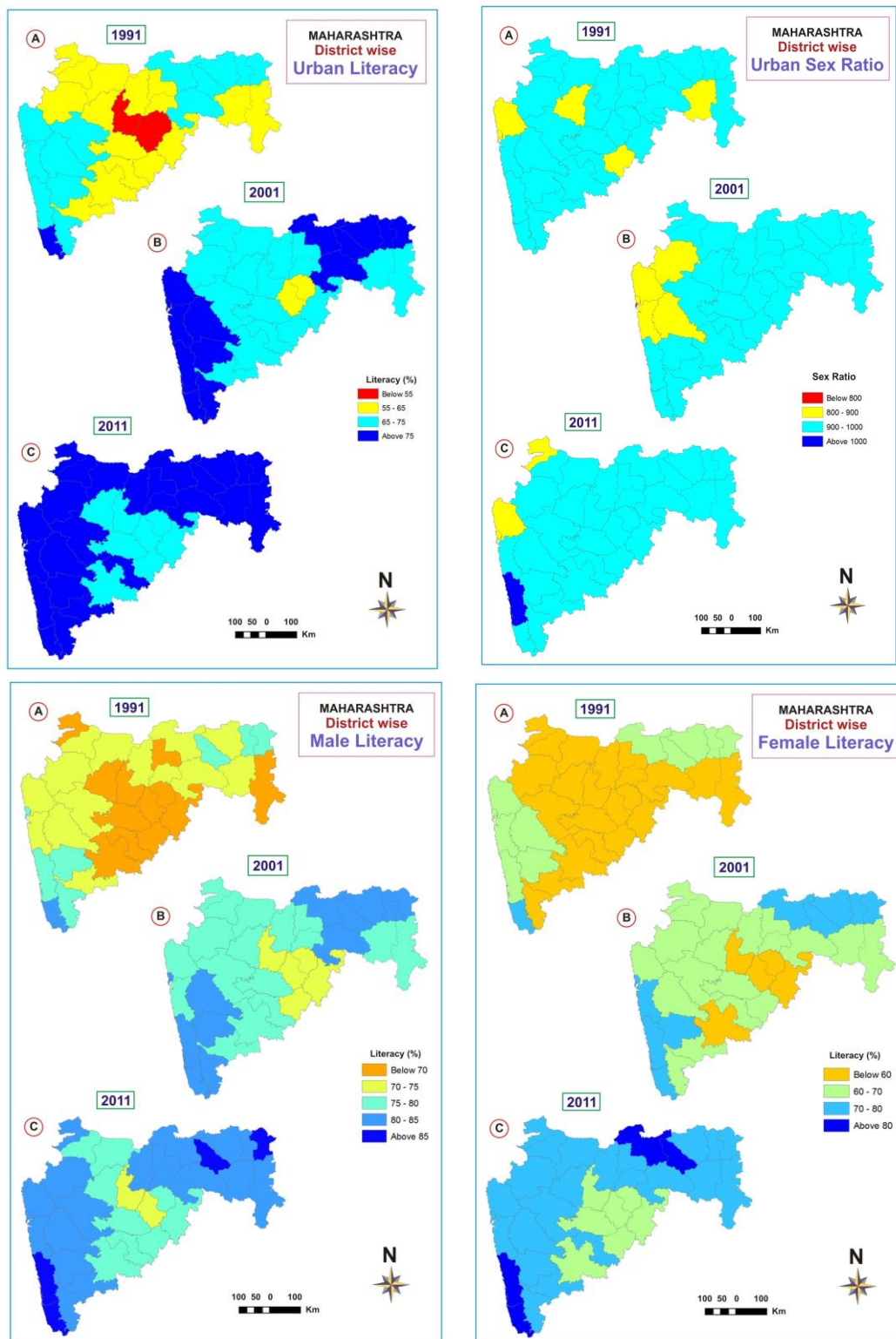
CONCLUSIONS:

It is because of better education facilities and awareness of peoples towards education. The study reveals that moderate positive correlation between urban literacy rate and urban sex ratio i.e. 0.48 in 1991 and it is decreased in 2011 i.e. 0.37 . The very high differences observed in four districts are Mumbai, Solapur, Parbhani and Mumbai Suburban district i.e. 26, 25, 25 and 24 respectively. No differences observed in four districts i.e. Chandrapur, Yavatmal, Aurangabad and Ahmadnagar i.e. zero differences in 2011. This shows that there is significant positive correlation between these two variables.

Literacy and sex ratio is regarded as an important aspect of population study. Education is essential for personal and national development. It is found that there is positive relationship between literacy and economic status of the country. Literacy rate depends on occupation, government policy and socio-economic status.

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