

Spatio-Temporal Analysis of Sex-Ratio in Districts of Bihar, India

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Abstract: The paper aims to study the sex ratio in districts of Bihar based on decennial census report and analyze the present trend of it. Sex-ratio is one of the most significant demographic and social parameter to show the status and condition of women in the society. According to Census 2011, the sex ratio of India was 943 while it was only 918 in Bihar, which was much less than the national average, as an outcome of patriarchal society, religious belief, traditions and customs aided with modern medical technology. Bihar along with Gujarat and Jammu and Kashmir experienced low sex ratio in 2011 in comparison to 2001. The sex ratio in Bihar has constantly been declining in spite of various social, educational, economic and political developments in the society from 1061 in 1901 to 918 in 2011, which is one of the grave concern and demographic threats for the state. The declining sex ratio is an indicator of low status of female and unequal roles assigned to males and females in Bihar.

Keywords: Sex Ratio, Patriarchy, Male dominance, Son preference, Dowry, Foeticide and Infanticide, Maternal Mortality.

INTRODUCTION

Sex-ratio, which is defined as number of females per thousand males, is one of the most significant social and demographic parameter to show the status and condition of women in the society.

According to Census 2011, the sex ratio of India was 943 while it was only 918 in Bihar, which was much less than the national average, as an outcome of patriarchal society, religious belief, traditions and customs aided with modern medical technology. In India sex ratio is very low when compared to other countries of the world [1] and according to some scholars, the low sex ratio is the result of high female mortality because of biasness against female who are deprived of basic needs such as food, nutrition and health care [2-5]. The declining sex ratio is an indicator of low status of female and unequal roles assigned to males and females.

The problem of declining sex ratio is multifaceted and there is no one single reason for it and many researchers are of the view that traditional mindset of the society is the major reason behind the declining sex ratio [6-10]. Some of the scholars are of the view that preference of boy child leads to it [11-13], while others consider the differential stopping behavior to be the important reason [14-17].

In India dowry is regarded as one of the major reasons for the preference of boy child [3] and torture of brides and dowry death is very high in Bihar [18,19] which recorded the second highest number of dowry

deaths in India in three consecutive years 2012, 2013 and 2014 (Ministry of Women and Child Development, 2015). According to the Annual Health Survey, 2012-13, Bihar has the highest maternal mortality rate (30) among Empowered Action Group States followed by Uttar Pradesh (25) and Assam (23).

OBJECTIVES

The objectives which the paper is going to highlights are:

- Comparative study of sex ratio in districts of Bihar
- To analyze decadal change in sex ratio in districts of Bihar

DATA BASE AND METHODOLOGY

The present study is based on secondary data collected from the Census of India from 1991 to 2011. The data collected has been processed and analyzed with the help of statistical techniques. To make the comparative analysis of sex ratio in districts of Bihar, ArcGis has been used.

RESULTS AND DISCUSSIONS

Bihar stood at 23rd position in terms of sex ratio which made it one of the worst hit states in terms of sex ratio in India (Census, 2011). In the beginning of

the twentieth century, the sex ratio in Bihar was favorable and female out-numbered male with sex ratio 1061 in 1901 and even in 1961 it was 1005. But in due course of time the situation changed for the worse and dipped to 918 in 2011 which is totally unacceptable. Thus, there has been a reduction of 143 points during the period 1901 to 2011.

Bihar along with Gujarat and Jammu and Kashmir experienced low sex ratio in 2011 in comparison to 2001 (Census, 2011). Out of 38 districts in Bihar there were only three districts where sex ratio was above national average of 943 (Gopalganj, 1021 followed by Siwan, 988 and Saran, 954). The districts with the lowest sex ratio were Munger (876) followed by Bhagalpur (880) and Khagaria (886). In 2011, although 19 districts had sex ratio below state average, 918, but out of 38 districts, 20 showed improvements in sex ratio as compared to 2001 (table 2).

On the basis of sex ratio in three decades, the districts are categorized into four categories (Table 1):

- Below 900: The number of districts in this category decreased from 18 to 8 from 1991 to 2001 which further reduced to 7 in 2011 as a result of

increasing literacy rate. In 1991, the districts in this category were located mostly in north-west, south-west and south-east while in 2011, the area under this category decreased and comprised of districts from north to south-west only (Fig. 1).

- 901-925: The number of districts under this category increased from 12 in 1991 to 20 in 2001 which subsequently decreased to 18 in 2011. Most of the districts, which were earlier in below 900 category in 1991, shifted to this category by 2001 and 2011.
- 926-950: Under this category, the number of districts increased from 4 to 8 from 1991 to 2011 with Madhubani district from north Bihar, Kishanganj from north-east, Nawada from south and Samstipur from central in 1991 and by 2011, the area under this category also comprised of Supaul from north, and Arwal, Aurangabad, Gaya, and Sheikhpura from south Bihar besides the above except for Samastipur.
- 951- Above: In all the three census years, Gopalganj, Siwan and Saran districts from eastern Bihar were high performing category due to better literacy rate combined with low urbanization rate.

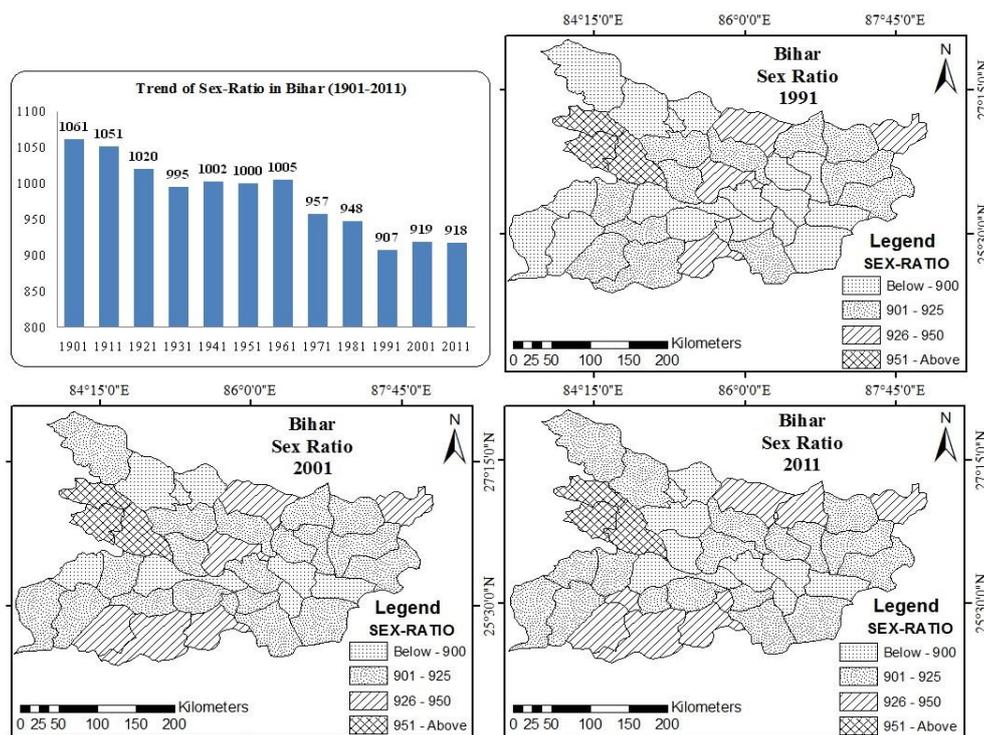


Fig-1: Trend of Sex Ratio in Bihar
Source: Census of India

Table-1: Categorization of Sex Ratio in Bihar (1991-2011)

Category	1991	2001	2011
Below 900	Banka, Begusarai, Bhagalpur, Buxar, Kaimur, Khagaria, Lakhisarai, Madhepura, Munger, Nalanda, Paschim Champaran, Patna, Purbi Champaran, Rohtas, Saharsa, Sheikhpura, Sheohar, Sitamarhi (18 Districts)	Bhagalpur, Buxar, Khagaria, Munger, Patna, Purbi Champaran, Sheohar, Sitamarhi (8 Districts)	Begusarai, Bhagalpur, Khagaria, Munger, Muzaffarpur, Patna, Sheohar, Sitamarhi, Vaishali (7 Districts)
901-925	Araria, Aurangabad, Bhojpur, Darbhanga, Gaya, Jamui, Jehanabad, Katihar, Muzaffarpur, Purnia, Supaul, Vaishali 2. (12 Districts)	Araria, Banka, Begusarai, Bhojpur, Darbhanga, Jamui, Jehanabad, Kaimur, Katihar, Lakhisarai, Madhepura, Muzaffarpur, Nalanda, Paschim Champaran, Purnia, Rohtas, Saharsa, Sheikhpura, Supaul, Vaishali (20 Districts)	Araria, Banka, Bhojpur, Buxar, Darbhanga, Jamui, Jehanabad, Kaimur, Katihar, Lakhisarai, Madhepura, Nalanda, Paschim Champaran, Purbi Champaran, Purnia, Rohtas, Saharsa, Samastipur (18 Districts)
926-950	Kishanganj, Madhubani, Nawada, Samastipur (4 Districts)	Aurangabad, Gaya, Kishanganj, Madhubani, Nawada, Samastipur (6 Districts)	Arwal, Aurangabad, Gaya, Kishanganj, Madhubani, Nawada, Sheikhpura, Supaul (8 Districts)
Above 951	Gopalganj, Saran, Siwan (3 Districts)	Gopalganj, Saran, Siwan (3 Districts)	Gopalganj, Saran, Siwan (3 Districts)

After analyzing sex ratio in 1991, 2001 and 2011, it has been found that there occurred two types of deviation in the data of 2001 from 1991 and 2011 from 2001 i.e. positive deviation and negative deviation. In

this analysis Arwal is kept out as it was formed in 2001 and there was no data available for census years 1991 and 2001.

Table-2: Trend of Sex Ratio in Bihar (1991-2011)

District	1991	2001	2011	Deviation in 2001 from 1991	Deviation in 2011 from 2001
Araria	907	913	921	+6	+8
Arwal	-	-	928	-	-
Aurangabad	915	934	926	+19	-8
Banka	893	908	907	+15	-1
Begusarai	898	912	895	+14	-17
Bhagalpur	864	876	880	+12	+4
Bhojpur	904	902	907	-2	+5
Buxar	884	899	922	+15	+23
Darbhanga	911	914	911	+3	-3
Gaya	922	938	937	+16	-1
Gopalganj	968	1001	1021	+33	+20
Jamui	903	918	922	+15	+4
Jehanabad	915	925	922	+10	-3
Kaimur	884	902	920	+18	+18
Katihar	909	919	919	+10	0
Khagaria	868	885	886	+17	+1
Kishanganj	933	936	950	+3	+14
Lakhisarai	880	921	902	+41	-19
Madhepura	885	915	911	+30	-4
Madhubani	932	942	926	+10	-16
Munger	856	872	876	+16	+4
Muzaffarpur	904	920	900	+16	-20
Nalanda	898	914	922	+16	+8
Nawada	936	946	939	+10	-7
Paschim Champaran	877	901	909	+24	+8
Patna	867	873	897	+6	+24
Purbi Champaran	883	897	902	+14	+5
Purnia	903	915	921	+12	+6
Rohtas	894	910	918	+16	+8
Saharsa	884	910	906	+26	-4
Samastipur	926	928	911	+2	-17
Saran	963	966	954	+3	-12
Sheikhpura	896	918	930	+22	+12
Sheohar	876	885	893	+9	+8
Sitamarhi	884	892	899	+8	+7
Siwan	1017	1031	988	+14	-43
Supaul	904	920	929	+16	+9
Vaishali	921	920	895	-1	-25

Source: Census of India and calculated by the author

Positive deviation (Where sex ratio increased from the last year): In 2001, out of 37 districts (excluding Arwal) in Bihar, 35 had shown positive deviation from 1991 data while this number of districts where the sex ratio increased in 2011 from 2001 decreased to 20. In 2001 and 2011, maximum positive deviation was shown in Lakhisarai and Patna respectively.

Negative deviation (Where sex ratio decreased from the last year): in 2001, there were only 2 districts

out of total 37 districts where sex ratio decreased from 1991 while this increased to 16 in 2011 from 2001 which shows the declining status of women in Bihar. In 2001 and 2011, maximum negative deviation was shown in Bhojpur and Siwan respectively. In Katihar, the sex ratio remained same in 2001 and 2011.

Reasons behind low child sex ratio in India

The various possible reasons behind the low sex ratio in Bihar are:

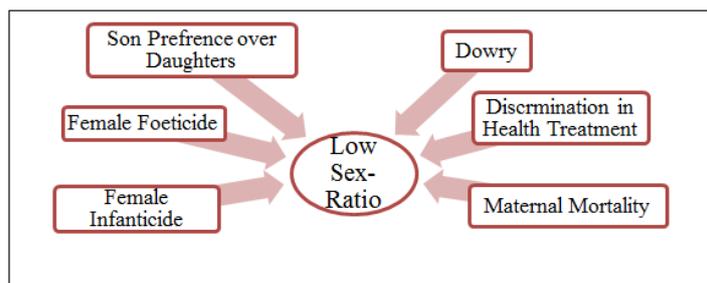


Fig-2: Reasons of Low Sex-Ratio in Bihar

Conclusion and Recommendations

In view of the paper summarized above we may conclude that the position of sex ratio in Bihar is not satisfactory. The sex ratio is declining continuously and it has reached to ever low to 918 in 2011. Bihar's skewed sex ratio figures are very unfortunate and alarming. There are various factors related to low sex ratio in Bihar mainly are the preference of son because of social and cultural factors. Many other factors attributed to the decline in the number of women are neglect of the girl child, female infanticides, female foeticide, dowry deaths, discrimination in health treatment and maternal mortality.

In the light of the present study there are some recommendations for improving the overall condition of women.

- Illiteracy is major problem in Bihar. It is the one of the most important hurdle in the way of overall socio-economic-political development of women and girls in Bihar. Government and NGOs must positively work of elimination of illiteracy.
- Awareness regarding the importance of girl child should be spread and campaigns like Beti Bachao, Beti Padhao should be given full support.
- Religious and spiritual leaders should be taken into consideration to speak against discrimination of women and girls in the society.
- Financial independence of women should be increased.
- There are various laws for the welfare of women in India which should be properly applied and implemented.

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REFERENCES

1. Bhat, P. N. M., & Zavier, A. J. F. (2007). Factors Influencing the Use of Prenatal Diagnostic Techniques and the Sex Ratio at Birth in India. *Economic and Political Weekly*, 42 (24), 2292-2302.
2. Visaria, P. (1971). The Sex Ratio of the Population of India, Monograph No. 10, Census of India (1961), Office of the Registrar General, New Delhi.
3. Miller, B. D. (1981). The Endangered Sex, Cornell University Press, Ithaca, New York.
4. Kishor, S. (1993). May God Give Sons to All: Gender and Child Mortality in India. *American Sociological Review*, 58, 247-265.
5. Murthi, M., Guia, A., & Dreze, J. (1995). *Mortality, Fertility and Gender Bias in India: A District Level Analysis*, DERC Discussion Paper No. 61, London School of Economics.
6. Dandekar, K. (1975). Why Has the Proportion of Women in India's Population Been Declining? *Economic and Political Weekly*, 10(42), 1663-1667.
7. Agnihotri, S. B. (2000). Sex Ratio Patterns in the India Population: A Fresh Exploration, Sage, New Delhi.
8. Mayer, P. (1999). India's Falling Sex Ratios. *Population and Development Review*, 25, 323-343.

9. Clarke, J. J. (2000). *The Human Dichotomy: The Changing Number of Males and Females*, Pergamon, Oxford.
10. Bhat, P. N. M. (2002). On the Trail of 'Missing' India Females: Search for Clues. *Economic and Political Weekly*, 21, 5105-5118.
11. Das, N. (1987) Sex Preference and Fertility Behaviour: A Study of Recent India Data. *Demography*, 24, 517-530.
12. Arnold, F., Choe, M. K., & Roy, T. K. (1998). Sex Preference, the Family Building Process and Child Mortality in India. *Population Studies*, 52, 302-315.
13. Arnold, F., Kishor, S., & Roy, T. K. (2002). Sex Selective Abortions in India. *Population and Development Review*, 28(4), 759-785.
14. McClelland, G. (1979). Determining the Impact of Sex Preference on Fertility: A Consideration of Parity Progression Ratio, Dominance and Stopping Rule Measures. *Demography*, 16, 377-388.
15. Kent, L. T., Brandy, W. D., & Vedlitz, A. (1977). Sex Differences in Political Attitude and Behaviour: The Case for Situational Factors. *Journal of Politics*, 39(2), 448-56
16. Griffiths, P., Matthews, Z., & Hinde, A. (2000). Understanding the Sex Ratio in India: A Simulation Approach. *Demography*, 37, 477-487.
17. Clark, S. (2000). Sex Preference and Sex Composition of Children: Evidence from India. *Demography*, 37, 95-107.
18. Srinivasan, S., & Bedi, A. S. (2008). Daughter Elimination in Tamil Nadu, India: A Tale of Two Ratios. *Journal of Development Studies*, 44(7), 961-990.
19. Jha, P., Kesler, M. A., Kumar, R., Ram, F., Ram, U., Aleksandrowicz, L., & Banthia, J. K. (2011). Trends in selective abortions of girls in India: analysis of nationally representative birth histories from 1990 to 2005 and census data from 1991 to 2011. *The Lancet*, 377(9781), 1921-1928.