Measuring Pattern of Sex Ratio in Haryana: An Inter-district Analysis

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Abstract

The sex ratio in Haryana, a state in northern India, has been a matter of concern for several years. The sex ratio is typically expressed as the number of females per 1,000 males. A low sex ratio indicates a disproportionate number of males compared to females, which is often a reflection of gender imbalances and social issues. Here is a general pattern of the sex ratio in Haryana: Haryana has historically had one of the lowest sex ratios in India. Female literacy, in particular, is strongly correlated with a better sex ratio. When women are educated, they tend to have fewer children and are more likely to make informed decisions about their family planning, which can contribute to a more balanced sex ratio. The goal of the current study is to examine the link between the sex ratio and the percentage of female readers. It should be mentioned that information for this study project came from India's 2011 census. All of the collected data has been tabulated, categorised, and mapped using ArcGIS and MS-Excel. In all categories, Mewat district has the highest sex ratio (907) whereas Mahendragarh district has the lowest (775) and rural child sex ratio (774). The geographical distributions demonstrate that the southern half of Haryana has a greater sex ratio than the western region, which is followed by both. Urban regions are known to have lower sex ratios than rural ones.

Keywords: Sex Ratio Pattern, Inter-district Analysis, Haryana

Introduction

One of the most significant cultural factors affecting sex ratio is gender preference. In many societies, there is a preference for male children, leading to practices such as sex-selective abortion or female infanticide, which result in a skewed sex ratio. In societies with a dowry system, the economic burden associated with daughters' marriages can lead to a preference for male children, as sons are often seen as providers rather than financial liabilities. Economic disparities can influence family planning choices.

In some cases, families with limited resources may prefer to have fewer daughters due to concerns about dowry expenses. Regions with better employment opportunities for women may

have more balanced sex ratios, as economic independence can empower women to make decisions about family size and gender preferences.The term "*demographic composition*" refers to the measurement of the percentage or total population that falls under a certain set of parameters. The demographic makeup of an area helps us comprehend its people much more thoroughly and accurately. As a result of several socioeconomic circumstances, every region or location has its own distinctive pattern for each demographic metric. Additionally, these demographic indicators enable us to examine and comprehend how various socioeconomic factors influence and develop a region's demographics. We concentrate on the demographics of women from scheduled castes in Punjab and Haryana in this study.

Higher levels of female literacy are associated with more balanced sex ratios. Education can empower women to make informed decisions about family planning and challenge traditional gender norms. Education also raises awareness about the importance of gender equality and the consequences of sex-selective practices. The presence and enforcement of laws against gender-based discrimination and sex-selective practices can have a significant impact on sex ratiosRegardless of their birth order, Das Gupta (1987) discovered that in Punjab, the second and third females of educated mothers had a mortality rate that was more than double that of their brothers. In the past, India's sex ratio at birth (SRB) was thought to be about 105, which is the biological norm (Visaria, 1968). After carefully examining these discrepancies, Kulkarni (2007) came to the conclusion that while the SRB was likely to have been greater than the NFHS and census-based estimates, the SRS series of the SRB appeared to be exaggerated. As a result, the SRS estimations required a correction factor of 22.Government policies that promote the value of girl children, such as incentives for girl child education and financial support for families with daughters, can help improve the sex ratio. Access to prenatal care, including ultrasound technology for sex determination, can influence family decisions regarding the sex of their children. The availability and use of technologies like ultrasound and genetic testing for sex determination can contribute to sex-selective practices.In their investigation using SFMS data, Jha et al. (2006) discovered an SRB of 111.2. However, the sex ratio for the second birth was 131.75 when the kid before it was a girl, and the third birth was 139.08 when the two children before it were both females. However, if the first kid was a boy and the second or third was a

girl, the sex ratios were roughly equal (90.74 and 85.03 respectively). Bhattacharya (2009) provided several explanations for the observed sex ratio behaviour in these states in a recent remark.

Study Area

The Indian state of Haryana is located in the country's northwest. According to the Punjab Reorganization Act of 1966, it was separated linguistically from the areas of the Punjab Composite State on November 1st. The latitudes and longitudes of Haryana state are 27° 39' to 30° 55' 5" N and 74° 27' 8" to 77° 36' 5" E, respectively. This state makes up a large portion of India's Great Plains. At the time of the 2011 census, the state had 21 districts and a total area of 44212 km^2. The Yamuna River borders the state on its eastern side. The southwestern part of Haryana is dominated by the Aravalli Range, one of the oldest mountain ranges in the world. This range runs through the districts of Mahendragarh, Rewari, and Gurugram. The Aravallis in Haryana are characterized by rocky terrain, hills, and forests. The highest peak in Haryana, Karoh Peak, is located in this range. The eastern part of Haryana is part of the Indo-Gangetic Plain and is characterized by fertile alluvial plains formed by the Yamuna and Ghaggar-Hakra rivers. These plains are known for their agriculture and are some of the most productive agricultural lands in India. The Ghaggar-Hakra River, often referred to as the "lost river," flows through the northern and western parts of Haryana. It was once a significant river but is now mostly dry or has a seasonal flow. The river valley contains a series of ancient archaeological sites.Haryana is believed to be part of the historical Saraswati River basin, a legendary river mentioned in ancient Hindu scriptures. While the river itself is believed to have disappeared, its archaeological remains and associated sites can be found in parts of Haryana. Haryana has several plateaus, particularly in the central and northern regions. These plateaus are characterized by gently rolling terrain and are often used for agriculture and settlements. Haryana has several man-made and natural lakes and wetlands. The Sultanpur Bird Sanctuary in Gurugram district and the Bhindawas Wildlife Sanctuary in Jhajjar district are important wetland areas that support a variety of bird species. The state has several protected areas and forests, including the Kalesar National Park, which is known for its diverse flora and fauna. Haryana is also home to several urban and industrial centers, including Gurugram (a major financial and technological hub),

Faridabad, Ambala, Hisar, and Rohtak. These urban areas have a mix of flat plains and undulating terrain (Fig. 1).
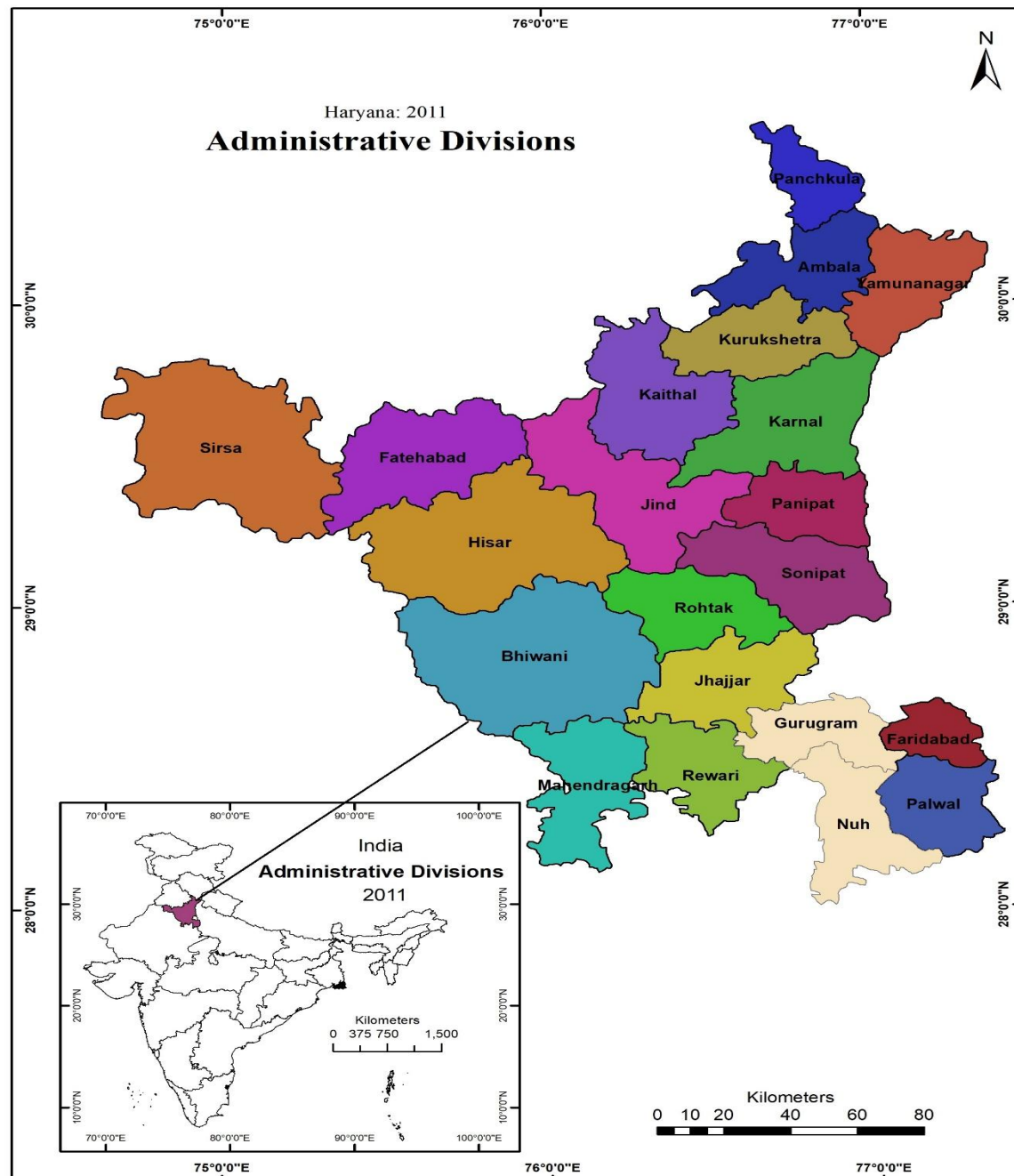
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Map 1: Location of the Study Area

Main Objectives

- Analyse the pattern of sex ratio distribution among Haryana's population, including urban and rural.

- Analyse the pattern of child sex ratio distribution among Haryana's urban and rural populations.

Database and Methodology

In this study, the sex ratio in total and the child sex ratio at the district level in Haryana were measured using data from the 2011 Indian Census. At the district level, data have been gathered and compiled as a study unit. With the use of Arc GIS software, data has been categorised using the quartile approach, and maps have been created. The sex ratio was calculated using the following formula to examine the gender disparity: In Haryana, the formula is used to calculate the sex ratio:

$$\textbf{Sex Ratio} = \frac{Total\ Female\ Population}{Total\ Male\ Population} \times 1000$$

Or the number of females per thousand males.

$$\textbf{Child Sex Ratio} = \frac{Female\ Population\ (0-6\ age)}{Male\ Population\ (0-6\ age)} \times 1000$$

Results and Discussion

Pattern of Sex Ratio in Haryana

The state has been grappling with a skewed sex ratio, primarily due to cultural preferences for male children and sex-selective practices like female feticide. The sex ratio in Haryana has been significantly imbalanced, with a higher number of males compared to females. This gender imbalance is a result of various social and cultural factors, including a preference for male heirs and the dowry system. A crucial demographic metric for any comprehensive demographic research is the sex ratio. The male to female population ratio in a certain economy is known as the sex ratio. The sex ratio is a crucial measure of the degree of gender equity that currently exists in a population. The sex ratio indicates the position of women in the population at hand. The sex ratio in India is determined by dividing the number of females by the number of men. Every 10 years, the Indian census collects and publishes statistics on the gender ratios in the country's various regions. In India, there has always been an unfavourable sex ratio for women. In 1951, there were 946 females for every 1000 men in India, but that number has steadily decreased over the years.

As of the most recent census, which was conducted in 2011, that number is now 945 females for every 1000 males.Haryana has historically had a low sex ratio, or the proportion of females to men per 1000. In Haryana, the sex ratio was 865 in 1991 and 861 in 2001, both of which were much lower than the national average for the corresponding times. But according to the 2011 Census, the sex ratio in Haryana has increased to 879**(Table 1).**

Table 1:Patern of Sex Ratio in Haryana, 2011

| Sr. No.	Districts	Total		Rural		Urban	
		Sex Ratio	Child Sex Ratio	Sex Ratio	Child Sex Ratio	Sex Ratio	Child Sex Ratio
1.	Ambala	885	810	892	795	876	832
2.	Bhiwani	886	832	886	835	885	814
3.	Faridabad	873	843	872	834	873	847
4.	Fatehabad	902	854	902	858	899	836
5.	Gurgaon	854	830	878	801	844	845
6.	Hisar	872	851	877	855	861	843
7.	Jhajjar	862	782	861	778	865	794
8.	Jind	871	838	868	839	881	833
9.	Kaithal	881	828	880	829	887	825
10	Karnal	887	824	886	829	890	810
11.	Kurukshetra	888	818	899	818	862	820
12.	Mahendragarh	895	775	896	774	890	783
13.	Mewat	907	906	907	908	907	890
14,	Palwal	880	866	880	874	883	830
15.	Panchkula	873	863	863	871	881	856
16.	Panipat	864	837	860	826	868	849
17.	Rewari	898	787	907	782	873	799
18.	Rohtak	867	820	852	822	887	818
19.	Sirsa	897	862	898	869	896	838
20.	Sonipat	856	798	850	800	869	794
21.	Yamunanagar	877	826	882	828	871	823
	Haryana	**879**	**834**	**882**	**835**	**873**	**832**

Source: Census of India, 2011.

Despite modest growth in the female population as per the 2011 Census, the state of Haryana has not only seen a shortage of women but also quickly dropping rates. In Haryana, there isn't a single district where the recorded sex ratio is higher than the national average. When compared to the northern and eastern districts, which have higher rates of industrialization and urbanisation

and high literacy rates, the districts in the western and southern parts of the state, which are relatively less developed in terms of health and education, have represented far superior sex ratios (Kavita, & Prakash, 2019). When women are educated, they tend to have fewer children and are more likely to make informed decisions about their family planning, which can contribute to a more balanced sex ratio.

PaptternTotal & Child Sex Ratio in Haryana

Mewat, which is the southernmost district in Haryana, has the highest sex ratio of any district in the state at 907. Mewat's sex ratio is 28 points higher than Haryana's overall sex ratio (879). Gurgaon has the lowest sex ratio, 854, which is 25 points lower than Haryana's sex ratio. Although Mewat and Gurgaon are close together, their sex ratios are different. The neighbouring districts of Gurgaon, Faridabad, and Jhajjar all have low sex ratios of 873 and 862, respectively, with the exception of Rewari, which has a high sex ratio of 898, which is 19 points above the average sex ratio in Haryana. Palwal, a district adjacent to Mewat, has a sex ratio of 880, one point above the average sex ratio in Haryana. Sonipat's district likewise has a low sex ratio of 856, which is 23 points lower than the state's average and only 2 points higher than the lowest sex ratio in Haryana.

With a 53 point gap between the top and lowest sex ratios, 11 districts in Haryana have sex ratios that are higher than the state average. The remaining 10 districts have sex ratios that are lower than the state average. In comparison to other areas in Haryana, the districts in the southern and western portions of the state, which are comparably more industrialised and urbanised, have lower sex ratios. In Haryana, there are 834 females for every 1000 males in the 0 to 6 age range, or child sex ratio. Among the districts of Haryana, Mewat has the highest child sex ratio at 906. Mewat's child sex ratio is 72 points higher than Haryana's, which is a significant disparity. Mahendragarh district has the lowest child sex ratio (775), which is 59 points lower than Haryana's child sex ratio**(Map 2 & 3).**
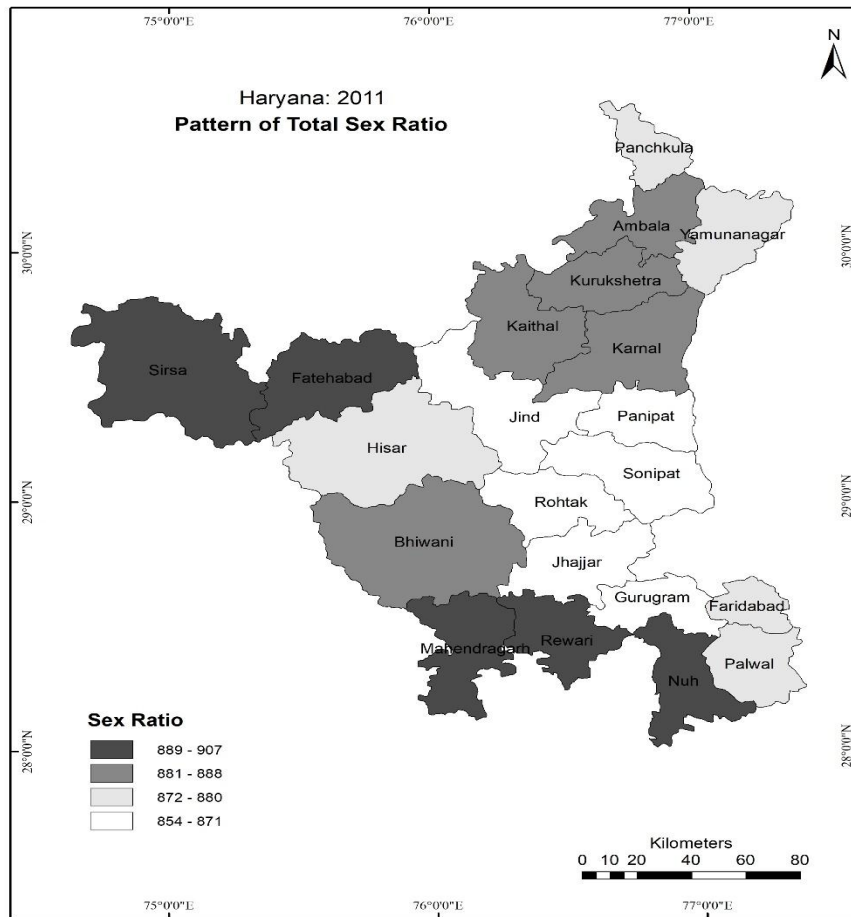
Source: Census of India, 2011.

Map 2
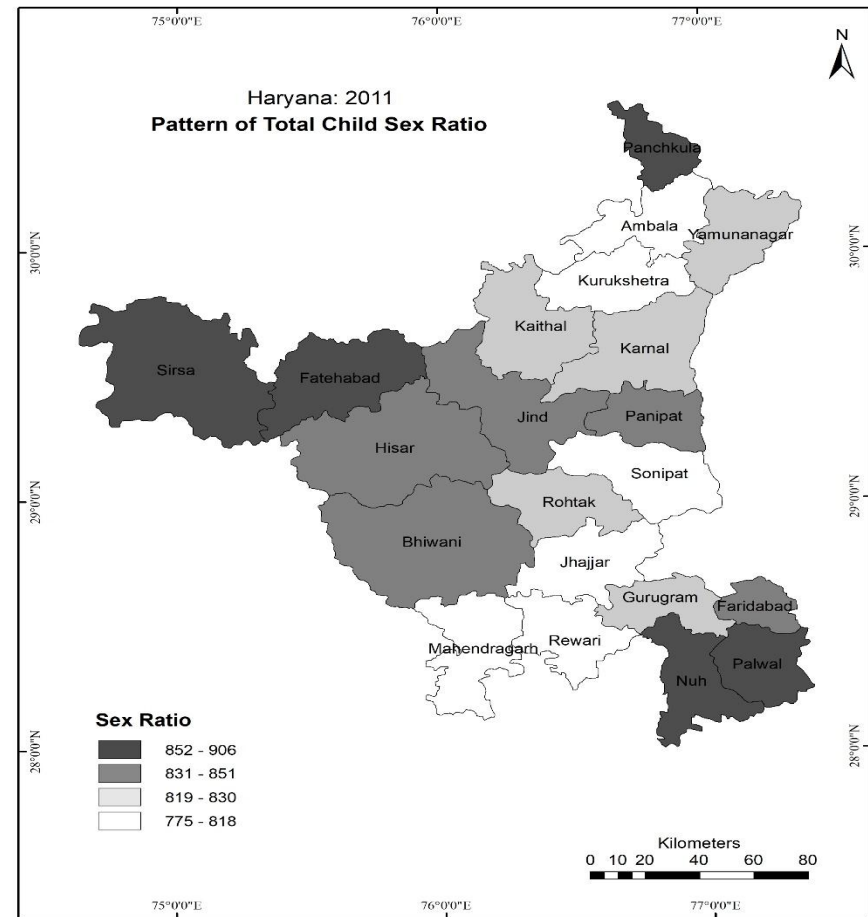
Source: Census of India, 2011.

Map 3

In Haryana, the child sex ratio ranges from 906 to 775. The low sex ratios in the four districts of Mahendragarh, Jhajjar, Rewari, and Sonipat are 775, 782, 787, and 798 respectively, which is much less than the average child sex ratio in Haryana. The lowest child sex ratios may be seen in Haryana's western periphery, which forms the state's border with Uttar Pradesh (**Table 1 & Fig. 1**).
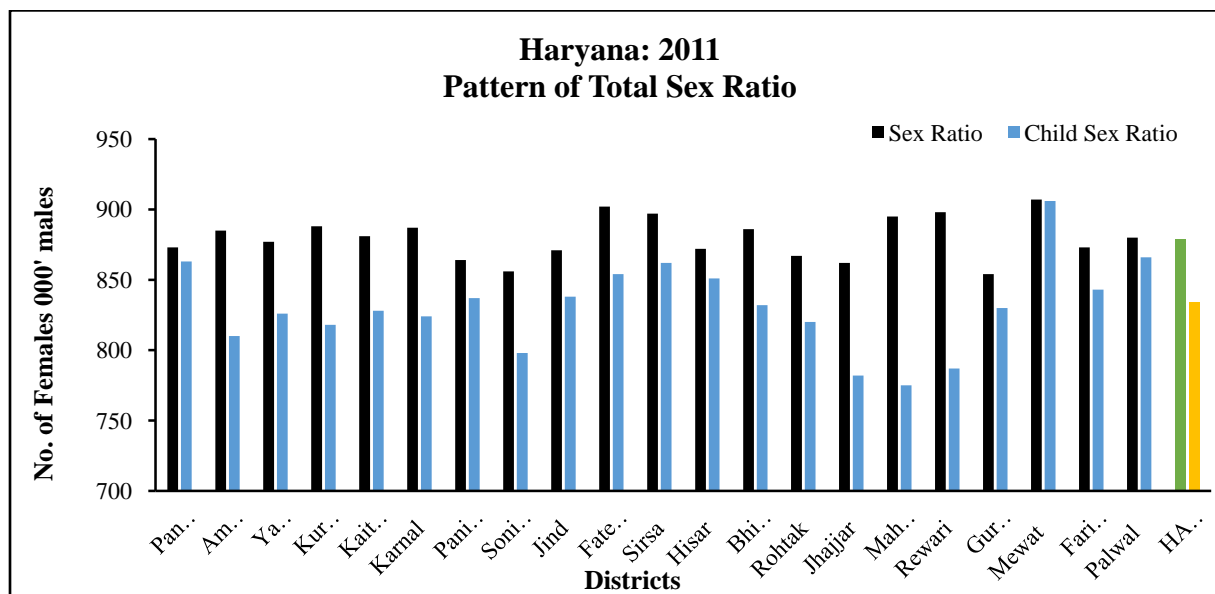

Source: table 1

Fig. 1

Pattern of Total & Child Sex Ratio in Rural Haryana

The sex ratio in rural Haryana is 882 on average and varies from 907 to 850. Among the rural parts of Haryana, Rewari has the highest sex ratio (907), while Sonipat district has the lowest. Nine districts, the most of which are on the outskirts of Haryana, have a higher rural sex ratio than the state's average rural sex ratio. The rural sex ratios are lower in most of the central Haryana districts, with Sonipat and its bordering districts of Panipat, Rohtak, and Jhajjar having the lowest rates. The typical child sex ratio in rural parts of Haryana is 835. In rural Haryana, the child sex ratio ranges from 908 to 774. Rural Haryana's child sex ratio is declining due to sex-selective practices like female feticide and infanticide, influenced by male preference and social and economic factors. Mewat has the highest rural child sex ratio in Haryana at 908, which is a lot higher than the state's typical rural child sex ratio(**Map 4 & 5).**
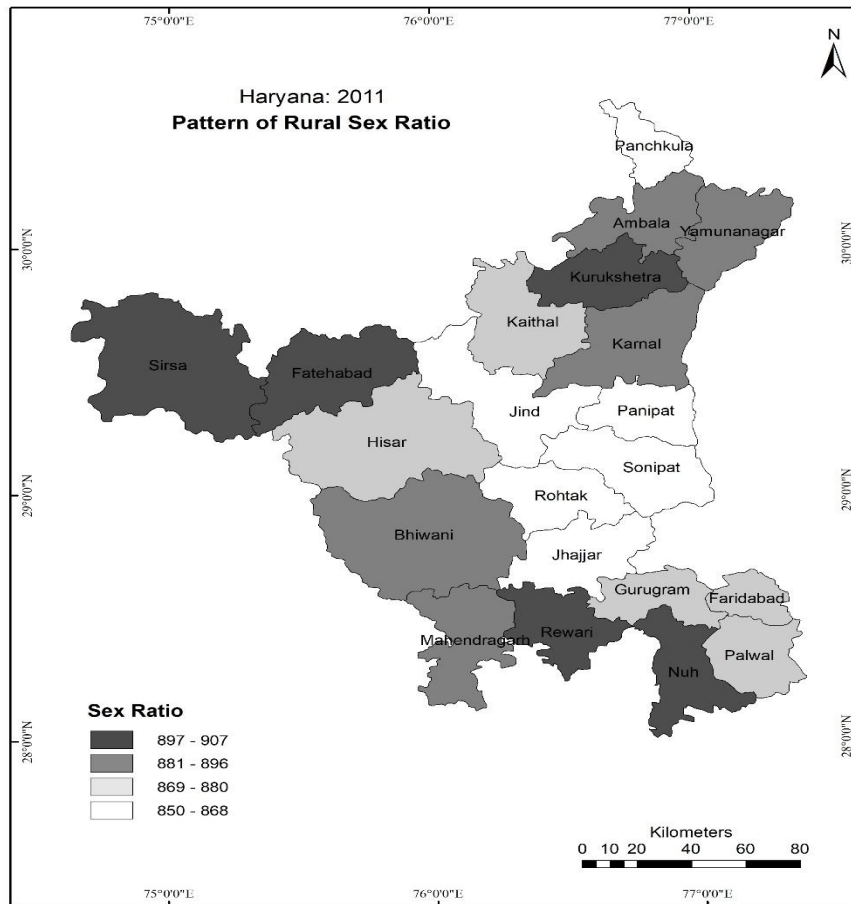
Source: Census of India, 2011.

Map 4
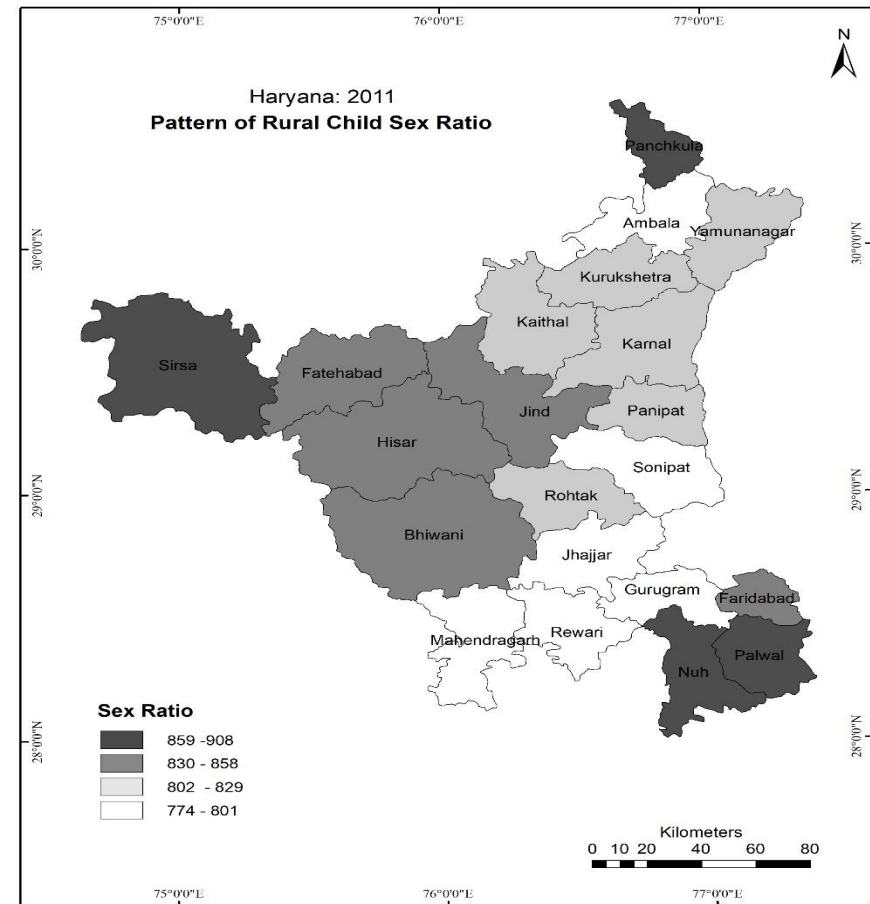
Source: Census of India, 2011.

Map 5

The rural child sex ratio in Mewat is one point greater than the rural sex ratio, which is important to keep in mind. The rural child sex ratio in the Panchkula district is likewise greater than the rural sex ratio. Mahendragarh district has the lowest recorded child sex ratio in rural areas. There are a total of seven districts in Haryana where the rural child sex ratio is greater than the state average **(Table 1 & Fig. 2).**
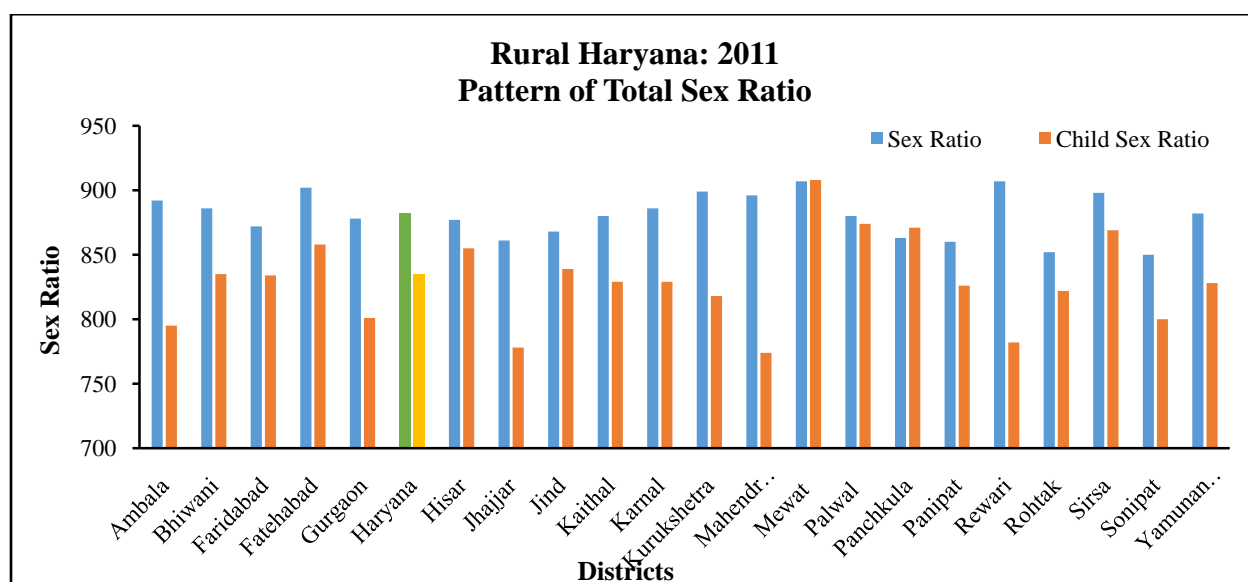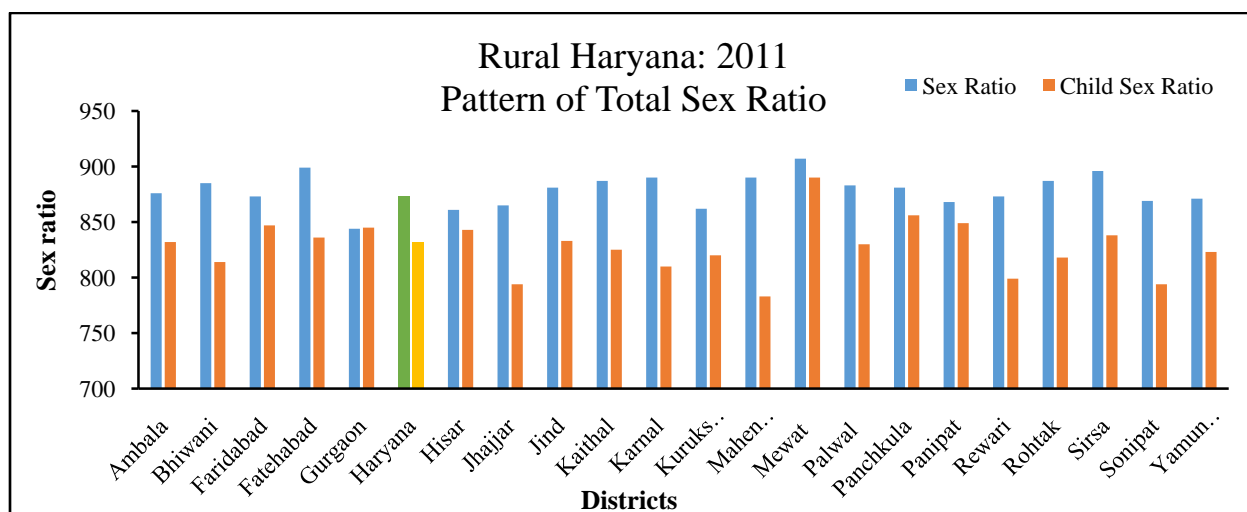

Source: table 1.

Fig. 2

Pattern of Total & Child Sex Ratio in Urban Haryana

The sex ratio in Haryana's cities runs from 907 to 844, with an average of 873, which is lower than the state's average for rural regions. Out of all the districts in Haryana, Mewat has the highest urban sex ratio at 907. Despite being heavily industrialised and urbanised, Gurgaon has Haryana's lowest urban sex ratio (844). Gurgaon's urban sex ratio is much lower than Haryana's average urban sex ratio. Hisar has the second-lowest urban sex ratio (861), which is much greater than Gurgaon, which has the lowest urban sex ratio. There is a noticeable regional variance in urban sex ratios across the state of Haryana, with the central area of the state having considerably better urban sex ratios than the other regions. The average child sex ratio in Haryana's urban

regions is 832. In Haryana's metropolitan regions, the child sex ratio ranged from 890 to 783. Of the Haryana districts, Mewat has the highest urban child sex ratio (890) (**Map 6 & 7**).

Mewat's urban child sex ratio is much higher than Haryana's typical urban child sex ratio. The second-highest urban child sex ratio in Haryana is found in Panchkula. Nonetheless, it is 34 points lower than Mewat's urban child sex ratio. Nearly nine districts in Haryana have urban kid sex ratios that are greater than the state's average. In Haryana, Mahendragarh has the lowest urban child sex ratio (783). While the surrounding southern districts of Haryana have the lowest urban child sex ratios in the state, the highly industrialised and urbanised districts of Faridabad and Gurgaon have considerably better urban child sex ratios**(Table 1 & Fig. 3).**


Source: table 1.

Fig. 3

The child sex ratio in urban Haryana is also typically more balanced compared to rural areas. This means that there is a lower incidence of sex-selective practices in urban areas.Factors contributing to a more balanced child sex ratio in urban areas include better healthcare facilities, smaller family sizes, greater awareness about the consequences of gender-based discrimination, and access to legal and social support systems. Urban areas in Haryana generally have higher literacy rates and better access to educational institutions. Education can play a significant role in raising awareness about gender equality and the importance of a balanced sex ratio.Educated individuals in urban areas are more likely to understand the value of gender equity and the negative consequences of sex-selective practices.
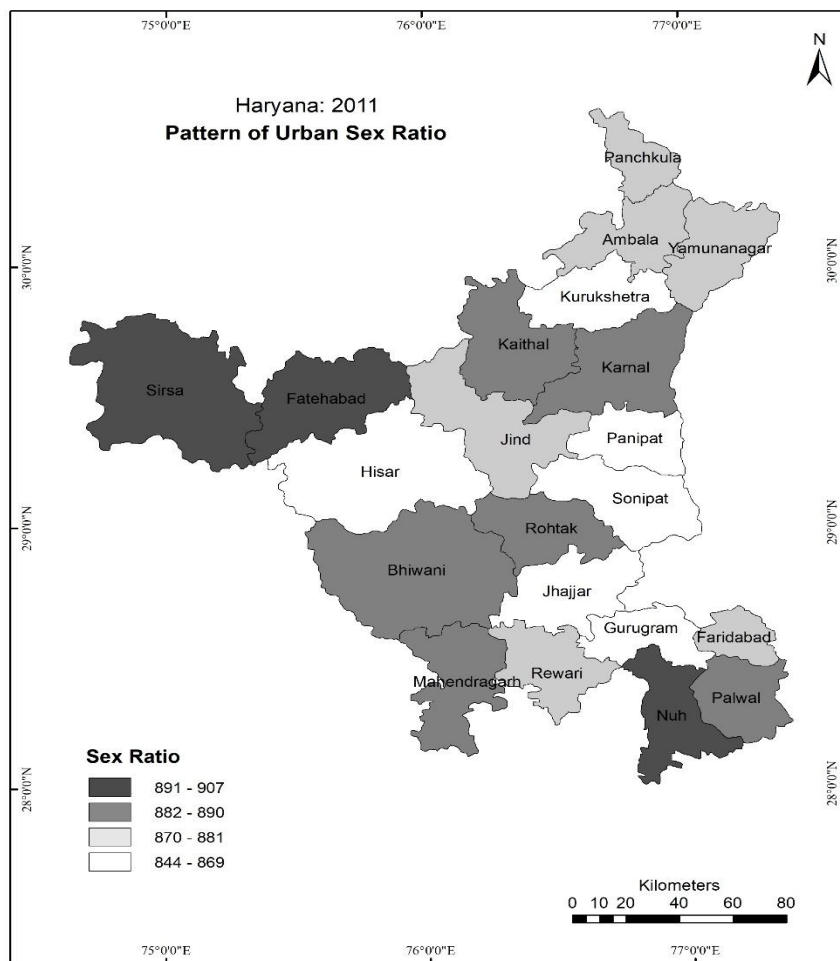
Source: Census of India, 2011.

Map 6
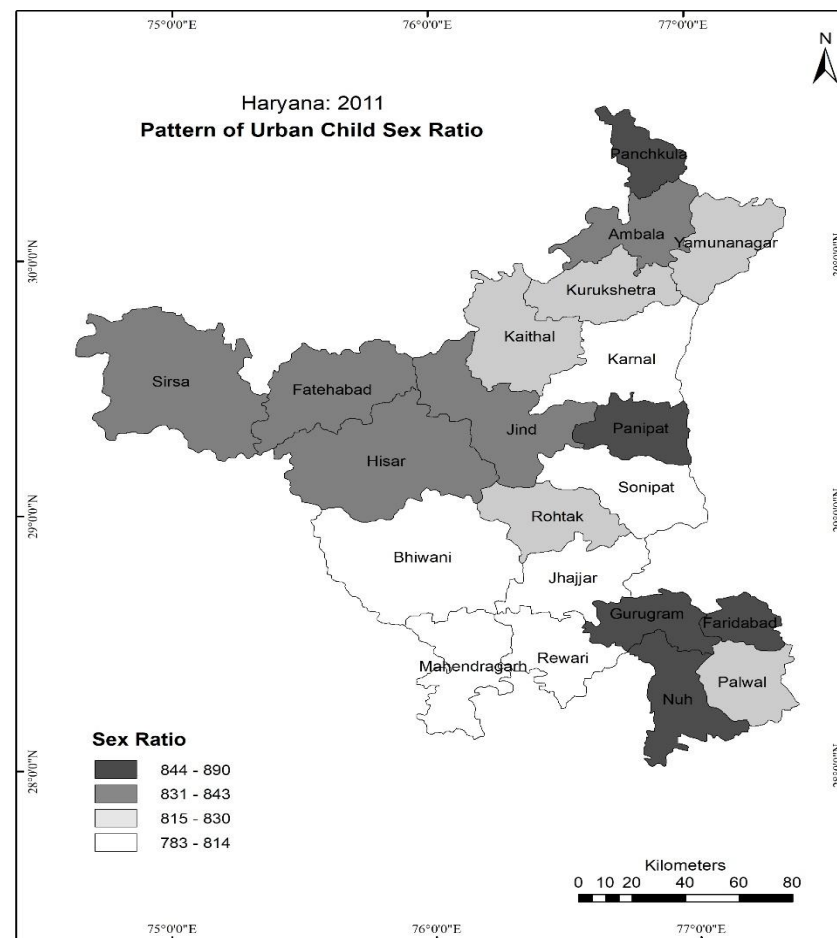
Source: Census of India, 2011.

Map 7

Conclusion

Haryana, a northern Indian state, has one of the lowest sex ratios in India, largely due to gender imbalances and social issues. Female literacy is linked to a better sex ratio, as educated women tend to have fewer children and make informed decisions about family planning. Cultural preferences and sex-selective practices contribute to this issue.Haryana's sex ratio is significantly male-dominated due to social and cultural factors like dowry system. Government, NGO, and activists are addressing this through awareness campaigns, stricter laws, and changing societal attitudes. The sex ratio in Haryana has seen some improvements in recent years, but achieving a balanced ratio will take time and involve changing cultural norms. Government and civil society organizations are working towards this goal. Throughout the research period, the sex ratios in the states of Punjab and Haryana change significantly. On many levels, the sex ratios and child sex ratio have not been sufficient. The study looked at unique patterns in sex ratios and child sex ratios across a number of districts in Punjab and Haryana, and it found that the areas with lower sex ratios among the populace were those. Contradictory to this, however, are the higher rural sex ratios in Punjab and the higher urban sex ratios in Haryana. This results in gender inequality and other forms of subjugation of the entire female gender, which are also evident in the work participation rates, particularly in the case of Haryana where there are significant differences between the male and female work participation rates. The mentality of favouring sons and ignoring female children is in large part to blame for the present trends in demographic statistics.Although the state is one of the most economically developed states in India, it has been noted that despite several government legislation, plans, and initiatives, the proportion of female population among the scheduled cases remains noticeably low.

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