Omniscient
(An International Multidisciplinary Peer-Reviewed Journal)
Vol 3 Issue 1 Jan-Mar 2025 EISSN: 2583-7575

The Child Sex Ratio in India: Real Improvement or a Statistical Illusion?

Avinash Kumar Singh Yadav

Department of Economics, Raja Harpal Singh Mahavidyalaya, Singramau, Jaunpur
Corresponding author: aviecoau@gmail.com
Available at https://omniscientmjprujournal.com

Abstract

This paper highlights the importance availability of appropriate data on the child sex ratio and sex ratio at birth. Using secondary data such as the Census of India reports, Sample Registration System Report-2020, and NFHS-I, II, III, IV, and V, it tries to examine the difference in the SRB among them. It has been found that the recent NFHS-V reports the SRB higher than that of the Sample Registration System-2020 report, which estimates the birth and death rates comparatively more accurately. The result of the Paired T-test also shows the statistical difference in the state-wise SRB. Generally, the NFHS records the SRB higher than that of the SRS. Son preference is still shaping the couple's attitudes toward girl children. Most of the women who had two daughters wanted another child. But if they have two sons, they prefer no more children. The enumeration of the Census data is the need of the hour. Only then, the actual situation be known.

Keywords: *Child Sex Ratio, Sex Ratio at Birth, Female Foeticide, Infanticide.*

Introduction

India has a long history of female infanticide, and it has turned into foeticide after the widespread availability of new technologies. The female-to-male ratio (0-6), commonly known as the child sex ratio, has been consistently lower in all census enumerations since independence. For the first time, the Government of India took this matter seriously and enacted the PNDT Act, in 1994, and later amended it as the PC and PNDT Act in 2003. This act provided more teeth to the legal authority to deal with the matters of sex-selective abortions in India. However, the next census in 2001 alarmed the county once again. It showed that the child sex ratio has fallen sharply. The subsequent Census again shocked the government, policymakers, and academicians. There was a huge drop in the CSR in 2011. After that, there are no official Census estimates. However, recent data from the National Family Health Survey-5 show a significant improvement in the sex ratio at birth, another measure of the female-to-male ratio in the child population. The government has welcomed this finding and shown it as the outcome of its Beti Bachao, Beti Padhao scheme. This is the main point from which this paper tries to advance its argument. It focuses on a single basic question. Whether the child sex ratio is improving or it is only a data mirage?

Review of Literature

Clark (2000) worked to test the connections between the desire for sons and the fertility that directly or indirectly affects the size and sex composition of the child population**.** She opined that the effect of son preference on gender imbalance is undetectable through the national estimates. Arnold et al. (2002) studied the child sex ratio using the Census 2001 and NFHS-2 data. They argued that even after enacting the law for stopping sex elective abortions, it has increased in the last decade. Masculinizing the child sex ratio is a clear indication of the gender-induced abortions in India, particularly in Gujarat, Haryana, and Punjab. They claimed that ultrasound and amniocentesis techniques are aggravating the situation. They estimated that approximately 1.3 million female fetuses were aborted per year in India. The PNDT Act of 1994 has not worked due to strong son preference in India. Bhat and Zavier (2007) in their study searched for factors behind the usage of prenatal diagnostic techniques and the falling sex ratio at birth. They argue that the SRB is normal in the Southern and Eastern parts of India. Although there is a possibility of a low difference in the SRB between rural and urban areas, the highly educated class has the lowest SRB. Their multivariate analysis rules out the possibility of a clear-cut relationship between the usage of PNDT and urbanization, women's education, higher standard of living, working status, and exposure to media. This is because of the inadequate sample size of PNDT users in the NFHS survey. Srinivasan and Bedi (2012) carried out a study in Tamil Nadu. They concluded that the improvement in CSR is the outcome of the decline in gender differentials in the mortality rate along with a stable child sex ratio at birth. They also favored the government's proactiveness and the efforts of NGOs in solving the problem. Kumar and Satyanarayana (2012) worked to find out the relationship between the sex ratio at birth and the crude birth rate to examine the effect of fertility transition. They concluded that the districts with a low birth rate exhibited a small decline in their SRB, and the districts with a high birth rate recorded a larger deterioration in the SRB. They strongly predicted that a falling fertility rate would necessarily masculinize the CSR. Yadav et. al (2020) analyzed the relationship between CSR and total fertility rate (TFR) using the panel data fixed effect model. They concluded that the child sex ratio is strongly correlated with fertility rates. They estimate that, for every one-unit increase in the TFR, there is an 8.6-unit increase in the CSR. The higher fertility districts have a high child-sex ratio. The percentage of urban population, female literacy rate, and female work participation rate have a positive relationship with CSR, and the percentage of SC population to the total population also shows a positive association.

Objective

The paper tries to examine the appropriateness of available data on the child sex ratio in India. Using two major sources, the Sample Registration System and the National Family Health Survey, it explores the possibility of overestimation of the sex ratio at birth in the NFHS-V.

Hypothesis

Because the NFHS does not release data exactly on the child sex ratio, the researcher has used the data of the sex ratio at birth, which is a more refined measure of female foeticide and attitude toward daughters. The following hypothesis has been formulated-

Ho.- There is no significant difference in the SRB data of SRS-2020 and the NFHS-V report.

Ha..- There is a significant difference in the SRB data of SRS-2020 and the NFHS-V report.

Methods and Data Source

The paper is solely based on secondary data. Data have been taken from the various Census reports, NFHS-I, II, III, IV, and V, and the Sample Registration System reports. The Census is a decennial exercise of collecting the entire population's demographic, social, cultural, and economic information. It is a routine survey that has been conducted since 1871. The last Census was conducted in 2011. The National Family Health Survey is a large-scale sample-based survey. It has been conducted since 1992-93 by the National Institute of Population Sciences, Mumbai, under the Ministry of Health and Family Welfare. It provides information on fertility, infant and child mortality, reproductive health, family planning, etc. The sample registration system is also a large-scale survey that provides information on demographic indicators such as birth and death rates in the country.

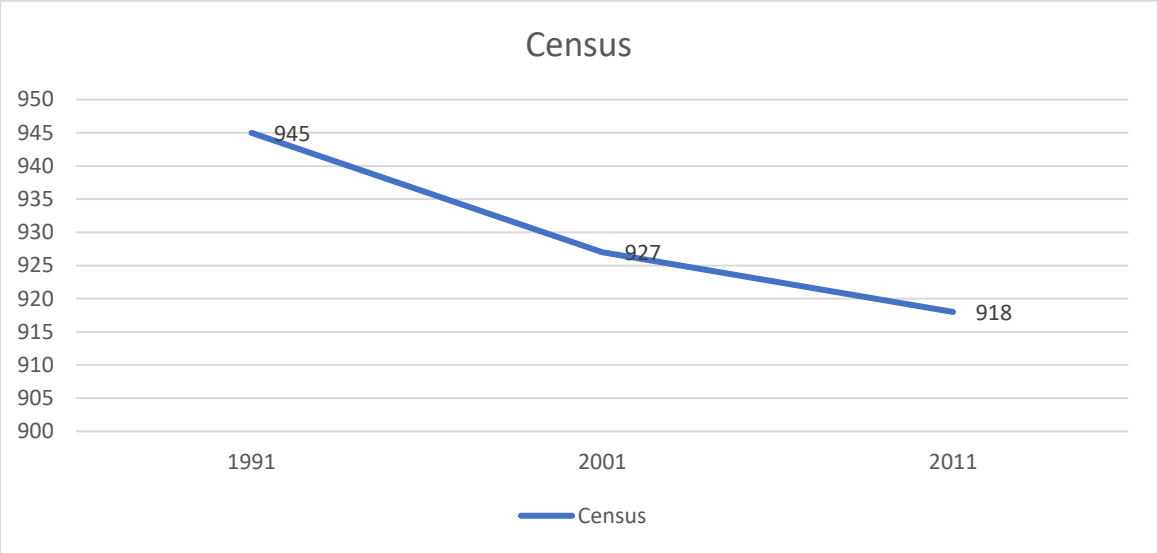
The descriptive method has been used in this paper. Various techniques such as tables, bar diagrams, and trend lines have been used to depict the information. Additionally, the Paired T-test has been employed to compare the difference between the state-wise SRB data available in both SRS-2020 and NFHS-V reports.

Results and Discussion

Female infanticide has a long history in India and is rooted in its socio-economic and cultural life. It gained attention when the British government started conducting Census activities. After independence, the female-to-male ratio in every census was recorded as falling until 2011. The National Family Health Survey's various rounds also show the same trends in that period. As Graph 1 shows, the child sex ratio was 945 in 1991, decreased to 927 in 2001, and finally reached 918 in 2011. Graph 2 shows the sex ratio at birth, which is a more refined estimate of the sex ratio. The SRB has fallen in every survey period, except in the last survey. The SRB was 929 in NFHS-I, then increased minimally to 930 in the NFHS-II. It decreased at a faster

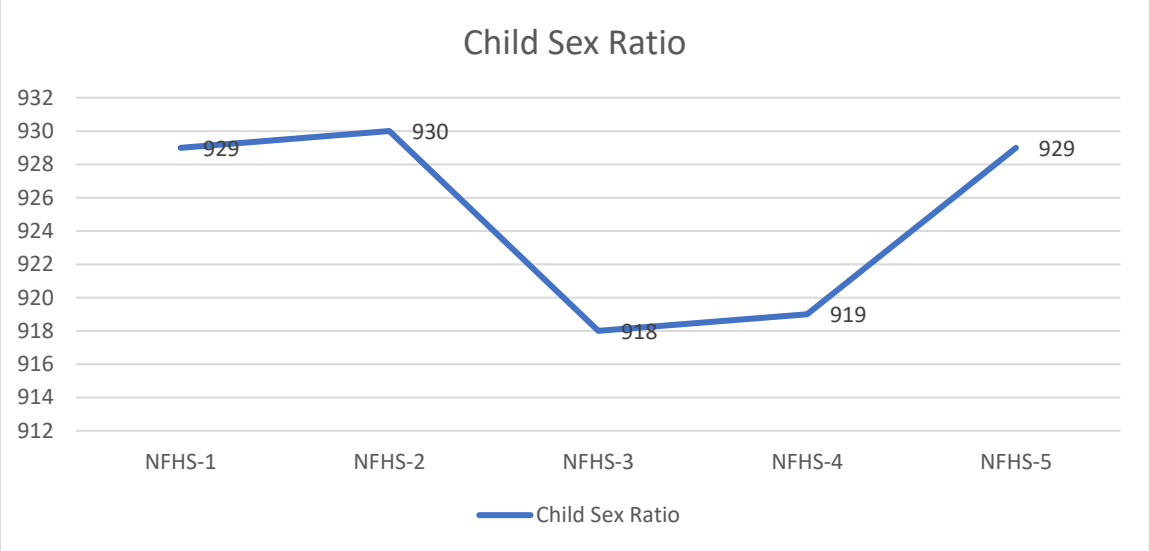
pace in NFHS-III and reached 918. It showed a very small improvement of 1 point in the NFHS-IV, then it impressively increased to 929.

Graph 1: Trends in Child Sex Ratio



Source: Census of India- 1991, 2001, 2011

Graph 2: Sex Ratio at Birth



Source: NFHS-I, II, III, IV, V

The above arguments demonstrate the improvements in the sex ratio at birth from 2004-05 onwards. However, just six years after it, the Census 2011 recorded a huge deterioration in the child sex ratio. Another point that must be taken into consideration is that the normal SRB should be 952. It shows a healthy demographic profile of the country. But it is still 929 in NFHS-5, 22 points below the average. The NFHS rounds are survey-based enumeration exercises. There is a possibility that it may give an overestimation of a particular variable, particularly sex ratio, child sex ratio, or sex ratio at birth. This is what this paper tries to argue.

The Census provides more accurate data on population parameters. Therefore, NFHS findings are indicative, not the real picture of the problem ("Sex Ratio at Birth," 2021).

Variation in SRB data

There are two important sources available for estimating SRB: the Sample Registration System and the National Family Health Survey. Both reports present a different picture of the sex ratio at birth in India.

Table 1: Sex Ratio at Birth

India/States	SRS(2020)	NFHS-V (2019-21)	Difference
India	**907**	**929**	**22**
Andhra Pradesh	926	934	8
Assam	923	964	41
Bihar	895	908	13
Chhattisgarh	958	960	2
Gujarat	877	955	78
Haryana	870	893	23
Himachal Pradesh	950	875	-75
Jammu & Kashmir	921	976	55
Jharkhand	914	899	-15
Karnataka	916	978	62
Kerala	974	951	-23
Madhya Pradesh	919	956	37
Maharashtra	876	913	37
Orissa	925	894	-31
Punjab	897	904	7
Rajasthan	911	891	-20
Tamil Nadu	917	878	-39
Telangana	892	894	2
Uttar Pradesh	905	941	36
Uttarakhand	844	984	140
West Bengal	936	973	37

Source: Sample Registration Report (2020), National Family Health Survey-V (2019-21)

Table 1 shows the sex ratio at birth data shown in two different reports- the Sample Registration System and the National Family Health Survey. There is a difference in the SRB recorded by these two reports. In the SRS (2020) the SRB is 907 at the national level, while it is 929 in the NFHS-5 report. Even at the state level, the difference can be traced out. In most of the Indian states, the NFHS has recorded the SRB higher compared to the SRS. If we consider the data enumeration methodology of both reports, the sample registration system has a significant advantage over the NFHS. It is based on the dual record system and continuous collection of births and deaths in selected rural and urban areas.

The researcher has used the Paired T-test to give statistical insights. State-wise data from the SRS report (2020) and the NFHS-V report have been used to show the statistical difference. The data from twenty-one states are taken for analysis.

Table 2: Results of Paired T-test

Paired Sample Test						
Pair 1 SRS (2020) NFHS-V	Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
	-17.85	46.37	10.12	-1.70	20	.093

Source: Computed by the researcher

The above results show that the mean difference in the sex ratio at birth recorded in the two reports is -17.85. It means the SRS (2020) reports an SRB 17.85 points lower than the NFHS on average. The standard deviation is 46.37 and the standard error of the two means is 10.12.

At 20 degrees of freedom, the calculated value of t is -1.70. The p-value is .093. It means the difference is statistically significant at the 10 percent level of significance but not at the conventional 5 percent level. Hence, the null hypothesis is rejected and it can be concluded that there is a statistically significant (at 10 percent significance level) difference in the SRB of the two different sources. Since both reports employ different methodologies for collecting data, the findings of NFHS-V should be interpreted cautiously.

Son preference in India

Son preference is the main reason for the low sex ratio at birth. It indicates socio-economic and cultural causes. Since it is very complicated to measure it in numerical form, the NFHS uses several techniques to give a proxy measure of it.

Table 3: Married women with two living children wanting no more children

Sex Composition of Children	NFHS-I (1992-93)	NFHS-II (1998-99)	NFHS-III (2005-06)	NFHS-IV (2015-16)	NFHS-V (2019-21)
Two sons	71	82.7	89.9	89	91
One son, one Daughter	66	76.4	87	87	89
Two daughters	36.9	47	61.4	63	65

Source: NFHS-I, II, III, IV, & V

The above table shows the percentage of married women who already have two children and do not want another child. According to NFHS-I, seventy-one percent of women do not want another child if they have two sons. But sixty-six percent want no other child if they have one son and one daughter. Only 36.9 percent want no further children if they have two daughters. It means 63.1 percent want another child if they have only two daughters and only 29 percent want another child if they already have two sons in their family. In the NFHS-II, 82 percent of women reported no further children if they had two sons. 76.4 percent want no other children if they are raising one son and one daughter. But only 47 percent want no other children if they have two daughters. According to the NFHS-III report, 89.9 percent of women having two sons reported the desire for no other children. While 87 percent of women who had one son and one daughter reported the same. 61.4 percent of women who had two daughters reported no more desire for children in the family. According to the NFHS-IV report, 89 percent of women who had two sons did not want another child. However, 87 percent who had one son and one daughter did not want further children. Only 63 percent of women who had two daughters responded no further children. According to the NFHS-V, 91 percent of women who had two sons do not want the next child. 89 percent of women respondents who had one son and one daughter said the same. Only 65 percent of women who had two daughters wanted no more children in their family. Overall, the acceptability of daughters has increased over the years. But in each NFHS report, acceptance is low compared to sons. A higher percentage of women with two sons who don't want another child shows that sons are still preferred more in the country. Their socio-economic and cultural advantages still shape the fertility preference of couples. So, the deep exploration of NFHS data shows the presence of son preference and raises some concerns about the SRB data.

Conclusion

This paper aims to highlight the data concerning the sex composition of child population in India. The National Family Health Survey-V shows an improvement in the sex ratio at birth.

It is giving a comparatively more favorable situation for the girl child population. But, if the Sample Registration System Report-2020 is taken into consideration, it is quite clear that the SRB reported in the NFHS-V is high. The paper has shown a statistically significant difference between the SRB of both reports. The time period of both reports is more or less the same, but the methodology to collect data is different. Scholars regard the findings of SRS-2020 as more appropriate than those of NFHS-V in the context of the SRB. Discussion on son preference also shows its presence. Moreover, the NFHS finding should be treated as indicative. The Census enumeration has not been conducted since 2011. It counts each individual and his socio-economic characteristics. It gives a comparatively more appropriate measure of the child sex ratio and sex ratio at birth. So, the Census should be conducted immediately. Only then, the country can know whether the situation has improved as claimed in the NFHS-V report or it is only a data mirage.

References

Arnold, F., Choe, M. K., & Roy, T. K. (1998). Son Preference, the Family-building Process and Child Mortality in India. *Population Studies*, *52*(3), 301–315. https://doi.org/10.1080/0032472031000150486

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), 2292–2303.

How the NFHS gets India's sex ratio wrong. (2025, January 7). Data For India. https://www.dataforindia.com/nfhs-sex-ratio/

Kumar, S., & Sathyanarayana, K. M. (2012). District-Level Estimates of Fertility and Implied Sex Ratio at Birth in India. *Economic and Political Weekly*, *47*(33), 66–72.

Sex Ratio at Birth: NFHS & SRS report different numbers across States. (2021, December 9). *FACTLY*. https://factly.in/sex-ratio-at-birth-nfhs-srs-reports-present-different-numbers-across-states/

Srinivasan, S., & Bedi, A. S. (2012). Tackling Female Infanticide and Sex Selection in Tamil Nadu: A Failure? *Economic and Political Weekly*, *47*(45), 80–82.

Visaria, L. (2008). Improving the Child Sex Ratio: Role of Policy and Advocacy. *Economic and Political Weekly*, *43*(12/13), 34–37.

Yadav, A. K., Singh, A., & Ram, F. (2020). Association between the total fertility rate and under-five child sex ratio in India: A panel study among districts of the major states. *Journal of Biosocial Science*, *52*(4), 514–522. https://doi.org/10.1017/S0021932019000592