

# Sex Ratio In India during 1901-2011

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## Abstract

*In this research paper author have tried to measure a change and trend in the sex ratio of girl child among 1000 male child during time period 1901 to 2011 in India. For this purpose researcher collected census data of 2011 of India and worked out the sex ratio of girl child per decade during above period. Applied Regression model to find trend and the rate of change in the sex ratio. There is negative trend in sex ratio in India during 1901 to 2011 and it is declining at the rate of 0.323 % per decade.*

Key words: Census, sex ratio, Regression Analysis, trend

Field: Statistics

## 1 Introduction:

In this research paper author have tried to know the trend of sex ratio in India during 1901 to 2011. For this purpose I have collected the population data of India from the census of 2011 and found out sex ratio of girl child per 1000 male child pre decade during 1901 to 2011. I have applied regression model to know the trend in sex ratio of female child per 1000 male child.

Even though India is one of the fastest growing economies in the world, it still grappling with the declining sex ratio. Sex ratio has always been an area of concern for India. A UN report has raised the questions on the dwindling number of females in India. In its report, 'Sex Ratios and Gender Biased Sex Selection: History, Debates and Future Directions' the UN has given a warning by saying that the continuously falling Sex Ratios in India has reached in an emergency situation and urgent action has become necessary to alleviate this crisis. During 1951 to 2011, child Sex Ratio declined from 983 to 918 women per 1000 men.

## 2.Literature Review:

1. Jean Dreze and Amartya Sen (2002) in their book "India Development and Participation" published by Oxford University Press, New Delhi has given various aspects of India's development. In the book authors the authors have noted that India as a whole has an exceptionally low female- male ratio. There are large variations in sex ratio in various states of India. The female – male ratio is low in large parts of north- India

especially the north-western states in Kerala, the female-male ratio is well. The book states that behind low female-male ratio the reason is female infanticide.

2. Sunil Khanna (2009) in his book "Fetal / Fatal Knowledge: New Reproductive Technologies and Family Building Strategies in India" published by Cengage learning, US reflects the high and strong son preferences and emphasizes why this preference persists in the Indian community. Author documents the availability and usage of new reproductive technologies and abortion cases and explores various cultural, ethical and legal reasons attached to family building strategies involving prenatal sex identification and abortion.

3. Tulsi Patel (2010), in the book "sex selective abortion in India: Gender Society New reproductive technologies, SAGE Publications, Delhi has edited eleven essays that unravels the reasons for the shrinking Child Sex Ratio in India. The book highlights the problem of sex ratio and sex selection abortion in India. It addresses the nexus among culture, society and new reproductive technologies and throws light on the hierarchical society and the preference for sons present in Indian society since times immemorial. It highlights the 'national emergency' of declining gender ratio in India during the period of 1901 to 2007.

4. Ramesh Verma (2011) in his book "Declining Sex Ratio in India" published by IAP Lamber Academic Publishing has focused on female foeticide is one of the most nefarious crimes on this earth. He further mentioned that it is disheartening that the people who commit crime belongs to the educated class. Our ancestral and biased view about male child, lack of education, dowry are responsible to this menace. Male-biasness is not only restricted to poor families but the phenomena is more prevalent among the rich families. The cost of such baseless beliefs is ultimately paid by the girls at every sphere of their survival.

5. Mara Hvistendahl (2011), in her book "Unnatural Selection: Choosing Boys Over Girls and the consequences of a world full of men", published by Public Affairs New York has studied deeply the causes of the missing girls in Asia and Eastern Europe. The author has highlighted that the demographers found that 163 million potential girls have been stopped from taking birth in Asia alone through ultrasound and abortion. A natural sex ratio at birth is 100 girls to 105 boys. The nature compensates this imbalance as more boys tend to die due to dangerous behaviour, wars, exhaustion, etc.

### 3. Research Methodology:

The study is entirely based on secondary data. The present study is a review of existing research and other relevant data and documentation about gender ratio, declining number of girl children in India, pre-natal sex selection, sex selective abortions and related issues about gender imbalance. In this research paper researcher tried to know, is there any long term change in the sex ratio of girl child among 1000 male child in India during 1901 to 2011?. for this purpose I collected the

census data of 2011 and found out sex ratio of female child per 1000 male child per decade from 1901 to 2011. I applied regression analysis to test whether there is trend in it or not.

#### 4. Tools and technique;

In this research paper I have used regression model to know the trend value in sex ratio of female child per 1000 male child. Also used  $R^2$ , F statistics and p value

#### 5. Hypothesis:

Ho; There is no trend in the sex ratio in India during 1901 to 2011

H1; There is some trend in the sex ratio in India during 1901 to 2011.

#### 6. Reason for the Study:

It is clear that India is gender biased. India's declining CSR reflects its culture where gender inequality is deep rooted. Gender biased sex selection shows the subordinate status that is given to the women in society. The gender ratio has been continuously declining since the beginning of this century with few nominal exceptions. The urban places are more affected than rural places of India by gender imbalance because of some natural and socio- economic conditions.

#### 7. Sex Ratio

Sex ratio is defined as the number of females per 1000 males, an important social indicator to measure the extent of prevailing equality between males and females in a society at a given point of time. The sex ratio in the country has always remained unfavourable to females. It was 972 at the beginning of the twentieth century and thereafter showed continuous decline until 1941. The sex ratio from 2001- 2011 has registered a 10 point increase at census 2011 over 2001. India is a patriarchal society that is why sex ratio is always unfavourable for women in this country. In the given table it can be observed that the number of females never exceeded the males since 1901.

#### 8. Data analysis

##### Sex Ratio in India Since 1901 to 2011:

S.N.	Census Year	Sex Ratio females/1000 males)	(LinearTrend Values
1.	1901	972	961.98
2.	1911	964	958.75
3.	1921	955	955.52
4.	1931	950	952.29
5.	1941	945	949.06
6.	1951	946	945.83

7.	1961	941	942.60
8.	1971	930	939.37
9.	1981	934	936.14
10.	1991	927	932.91
11.	2001	933	929.68
12.	2011	943	926.45

Source:Census 2011 and India 2016

9. Chart-1

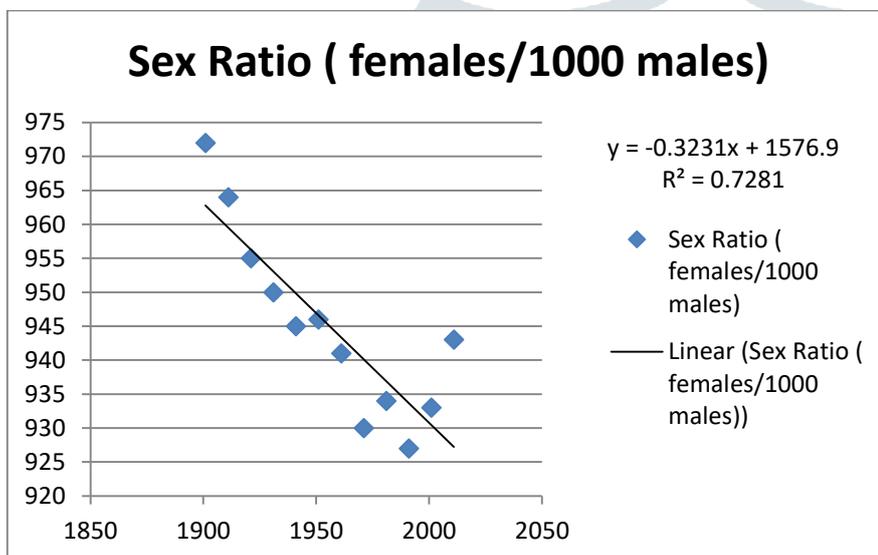
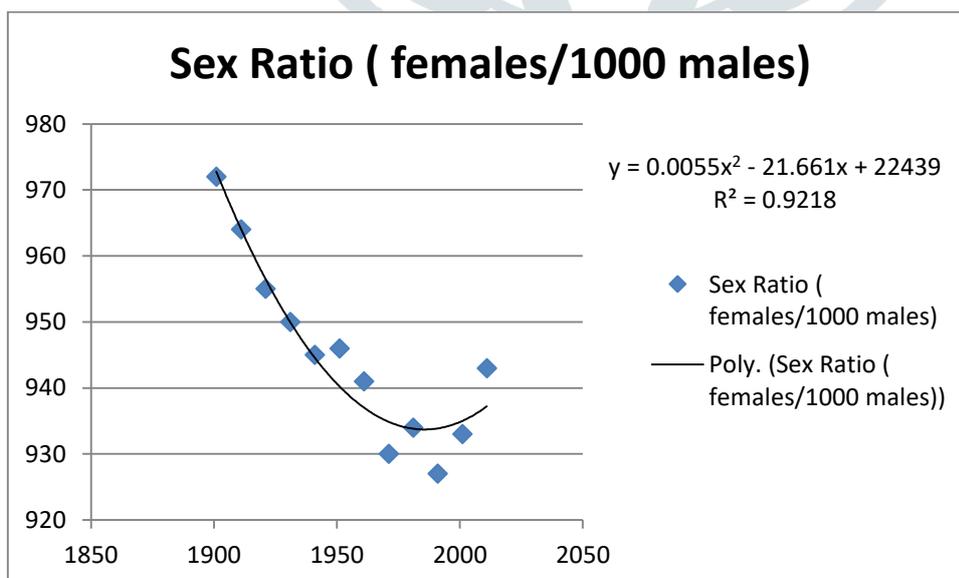


Chart-2



SUMMARY OUTPUT

**Regression Statistics**

Multiple R	0.853291
R Square	0.728105
Adjusted R Square	0.700916
Standard Error	7.46582
Observations	12

**ANOVA**

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	1492.615	1492.615	26.77891	0.000416
Residual	10	557.3846	55.73846		
Total	11	2050			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	1576.938	122.1366	12.91127	1.46E-07	1304.801	1849.076	1304.801	1849.076
Census Year	-0.32308	0.062432	-5.17483	0.000416	-0.46218	-0.18397	-0.46218	-0.18397

**10. Conclusion**

P value < 0.05, Ho is not accepted

$$y = -0.323x + 1576.$$

$$R^2 = 0.728$$

There is negative trend in sex ratio in India during 1901 to 2011 and it is declining at the rate of 0.323 % per decade.

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