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# ANALYTICAL MODEL FOR THE NUMBER OF DAUGHTERS AT HOME IN CENTRAL INDIA

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## ABSTRACT

Under certain simplifying assumptions, an analytical model for describing the variation in the number of daughters at home in Central India recorded in Demographic and Health Surveys, 2005-06 is constructed. The model involves two parameters and these are estimated by method of moments.The asymptotic expressions for estimates of the parameters are also derived. The suitability of the model is investigated using the DHS data on factors such as type of place of residence, religion, wealth index, highest level of education, marital duration (initial and higher),and castes (SC,ST and OBC). The results reveal that the categories belonging to rural areas, Muslim Community, lower wealth index, no education, higher marital duration and scheduled tribe provide the higher average number of daughters at home in the kin desire of sons they have more number of children and hence they have more number of daughters consisting of higher average number of groups per woman in comparison to other groups. The $\chi^2$ values do not seem to be significant at 5% and 1% level of significance.

## 1. INTRODUCTION

Considerable evidences have been accumulated by demographers, social scientists and researchers during last few decades about the study of child gender differential in developing countries. Millennium development goals highlight the priority accorded to gender equality and women right as core issues of development. This has been a long recognised problem with resurgence of research interest on the subject. Extremely high levels of gender discrimination against females have been reported in the provision of health care, nutrition, education and resource allocation in several states of India. For instance, the natural biological laws of human reproduction of mankind for balancing its natural sex ratio has been distorted by man–made norms, customs, traditions, religious beliefs and more recently by sophisticated medical technology resulting in lower sex ratio in India. There has been a steady decline of sex ratio from 972

in 1901 to 933 females per 1000 males in 2001. From 1961 to 1991, sex ratio for children under age 10 became more masculine all across India (Bhat, 1989; Das Gupta and Bhat, 1997; Desai 1994; El-Badry, 1969; Miller 1981; Parsuraman and Roy, 1991).

The discrimination against daughters in India is a well documented phenomenon. Its implications for skewed sex ratio's female foeticide and higher child mortality rates for girls have drawn research and policy attention for more than 100 years. The Indian Census has shown a marked gap between the number of sons and daughters. This gap which has nationwide implications is the result of decisions made at the most local level-the family. In this respect, most of the Indian parents have strong preferences for sons over daughters. A few generations ago, parents did not eat in the homes of their daughters and even if they had to eat, then they provided cash, gifts, fruits, cloths ornaments etc., to daughters. Fortunately, such traditions have been slowly changing, and while many parents of married daughters still adhere to this. However, South Asian countries and India are societies with strong patriarchal norms, a high degree of son preference and pervasive gender discrimination. It suggests that there is a systematic negligence of female children (Duflo 2005; Chen, Huq and D' Souza; 1981, Arnold, Choe and Roy, 1998; Pande and Astone, 2007; Das Gupta, 1987; Basu, 1989; Ganatra and Hirve 1994; Borooah, 2004).

Recently, Shekher and Neelambar (2010) has rightly pointed out that why there is a disappearance of daughters and intensification of gender ratio, on the basis of two village studies, in South India despite of progress in education, participation in economic and political activities, and overall improvement?. They also pointed out that "Is there any significant shift from 'son preference' to 'deliberate daughter discrimination'?

In Indian traditions, values and customs crusted over time have resulted in the insatiable desire for sons. Sons are preferred over daughters for a number of economic, social and religious reasons including financial support, old age security, property inheritance, dowry, family lineage, prestige and power, birth and death rituals and beliefs religious duties and salvation (Dyson and Moore, 1983; Kishor, 1993; DasGupta, 1987; Das Gupta and Mari, Bhat, 1997; Basu, 1989; Chen *et al.,* 1981; Miller 1981; Caldwell and Caldwell, 1990). Consequently, daughters are accorded lower status in the Indian society. Women

in India face discrimination in terms of several political and economic opportunities as a result of their inferior status.
We should assume that both sons and daughters live in families with similar characteristics, in terms of observables and unobservable. But this assumption is incorrect if families have discrimination for daughters and follow male-biased stopping rules of childbearing (Yamaguchi 1989; Jensen 2005) which appears to be the case in India. As a consequence, empirical estimates of discrimination are biased which will certainly in turn to set up skewed sex ratio at birth due to disfavour of daughters.

In present scenario, daughters are better than sons while daughter still cares for her parents after marriage and sons forget their parents. But sons do not realise when their children grow up they can do the same to them what they did to their parents. There was a time when parents wanted sons to be someone to look after and support them in their old age. But these days, professionals earn well, and make it a point to plan for their retirement, so they are not dependent on their children for financial support. Emotional love and support can be provided by either son or daughter.

Daughter's education is viewed as a waste, because expected returns from educated daughters do not exceed the costs, and then female education as an investment becomes unattractive to parents. However, in most developing countries, daughters are relatively less educated than boys. They are not sent to schools or do not receive the same quality and level of education as do boys. In India, the gender inequality in enrolments is worse at the secondary and tertiary level rather than that of the primary level.

It has also become more expensive to raise children as education has become more and a necessity in a transforming society. The increasing cost of education and marriage of girls is a major drain on the household resources which acts as a strong disincentive to have daughters. Some people send their sons to convent school for better quality education and daughters to government school because they think that one or another day daughters have to leave the home.

The government of Madhya Pradesh, (appears to be in Central India) has started a programme of "*Laadly Lakshi Yojana*"w e f first April, 2007 from the district Raisen with the objective to lay a firm foundation of girl's future through

improvement in their educational and economic status and to bring about a positive change in social attitude towards birth of a girl. The scheme was inaugurated by Chief Minister Shivraj Singh Chauhan. Under the scheme the government purchases a National Savings Certificate of Rs 6,000 for the next four years and these would be renewed from time to time. At the time of girl's admission in the sixth standard, Rs 2,000 and on admission in the ninth standard Rs 4,000 would be paid to the girl. When she gets admitted in the 11th standard she would receive Rs 7,500. During her higher secondary education she would get Rs 200 every month. On completion of 21 years she would receive the remaining amount, which would be more than Rs 1 lakh .On the similar conditions of Madhya Pradesh, the other states like Uttar Pradesh, Bihar, New Delhi, Chattisgarh, Jharkhand and Goa have recently adopted the same scheme to prevent the girls .Some of the states have been sent their messengers to collect the information regarding this scheme. Recently, the government of M.P. has also announced the "Saksher *Bharat Yojana*" in 42 districts to improve the literacy rate of the state especially for girl students.

Researchers and scientists have not shown their devotion much to the research of child gender differentials especially for the number of daughters living with their parents in the form of probability / analytical model (s). Models frame to represent, approximately, events or processes which may deal to a better understanding of underlying factors. Usually, they suggest useful methods of describing and analyzing the data. Perhaps the main reasons, for fewer attempts to generate analytical models for the child differentials in developing countries like India, are a belief that the behaviour of this process can be adequately represented by simple structures such as rates, ratios, percentages and regression analysis etc.

It is important to know what factors are associated and which categories contribute more propensities in differentials on daughters at home in India rather than that of sons. However, parents might less prefer girls to boys; investments in girls might have fewer returns, cause the differential pattern.

The objective of the present paper is to formulate an analytical model for describing the inherent variation in the number of daughters at home in Central India and investigate its suitability with the help of DHS,2005-06, a large representative survey that contains several variables that are determined at birth.

The source of data, analytical model and its estimation procedure are given in Section 2 while Section 3 deals with its applications. The conclusions are given at the end.

## 2. SOURCE OF DATA AND ANALYTICAL MODEL

The DHS surveyed ever-married women of reproductive ages. Each woman was separately interviewed and asked questions on their characteristics and reproductive histories. The files contain full birth histories: there is a record for every child born, including date of birth and gender, whether the child has died, and whether she/he continues to live at home. Therefore, we know for every child born the characteristics of their mothers and we can compute their number of siblings by gender, age and other characteristics. The final data contain one observation per family and include children born sons/daughters at home to women ages 15 to 49 living in Central India.

Data on fertility are collected in several ways. First, each woman is asked the number of sons and daughters who live with her (i.e., number of sons and daughters at home), the number who live elsewhere, and the number who was born alive and later died. Next, a complete history of all the woman's births is obtained, including the name, sex, month and year of birth, age, and survival status for each of the births. For living children, a question is asked about whether the child was living in the household or away. For dead children, the age at death is recorded. Finally, information is collected on whether a woman was pregnant at the time of the survey. In order to collect data on fertility preferences, women and men are asked a series of questions including their desire to have another child, the length of time they would like to wait before having another child, and what they would consider to be the ideal number of children.

An analytical model for describing the inherent variation in the number of daughters in Central India using DHS, 2005-06 has been obtained on the basis of the following two assumptions:

(i) The number of daughters per woman forms a group, the number of groups Y, having a Poisson distribution with parameter $\Phi$

$$P[Y = j] = \frac{e^{-\phi}\phi^{j}}{j!}, \quad \phi > 0,\ j = 0, 1, 2, \ldots,$$

(ii) The probability of k number of daughters per group in the population is more than the probability of (k+1) number of daughters, k=1, 2, 3,…, and the decrement from parity to parity to ever married women is assumed to follow a logarithmic series distribution with parameter θ while it is not true in the case of number of sons at home due to son-biased fertility stopping rule.

$$P[z = k] = \frac{-\theta^{k}}{k\log(1-\theta)}, \quad k = 1, 2, 3\ldots,\ 0<\theta<1,$$

Under above assumptions, the probability that there is a total of k number of daughters is the coefficient of $t^k$ in

$$\sum_{j=0}^{j=\infty}[\frac{e^{-\phi}\phi^{j}}{j!}][\frac{\log(1-\theta t)}{\log(1-\theta)}]^{j} = e^{-\phi}e^{\frac{\phi\log(1-\theta t)}{\log(1-\theta)}}$$

$$= e^{-\Phi}(1-\theta t)^{\Phi/\log(1-\theta)} = [\frac{(1-\theta t)}{(1-\theta)}]^{\frac{\phi}{\log(1-\theta)}}$$

Since $e = (1-\theta)^{\frac{1}{\log(1-\theta)}}$

Then the number of eligible females with no number of daughters is equal to

$$P[X=0] = (1-\theta)^{\frac{-\phi}{\log(1-\theta)}} \tag{1}$$

$$P[X = k] = \Gamma\frac{\left(\frac{-\phi}{\log(1-\theta)} + k\right)}{k!\Gamma(\frac{-\phi}{\log(1-\theta)})}.(1-\theta)^{\frac{-\phi}{\log(1-\theta)}}.\theta^{k}, \quad k=1,2,3\ldots, \tag{2}$$

is obvious to follow a negative binomial distribution with parameters $[\frac{-\phi}{\log(1-\theta)}, (1-\theta)]$.

### 2.1 Estimates and Their Standard Errors

The analytical model given by equations (1) & (2) involves two parameters Φ and θ and these are estimated by equating the observed mean and observed variance to its theoretical values.

$$\text{Mean} = \frac{-\phi}{\log(1-\theta)}\,\theta / (1-\theta)$$

$$\text{Variance} = \frac{-\phi}{\log(1-\theta)}\,\theta / (1-\theta)^2$$

Since θ lies between 0 and 1, hence log (1-θ) will be negative providing mean and variance as positive.

If the sample size (N) is large, the variances of estimates of θ and Φ are approximately derived as (See, Kendall and Stuart, 1963, Vol.1, Ch.10)

$$V(\theta)=[\,\theta^2\{(1-\theta)^2+6\theta-12-\alpha^2\phi^2)\}-4(1-\theta)^2\theta+2\alpha\phi\theta^2(\theta-2)+3\theta(\alpha\phi+2)]/\alpha\Phi N$$

$$V(\Phi) = \Phi/N\theta\alpha$$

where $\alpha = \frac{-1}{\log(1-\theta)}$, not a parameter but a function of θ.

## 3. APPLICATIONS

The suitability of the model is investigated using data of DHS, 2005-06 on factors such as type of place of residence, religion, wealth index, highest level of education, marital duration and caste. The expected frequencies corresponding to observed ones are given in Appendix.

It is important to understand that $-\Phi\theta / (1-\theta) \log (1-\theta)$ yields the average number of daughters at home for the analytical model. It is a fact that the $\Phi$ provides the average number of groups of daughters while $-\theta/(1-\theta)\ln(1-\theta)$ provides the average number of daughters per group , intuitively appealing,because it says that higher values of Φ will provide higher average number of daughters at home in Central India.

The model is fitted to the data of number of daughters at home according to the type of place of residence i.e., rural and urban and the estimated values of $\Phi$ and θ are given in table 1 whereas expected frequencies are given in Appendix. From table 1, the values of $\Phi$ and $\theta$ are found to be 0.765 and 0.583; 0.299, 0.198 for rural and urban areas of place of residence respectively consisting of mean values as 0.918 and 0.652. It reveals that the average number of daughters belonging to rural areas is found to be more in comparison to urban areas. It indicates that the education and socio-cultural activities of the women living in urban areas have motivated to think over less average number of daughters as compared to rural

areas. It is also observed from the expected frequencies that the model provides a good fit to the observed distribution for type of place of residence.

**Table 1:** Estimated values of Φ and θ according to type of place of residence with their standard errors

| Type of place of residence | Rural | Urban |
|---|---|---|
| Φ | 0.765 ±0.00030 | 0.583±0.00019 |
| θ | 0.299 ±0.00018 | 0.198±0.00014 |
| Mean | 0.918 | 0.652 |

The model is applied to the data of number of daughters at home according to religion and the estimated values of Φ and θ are presented in table 2, whereas its expected frequencies are given in Appendix. From table 2, the values of ϕ and θ are found to be 0.668, 0.705 and 0.266, 0.305 respectively along with mean as 0.783 and 0.850. It is observed that Muslim Community provides the higher values of Φ and mean of the number of daughters at home. It may be due to less education in Muslim Community in comparison to Hindu. From fitting of the distribution, it indicates that the analytical model describes the pattern of daughters at home in Central India quite well.

**Table 2:** Estimated values of Φ and θ according to religion with their standard errors

| Religion | Hindu | Muslim |
|---|---|---|
| Φ | 0.668±0.00005 | 0.705±0.00156 |
| θ | 0.266±0.00009 | 0.305±0.00110 |
| Mean | 0.783 | 0.850 |

Further, the proposed model is applied to the data of number of daughters at home according to different wealth index and the estimated values of Φ and θ along with its mean are given in Table 3 and its fitting, in Appendix respectively.

**Table 3:** Estimated values of Φ and θ according to wealth index with their standard errors

| Wealth Index | Poorest | Poorer | Middle | Richer | Richest |
|---|---|---|---|---|---|
| Φ | 0.891± 0.00071 | 0.730± 0.00082 | 0.676± 0.00115 | 0.636± 0.00059 | 0.516± 0.00028 |

| | | | | | |
|---|---|---|---|---|---|
| θ | 0.256± 0.00031 | 0.293± 0.00054 | 0.340± 0.00092 | 0.255± 0.00044 | 0.131± 0.00016 |
| Mean | 1.037 | 0.873 | 0.838 | 0.739 | 0.554 |

From the above table3, it seems that the average number of daughters at home is reciprocal to the wealth status of the couples. That is, the poorest couples have more values of Φ and mean rather than that of other groups. From the chi-square test, it reveals that the analytical model gives a good fitting of the pattern of number of daughters at home in each category of wealth index at 5% and 1% level of significance.

The summary values of Φ and θ according to highest level of education are given in table 4 and its fitting is given in Appendix.

**Table 4:** Estimated values of Φ and θ according to highest level of education with their standard errors

| Highest Level of Education | No education | Primary | Secondary and above |
|---|---|---|---|
| Φ | 0.974±0.00043 | 0.710±0.00080 | 0.434±0.00017 |
| θ | 0.217±0.00015 | 0.200±0.00017 | 0.207±0.00019 |
| Mean | 1.103 | 0.795 | 0.489 |

It seems that the higher average number of daughters belongs to the category of women of 'No education' in comparison to primary and secondary and above education. From the chi-square goodness of fit, it is found that the model gives the good representation of the number of daughters at home for women.

The values of ϕ and θ according to marital duration are given in Table 5 and its fitting is given in Appendix.

**Table 5:** Estimated values of Φ and θ according to marital duration with their standard errors

| Marital Duration | Lower marital duration | Higher marital duration |
|---|---|---|
| Φ | 0.608±0.00118 | 0.735±0.00031 |
| θ | 0.059±0.00026 | 0.204±0.00158 |
| Mean | 0.627 | 0.826 |

Table 5 gives the good presentation of the average number of daughters in the initial and higher marital duration .It may due to the fact that the couples have

less average rather than higher marital duration. In the higher marital duration, the average number of daughters is increase do to desire for sons. The above model provides a good fitting of the number of daughters at home in both kinds of marital duration.

Finally, the model is applied to the data for number of daughters at home according to caste and the estimated values of Φ and θ is given in table 6 and its fitting, in Appendix.

**Table 6:** Estimated values of Φ and θ according to different caste with their standard errors

| Caste | Scheduled | Scheduled Tribe | Other Backward Class |
|---|---|---|---|
| Φ | 1.059±0.00409 | 1.159±0.00497 | 0.926±0.00156 |
| θ | 0.158±0.00095 | 0.166±0.00102 | 0.119±0.00036 |
| Mean | 1.156 | 1.271 | 0.987 |

From the above table 6, it is observed that the lower caste (scheduled tribe) yields higher average number of daughters at home in comparison to other castes. The fitting of model also provides a good representation at 5% and 1% level of significance.

## 4. CONCLUSIONS

This paper presents an analytical model for describing the inherent variation in the frequency of number of daughters at home to ever married women in Central India under two simplified assumptions. The pattern of number of daughters at home to ever married couples can be summarized by analytical model consisting of two parameters Φ & θ and it has been fitted to the original counts of DHS data, 2005-06 on factors such as type of place of residence,religion,wealth index,highest level of education,marital duration and caste. A satisfactory fit is achieved by the model which is evident from the $\chi 2$ values at respective degrees of freedom. The findings reveal that the categories of rural areas,Muslim Community,poorest wealth index,no education,higher marital duration and scheduled tribe provide the higher average number of daughters at home to ever married women having higher average number of groups per woman in comparison to other groups. It may be due to poor literacy level, poor contraceptive practices, high level of mortality, and preference for male children

over female ones and the lowest value attributed to their children. Because of such high level of fertility both mother and children remain undernourished and are at a higher risk of disease infections leading to higher mortality in absence of proper health seeking behaviour. However, this paper yields a good pattern in the number of daughters at home based on DHS data, 2005-06. For applying a chi-square test for goodness of fit, some last cells are grouped together.The values of $\chi^2$do not seem to be significant at 5% and 1% level of significance.

This indicates that the analytical model provides the almost the same shape for the number of daughters at home.This is an acceptable fit for the number of daughters to the analytical model. This suggests that the model under consideration have successfully described the data. Thus, it may be useful in calculating the probabilities of the number of daughters at various parity and also for prediction about balanced gender ratio in a specified population, provided that there is no bias for sons.

Further, research is required to explore the possibility of analytical/probability model (s) for number of sons at home in Central India as well as in other states of this country. This analytical model can also be applied for the number of daughters based on the data of other developing and developed countries so that the parity wise comparisons of the number of daughters can be made.

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## APPENDIX

Distribution of daughters at home according to place of residence

| Place of residence/No. of daughters | Observed rural | Expected rural | Observed urban | Observed urban |
|---|---|---|---|---|
| 0 | 1449 | 1421.0 | 1898 | 1883.8 |
| 1 | 858 | 914.5 | 947 | 985.0 |
| 2 | 453 | 431.1 | 385 | 355.2 |
| 3 | 182 | 178.5 | 104 | 108.9 |
| 4 | 77 | 68.8 | 32 | 30.4 |
| 5 | 22 | 25.3 | 5 | 8.0 |
| 6 | 9 | 9.0 | 2 | 2.7 |
| 7 | 2 | 4.8 | 1 | |
| 8 | 1 | | 0 | |
| Total | 3053 | 3053.0 | 3374 | 3374.0 |
| $\chi^2$ | | 7.306 | | 5.536 |
| d.f. | | 5 | | 4 |

Distribution of daughters at home according to religion

| Religion/No. of daughters | Observed Hindu | Expected Hindu | Observed Muslim | Expected Muslim |
|---|---|---|---|---|
| 0 | 2915 | 2886.8 | 272 | 266.5 |
| 1 | 1595 | 1659.4 | 142 | 157.4 |
| 2 | 736 | 697.4 | 83 | 70.5 |
| 3 | 252 | 257.1 | 27 | 28.2 |
| 4 | 96 | 88.2 | 10 | 10.6 |
| 5 | 25 | 28.9 | 2 | 5.8 |
| 6 | 9 | 9.2 | 2 | |

| | | | | |
|---|---|---|---|---|
| 7 | 2 | 4.0 | 1 | |
| 8 | 1 | | 0 | |
| Total | 5631 | 5631.0 | 539 | 539.0 |
| $\chi^2$ | | 6.483 | | 4.032 |
| d.f. | | 5 | | 3 |

Distribution of daughters at home according to wealth Index

| Wealth Index/No. of daughters | Observed Poorest | Expected Poorest | Observed Poorer | Expected Poorer |
|---|---|---|---|---|
| 0 | 609 | 591.5 | 511 | 507.7 |
| 1 | 415 | 456.4 | 312 | 313.4 |
| 2 | 259 | 234.4 | 137 | 142.6 |
| 3 | 104 | 100.3 | 53 | 57.2 |
| 4 | 35 | 38.6 | 33 | 21.4 |
| 5 | 11 | 13.8 | 7 | 11.7 |
| 6 | 8 | 7.0 | 0 | |
| 7 | 1 | | 0 | |
| 8 | 0 | | 1 | |
| Total | 1442 | 1442.0 | 1054 | 1054.0 |
| $\chi^2$ | | 8.467 | | 8.014 |
| d.f. | | 4 | | 3 |

Distribution of daughters at home according to wealth Index

| Wealth Index /No. of daughters | Observed Middle | Expected Middle | Observed Richer | Expected Richer | Observed Richest | Expected Richest |
|---|---|---|---|---|---|---|
| 0 | 379 | 364.2 | 656 | 655.2 | 1192 | 1183.9 |
| 1 | 173 | 201.4 | 357 | 360.7 | 548 | 570.2 |
| 2 | 98 | 89.9 | 149 | 145.3 | 195 | 174.7 |
| 3 | 42 | 37.0 | 52 | 51.3 | 35 | 43.3 |
| 4 | 17 | 14.5 | 17 | 16.9 | 13 | 11.9 |
| 5 | 5 | 9.0 | 3 | 7.6 | 1 | |
| 6 | 2 | | 1 | | | |
| 7 | 0 | | 2 | | | |
| Total | 716 | 716.0 | 1237 | 1237.0 | 1984 | 1984.0 |
| $\chi^2$ | | 7.308 | | 0.480 | | 5.240 |

| | | | | | | |
|---|---|---|---|---|---|---|
| d.f. | | 3 | | 3 | | 2 |

Distribution of daughters at home according to highest educational level

| Highest Educational level/No. of daughters | Observed No education | Expected No Education | Observed Primary | Expected Primary | Observed secondary and above | Expected secondary and above |
|---|---|---|---|---|---|---|
| 0 | 967 | 957.6 | 499 | 489.8 | 1881 | 1875.3 |
| 1 | 809 | 827.4 | 286 | 311.5 | 710 | 726.6 |
| 2 | 452 | 447.1 | 150 | 130.3 | 236 | 216.1 |
| 3 | 199 | 193.4 | 44 | 45.0 | 43 | 57.8 |
| 4 | 74 | 73.2 | 14 | 13.9 | 21 | 19.2 |
| 5 | 21 | 25.4 | 2 | 5.5 | 4 | |
| 6 | 11 | 11.9 | 0 | | 0 | |
| 7 | 3 | | 0 | | | |
| 8 | 0 | | 1 | | | |
| Total | 2536 | 2536.0 | 996 | 996.0 | 2895 | 2895.0 |
| $\chi^2$ | | 1.859 | | 6.398 | | 7.771 |
| d.f. | | 4 | | 3 | | 2 |

Distribution of daughters at home according to marital duration

| Marital duration/No. of daughters | Observed Initial, M.D. | Expected Initial, M.D. | Observed Higher, M. D. | Expected Higher, M. D. |
|---|---|---|---|---|
| 0 | 290 | 290.2 | 128 | 126.6 |
| 1 | 173 | 171.2 | 81 | 83.2 |
| 2 | 52 | 55.5 | 36 | 35.8 |
| 3 | 15 | 13.1 | 12 | 12.7 |
| 4 | 3 | 3.0 | 6 | 5.7 |
| 5 | 0 | | 1 | |
| Total | 533 | 533.0 | 264 | 264.0 |
| $\chi^2$ | | 0.515 | | 0.410 |
| d.f. | | 2 | | 2 |

Distribution of daughters at home according to caste

| Caste/No. of daughters | Obser. Sched. | Expec. Sched. | Obser. ST | Expec ST | Obser. OBC | Expec. OBC |
|---|---|---|---|---|---|---|
| 0 | 103 | 97.8 | 80 | 80.0 | 238 | 250.8 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 81 | 95.1 | 85 | 84.8 | 246 | 218.0 |
| 2 | 64 | 53.8 | 51 | 52.0 | 96 | 107.8 |
| 3 | 24 | 23.1 | 25 | 24.1 | 35 | 39.8 |
| 4 | 7 | 12.2 | 11 | 9.4 | 10 | 12.2 |
| 5 | 2 | | 1 | 4.7 | 6 | 4.4 |
| 6 | 0 | | 1 | | 2 | |
| 7 | 1 | | 1 | | 0 | |
| Total | 282 | 282.0 | 255 | 255.0 | 633 | 633.0 |
| $\chi^2$ | | 4.733 | | 0.941 | | 9.462 |
| d.f. | | 2 | | 3 | | 3 |

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