Assessing the Impact of Religions and Castes on Population Fertility in an EAG District of India

Kalyan Sundar Som[†*] and Prof. R.P. Mishra[ˌ]

Abstract

Culture and subculture have given an imprint on social and economic development. Alongside, it has an impact on different aspects of social change and the extent of modernisation in a region. The present study investigates the role of religion and caste in determining the fertility and the causes responsible for religious and caste fertility differential in Sagar district. This district is geographically located in the state of Madhya Pradesh.

To examine the contribution of religion and caste on a change in fertility in temporal scale, both primary and secondary data have been collected and were used for the analysis of the results of this study. The primary data, which was collected through a field survey, were conducted in the study area, and the secondary data were obtained from the Census of India (1981-2011). In order to receive more accurate results, statistical techniques—Multiple Classification Analysis, Logistic Regression Analysis and Decomposition Analysis have been applied. To find out the role of individual socioeconomic characteristics on religious fertility, Multiple classification analysis technique has been used in this study and Logistic regression analysis was applied to probe the likelihood of contraception adoption by the various socioeconomic backgrounds, while, Decomposition analysis has been conducted to probe the religious and caste composition change on temporal scale fertility change.

The findings demonstrate that the Muslim and Scheduled population (Scheduled Castes and Scheduled Tribes) have very high fertility than that of the other segments of society. Moreover, the inclination of fertility transition (from high to low) among other religions (Christians, Sikh and Jain) begins earlier than that of the Hindus, Muslims and Scheduled population. As per the decomposition analysis, the share of Hindu population was more prominent in reducing the fertility which gradually decreased from the decade 1981-91 to 2001-11, while the share of the schedule population and others religions have dramatically decreased during the period. On the other hand, the role of scheduled population and Muslim community has phenomenally increased for changing fertility behaviour. The analysis of the study suggests that education and adequate employment opportunities have reduced the role of religion and caste on fertility in the study area.

Keywords: Religion, Castes, Fertility Behaviour, Parity Progression Ratios, Multiple Classification Analysis, Logistic Regression, and Decomposition Analysis, Madhya Pradesh, India

[†] Dr. Harisingh Gour Central University,
[*]Corresponding Author, Email: kalyansundarsom@gmail.com
[ˌ]Department of General and Applied Geography, Dr. Harisingh Gour Central University

Introduction

The fertility of an individual or a population is the outcome of the interplay of the various socio-cultural, economic, and demographic indicators. Social status and cultural difference of the people depend on their religion and caste (Som and Mishra, 2017; Patidar,2018; Das and Das, 2018). India has a multi-religious society; however, the two major religious groups (Hindus and Muslims) have long-term concerns for demographers because their share in the society and fertility behaviour continues to remain significant. Studies have however demonstrated that the fertility among the Muslim population has always been higher than that of the Hindus in India (Visaria, 1974; Balasubramanian, 1984; Das& Pandey, 1985; Sharif, 1999 and Arokiasamy, 2002, Som & Mishra, 2017). This evidence has been further reinforced by various official sources (Census of India, National Sample Survey Office, National Family Health Survey, District Level Household Survey) indicating that among major religious groups, Muslims have experienced the highest fertility and Sikhs have the lowest in the country (Alagarajan & Kulkarni 1998; Reddy, 2003). Though some studies find that religion bears no direct impact on fertility, but its impact on fertility bore from different characteristics—use of contraception, and the extent of women's autonomy (Goldscheider & Uhlenberg, 1969; Day, 1984).

According to the Census of India (2011), the total fertility rate (TFR_{ppr}) of the country was 2.988; it is very high among the Muslim population and stood at 3.562, while among the Hindus it was 2.894 followed by the Sikhs (2.811) and the Buddhists (2.74); and for other religions, it stood at 2.210 (Som& Mishra, 2017). In the Sagar district, the study area, the TFR_{ppr} among the Muslims stood at 4.2, which was higher than the

TFR_{ppr} of the Hindus, which stood at 3.74, Jain (2.59)and Christian (2.56) (Census of India, 2011, calculated by the authors). Evidently, castes too play a significant role in controlling fertility behaviour. Officially, in India, caste has been divided into three categories, that is, General Castes, OBC (other backward communities) and SC (Scheduled Castes) & ST (Scheduled Tribes).[1] Studies have reported that substantial difference in fertility behaviour has been recorded in the context of increased education (human capital), wealth (economic capital) and higher social status (Bhattacharyya, 2009; 2013; Kulkarni, 2002). However, a village study in the state of Haryana confirmed that fertility was inversely related to caste and socioeconomic status (Arora, 1985). Nonetheless, previous studies have unravelled that the higher fertility is witnessed amongst the Scheduled Castes when compared with the other two (General and OBC) castes (Ramesh, 2007 and Roy et al., 2015). The Scheduled Castes and Scheduled Tribes population have a low level of contraception uses and the lowest level of son preference. It is worth noting here that Hindus' fertility rate is 2.894 (TFR_{ppr}) while the fertility rates of Scheduled Castes (3.12) and Tribes (3.48) were recorded as high (Census 2011) in India. A similar scenario has been recorded in the state of Madhya Pradesh and the study area.

This research is an attempt to understand the impact of religious and caste differentials in fertility behaviour in the study area. In doing so, it tries to probe the role of religion and caste on fertility in the present, taking into consideration the historical context in the intersection with other significant variables. In a way, this study tries to address the knowledge gap between fertility and cultural factors (religion and caste)

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[1] But historically and socially, the caste system is an institution based on *jati-varna* system. As defined by Risley (1891: p. 875), caste is a "collection of families, bearing, a common name, claiming a common descent from mythical ancestor, human or divine, professing to follow the same hereditary calling and regarded by those who are competent to give an opinion as forming a single homogenous community". Thus, in the caste system, the *Brahmins* occupy the highest echelon followed by the *Kshatriyas* (warriors), then the *Baishyas* (the business class) and the lowest echelon is occupied by the *Sudras* (one who performs menial tasks) (see, Bhattacharyya, 2009; Bhattacharyya and Singh, 2018 for better understanding of the caste system in India).

in a highly backward district of an EAG[2] state (especially the Bundelkhand area).

Sagar district is a part of Bundelkhand which is a backward region of Madhya Pradesh, and this state is one of the EAG states of India (Figure 1). It is interesting to note here that this district has been recorded as one of the very high fertility areas of India. The low sex ratio (893 females per 1000 males) indicates the prevalence of higher gender preference (high preference of male child than a female child). Generally, sex preference increases the fertility rate by achieving the number of gender composition, and the socio-cultural status of the population influences it.
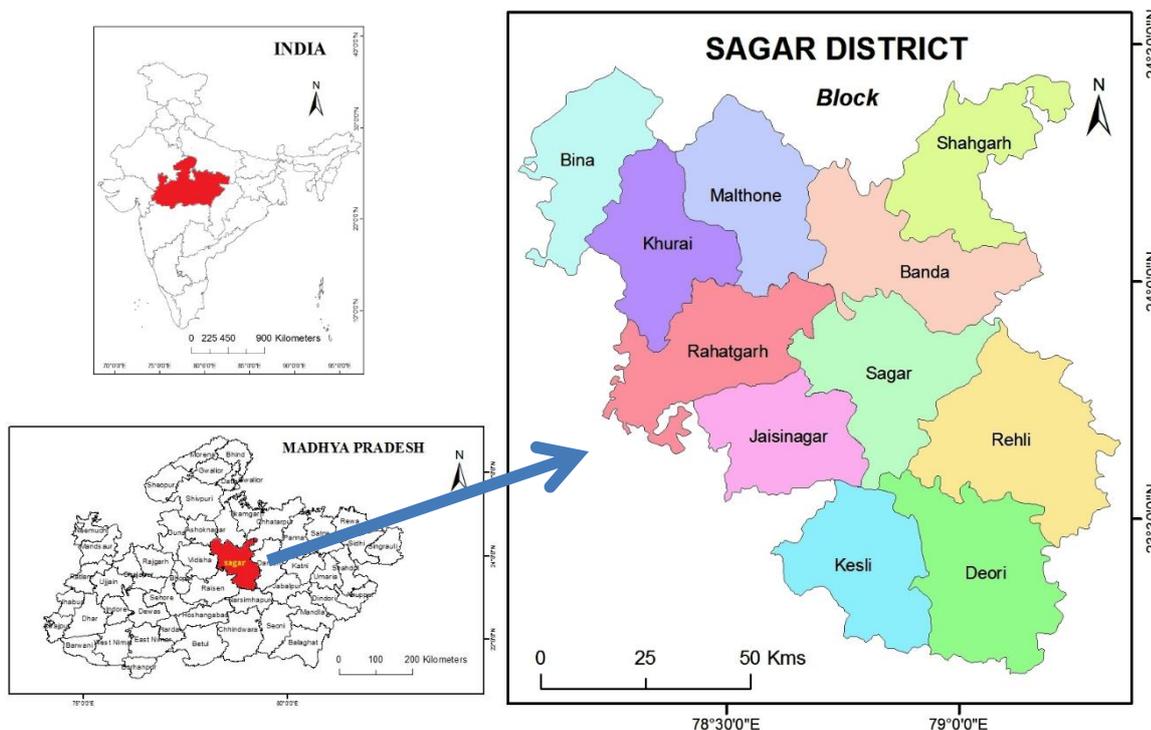

Figure 1: Location Map of the study area (Sagar District)
Source: Survey of India

The religion's faith and traits also influence fertility control measures. Thus, this study aims to find out the complex inter-relationships between religion and caste with that of fertility, fertility preference and contraceptive used. The key objectives and methodological issues are discussed in the following section.

Objectives:

Previous studies have concluded that religion and castes (Arokiasamy, 2002; Balasubramanian, 1984; Das and Das, 2018; Das & Pandey,1985; Iyer,2002; Patidar,2018; Ramesh, 2007; Reddy, 2003; Roy et al., 2015; Sharif, 1999; Som and Mishra, 2017a; and Visaria,1974) have significant impact on fertility differentials, however, other socio-economic factors are also significant. This study aims to analyse the actual scenario of fertility differentials by religions and castes in the study area, which has received little attention. It also aims to examine the cause which is responsible for religious and caste differentials and their impact on fertility in the study area and aims to know any interaction effect between religion and caste with other relevant socio-economic factors such as place of residence, education level of the respondents, wealth status, and preference for son(s). For this

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[2] EAG states means 'Empowered Action Group of States' which include eight socio-demographic lag behind states (Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Uttar

Pradesh, Uttarakhand, Rajasthan and Odisha) of India (Som and Mishra, 2014)

primary data have been collected from a field survey using a semi-structured interview schedule from 900 samples of ever-married women[3] of the reproductive age group (15-49 years). Also, the Census of India fertility (F) Table has been used as a secondary source of data for the analysis using the following steps:

Sampling Techniques: Sagar district has 2.3 million population where 445 thousand women belong to the reproductive age group (Census of India, 2011). To refine the result and cover all the aspects, as stated above, this study has taken 900 samples (of ever-married women) with 99 % confidence level and 4.3 % confidence interval, instead of 95 and 5 per cent. The stratified random sampling techniques were deployed to collect this sample from 11 sample villages of 11 community development blocks, and three wards from three urban centres.

Census Data Tabulation:Here, theCensus data (Table F-2 and F-10) has been used to calculate the parity progression ratio Projected Parity Progression ratio. For this:

- The data from Census Fertility Table, 2011 (F-2) has been used to work out the parity progression ratio (parity by age group of women aged 15-49 or more age group).
- To work out Projected Parity Progression ratio:
  o Fertility Table, 2011 (F-2) has been used to calculate parity by age group of women (aged 15-49 or less).
  o Fertility Table, 2011 (F-10) has been used to calculate the number of children born during the preceding census, classified by mother's age (in five-year groups) and the number of children ever born.

Study Design: Sagar district is mainly dominated by the Hindu population (90.43 %); and others comprise of Muslims (4.35 %), Jain, Christian, Sikh and Buddhist. Here, the Other category is used to include Jain, Christian, Sikh and Buddhist population of the study area.
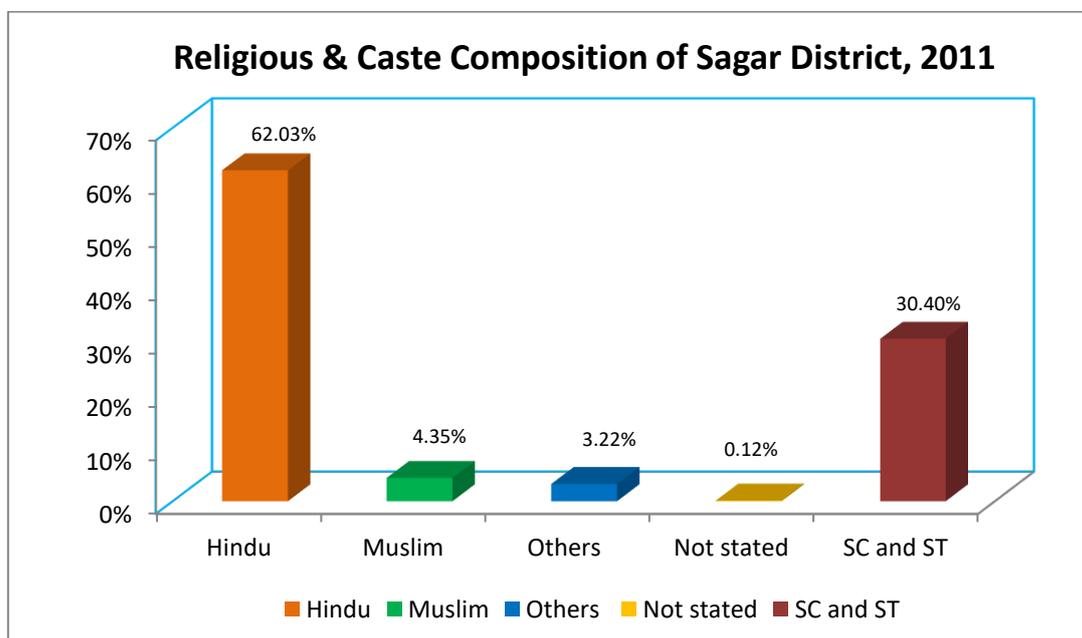

Figure 2: Religious and Caste Composition of Sagar District, 2011
Source: Census of India, 2011

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[3] Ever married women are those women who have been married at least once in their lives although their current marital status may not be married. (United Nations, 2009 and Patidar, 2018)

Among the Hindu population, Scheduled Castes and Tribes have a substantial disparity in a socio-cultural context. As mentioned above, this study has considered four religions and caste groups, that is, (i) Hindu excluded Scheduled population (62.03 %), (ii) Muslim population (4.35 %), (iii) Others (3.22 %), (iv) Scheduled population (30.40 %) (Figure 2). Here, Scheduled Castes and Scheduled Tribes have been considered as a separate category because officially they are considered as the disadvantaged and marginalised class (Patidar, 2018; Barooah, 2014; see also, Bhattacharyya, 2009; 2013).

Fertility is measured using the samples of currently married women of the reproductive age (15-49 years) and mean children ever born (MCEB). Simple percentage distribution and cross tabulation are also used which is analysed using the Statistical Package for the Social Science (SPSS) software (version 17.0)wherein for the mean children ever born and contraceptive use by religion are taken as the dependent variable and which has cross-tabulated using a set of explanatory variables.

To address the objectives mentioned above, this study incorporated the following four methods (Table 1).

Table 1: Types of Analysis Performed and the Variables Considered	
Types of Analysis/ Methods	*Variables Considered*
Family building process: parity progression ratios	Women who have completed their childbearing age by attaining 49 years or by using modern methods of contraceptives:Tubectomy and Vasectomy.
Multiple classification analysis for the interaction effect	Place of residence, women's educational level, wealth status, age at marriage, son preference.
Logistic regression (Contraceptive: Users/ Nonusers)	Residence, women's age, educational level, son preferences, age at marriage, wealth status and the number of living children.
Decomposition analysis	Mean children ever born, Time series (Decadal Census 1981-2011)
Source: Classified on the basis of a field survey conducted by the authors.	

- Parity progression ratio has been calculated to assess the nature of the family building process for the particular religion and caste category for the period 1981-2011.
- To explore the interaction effect between variables, this study used the analysis of variance (ANOVA) framework by using the sum of squares for the interaction terms. Although there are some limitations up to the level where an interaction effect is significant (or not). Therefore, another method has also been used in this study—to examine the direction and quantum of an interaction effect, and multiple classification analysis has been employed where some new variables are also generated during the

analysis of complex relationships between different variables (Table 2).
- To find out the role of religion and caste on the prevalence of contraceptive use; for this, the study has used the binary logistic regression analysis. This analysis employed the dichotomous nature of the dependent variable (adoption of contraceptive). This technique is generally used to examine the influential role of certain variables on the probability of occurrence of an event. A dummy variable constructed here by the combination of contraceptive user and non-user where the user has been assigned the 0 value, and the non-user have been assigned 1.

Table 2: Descriptions of Newly Created Explanatory Variables for Multiple Classification Analysis			
Religion x Place of residence (grouped; 4 x 2 = 8 classes)	*Religion x women education level (grouped; 4 x 5 = 20 classes)*	*Religion x wealth Status (grouped; 4 x 5 = 20 classes)*	*Religion x son preference (grouped; 4 x 2 = 8 classes)*
Dependent variable : Mean Children Ever Born (Cumulative Fertility)			
Hindu - Rural	Hindu – Illiterate	Hindu –Lowest	Hindu –Parity equilibrium
Muslim- Rural	Muslim- Illiterate	Muslim- Lowest	Muslim- Parity equilibrium
Others - Rural	Others – Illiterate	Others –Lowest	Others - Parity equilibrium
Scheduled – Rural	Scheduled – Illiterate	Scheduled– Lowest	Scheduled - Parity equilibrium
Hindu - Urban	Hindu – Primary	Hindu –Second	Hindu –Son Preference
Muslim- Urban	Muslim- Primary	Muslim- Second	Muslim- Son Preference
Others - Urban	Others – Primary	Others –Second	Others - Son Preference
Scheduled – Urban	Scheduled – Primary	Scheduled– Second	Scheduled - Son Preference
	Hindu – Secondary	Hindu –Middle	
	Muslim-Secondary	Muslim- Middle	
	Others – Secondary	Others –Middle	
	Scheduled – Secondary	Scheduled – Middle	
	Hindu -Intermediate	Hindu –Fourth	
	Muslim- Intermediate	Muslim- Fourth	
	Others – Intermediate	Others –Fourth	
	Scheduled – Intermediate	Scheduled – Fourth	
	Hindu – Graduate and Above	Hindu –Highest	
	Muslim- Graduate and Above	Muslim- Highest	
	Others - Graduate and Above	Others –Highest	
	Scheduled - Graduate and Above	Scheduled – Highest	
Source: Tabulated based on a field survey conducted by the authors.			

- This study also tries to examine whether there is any change in the contribution of religion and caste composition on fertility decline over the years by decomposition analysis. To fulfil this objective, this study used the methodology adopted by Bhat (2002). Mathematically, the formula of decomposition is expressed as:

$$(Fb - Fa) = \sum_{i=1}^{k} \text{Fb, i x Cb, i}$$
$$- \sum_{i=1}^{k} \text{Fa, i x Ca, i}$$

= (Fb,1-Fa,1) (Cb,1+Ca,1)/2 + $\sum_{i=2}^{k}$ (Fb.i-Fa,i) (Cb,1-Cai)/2 + $\sum_{i=1}^{k}$ (Cb,i-Ca,i) (Fb,i+Fa,i)/2

Where, Fa, i = The mean children ever born of religion and caste class **i** at the time **a**.

Fb,i = The mean children ever born of religion and caste class **i** at the time **b**.

Ca,i = Proportion of women of the religion and caste class **i** at the time **a**.

Cb,i = Proportion change of women of the religion and caste class **i** at the time **b**.

Results and Discussion

Background Characteristic by the Religious and Caste Groups

Table 3 shows the percentage distribution of currently married women of reproductive age (15-49 years) and the respondents' background characteristics by religious and caste groups (place of residence, age group, level of education, age at marriage and son preference).

In all religion and caste groups, the proportion of the respondents in the lower age group (15-19 years) varies from 8.00 % (lowest) among the Hindus to 13.60 % (highest) among the Scheduled Castes and Tribes in the study. At the time of the survey, married women respondents in the age group of 15 to 19 years were not found in other religious groups (but those found

belonged to the Jain community). The higher percentage of age at marriage is seen in 20 to 34 years age group concerning all the religion and caste groups. Moreover, post-34, the rate of marriage is decreasing. It was not surprising to find that most of the Scheduled population belongs to the lowest two quintiles of wealth status (Barooah, 2014; Patidar, 2018).

On the other hand, in the other religion group (mostly Jains), that is, 91.01 % belongs to higher two quintiles of wealth status. Our research revealed that the wealth status of Hindus population is comparatively fair among five wealth quintile when compared to the Muslim religious group (Table 3). The Scheduled population mostly dwells in villages for their livelihood and depends on primary activities such as agriculture. On the other hand, the Jain community is mostly business class, and they live in urban areas for their occupation.

It was saddening to note that the majority of the population (mainly women), that is, 69.87 per cent belonging to Scheduled Castes and Tribes attaining marriage before the legal age (18 years and above for women and 21 years and above for men) are very high while for other religious groups, it is 9.09 %. In the case of Hindus, the share of lower age at marriage is higher when compared to their Muslim counterparts. Son preference is lowest amongst the Scheduled community while it is higher in the Muslim and Hindu religious groups.

Religion and Caste: Fertility Differentials

Table 4 shows the religious and caste wise fertility differentials by various background characteristics. The Muslim population has recorded the least rural-urban fertility differential than the Others. On the other hand, the Hindus excluding the Scheduled Castes and Tribes population, fertility has a clear decreasing trend from uneducated to highly educated while this trend is not evident in other religions and caste communities. Contraceptive users have very low fertility than the non-users in the Muslim community, though the rate of adoption is meagre.

Wealth prosperity enhances the opportunity of good health and educational facilities bearing low fertility rates. This is true among all the religious and caste communities. However, the relations between wealth category and fertility differentials relation have not been clearly recorded in Muslim and Scheduled communities. Lower age at marriage indicates the higher reproductive span, which also increases the probability of the higher number of children.

High son preference prevails in the study area because the majority of the respondents and their family member perceive that son is more beneficial from the economic point of view as the son will carry, no burden of dowry at the time of marriage. Besides, it is believed that the son would serve as a support mechanism both financially and physically during the old age of the parents.

Background Characteristics	Percentage (N=900)			
	Hindu exclude Scheduled	Muslim	Others religion group (Jain, Sikh and Christian)	Scheduled Caste and Tribe
Place of Residence				
Rural	76.00	62.69	57.58	83.73
Urban	24.00	37.31	42.42	16.27
Age Groups				
15-19	8.00	10.45	0.00	13.60
20-24	23.06	11.94	12.12	21.60
25-29	23.76	22.39	45.45	16.27
30-34	18.12	13.43	24.24	17.87
35-39	15.53	14.93	18.18	10.40
40-44	5.88	22.39	0.00	11.20
45-49	5.65	4.48	0.00	9.07
Education of the Respondents				
Illiterate	29.65	41.79	0.00	50.93
Primary	31.53	23.88	3.03	35.47
High School	27.29	25.37	45.45	12.00
Intermediate	4.00	8.96	15.15	0.80
Graduation and Above	7.53	0.00	36.36	0.80
Wealth Status				
Lowest	31.06	38.81	0.00	46.40
Second	19.29	26.87	6.06	26.13
Middle	16.24	17.91	3.03	13.60
Fourth	18.35	7.46	24.24	9.07
Highest	15.06	8.96	66.67	4.80
Age at Marriage of the Respondents				
Below 18 years	48.47	37.31	9.09	69.87
18 years and above	51.53	62.69	90.91	30.13
Son Preference of the Couple				
Yes	50.67	56.72	51.52	48.24
No	49.33	43.28	48.48	51.76
Source: Tabulated based on field survey conducted by the authors				

Table 3: Background Characteristics of Respondents of Sagar District by the Religious and Caste Groups

Nature of Family Building Process (Parity Progression Ratio)

Parity progression ratio (PPRs) is one of the best indicators to examine the family building process and fertility transition (Frejka & Sardon, 2007 and Holzer-Zelazewska & Tymicki, 2009).In the present study, PPRs have been computed for those women who have surpassed their childbearing age (49 years) or have adopted a

permanent method of contraception (Yadava et al., 2009), but this computation has been done separately for four religious-caste groups.

Table 4: Religious and Caste group wise Fertility (MCEB) by Background Characteristics of Sagar District				
	Hindu excluding Schedule Castes and Tribes	Muslim	Others religion group	Scheduled Community(Castes and Tribes)
Place of Residence				
Rural	3.25	4.07	2.21	3.89
Urban	2.71	3.76	2.07	3.23
The educational level of the respondents				
No education	4.02	5.04	NA	4.73
Primary standard	3.27	3.81	1.00	3.03
High school	2.36	2.53	2.33	2.21
Intermediate	2.27	3.33	2.00	3.00
Graduation and above	2.09	NA	2.08	1.33
Current use of contraceptive (other than sterilisation)				
Not using	3.31	4.22	2.33	4.11
Using	2.90	2.85	2.00	4.00
Wealth status of the family				
Poorest	3.62	4.08	NA	4.14
Second	3.41	4.33	3.00	3.92
Middle	3.32	3.75	2.00	2.96
Fourth	2.47	3.40	2.25	3.09
Richest	2.31	3.17	2.05	3.22
Age at the marriage of respondents				
Below 18 years	3.75	4.08	2.67	3.88
At 18 and above years	2.52	3.88	2.10	3.56
Son Preference				
Parity equilibrium	2.45	3.36	2.06	3.24
More Sons	3.82	4.31	2.24	4.33
Source: Calculated by the authors from field survey conducted in Sagar District				

Table 5: Parity Progression Ratio by Religious and Caste Group in Sagar District, 2016								
Parity	Hindus without Scheduled Castes and Tribes		Muslims		Others religious group		Scheduled Castes and Tribes	
	PPRs	CPPR	PPRs	CPPR	PPRs	CPPR	PPRs	CPPR
0	0.9572		0.9522		0.9573		0.9514	
1	0.9535	0.9572	0.9456	0.9522	0.9287	0.9573	0.9468	0.9514
2	0.8709	0.9127	0.8994	0.9004	0.7019	0.8890	0.9043	0.9008
3	0.7535	0.8304	0.8247	0.8505	0.4835	0.6519	0.8520	0.8562
4	0.6628	0.6562	0.7249	0.7417	0.3777	0.3394	0.7773	0.7705
5	0.6259	0.4994	0.6767	0.5978	0.3744	0.1826	0.7507	0.6623
6	0.5952	0.4148	0.6590	0.4905	0.3412	0.1414	0.6528	0.5835
7	0.5436	0.3725	0.5961	0.4459	0.1941	0.1277	0.5851	0.4901
8	0.3251	0.3236	0.5031	0.3928	0.0612	0.0662	0.5016	0.3820
9	0.1806	0.1767	0.4238	0.2999	0.0000	0.0119	0.4318	0.2935
10	0.0000	0.0587	0.3351	0.2132	0.0000	0.0000	0.3219	0.2166
11	0.0000	0.0000	0.0000	0.1420	0.0000	0.0000	0.0000	0.1390
Source: Tabulated based on the field survey conducted by the authors.								
Note: PPRs= parity progression ratio (women with i+1 parity/ women with ith parity), CPPRs = Compound parity progression ratio.								

Table 5 demonstrates a detailed trend in PPRs for the first parity (from a woman's birth to her first childbirth), which is very low and have been Compound parity progression ratio is a refinement of PPRs, which has been calculated by the multiplication product of one order parity ratio with next order parity ratio (that is, 0 to 1 order PPRs multiplication with 1 to 2 order PPRs). The CPPRs among the Hindus have declined gradually up to the third order rather than a steep decline trend, while in the case of the Muslims a steep decline is witnessed in the fifth parity. Among the other religious groups, there has been a steep decline in CPPRs in the third order of parity. Among the Scheduled (Castes and Tribes) communities, CPPRs has recorded a steep decline in the fifth order similar to the Muslims.

declining among all the religious and caste groups.

Synthetic Lifetime Parity Distributions and Average Parities:

The implied completed parity distributions, average lifetime parity, four and more parity and changes of religious and caste composition in temporal scale due to the parity change are displayed in Table 6. The shift in the completed parity distribution is astounding and matches the substantial decline in the children ever born from 63.55 % to 27.92 % having four and more children during a period of four decades (1981-2011). Four and more parity decline trend (from 1981-2011) among the religious and caste groups recorded near equal for the Hindus (37.14 %) and Muslims (37.27 %) while it is comparatively slow in the scheduled population (33.33 %) and Other religious (34.21 %) groups.

Table 6: Implied Completed Parity Distributions and Average Lifetime Parity, Synthetic Parity Cohorts (by Religious and Caste Group) in Sagar District, 1981-2011												
Parity		0	1	2	3	4	5	6	7+	MCEB	4 and More	% of Eligible Women
Hindu	1981	5.69	4.80	9.98	15.60	16.18	14.60	11.28	20.34	4.25	62.40	63.02
	1991	4.88	5.19	14.11	20.72	17.68	13.49	9.02	13.00	3.87	53.18	63.29
	2001	6.25	8.34	21.46	24.21	15.10	9.84	5.63	6.61	3.24	37.19	63.68
	2011	12.90	13.30	23.34	21.85	10.81	7.07	3.68	3.69	2.65	25.26	63.11
Muslim	1981	6.29	4.84	7.71	10.50	13.56	13.85	11.95	30.07	4.62	69.42	3.79
	1991	5.76	5.37	10.14	14.90	15.38	14.05	10.77	22.07	4.27	62.27	3.97
	2001	7.78	9.31	16.32	19.26	14.31	11.24	7.58	12.06	3.52	45.20	4.19
	2011	14.82	14.17	17.99	17.82	10.69	8.60	5.43	7.43	2.86	32.15	4.59
Others Religious Groups	1981	5.37	6.63	17.14	22.47	17.30	11.96	7.54	9.63	3.58	46.43	4.30
	1991	5.05	8.25	26.52	26.74	13.89	8.38	4.42	4.41	3.06	31.09	4.12
	2001	8.36	15.18	31.60	24.28	9.08	4.94	2.13	1.88	2.48	18.02	3.88
	2011	12.97	18.31	32.98	21.90	6.78	3.20	1.12	1.11	2.14	12.22	3.48
Scheduled Castes and Tribes	1981	5.84	4.87	7.90	11.93	13.71	14.49	12.48	27.16	4.55	67.84	28.83
	1991	4.84	4.48	8.63	14.97	16.91	15.54	12.04	20.92	4.37	65.41	28.25
	2001	5.76	6.57	14.11	20.59	17.12	12.83	8.51	12.37	3.75	50.83	28.62
	2011	14.18	12.41	16.68	18.64	12.04	9.44	5.82	7.21	2.97	34.51	28.89
Source: Calculated and Tabulated based on Census of India, 1981-2011												

It is interesting to mention here that the declining trend is near to equal for the Hindus and Muslims, but the difference still exists,

which was recorded in the year 1981. Women of the Scheduled population have 34.51% four and more parity, which is three-fold higher when

compared to other religious and caste groups in the year 2011. Muslim women who have zero and one parity are higher than the Hindus due to the higher proportion of age above 18 years.

Religious and Caste Fertility Deferential: A Test of Characteristics Hypothesis

The difference between the adjusted and unadjusted number of MCEB (Mean Children Ever Born) among the various religious and caste groups are illustrated in Table 7. The higher value of unadjusted mean difference among the religious and caste groups indicates the high variation in combine level due to variations in other socio-economic characteristics. Least variation in adjusted mean compared to unadjusted mean among the religious groups and castes indicates that the variation is the outcome product of other socio-economic factors which support the characteristics hypothesis. In this study, adjusted mean variation among the religious and caste groups is much lower than the unadjusted mean. This

discussion reinforces the strong presence of character hypothesis in the study area.

MCA (Multiple Classification Analysis) results reveal that the unadjusted MCEB is relatively higher in Muslims, Scheduled and Hindu women than women belonging to other religious groups. Table 8 clearly indicates that more than 70 % variation is responsible for socio-economic factors (education level, wealth status, place of residence and son preference) in the study area. High MCEB, which was visible among Muslims and Scheduled community (both adjusted and unadjusted mean), perhaps, is the result of a lower percentage of higher education, lower economic status and lower use of contraceptives. The lower use of contraceptives among Muslim women may be due to their religious belief (Iyer, 2002; Jalil et al., 2016; Rasheed, 2015). Besides, women belonging to the Scheduled population also have less adoption due to lack of awareness.

Table 7: Assessment of Religion and Selected Socioeconomic Variables Interaction Effect on Mean Children Ever Born					
Socio-economic Variables	Cases (N)	Predicted Mean		Deviation	
		Unadjusted	Adjusted for Factors	Unadjusted	Adjusted for Factors
Religion					
Hindu excludes Scheduled	425	3.06	3.25	-.300	-.113
Muslim	67	3.96	3.80	.594	.444
Others	33	2.15	3.15	-1.210	-.211
Scheduled	375	3.70	3.43	.340	.068
Women Education Level					
No education	344	4.44	4.34	1.078	.982
Primary standard	284	3.12	3.11	-.238	-.251
High school	193	2.29	2.41	-1.071	-.946
Intermediate	30	2.43	2.43	-.928	-.929
Graduation and above	49	1.96	2.22	-1.402	-1.140
Place of Residence					
Urban	202	2.94	3.62	-.421	.261
Rural	698	3.48	3.29	.122	-.076
Wealth Status					
Lowest	332	3.86	3.40	.494	.038
Second	200	3.64	3.44	.284	.080
Middle	133	3.17	3.35	-.196	-.011
Fourth	125	2.60	3.21	-.761	-.146
Highest	110	2.45	3.28	-.907	-.082
Son Preference					
No	450	2.77	2.93	-.588	-.427
Yes	450	3.95	3.79	.588	.427
Source: Calculated on the basis of the field survey conducted in Sagar District					
Note: Dependent Variable-Mean Children Ever Born, result derived from multiple classification analysis.					

The present study confirms that the socio-economic condition of Muslim and Scheduled population has a pivotal role in their fertility behaviour and its decision-making. Consequently, it has recorded a high fertility level in the study area.

As stated above, ANOVA analyses were deployed to examine the interaction relationships between religion and socio-economic characteristics on fertility differentials; the results of which are displayed in Table 8. The MCA result depicts that religion, education level of women and son preference have high statistical significance (1 %), while the place of residence has a low level (5 %). On the other hand, wealth status has recorded no significance at all.

Table 8: Analysis of Variance for Children Ever Born to Currently Married Women					
Source of Variance	Hierarchical Method				
	Sum of Squares	Degree of Freedom	Mean Square	F	Significance of F
Main Effects					
(combined)	911.483	13	70.114	16.060	.000
Religion	157.940	3	52.647	12.059	.000
Women of education level	607.051	4	151.763	34.763	.000
Place of residence	6.186	1	6.186	1.417	.234
wealth index	8.582	4	2.146	.491	.742
Son preference	131.724	1	131.724	30.173	.000
Two-way interactions					
(combined)	911.483	13	70.114	16.060	.000
Religion x education	764.991	7	109.284	24.269	.000
Religion x Place of residence	201.155	4	50.289	9.805	.000
Religion x wealth index	336.012	7	48.002	9.614	.000
Religion x Son preference	416.628	4	104.157	21.326	.000
Place of residence x wealth index	285.186	5	57.037	11.319	.610
Place of residence x Son preference	310.379	2	155.189	31.079	.000
wealth index x Son preference	482.402	5	96.480	20.039	.000
Three-way interactions					
(combined)	540.440	9	60.049	12.588	.000
Religion x Place of residence x wealth index	336.652	8	42.082	8.420	.000
Religion x Place of residence x Son preference	446.046	5	89.209	18.371	.000
Religion x wealth index x Son preference	539.926	8	67.491	14.163	.000
Place of residence x wealth index x Son preference	486.122	6	81.020	16.824	.000
Four-way interactions					
Religion x Place of residence x wealth index x Son preference	506.912	4	126.728	26.505	.000
Model	911.483	13	70.114	16.060	.000
Residual	3798.132	870	4.366		
Total	4709.614	883	5.334		
The overall goodness of fit	Multiple R= .440 , R^2=.194				
Source: Calculated on the basis of the field survey conducted in Sagar District					

Religion and Women's Education Level

Education is one of the powerful weapons to control TFR in any region or country (Das and Das, 2018; Som and Mishra, 2017; Patidar, 2018;). Girls who achieve a secondary level of education are more aware of reproductive health, and they can decide their fertility preference (Basu, 2002). The MCA results show that a difference of 1.02 (children) between the Hindus, Other groups and Muslim communities and 0.71 (children) between the Hindus, Others and Scheduled women after factoring in the

effect of other relevant socio-economic parameters have been recorded. Table 9 unveils that there remains a strong interaction between religion, women's education and their effect on fertility, which stands at η=0.403.

Religion and Place of Residence

Table 9 shows that the religion to son preference has a moderate interaction effect on fertility (η=0.207). The adjusted MCEB is higher in an urban area than in rural area while for unadjusted mean it is reverse. Moreover, rural-urban MCEB unadjusted mean controlled by other socio-economic factors differs in this place of residence.

Religion and Wealth Status

Table 9 illustrates that the interaction effect with religion and wealth has a moderate impact (η=0.267). Women of both poor and rich wealth status have a higher difference in MCEB, and it is least in the third and fourth stage of wealth status. This result proved the inverse 'U' shape relationship of fertility with wealth status.

Table 9: Assessment of Interaction Effect on Mean Children Ever Born			
Category	Variables	η	β
(A)	Religion x Women Education	.403	.162
	Place of Residence	.110	.054
	Wealth index	.244	.043
	Son preference	.239	.171
(B)	Religion x Place of Residence	.207	.043
	Women Education	.396	.349
	Wealth index	.244	.043
	Son preference	.239	.171
(C)	Religion x Wealth status	.267	.071
	Women Education	.396	.349
	Place of Residence	.110	.054
	Son preference	.239	.171
(D)	Religion x Son preference	.297	.088
	Women Education	.396	.349
	Place of Residence	.110	.171
	Wealth index	.244	.043
Total		Multiple R = .440	R^2 = .194
Source: Calculated on the basis of a field survey conducted in Sagar District			

Religion and Son Preference

The social pressure on women to produce at least one male child for old age security often leads to the birth of several female children triggering a larger family size is a common phenomenon in India (Edmeades et al., 2011). Couples and their family preference for son are considered as an essential factor which influences the fertility decisions taken by them (Das, 1987, Jalil et al., 2016; Muthurayappa et al., 1997). In Sagar district, Muslim women (56.72 %) have a higher preference for a son when compared to the Hindus (49.38 %) and Other (51.52) religious groups. It is apparent from

Table 9, which shows that the interaction effect with religion and son preference has a significant impact on fertility (η=0.267). **Differential Contraceptive Adoption (Findings from Logistic Regression Analysis)**

Contraception is the method to avoid unwanted pregnancy through temporary or permanent ways of achieving sustainable development by the process of population stabilisation (PRB, 2017). Several researchers proved that the religious fertility differentials are mostly due to the differential use of contraceptives especially in the religious group of the Hindus and Muslims (Balasubramanian, 1984; Bhagatand Paharaj,

2005; Mistry, 1994 and Haque& Patel, 2016). Summary results of the binary logistic regression model on contraceptive use among the married women are shown in Table 10.

Explanatory Variables	Reference Category	Odds Ratio of Contraceptive Use			
		Hindu excluded Scheduled	Muslim	Others	Scheduled
Total Case	N=900	425	67	33	375
Type of residence	Rural	1.000	1.000	1.000	1.000
Urban		2.081*	4.572*	3.975*	2.207**
Women's Education Level	upto Secondary	1.000	1.000	1.000	1.000
Secondary and Above		4.440***	1.425*	1.731*	1.553*
Women Age Group (Years)	20-29	1.000	1.000	1.000	1.000
Less than 19 Years		-0.138***	1.133	--------	-0.329**
30-39		2.497***	1.653*	3.467*	1.924**
40-49		-0.758*	-0.567*	--------	1.101
Son Prefernce	Parity Eiqulibrium (No Preference)	1.000	1.000	1.000	1.000
Son Preference		0.734*	1.153	3.685*	0.458***
Age at Marriage	Below 18 years	1.000	1.000	1.000	1.000
18 years and above		0.760*	0.105*	8.891	1.906***
Wealth Status	Highest	1.000	1.000	1.000	1.000
Lowest		-0.671*	-0.008***	---	-0.543*
Second		-0.565*	-0.025***	2.551	-0.494*
Middle		-0.963	-0.143**	2.551	-0.485*
Fourth		-0.682*	3.231	-0.474*	-0.790
Number of Living Children	Up to Two Child	1.000	1.000	1.000	1.000
More than Two Child		3.255***	0.060*	0.331*	8.357***

Table 10: Summary Results of the Binary Logistic Regression Model on Contraceptive Use Among Currently Married Women (2016)

Source: Calculated on the basis of a field survey conducted in Sagar District.

The analysis of the likelihood of contraceptive adoption among currently married women of different religions and castes were conducted using the logistic regression analysis in Sagar district. The Odd ratio has also been used for each group separately to examine the difference of likelihood of contraception. In the case of Hindu and Scheduled Castes and Tribes women, all the variables are statistically significant. On the other hand, preference of son among the Muslim women and age at marriage in case of Scheduled Castes and Tribes women are not statistically significant.

The Contribution of Change in Religious and Caste composition on Fertility Decline:

The Decomposition analysis has been used to identify how religious and caste composition

contributes to the change in mean children ever born at two points of time (1981 to 2011). Table 11 unravels the decomposition of the change in religious and caste composition, which affects the decline in fertility during the period 1981 to 1991, 1991 to 2001, 2001 to 2011 and 1981 to 2011. This Table shows that MCEB in Sagar district has fallen from 4.33 in 1981 to 3.99 in 1991 and 3.37 in 2001 to 2.74 in 2011, but the rate of decrease was higher in the last decade.

The role of Hindu excluding the Scheduled Castes and Tribes population and other religions in the change of fertility behaviour has dramatically declined from 1981-1991 to 2001-2011 (Table 11). Among the scheduled community and Muslim population, it has phenomenally increased during the period. Thus, it is therefore concluded that religion and caste composition has a direct impact on the fertility change in the study area.

Table 11: Decomposition of Change in MCEB from 1981 to 2011 by Religious and Caste in Sagar District						
Educational Level of Women	Census 1981		Census 1991		Within Class Decline In MCEB	
	MCEB	% Women	MCEB	% Women	MCEB	% Women
Hindu (exclude Scheduled)	4.25	63.20	3.87	63.29	-0.24	71.97
Muslim	4.62	3.79	4.27	3.97	-0.01	4.07
Other Religion	3.58	4.30	3.06	4.12	-0.02	6.56
Scheduled	4.55	28.89	4.37	28.62	-0.05	15.50
Educational Level of Women	Census 1991		Census 2001		Within Class Decline In MCEB	
	MCEB	% Women	MCEB	% Women	MCEB	% Women
Hindu (exclude Scheduled)	3.87	63.29	3.24	63.68	-0.40	63.56
Muslim	4.27	3.97	3.52	4.19	-0.03	4.86
Other Religion	3.06	4.12	2.48	3.88	-0.02	3.69
Scheduled	4.37	28.62	3.75	28.25	-0.18	28.02
Educational Level of Women	Census 2001		Census 2011		Within Class Decline In MCEB	
	MCEB	% Women	MCEB	% Women	MCEB	% Women
Hindu (exclude Scheduled)	3.24	63.68	2.65	63.11	-0.37	59.19
Muslim	3.52	4.19	2.86	4.59	-0.03	4.59
Other Religion	2.48	3.88	2.14	3.48	-0.01	1.98
Scheduled	3.75	28.25	2.97	28.83	-0.22	35.23
	Census 1981		Census 2011		Within Class Decline In MCEB	
Hindu (exclude Scheduled)	4.25	63.20	2.65	63.11	-1.01	63.35
Muslim	4.62	3.79	2.86	4.59	-0.07	4.62
Other Religion	3.58	4.30	2.14	3.48	-0.06	3.51
Scheduled	4.55	28.89	2.97	28.83	-0.46	28.59
Source: Calculated based on data obtained from the Census of India						

Conclusion

The present research aimed to examine the impact of religions and castes on fertility

behaviour among women in the district of Sagar in Madhya Pradesh. For this, the research deployed quantitative techniques—Multiple

Classification Analysis, Logistic Regression Analysis and Decomposition Analysis. The findings reveal that religion and castes do play key roles in fertility behaviour and preference for a son. Besides, socio-economic characteristics such as educational level, age at marriage and wealth status also bear an impact on fertility behaviour.

While this research was conducted only in Sagar district, it is difficult to make generalisation. However, this research provides a firm ground for similar research to be conducted in other parts of the state.

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