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Contraceptive Use and Role of Caste Network

WORKING PAPER

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INTRODUCTION

India is home to 1.2 billion people (Census 2011) and has actively pursued population policy since 1965. The population policy comprises of encouraging usage of contraceptives and limiting family size. According to Ram (2009), 13 percent of married women used contraceptive in 1970. By 2009 the usage of contraceptive among married women tripled to 48 percent. The national fertility rate (maximum number of children a woman has in her lifetime) declined from 5.7 in 1966 to 2.7 in 2009 providing evidence to the success of population policy. But the policy has had its share of criticisms especially due to the forced sterilizations conducted by the government in the early 1970s. In November of 2014, 14 women died in the Indian state of Chhattisgarh after undergoing sterilization operation. India's population policy was criticized for focusing exclusively on women and health care officials forcing women in rural India to undergo sterilization to reach targets set by the programme. Along with the reach of the programme there are other factors which influence contraceptive use by married Indian women.

Presence of living children, number of sons, communication with spouse, education levels of the woman and her spouse, residence location (urban versus rural), exposure to mass media are some of the factors found to be contributing to a woman's decision on contraceptive use. Other than the individual factors mentioned there are socio-economic factors that influence a woman's decision. Economic status of the family is also a determinant. Contraceptive use is not uniform

among all social groups as there are differences between caste groups and religious groups. Even though previous work has analyzed the inter-caste differences in contraceptive use among married women, the focus has been on son preference, women autonomy, role of family members and access to health care services. These being crucial factors, it will be a shortcoming not to look at the role that social networks play in providing information on contraceptives to women (Godley, 2001; Yee and Simon, 2010). The objective of this paper is to investigate the role of caste networks in contraceptive usage by women.

India's caste system is a traditional institution using the philosophy of division of labor. It is a system of social stratification which divides population into groups- Brahmin (priests), Kshatriyas (warriors and rulers), Vaishyas (merchants and farmers) and Shudras (domestic help, laborers and artisans). Caste provides a network through which one can further one's professional and social standing, within the limitations of one's caste. There is evidence of men's use of caste network for economic mobility. Historical trends and patterns of presence of caste clusters in private enterprise has been documented by Damodaran (2008) which provide evidence to the fact that entrepreneurial class in India have used caste identities to further their fortunes in independent India. Upper caste households are more likely to have connections in government, medical and educational institutions than lower caste households, the hierarchical order of caste persists in the households connections in important institutions. (Vanneman, Noon, Sen, Desai and Sharif; 2006)

As Indian women have not historically participated in labor force and their labor force participation rate is low[1], there is no documented evidence that women have used caste network in the same fashion that men have. Even though caste system may or may not have benefitted women in terms of their labor market outcomes, it would be interesting to see if caste network is proving beneficial to Indian women by encouraging contraceptive use.

PREVIOUS WORK

Work done by Ramesh(2007), Narzary (2009), Gautam (2010) on Indian women's contraceptive usage, have shown that factors such as age, education, number of living children, preference for sons, place of residence, caste, knowledge of contraceptive, economic status of household and mass media exposure significantly influence a woman's usage of contraceptive. The papers also find evidence of across caste differences in fertility and usage of contraceptive. The above-mentioned papers shed light on the factors that influence reproductive behavior, but it is important to understand the cultural context in which fertility decisions are taken. Opinions of family members, friends and community can matter. It is important to understand the mechanisms through which social network influences health behavior in general. These mechanisms are social support, social engagement, access to resources, social influence and social learning (Berkman et al,2000; Lowe and Moore, 2014). Social support is the support received by an individual or a group because they are part of a community and it can take many forms - informational, emotional, appraisal and instrumental. Social engagement refers to engaging in various community level activities. Social network can facilitate an individual's pursuits by providing access to various resources and also influence individual choice due to the

[1] Chatterjee, Desai and Vanneman (2014) document the downward trend of female labor participation rate from 2004-2005, especially for women from rural areas. Their results are based on data from various rounds of National Sample Survey Organization and two rounds of India Human Development Survey.

social and institutional power that resides in the network. Social learning is a process by which a behavioral change takes place in an individual due to the exchange and evaluation of new information received via the person's social network.

Social networks can perpetuate conservative cultural viewpoints through interpersonal communication and can be a medium of diffusion of information on contraception (Godley, 2001). A patriarchal structure combined with co-existence of extended family members leads to fertility decisions of a young couple being influenced by views held by family members. Kumar, Muttarak and Bordone (2015), Char et al. (2010), Barua et al. (2009) and Kadir et al. (2003) find evidence of strong influence of mother-in-law on young married women's reproductive health and choices. The following two studies highlighted the importance of including senior female members of the family as part of education campaigns for family planning so that such programmes have the desired effect. Godley (2001) investigated the role of kinship network (adult sibling relationships) on contraceptive choices of recently married young women from 51 villages in rural Thailand. Controlling for factors such as age, education, distance to health center and household access to television, Godley found that household and village level kinship ties (measured by number of siblings in household, in village and outside village) do have differential influence the type of contraceptive being used. Qualitative study done by Yee and Simon (2010) on 30 women who have given birth recently found that opinion of partners, mothers and friends had great influence on contraceptive choices.

Ali, Amialchuk and Dwyer (2011) analyzed impact of peer effects on adolescent's usage of contraceptive during their first sexual intercourse based on data from National Longitudinal Study of Adolescent Health survey (1994 wave) conducted on U.S. adolescents and their parents. The authors calculated two measures for contraceptive use in peer group – percentage of friends

of the respondent and percentage of students in the respondent's grade who used contraceptive during their sexual debut. Controlling for individual, family characteristics and school-level fixed effects, the empirical results showed that a 10 percent increase in the percentage of classmates who use contraception increases the likelihood of a respondent's contraception use by approximately 5 percent. Montgomery et al. (2001) examined the influence of informal social networks on contraceptive behavior of women in South Ghana. The authors empirically tests for diffusion effects[2] using longitudinal survey data on reproductive behavior and social interaction from six communities. The survey asked women respondents about their conversations on modern contraceptive with their network partners. The authors calculated variables of social network based on responses to reproductive choice conversations which included total number of network partners, how many among them approved of and used modern contraceptive methods. Controlling for age, fecundity, desire for children, health issues, education and exposure to mass media, multivariate logistic model was used to estimate the impact of number of network partners and their attitude towards modern contraceptives on adoption of modern contraceptive methods by women in the study sample. The study results showed that an increase in the number of network partners is associated with statistically significant and substantively large increases in use of modern contraception and an even larger effect was found if the network partner was herself a user of modern contraceptive methods. Dynes, Stephenson, Rubardt and Bartel (2012) highlighted social perception as a driving factor when it comes to family planning. The authors collected data on a sample of married men and women in Ethiopia and Kenya to assess the influence of perceptions of individual and community's norms on current contraceptive use. The results revealed that how an individual perceives community norms do influence contraceptive

[2] The authors define diffusion effects as the effects of the knowledge, attitudes, and behaviors of other persons on an individual's likelihood of making certain choices.

use. If a woman's current number of sons is lower than what is perceived as ideal by the community she was less likely to use contraceptive, while if her perception of ideal number of sons is lower than what the community deems ideal she is more likely to use contraceptive.

Not only interpersonal exchange and community norms, but mass media campaigns can affect change in reproductive behavior as found in a study by Valente & Saba (1998). Two study samples were collected, one consisted of 2300 youngest men and women and they were interview two months before and after a government reproductive health campaign therefore taking a case-control approach; while the second sample was a panel sample selected from a small city, Potosi so as to see the impact of mass media health campaign in a small area and have a more reliable proof of the effectiveness of the campaign. Controlling for factors such as age, education, income, number of children, campaign exposure (recalling message or spot shown on TV or radio), network exposure (percentage of people in a respondent's personal network who the respondent thought practiced family planning), the logistic regression results showed that campaign exposure and network exposure were both positively associated with current use of contraception. There is suggestive evidence from Musalia's (2005) work on Kenyan men and women in two districts of the country with opposite economic prospects that harsher economic conditions can alter conservative views of kin networks towards contraceptive use thereby denoting an interaction effect. Therefore there is empirical evidence in the literature that suggests that not only family members but people with whom a person has regular interaction in combination with community norms and economic conditions influence contraceptive usage.

RESEARCH QUESTIONS

Research Question (1)

What is the association between social network and usage of modern contraceptive? I investigate the correlation between percentage of women using contraceptive in the social network of a woman and usage of contraceptive by controlling for individual level and state level variables. The social network of a respondent is the number of women residing in her neighborhood which is the primary sampling unit. As the analysis in this paper is focused on social network oriented around caste, caste distribution of contraceptive usage among all women in a primary sampling unit is included as an explanatory variable in the regression model.

Research Question (2)

What is the role of health worker(s) when it comes to usage of modern contraceptive? Previous research has highlighted the role of family members in influencing a woman's decision to use contraceptive. Along with family members, health worker(s) can contribute to the decision making process by providing information and guidance on available contraceptive choices. In the contraceptive choice model, variables on interaction of a woman with health worker(s) from Family Welfare Planning Center are included.

Research Question (3)

Has the Anganwadi[3] centers been successful in diffusing the message of importance of contraceptive usage to women? Work done by Munshi and Myaux (2006) and Rajan (2014) have shown that prevalence of contraceptive usage among women is determined by their exposure to the concept of family planning. Rajan (2014) using cross-section data found a positive association between individual woman's contraceptive usage and prevalence of contraceptive usage and knowledge among older women. Munshi and Myaux (2006) used village level panel

[3] Anganwadi is a government sponsored child-care and mother-care center in India.

data to tease out the impact of diffusion of family planning message on individual contraceptive usage. I include "number of years a health center specifically an Anganwadi/ICDS center[4] has been serving the community / neighborhood of a woman" as an explanatory variable in the model of contraceptive choice.

DATA

Data from third wave of National Family Health Survey, NFHS 2005-2006 have been used for the present study. The NFHS-III is a nationally representative sample survey of 109,041households and the survey interviewed men ages 15-54 and women ages 15-49 across 29 states. The study sample consists of 80,308 ever married women with at least one child. Table 1 provides descriptive statistics of the study sample. It shows the percentage distribution of ever married women who have atleast one child, by age groups, educational levels, caste groups, religion, number of household members, number of living children, wealth status of family and states.

VARIABLES USED IN EMPIRICAL MODEL

Outcome variable

The outcome variable is binary variable depicting current usage of modern contraceptive method. Modern contraceptive method includes pill, IUD (intra uterine device), injections, diaphragm, condom, female sterilization, male sterilization, Implants, female condom, foam/jelly and lactational amenorrhea. I'm looking at "current contraceptive usage" as this is a cross-

[4] Integrated Child Development Services (ICDS) is a family welfare programme targeted at children below 6 years of age and their mothers providing services such as immunization, supplementary nutrition, health checkup and preschool education along with being the source of information on health and nutrition. The services are provided through Anganwadi centres.

sectional analysis involving variables containing information on a respondent's status in the time period of 2005 to 2006.

Individual level variables

In the empirical analysis controls for individual characteristics such as age (second order polynomial), education, percentage of children who are boys (indicator of son preference), working status, husband's education, standard of living, media exposure to family planning ads are included. To answer research questions 1 and 2, one need to know whether the respondent has say in her health care and also interacts with people. NFHS survey has items on decision-making in household matters and freedom of movement. Therefore women autonomy variables such as a) respondent's say in health care and b) permission to visit friends or family are included in the empirical model. Provided a woman has the freedom to interact, reproductive choices should be part of the conversation with the women she interacts with. NFHS-III does not contain information on survey respondent's interaction with family members or friends/neighbors regarding family planning, but does ask the respondent if a health worker from family planning programme[5] visited them in the last three months. Data is not available on caste or religion of friends, neighbors and health worker; therefore it is a challenge to determine the social network of the respondent.

Community level variables

[5] Health worker encompasses anganwadi workers (AWW), accredited social health activist (ASHA), auxiliary nurse midwife (ANM), multipurpose worker (MPW) from sub-health center (SHC), lady health visitor (LHV) from Family Welfare Planning Center. Role and primary functions of each health worker differ but they do form a team to provide various maternal and child health services. AWW workers are primarily involved in women and children health and work through anganwadi centers (AWC), ASHAs are local women trained to act as health educators and promoters in their communities while ANMs are paramedics providing family planning and immunization services. A MPW provides general assistance to ANMs and a LHV supervises all ANMs in her area.

To estimate the impact of caste network on contraceptive use, information is required on caste of people who provided family planning advice to respondent. There is evidence of anganwadi workers not discriminating against women and children belonging to Muslim community (see Dasgupta, Mani and Singh, 2016). Family members including in-law relations belong to the same caste of the respondent. One cannot draw the same conclusion about neighbors, friends and health workers. As such information is not directly available in NFHS – III, the author calculates a proxy variable CUSC depicting the percentage of women using contraceptive, in the primary sampling unit (PSU) that the respondent is residing in. As mentioned above, NFHS's primary sampling units are census blocks in urban areas and villages in rural areas, therefore assuming that PSU form the community/neighborhood of a woman is not far-fetched. PSU-level statistics (proportions and averages) have been used by McNay et al (2003), Morsund and Kravdal (2003); Trend et al (2013) and Rajan (2015) to investigate the impact of community level effects on contraceptive choices and other outcomes for Indian women[6].

This variable is calculated for each caste group which will capture any cross-caste effect in the empirical model. The author hypothesizes that women are interacting with other females from the same caste and/or religion. Even though information is not directly available from NFHS, one can make an educated guess from the social dynamics prevalent in India. Vithayathil and Singh (2011) found high level of caste-based residential segregation in Indian cities and it trumped residential segregation by socioeconomic status. Gayer and Jaffrelot (2011) in their ethnographic study of Muslim communities across 11 cities in India found that residential segregation across religious lines have attenuated in the last 25 years. Using household level data from NFHS, I calculated religion based and caste based dissimilarity index for Indian states

[6] The articles mentioned used various rounds of NFHS data

using PSUs as the geographical unit of analysis (see Table 2). Vithaythil and Singh's (2013) work on residential segregation in large cities and small town in the state of Karnataka found that rural areas are more likely to be segregated by caste than urban areas. We find evidence of this relationship in Table 2, except for Rajasthan, Mizoram, Goa and Tamil Nadu. Maharashtra and Karnataka have more religion-based segregation in urban areas compared to rural areas. In a comparative sense, urban areas in Indian states are faring better when it comes to residential segregation but the figures are high in absolute numbers, therefore there is suggestive evidence that people of same caste and of same religion live close to each other and are neighbors.

Caste Religion Interface

As caste system is a social hierarchy within Hindu religion, one would assume such segmentation does not exist for people of other faiths in India. Table 3 shows that certain percentage of non-Hindu women identify themselves as belonging to SC, ST and OBC caste groups. In India Christianity and Islam have historically evolved into a social composition which is a blend of a 'foreign' or non-indigenous religion with local cultures and traditions in India. There is a caste and religion interface in India which has led to formation of groups such as "Dalit Christians" and "Dalit Muslims", a form of social hierarchy in non-Hindu groups. We can find evidence of this social phenomenon in our study sample. The empirical model is expanded to include another set of PSU-level variables. Modern contraceptive use proportions are calculated for three major religious groups. Doing so enabled the investigation of influence of peer group (religion or caste) on modern contraceptive use.

<u>State level variables</u>

Indian states and union territories are not uniform when it comes to their performance on various economic, health and education indicators. There is wide disparity in state GDPs, literacy and fertility levels. The per capita state GDP ranged from Rs.7588 (Bihar) to Rs.80,844 (Goa) in 2005-2006. In the same fiscal year, the five poorest states in terms of per capita state GDP were Bihar, Uttar Pradesh, Madhya Pradesh, Assam and Jharkhand while the five richest states were Goa, Chandigarh, Delhi, Punducherry and Andaman & Nicobar islands[7]. The poorest states tend to have low literacy rates and high infant mortality and maternal mortality rates[8]. In terms of population policy, the National Population Policy of 1976 allowed state legislatures to pass legislation on compulsory sterilization. Taking into consideration interstate variation in major economic and social indicators and separate efforts made by individual states in crafting their population policy, state fixed effects are included in the empirical model.

METHODOLOGY

To examine the impact of community on contraceptive use of women, the following multilevel model (3-level) is estimated using STATA's xtmelogit procedure. As respondents to NFHS are clustered in primary sampling units which are in turn clustered in states, the analytical strategy that takes into account clustering of observation is multilevel modeling. Regression models that do not take into account the fact that errors are correlated across individuals in a cluster greatly overstate the significance of covariates included in the model. The xtmelogit procedure allows for many levels of nested clusters and calculates robust standard error (of regression coefficients) that takes into account cluster level correlation.

[7] Ministry of Statistics and Programme Implementation.
[8] Census 2001 `and Census 2011

$C_{ijs} = \alpha_{js} + \beta X_{ijs} + \lambda CUSC_{js} + \mu State_s + E$ *where* $E = e^{ijs} + e^{js} + e^{s}$

C_{ijsy} is a binary variable denoting contraceptive usage of individual "i" in primary sampling unit "j" in state "s". X_{ijs} are respondent level covariates – age (quadratic), education, caste, percentage of girl children, standard of living, exposure to family planning advertisements and freedom of movement. A control for presence of anganwadi/ICDS centre in PSU of the respondent is included to take into account the reach of public health programmes targeted at women and children. State dummies are included in the empirical model to control for different economic conditions that persist among Indian states and for state government's family planning initiatives.

The coefficients, λ^{SC} to λ^{GC} will capture the influence of caste network on contraceptive use, but the estimate will be biased if the respondent is self-selecting herself to a particular caste because she identifies with its group behavior more relative to other caste groups. There is evidence that Indian men and women follow the endogamous rules of marriage laid down by the caste system; one is married into the same caste that they are born into instead of selecting a partner from another caste group[9]. The rules of communication set down by the patriarchal society, residential segregation and endogamous rules of marriage ensures that inter-caste interaction at a social level is minimum. Therefore, the author expects that the bias in the coefficients due to selection effects will be minimal.

RESULTS and DISCUSSION

Not surprisingly age is the biggest determining factor (z-stat of -53). On average, age at marriage and age at first child for the women in the sample are 18 years and 20 years

[9] India Human Development Survey 2004-2005 found that 95 % of females in their sample, married within their own caste (Desai and Dubey, 2011).

respectively, showing that Indian women tend to marry and have children at young ages. Contraceptive usage witnesses an upward tick as women cross the threshold of 30. The evidence of son preference in our representative sample of married women can be gauged through the negative sign on "percent daughter" variable. Having more daughters than boys encourages a woman to keep trying for male child. With a z-statistic of -26, this variable is the most significant individual level variable after age.

One can observe interesting caste dynamics as women belonging to general caste are more likely to use modern contraceptive relative to women belonging to scheduled caste, scheduled tribe and other backward caste. One can draw the same conclusion for Hindu women in terms of their usage of modern contraceptive methods, while Muslim and Christian women do not go for modern contraceptive methods. Literature has documented the inter caste and inter religion differences in contraceptive usage in India, but it is unclear about the actual mechanism. Majority of Indian Christians are Catholics (BBC Fact File) and Catholic Church does not support contraception. Islam also does not hold a favorable view of family planning. It is not known if there exits any Hindu religious dogma that explicitly forbids its practitioners from using contraceptives. Also, whether the dogma is differentially enforced across jatis and caste groups is an unanswered question. Currently there is no research work on understanding the contraceptive preferences of practitioners of other religions such as Sikhism, Buddhism, Jainism and Zoroastrianism.

The direction of the coefficients for low income and middle income dummy variable are in the expected direction, as women belonging to households with less resources do have less money to buy contraceptives. Other factors that have positive association with choosing modern contraceptive are media exposure to family planning programmes and being employed.

Exposure to television improves a woman's outlook and can modify their perception towards women autonomy and son preference (see Jensen and Oster, 2009). This variable is the third most significant individual level variable. Also, woman who has more say in health matters are more likely to choose modern methods of contraception. This result is in congruence with what has been documented in the literature.

In case of educational status of women and her partner, the results point out the misnomer that highly educated individuals are less keen on modern contraceptive methods. Patel, Badhoniya, Mamtani, Kulkarni (2013) analyzed the sex ratio among families headed by physicians (more educated and wealthy than an average Indian) and found it to be more skewed than the national average. Another interesting result from the paper was that the likelihood of having a third child increases when the first two children are females. Therefore education alone cannot ensure that an individual will prefer small families as societal and family expectations can overrule such preferences.

Research Question 1

The empirical results of Model 2 in Table 4 show that there is a positive same-caste and cross-caste effect. If a higher proportion of women belonging to certain caste community use modern contraceptive, that has a positive association with probability of an individual women choosing a modern contraceptive, irrespective of the caste community she belongs to. The coefficients on SC , OBC and Hindu dummy variables are not significant while dummy variables signifying Muslim and Christian religious affiliation are significant in Model 1. Introduction of caste-based community level variables in Model 2, reduced the significance level of ST caste dummy, providing evidence that caste influences contraceptive choice through the peer group channel.

Individual caste affiliation matter to the extent that it helps the woman to select her peer group. She draws on the resources of her already selected peer group to make her choice.

Due to the caste-religion interface, Model 1 is modified to include religion based community level variables. This gives us Model 3. Hindu women as a group seem to have the most positive influence on a woman's preference for modern contraceptive. Peer groups formed by Muslim and Christian women are equally influential eve though not as strong as social network formed by Hindu women. The sign and significance of Hindu, Muslim and Christian dummy variables do not change much from Model 1. This result seems to suggest that Muslim and Christian women are more individualistic than Hindu women.

In the final model in Table 4, both caste-based and religion-based community level variables are included in the analysis. The positive sign on caste based and religion based community level variables in Model 4 show that irrespective of religious and caste affiliation, when more women in a neighborhood choose modern contraceptive, it has a positive association with an individual woman's choice.

Research Question 2

The surprising result is the negative association between interaction with health worker and woman's decision to choose modern contraceptive. Health workers play a vital role in taking the message of family planning to women and the results suggest that they are not successful in doing so. There can be couple of reasons why this is the case. One reason may be that caste and religious discrimination is being practiced by the health worker or by the respondent or by both. Dasgupta, Mani and Singh (2016) did not find evidence of religious discrimination being practiced by anganwadi workers in Chandigarh and Delhi, but the results may not be extended to

rest of India. NFHS-III did not collect information on caste affiliation, educational status, age and gender of health workers, therefore it was not possible to control for such covariates in the empirical model. The second reason may be that health workers are not effective communicators of message on family planning. It is not known what kind of initial and on the job training is imparted to health workers and whether there exists a feedback mechanism through which health workers can relay the difficulties and challenges they face while performing their duties.

Research Question 3

The empirical results show that the longer an anganwadi center has been operating in a village or town; it has a positive impact on the analyzed choice. The negative and significant coefficient for the second order term of operating period of anganwadi center shows that there are diminishing returns; the anganwadi centers are effective at diffusing the message of family planning when they start operating but the impact loses steam as time goes on. This makes the negative sign on "interaction with health worker" more worrying as effective engagement of health workers with women from local community can counter the diminishing returns from the long serving status of an anganwadi center. Also as anganwadi centers provide multiple healthcare services, it would be interesting to see if similar results are found for other maternal and child health outcomes.

CONCLUSION

This paper investigates the influence of caste network on contraceptive choices made by married Indian women in 2005. Caste and religion-based network are strong determinants of decision made by women. Individual level characteristics such as age and son preference play the most dominant role. Being exposed to advertisements on family planning and working status are mediating factors. The results point out that health workers are not effective in getting the

message across when interacting one-to-one with young married women on issues of health and family planning. Longer presence of anganwadi in a locality shows that the message of family planning has been diffused in the community leading to a positive sign on the coefficient of the variable.

The author would like to point out two issues that were unclear. The first is regarding the 10 year gap between the third and fourth cycle when the time gap between previous survey cycles had been around six to seven years. Lack of health data on a population that is witnessing rapid transformation in terms of available economic opportunities is a serious concern. The author also noticed inconsistency in questionnaire items. Questions on influence of family members on contraceptive usage were asked of respondents in 1998-1999 survey cycle but not in 2005-2006 survey cycle. It is not clear to the author why this is the case and hopefully this particular question will be reintroduced in the 2015-2016 survey round. In conclusion, the author would assert that NFHS is one of the most comprehensive and nationally representative health surveys on Indian population and therefore a valuable resource for researchers and policymakers alike.

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Like Mother, like Daughter and Also like Mother-in-law? Influence of Older Generation's Fertility Behaviours on Daughter's Family Size Preferences in India Abhishek Kumar, International Institute for Population Sciences (IIPS), Raya Muttarak, Wittgenstein

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Table 1: Characteristics of Ever-Married Women with atleat one child in NFHS 2005-2006 sample survey	
Age in 5-year groups	
15-19	2.43
20-24	13.89
25-29	19.95
30-34	19.43
35-39	18.19
40-44	14.92
45-49	11.18
Education Level	
No Education	40.60
Primary	15.65
Secondary	35.64
Higher	8.11
Religion	
Hindu	76.04
Muslim	11.20
Christian	7.69
Sikh	2.31
Buddhist/Neo-Buddhist	1.36
Jain	0.42
Jewish	0.01
Parsi/Zoroastrian	0.00
No Religion	0.04
Donyi Polo	0.29
Other	0.53
Caste	
Scheduled Caste (SC)	17.60
Scheduled Tribe (ST)	13.26
Other Backward Caste (OBC)	33.65
General Caste	35.49
Household Size	
1-5 members	53.89
6-10 members	39.06
11-15 members	5.68
16-20 members	0.96
> 20 members	0.41
Number of Living Children	
1-4 children	88.10
5-8 children	11.50

> 8 children	0.40
Wealth Status of Family	
Poorest	12.87
Poorer	15.29
Middle	19.24
Richer	23.38
Richest	29.23
States grouped by Total Fertility Rate	
Below replacement rate (10 states)	38.42
2.1 to 2.4 (6 states)	17.70
2.5 to 3.6 (9 states)	25.74
3.7 to 4.0 (4 states)	18.14

Note: Unweighted Percentage Distribution

Table 2:Dissimilarity Indices by Type of Area

	Dissimilarity Indices for Non-Hindu Groups		Dissimilarity Indices for Lower Caste Groups	
State	Urban	Rural	Urban	Rural
Jammu And Kashmir	29.35	59.09	26.36	50.13
Himachal Pradesh	29.26	43.28	9.39	31.17
Punjab	19.02	39.98	12.90	20.61
Uttaranchal	30.03	45.31	15.56	33.46
Haryana	11.18	68.16	10.61	34.48
Delhi	56.52	3.36	44.42	2.07
Rajasthan	23.22	47.41	23.76	32.55
Uttar Pradesh	33.92	37.18	23.69	25.70
Bihar	30.40	46.06	19.57	34.65
Sikkim	9.72	26.00	25.75	29.16
Arunachal Pradesh	13.35	43.80	15.26	50.87
Nagaland	38.25	30.49	40.74	27.81
Manipur	28.00	43.82	25.11	35.29
Mizoram	52.60	25.23	59.84	29.20
Tripura	13.29	59.60	9.12	33.21
Meghalaya	35.58	38.50	33.16	49.62
Assam	17.11	56.94	12.98	31.58
West Bengal	42.36	37.63	25.67	27.29
Jharkhand	25.72	45.91	25.88	33.55
Orissa	30.96	41.39	16.59	37.26
Chhattisgarh	37.23	37.23	29.85	36.00
Madhya Pradesh	47.12	28.14	32.01	27.13
Gujarat	32.34	46.36	24.63	29.97
Maharashtra	45.09	13.25	34.33	14.71
Andhra Pradesh	46.27	17.56	37.23	17.97
Karnataka	30.25	30.81	20.05	39.43
Goa	24.22	32.25	15.52	19.85
Kerala	16.75	32.84	11.06	22.34
Tamil Nadu	29.96	27.11	50.35	24.49

Source: Author's calculations based on NFHS-3 Household data file

Table 3: Caste Religion Interface

	Hindu	Muslim	Christian	Sikh	Buddhist/Neo-Buddhist	Jain	Jewish	Parsi/ Zoroastrian	No Religion	Donyi Polo	Other
Scheduled Caste (SC)	20.5%	3.0%	5.4%	24.0%	51.3%	0.0%	0.0%	0.0%	8.6%	0.0%	3.8%
Scheduled Tribe (ST)	8.2%	2.0%	71.8%	0.2%	41.3%	0.0%	60.0%	0.0%	65.7%	98.4%	82.7%
Other Backward Caste (OBC)	37.0%	37.4%	12.9%	9.7%	4.4%	8.9%	0.0%	0.0%	17.1%	0.0%	2.3%
General Caste	34.3%	57.6%	9.9%	66.1%	3.0%	91.1%	40.0%	100.0%	8.6%	1.6%	11.2%

Note: Unweighted Percentage Distribution

Table 4: Results of Mixed Effects Logistic Regression

	Probability of Using Modern Contraception							
	Model 1		Model 2		Model 3		Model 4	
	Coeff	Z-stat	Coeff	Z-stat	Coeff	Z-stat	Coeff	Z-stat
Age	**0.48**	**53.90**	**0.48**	**53.64**	**0.48**	**53.60**	**0.47**	**53.53**
Square of Age	**-0.01**	**-49.43**	**-0.01**	**-49.15**	**-0.01**	**-49.05**	**-0.01**	**-48.98**
Percentage of Daughters among Children	**-0.66**	**-26.98**	**-0.65**	**-26.74**	**-0.63**	**-26.14**	**-0.63**	**-26.14**
Caste (Reference Group=General Caste)								
Scheduled Caste	0.00	-0.16	-0.03	-1	-0.01	-0.27	-0.02	-0.64
Scheduled Tribe	**-0.15**	**-3.94**	-0.07	-1.95	-0.05	-1.37	-0.04	-1.07
Other Backward Caste	-0.01	-0.32	-0.02	-0.79	-0.01	-0.25	-0.02	-0.67
Religion (Reference Group=Non Hindu,Non Muslim or Non Christian)								
Hindu	0.03	0.69	0.01	0.3	-0.02	-0.49	-0.03	-0.64
Muslim	**-0.44**	**-7.70**	**-0.34**	**-6.37**	**-0.36**	**-6.63**	**-0.32**	**-6.03**
Christian	**-0.42**	**-6.53**	**-0.37**	**-6.02**	**-0.40**	**-6.57**	**-0.39**	**-6.37**
Education (Reference Group=Tertiary Education)								
Woman's education								
No Education	**0.12**	**6.45**	**0.12**	**2.8**	**0.14**	**3.47**	**0.13**	**3.24**
Primary Education	**0.27**	**3.63**	**0.27**	**6.37**	**0.30**	**7.12**	**0.28**	**6.88**
Secondary Education	**0.13**	**2.84**	**0.13**	**3.51**	**0.15**	**4.34**	**0.14**	**4.09**
Partner's education								
No Education	0.04	1.24	0.06	1.66	0.05	1.54	0.06	1.73
Primary Education	**0.22**	**6.11**	**0.22**	**6.18**	**0.22**	**6.20**	**0.22**	**6.22**
Secondary Education	**0.08**	**2.75**	**0.08**	**2.8**	**0.08**	**2.90**	**0.08**	**2.91**
Wealth Index (Reference Group=High Wealth Index)								
Low	**-0.31**	**-10.73**	**-0.28**	**-9.88**	**-0.29**	**-10.49**	**-0.28**	**-10.05**
Medium	**-0.09**	**-3.88**	**-0.07**	**-3.21**	**-0.08**	**-3.60**	**-0.07**	**-3.27**
Individual Woman's Autonomy								
Final say in health matters (no=reference)	**0.12**	**6.19**	**0.12**	**5.98**	**0.11**	**5.78**	**0.11**	**5.75**
Final say in visiting relatives (no=reference)	-0.02	-0.56	-0.02	-0.6	-0.02	-0.88	-0.02	-0.82
Working (no=reference)	**0.08**	**4.26**	**0.10**	**5.15**	**0.09**	**5.08**	**0.10**	**5.42**

Other individual covariates								
Media Exposure to Family Planning Ads (no=reference)	**0.29**	**14.19**	**0.27**	**13.34**	**0.25**	**12.66**	**0.24**	**12.43**
Community Level Variables								
Proportion of Women in PSU using modern contraceptive								
Scheduled Caste			**0.53**	**13.83**			**0.21**	**6.12**
Scheduled Tribe			**0.52**	**12.12**			**0.30**	**8.09**
Other Backward Caste			**0.95**	**21.15**			**0.46**	**11.16**
General Caste			**1.01**	**22.41**			**0.48**	**11.41**
Hindu					**2.95**	**47.82**	**2.27**	**32.70**
Muslim					**0.42**	**10.13**	**0.30**	**7.44**
Christian					**0.43**	**8.25**	**0.35**	**6.83**
Non Hindu,Non Muslim or Non Christian					**0.31**	**6.15**	**0.19**	**3.87**
Number of Individuals	80308		80308		80308		80308	
Number of Primary Sampling Units	3832		3832		3832		3832	
Number of States	29		29		29		29	

Note: Bold Coefficients and Z-statistic denote significance above 95 percent confidence level.

Table 5: Results of Mixed Effects Logistic Regression

	Probability of Using Modern Contraception					
	Model 5		Model 6		Model 7	
	Coeff	Z-stat	Coeff	Z-stat	Coeff	Z-stat
Media Exposure to Family Planning Ads	**0.25**	**12.54**	**0.22**	**9.59**	**0.22**	**9.75**
Proportion of Women in PSU using modern contraceptive						
Scheduled Caste	**0.21**	**6.14**	**0.28**	**6.67**	**0.28**	**6.64**
Scheduled Tribe	**0.31**	**8.13**	**0.29**	**6.43**	**0.29**	**6.46**
Other Backward Caste	**0.46**	**11.09**	**0.51**	**10.05**	**0.51**	**10.01**
General Caste	**0.48**	**11.34**	**0.38**	**8.05**	**0.38**	**8.00**
Hindu	**2.28**	**32.67**	**2.43**	**29.00**	**2.43**	**28.96**
Muslim	**0.29**	**7.30**	**0.33**	**6.89**	**0.33**	**6.79**
Christian	**0.34**	**6.72**	**0.43**	**7.00**	**0.42**	**6.92**
Non Hindu,Non Muslim or Non Christian	**0.19**	**3.81**	**0.15**	**2.21**	**0.14**	**2.18**
Interaction with Health Worker						
Met a health worker in the last three months	**-0.19**	**-8.32**			**-0.20**	**-8.05**
Diffusion of Family Planning Message						
Number of years an Anganwadi center has been open in an PSU			-0.0009	-0.18	0.0003	0.06
Square of Number of years			1.52E-06	0.01	-2.69E-05	-0.16
Number of Individuals	80308		57820		57820	
Number of Primary Sampling Units	3832		2776		2776	
Number of States	29		29		29	

Note: Bold Coefficients and Z-statistic denote significance above 95 percent confidence level.
All Models control for individual characteristics denoted in Table 4.