

Modelling the impact of poverty on contraceptive choices in Indian states

Oliveira, Isabel Tiago

ISCTE – Lisbon University Institute, Department of Social Research

Av. das Forças Armadas

1649-026 Lisboa, Portugal

isabel.oliveira@iscte.pt

Padmadas, Sabu S.

University of Southampton. Centre for Global Health, Population, Poverty & Policy

Southampton, United Kingdom

S.Padmadas@soton.ac.uk

Dias, José G.

ISCTE – Lisbon University Institute, Department of Quantitative Methods

Av. das Forças Armadas

1649-026 Lisboa, Portugal

jose.dias@iscte.pt

Introduction

India launched an official family planning programme during the early 1950s with a clear demographic agenda for reducing the burgeoning population growth rate. The programme strategically focused on promoting long-term contraceptives, particularly vasectomies through mobile camps and health facilities at the village levels. A critical feature of the Indian family planning programme during the 1970s has been the coercive approach which initially targeted families with three or more children which eventually led to the fall of the then government under the leadership of Mrs. Indira Gandhi. Later the programme shifted its focus towards compulsory female sterilization where financial incentives were offered to couples willing to accept sterilization. Although a target-free approach was introduced in 1998 based on the principles of informed choices, female sterilization has become the most popular and widely used method, embedded within the social structures and health systems across Indian states (Saavaala, 1999; Visaria, Jejeebhoy, and Merrick, 1999).

Female sterilization constitutes to over two-third of overall method mix in India, although the recent trends show a shift in method mix towards more modern methods (IIPS and ORC Macro, 2007). Nonetheless, about one-half of women do not use any method, especially modern spacing methods. The e

xtent to which the method uptake is distributed across various socioeconomic groups is not systematically investigated, especially the mediating effects of individual and household factors influencing method use. Using data from the 2005-06 National Family Health Surveys, this research investigates the influence of household wealth on women's contraceptive adoption.

Data and Methods

This research uses the Indian National Family Health Survey from 2005-06 (NFHS-3). The survey includes a large number of variables including reproductive histories, demographic, social and economic characteristics from women and relevant data on household characteristics. The NFHS data on wealth is based on household assets describing current economic status of the household. Therefore, the poverty-wealth dimension, resulting from the NFHS-3 data, can be related only with current contraceptive options. Besides some obvious life-cycle variables, as women's age and reproductive history, contraceptive use has been associated with socioeconomic factors such as women education, occupation and wealth as well as religious affiliation, women empowerment and exposure to family planning messages.

We are restricting the analysis to recent time period (excluding the sterilized women before the last five years) to adjust for the correspondence between outcome variable and wealth effects and by doing this we can overcome, to some extent, potential endogeneity in the analysis. This new database includes only the not sterilized women and recently sterilized women (in fertile ages). Furthermore, since the research focus was on wealth effects on contraceptive use, we select only women for which contraception is an actual concern: fecund married women (with non-sterilized husbands) with sexual experience and living in the household.

In order to understand the effect of the economic situation on the use of contraception it is necessary to control other demographic and social factors. Besides family wealth, we examine the effects of other household features such as the geographical region, place of residence (urban or rural), religion (Hindu, Muslim or other religious affiliation), and caste/tribe (scheduled caste, schedule tribe, other backward class and none of them). We also look at the women and the husband individual characteristics, as age, education (no education, primary, secondary, higher) and occupation, the number of offspring and composition, because of the importance of son preference in the South Asian context. Beyond these socio demographic variables, two other elements were added to the picture: the exposure to family planning messages from the mass media (on radio, television and newspapers) and the person who decides on women healthcare (herself, partner, both or someone else). In addition, the household structure (nuclear or non-nuclear) was set in the model. The wealth index depends on the household assets, so an equivalent amount of assets can have different meanings in small and large households.

As contraceptive use is associated with multiple factors, at individual, couple, family and community levels, the control of this multiples variables is essential, in order to compute the adjusted odds. As the number of control variables is large, we present only the results for the socio-economic factors discussed in the paper and some policy relevant topics, as the ones for the exposure to family planning messages. The analysis is performed by logistic regression.

Results

Our goal is to understand the impact of the poverty-wealth dimension on the adoption of contraception in India. Table 1 reports the descriptive results for fertile married women, living in the household with sexual experience, for which the contraception is a present day option or a relatively recent one (the sterilized women before the last 5 years were excluded from the analysis).

Table 1. Socio-economic factors and birth control adoption method

		N	%	Contraception Use	
				No (%)	Yes (%)
Female age group	15-19	3488	10,4	80,8	19,2
	20-24	9005	26,8	50,8	49,2
	25-29	9885	29,4	31,9	68,1
	30-34	6582	19,6	27,3	72,7
	35-39	3209	9,5	32,3	67,7
	40-44	1131	3,4	43,0	57,0
	45-49	311	0,9	56,1	43,9
Living boys (gr)	0	10127	30,1	66,3	33,7
	1	12528	37,3	34,9	65,1
	2	7306	21,7	23,0	77,0
	3 +	3650	10,9	34,8	65,2
Living girls (gr)	0	11832	35,2	56,4	43,6
	1	11745	34,9	33,5	66,5
	2	5927	17,6	32,3	67,7
	3 +	4106	12,2	36,7	63,3
Houshold structure	Nuclear	15224	45,3	35,8	64,2
	Non-nuclear	18387	54,7	46,7	53,3
Type of caste or tribe	Scheduled caste	6320	18,8	42,4	57,6
	Scheduled tribe	2690	8,0	52,2	47,8
	Other backward	13051	38,8	44,5	55,5
	None of them	10427	31,0	36,6	63,4
Female education	No education	13888	41,3	47,5	52,5
	Primary	4837	14,4	42,3	57,7
	Secondary	12196	36,3	37,7	62,3
	Higher	2689	8,0	29,8	70,2
Wealth index	Poorest	6492	19,3	51,6	48,4
	Poorer	6667	19,8	46,0	54,0
	Middle	6469	19,2	44,2	55,8
	Richer	6792	20,2	37,6	62,4
	Richest	7191	21,4	30,6	69,4
Heard FP on radio last months	No	22353	66,5	43,4	56,6
	Yes	11258	33,5	38,5	61,5
Heard FP on TV last months	No	17399	51,8	48,7	51,3
	Yes	16212	48,2	34,3	65,7
Heard FP newspaper last months	No	26296	78,2	44,5	55,5
	Yes	7315	21,8	31,9	68,1

Half of the women in the sample are between 20 and 30 years old. Age is associated with the use of contraceptive methods, with the highest values between the 25 and 40 years and the lower one for the

youngest women.

Contraception is dependent of the number of offspring; particularly to the number of male children (if the women had two male children the contraceptive prevalence is 10% higher than if the women had two living girls).

Household structure is also an important factor: the women in nuclear households have higher contraceptive rates.

Regarding the sample distribution by caste system, almost 40% of the women are in other backward classes, and nearly 30% in none of the standard categories. The schedule caste has almost 20% of the sample and the schedule tribe almost 10%. The women from tribe category have the lowest contraception rate, the women from caste and other backward class have an intermediate situation and the higher birth control adoption rate is founded in the women that do not classified themselves according with none of the previous categories.

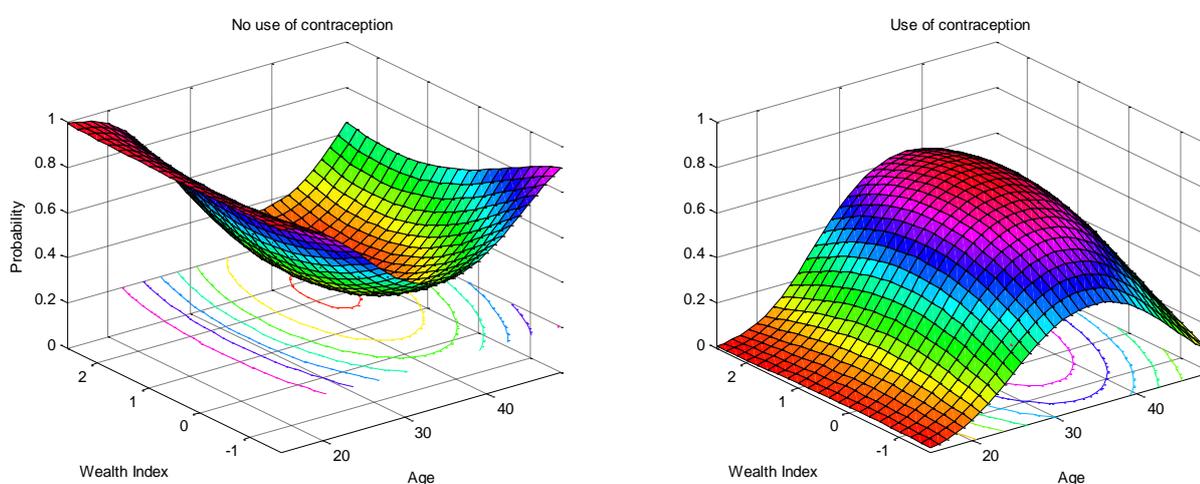
Education, both for females and males, has also an important role: the percent of contraceptive users increases from around 50% to 70% between no educated women and the ones with higher education. The wealth index is positively associated with the adoption of contraception: the increase from the first to the last quintile is about 20%.

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The exposure to family messages in the media is more frequent in TV, almost half of the sample, and less usual in radio or newspapers. The difference between the contraceptive rates according to the type mass media exposure is almost 5% in radio, around 15% for TV and around 13% for newspaper.

Figure 1 emphasizes the impact of wealth index on the probability of using contraception for different ages. As expected, contraceptive use has an ideal point based on age – a maximum probability for intermediate ages – and the same for wealth index. In particular, for same age, the prevalence of the use of contraception is lower for lower wealth values.

Figure 1. Probability of using contraception by age and wealth index



In order to understand the impact of the socioeconomic factors a binary logistic regression was

employed. The model estimates (Table 2) for the socio-economic factors and policy-relevant questions are adjusted for other individual variables not discussed in this paper (region, urban/rural residence, religion, husband age, education and occupation, women occupation, and final say in health care).

Table 2. Binary logistic regression for contraception use

		Exp(B)	
Female age	15-19	-	
	20-24	1,54	*
	25-29	1,80	*
	30-34	1,86	*
	35-39	1,36	*
	40-44	0,98	
	45-49	0,54	*
Living boys	0	0,28	*
	1	-	
	2	2,59	*
	3+	1,92	*
Living girls	0	0,39	*
	1	-	
	2	1,27	*
	3+	1,16	*
Household structure	Non Nuclear	-	
	Nuclear	1,16	*
Type of caste / tribe	Schedule caste	-	
	Schedule tribe	0,71	*
	Other back class	0,83	*
	None of them	1,07	
Female education	No education	-	
	Primary	1,39	*
	Secondary	1,57	*
	Higher	1,82	*
Wealth index	Poorest	-	
	Poorer	1,31	*
	Midle	1,37	*
	Richer	1,60	*
	Richest	1,91	*
FP message Radio	No	-	
	Yes	1,06	*
FP message TVo	No	-	
	Yes	1,49	*
FP message Newspaper	No	-	
	Yes	1,11	*
Pseudo R-Square		0,32	

The life cycle variables are important predictors of contraceptive use. The chances to use contraception increases with age until the middle 30's, after what the odds decrease. The number of children is the one of the most important factors: the odds to use contraception are more dependent of the number of male children than the number of girls: the women with two or more children have enlarged odds to use contraception by a factor of two or more, if compared with the mothers with only one male child. As for the number of girls the odds are increase only by 27% and 16% in the same situation.

If women live in a nuclear household the likelihood to adopt contraception is 16% higher than in the non-nuclear households.

Women from schedule tribes have less 29% chance to adopt contraception in the last 5 years than the women from schedule caste. The lower propensity to use birth control methods also happens in the women from other backward class with less 17% likelihood to use contraception. On the contrary, women which do not include themselves in any of the previous categories show a similar pattern to the ones belonging to the schedule caste.

Female education has a very strong effect. As instruction increases, contraception increases as all: the women with higher education have more 80% chances to adopt birth control than the women with no education. by a factor of two. As wealth increases contraception adoption increases – the difference between the first and the last quintile is about 90%. The exposure to family planning messages on radio increases the contraception adoption chances in by 6% if it is on the radio, by 11% if the message is in the newspaper, and by almost 50% if it is on television.

Discussion

Using data from the 2005-06 National Family Health Surveys, this research systematically examines the poverty impact on contraception use in India. Besides the factors associated with the life cycle variables, as age and offspring number and composition, contraception is positively associated with the household wealth and the women education. The number of male children, female age, household wealth and female education show the highest effects in the likelihood to use contraception.

Both socioeconomic dimensions of education and wealth affect contraceptive prevalence in the same direction, however they have different meanings: the wealth index display the effect of the current economic condition of the women referent to her situation as married woman; on the contrary, education shows the effect of the past socioeconomic background when the women was living with their parents in her family, so it reveals the à posteriori effects of socioeconomic differences in childhood and youth.

As the socioeconomic condition improve the contraceptive prevalence increases. This gradient is an important factor to achieve other health policy targets as improving maternal and child health. Besides the socioeconomic impacts on contraceptive decisions, the regional and urban-rural differences are important for contraceptive use. Thus, the local implementation of the reproductive health services needs to be adjusted according with the specific demographic landscape. Mass media exposure to family planning messages is associated with the contraceptive use rate.

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