What Explains the Decline in Contraceptive Use Among Selected Indian States in the Past Decade?

Background

Family planning does not only mean of birth control, rather it has potential to reduce poverty and hunger, avert maternal and childhood deaths, increase women's empowerment, achievement of universal primary schooling, and long-term environmental sustainability (Cleland et al, 2006). In the past 40 years, family-planning programmes have played a major part in raising the prevalence of contraceptive practice from less than 10% to 60% and reducing fertility in developing countries from six to about three births per woman. However, in half the 75 larger low-income and lower-middle income countries (mainly in Africa), contraceptive practice remains low and fertility, population growth, and unmet need for family planning are high. The cross-cutting contribution to the achievement of the Millennium Development Goals makes greater investment in family planning in these countries compelling.

India is first country to adopt family planning programs in 1952 with prime motive to reduce population growth. The country had adopted a number of different strategic approaches such as a coercive target approach, a policy articulating a reproductive health and rights paradigm, contraceptive specific incentives, and a family planning camp approach. India's family planning program is conceptualized and strategized by the central government but implemented and managed by the states' government. The program is primarily sponsored and financed by the government of India, private sector too contributes up to certain extent. Family planning services are provided through a hierarchical system of facilities at subsidized rates, aiming universal access of the services, particularly among rural and marginalized women. Community health workers such as Auxiliary Midwives (ANMs), Accredited Social Health Activists (ASHAs), and Anganwadi workers link women to public health facilities by facilitating the use of various health and family planning services.

India made a considerable progress in family planning over past five decades – contraceptive use quintupled, and fertility declined from six births per women to almost births during 1971–2007 (MoHFW, 2007; SRS, 2007). However, a wide geographical and socioeconomic disparity prevailed. For instance, recent evidence from 15 states showed that use of modern contraceptives varied from 23 percent in Bihar to over 60 percent in Karnataka and Maharashtra (IIPS & ORC Macro, 2015–16). Moreover, use of modern contraceptives was 51 percent among women of wealthiest quintile compared to 25 percent among the poorest quintile (IIPS & ORC Macro, 2007). Owing to the fact of insufficient and lopsided progress in family planning, India has been a signatory of the *London Summit on Family Planning, 2012* and committed to provide family planning services to 48 million additional users and sustain the current coverage of over 100 million users till 2020. However, the current decrease in modern contraceptive use at national average and across many large and progressive states of the country needs urgent investigation. This is even important from the quality of data per se.

Otherwise, the policy drawn from misleading evidence may derailed the India's commitment to and progress of achievement of FP2020.

The present paper therefore, attempts to understand the reasons for such uneven trends in use of modern contraceptives across the selected states of India over past one decade.

Data and methods

Unit level data from two latest rounds of the National Family Health Survey (NFHS) conducted in India during 2005–06, and 2015–16 is used. The NFHS of India is similar to the Demographic and Health Survey (DHS) of other developing countries. The NFHS covers more than 99% of the India's population in each of the survey rounds. The main purpose of the NFHS is to provide reliable estimates on, age at marriage, fertility, family planning, utilization of maternal and child health care services, nutritional status of mother and children, infant and childhood mortality etc.

The NFHS adopted similar sampling design in each of the survey rounds. A two-stage sampling design was adopted in most of the rural areas – villages were selected at the first stage using probability proportional to size (PPS) sampling scheme followed by selection of households at the second stage using systematic sampling scheme. The sample in urban areas was selected in three stages. The first stage comprised of selection of urban wards using PPS sampling scheme. Census enumeration blocks (CEB) containing approximately 150-200 households were selected at the second stage. Households were selected at the third stage using systematic sampling scheme. The details of sampling design are given in the reports of the various rounds of NFHS (IIPS and ORC Macro, 1995, 2000; 2007; IIPS & ICF, 2017).

Dependent variable

Dependent variable used in the study is mCPR, which is defined as follows:

Modern contraceptive prevalence rate (mCPR): It is defined as currently married women aged 15-49 years using any modern contraceptive methods at the time of survey and measured based on the question "*Are you or your husband currently doing something or using any method to delay or avoid getting pregnant?"* Those who respond yes, were further asked *"Which method are you using?"* mCPR is a global indicator to measure family planning and used to track family planning progress across and within countries.

Independent variables

The critical determinants of contraceptive, associated with use of family planning in India and elsewhere, were considered as dependent variable, such as: age at marriage, schooling among women, exposure to outside media, household wealth quintile, contact with frontline workers, current users were ever told about side-effect of the current methods etc.

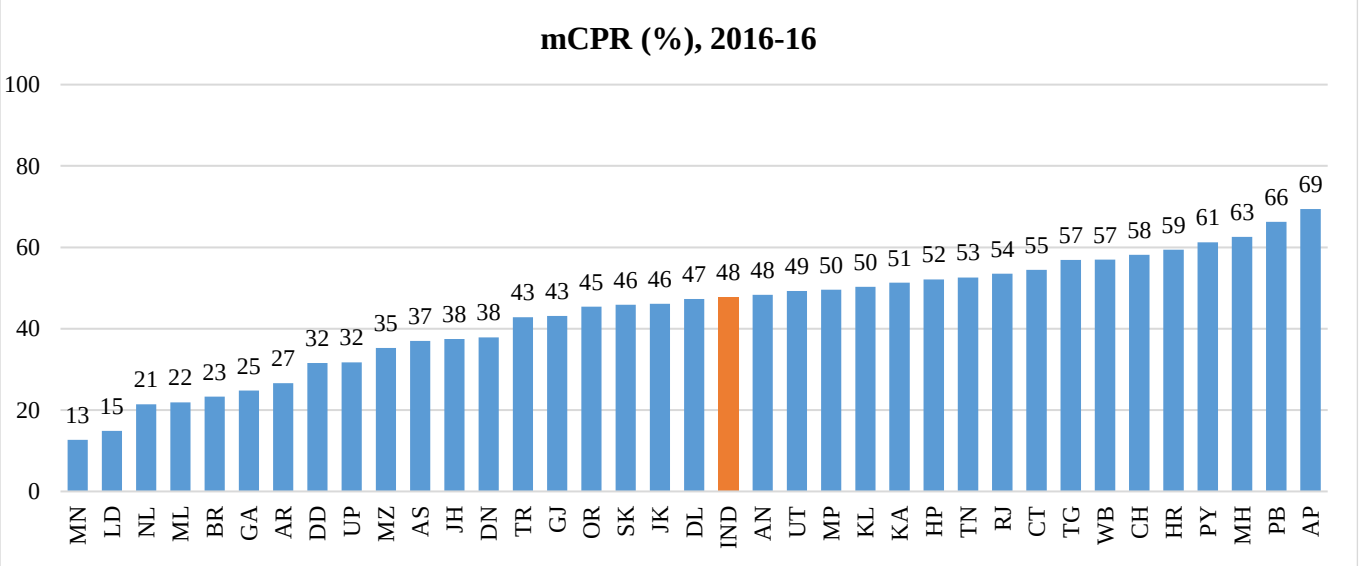
We used univariate and descriptive analysis to understand the level and trends in use of modern contraceptives across the states. We further used correlation analysis to understand the relationship between the mCPR and its predictors. We also used multiple linear regression to understand the determinants of mCPR over time. Finally, we used regression-based

decomposition analysis to understand the contribution of possible factors explaining the changes in the modern contraceptive prevalence rate over time.

Results

Figure 1 indicates that prevalence of modern contraceptive in the country is 48 percent. Moreover, there is a stark variation in prevalence of modern contraceptives across states of the country. For instance, it varies from as high as 69 percent in Andhra Pradesh to as low as 13 percent in Manipur. Out of 36 Indian states, 19 states have lower modern contraceptive prevalence rate than the national average and rest 17 states has higher mCPR than the national average. While looking the coverage across the geographic regions, in general the mCPR is lower among north and north-eastern part of the country however it is higher in south and western part of the country. This is, somehow associated with regional patter of development in the country.

Figure 1: Prevalence of modern contraceptive rate (mCPR) across selected Indian states, 2005-16



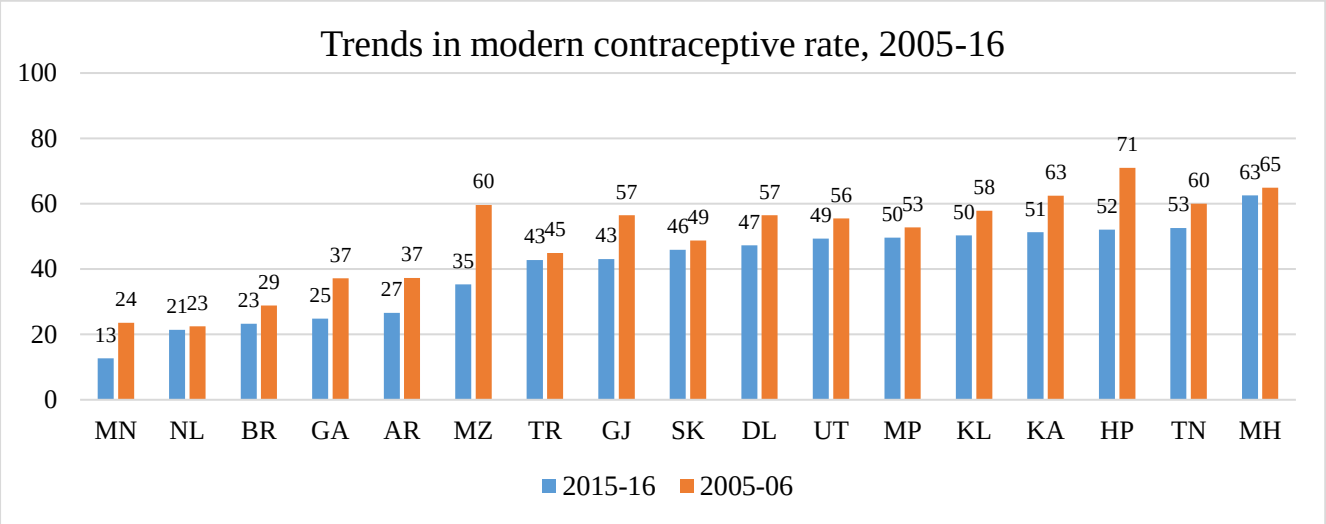
MN=Manipur; LD=Lakshadweep; ML=Meghalaya; BR=Bihar, GA=Goa, AR=Arunachal Pradesh; DD=Daman and Dew; UP=Uttar Pradesh; MZ=Mizoram; AS=Assam; JH=Jharkhand; DN=Dadar Nagar Haweli; TR=Tripura; GJ=Gujarat; OR=Odessa; SK=Sikkim; JK=Jammu and Kashmir; DL=Delhi' IND=India; AN=Andaman and Nicobar; UT=Uttarakhand; MP=Madhya Pradesh; KL=Kerala; KA=Karnataka; HP=Himachal Pradesh; TN=Tamil Nadu; RJ-Rajasthan; CT=Chhattisgarh; TG=Telangana; WB=West Bengal; CH=Chandigarh; HR=Haryana; PY=Puduchchery; MH=Maharashtra; PB=Punjab; AP=Andhra Pradesh

Trends in modern contraceptive prevalence rate over past decade

Figure 2 shows trends in prevalence of modern contraceptive across selected Indian states over past decade. Out of 36 Indian states, the contraceptive prevalence rate has declined among 17 states. Moreover, the percentage point decrease varied across the states. For instance, the decrease was 25 percentage point in Mizoram (mCPR was 60% in 2005-06 and 35% in 2015-16) and 2 percentage point in Maharashtra (mCPR was 65% in 2005-06 and 63% in 2015-16). The decline was considerable in Himachal Pradesh (19% points), Gujarat (14% points)

Karnataka and Goa (12% points in each state), Manipur (11% points), Delhi (10% points) between 2005-06 and 2015-16. For the further analysis, we focused on only those states (12 states) where the decline in mCPR was more or equal to 5 percentage points over the past decades.

Figure 2. Trends in modern contraceptive prevalence rate across selected Indian states, 2005-16



Multivariate analysis

In the multivariate analysis, first we used regression analysis to understand the determinants of modern contraceptives use then we used decomposition analysis to quantify the contribution of the factors explaining the decline in modern contraceptive use over time. Results of the analyses are presented as follows.

Decomposition analysis

Summary results of the decomposition analysis are presented in Table 1. Result indicates that after controlling other factors, the prevalence of modern contraceptive use is lower during 2015-16 than 2005-06 survey period. For instance, the probability of modern contraceptive use is 0.420 in 2015-16 compared with 0.493 in 2005-06. Result further indicates that 55 percent of such differences are explained by the factors included in the analysis. The unexplained gap (remaining 45%) might be associated with the other factors which are not available in the factsheet data set.

Table 1. Summary result of the decomposition analysis showing the mean differences in modern contraceptive prevalence rate (among selected states) between 2005-06 and 2015-16

	mCPR
Mean prediction in 2005-06	0.493
Mean prediction in 2015-16	0.420
Raw differentials	0.072
Total explained	0.040

% Explained	55.3
% Unexplained	44.7

The detail results of the decomposition analysis show that reduction in early age at marriage among women is the main contributor explaining about 20 percent of the reduction in modern contraceptive use in past one decade. Increase in women schooling (of 10 or more years) is appeared as second largest contributor (16%) in reduction in modern contraceptive use in last one year. Improved household development factors and media exposure were other contributors.

The remaining unexplained part (45%) might be associated with adoption of new technology in data collection in in the latest rounds of the survey i.e. NFHS 2015-16.

Discussion

This paper analysed level and trends in modern contraceptive use in selected states of India over past one decade. Since there is indication that use of modern family planning methods has declined across many states of India from 2005-06 to 2015-16, whereas the Total Fertility Rate is declined. This unusual pattern drawn attention for further investigations of the issue of decline in mCPR over past 10 years. Findings of the study could be summarized as followed.

Little less than half of the currently married women (aged 15-49 years) of India were using any form of modern contraceptive methods in 2015-16. This prevalence is very less against the Indian's FP2020 goal of 63.5 percent. Moreover, there is stark geographical variation in mCPR across the states of the country, as the prevalence varied from about 15 percent to about 70 percent. Moreover, the mCPR is higher among southern and western states, whereas much lower in north and north-eastern states. This is patterned with level of socioeconomic and demographic status across the states of India.

Surprisingly, out of 36 states, the country witnessed decline in mCPR in 17 states from 2005-06 to 2015-16. Moreover, out the 17 states, in 12 states, the declined was noticed more than 5 percentages points. Most importantly, the decline was observed among progressive states of Karnataka and Tamil Nadu. Most worsening situation is Bihar which one of the most populous state of country but characterised with least contraceptive use. The further analysis, hence, based on 12 states only, underlying the fact that the decomposition analysis is only statistically useful when the gap between the groups in 5 percent or larger (O'Donnell et al., 2008). Before the decomposition analysis, we examined the correlates of modern method used and found that women age at marriage and their education are strongly associated with use of modern contraceptive methods, Among the other factors, household living proxies and programmatic variables were significantly correlated with use of modern contraceptives. Mean comparison of the predictors in the past one decade indicates that there is significant and substantial decrease in early age marriage among women in the country. Finally, result of regression-based decomposition analysis indicates that more than 50 percent of the decline in mCPR overtime is explained by the selected predictors. Among the predictors, reduction in early age at marriage remained largest contribution for reduction in the mCPR. Women education and household living status are other predictors contributing in reduction of mCPR over time.

Reference

- International Institute for Population Sciences (IIPS) & Ministry of Health and Family Welfare (2009) District Level Household and Facility Survey under Reproductive and Child Health Project (DLHS-3). District Fact Sheet, 2007-08. IIPS, Mumbai, India.
- International Institute for Population Sciences (IIPS), ORC Macro. 1995. National Family Health Survey (NFHS-1), 1992-93: India, Vol. I. Mumbai: IIPS.
- International Institute for Population Sciences (IIPS), ORC Macro. 2000. National Family Health Survey (NFHS-2), 1998-99: India, Vol. I. Mumbai: IIPS.
- International Institute for Population Sciences (IIPS), ORC Macro. 2007. National Family Health Survey (NFHS-3), 2005-06: India, Vol. I. Mumbai: IIPS
- O'Donnell O, Doorslaer EV,Wagstaff A, Lindelow M (2008) Analysing health equity using household survey data: A guide to techniques and their implementation. World Bank Institute Learning Resource Series, The World Bank, Washington, D.C.