

# **Alternative Data Sources for Demographic and Health Statistics in India**

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As a country progresses on the path of development, its demand for having periodic information on diverse aspects of socio-economic, health and other aspects of its population will grow. This is true for policy making, programme implementation as well as for monitoring the programmes. The data sources commonly utilized for such purposes are one or a combination of the following: registration and surveys -- both complete enumeration surveys and sample surveys. Administrative reporting also provides information in many cases. For informed decision making it is pertinent to check the coverage, reliability and timeliness of the different sources.

The aim of the present note is to present a brief discussion on the availability of different data sources in India and their usefulness in making decisions in fertility and health related aspects. There have been important changes in the population policy in India in the recent past. As stated in the policy, the programme is now geared towards providing client centered, demand driven and good quality services. Both planning as well as programme implementation have been decentralized with a view to have greater participation from the community as well as the local government. Expectedly, this has resulted in greater demand for having basic data on population, by different sub groups of population at the lowest possible aggregation level, namely, at the village level.

### **a) Census:**

Census is generally a decennial affair. India is the second most populous country in the world. According to 2001 census, its population was 1027 million distributed over 28 states and 7 union territories. Census taking is a gigantic affair and it cannot perhaps be done at a shorter interval of time. In fact, it takes time to manage the data and publish all the information. Although the first census in India was conducted in 1872, since 1881 it has been under taken periodically every ten years in a synchronous manner.

As an organization, the census works under the Union Home Ministry, with the Registrar General also designated as the census commissioner. Since 1961 it has been working on a permanent basis to have continuity to plan and organize the census taking in the country (Registrar General and Census Commissioner, 2001). Almost every state and union territory has a permanent Directorate of Census Operations to carry out the census work.

The gigantic operation of the census can be better understood by the fact that about 2 million enumerators and supervisors were engaged in the 2001 census. These enumerators/supervisors were mostly central or state government staff or employees of local bodies and each enumerator was expected to collect data from about 150 households. They were supposed to carry out the houselisting as well as the enumeration work in their allotted areas. They were paid an honorarium of Rs.700 (US \$ 14.6 approximately). For monitoring the work of enumerators, one supervisor was appointed per six enumerators. These supervisors are paid an honorarium of Rs.1500/- (US \$ 31.3 approximately). Giving proper

training to these enumerators/supervisors, which is a crucial component of any survey, and motivating these workers is a daunting task. The need for proper training is particularly crucial because a sizeable proportion of the population is illiterate. The general experience is that one gets better cooperation from illiterate households in rural areas, compared to literates in metropolitan cities. However, illiterate people in rural areas generally lack knowledge about their age, a parameter which is crucial in estimating different demographic parameters. A reflection of this can be seen if one examines the quality of age reporting in a census. There are errors due to under enumeration and age misreporting. Recently Srinivasan et.al. 2002 in their paper have shown that errors related to age reporting do not seem to have reduced over the different censuses in the country. The preference for reporting ages ending with 0 and 5 can be measured by Whipple's index. The index takes a value between 100 and 500. An index value less than 110 is regarded as 'accurate' age reporting, that is, there is no preference for digits ending with 0 or 5. The age reporting is considered to be 'rough' if it varies between 125 and 175, and 'very rough' if it crosses 175, in which case there is heavy concentration in the reporting of ages 0 or 5. Table 1, reproduced from their article, shows that the reporting of ages in India can be considered to be 'very rough' even in 1991 and there has been no visible improvement in the quality of age reporting since 1951. In the state of Kerala, with a very high level of literacy, the index shows marginal improvement. In 1991, it shows a value of 165 for males and 173 for females which can be considered to be 'rough'.

However, the post enumeration checks conducted in India show that enumeration of population is done with good accuracy. The post enumeration check or currently known as post enumeration survey has been an integral part of census since 1951. This sample enquiry is generally conducted by the census organization after the population enumeration mainly to understand the extent of coverage. Table 2 shows the net omission per 1000 enumerated persons in the three censuses during 1971 to 1991. The net omission rate per 1000 persons is slightly higher for females than males, and it varies between 17 and 19.

Census is a valuable and authentic source and can provide information at the lowest possible aggregation. In addition to age-sex-marital status of the population, it provides the socio-economic characteristics such as literacy and education; religion of head of household; occupation and industrial classification of labour force; various household and community amenities (health facilities, post office, bank, schools etc.); and housing condition. The scheduled caste and scheduled tribe composition of households is also made available. These information with varying degree of elaboration are available at the village level. Regarding information on components of population change, the census provides information on fertility (births during the last one year and children ever born) and migration status. Data on births during the last one year gives a gross underestimation of fertility and its utility has been limited. Census information can be effectively used to get estimates of vital rates indirectly. For example, using information on children ever born and children surviving, one can derive indirect estimates for fertility, infant and childhood mortality. The census gives base data for projection of population, generally carried out at the state level by an expert committee constituted by Planning Commission. Controlling nonsampling error in census is, however, a big worry. Also, the length of a census questionnaire has to be kept at a reasonable size.

## **b) Civil Registration System (CRS)**

Civil registration is a continuous recording of vital events such as births, deaths, marriages etc. It is generally a compulsory recording done according to the legal requirements of the country as per the provision made by official order or rule. Unlike census which provides idea about population of a given area at a point of time, it helps in understanding in a continuous manner the additions and exits of people in the area. Apart from maintenance of permanent records on births, deaths and marriages as legal documents and estimates of changes in population, it is also extremely important for need based development planning. It helps in understanding the progress of different socioeconomic programmes, including the maternal and child health care programs.

In India, the registration of vital events has been in vogue for more than a century. In 1969, Registration of Births and Deaths Act was implemented. The registration of births and deaths was made compulsory, and the act unified the system of registration, replacing the diverse laws that existed earlier. The civil registration system in India, at the national level, works under the Registrar General of India. He coordinates the activities of Chief Registrar of the States who are the chief executives authorities in the state for carrying out the provisions made in the Act of 1969. The system collects a variety of information on each birth and death recorded. For births, we have date of occurrence/registration; place of birth; order of birth; sex of child; age of mother; literacy, occupation and religion of parents and type of medical attention at birth. In case of deaths, the system provides data on occurrence/registration; place of death; age, sex, marital status, religion and occupation of deceased; cause of death and whether it is medically certified; and type of medical attention received.

The improvements in the civil registration system in India have been slow. An idea about the extent of registration in different states of India as of 1985 and 1995 is given in Table 3. The extent of birth registration in India was only 39 percent in 1985, which increased to 55 percent in a decade's time. Among the major states (with a population of 20 million and above) only in six states, namely, Kerala, Gujarat, Karnataka, Maharashtra, Punjab and Tamil Nadu the extent of birth registration is more than 80 percent. In general, the extent of registration is better in case of births than deaths. In a recent survey known as MICS – 2000 (discussed later), birth registration among children below 5 years was ascertained. Births of only 35 percent of the children were found to have been registered. Among the major states, the extent of registration was greater than 80 percent in Kerala, Gujarat, Maharashtra and Punjab. Interestingly, a major reason for non-registration of births was lack of knowledge that birth registration was needed. A sizable proportion of respondents reported that it was not considered important or did not have knowledge about where to register.

## **c) Sample Registration System (SRS)**

This system was initiated by the Registrar General of India as a temporary alternative to obtain more reliable estimates of vital rates till civil registration is able to serve the same purpose. It was started in 1969-70 on a regular basis at the all India level. It is in essence a demographic survey based on a dual recording system. It provides estimates for both rural and urban areas at the state (major states) as well as national levels. Both the estimates of fertility and mortality are made available on an annual basis. It is based on a dual recording system of births and deaths in a nationally representative sample of villages and urban

blocks. Initially a baseline survey is carried out in the selected sample units to get the usual resident population. This is a complete census count, which is carried out by staff from state or district census directorate with the help of a local part time enumerator. A continuous enumeration of vital events occurring to the usual resident population in the sample area is done by the local part-time enumerators. To strengthen the estimates of vital events, every six months an independent survey is conducted in a sample area to record vital events in the previous six months. Matching of events is done using information from two sources (the continuous register and the half-yearly survey), and further field verification of unmatched and partially matched events is carried out. The estimates of vital events are arrived at using information from both sources.

SRS estimates of vital rates are being used extensively for policy making and planning purposes. In the absence of reliable CRS data, the SRS has been the authoritative source of estimating vital rates at the national and state levels. Registrar General of India also uses SRS data for obtaining abridged life tables at the national and state levels. However, it is not a substitute for the CRS. It does not provide estimates at lower level of aggregation. Even at the state level, questions are being raised about the adequacy of sample size of the SRS to provide reliable estimates. Another problem with the SRS is that the sample units selected remains fixed for a long period of time. For example, the chance of giving a birth for a woman in a year depends on her pregnancy status in the previous year. One does not know the extent to which this might bias the estimate. The sample units in SRS are revised periodically, at an interval of only about ten years.

There are studies to indicate that there might be underregistration of births in SRS. The SRS estimates are based on de jure population (defined in terms of usual place of residence). There is a practice in India that a woman goes to her parents' house for delivery, particularly at the time of first delivery. This means that she will be away from her usual place of residence for quite some time. The SRS may not be able to have complete information about recent births to usual residents who are temporarily absent. Information on most but not all, of these births may be available later in the next half-yearly survey (Narasimhan et.al. 1997). This effect is likely to produce a bias towards underestimating fertility at ages 15-19, when women are more likely than at older ages to visit their parents' home for delivery. Apart from this, there is also the problem of age reporting that affects estimation of age patterns of fertility (Narasimhan et.al. 1997).

#### **d) Official Statistics**

In an official program there is generally a built-in information system that provides variety of information. For example, the family welfare programme in India generally makes available data on number of acceptors of different family planning methods by different characteristics; number of children who are given immunization against the preventable diseases like BCG, DPT, Polio and Measles; and number of pregnant mothers who are given TT injection and IFA tablets. Such information can be used to obtain estimates of the proportion of couples using different family planning methods, percent of children who are immunized against different diseases and percent of pregnant mothers who are given TT and IFA. In fact, the Ministry of Health and Family Welfare, Government of India publishes, in its Family Welfare Year Book, such estimates periodically. For example, the acceptor data can be fruitfully converted into an index to understand the percent of couples protected by the programme at a given point. This index, if not exactly equal, is very similar to the Contraceptive Prevalence Rate (CPR) obtained in a survey. Doubts have been raised about the reliability of these statistics. Table 4, for example, shows the progress of the family welfare programme in the

states of India and the country as a whole in terms of percent of couples protected by family planning as obtained from three different sources. The figures from the three sources are not exactly comparable mainly because their reference periods vary slightly (mentioned below the table). The estimates obtained from the two surveys agree quite well. Also, there is a close agreement between estimates of percent of couples protected by the three sources at the all India level. However, in most of the states, the difference in the estimates between the official statistics and the two surveys is substantial.

### **e) Sample Surveys**

Surveys, where information is collected on a sample basis, are particularly suitable to provide variety of information with a fair degree of precision. Using a scientifically adopted sample design, the sampling error can be controlled to a large extent. Also, careful planning, elaborate training of investigators and supervisors and effective monitoring and supervision can help in controlling the non sampling errors. The total error in a careful and well designed sample survey can be less than that in a complete enumeration survey. Sample surveys have become a viable tool for collecting information on a variety of demographic and health related indicators.

In India, since 1990 there has been a noticeable change in the availability of large scale surveys in the field. Two rounds of the National Family Health Survey (NFHS) have been conducted on the lines similar to Demographic Health Surveys (DHS). NFHS-1 was conducted in 1992-93 wherein 88562 households and 89777 ever married women age 13-49 were interviewed to furnish estimates on different demographic and health parameters for the country as a whole and 24 states and the National Capital Territory of Delhi. It provided information on fertility, family planning practices, mortality including infant and child mortality, utilization of maternal and child health care services, nutritional status of children, apart from the usual socioeconomic and demographic characteristics of a household.

NFHS-2, which was conducted in 1998-99, covered 92486 households and 90303 ever married women age 15-49, and included estimates, in addition to the national level, for all the states that existed at that time. For the four larger states, namely, Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan, it provided estimates at the regional level. It also made available estimates for the four metropolitan cities such as Mumbai, Kolkata, Delhi and Chennai. In addition to information collected in NFHS-1, it included information on quality of family welfare services, prevalence of reproductive morbidity among women, extent of involvement of women in decision making and domestic violence. Another feature of NFHS-2 has been the collection of data on the hemoglobin level in the blood of women and their children age 6-35 months. Information from NFHS have been widely used by planners, policy makers and academicians.

Both the rounds of NFHS were conducted by the International Institute for Population Sciences (IIPS), Mumbai, an autonomous institution under the administrative control of Ministry of Health and Family Welfare, Government of India, with technical support from ORC Macro, Maryland, USA and East West Centre, Hawaii, USA. The Ministry of Health and Family Welfare, Government of India designated IIPS as the nodal agency to carry out the survey.

A number of steps were taken in NFHS to control non sampling errors. The data collection work in NFHS was entrusted to different field organizations (FOs) (government or non-government). Initially, a training of trainers' workshop was organised for three weeks which

was attended by two members from each FO. The training included an intensive discussion on the survey design and discussion on each question in the questionnaire. This helped in implementing a uniform procedure for the survey throughout the country.

Field investigators for data collection were appointed by the FOs. The investigators were all females, mostly with graduation as their level of education and were selected from local areas. A three week intensive training program was organised by each FO for the investigators. Each training program was also attended by a coordinator from IIPS and also from the organizations from USA. Apart from classroom lectures and discussion on questionnaire, each program consisted of mock interviews in the class and extensive practice in the community.

Each field team consisted of 4 investigators, one field editor (chosen from investigators) and one supervisor (preferably male)<sup>1</sup>. Considering the size of the questionnaire, it was decided that each investigator should fill-in 3-4 questionnaires a day. This meant that each team was required to stay for at least two days in a primary sampling unit (which was a village in rural areas and census enumeration block in urban areas). To keep non response under control, it was stipulated that each household, if required, should be visited at least three times before deciding to record it as a case of non response. It may be mentioned that some of the characteristics of women, notably their work status, were significantly different between those who were interviewed during the first visit and those interviewed during subsequent visits.

Elaborate monitoring and supervision of fieldwork was a part of NFHS. The editor was supposed to edit all the filled in questionnaires before leaving the field. She was also supposed to observe one interview each day to monitor her teams' performance. There was one representative from IIPS with each FO to monitor and supervise the work. Apart from this, coordinators from IIPS and the two organizations of USA made frequent visits to the field. Supervision was also done with the help of field check tables. The filled in questionnaires were immediately sent to headquarters of a FO for data entry. After entry of about 500 cases, a few tables were generated to check the fieldwork. For example, age distribution of children was examined to see if there was any attempt to misreport the ages by an investigator to lessen her workload. There were a series of questions on antenatal care, postnatal care, feeding practices etc. which were required to be asked if a woman had a child age less than three years old. Therefore, if an investigator over reported the age of a child as three from two, she could avoid asking all these questions and thus reduce her workload.

One factor that can introduce non response error (bias) in a survey is failure to conduct an interview of an eligible woman in privacy. Presence of someone else at the time of interview could introduce bias in a woman's response, particularly to sensitive issues like family planning practice, reproductive health problems etc. In a rural area in India, it is extremely difficult to interview a woman, particularly a young woman, in isolation. The matter was thoroughly discussed in the interviewers' training and interviewers were instructed to take appropriate steps to ensure privacy, particularly while asking questions on sensitive issues. In a study it has been shown that contraceptive prevalence and reporting of pregnancy wastage were significantly affected by the presence of someone else during interview (Surender et.al. 1999)

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<sup>1</sup> In NFHS-2, there was one health investigator (mostly a paramedical person) attached to each team to carry out blood testing for anemia and height and weight measurement for women and young children.

There have been quite a few other notable surveys in the field in India in recent years. One such survey, which was also conducted by IIPS is known as Reproductive and Child Health: Rapid Household Survey. The survey was conducted in 1998-99, in all the 504 districts which existed in 1995. IIPS was designated as the nodal agency by Ministry of Health and Family Welfare to conduct the survey. It covered approximately 1000 households in each district to provide estimates at the district level. All eligible women (currently married and usual residents of a household) age 15-44 and men age 20-54 in a selected household were also selected for interview. The objective of the survey was to understand the process indicators of reproductive and child health in a district (IIPS, 2001). Specifically, it collected information on marriage pattern, antenatal care, delivery care, child care practices like breast feeding and immunization, use of contraception, choice of contraceptive methods among women and men, utilization and quality of government health care services, awareness about RTI, STI and HIV/AIDs among women and men and prevalence of RTI and STI (Symptoms) among women and men.

Multiple Indicator Survey (MICS-2000) was initiated by the United Nations Children's Fund, India Country Office, New Delhi in the year 2000. This is a household survey intended to collect information on indicators related to health, nutrition, education, water and sanitation. It collected information from 119305 household 5,741 children age 0-4, 136339 children age 5-14 and 142840 women age 15-49. It provides information for all states (not for the states bifurcated recently) and union territories. Apart from age-sex and the usual socio economic characteristics of household, it gathered information on child health like birth weight of a child, feeding practices, immunization and occurrence of fever, cough, diarrhoea and night blindness. It also has data on pre-schooling among children age 36-59 months and school attendance among children age 6-10 years. Interestingly, it gives information on birth registration and living arrangements of children (percent of children below 15 years not living with their biological parents, even though either parent is alive). For women, it has information on marriage, fertility, contraception, utilization of maternal care services and awareness of HIV/AIDs. Although the survey was not geared towards estimating fertility (it did not collect information on birth history), the estimates of total fertility rate provided by it compare well with the SRS estimates. In fact, the estimates are somewhat higher than those of SRS in many states. The fertility rate in the survey has been derived based on births occurring to women during the last one year. Such data are likely to suffer from time reference error. Births occurring beyond 12 months may be reported as those occurred during an year. Another point worth considering is that the focus of the survey was on immunization and there are lots of information collected for children 12-23 months old. An investigator will be tempted to under report age of a child (from, say, 12 or 13 months to below 12 months) in order to lessen her workload.

The National Sample Survey organization (NSSO) came into existence in 1950 to help develop a sound database, through a continuous system of multipurpose survey, for planning for socio economic development. In March 1970, it was reorganized and started working under the overall direction of Governing Council to give objectivity and autonomy in the matter of collection, processing and publication of NSS data. The General Council comprises of academicians, professional statisticians and users. The Council is authorized to take all technical decisions starting from planning of survey to release of its results. It has four different divisions to look after the entire process of survey design and implementation. Its Survey Design and Research Division is mainly responsible for planning and formulation of the sample design. It also prepares the survey schedule and tabulation plan. This is located in the city of Kolkata. The Field Operations Division (FOD) is largely responsible for

collection of data. It has permanent staff to carry out the fieldwork. This is an advantage in the sense that it helps in maintaining uniformity in concepts and definitions. However, to what extent the motivation of these permanent staff can be sustained is a question. Too much of familiarity with the subject can generate complacency. The questionnaires used by NSS are generally too lengthy, which has definite implications for the quality of the data. The NSSO has separate divisions for data processing and publication. The headquarter of FOD is New Delhi and it has zonal and regional offices spread in different cities. It may be mentioned that a large scale survey needs well coordinated and concerted effort. To what extent the different divisions of NSSO situated in different cities coordinate and plan together to carry out a survey needs to be understood. There is no effort made by NSSO to study the quality of survey data. It does not provide an indication of margin of error of the statistics it publishes.

In recent years, NSSO has started providing information on annual basis on consumer expenditure and employment and unemployment. In one round conducted in 1995-96, it has provided data on morbidity and medical care. The morbidity and utilization of medical services were estimated in the context of level of morbidity and curative aspects of general health care system in India. The first part deals with morbidity rates and the factors underlying observed differentials in the acute as well as chronic ailments. It considers both short (like diarrhoea, tetanus, chicken pox, measles etc.) as well as long (chronic amebiasis, tuberculosis, leprosy, cancer etc.) duration ailments. Regarding medical care, it includes hospitalization pattern and expenditure incurred for hospitalized and non hospitalized and the overall role of public and private sectors in providing health services to people.

In another round in 1999-2000 estimates of migration were made available. The major issues covered in the migration estimates provide the pattern of recent migration in the context of place of last residence and place of enumeration. One specific feature of migration discussion is the analysis of distribution of persons whose place of enumeration was the usual place of residence but stayed away from their village/towns for 60 days or more for employment/better employment or in search of employment.

**Table 1: Whipple's Index of Concentration : India and Major States 1951-1991**

India/ States	Whipple's Index of Concentration									
	1951		1961		1971		1981		1991	
	Male s	Female s	Male s	Female s	Male s	Female s	Male s	Female s	Male s	Female s
India	247	258	282	294	294	300	304	305	293	288
Andhra Pradesh	363	379	327	343	332	346	328	338	321	330
Bihar	183	186	253	252	308	303	347	334	353	334
Gujarat	334	343	309	307	278	269	292	272	272	240
Haryana	NA	NA	--	--	320	329	312	310	284	271
Karnataka	--	--	315	343	315	338	300	329	--	--
Kerala	182	193	206	223	195	207	178	187	165	173
Madhya Pradesh	230	234	297	312	302	311	314	314	199	287
Maharashtra	296	310	245	259	279	299	288	311	182	303
Orissa	220	229	261	276	272	286	284	295	269	282
Punjab	304	320	311	323	316	300	306	285	285	257
Rajasthan	275	289	336	359	341	359	339	342	333	317
Tamil Nadu	251	270	279	308	265	286	256	279	247	268
Uttar Pradesh	254	258	324	314	333	364	358	320	343	293
West Bengal	160	170	206	234	233	241	253	281	243	268

Source: Srinivasan. K and V.D. Shastri. 2001, Errors in Age Reporting of Children in the 2001 Census: A Preliminary Appraisal, Presented in Symposium on Sex Ratio in India, 10-11 January, 2001, IIPS, Mumbai

**Table 2: Rates of Net Omission per 1000 Enumerated Persons, India**

Census 1971		
Total	Rural	Urban
Male Rate 15.27	12.19	27.02
Female Rate 18.32	16.19	27.26
Total Rate 16.74	14.14	27.14
Census 1981		
Total	Rural	Urban
Male Rate 17.10	13.82	27.73
Female Rate 18.85	16.34	27.50
Total Rate 17.95	15.04	27.63
Census 1991		
Total	Rural	Urban
Male Rate 16.70	15.40	20.30
Female Rate 17.10	16.90	17.50
Total Rate 16.90	16.20	19.00

Source: Registrar General of India. Report on Post Enumeration Check, Paper IV of 1972, 1982 and 1999, series I.

**Table 3: Level of Birth/Death REGISTRATION DURING 1985 – 1999**

SR. NO.	INDIA/STATE/UNION TERRITORY	BIRTH		DEATH	
		1985	1995	1985	1995
	INDIA	39.0	55.0	32.7	46.0
	<b>STATES</b>				
1.	Andhra Pradesh	26.9	34.4	21.1	30.5
2.	Arunachal Pradesh	19.7	66.3	13.4	21.2
3.	Assam	NA	NA	NA	NA
4.	Bihar	20.0	18.7	22.5	25.6
5.	Goa	105.2	120.6	86.5	111.9
6.	Gujarat	62.1	96.3	40.3	69.0
7.	Haryana	60.8	73.4	58.2	70.6
8.	Himachal Pradesh	57.9	71.7	37.4	50.2
9.	Jammu & Kashmir	46.4	NR	51.7	NA
10.	Karnataka	40.4	86.5	42.3	86.9
11.	Kerala	94.8	101.7	78.7	86.1
12.	Madhya Pradesh	46.3	50.8	44.8	53.3
13.	Maharashtra	64.7	80.3	66.8	69.1
14.	Manipur	7.5	14.0	5.9	16.0
15.	Meghalaya	NA	44.5	NA	52.7
16.	Mizoram	NR	NR	NA	NA
17.	Nagaland	60.9	NR	49.8	NA
18.	Orissa	47.6	58.6	40.8	47.0
19.	Punjab	74.2	92.4	75.7	84.3
20.	Rajasthan	16.4	23.7	17.8	27.3
21.	Sikkim	NA	24.4	NA	8.6
22.	Tamil Nadu	67.7	90.3	55.1	75.5
23.	Tripura	41.7	108.9	18.5	46.0
24.	Uttar Pradesh	13.6	40.6	7.7	31.1
25.	West Bengal	NA	64.3	NA	27.4
	<b>Union Territories</b>				
26.	A. & N. Islands	73.3	128.1	52.8	88.7
27.	Chandigarh	112.7	126.6	213.9	205.1
28.	D & N Haveli	48.6	85.9	50.8	66.1
29.	Daman & Diu	96.4	148.7	46.1	92.2
30.	Delhi	85.3	116.0	83.0	110.6
31.	Lakshadweep	93.7	86.5	96.7	73.0
32.	Pondicherry	182.9	198.8	132.7	131.5

- Note1: The level of birth/death registration is the percentage of registered births/deaths of the SRS estimated births/deaths
- 2: The level of registration exceeds 100% in these states/UTs because the people from the neighbouring areas outside these states/UTs come here to avail of better medical facilities and due to the de facto method of registration all such births/deaths get registered in these States/UTs. In SRS such births/deaths are accounted at the place of usual residences of the mother.
- NA: Annual Statistical Report is not available
- NR: SRS data is not available
- NC: Not calculated due to non-availability of data from major states.

Source: Registrar General of India, 2000. Vital Statistics in India, Ministry of Home Affairs, New Delhi

**Table 4: Percent of Couples Currently Protected by Family Planning in India and its states**

	MOHFW (97-98)	NFHS-2	RHS
INDIA	50.8	48.2	48.5
AP	51.5	59.6	58.9
ASSAM	18.1	43.3	40.3
BIHAR	21.2	24.5	24.7
GUJARAT	59.4	59.0	58.4
HARYANA	57.5	62.4	58.2
HIMACHAL PRADESH	53.8	67.7	64.1
JAMMU KASHMIR	16.8	49.1	47.0
KARNATAKA	57.7	58.3	59.3
KERALA	43.4	63.7	68.2
MADHYA PRADESH	54.4	44.3	45.5
MAHARASHTRA	53.0	60.9	60.5
ORISSA	41.6	46.8	49.4
PUNJAB	77.5	66.7	65.1
RAJASTHAN	39.4	40.3	40.5
UTTAR PRADESH	43.6	28.1	29.6
TAMIL NADU	52.1	52.1	51.6
WEST BENGAL	35.4	66.6	69.3

Source: MoHFW (1997-98) – Ministry of Health and Family Welfare, Government of India “Family Welfare Programme in India”, 1999. The reference period is March, 1998. It refers to women of age 15-44)

NFHS-2: International Institute for Population Sciences (IIPS) and ORC Macro, 2000. National Family Health Survey, 1998-99; India, Mumbai : IIPS

(The reference period is November 1998 to December 1999)

RHS: International Institute for Population Sciences, 2001. Reproductive and Child Health Project : Rapid Household Survey, Mumbai , IIPS (The reference period is 1998-99)

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