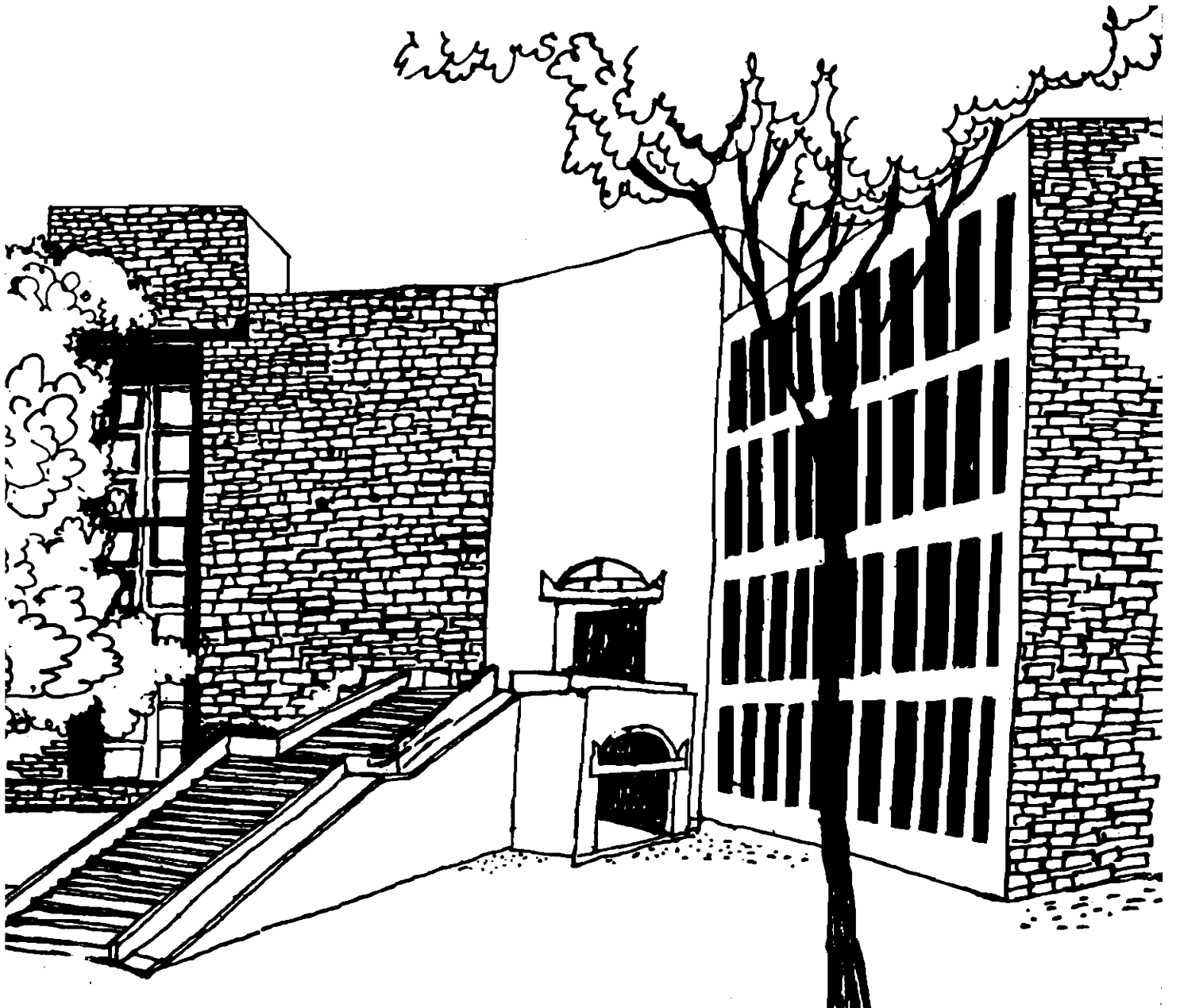# Working Paper

STRATEGIC PERSPECTIVE ON INDIA'S
POPULATION PROGRAMME

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Strategic Perspective on India's Population Programme

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Population growth is back on the national agenda. The earlier target of reaching replacement fertility by year 2000 is not likely to be met. If recent trend in birth-rate decline can be maintained then the annual growth rate may decline from around 2.0% to 1.7% by year 2000 and continue to decline thereafter. This would begin to alleviate population pressure on schooling, food requirements and employment. A faster decline in birth rate would accelerate the alleviation of population pressure.

India's failure in moderating population growth stem from very slow improvements in both female education and quality of family welfare programme. An analysis of demographic diversity among states suggests that faster reduction in fertility can only be realized if a comprehensive national strategy is implemented comprising (a) increasing female education level as rapidly as possible; and (b) making directional changes in the family welfare (FW) programme which would enable it to provide quality sterilization services to those who do not desire additional children and promote spacing methods more vigorously.

The proposed directional changes in the family welfare programme include those needed for shifting emphasis to quality of services, achieving a better balance between sterilization and spacing methods and strengthening the reproductive health care. Instead of a uniform programme pattern, differential strategies would be required to respond to considerable demographic diversity among the states.

I
Introduction

The 1991 census did not generate the intensity of concern with high population growth as did the earlier censuses. The results were well predicted and did not have an element of surprise except for a decline in sex-ratio. The growth rate during the period 1981-91 at 23.50% was somewhat lower than the growth rate of 24.66% during the period 1971-81.

However, population growth is back on the national agenda. The progress towards reaching a replacement fertility rate has been slower than hoped for. At the beginning of eighties, a target of reaching replacement fertility level by year 2000 was set with corresponding birth and death rate of 21 and 9 per thousand population respectively, and the resulting annual population growth to be 1.2%. The replacement fertility level is now likely to be reached only by year 2006 or 2011.Most observers of the population scene now agree that India's population would increase to around a billion by the turn of the century and that it would continue to increase for several decades thereafter, before stabilizing at nearly twice the current size[1].

There have been two schools of thought on India's population scene. The first school abides by the famous adage that "development is the best contraceptive". It argues that the government focus on family planning has been misplaced. The contrary opinion has been that much more was possible than what has been achieved by India's family welfare programme. But by eighties, a balance between the two schools of thought had been achieved. More than a decade ago, both Mitra and Cassen echoed this sentiment in their books on India's population. Mitra (1978) concluded his book by saying: "family planning must form an important element of the total package of the development and democratic processes." Cassen (1979) says: "but it is possible for India to improve employment prospects, health, education and social equality -- if that were to happen, the family planning program could make greater headway -- and even in existing conditions India's family planning program could be somewhat more effective."

In this paper, we develop a strategic perspective on India's population programme. First, the past trends in birth and death rates are analyzed. Then the causes of demographic diversity among states are investigated. Based on this analysis, a strategy for accelerating fertility decline is arrived at. Differential strategies would be required to respond to considerable demographic diversity among the states. The implementation concerns are discussed at the end.

II
Projected Population Growth Rate

The annual population growth rate, which has remained around 2% for previous two decades should begin to decline in the near future. Generally the decline in birth rate (CBR) has been compensated by a decline in death rate in the past. But decline in death rate is likely to slow down while birth rate may continue to decline, resulting in a reduction in the growth rate.

It is hazardous to predict the path of birth and death rates and, therefore, of the growth rate as several complex set of interactions influence them. Factors leading to an increase in birth rate are increasing number of women entering reproductive age group and perhaps increased resistance encountered as contraceptive prevalence increases. On the other hand, education level of cohort entering marriage and contraceptive prevalence are increasing, both further accelerating the pace of diffusion of knowledge and practice of contraception.

Projections of past trends would normally be a good predictor of the future balancing various influencing factors. But because of negligible change in birth rate during the post-emergency period of 1977-84, the trends differ depending on the period used for its estimation. For instance, birth rate has declined at a rate of 0.62 per thousand per year during 1984-90 period. But the average decline is only 0.25 per year since 1970. The trends in death rate also differ and have declined at a faster pace over last 6 years than over last 20 years. Generally it is felt that post-emergency experience is atypical and recent trends are a better predictor of what is likely to happen. The death rate is likely to maintain its downward trend and may reach a level of 8 per thousand by 1995. Then it may decline slowly by around 0.2 per thousand per year comparable to that experienced in Kerala. Therefore, annual population growth will hover around 2% until 1995 and then decline to around 1.7% by year 2000 (table 1). On the other hand, long term trend projections in birth and death rate indicate a continuing annual population growth rate of around 2% for the next decade.

TABLE 1. BIRTH AND DEATH RATE PROJECTIONS

	SRS 1990	Estimated for 1995		Estimated for Year 2000	
		Using recent trends	Using long-term trends	Using recent trends	Using long-term trends
Birth rate	29.9	26.9	28.6	23.8	27.4
Death rate	9.6	7.7	8.0	6.7	7.0
Growth rate %	2.0	1.9	2.1	1.7	2.0

Source: Registrar General for provisional SRS estimates

Therefore, a major challenge is to at least maintain recent declining trend in birth rate. Although population is back on the national agenda, care should be taken not to cause significant disruptions in the current process. While not disrupting the process, the pace of fertility decline needs to be accelerated through a continuing stream of tested program interventions being brought in the programme.

Broadly several consequences can be predicted if the recent trends in the birth rate decline could be maintained. First, the number of children entering school age would stabilize in absolute terms at around 2.5 million. Assuming that current enrolment rate in primary school is quite high, the pressure for primary schooling is likely to shift from "quantity" to "quality". Second, the growth rate in proportion of people seeking employment would decline although the absolute number seeking employment would continue to increase. Therefore, for employment, the "worst may not become worse". Third, if agriculture production continues

to increase at the past levels then food availability and possibly nutrition levels would improve. Thus, a somewhat better-fed, better-educated and less strained society from population pressure ought to emerge at the end of the current decade.

III
Dynamics of Fertility Decline

Nearly two-thirds of the decline in the birth rate during the period 1972-84 can be attributed to decline in marital fertility, largely as a result of increased contraception (Srinivasan 1991). Around 40% of the reduction was due to a general increase in age of marriage but part of this (20%) was offset by an increase in the proportion of women in the reproductive age group. Changing age-structure depressed the birth rate by 7%.

Couples effectively protected by contraception (CEPC), derived from service statistics of acceptors of different methods, their age characteristics and assumed continuation rate, increased from 10.1% in 1972 to 43.3% of all married couples in reproductive age-group (MCRA) in 1990[2] (data book 1989-90). The decline in marital fertility in different states is also closely related to increase in contraceptive use.

The total fertility rate (TFR) declined by a third, from around 6.0 in 1970 to 4.1 in 1987. The decline in total fertility rate has three distinct phases: an annual decline of 2.5% during 1972-77, near stagnation up to 1984, and then a decline of 3% per year. The proximate determinants of fertility are four: contraceptive use, nuptuality patterns, breast-feeding durations, and induced abortions. Nationwide data on changes in breastfeeding durations are not available. However, there is some empirical evidence to support the hypothesis that the process of modernization, defined in terms of improvement in levels of education and urbanization, tends to shorten the period of breastfeeding. such reductions are likely to contribute to an increase in natural fertility in the coming decades[3]. There is also very little data on abortions and consequently its effect on fertility is difficult to estimate. The reported number of abortions under the 1971 Medical Termination of Pregnancy Act is around 0.5 million, a low figure in relation to the number of births. However, the observers estimate a much larger, but indeterminate, number of abortions to have been performed.

During 1977-84 proportion CEPC remained static as programme efforts were barely sufficient to compensate for increase in the number of married women of reproductive age. The mean age of marriage for girls has increased gradually from 15.6 years in 1951 to 18.4 years in 1981. But both vary greatly among the states. Therefore, we would discuss the effect of nuptuality patterns and contraceptive use on fertility to explain demographic diversity among the states.

IV
Demographic Diversity and Its Possible Causes

While discussing India's population future, one has to recognize the considerable demographic diversity has emerged over the years. The state of Uttar pradesh and Kerala characterize the two extremes. The birth and death rate in Uttar Pradesh in 1990 were 35.7 and 12.0 per thousand population respectively. On the other hand the corresponding figures for Kerala were 19.0 and 5.9[4]. Table 2 shows the demographic diversity among the states.

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TABLE 2. DEMOGRAPHIC DIVERSITY IN INDIAN STATES

State	Birth Rate, 1988	Death rate, 1988	Female Literacy rate, 1991	Contraceptive Prevalence Rate, 1988	Cm, 1987	TFR, 1987	TMFR, 1987
Andhra Pradesh	27.4	10.2	33.7	50	0.74	3.6	4.9
Bihar	37.3	12.6	23.1	30	0.86	5.1	6.0
Gujarat	29.5	11.0	48.5	56	0.75	3.6	4.7
Kerala	20.3	6.4	86.9	80	0.48	2.2	4.5
Karnataka	28.7	8.8	44.3	48	0.87	3.4	5.0
Madhya Pradesh	37.0	14.3	28.4	39	0.85	4.7	5.5
Maharashtra	29.4	8.9	50.5	45	0.73	3.4	4.7
Orissa	31.9	12.3	34.4	45	0.72	3.7	5.1
Punjab	28.5	8.4	49.7	69	0.65	3.4	5.2
Rajasthan	33.3	14.0	20.8	30	0.88	4.7	5.3
Tamil Nadu	22.7	9.3	52.3	59	0.57	2.6	4.6
Uttar Pradesh	37.1	13.2	26.0	28	0.84	5.3	6.3
West Bengal	28.4	8.4	47.2	54	0.69	3.8	5.5

Source: SRS and Census estimates except for contraceptive prevalence rate which is from ORG 1988 survey.

While fertility is reaching near replacement levels in Kerala and moving steadily towards it in many other states, The fertility decline in the four large north Indian states __ Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh (commonly termed "BIMARU") -- has been minimal. The birth rate, couples effectively protected by contraception and mean age of marriage (1981) in these four states taken together is higher by around 9 per thousand, 15% lower and 3 years higher compared to the rest of India (Satia and Jejeebhoy 1991).

According to The Third National Family Planning Practices Survey (ORG 1988), couples in these states continue to desire on an average around half a child more than elsewhere in the country, specifically larger number of sons. An average of 2.1 sons are desired in these states compared to 1.6 in the rest of the country. There is not much difference in terms of average number of daughters desired. As a consequence, only around a half of all couples wanted no more children compared to 63% in the rest of the country. The desire for more sons, coupled with a weak family welfare programme, has resulted in much lower contraceptive prevalence in these states; only one in four (28%) of MCRAs use a modern method of contraception compared to around one-half (48%) in the rest of the country (Satia and Jejeebhoy 1991).

These four states also lag behind in many developmental indicators (Table 3). Broadly speaking these states lag by about 15 to 25 years in terms of literacy, per capita income, infant mortality and fertility, and at least that much in terms of women's status.

TABLE 3. FOUR STATES: DEVELOPMENT INDICATORS

	Female Literacy rate, percent		Per-Capita Income in 1970-71 Prices, Rs.		Infant Mortality Rate per 1000 Live Births		Total Fertility Rate	
	1951	1981	1970-71	1985-86	1971	1988	1971	1986
Four Large North Indian States	3.5	13.9	483	578	159	124	6.0	5.2
Rest Of India	11.0	31.5	728	939	121	80	5.1	3.5
Lag in Years	25		25-30		15		15-20	

Source: Female literacy rate, per-capita income, infant mortality rate and total fertility rate respectively are census, CSO, SRS and Registrar generals estimates.

While analysing differential fertility levels among states. effect of nuptuality patterns as compared to contraceptive use is often underestimated, as can be seen from table 2. Although total marital fertility rate (TMFR), largely reflecting contraceptive usage, in Uttar Pradesh is only 47% higher than Kerala, TFR is higher by 160%.

It is interesting to note that Indonesia, which is widely credited to have a highly successful family planning program, also experienced declines in marital fertility similar to that in India (Indonesia 6.04, India 5.61 both in 1985). But its total fertility rate had declined significantly (India 4.27, Indonesia 3.42), suggesting that marriage patterns in Indonesia had changed significantly. The proportion married in the age group 15-19 years was around 38% in India compared to 19% in Indonesia.

Kerala has reached near replacement fertility level because women on an average marry very late (some may never marry), and accept sterilization once their desired family size (little more than 2) has been achieved. The value of coefficient of marriage Cm, ratio of TFR to TMFR, was 0.47 compared to 0.74 for India in 1988. Contraceptive prevalence rate (CPR) was estimated to be 78.5% comprising 57% by sterilization, 7% by modern spacing methods and 15% by traditional methods. Punjab provides a contrasting picture. Only 30% MCRAs have accepted sterilization. However, a high prevalence of 69% is achieved by a very high use of modern spacing methods, estimated at 30% compared to 9% for India. Women do not marry early but they also do not delay marriage much beyond 20 years of age and consequently Cm is 0.65, about a third more than Kerala This combination has resulted in TFR of 3.35, much higher than replacement rate in Kerala.

Thus, an approach, which incorporates learning from Kerala and Punjab or achieving a mix of sterilization and spacing methods use complemented by an increase in age of marriage and reduction in desired family size would be needed to reach replacement fertility.

V
A Model of Fertility Decline

The differentials in TFR among states can be explained by differential in nuptuality patterns and contraceptive prevalence, both of which in turn are highly correlated with female literacy levels. Therefore, we postulate a path-analytical model as shown below in figure 1.

FIGURE 1: A PATH ANALYTICAL MODEL
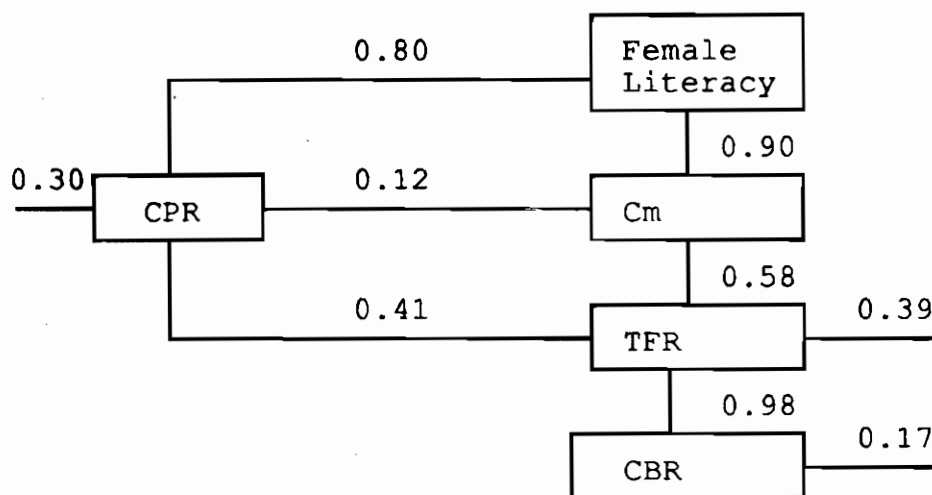
The partial correlation coefficients of the model are estimated using data in table 2.

This model implies that (a) one percent change in Cm and CPR would change TFR by 0.63% and 0.41% respectively; and (b) one percent change in female literacy rate (FLR) would change Cm by 0.90% and CPR by 0.91%, and through a combined effect of these two change TFR by 0.87% (Table 4).

TABLE 4. EFFECT OF NUPTUALITY, CONTRACEPTION AND LITERACY

Effect	Direct	Indirect	Total
Cm on TFR	0.58	0.05	0.63
CPR on TFR	0.41	-	0.41
FLR on Cm	0.90	--	0.90
FLR on CPR	0.80	0.11	0.91
FLR on TFR	--	0.87	0.87

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Many combinations of FLR, Cm and CPR would lead to a desired TFR level. At the 1988 level of Cm, The model implies that one point decline in birth rate would require that CPR increase by 3.6%, much higher than around 2.3% experienced internationally (Nortman 1982). This difference arises because generally Cm and CPR both change overtime. It would seem, therefore, that around a third of decline in TFR should directly come through changes in nuptuality patterns and the remaining two-thirds from increase in CPR.

TABLE 5. REACHING REPLACEMENT FERTILITY LEVEL

	TFR	Cm	CPR	FLR	FW Programme
1988 level	4.1	0.75	40	39	x
Replacement fertility level	2.1	0.55	70[5]	50	1.48x
Percent change	49	27	75[6]	30	48

If the past trends in Cm, CPR and FLR are maintained, the replacement fertility level would be reached around year 2008 (table 5). Even this would require stepping up family welfare programme effort by 48% or a corresponding effort in FLR or a combination of both[7]. If replacement fertility level is to be reached by year 2000, both the programme and female literacy effort would need to achieve the similar magnitudes in 12 years instead of 20 years. A contraceptive prevalence of 70% could be reached by around 40% MCRAs accepting sterilization and 30% spacing methods.

Table 6 below corroborates the evidence given above on the relationship between female literacy and contraceptive use. As proportion of wives literate increases, contraceptive prevalence also increases and consequently total fertility rate is reduced.

Often increased child survival is considered as a major factor contributing to a decline in fertility. We have not explicitly included it in the model for several reasons. First, infant and child mortality has been declining overtime. Second, large scale interventions for safe motherhood and child survival have already been launched. Third, increase in female literacy is closely related to improved child survival. Finally, improved family welfare services for contraception, which include maternal and child health services, would contribute towards improving child survival.

To conclude, India's population objectives can only be realized if (a) female education levels are increased as rapidly as possible; (b) sterilization services are provided to those who do not desire additional children; and (c) spacing methods are promoted more vigorously. Required emphasis on each of these measures would depend on demographic and socio-economic situation in a geographic area. Clearly emphasis on all the three measures would be required in four large north Indian states where fertility decline has been minimal.

TABLE 6. STATE TFRs, WIVES LITERATE AND CONTRACEPTIVE USE, 1988

Proportion Wives Literate	Contraceptive Use, % MCRAs		
	High >60	Medium 40-60	Low <40
High >0.53	Kerala 2.16		
Medium 0.31-0.53	Punjab 3.39	Tamil Nadu 2.6 Karnataka 3.39 Maharashtra 3.43 Gujarat 3.55 Andhra P. 3.61 Haryana 3.61 Orissa 3.65 West Bengal 3.79	
Low <0.31			M.P. 4.66 Rajasthan 4.67 Bihar 5.12 U.P. 5.3

VI
Improving Female Education Levels

Role of Female Education

Although the importance of improving female education levels is recognized near universally, its impact on fertility behaviour is often not well understood. Micro-level evidence of effect of female education on CPR is available through three national family planning practice surveys (ORG 1972, 1980, 1988). The surveys show that higher education levels imply higher use of contraception (Table 7). But, contraceptive use at each education level has also been increasing over time, perhaps reflecting increased programme effort and changes in behaviour patterns.

India's failure at reducing fertility to a desirable level can be traced largely to a very gradual change in female education level. Projecting the past trend, an estimated 47% of MCRAs would be such that wife is illiterate in year 2000. If CPR at each education level remains static at 1988 levels, the projected improvement in education level may result in a CPR of 48.7% by year 2000 as compared to predicted 59.4% which incorporates family welfare programme effect. If literacy mission were to succeed in bringing all illiterate wives to primary schooling level, the CPR by year 2000 may increase from 59.4% to 66.3%. However, it is not clear whether neoliterates would behave in a manner similar to those educated conventionally through primary school.

Effect of education is felt at all levels. However, we have used female literacy rate as a surrogate for overall education level. First, the effect of literacy alone is significant. Second,

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female literacy rate in a state is also closely related to proportion of population with primar secondary and higher education levels[8].

TABLE 7. EFFECT OF EDUCATION ON CONTRACEPTION USE

Educational Level	1972		1980		1988		Predicted for 2000	
	MCRA	CPR	MCRA	CPR	MCRA	CPR	MCRA	CPl
Illiterate	79.0	10.0	69.8	28.6	60.7	36.5	47.1	48.7
Primary	10.9	20.7	13.8	46.8	15.1	53.7	17.1	64.1
Secondary	8.9	33.5	13.6	53.2	14.7	57.9	16.4	65.0
Higher sec+	0.8	56.2	2.8	59.2	9.5	65.4	19.6	74.7
Total	100	13.6	100	35.3	100	44.9	100	59.4

Note: CPR includes use of traditional methods
Source: ORG Surveys

As remarked earlier, female education is also closely related to nuptuality patterns and desired family size (Table 8).

TABLE 8. EDUCATION, IDEAL AGE OF MARRIAGE AND FAMILY SIZE

Wife's educational level	Mean ideal age of marriage for girls, years	Ideal family size
Illiterate	16.9	3.2
Primary	18.3	2.9
Secondary	19.1	2.6
Higher	20.4	2.4
Average	17.8	3.0

Gradual changes in female education levels has also meant that desired family size has been decreasing only gradually; from 3.6 in 1980 to 3.4 in 1988 (see also table 9). Primary education in women brings down infant mortality rate to 71 per thousand live births compared with 145 per 1000 for infants born to illiterate mothers (World Bank 1991). Clearly substantial and rapid improvements in female education levels are necessary for an accelerated decline in fertility.

TABLE 9; PROPORTION DESIRING ADDITIONAL CHILDREN

No. Of Living Children	Year		
	1970	1980	1988
0	100	100	100
1-2	68	64	58
3+	19	13	16

Source: ORG National Family Planning Surveys

Accelerating Pace of Improvements in Female Education

Despite marked progress over last 40 years, female literacy rate is only around half of male literacy rate. The rural female literacy rate is a little more than one-third of urban female literacy rate. There are also considerable regional differences. Five states -- Andhra Pradesh, Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh -- account for more than half of all rural illiterate women. Female literacy in 1981 was estimated to be below 10% in 136 districts, 86% of which are in these five states. Female education levels among scheduled caste and tribal population groups are known to be low. Thus any strategy for accelerating pace of improvement in female education should focus on these geographic areas and socio-economic groups (World bank 1991).

For improving overall education levels over time, there is a strategic choice: whether to concentrate on improving school enrolment levels for girls and retaining them longer or on reaching the large numbers of female illiterates in reproductive age group. But from fertility points of view these have complementary and independent effects. Younger girls with higher education levels are likely to get married at higher ages and thus influence nuptuality patterns. The effect of higher contraceptive use by this group would be felt many years later. However, educating illiterate women in reproductive age group would directly contribute to increase in CPR without affecting nuptuality patterns. Thus both actions would be required.

In this respect, three initiatives need special attention: National Literacy Mission to concentrate on adult 15-35 women age-group, Non Formal Education (NFE) for girls who drop out and improving enrolment levels for girls at all age levels. The national literacy mission was launched in May 1988. It envisages imparting functional literacy to 80 million adults in the age-group 15-35 by the year 1995. Several districts have been declared as fully literate since then. NFE offers the alternative of part-time education to children who are compelled to drop out of "formal" school. NFE classes are held generally for 2-3 hours in the evening for 9-14 year olds who have never attended or have dropped out of school. The female enrolment rates in school has increased over the years, 57% to 76% for primary and 13% to 24% for secondary age group from 1965 to 1986. However, it is substantially lower than desired and there is a substantial drop out from primary to secondary levels.

Despite these initiatives, much remains to be done to accelerate improvements in female educational levels. Both the amount of resources need to be increased and appropriate organizational mechanisms are needed for this purpose.

VII
Family Welfare Programme: Need for Directional Changes

Historically annual programme performance is evaluated in terms of targets of new acceptors of various family planning methods and maternal and child health (MCH) services. In recent years these targets have been well met. In 1989-90, of a total of 142 million MCRAs, the programme recruited around 4.2 million acceptors of sterilization and 4.9 million acceptors of IUD. It also reported serving 14.2 million condom and 2.7 million equivalent pill users. An estimated 43.3% MCRAs were estimated to have been effectively protected by contraception. The coverage of various MCH services has been steadily increasing.

Although approval, knowledge and practice of contraception have been steadily increasing, the programme has been criticized for its many weaknesses. Among these are its preoccupation with targets for new acceptors, failure to promote spacing methods among low-parity couples, poor quality of services and lack of concern for post-acceptance services for contraceptive acceptors, almost exclusive reliance on health facilities for services, neglect of MCH care, and inadequate involvement of nongovernment organizations and the private sector. On the other hand successful programmes make services accessible, provide sensible contraceptive choices, offer good quality services and build strong linkages with the community for demand generation. The programme needs to remedy its major weaknesses and address key constraints to accelerate the pace of decline in fertility.

Strategies for Accelerating Sterilization Acceptance

Overreliance on sterilization has been considered as one of the major weaknesses of the programme. Yet around 10% of MCRAs do not desire additional children and do not practice any contraception. An additional 8.3% MCRAs were using spacing methods although wishing to limit their family.

Since only a moderate acceleration in sterilization acceptance is required, the efforts could be selective in areas where there is still considerable unmet need. As the table 10 shows, improving accessibility and quality of sterilization services in 6 major states -- Rajasthan, Uttar Pradesh, Bihar, West Bengal, Madhya Pradesh and Karnataka -- is likely to increase their use more rapidly.

Promoting Spacing Methods

The program statistics suggest a gradual increase in the use of spacing methods. Eligible couples effectively protected by modern spacing methods has been increasing at an average rate of 1.2% per year. If the present trend is maintained, an estimated 25% of couples would be effectively protected by these methods. There is some anecdotal evidence that program statistics exaggerate their use and, to that extent, this would be an overestimate.

State	% MCRAs Not Desiring Additional Children				% Spacers	Total Spacing Method Use
	Total	% Ster	% Spacing	Unmet Need		
Uttar Pradesh	49.2	16.5	6.8	25.9	4.8	11.6
Rajasthan	49.8	23.0	4.5	22.3	2.0	6.5
Bihar	48.7	20.5	6.5	21.7	3.6	10.1
Karnataka	63.3	38.6	4.6	20.1	4.0	8.6
Madhya Pradesh	55.3	31.2	5.4	18.7	2.6	8.0
West Bengal	65.5	30.2	17.1	18.2	7.5	24.6
India	57.9	31.3	8.3	18.3	5.3	13.6

During the period 1980-88, ORG national surveys report that use of modern spacing methods increased by 0.4% (or 0.1% if traditional methods are included). If this trend is maintained, about 14% would be using these methods (or 15% if traditional methods are included). Thus there would be shortfall from the desired spacing method prevalence.

Effect of Income and Education

Table 11 shows use of terminal and spacing methods for different income groups as estimated by ORG survey (1988). Sterilization acceptors form about 30% of MCRAs among all income categories. However, use of modern spacing methods increased from 4.7% MCRAs with reported income per month less than Rs. 500 to 21.2% MCRAs for those with monthly income exceeding Rs 2000. Use of traditional spacing methods also increases from 4.2% to 8.9%. Thus the difference in contraceptive use among different income groups is because of differential use of spacing methods.

TABLE 11. CONTRACEPTIVE USE AMONG DIFFERENT INCOME GROUPS (percent MCRAs)

Current Use of	Income Reported per Month (Rs.)			
	<500	500-1000	1000-2000	>2000
Permanent methods	31.6	30.1	32.7	30.9
Modern spacing methods	4.7	7.5	13.5	21.2
Traditional methods	4.2	4.6	6.0	8.9
Total prevalence	40.5	42.2	52.3	61.0
Percent MCRAs	40.2	33.8	17.9	8.0

Source: ORG Surveys

As education level increases, use of spacing methods increases (table 12). But acceptance pattern of terminal methods differs. As education level increases, use of terminal methods begins to increase but at high levels of education, terminal methods are substituted by spacing methods.

TABLE 12. CONTRACEPTIVE USE BY EDUCATION LEVELS, 1988

(Percent MCRAs)

Current Use of	Wife's Education Level				Total
	Illiterate	Primary	Secondary	Higher	
Permanent method	29.2	39.4	36.0	25.2	31.3
Modern spacing methods	4.5	8.5	13.5	28.2	8.6
Traditional methods	3.0	6.1	8.5	10.6	5.0
Total prevalence	36.7	54.0	58.0	64.0	44.9
Percent MCRAs	60.7	15.1	14.7	9.5	100.0

Source: ORG Survey 1988

Tables 11 and 12 show that increase in education or income is associated with higher spacing methods use. Therefore, ideally with the rise in income or education levels use of spacing methods would also increase. But as remarked earlier, female education levels are increasing only slowly. Therefore, programme actions would be required to lower the income/education barriers to the use of spacing methods.

Barriers to use of spacing methods are lack of knowledge, poor accessibility, dislike of spacing methods and lack of felt need for them characterized by weak motivation levels (Satia 1992). Around half to two-thirds of MCRAs do not know each of modern spacing methods: IUD, Condom and Pills (ORG 1988). Nearly one-third to half do not have an easy access to these methods. Basically couples do not feel that large benefits would accrue if children are spaced much beyond what they are experiencing today due to long breastfeeding durations. A large proportion of couples also associate harmful side-effects with spacing methods: IUD for menstrual problems and pains; condom for failures,, loss of sexual satisfaction or irritation; and pills for a variety of side effects.

Thus couples need to be enabled to use spacing methods by providing knowledge and easily accessible services. Their costs in use of these methods need to be reduced by improving quality of care and assistance in selection of appropriate method.

Special strategies to promote spacing methods (Satia 1992) would be the following:

(a) Strengthening Programme Operations. A reorientation is needed from an approach based on continuing acceptors of sterilization and IUDs and estimating users of conventional contraceptives on the basis of condoms and cycles of pills distributed to an approach based on counting couples effectively using contraception irrespective of the methods used (Jain 1989). The programme needs to improve its spacing method

service delivery by training in technical and counselling skills,and improving support systems of planning and logistics.

(b) Improving Rural Accessibility. One major avenue to improve rural accessibility is to establish closer linkages with the Integrated Child Development Services Scheme (ICDS) which currently operates in around half the blocks and its coverage is expanding. The Anganwadi worker can be an excellent link in improving rural accessibility of spacing methods.

(c) Expanding Social Marketing. As proportion of urban population expands, social marketing efforts need to be expanded and strengthened. The Indonesian experience with "Blue Circle" campaign shows that it is possible to involve private doctors, midwives and pharmacies in making spacing methods more widely available (Population Reports 1991).

(d) Reproductive Health Services. Existing reproductive care for women falls far short of needs. consequently maternal mortality and morbidity is quite high.The programme needs to expand the range of reproductive health care services provided.

(e) New Contraceptive technologies. No new technologies have been introduced in the Indian programme for more than a decade now. Recently the government has approved use of weekly oral pill. A national consensus needs to be evolved through a process of dialogue for introducing new technologies.

(f) Traditional Methods. As educational levels improve, use of traditional methods (rhythm) increases. However, both their efficacy and potential remain undetermined. Research is needed in this area.

Directional Changes in Family Welfare Programme

The above discussions suggest that four directional changes are needed in the Family Welfare Programme: from quantity to quality, towards a more balanced approach to methods, strengthening the reproductive health care and responding to demographic diversity.

Considerable attention in the programme is given to quantitative achievements such as number of sterilizations done and births averted. However, very little is known regarding quality of services rendered from technical and user perspectives. Questions such as are people satisfied with the services they have received? Were technically appropriate procedures followed? Are the failure rates or complications rates higher than internationally acceptable standards? and so on are not answered. The programme needs to incorporate some quality measurements in its monitoring and evaluation procedures and consciously strive to improve the quality of care. A whole variety of programme operations may need to be strengthened to improve quality of care: training of staff, some facilities, practices followed by service providers and so on. Often it is believed that improving quality would require a lot of resources. But there is growing evidence from qualitative researches that it is more a problem of attitude and management than resources that hampers delivery of quality services (Shariff and Visaria 1992).

It has often been argued that overreliance on sterilization has been the major weakness of the programme and that it needs to focus on promoting spacing methods for younger, low-parity women. We have shown in this paper that both -- sterilization and spacing methods -- have a role to play in moderating fertility in India. Therefore, a balanced approach to method-mix in the programme is needed. The major factor distorting (although it is being somewhat redressed) the balance is the credit system for workers which require that to get an equivalent sterilization, a worker has to recruit three IUD acceptors or 9 oral pill users or 18 condom users over a year. Since the efforts required for the latter far exceeds that for sterilization, workers naturally prefer to emphasize it. Since ensuring accountability is more difficult for spacing methods, the programme managers have historically preferred to emphasize sterilization which has now been enshrined in everybody's mind. Thus systems of planning and accountability would need to be revamped to bring about a more balanced approach to methods of contraception.

The programme has concentrated on family planning and some child survival services to the neglect of women's health concerns, particularly those of reproductive health. Thus health considerations have emerged as a major barrier to acceptance of contraception. Although the programme's name was changed from "family planning" to "family welfare" in the post-emergency period to reflect changing emphasis, it has not yet been fully reflected in the range of services emphasized. Although recently safe-motherhood services are gaining importance, much needs to be done to expand the reproductive health services offered.

The programme has followed a uniform pattern of programme operations. However, as discussed earlier considerable demographic diversity has appeared in the country. Therefore, it is necessary to decentralize the programme operations and state-level strategies need to be devised. In the Eighth plan, the government has identified around 100 districts where birth rate have only marginally declined and has planned for special attention to them. But differential strategies for family welfare programme would be needed for different states.

Broadly speaking the major states can be classified in three categories:

(i) States where demographic transition is well advanced and replacement fertility levels are likely to be reached soon. These include kerala, Tamil nadu, Karnataka and Punjab. Here target should be to increase contraceptive prevalence and improve quality of services;

(ii) States where progress towards replacement fertility needs to be accelerated. These include Maharashtra, Gujarat, Andhra Pradesh, Haryana, Orissa and West Bengal. Here, in addition to setting targets for increasing contraceptive prevalence and quality of services, mechanisms should be instituted to strengthen linkages with women's groups; and

(iii) The four large North Indian states -- Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan -- lag behind and would require more comprehensive efforts of programme strengthening and social development.

VIII
Conclusion

The current trends in vital rates, if maintained, would result in reaching replacement fertility level around year 2008. This paper has argued that very gradual improvement in female education levels has constrained decline in fertility. To accelerate fertility decline, therefore, female education level needs to be raised rapidly. Simultaneously, directional changes in family welfare programmes are needed to provide sterilization services to those wishing to limit their family and promote spacing methods.

Reorientation and/or reorganization of family welfare programme has been a recurring theme in literature (Jain 1989, Nag 1990, Bose 1988). The most recent suggestions in this regard have related to formulation of an apex body, the population commission, to induct political and social leadership while simultaneously managing the programme effectively Padmanabha 1992). The benefits of such an arrangement are expected to be a closer integration between other developmental activities, particularly for women's development, with the family welfare activities, involvement of other departments in information, education and communication activities and the possibility of bringing about necessary administrative changes in programme implementation. However, there is always a cost associated with any structural change as a result of disruptions in existing organizational arrangements, and time and effort required in making a new organization functional.

Therefore, the benefits and costs in forming a population commission need to be carefully evaluated, particularly since the single most important variable affecting fertility is the female education level. The main question is: do we need to directly link population and female education concerns or implement programmes to increase female education levels and let family welfare programme benefit indirectly. Integration, is desirable, particularly when people, because of their ignorance or poverty, are not able to integrate diverse services themselves. However, a large scale integration raises issues of priorities and organizational complexities.

Perhaps the solution does not lie as much in structural change as in providing necessary financial allocations and institutional capacity strengthening. Although there are several environmental constraints in raising female education levels, clearly financial allocations to these activities would have to be increased substantially. Similarly each of the directional changes in the family welfare programme suggested here -- more emphasis on quality of services, balanced emphasis on different methods of contraception, strengthening reproductive health care and responding to demographic diversity -- would require additional resources. Besides the number of couples practising contraception would have to double to reach replacement fertility level by year 2008.

The programme also needs to improve its institutional capacity (Satia and Giridhar 1991). It needs to strengthen all of its supportive activities for field services -- planning and monitoring; training; provision of supplies, and educational materials, equipment and transport -- at national, state and district levels. In addition, its managerial capacity at the operational levels needs to be strengthened.

The paper identifies actions required to accelerate fertility decline. These are within our means. However, they require a clear sense of direction and perseverance to implement necessary changes.

Acknowledgements

Notes

1. For instance, the World Bank (1988) estimates suggest a population of around one billion in year 2000 and its near stabilization around 1.6 billion by the middle of next century.

2. However, there are several lacunae in this estimate.: service statistics may be incorrect, there is a lag between revision in formulae to reflect changes in age characteristics and continuation patterns and private sector provision of services are not fully included. Nevertheless CEPC as a proportion of all MCRAs has proved to be a reasonably reliable estimate of programme achievements and has tallied somewhat closely with the national family planning practice surveys (ORG) except for IUD. The estimated %CEPC in 1988 was 39.8 comprising 29% by sterilization, 5% by IUD, 1% by oral pills and 5% by condoms. The national family planning practice survey (ORG 1988) showed contraceptive prevalence of 40% comprising 31% by sterilization, 2% by IUD, 1% by pills, and 5% by condoms.

3. Among the states with low contraceptive use, the effect of lactational infecundity considerably outweighs, by almost 3 to 1, the effect of contraception. For instance, in Bihar, the effect of lactation was to reduce total fecundity by 31% compared to 13% due to contraception (Srinivasan 1991).

4. Although, according to SRS estimates, Goa had the lowest birth rate, 15.5 per thousand population in 1990.

5. Compared to CPR of 65% for Thailand, 70% for Republic of South Korea and 66% for Costa Rica, all of which have reached near replacement fertility level.

6. Jain (1989), for instance, estimated that a prevalence in the range of 72% to 76% depending on method-mix would be required to achieve replacement fertility by year 2020.

7. The numbers are indicative and reflect order of magnitude as linear relationships postulated in the model may not hold if substantial behavioral changes are experienced.

8. The correlation coefficients between female literacy rate and proportions in primary, secondary and higher education levels ranged from 0.75 to 0.97.

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