

*Studies*  
*in*  
*Population and Development*

No. 02 of 2003

STRATEGIC OPTIONS FOR  
POPULATION STABILIZATION IN  
MADHYA PRADESH

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for  
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## **Introduction**

Although, population growth in Madhya Pradesh has been quite rapid throughout the second half of the last century, yet there has been little state-specific initiative to evolve strategies that can guide and direct population stabilization efforts in the state. The state adopted, almost in its entirety, the strategies and approaches suggested by the central government to address the population issues specific to the state. Essential features of population stabilization strategies that have survived in the state over the second half of the last century include

- population stabilization efforts have been based on a demographic imperative rather than a development context.
- continued focus on birth limitation to achieve demographic goals to curb the rapid growth of population.
- the context and contents of “population stabilization” at the policy level have been equated with “family planning, especially sterilization” at the operational level.
- focus on birth limitation rather than on birth planning through the promotion of sterilization as a family planning method.
- near total dependence of population stabilization efforts and activities on government efforts and initiatives.
- very rigid, highly centralized programme management and administration system.
- vertical, top down, approach of planning and implementation of population stabilization activities which has been driven more by advancements in contraceptive technology than by prevailing family formation patterns and reproductive behaviour of people.
- emphasis upon achieving targets in terms of new acceptors of different family planning methods to be recruited every year to achieve demographic goals.
- little integration of population stabilization efforts and activities with social and economic development processes, especially at the local level - the interface with the people.
- near total neglect of social, cultural and family aspects of human reproductive behaviour.

The impact of the above strategies on population stabilization efforts in the state is clear. Population stabilization efforts have not been able to establish themselves among the masses. State interventions in curtailing birth rate have not inspired the masses to adopt the small family norm. Focus of population stabilization efforts and activities continues to be on family planning with a heavy concentration on sterilization rather than on birth planning. The centrally sponsored National Family Welfare Programme continues to be the mainstay of population stabilization efforts. Over the years, the programme has emerged as a monolith programme - financed, directed and monitored by the central

government, although the state is accountable for its performance. In 1996, the central government forced upon the state a decentralized, community needs based approach of family welfare programme implementation without any assessment of the capacity of the state to implement the new approach. The new approach emphasizes assessing and meeting the family welfare needs of the people rather than achieving numerical targets in terms of recruitment of new acceptors to reach a demographic goal. This shift from the demographic orientation to community needs based orientation in the basic philosophy of programme implementation is indeed a welcome shift. Even this shift has been operationalized in a highly bureaucratic, centralized manner. Little attention has been paid to revamping family welfare programme organization and family welfare services delivery system so that it can adapt itself to the new approach. There have been very limited efforts to develop the capacity for planning for service delivery at state and below state levels. In the new decentralized, community based approach, the onus of assessing the family welfare needs of the people and planning for family welfare services delivery lies squarely with the state. The community needs assessment approach requires bottom up planning. For the success of this new approach, every family welfare services provider must have necessary skills and capacity to assess the family welfare needs of the people and develop service delivery plans to meet the assessed needs. Obviously, the success of the decentralized, community needs based approach depends on the ability of grass roots level service providers in assessing the family welfare needs of the people and in meeting these needs in an efficient and effective manner. A complete revamping of family welfare programme organization is therefore necessary. The problem is both semantic and real. It is semantic because the erstwhile targets for recruiting new acceptors of different family planning methods have been treated as felt family welfare needs of the community. It is real because a simple, easy to adopt method of assessing the family welfare needs of the people that can be used by the grass roots level service providers is yet to be evolved and institutionalized. There is little unanimity among policy makers, programme managers and population experts about the framework and methodology to be adopted for assessing the family welfare needs and for translating the assessed needs into operationally feasible service delivery plan.

There monitoring and evaluation system of the family welfare programme also needs to be reshaped to suit the decentralized, community needs assessment approach. The monitoring methodology developed during the target-based regime continues under the community needs assessment approach also. This approach is totally out of context for monitoring programme implementation and evaluating programme impact under the decentralized, community needs assessment approach. Persistence with the monitoring methodology of target-based regime has resulted in a unique situation at the grass roots level in which the assessed family welfare needs of the community are treated as targets to be achieved by the family welfare service providers and local level programme

managers. The result is that population stabilization efforts are continued to be planned, implemented and monitored in the traditional target mode, especially at the local level.

Madhya Pradesh has now evolved and adopted its own population policy which aims at achieving the replacement fertility or a total fertility rate of 2.1 by the year 2011. Any strategy for population stabilization in the state, therefore, must be directed towards achieving this goal. Estimates of current level of total fertility rate for the state are available from a number of sources. An analysis of 2001 census data suggests a crude birth rate of 30.7 live births per 1000 population per year and a total fertility rate of 3.0 children per woman for the period 1994-2001 (Guilmoto and Rajan, 2002). On the other hand, estimates available through the sample registration system suggest a birth rate of 30.9 for the period 2000-2002 (Government of India, 2003) and a total fertility rate of 3.9 for the year 1999 for undivided Madhya Pradesh (Government of India, 2002). The National Family Health Survey carried out in the state in 1992-93 and in 1996-98 estimates a total fertility rate of 3.90 and 3.31 children per woman respectively for the undivided Madhya Pradesh. The projection exercise carried out in the present analysis suggests a birth rate of 31 and a total fertility rate of 4.2 for the year 2001. This means that successful implementation of Madhya Pradesh Population Policy requires a reduction in the total fertility from roughly 4.2 children per woman around 2001 to 2.1 children per women by the year 2011 - a reduction of about 2.1 children per woman - over a period of 10 years.

### **Decomposition of Excess Fertility**

Fertility in excess to the targeted fertility that currently prevails in the state can be decomposed into two parts - the undesired excess fertility and the desired excess fertility. The undesired excess fertility is normally measured through the unwanted total fertility rate which is the difference between the observed total fertility rate and the wanted total fertility rate. The wanted total fertility rate is estimated in the same manner as the total fertility rate with unwanted births excluded. On the other hand, the desired excess fertility may be measured through the difference between the wanted total fertility rate and the targeted total fertility rate. The desired excess fertility is an indicator of the demand for large family. It is influenced by a host of factors which are beyond the scope of the family welfare programme.

Reduction in the undesired excess fertility and reduction in the desired excess fertility constitute the two independent but closely related dimensions of any strategy directed towards population stabilization. Successful population stabilization programme requires accelerated reduction and ultimate elimination of both the undesired excess fertility and desired excess fertility. Incidentally, approaches to reducing undesired excess fertility and approaches to reducing desired excess fertility are radically different.

Estimates of desired excess fertility and undesired excess fertility for undivided Madhya Pradesh, available from National Family Health Survey, are presented in table 1 for the period 1990-92 and 1996-98. Estimates of desired and undesired excess fertility for the existing Madhya Pradesh are not available. However, the situation that prevailed in the undivided Madhya Pradesh may be taken as indicative of the situation that prevails in the existing Madhya Pradesh.

According to the National Family Health Survey, the undesired excess fertility for the period 1996-98 was about 0.91 children per woman while the desired excess fertility was about 0.30 children per woman. The sum of these two is 1.21 children per woman which is the difference between the total fertility rate of 3.31 children per woman that prevailed in the undivided Madhya Pradesh at that time and the targeted total fertility rate of 2.1 children per woman as given in the Madhya Pradesh Population Policy 2000. According to these estimates, the undesired excess fertility in the undivided Madhya Pradesh was three times more than the desired excess fertility around the year 1997. No other information about the desired and undesired excess fertility either in the undivided Madhya Pradesh or in the existing Madhya Pradesh is currently available and it can be assumed that the level and structure of desired and undesired fertility obtained through the National Family Health Survey still prevails. In such a situation, elimination of both the undesired excess fertility and the desired excess fertility is essential to achieve goals of the population policy.

Another observation of table 1 is that the undesired excess fertility in the undivided Madhya Pradesh has increased over time where as the desired excess fertility has decreased. If this trend is assumed for the existing Madhya Pradesh also, then, it appears that an increasing proportion of couples in the state are now interested in keeping their family small but an increasing proportion of them are not able to do so.

Estimates of undesired excess fertility and desired excess fertility for different population subgroups of undivided Madhya Pradesh are also given in table 1. The problem of undesired excess fertility persists in all population subgroups but the problem of desired excess fertility is confined to specific population groups only. For example, in the urban areas of the state, the desired excess fertility already appears to be less than the replacement fertility if estimates available through the National Family Health Survey are any indication. This means that the desired excess fertility is actually negative. This means that the observed fertility in excess to the replacement fertility in the urban areas of the state is entirely due to the undesired excess fertility. Given the situation, population stabilization in urban Madhya Pradesh can be achieved state just by effectively addressing the undesired excess fertility.

It is also clear from table 1 that in all population groups, the relative contribution of undesired excess fertility to fertility in excess to the replacement fertility is substantially greater than the contribution of desired excess fertility and in some population groups, this proportion has increased over time. This suggests

that the preference for large family is showing a decline trend in all population groups, an observation which is conducive to achieving population policy goals. This is however not the case with the trends in undesired excess fertility. The undesired excess fertility in the state has increased over time. Since the undesired excess fertility can be reduced only through the promotion of contraception, the rising trend in this fertility indicates that the family welfare service delivery system in the state is not able to meet the demand for family planning of those couples who want to keep their family small.

Estimates of undesired excess fertility and desired excess fertility for the districts of the state are derived from the estimates of total fertility rate obtained from the information about population up to six years of age available through the 2001 census (Guilmoto and Rajan, 2002) and through the application of an indirect technique of estimating wanted fertility (Bongaarts, 1994). For each district of the state, the existing levels of desired and undesired excess fertility is presented in table 2 along with the proportion of current fertility in excess to the targeted replacement fertility accounted by the undesired excess fertility and by the desired excess fertility. It is clear from the table that both the undesired excess fertility and the desired excess fertility varies widely across the districts of the state and in general, the undesired excess fertility is more than the desired excess fertility.

An interesting observation of table 2 is that the share of the undesired excess fertility to total excess fertility appears to increase with the decrease in fertility levels. The proportion of undesired excess fertility to total excess fertility has been found to be the lowest (about 48 per cent) in district Jhabua which has the highest total fertility rate. On the other hand, this proportion has been found to be the highest (more than 86 per cent) in Indore and Jabalpur districts where the current total fertility rate is among the lowest in the state. There are three districts - Indore, Jabalpur and Bhopal - where more than 80 per cent of the total excess fertility is accounted by the undesired excess fertility. In these districts, the desired excess fertility contributes to less than 15 per cent of the total excess fertility. In fact, in all but one districts of the state, undesired excess fertility accounts for more than 50 per cent of the total excess fertility which means that in all but one districts of the state, the desired excess fertility is less than half of the total excess fertility - fertility in excess to the replacement fertility.

### **Determinants of Undesired Excess fertility**

Primary reason for the prevailing high levels of undesired excess fertility in the state and increase in this fertility over time is that many couples who wish to delay or stop childbearing are not able to do so. For these couples, the most direct way to delay or stop childbearing is to practice family planning. Experience from the world over suggests that an important reason for the observed inability of couples to practice family planning to avoid undesired pregnancies and prevent unwanted births is that contraceptive services and supplies are inefficient and are

beyond the reach of the people who desire them most. Since the official family welfare programme is the mainstay of family planning service delivery system in the state, it can be argued that the poor performance and limited reach of the official family welfare programme appears to be primarily responsible for prevailing undesired excess fertility in the state.

Madhya Pradesh Population Policy 2000 recognizes the important role of the official family welfare programme in reducing and ultimately eliminating the undesired excess fertility through universalizing the practice of family planning in the state. It is in this context that the Policy identifies improvements in the management of the official family welfare programme to achieve excellence in meeting the felt family welfare needs of the people as one of the key policy initiatives. However, the policy is silent about strategic and operational frameworks required to ensure lasting improvements in the administrative capacity and organizational efficiency of the programme so as to extend and expand the reach of the family welfare programme to cover all those couples in the state who already have the number of children they want.

Little is currently known about the factors behind the poor performance and poor reach of the official family welfare programme in the state in meeting the felt family welfare needs of the people. Programme performance including programme efficiency and quality of family welfare services has been one of the most neglected areas of programme implementation because of the preoccupation of the programme with the achievement of numerical targets allocated from the top. The concern to achieve demographic goals by the top management of the programme has resulted in an overemphasis on quantity over quality and coverage of family welfare services at the implementation level. Although, estimates of continuation rates and failure rates of different contraceptive methods are not available for the state, yet it is a well known fact that both failure rates and discontinuation continuation rates of different family planning methods are abnormally high in the state with the result that the impact of the official family welfare programme on fertility is substantially below the expectations.

There is, at present, a lot of ambiguity about how to assess the family welfare needs of individual couples. With the abolition of targets, the Government of India developed a manual for the implementation of the family welfare programme under the target free approach (Government of India, no date). Although the manual stresses the need of a realistic assessment of the family welfare needs of the people, it is silent about the methodology of assessing the community needs. A review of the implementation of the target free approach in 1998 revealed that although it was stipulated that family welfare needs would be assessed in consultation with the community, the actual assessment, in fact, was based on standardized calculations (Government of India, 1998). In order to address the problem, the manual on target free approach was revised and renamed as the manual on community needs assessment approach. In the revised manual a very loose attempt was made to outline a methodology of assessing the family

welfare needs of the community. It has been suggested that the female health worker must consult the aanganwadi worker, traditional birth attendant, members of Mahila Swasthya Sangh and local Panchayat members, etc. to estimate the felt needs for different family welfare services. The problem with the approach is that it is very subjective in nature. Application of the methodology suggested by the Government of India depends upon the skills and motivation of the female health worker. In order to reduce the subjectivity in the needs assessment process, the methodology suggests that the needs assessed by the consultative process should be compared with actual achievements in previous years. The methodology further suggests that for determining the requirements (needs) in subsequent years, the previous years' achievements could be used as yardstick. It is argued that if family welfare needs are assessed with due care, the needs for the next year would be 5-25 per cent higher than the achievement in the previous year.

The community needs assessment approach, however, provides little help to the grass roots level health and family welfare service provider because of a number of ambiguities in the approach suggested. Because of these ambiguities, a simple shortcut has been adopted at the local level which, incidently, is suggested in the methodology itself - inflate the achievements of the last year by a proportion ranging between 5-25 per cent to arrive at the needs of the people for the next year. This way of assessing the family welfare needs is against the very spirit of decentralized, community needs based planning for family welfare services delivery that is the basis for community needs assessment.

In order to ensure that the family welfare programme is able to reduce and ultimately eliminate undesired excess fertility, it is imperative that a couple-based planning for family welfare services delivery is evolved and institutionalized. The first step in evolving such a system is the mapping of the family welfare needs of all couples keeping in mind the fact that these needs are not static; they keep on changing with time as well as with the transition in the family. Once, the family welfare needs of individual couples are mapped, it is possible to prioritize the family welfare needs of different couples and focus family welfare programme on those couples whose family welfare needs are of high priority. The efficiency of the family welfare programme can be enhanced substantially if couples who are in need of one or the other type of family welfare services at a given time are identified and programme efforts are focused on these couples only.

### **Determinants of Desired Excess Fertility**

Reduction and ultimate elimination of undesired excess fertility can wipe out a major portion of the fertility in excess to the replacement fertility. It cannot wipe out all the difference because a part of the observed fertility in excess to replacement fertility is due to desired excess fertility which is an indicator of the demand for large family. Although, evidence from National Family Health Survey suggests that the demand for large family is decreasing in the state, yet there still exists substantial desired excess fertility in some districts and in some

population groups. There are 12 districts in the state where the desired excess fertility in excess to replacement fertility is at least one child per woman whereas in 18 other districts, it ranges between 0.5 to 1 child per woman. A decrease in the desired excess fertility is, therefore, essential for achieving the goals of Madhya Pradesh Population Policy.

There are a host of social, cultural, economic and health factors that influence the family size desires and hence contribute to desired excess fertility. Among these factors, at least three have been cited as the most important. They are (I) level of education, (ii) status of women, and (iii) infant mortality (Caldwell, 1980; Cleland and Rodriguez, 1988, Cochrane, 1979; Mason, 1987; Lloyd and Ivanov, 1988). Universalizing education, raising the status of women and reducing the risk of death during infancy and early childhood are desirable policy measures in their own right. However, role of these factors in reducing and ultimately eliminating the desired excess fertility also strengthens the rationale for intensifying these policies and programmes.

It is possible to analyze the relationship between the desired excess fertility and level of education, status of women and infant mortality rate in Madhya Pradesh on the basis of district level information. Results of the analysis are presented in table 3. Inter-district variations in the three factors account for more than 68 per cent of the inter-district variations in the desired excess fertility. Moreover, regression coefficients of all the three explanatory variables are in expected direction; an increase in the level of education as measured by the literacy rate results in a decrease in the desired excess fertility. The same is the case with the status of women which is measured through the gender development index. On the other hand, an increase in the risk of death during infancy is expected to result in an increase in the desired excess fertility. The regression coefficient of infant mortality rate has however not been found to be statistically significant. This indicates that inter-district variation in desired excess fertility in Madhya Pradesh is influenced more by the inter-district variations in the level of education and inter-district variations in the status of women than by the inter-district variations in infant mortality, although the direction of the regression coefficient of the desired excess fertility on the infant mortality rate indicates that a reduction in infant mortality contributes to reducing desired excess fertility.

Table 3 suggests that reduction in the disparities in family size desires in terms of desired fertility in excess to the replacement fertility can be achieved through reduction in disparities in of education, specially of girls, status of women and survival of infants and young children. These issues, incidently, are beyond the context and contents of family welfare programme. In any case, addressing these issues is critical to realizing population policy goals directly by reducing the desired excess fertility and indirectly by creating an environment which is favourable to fertility regulation. This implies that population orientation to social and economic development planning is one of the key requirements for

the realization of population policy goals. It is important that social and economic development processes result in a decrease in the demand for large family thereby reducing the desired excess fertility. The social and economic development processes have so far been neutral to human reproductive behaviour. In order to reduce the desired excess fertility, It is imperative that these processes must be sensitive to population related concerns and issues.

## **Conclusions**

The foregoing analysis highlights the importance of reducing both the undesired excess fertility and the desired excess fertility in achieving population policy goals. Strengthening family welfare programme is critical to reducing the undesired excess fertility. However, reducing desired excess fertility is beyond the scope of the family welfare programme. Desired excess fertility can be reduced only through the human development approach to population issues and concerns with particular emphasis on education, gender equality and health of infants and young children. To achieve population policy goals, it is imperative that both the dimensions of fertility - desired excess fertility and undesired excess fertility - are adequately addressed. The two dimensions complement and reinforce each other. Reduction in the desired excess fertility through investments in human beings does not, by itself reduce fertility. Instead, it raises the demand for fertility regulation and only if this demand is satisfied will lower fertility be obtained. Conversely, family welfare programme is more effective in societies with high levels of human development.

The foregoing considerations suggest that a two dimensional strategy is required for successful implementation of population stabilization efforts to achieve Madhya Pradesh Population Policy goals. One dimension of the strategy should focus on reducing the undesired excess fertility while the other should concentrate on reducing the desired fertility in excess to the replacement fertility. The undesired excess fertility may be reduced and ultimately eliminated through modifying the four key proximate determinants of fertility - age at marriage of females, use of family planning methods, practice of abortion to terminate unwanted pregnancies and increasing the duration of lactational amenorrhea. The reduction and ultimate elimination of desired fertility in excess to replacement fertility requires investments in human beings - improvements in the levels of education, especially of females, giving due recognition to roles and responsibilities of women in the family and the society, reducing the risk of premature deaths during infancy and early childhood, eliminating poverty, etc. Incidentally, the contexts and contents of any strategy for reducing the undesired excess fertility and any strategy towards reducing desired fertility in excess to replacement fertility are radically different. Approaches designed for reducing undesired excess fertility cannot address the factors that determine the desired excess fertility.

One way of evolving a programme that ensures the linkages between the two dimensions of population stabilization is the integration of population factors with social and economic development processes. It is argued that explicit integration of population factors into social and economic development programmes will both speed up the pace of development and poverty alleviation and contribute to the achievement of population stabilization goals including improved quality of life of the people (United Nations, 1995). Since both social and economic development programmes and population stabilization policies are directed towards improving the quality of life of the people, it is possible to integrate the two at least at the planning stage. The social and economic development strategy must realistically reflect the short, medium and long-term implications of population dynamics and human reproductive behaviour. At the same time, population stabilization efforts must be oriented to improving the quality of life of the people, not to achieve the demographic goals.

Integration of population issues with social and economic development processes has long been recognized as an effective strategy for both people centred development and development oriented population stabilization activities. In India, attempts to integrate population factors into development planning have been quite successful at the national level as is reflected through Five-Year Development Plans. These Plans also discuss implications of population growth in the context of economic development, unemployment, increasing school age population, a high dependency ratio, and population pressure on social services, housing and food supplies. However, at the state level and below the state level, there is considerable dilution of these efforts. The Five-Year Development Plans of Madhya Pradesh, for example, refer to development concerns of population growth only marginally.

Recently, the State Population and Development Council has approved a four-point strategy for the implementation of Madhya Pradesh Population Policy 2000. One component of this strategy is linking of population stabilization activities with the processes of social and economic development. This is a major political initiative in recognition of the fact that only development oriented population stabilization efforts can be effective in achieving the population policy goals and only people centred social and economic development can succeed in improving the quality of life of the people.

Conceptualizing, institutionalizing and practicing population and development integration, especially in a decentralized, democratic government, is a very challenging proposition. The progress, in this direction, is not very encouraging. There are very few examples of successful integration. Reasons for limited success include lack of accurate information on population and development trends, absence of an analytical framework of population and development integration and inadequate research in different aspects of this interrelationship, especially at the local level. It has also been observed that both the development and population policy planners and managers are not keen to

operationalize population and development integration because of their individual interests and wisdom. The traditional wisdom to social and economic development and to population control and stabilization has been very narrow. The objectives of social and economic development has been narrowly specified in terms of the increase in the growth of gross national product. In this wisdom, social and economic development is restricted to economic development. Similarly, policies directed towards population stabilization have been focused on curtailing population growth rate through fertility reduction primarily by the use of family planning methods. In such a planning environment, population and development integration, even if institutionalized, is a difficult to practice. Population and development integration can succeed only when there is a more comprehensive specification of social and economic development goals and population policy objectives, the one that takes into account various social, economic and demographic interactions that are critical to both social and economic progress and population stabilization.

There is no universally accepted conceptual or operational framework for population and development integration. The diverse manner in which the term "integration" has been used to establish linkages between population issues with social and economic development processes has led to more confusion than clarity. Integration may mean entirely differently in different contexts and so may have entirely different contents. It has different connotations at the macro level, at the sector level, at the programme/project level and at the grass roots level. However, the purpose of integration remains unchanged. Population and development integration must lead to people centred social and economic development and development oriented population stabilization policies. If, despite integration, social and economic development activities and programmes fail to address the development and welfare needs of the people or if population stabilization policies and programmes continue to be narrowly targeted to achieve demographic goals, the very purpose of integration will be lost.

Population and development integration may also be discussed in the context of different stages of implementation of either social and economic development programmes or population stabilization policies. The process of implementation of either a development activity or a population programme can broadly be divided into three stages - the planning stage, the implementation stage and the evaluation and impact assessment stage. It is of interest to discuss at which of the three stages, population and development integration is feasible. This discussion should obviously take into consideration the prevailing administrative structures and processes and the manner in which development activities and population programmes are organized.

If population and development integration refers to explicit consideration of population and development interrelationships in the formulation of social and economic development programmes, then the first requirement for realizing and sustaining population and development integration is to develop and

institutionalize frameworks for such integration. The concepts of “population lens” and "development mirror" need to be elaborated further and the information and technical skills needed to introduce the “lens” and the "mirror" need to be enhanced. The information and technical skills needs of introducing “population lens” in development programmes and "development mirror" in population policies may be different for different tiers of implementation. To be effective, the "population lense" and the "development mirror" should have macro and a micro components to capture both the macro and the local level contexts of population and development.

Perhaps the most important requirement to promote population and development integration is to develop human resources having necessary knowledge and skills to practice integration at the planning and at the monitoring and evaluation stage. This may be achieved through learning by doing. Development policy makers and planners may also be exposed to the full range of population and development interactions through intensive training programmes and orientation workshops. The thrust of these training programmes should be on the empirical analysis of the relationship between population factors and social and economic development concerns.

The second requirement for realizing population and development integration is the building of population and development data base. This is a major challenge. This data base must be able to generate a set of key indicators that reflect the population and development relationship at macro, sector and programme/project levels. There may be a need to review the existing indicators of social and economic development and demographic situation currently available and to develop a more refined set of population and development indicators.

The third concern in promoting integration is research in population and development issues. A comprehensive research programme to focus on population and development relationship is important for a rational understanding of the complex interrelationship. Simple awareness and familiarization of population and development interrelationships, while necessary and useful to common people, are probably not adequate. Development planners and administrators must have a sound understanding of population and development integration. A well established research programme in population and development may provide clinching empirical evidence for population and development integration.

Figure 1  
Desired and Undesired Excess Fertility

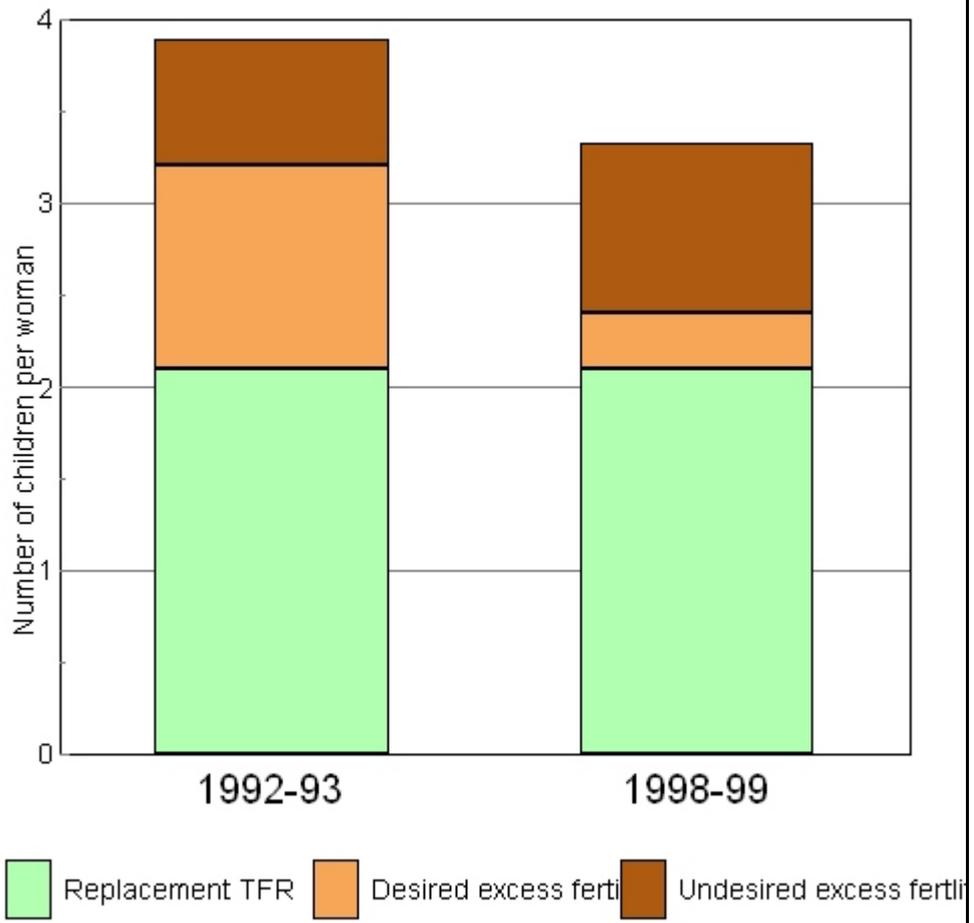


Figure 2  
Desired and Undesired Excess Fertility in Districts of Madhya Pradesh  
1994-2001

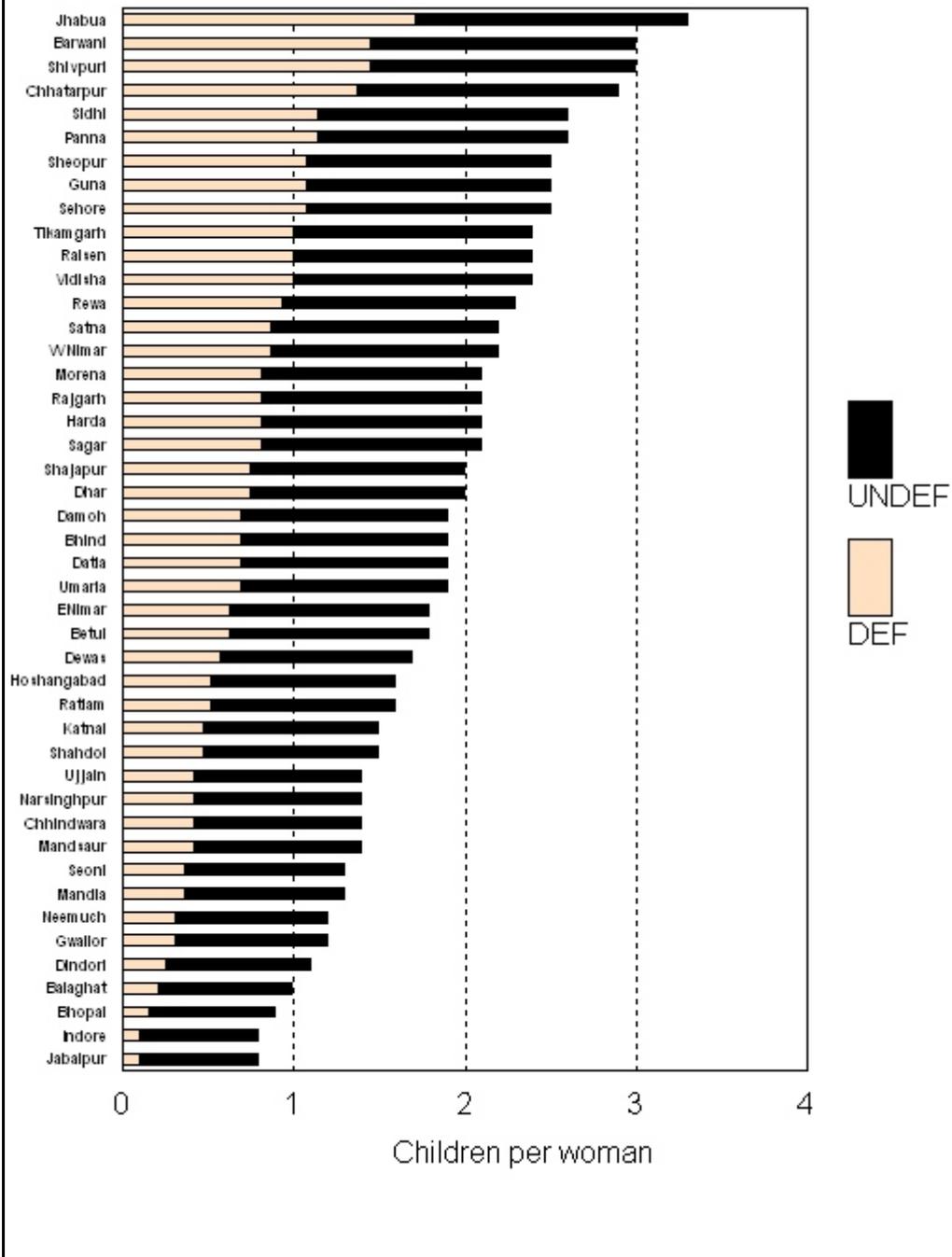


Table 1: Estimates of total fertility rate, total wanted fertility rate and total fertility rate accounted by the demand for large families in undivided Madhya Pradesh.

Particulars	NFHS 1992-93				NFHS 1998-99			
	Current TFR	Desired TFR	Desired excess fertility	Undesired excess fertility	Current TFR	Desired TFR	Desired excess fertility	Undesired excess fertility
<i>Total</i>	3.90	3.21	1.11	0.69	3.31	2.40	0.30	0.91
<i>Residence</i>								
Urban	3.27	2.51	0.41	0.76	2.61	1.84	-0.26	0.77
Rural	4.11	3.44	1.34	0.67	3.56	2.61	0.51	0.95
<i>Religion</i>								
Hindu	3.92	3.25	1.15	0.67	3.35	2.44	0.34	0.91
Muslim	4.18	2.91	0.81	1.27	3.39	2.15	0.05	1.24
Others	2.55	2.22	0.12	0.33	1.86	1.70	-0.40	0.16
<i>Caste</i>								
SC	4.71	3.42	1.32	1.29	3.87	2.56	0.46	1.31
ST	4.05	3.62	1.52	0.43	3.69	2.83	0.73	0.86
Others	3.76	3.02	0.92	0.74	2.49	1.79	-0.31	0.70
<i>Education</i>								
Illiterate	4.31	3.63	1.53	0.68	3.78	2.73	0.63	1.05
Primary	3.17	2.41	0.31	0.76	3.20	2.36	0.26	0.84
Middle	3.47	2.79	0.69	0.68	2.34	1.84	-0.26	0.50
High School	2.47	1.84	-0.26	0.63	1.92	1.50	-0.60	0.42

Table A8: Estimates of birth rate, total fertility rate, desired excess fertility and undesired excess fertility in districts of Madhya Pradesh, 1994-2001.

Dist	Birth rate 0/00	Total fertility rate	Total fertility in excess to replacement fertility	Desired excess fertility	Undesired excess fertility	Proportion of excess fertility due to	
						Desired excess fertility	Undesired excess fertility
Sheopur	34.50	4.60	2.50	1.08	1.42	43.08	56.92
Morena	31.60	4.20	2.10	0.82	1.28	38.87	61.13
Bhind	29.50	4.00	1.90	0.70	1.20	36.67	63.33
Gwalior	25.60	3.30	1.20	0.32	0.88	26.34	73.66
Datia	29.80	4.00	1.90	0.70	1.20	36.67	63.33
Shivpuri	36.10	5.10	3.00	1.46	1.54	48.55	51.45
Guna	35.20	4.60	2.50	1.08	1.42	43.08	56.92
Tikamgarh	36.00	4.50	2.40	1.01	1.39	42.02	57.98
Chhatarpur	33.80	5.00	2.90	1.37	1.53	47.41	52.59
Panna	35.70	4.70	2.60	1.15	1.45	44.14	55.86
Sagar	31.90	4.20	2.10	0.82	1.28	38.87	61.13
Damoh	31.40	4.00	1.90	0.70	1.20	36.67	63.33
Satna	33.60	4.30	2.20	0.88	1.32	39.93	60.07
Rewa	34.00	4.40	2.30	0.94	1.36	40.98	59.02
Umaria	32.60	4.00	1.90	0.70	1.20	36.67	63.33
Shahdol	29.30	3.60	1.50	0.47	1.03	31.60	68.40
Sidhi	36.50	4.70	2.60	1.15	1.45	44.14	55.86
Neemuch	27.10	3.30	1.20	0.32	0.88	26.34	73.66
Mandsaur	28.40	3.50	1.40	0.42	0.98	30.05	69.95
Ratlam	30.60	3.70	1.60	0.53	1.07	33.00	67.00

Dist	Birth rate 0/00	Total fertility rate	Total fertility in excess to replacement fertility	Desired excess fertility	Undesired excess fertility	Proportion of excess fertility due to	
						Desired excess fertility	Undesired excess fertility
Ujjain	28.00	3.50	1.40	0.42	0.98	30.05	69.95
Shajapur	31.50	4.10	2.00	0.76	1.24	37.78	62.22
Dewas	30.10	3.80	1.70	0.58	1.12	34.30	65.70
Jhabua	41.60	5.40	3.30	1.72	1.58	52.13	47.87
Dhar	33.00	4.10	2.00	0.76	1.24	37.78	62.22
Indore	24.70	2.90	0.80	0.11	0.69	13.74	86.26
WNimar	33.30	4.30	2.20	0.88	1.32	39.93	60.07
Barwani	39.60	5.10	3.00	1.46	1.54	48.55	51.45
ENimar	30.40	3.90	1.80	0.64	1.16	35.52	64.48
Rajgarh	32.80	4.20	2.10	0.82	1.28	38.87	61.13
Vidisha	34.00	4.50	2.40	1.01	1.39	42.02	57.98
Bhopal	26.60	3.00	0.90	0.16	0.74	17.93	82.07
Sehore	34.30	4.60	2.50	1.08	1.42	43.08	56.92
Raisen	33.50	4.50	2.40	1.01	1.39	42.02	57.98
Betul	29.60	3.90	1.80	0.64	1.16	35.52	64.48
Harda	31.60	4.20	2.10	0.82	1.28	38.87	61.13
Hoshangabad	27.90	3.70	1.60	0.53	1.07	33.00	67.00
Katni	30.40	3.60	1.50	0.47	1.03	31.60	68.40
Jabalpur	24.20	2.90	0.80	0.11	0.69	13.74	86.26
Narsinghpur	27.40	3.50	1.40	0.42	0.98	30.05	69.95
Dindori	27.20	3.20	1.10	0.26	0.84	24.03	75.97
Mandla	28.80	3.40	1.30	0.37	0.93	28.32	71.68

Dist	Birth rate 0/00	Total fertility rate	Total fertility in excess to replacement fertility	Desired excess fertility	Undesired excess fertility	Proportion of excess fertility due to	
						Desired excess fertility	Undesired excess fertility
Chhindwara	27.30	3.50	1.40	0.42	0.98	30.05	69.95
Seoni	27.80	3.40	1.30	0.37	0.93	28.32	71.68
Balaghat	25.20	3.10	1.00	0.21	0.79	21.28	78.72
Madhya Pradesh	30.70	3.90	1.80				

Table 3: Determinants of inter-district variations in wanted total fertility rate in excess to replacement fertility in Madhya Pradesh.

Variable in regression	$\beta$	SE	t
Gender development index	-0.493	0.691	-5.368***
Literacy rate	-0.485	0.411	-5.094***
Infant mortality rate	0.132	1.921	1.384

\*\*\* p < .001