

DIFFERENTIAL FERTILITY IN INDIA

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ABSTRACT

DIFFERENTIAL FERTILITY IN INDIA

By

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In the present thesis an attempt was made to review the literature on the historical demography in both the developed and developing countries to ascertain any pattern in demographic transition which might have implications for the developing countries. Review of literature was done on differential fertility in India and the impact of certain socio-demographic variables on fertility was assessed.

The review reveals that so far no definite trend of impact of different income levels is observed in India. It is assumed that increase in income has a certain indirect impact on fertility control. The limited income of majority of Indians minimizes any indirect impact which income levels can currently have in reducing population growth.

No consistent pattern of fertility level is observed among people with different levels of education.

However, both in India and abroad, fertility tended to decline at high school and two years of college after which it remained steady. Education also is thought to have certain indirect effects on fertility.

Industrialization in western societies has brought a whole range of changes in socio-economic and technological development. But in India the level of industrialization is not yet sufficient to create the threshold effects necessary for fertility control.

Fecundity in India show somewhat in favor of fertility control. Though early marriages and social norms suggest that Indian people want larger families, the other factors like longer lactation period, forced separation of husband and wife before and after birth, and several other norms are somewhat favorable to lower fertility.

In India, migration is taking place but the negative effects are counter-balancing the positive aspects of migration.

Change in the family size norm is not yet visible probably due to the absence of change in the roles of children. In absence of old age insurance or welfare program, children are the only source for parents by whom they will be taken care of during their old age.

Results from several studies carried out to compare family planning knowledge, attitudes, and practices between urban and rural people are inconclusive. However, effects of urbanization such as separation from the joint family and increased mass media exposure have an effect on one's knowledge and attitude to family planning.

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1983

1984

1985

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INTRODUCTION

It is well known that the population of the world is increasing faster than ever before. With the present trend of accelerating growth it would only take 100 years for mankind to cover the inhabitable parts of the world, with an average density greater than that of Holland today (see Goran Ohlin 1967:11).

If we take the history of world population growth by the Neolithic period, some 10,000 years ago world population had reached a level of about ten million persons. By the beginning of the Christian Era, the Earth's inhabitants had reached a total of perhaps 250 to 300 million. At the beginning of the modern era, at about mid-17th century, world population numbered some 500 million. It therefore took all the millennia before 1650 that man has been on this globe to reach a total of half a billion persons. But to add a second half billion took only two centuries (before 1850); a third half billion less than half a century (before 1900); a fourth half billion little

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more than a quarter of a century (shortly after 1925); a fifth half billion less than a quarter of a century (by 1950). The sixth half billion added to world population required only ten (10) years (by 1960); and a seventh addition of half a billion took only eight years (by 1968) (Hauser, 1969:13).

Hauser (1969:13) predicts that the world population would easily reach seven billion by the end of the 20th century, and by 2068 world population may exceed twenty billion. These suggest how fast the population is growing. The developing countries are contributing more heavily to world population growth than the developed countries. According to Hauser (1969:18):

In around 1968, seven nations had among them over two billion persons or about three-fifths of the total population of the world. These nations were (1) China with perhaps 728 million, (2) India with 523 million, (3) U.S.S.R. with 239 million, (4) the U.S. with 201 million, (5) Pakistan with 126 million, (6) Indonesia with 113 million, and (7) Japan with 101 million.

Hauser (1969:19) predicts that the less developed areas with a population of 2.4 billion in 1968 would increase by 3.0 billion (120%) by the end of the century. In contrast, the more developed areas would increase only 598 million persons, or about 60%. The population increase

in the less developed areas would be five times as great as that of the more developed areas. The present population figures indicate India as the second major contributor to the world population. It is generally agreed that the population of Indian sub-continent, now India and Pakistan, was approximately 125 million at the beginning of the 19th century. By 1871 the population of undivided India had increased to 225 million. The doubling of population in 70 years was attributed to administrative measures taken by the British Government such as raising the economic levels of people and creating better health measures.

TABLE 1

POPULATION GROWTH OF INDIA SINCE 1871

Year	Millions	% Growth in Preceding Decade
1871	255	--
1881	257	1
1891	261	9
1901	285	1
1911	303	6
1921	306	1
1931	338	11
1941	389	15
1951	438	12
1961	532	21

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The increase in 1871-1921 amounted to 20%. The slow growth in the population size in this period was due to famines and epidemics (Kingsley Davis 1951:28). By contrast the increase for 1921-1951 was no less than 43 percent. In the following single decennium from 1951-1961 the growth rate was over 21 percent (Myrdal, 1968:1395). In 1967 the Indian Government has released the figures, which state that "one of every seven persons in the world is an Indian, in India a baby is born every 1-1/2 seconds, 55,000 babies are born every day, and 21 million a year, 8 million deaths every year. Added population is 13 million every year" (India, 1967:3-4).

The studies of relationships between population growth, its composition, and economic development suggest that population growth operates to obstruct efforts to achieve higher levels of living. Per capita income cannot be increased unless aggregate output rises more rapidly than does population. The extraordinary projections of the future growth of population in the world, particularly in the underdeveloped countries, have enormously enhanced the awareness of population explosion. Above all, those who in the developing countries have been given responsibility of planning their economic and social advance

have, by their experiences and calculations, been forced to a realization of the burdens that population growth of 2-3 percent a year impose on their countries. At such rates population doubles in 25 years; this doubles the requirements of facilities they would like to provide in the form of schools, hospitals, and housing; conversely it cuts in half the benefits of what they might expect to provide in that time.

Today there is little disagreement among the nations about the existence of a grave threat implicit in the present demographic situation. Ideological and religious controversies on these issues have receded. In the last few years, the United Nations itself has moved from research to the provision of technical assistance and population program officers have been posted in various countries. In different ways the World Health Organization (WHO), the World Food and Agriculture Organization (FAO), UNESCO, the World Bank, UNICEF, and the Regional Commissions of United Nations have gone on record favoring action in the field of population control. These pronouncements are very likely more important than actual and potential technical assistance may be, the repeated declarations on the seriousness of the world population

problems are creating a sense of international approval and urgency for national action in family planning. A national family planning program has become highly respectable in the community of nations.

India was the first country to establish a full-fledged department of family planning. India was also the first country to adopt a national family planning policy. The program started in 1952. In the first two five-year plans (1951-1961), besides the initiation of research projects and development of central and state organizations for services through clinics and education promotion, the public was made increasingly aware of the need for and promotion of family planning. In 1962-63, the program was stepped up and more funds were spent in that year than in the first and second five-year plans combined. In 1963, the program was reorganized and recommended for early implementation by states with the objective of reducing the birth rate from 41 to 25 per thousand. In the 3rd five-year plan the clinical approach was strengthened by adoption of extension methods for propagation of family planning. The objective of this plan is to reduce annual birth rates 41 per thousand to 23 per thousand by 1978-79 (India 1968:1-11). India has been innovative in many ways.

It has experimented with many uses of mass media, utilizing such diverse approaches as television, radio, newspapers, films, mailings, folk songs, puppet exhibitions, wall painting, match box labels, postage stamps, and even elephants garlanded with family planning messages. The symbol of family planning--four faces on an inverted Vermillion triangle with the slogan "two or three children--that is enough"--is becoming ubiquitous in India. India is also a leader in the non-clinical distribution of information and of contraceptives through such organizations as railways, the military, post offices, industries, and plantations as well as subsidizing the normal marketing channels (Notestein et al., 1969:151). India has also introduced incentives in kind or cash, for those who have undergone vasectomies, tubectomies, and IUD insertion.

The basic question is: Is this public family planning program helping the nations in controlling the fertility growth? The answers are varied and in some cases seriously doubtful. In his recent paper on population policy, Will current programs succeed?, Kingsley Davis has seriously questioned the effect of public family planning programs on fertility control. He says "In backward countries today, taken as a whole, birth rates are

rising, not falling; in those with population policies, there is no indication that the government is controlling the rate of reproduction" (Kingsley Davis, 1967:743).

The trend in rise in fertility in developing countries is often attributed to the improved health and lowered mortality rather than to the failure of birth control measures. Davis says "Some of the upward pressures on birth rates is independent of what couples do about family planning, for it arises from fact that, with lowered mortality, there are simply more couples" (Kingsley Davis 1967:734).

What are the relevant factors in controlling population growth are very important to be noted here among the fast developing countries. Korea and Taiwan may give a good example here to analyze the situation and to note the important factors which have contributed to the population growth.

Taiwan is acclaimed as a show piece because it has responded favorably to a highly organized program for distributing up-to-date contraceptives and has also had a rapidly dropping birth rate from 50.0 per thousand in 1951 to 32.7 in 1965. Davis suggests, ". . . the decline

represents a response to modernization similar to made by all countries that have become industrialized" (Davis 1967:735).

Both in Taiwan and Korea the success in the drop of birth rate is attributed more to individual effort than to the government policies. Davis builds his argument on how an individual is more concerned with his reproduction and motivated to have less or more children according to his felt necessity. Often the success and failure of family planning program is based on the general family size notion of the individual family. Analyzing the situation in many parts of the world, Davis says, "there is not much difference in the desired numbers of children." Over 60% of the women in Taipei and over 90% of those in the farming wanted 4 or more children. In Taichung, the average numbers of children wanted was 4; only 9 percent wanted less than 3, 20 percent wanted 5 or more. In the United States in 1966, an average of 3.4 children was considered ideal by white women aged 21 and over. In Bangalore city the number of children desired by a woman is 3.7 and a man is 4.1. According to Davis, it is important that there should be an awareness of small family size norm among the people and this awareness is possible only when there have been

general economic development and modernization in the country. Due to various reasons the awareness of small family size norm has not been diffused in many developing countries as in India. In India the major share of economic production is generally organized through peasant family farm units and the kinship is often still fundamental in the organization of local, political, social, and religious institutions. Though mortality in general has decreased considerably, infant mortality in villages is still high and the parents are not yet sure how many children will survive.

The main objective of the present study is to review the literature (1) on the historical demography in the developed countries and the developing countries to ascertain any pattern in demographic transition which might have implications for the developing countries, for example, (2) review the topic on differential fertility in India to find out if there is any basis for assuming change in fertility as a consequence of

- a. changes in income levels
- b. various education levels
- c. various occupations
- d. industrialization
- e. different social groups
- f. different religious groups

- g. family and kinship groups
- h. traditions
- i. beliefs

(3) to examine overtime to determine whether fertility is effected by a combination of factors like local economy and politics, kinship and role structures, belief systems, networks among rural people and representatives of developed sector, etc.; and (4) to discuss how migration, roles of women in society, nuptiality and fecundity according to historical demography had effect on population growth in developed countries and what the implications may be for population growth in India.

THEORY OF DEMOGRAPHIC TRANSITION

For the purposes of the present paper it is important to discuss the theory of demographic transition. The enormous increase in world population in recent time is explained in a highly simplified form as follows: most of the historical periods of rapid population growth occurred under favorable circumstances and ended in raising mortality rather than in falling fertility. In the long run mortality and fertility balanced and by 1650 the world population was about 500 million, and it had never been larger than that at any earlier date (see Petersen 1969: 10). In Europe, beginning around 1750 death rates began to fall under the impact of factors tied in with industrialization and economic development such as improving public health, transport, nutrition, and urbanization. There was no decline in birth rates at that time. In European countries, population grew rapidly until well into the 19th century. The forces of industrialization and modernization began to result in decreasing fertility

and mortality. By the beginning of the 20th century, in most of the parts of Europe low fertility and low mortality balanced one another, population growth was stabilized at a low level (Petersen, 1969; Raulet, 1968; and Irene Taeuber, 1969).

In the developing countries the demographic transition is taking a different form. Developing countries have so far undergone only the first phase of demographic transition. There has been a remarkable decline in death rates because of improved health conditions, improved nutrition, and eradication of common diseases like cholera, malaria, small pox, etc., but birth rates tend to remain at their previous high levels and in some cases have been increasing (Raulet, 1968:8). However the population experts realize the comparison of demographic transition in developed countries and developing countries cannot be pursued very far. Unlike the European situation, the fall in death rates in developing countries has not been accompanied by equivalent general economic development and modernization. Moreover the current rate of population growth in developing countries are twice as high as they were in the more developed areas during the later period of rapid population growth. Economists interpret the

present condition of developing countries, as Raulet puts it, as a "kind of low level equilibrium trap in which high rates of population growth impede economic development and economic backwardness and traditionalism holds back the completion of demographic transition" (Raulet, 1968:9).

But the recent demographic research studies of Europe have led some skepticism about the validity of earlier generalizations on the causes of fertility decline. The distinctive nuptiality patterns of western Europe is a significant finding to prove this. At the end of the 18th century, very strict rules of marriage and non-marriage were prevalent in western Europe. Late marriage and high prevalence of spinsterhood had reduced fertility levels markedly. In addition, from the beginning of the 16th century, European people started exploring the world. In Europe migration to the other part of the world became very common and resulted in a smaller population than would otherwise have been the case.

But the very factors which brought demographic transition in developed countries are very much in the beginning stages in India. The combination of two factors, low death rates and high birth rates, has led to rapid increase in population. For example, in 1921, the birth

rate of India was 49 per thousand and the death rate was 48 per thousand: thus the increase was only one per thousand; but at the beginning of the 1950's the birth rate was 41 per thousand and the death rate 16 per thousand, which made an increase of 25 per thousand.

The western model for demographic transition cannot be taken for countries like India because in western countries the fertility dropped on a significant scale only after economic, social, and educational conditions had developed sufficiently. There is a fear among the demographic experts that the developing countries are undergoing a vicious circle. The high population growth is impeding the economic growth and the low economic growth and traditionalism are holding back the demographic transition.

Family planners and policy makers see the situation in India as an unprecedented one which needs historically novel solution. In consequence, India has established a full-fledged department of family planning. With each five-year plan the amount within the budget devoted to family planning has increased. The largest monetary increases and most extensive fertility control programs have been implemented since 1966. Research in family planning

has been one of the major fields of study undertaken by the country. The goal is set for the reduction of population growth within the next few decades to the levels approximating present levels in the developed countries. The general belief is that this achievement will promote economic development, or is even indispensable to the formation of self-sustaining economic growth.

The ideology of family planning program has played an important role in creating the awareness of the world population dilemma at about the same time when interest is directed to modernize the poor countries. In recent years, there is decreasing confidence that one can expect fertility to decline more in less developed countries with industrialization and urbanization. Some demographers seriously doubt if family planning programs are at all helping to reduce fertility in developing countries, even assuming that they are valid for projections of trends in most of the underdeveloped world.

INCOME LEVELS AND FERTILITY

Income is defined as the aggregate of all payments received per month--earned through wages from farm, farm labor or other professions, etc. Fertility is measured in terms of live births. Gross reproduction rate is the number of daughters born in the same circumstance. The annual number of births per thousand refers to mid-year population. Throughout the paper fertility control, family planning and birth control are used interchangeably.

Why is population growth dangerous to a country? Obviously the answer is in terms of economic growth. Myrdal says ". . . the rapid and accelerated population increase in South Asia is retarding economic advance and holds the threat of economic stagnation if not deterioration" (Myrdal 1968:1442). This factor holds true for any country where the population is increasing tremendously--for example, Latin America, Africa, and Asian countries excepting Japan.

Kuznets, a famous economist, in his economic analysis of population growth, has undertaken an analysis

of the relationship between population growth and economic development. His calculations show that all things being equal, over a period of about a decade and a half, consumption per equivalent consumer will be about 20 percent less in a population growing annually at 3% than a population growing at 1% enjoying the same rate of per capita product (in this calculation a net incremental capital output ratio of 3.0 percent is assumed).

Kuznets points out that 2 percent would probably be more realistic for countries at very early stages of economic growth, and in this case the difference in per unit consumption between the high and low population growth rate cases would be reduced to about 11 percent (Kuznets, 1967, p. 176; see Coale 1969:69). The differential is based on the much higher dependency ratios in the faster growing population.

Coale explains three important population characteristics which accompany the increasing fertility.

(1) The burden of dependency defined as the total number of persons in the population divided by the number in the labor force--ages 15 to 64. (2) The rate of growth of the labor force, or more precisely the annual percent rate of increase of the population fifteen to sixty-four. (3) The

density of the population, or more precisely the number of persons at labor force age relative to land area and other resources. Coale believes that in the first twenty-five or thirty years the age distribution effect or the difference in burden of dependency is almost the sole factor. There is a rapidly widening difference between the projected population in the burden of dependency during the first generation and in the short run there is a reduction in the burden of dependency in the low fertility relative to high fertility population (Coale, 1969:63-67).

The number of consumers has an effect on the national output. For example a smaller number of consumers decreases the fraction of national output that must be allocated to current consumption and thus promotes the mobilization of resources for economic growth. If there are fewer people, they enjoy higher per capita consumption and the labor force is more productive because of better nutrition, and because of the effects of rising consumption in combating apathy by providing better work incentives (see Coale, 1969:70-71).

There are other approaches also to the problem of age group and the dependency burden. In countries like India a child of 7 or 8 goes to fields to work or helps

parents to babysit for the younger children while their parents are actively engaged in economic quest. This brings additional income to the family. In a recent paper Kuznets has pointed out that empirical evidence shows much higher proportions of economically active people to the total population in less developed countries than would be expected on the basis of population structures, apparently because of early entry of young males into the labor force not requiring a long period of education (Kuznets 1969; see also Myrdal, 1968, chapter 27).

Many economists, demographers, and social scientists view the theory of population as an essential element of economic theory. Becker and Friedman postulate that the production of human beings is to be regarded as if it were a deliberate economic choice determined by the balancing of costs and returns. Under this approach children are regarded:

- 1) As consumption goods or a source of psychic income and satisfaction i.e., as a way of allocating one's income to acquire direct satisfaction on a par with, say, cars and other consumer goods.

- 2) As a producer goods (capital goods) or a source of money income, i.e., an indirect way of allocating income to acquire future satisfactions that compete with machines, houses, etc. (Becker 1960:209-240; Friedman 1963:207-211).

Kamerschen has suggested a framework for analyzing fertility within an economic setting. Under this framework (1) Population is regulated by (a) the relative cost or price of children as opposed to substitute consumer desirable goods, (b) the income available for all uses, (c) the tastes and preferences of individuals--this last category being the center of non-economic forces. (2) Fertility is influenced by (a) the returns that children as capital goods are expected to provide relative to other capital goods, or (using technical jargon) the relative value of marginal products of the various capital goods, (b) the relative cost of producing this and alternative capital goods (Kamerschen 1967:27; see also Becker 1960:209-240; and Friedman 1963:207-211). The costs and returns have been importantly influenced by the following factors in developed countries (a) industrialization and urbanization have led to an increasing cost of children;

(b) the value of marginal products of children have been higher in rural areas; (c) increasing real income has meant sending children to school longer and keeping them out of the labor force and it has increased the cost and reduced the returns from children (Kamerschen 1967:27). This model suggests that the number of children produced per family may be smaller at higher income levels (professional and business as opposed to unskilled workers) as costs and tastes may vary very systematically with income.

Demographic trends in Europe showed that there is a relationship between the economic growth of the country and the fertility decline. The assumption is that the decline of fertility in Europe could probably be explained by such factors as the diminished economic advantage and the rising cost of children in the industrial societies, improved status of women, religious changes and the development of secular, rational attitudes, and the decline in mortality (Raulet 1968:10). Recent research, focusing on specific regions within Europe, has disclosed exceptions to the influence of any of these factors. Ansley Coale has stated, "Fertility reduction seems to be a nearly universal feature of the development of modern secular societies, but its introduction and spread can not yet be explained by

any simple universally valid model or generalized description" (Coale 1965:7).

Several studies in India on the aspect of income and its effects on fertility levels do not show any trend. The results are varied and on that basis it is hard at present to come to a conclusion. Summarizing several studies in India, Goyal concludes that there is no marked difference in fertility by residence, income, or occupation (Goyal 1965). Raina concluded on the basis of several national sample surveys that fertility decreased as the per capita household expenditure increased. He states further that, however, a detailed study of couples with very low income showed that fertility tended to increase till a certain level of per capita income was reached, whereafter it declined with an increase in economic status (Raina 1969:13).

In another study conducted in South Delhi by the Indian Institute of Mass Communication, the results revealed that there is an awareness of family planning among middle-class urban population and the majority in this category are practicing family planning. But this study does not indicate whether upper-income families have a higher adoption of family planning than the lower-income

families (Indian Institute of Mass Communication 1967).

In another study covering over four states in India (Punjab, Uttar Pradesh, Bihar, and West Bengal) with a random sample of 3250 individuals (1105 urban and 2145 rural) found that lack of awareness, contrary to belief, is not a hurdle that family planning has to cross even in rural areas. Nine out of ten persons were familiar with the idea of family planning.

The incidence of actual practice however continue to lag far behind the wide spread psychological acceptance. More significant is the rational assessment of family size and factors of income and health on which this acceptance is based. Thus eight out of ten persons agreed with the view that the size of one's family should be determined by one's income, . . . Economic factors carried less weight with respondents in highest income brackets (Indian Institute of Public Opinion, Feb. 1969:11).

Driver in his study of differential fertility in Central India says,

Our inquiry has shown that several socio-economic strata do differ in their fertility patterns, where as others do not. The patterns are quite similar for couples who are distinguished on the basis of either place of residence, occupation, class or income level. On the other hand, patterns are dissimilar for couples who belong to either different religions, castes, land ownership groups or educational levels (Driver 1963).

TABLE 2

PRACTICE OF FAMILY PLANNING METHODS IN NORTH INDIA

(Figures are in percentages)

Monthly Income Rs.	No Resp.	Yes	No	Unmarried	Unspecified	Total
Up to 150	1376	18	72	10	---	100
151 - 300	956	28	60	12	---	100
301 - 500	367	34	57	9	---	100
501 - 750	117	32	57	11	---	100
751 - 1000	54	28	67	5	---	100
Above 1000	44	32	64	4	---	100
Unspecified	333	18	62	20	---	100

Sources: Monthly Public Opinion Surveys: Indian Institute of Public Opinion. New Delhi, February 1969.

The studies dealing with income and fertility do not reveal any definite trend of income effect on fertility levels. It is of interest to bring some other factors which would have contributed to more fertility than otherwise specially in rural India. In Indian villages having more children are beneficial for parents for one important reason, that they contribute to the family's economy. Children at a young age go to work in the fields and earn

wages. Sometimes children stay at home to take care of their younger brothers and sisters while parents are at work. In the families where education is not common, they do not have to spend more money on the children; on the contrary, children contribute to the family income. Very often rich landlords also want to have more children because they want their children to follow their occupation like managing farms and business. Parents would have more faith in their children than in anybody else. Also in the absence of any welfare program for the aged, parents in their old age have to be taken care of by their children (particularly sons). Importance of a son in parents' funeral is another aspect. Probably to Indian parents, several of these factors determine their fertility. Rogers (1971) suggests that "the small family norm is not yet widely accepted in India because such an alternation in the social structure of Indian society is intertwined with such other norms as the role of children in caring for parents in old age, the importance of a son in his father's funeral ceremony, and so on."

However, income may indirectly affect fertility levels in several ways. First, if an individual has a sizable income he will be able to get better health care

for himself and his family. Better health care might reduce the mortality rate. Raulet sees a strong correlation between decline in infant and child mortality and decline in fertility levels. He says that the decline in infant and child mortality is a major precondition for marked reduction in fertility levels of developing countries (Raulet, 1970:225; see also Heer, 1966:444).

Second, income affects one's ability to buy birth control devices. This obviously affects adoption of birth control.

Third, increased family income may allow the woman the leisure time away from heavy work which she requires to adjust to insertion of an IUD or to consult a physician easily if she has adverse affects from birth control measures. Currently, it is impractical for a poor rural woman to have an IUD inserted or to undergo sterilization, because she must immediately return to work in the fields.

Fourth, income level affects exposure to mass media. The richer people have increased exposure to mass media which include programs concerning family planning. Mencher mentions that in India the extension workers and family planning doctors have a tendency to visit richer

people in the village and neglect the poor (see Mencher, 1971).

However the limited income of most of the Indians minimizes any extensive indirect effects which income level can currently have in reducing population growth. The impact of economic development on fertility, and the impact of fertility on economic development seem to be a vicious circle.

How is the situation of low-level economic development and high population growth in countries like India to be dealt with? Various approaches are current on this issue. (1) Some demographers and sociologists and administrators think that population has to be controlled drastically, otherwise economic development may not progress. (2) On the other side, the prevalent ideas are, first, improve economic development and then small family norm may be automatically spread among the people. Hodder (1956:223) supports the later approach. Though recognizing fully the danger of rapid population growth in South East Asia he prefers an economic development approach rather than popularizing birth control. He sees the economic approach leading to extension of agricultural land, increasing industrialization and urbanization as more useful

in solving the population problems of developing countries (Hodder, 1956:223). There are also others (Mitra 1969, Deshmukh 1967) who do not deny the importance of educating people in birth control practices, but who put much greater emphasis on the socio-economic development approach.

In reviewing the progress of family planning in various countries of the world up to 1966, Hauser states:

It is not yet known whether birth control communication and a birth control clinic will, in fact, bring about a more rapid decline in the birth rate than improved and universal general education, or new roads facilitating communication, or improved agricultural methods, or a new industry that would increase productivity, or the type of innovation that may break the 'cake of custom' or produce social ferment (Hauser 1967).

It seems that the situation in countries like India are complicating. Sometimes it is difficult to assess any particular kind of measure to control fertility growth. It is not only economy which is a major variable in controlling fertility, but a number of variables such as local politics, kinship structure, health, the family size norm and belief systems.

In India often policies affecting the developmental activities at the village level may effect fertility levels also. The Government programs for the community

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

development programs at village level concerning health, agriculture, and family planning might have a significant effect on birth control measures.

Improved health measures have a greater impact on fertility; improved health may reduce the infant mortality. This might give parents an assurance of number of children alive and control fertility. Improved health may have an effect on modernization in a variety of ways ranging from direct increase in economic productivity to more positive attitudes to fertility limitations.

EDUCATION AND FERTILITY

In this section an attempt is made to analyze the effect of education on fertility control. Conclusions are drawn from empirical data to evaluate the effect of educational levels on fertility levels. Kumudini Dandeker in her recent paper on "Effect of Education on Fertility" (Dandeker, 1965) concluded that there are some clear indications of the close relation between education and fertility. She has analyzed data for several countries including Britain, the U.S.A., and India. Britain and the U.S.A. results showed that generally higher level of education correlates with smaller number of children.

In certain countries however the above hypothesis did not hold good. The effect of education on fertility is only seen among the highly educated, and it has yet to spread the lower levels of education (see Goyal 1965; Dandeker and Dandekar, 1953).

For Great Britain, Dandeker uses figures for women who married during 1920-1934 from the Royal Commission

Report on population. In this country among the non-manual workers the number of children was 2.29 for parents both of whom had a level of education not higher than elementary schooling, and only 1.75 for those when both had education higher than elementary. Among the manual workers the corresponding respective numbers of children were 2.80 and 2.23; obviously in both the categories of workers the number of children decreased with rising level of education. Similarly, in the United States, according to the expected fertility for white women in 1960, women with college education and those with four years of high school education were expected to have 3 children, while those who have 1 to 3 years of schooling in high school were expected to have 3.3 children. Those with grade school education were expected to have 3.7 children. (The figures for the United States are from the Population Bulletin, Sept. 1964.) From the above data it is concluded that in Great Britain and the United States fertility decreases as the amount of education increases (Dandeker, 1965:3-4).

In Sweden from 1918-30, the college educated had a higher birth rate than high school graduates. In Europe higher than average fertility is found among the well-educated. Hill, Stycos and Back's study on the family and

population control in Puerto Rico shows that education of wife or husband has a very negligible effect on the success of the population control measures. Hatt (1952) in his study of Puerto Rico concluded that "there is a negative correlation with education, rental levels, and urbanization" Thomlinson (1965) observed no difference in fertility as the level of education increased. In fact, he found higher than average fertility among Europeans who had higher education. In America the number of children ever born per married women aged 45-49 in 1950 varied from 1.4 among college graduates to 3.0 among wives having only an elementary education with consistent intermediate graduation. But there is an increase in fertility with higher education (Thomlinson, 1965).

Several studies described below show that in India the impact of education on fertility does not indicate any clear trend. For example, the famous Mysore Survey conducted in 1955 showed that there is a change in fertility only with high school or higher education. The number of children born to women aged 45 ranged between 5.3 and 5.5 for illiterates and for those with school of 7 or less years. Women with high school or higher education had 3.9 children (Mysore Study, 1961).

A study conducted in Poona District showed that a slight decline in the number of children occurred only when women had completed high school education. In the non-city sample no such association was observed (Dandeker, 1953). So it may be doubtful here whether the change in fertility is due to higher education or urban impact.

The 16th National Sample Survey in 1960-61 revealed that women aged 47 years had borne 6.6 children. For women completing 7 to 11 years of schooling, the number of children was between 5 and 4.6. Women who had university education had 2 children. Dandeker's study shows that in the beginning of the decade the association between education and fertility level was not very significant, but the 16th National Sample Survey shows that the end of the decade the association increased in significance. The 16th National Sample Survey also showed a regular increase in the percentage of men and women knowing about contraceptive practices as the level of education increased.

Summarizing several attitude studies in India, Goyal concludes, "It has been found that there is no difference in fertility by education level excepting top level, that is high school and above" (Goyal, 1965; see Gupta, 1955 also).

TABLE 3

PERCENTAGE OF HUSBANDS AND WIVES IN THE 16TH
NATIONAL SAMPLE SURVEY, AND OF WIVES IN BOMBAY
CLINICS SURVEY KNOWING ABOUT CONTRACEPTIVE
PRACTICES ACCORDING TO THE VARIOUS
EDUCATIONAL CATEGORIES

| Level of Education | National Sample Survey | | Bombay Clinic |
|---------------------------------|------------------------|-------|---------------|
| | Husbands | Wives | Wives |
| Illiterate | 60.6 | 63.5 | 46.5 |
| Below Primary | 64.1 | 77.5 | -- |
| Primary | 71.9 | 84.7 | 72.3 |
| Middle | 79.4 | 91.1 | 72.6 |
| Completed High School | 87.7 | 94.2 | 84.5 |
| 2 Years of College | 92.8 | 96.7 | -- |
| University Graduates
& Above | 95.6 | 96.9 | 87.5 |

Sources: (1) 1961 National Sample Survey.
(2) Dandekar Bombay Clinic Survey.

The Indian Institute of Public Opinion recently conducted a survey in four of the North Indian States, selecting both urban and rural samples. Results indicated an increase in both awareness of Family Planning programs and practice, with the increase level of education, but the relation is not consistent.

From the above studies it is inferred that education does not show any trend in effecting the fertility level. Studies both abroad and in India have indicated the irregular trend. Education had an effect on fertility levels up to certain levels of schooling. After that it did not show any significance (see Goyal 1965; Gupta, 1953; Thomlinson, 1965; and Hatt, 1952).

The important factors to be discussed in this context are: In the above review one trend is clear, the fertility level decreased at a particular point of education, i.e. after high school and two years of college. This might suggest a possible relation with age at marriage. Certain large scale surveys including the Mysore population study and the National Sample Surveys have shown a positive correlation between years of education and age at marriage (Mysore Study 1961).

There is also differentiating factors of urban influence on education. This influence can be seen in the table presented below.

Data obtained from a Mysore population study indicates that the median age at marriage differ from rural to urban for the same education group (see also Dandekar, 1953).

TABLE 4

MEDIAN AGE AT MARRIAGE BY EDUCATION LEVEL FOR
COHORTS OF WOMEN IN BANGLORE CITY AND TOWNS

| Zone & Education
Level | Year of Birth of Cohort | | | | |
|---------------------------|-------------------------|------------|------------|------------|------------|
| | 1888 | 1898 | 1908 | 1918 | 1928 |
| | to
1897 | to
1907 | to
1917 | to
1927 | to
1932 |
| <u>Banglore City</u> | | | | | |
| Illiterate | 14.4 | 14.5 | 15.0 | 15.1 | 15.4 |
| Literate | 14.4 | 14.5 | 14.6 | 15.5 | 15.8 |
| Middle School | 17.2 | 15.1 | 16.1 | 16.2 | 16.8 |
| High School | | 19.4 | 20.0 | 20.0 | 20.0 |
| <u>Towns</u> | | | | | |
| Illiterate | 13.5 | 14.5 | 14.5 | 15.2 | 15.2 |
| Literate | -- | 14.4 | 14.9 | 14.5 | 15.2 |
| Middle School | -- | -- | 15.2 | 15.9 | 16.0 |

Source: The above table is taken from United Nations, Mysore Population Study: Report of a field Survey carried out in selected areas of Mysore State, New York, 1961.

Both the Mysore and Dandeker studies show that in the beginning of the decade the association between education and fertility level was not very significant, but the 16th National Sample Survey shows that at the end of the decade

the association increases in significance. This is also an important factor here, which could be attributed to the general development of the country, job opportunities created outside the home, and female education.

Educated people are more exposed to mass media in general, and, therefore, to information on birth control measures (Kirk, 1967:15). In a review of 38 countries which have passed or are passing through a transition from a birth rate of 35 to a birth rate of 20, Kirk (1967) found that the information (newspaper circulation) on health and family planning education was more closely correlated with fertility than was economic, industrial, and urban development.

Educated people have more contact with Extension Educators concerning health and family planning. This contact might facilitate knowledge and adoption of family planning.

Educated people often want their children to follow particular careers which might need much investment. In such conditions it may be possible that educated parents plan for fewer children so that they could give them the type of education they want.

There is also a belief that education will help to pull down the barriers to a free absorption of new ideas. Lal (1968:58) is of the opinion that education would help remove the time-worn religious and superstitious beliefs. Because, often the number of children and the sex a parent should have is determined by the traditional and social customs.

Many administrators, policy makers, social scientists, and demographers are of the opinion that education is a pre-condition for economic development and modernization (see Kirk 1967:15; Lal 1968:55-59; Mitra 1969). Mitra says education is also important for controlling fertility levels.

How can we achieve the above goals in countries like India where only 25 percent of the population are literate? The proportion of literates in the villages is much less. The only way that literacy growth can be improved is through compulsory mass education (see Myrdal 1968:1471). Myrdal says:

. . . it must not be forgotten that a period of mass education will be needed before a policy of spreading birth control can have significant effects on fertility.

There are compulsory free educational programs in India for the masses. There are also adult educational centers. Though educational programs for elementary school education are free, poor parents cannot afford to send their children to school because children help in their parents' economy.

Government policies also should emphasize more on females' education and their employment outside their home. This facilitates to a greater extent the adoption of birth control. This aspect will be further discussed in a later section on status of women and fertility levels.

INDUSTRIALIZATION AND FERTILITY

Industrialization has been discussed in the most general terms as the major factor in the demographic transition. The dictionary of sociology (page 195) defines industrialization as "the process of technological development by the use of applied science characterized by the expansion of large scale production with the use of power machinery, for a wide market for both producers and consumers goods by means of a specialized working force with division of labour."

A brief summary of what happened in European countries and Japan due to industrialization may be useful here to compare the process and consequences of industrialization in India.

In England in about 1760, a wave of technological development swept the country, causing a whole range of tremendous changes in manufacturing, mining, and agriculture. While the significance of all new machines and the technological processes, together, was tremendous, their

impact was also revolutionary, because they were accompanied by significant changes in the social structure (see Petersen 1969:402).

The industrialization in England also brought about changes in population growth. Petersen says:

No characteristic of the population remained unchanged in this transformation of the economy and society (1969:403).

Expectations of life were raised because of improved health and nutrition and parents wanted fewer children to cope with the competition in the society. Moreover industrialization needed less manpower than agricultural occupations. Also, better food supply and improved living conditions caused a decline in mortality which added to the parent's decision to have fewer children. Smaller number of deaths in the family assured the parents of living children.

Finally, the small family norm developed in western countries, because, in mobile society a man with fewer children could advance further economically (see Petersen, 1969:420).

Japan's industrial revolution is discussed briefly because Japan is most often cited as both a guide to underdeveloped Asia and a model for analysis.

The country was in chaos for a decade or more before the Meiji Restoration. (The Samurai) . . . combined old and new with a marvelous adeptness, refurbishing the imperial office and established religion and even increasing their prior authority and, on the other hand taking over whole scale western technology and education, western legal codes, details of western political administration down to the postal system (Petersen 1969:424).

The tremendous change in Japan's social and political conditions led social scientists to think of the reasons for that change. Many concerned thinkers placed the major cause on nationalism. The same label, "nationalism," is put on the socio-economic development of Germany and Russia as well. The following paragraph stresses the above held notion in the case of developed countries.

Davis (1955) says:

Nationalism is a sinequanon of industrialization, because it provides people with an overriding, easily acquired secular motivation for making painful changes. National strength or prestige becomes the supreme goal, industrialization the Chief means To the degree that the obstacles to industrialization are strong, nationalism must be intense to overcome them. Nationalism was a potent element in the industrialization of Japan, Germany and Russia (Davis, 1955:263-315).

To stem population growth conscious family planning was adopted in Japan. Teuber (1958:31) says that in the case of Japan, conscious family limitation was achieved in part

through the postponement of marriage, contraception, abortion, but in greater part apparently through infanticide, euphemistically termed 'mabiki' (literally thinning as of rice seedlings when some are pulled up to encourage the growth of the remainder).

In the light of the above knowledge how can industrialization in India be analyzed? How did industrialization affect the growth of the economy, education, urbanization, and social structure in India?

The external conditions under which demographic transition took place in western countries are not yet very clear. But many economists are of the opinion that industrialization could be the main factor for the demographic transition. If so, in western countries industrialization had effected major changes in the economy and society long before any tangible reduction in fertility occurred (see Petersen 1969:14).

Also in European countries fertility was relatively low. In 1850 the total population of the less developed areas was about three times higher than that of the more developed areas. If we take the historical growth of developed and developing countries, from 1850-1900, the population of the more developed areas grew at the 1.0

percent rate, whereas the population of the underdeveloped areas grew much lower at a rate of about 0.3 percent. By 1900 the population of underdeveloped areas only doubled that of the more developed areas. By the beginning of the 20th century in Northern Europe and Western Europe, low fertility and low mortality nearly balanced one another and population growth was stabilized whereas in developing countries better nutrition and health facilities have decreased the mortality rate leaving the fertility rate more or less the same and by 1950-1965 the populations of the less developed areas grew at approximately twice the rate of those of the more developed areas. The above trend of population growth shows reversed trend of population growth in less developed areas in the later part of the 19th and up to the present date of the 20th century. At present, the less developed areas contribute the greater part of population to the world population growth (see Raulet 1968:6-8).

India is still in the stage of a developing economy. It may take many more years to develop industries. Coale (1969:79) thinks that it might take at least 30-60 years to attain a state of industrialization that would in itself cause a rapid decline in fertility. This slow process of

industrialization may be an obstacle for a rapid decline in fertility. If the fertility growth is not declining it might deter the growth of economy.

India is undergoing an industrial, technological, social, and cultural revolution but its pace is very slow. There may be economic causes for not being able to establish industries in appropriate places and in the right time. There are political reasons also. Whenever the Government wants to build an industry there are always conflicting ideas about which state it should go to. Often a site is chosen on the basis of a state's political strength. India differs from some western countries because strong nationalism is missing in India. The attitude is more towards regionalism.

There are large-scale industries planted in various places like Bombay, Calcutta, Madras, Madhyapradesh. In these same areas there developed large urban centers. Currently these places are so congested that further migration of rural population may create acute shortages of food, housing, and sanitary conditions. India is making efforts in planting small scale industries in semi-rural or developing urban centers. Often these industries fail

because of shortage of funds and lack of efficient managerial staff.

Possibly the above account of industrial conditions provides a very pessimistic picture. But there are also brighter sides of industrialization. Industrialization has created an awareness of income levels, education, new perspectives on the family and kinship, and a new outlook toward traditional ideas which in turn will reduce fertility.

The prospect of family planning among industrial workers is not much brighter. The industrial migrants' roots still remain in the village home, so not much change occurs in their outlook (see Jain 1966:54-65). Among the rich industrialists and businessmen the family relations still remain as close as could be. Nepotism is common; men still recruit kinsmen or family relations for various jobs of managerial level. Many businessmen want more children in order to employ children whom they can trust in their businesses.

In summary, India differs markedly from other industrial countries. India is slowly undergoing the process which Shubnell mentioned:

The industrial way of life and the production however have not only changed the material

conditions, but also the mental physiognomy of mankind, the mentality of wife and husband, the whole atmosphere in which families are living (Shubnell, 1966).

URBANIZATION AND FERTILITY

Petersen (1969:432) states that approximately thirty definitions of urbanization are in current use.

For the present study, urbanization is:

. . . diffusion of the influences of urban centers to a rural hinterland. The "influence" diffused usually refers to the customs and traits of these urban centers. The second major type of definition holds that urbanization is synonymous with the appearance of urban traits and characteristics in a population. The appearance of certain cultural practices (usually associated with cities) in a rural area is said to be evidence that rural population is being urbanized or that it is undergoing urbanization (Dictionary of Social Sciences 1965:739).

Petersen (1969:433) uses four criteria to differentiate urban people from the rural people, (1) economic, (2) cultural, (3) political, and (4) demographic.

(1) Economic criteria are used especially to distinguish the agriculture of the countryside from the services functions of a market town. (2) Cultural criteria is focused through the below given passage by Wirth (1938)

The larger, the more densely populated and the more heterogeneous a community the more

accentuated the characteristics associated with urbanism will be The bonds of kinship of neighborliness, and the sentiments arising out of living together for generations under a common folk tradition are likely to be absent or at best, relatively weak . . . competition and formal control mechanisms furnish the substitutes for the bonds of solidarity that are relied upon to hold a folk society together The city is characterized by secondary rather than primary contacts. The contacts of the city may indeed be face to face, but they are nevertheless impersonal, superficial, and transitory, and segmental . . . whereas, therefore, the individual gains on the one hand, a certain degree of emancipation or freedom from the personal and emotional controls of intimate groups, he loses on the other hand, the spontaneous self expression, the morale, and the sense of participation that comes with living in an integrated society" (Wirth 1938: 1-24).

(3) Political criteria distinguish an urban place by its administrative function. (4) Demographic criteria distinguish an urban place on the numbers of persons living in a town.

The contrast between urban and non-urban way of life is expressed as a contrast between two polar types. Petersen says that in the usual formulation, rural-urban is more or less identified with *Gemeinschaft-Gesellschaft* and thus with nonindustrial-industrial (Petersen 1969:434).

Redfield designated urban society as the contrary of "folk society" and defined as follows:

such a society is small, isolated non-literate, and homogeneous, with a strong sense of group solidarity. The ways of living are conventionalized into that coherent system which we call a culture. Behavior is traditional, spontaneous, uncritical, and personal, there is no legislation or habit of experiment and reflection for intellectual ends. Kinship its relationships and institutions, are the type categories of experience and the familiar group is the unit of action. The sacred prevails over the secular; and the economy is one of status rather than of the market (Redfield 1947:293-408).

There are variations in the designation of urban and often this is based on the density of the population of the place. Petersen mentions that in 1900 a three-way division was made between urban (population of 4000 or more) semi-urban (incorporated places of less than 4000) and rural (Petersen 1969:435).

At present in India, the urban-rural differentiation is made on the basis of density of population. Small towns are those where population is 2500 to 10,000 and the towns are those where population is more than 10,000 to 25,000 and cities are those with the population of 25,000 and above. Urban areas also have been the centers of new culture patterns, new ways of thinking and behaving. Petersen separates the concepts of urbanization and urbanism. He says, "urbanization as the process or state

of population concentration, and urbanism, the way of life of city dwellers" (Petersen 1969:478-479).

The effect of density on culture patterns is important, but not absolute. Both the historical records of the west and the typical findings of social science disciplines show that the industrialization is associated with urbanization. In the analysis of underdeveloped countries today, similar attempts have been made to classify cities into types to see whether they do or do not foster the development of an industrial society. The hypothesis, the important factor to be tested, here is that in migrants to cities, even those who want to escape village conditions are potentially more prone to undergo modernization than those who remain in the villages (Browning, 1958:111-120).

If urbanization is bringing many changes in the person's culture, thinking, and living style, our main concern here is to see whether it has any effect on fertility levels. In India urbanization processes have to be looked at in broader perspectives. The migrants who move to cities are of different types. (1) Intellectual elites who because of higher education get jobs in the cities and move to cities and live there often, but they still maintain close contact with their families at the

village. (2) Industrial workers who may fall in two categories (a) those who live in cities but live in colonies where their home atmosphere is prevalent, (b) those who work in the day and move back to their home in the evening. In the above two cases also they have their contact with their families at home. (3) Others who move to cities in search of jobs, where still they depend on their villagers and families to support them both emotionally and economically; the urbanization process is divided here.

There are quite a few studies which revealed the behavior of urban and rural women towards the fertility control. Mauldin (1965:9) found a difference in attitude and practice of birth control measures among urban and rural people in the Mysore Study. For example in urban Mysore 38% of the sample reported knowledge and 6% reported practices of family planning, whereas the corresponding figures for rural Mysore were 11-15 percent and 1 percent.

National sample surveys reveal that the crude birth rates in urban areas have been consistently lower than those in the rural areas at least since the 1960's.

TABLE 5

BIRTH RATE PER THOUSAND IN RURAL AND
URBAN AREAS OF INDIA

| Round Period | Rural | Urban |
|-------------------------|-------|-------|
| 17th (Sept. 61-July 62) | 36.0 | 34.0 |
| 18th (Jan. 63-Feb. 64) | 37.6 | 31.9 |
| 19th (July 64-Jan. 65) | 38.2 | 32.4 |
| 20th (July 65-Aug. 66) | 37.0 | 29.2 |
| 21st (July 66-Aug. 66) | 36.7 | 31.3 |
| 22nd (July 67-June 68) | 35.8 | 30.3 |

Source: The above figures are obtained from the National Sample Surveys (Report Numbers 76, 184, 204).

Moni Nag states that the lower crude birth rates in urban areas may not necessarily mean that the urban woman have lower fertility than the rural women. This may be due to the higher number of males in Indian urban areas (see Moni Nag 1969:6). This may be also due to the decreased mortality in urban areas. Higher mortality rates still exist in villages because of insufficient medical care and malnutrition.

A recent study in North Indian States surveyed both urban and rural populations revealing that there is not

much difference between rural and urban people with regard to knowledge and practice of family planning. The following table shows the awareness and practice of family planning among rural and urban people.

TABLE 6

AWARENESS OF FAMILY PLANNING IN NORTH INDIA
(Figures are given in Percentages)

| Urban/Rural Resp. | | Yes | No | Not
Included | Not
Specified | Total |
|-------------------|------|-----|----|-----------------|------------------|-------|
| Urban | 1105 | 95 | 5 | | | 100 |
| Rural | 2145 | 92 | 8 | | | 100 |

Practice of Family Planning in North India

| | | | | | | |
|-------|------|----|----|----|--|-----|
| Urban | 1105 | 27 | 57 | 16 | | 100 |
| Rural | 2145 | 22 | 69 | 9 | | 100 |

Source: Monthly Public Opinion Surveys, Feb. 1969:7.

Poffenberger (1963:50) in a study of urban attitudinal response to family planning, comments that data from the urban sample seem to indicate a high degree of awareness and approval of family planning. However, there was a wider difference between expressed attitude and stated practice. But this study was done only among

highly educated urban people, which may account for their awareness of the birth control measures. Hussain in her study on urban population in Lucknow area North India also found that the awareness of birth control measures was higher among urban people than rural people, and that urban families have lower fertility than rural families (Hussain 1970:120).

It is inferred from the above studies that there is greater awareness of family planning among urban people than among rural people. It is also inferred that the crude birth rate among urban people is less than among rural people; but the difference is not very pronounced. Sometimes a great gap between knowledge and practice of family planning occurs. Samuel (1965:13) and Myrdal (1968:1445) also concluded that there is not much difference in urban and rural attitudes toward family planning.

The reasons why urbanization in India has not generated change in the fertility levels, as was the case in the West, may be due to (1) kinship bonds which prevail among village people even after they relocate in cities (Kolenda 1970:11, Gore 1965:212); and (2) as Mauldin states: "In India urban growth appears to be less a response to

urban attraction, to urban pull than a response to rural push" (1967:25) .

FECUNDITY AND FERTILITY

Fecundity is the physiological ability to procreate. This ability varies with several physical characteristics such as health, heredity, age, ovulation cycle, lactation, and sex drive. The distribution of these characteristics, particularly of age, determines the relative ability of the population to reproduce itself.

The fertility of a population depends, in the first place, on the fecundity of its members, that is, on their ability to achieve conception. The degree to which that ability results in the birth of the children is determined mainly by the frequency of, and the modal age at marriage, by customs and taboos affecting sexual activity, birth control practices, and by the health and mortality status of the population.

Fecundity is decreased by the fact that most women breast-feed their infants after the confinement. On the basis of a careful study, Guttmacher (1952) concluded that the average intervals between pregnancies are 19 and 24

months respectively for non-lactating and lactating women who do not practice contraception. In other words, the sub-fecundity, resulting from the practice of breast feeding would be about 20 percent (Guttmacher 1952:289). In India most of the mothers breast feed their children and this would reduce their fecundability.

Theories that fecundity is higher in South Asia than say in Europe for reasons such as: age at the onset of menstruation, the forces of sex drive, and so on are different in the two types of population, are not proved. Myrdal suggests that the maximum family size resulting from uncontrolled normal intercourse in the advanced western countries is estimated to range somewhere between 12 and 14 live births per average woman living a married life from puberty to menopause. The corresponding averages for South Asian population groups so far as calculable seem to be lower mainly because of poor health and nutrition (Myrdal 1968:1429). Lorimer (1954) says that the disadvantageous environmental conditions such as poor nutrition, mode of living, health and climate in South Asia cause some excessive congenital sterility and sub-fecundity (Frank Lorimer 1954:22).

Social customs and taboos also are inhibiting factors for fecundity or fecundability. In many traditional families it is believed that having a child with less spacing is not good. So the mechanism often is that wife goes to her parents' house and stays there for a number of months after the child's birth which in a way is separation of husband and wife. This reduces the frequency of intercourse which in turn reduces the chances of pregnancies. Often on important religious festival days couples are prohibited to get involved in reproductive activities.

NUPITALITY AND FERTILITY

In most of the European countries religious and social norms have facilitated late marriages and non-marriages. Ireland in the 18th century lived by the tradition that a young man ought not to marry until he had a patch of land to cultivate. Petersen states that in medieval Europe there were ethical and institutional norms for marriages. For example, there was a regulation that man should not get married until he was able to support a family. Also virtually all the urban occupations, in England particularly, were governed by guilds which prohibited young members from marrying (Petersen 1969:418).

The marriage pattern of most of Europe up to 1940 is almost unique in the world. Marriages took place very late in their life. There was high proportion of people who never married at all.

Petersen says that age at marriage in Western Europe started to rise either in the middle ages or in any case well before the eighteenth century. He also has

quoted a striking example from a study, that in Venice the ages at marriage in 1701-84 fluctuated between 29.9 and 31.7 for males and between 28.0 and 29.8 for females (Petersen 1969:384).

In contrast, in India, people have always married at an early age and produced children at an early age. But there are also mechanisms which controlled the fertility growth. In India, up to 1835 before the British legally banned the "Sati," females were thrown on the funeral pyre with the dead body of her husband which would have helped in controlling fertility growth. Now in many traditional Hindu families widow marriages are not allowed. Many Hindus become Sanyasi or Sadhu and don't get married. The spread of Catholic Christianity in limited areas of India has led to the development of convents which may also to a small degree help to control fertility.

MIGRATION AND DISTRIBUTION OF POPULATION

In all the countries that have had substantial resettlement programs migration has been viewed as a substitute for birth control. Emigration and immigration are the two important items that need to be mentioned here.

The effect of emigration on population growth depends, of course, on the age and sex distribution of the emigrants. Myrdal says, "if they were newly born and had the same sex ratio as other newly born infants, emigration would have the same demographic effects--both immediate and long-run--as a decline in the number of births due to the spread of birth control (and the same economic effects under the further assumption that the inconveniences, losses of labor productivity, and costs connected with pregnancy and delivery were roughly equal to those of emigration or that the latter, to the extent they were bigger, would be borne by some outside agency)" Myrdal 1968:2147.

Emigration to agricultural settlements would decrease the adverse economic effects that are related to the increase in the labor force.

Emigration to foreign countries or to cities in the same country is ordinarily selective in regard to age and sex. In this case those who leave tend to be young people and men are over-represented. This selectivity in regard to age and sex structure means that such emigration is an expensive way of bringing down the population growth in the over-crowded areas.

Migration within a country is in the nature of reallocation of the population according to the natural resources which can, of course, offset in part and for a time adverse effects of emigration compared with birth control.

India is also undergoing large-scale migrations, although these are largely internal. Rural-to-rural migration, rural-to-urban migration, and limited migration outside of the country are occurring.

The economist Mitra describes the trend of rural-to-rural migration in his article on "The Small Family Norm and Literacy" (1969:10). He points to the fact that a great number of farmers are migrating to newly developed

agricultural areas created through recent dam construction which makes available water and electricity. For example, in Andhra Pradesh at Nalgonda in the early stages of the Nagarjuna Sagar Dam Project land was sold very cheaply. Farmers from other parts of Andhra Pradesh, such as Krishna and Godavari, sold their few acres of land for a high price, and with the money bought a larger amount of land in the Nalgonda area. With innovative farming methods these farmers developed a rich new agricultural region. Redistribution of people is very important for the conditions existing in India. Mitra (1969:30) thinks that this kind of migration holds more potential for the country's economic growth than does rural-to-urban migration stimulated through the earlier development of industries such as Bhilai steel industry and the Chittaranjan coach factory.

The second type of migration is rural-to-urban. Rural-to-urban migration is the most prominent form of migration for men in India (see Bose, 1967:41). For females this migration is through marriage. The rural-to-urban migration hypothesis often stated is that people develop urban characteristics as they move to the urban centers. This process of urbanization might lead to

increased knowledge because of contact with other people and because of the better exposure to mass media.

However other conditions of rural-to-urban migration may seriously limit the impact of this move. First many males move temporarily, using industrial work as a second source of income to supplement their agricultural income. These men return seasonally to their villages to supervise their farms and to look after their property. Second, because of urban housing shortages many people living in villages near urban centers work during the day in industry and return home to the village each evening. Third, even when people do move to the city, whether temporarily or permanently, they try to live in colonies where they can have an atmosphere similar to that of the home village.

The third type of migration occurring is emigration from India to other parts of the world, which has been especially prominent since independence. Generally those who emigrate are highly educated in science, technology, and medicine. India needs these skilled people now and cannot afford this type of migration.

Instead, India now needs large-scale rural-to-rural and rural-to-urban migration as well as emigration of

rural people to a whole new set of surroundings quite different from their present ones. Such a large-scale process might inculcate innovative behavior, including family planning.

At present India needs large-scale (1) rural-to-rural migration, (2) rural-to-urban migration, (3) emigration of rural people to a whole new set of surroundings quite different from their present ones.

As discussed in earlier pages rural-to-rural migration is creating altogether a new set of surroundings. There is some evidence that people who have moved to other rural areas purchasing and farming are more innovative. One of the interesting factors here is self-selection of the place. The person has often calculated the costs and returns and the hard labor and is psychologically prepared to a new place. But when the Indian Government had planned to settle the refugees in various places there was a greater protest from the refugees. This may be due to the fact that the refugees were not psychologically prepared because they were not involved in the selection of the place. Rural-to-rural migration where people have gone to buy land and cultivate have made possible the cultivating of land which was not cultivated earlier, and

also to develop the rural areas in terms of communication facilities like roads and buses.

The second kind of migration which India needs now is a certain type of rural-to-urban migration. This is a question of developing already existing small towns, establish small industries and encourage rural people to get in. This will create satellite urban centers which would avoid greater in-flow of rural people into cities and its consequences of shortage of food and housing.

Common observation suggests that in Punjab, to which there was considerable immigration in the days of British rule because of the great irrigation works, the people are much more enterprising than are those in other places in India.

In India emigration to foreign countries is very selective not only in age and sex and also in economic status, enterprise, education, and skills to a degree. When the most enterprising and better trained leave, the harmful effects on economic development may outweigh any benefits from a reduced rate of increase in labor force. So this kind of migration does not seem to be good to the country now.

FAMILY, KINSHIP TIES, AND FERTILITY

It is very difficult to categorize the Indian family system into nuclear and joint because of the intricate close relations people have maintained even when they have lived in separate families. In Kolenda's recent article on the perspectives on fertility in the context of the Indian family, she mentions that it is very hard to separate the nuclear family and the joint family (1970:10). Similarly, Gore states:

the joint family is characterized by the sentiments that bind the different members and by the role definitions its members try to live up to. If this is understood it is not paradoxical to say that joint family relations may continue even when the household composition has changed into that of nuclear household (1965:212).

Some studies have been done on the family type and fertility control. In these studies the definitions given to joint and nuclear family were very purposive and there are no clearcut criteria for separating the two. There are circumstances in which splitting the joint family is inevitable, such as when sons grow old

with their own children, or when parents die brothers get separated but stay in the same house with partitions. Sometimes there is separate cooking, but still the atmosphere of the joint family exists.

Data collected from the Singur area study showed no significant difference between family size if couples are living in single families compared to those living in joint families (Mathen 1962:42). The data from 796 couples in a few villages of Crissa also revealed that women living in joint families were less fertile than those in nuclear families (Berbarta 1964:503).

The reasons given for the lower fertility among the women in joint family than the nuclear family are:

- 1) In joint families there is insufficient privacy given for the couple to have intercourse, whereas in simple families there is sufficient privacy for intercourse. Moni Nag sees a correlation between intercourse and rate of conception, and concludes fertility levels are higher in nuclear family (Moni Nag 1969).
- 2) The observance of rituals during which sexual intercourse is taboo are more regularly followed

among joint families than nuclear families (Moni Nag 1965:8 and see also Kolenda 1970:15).

- 3) It could be due to the difference in the frequency of re-marriage of widows in joint and single families. Among the Hindus, particularly the upper castes, widows are not usually remarried (see Moni Nag 1965:8).

In contrast, many demographers believe that Indian joint family and kinship relations are so strong that it is hard to accept the small family norm. The family ties establish strong relations even outside their village. They follow some kind of legal bonds. They help each other at the time of need.

Most people in rural India are still agriculturists. Very often it is difficult for them to get help in their farm work. In the joint family, parents share less responsibility for raising children. Myrdal comments that:

With the relative prevalence of the joint or extended family system the responsibility for bringing up children and the direct burden of looking after them should be assumed not to rest so exclusively on the individual parents. This should weaken the motive for limiting births both because of the awareness that other members of the extended family can be

relied on to share the burden, and because any couple who successfully limit their offspring may as a direct result be called on to make a larger contribution to the support of the children of the other family members (Myrdal 1968:1515).

Actually for most Indians marriage transactions are done by the family and the kingroup whereas in Western countries individual is more concerned.

The subordinate position of women and the lack of communication between wife and husband may be a serious obstacle to the spread of family planning (see Poffenberger 1969; Kolenda 1970). Traditional women have belief in larger family. Mothers-in-law often control their young daughter-in-laws' sexual life. Poffenberger says that marriage and coital relations were regulated by the decision of the mother-in-law, and the children a couple had affected the status of the joint family. But there is another side of this issue.

If most important of all is the continuity of joint family even when the couple stayed separately one has to be very careful drawing the distinctions between joint and simple family and measure the impact. The second issue is that it is not always true that members in the joint families want unlimited number of children.

STATUS OF WOMEN AND LEVEL OF FERTILITY

For many years the ideas of female education and economic freedom have been thought to affect the behavior and fertility of women. It is felt that unless the women are given an education, economic freedom, and the freedom to go out and work, the small family norm will not be spread widely. Women are closely concerned with child rearing. They carry the child for nine months; they bear all the difficulties of child-rearing. If women are given an education and economic freedom, they will think twice before having a child.

The low status given to women in the society also affects the fertility control norm. Kolenda (1970:4) refers to the status that a young bride receives in her husband's family; she is treated as an outsider and has the lowest rank in the family (see also Meyer 1960:22, and Patel and Shaw 1969:88-90). There are also restraints in the joint family; a wife cannot speak to her husband in front of elders (see Poffenberger 1969:112, and Kolenda

1970:5). When the villagers see a young wife and husband talking to each other in the presence of elders they often say "Shame"; such a comment hinges about the position and freedom given to a woman in her husband's family. Moreover, the mother-in-law regulates the sexual activities of a young bride and her son (Poffenberger 1969:110).

Also, the female child tends to be neglected in her parents' home. Chandrasekhar states:

As Hindu parents by and large at least in rural areas, put relatively a greater premium on male children, they are apt to treat female children with relative and unconscious neglect (1955).

Further a father who has many daughters is burdened with responsibility and sometimes added poverty, because of the cost he has to pay for her marriage (Poffenberger 1964:115).

When a woman is unable to bear children also, her position in the family is low; Kolenda comments (1970:11-12) that for a barren woman there is permanent low status. She may be formally or informally divorced. Her husband may take a second wife without her permission. She suffers anxiety. The woman who has lost all the children she has borne, who has borne only daughters, or who is remarried and wished to bear children to the new husband suffers anxiety and pain. Fernando (1966) from her observation

among Ceylonese women comes to a conclusion that the greatest differentiating factor in the timing and quality of marriage for women is education. Women with higher education marry later. Women also feel less compelled to remain in unsatisfactory marriages (as do men) for divorce rates are continuing to climb. Women of higher status occupations, the professionals, managerials, and advanced clerical work, and crafts, are more likely to have less children.

This trend is found among women in the United States. They are rebelling against the traditional norm of low status of women. They believe in higher pay and higher status jobs for women, lack of marital obligations, and free abortions. This movement, if diffused well throughout the population, might help the United States to achieve zero population growth.

Many administrators and policy-makers in India think that women's educational programs should be given priority. Women should be given the opportunity to work outside their homes. Moni Nag (1967:7) suggests promoting female participation in the labor force, to provide roles and interests for women alternative or supplementary to marriage and the family. Mitra sees strong relations

between education and marriage: educated people marry late, thereby reducing the fertility levels. When women receive a better education, many of them get jobs outside the family.

CASTE AND ITS IMPACT ON FERTILITY

Many anthropologists familiar with the Indian caste system (Gough 1956, Kolenda 1963) believe that it plays a significant role in adoption of new practices. Some demographers think caste is related to fertility level. The hypothesis is that the higher income, education, and good health of high caste people are variables affecting fertility levels.

Moni Nag (1969:15) mentions that a limited number of upper caste people who had western education, living in cities practiced family planning even before the family planning programs were begun in India. Yet it is hard to know whether the caste itself or the Western type of education and urban living are the important factors for practicing family planning. In a rural study conducted among school teachers in Andhra Pradesh, Redder and Krishnamurthy (1964:223) concluded:

The younger teachers, those educated in western type colleges, tended to be more favourable toward birth control measures.

There are also other studies which suggest that in rural areas upper caste families are accepting the small family norm with higher frequency than the lower castes (Roy and Kivlin, 1968:121). Poffenberger (1968:766) mentions that there is a trend among the upper caste people to identify the caste and practice the small family norm. Hussain (1970:121) also in her urban fertility study found that high caste Hindus had lower fertility than the intermediate cases in all religious and caste groups.

The relation between high caste and fertility may be due to various factors:

- 1) Very often high caste Hindus are economically well off; they can buy health measures and can have good nutrition. Both of these may lead to less mortality, which may in turn have an indirect effect on fertility levels;
- 2) Most often high caste Hindus could afford higher education so that they could read the printed material and so be aware of family planning;
- 3) As Joan Mencher suggests (1970) that another reason may be that extension agents often contact rich

high caste Hindus, not the poor people, and most often poor people are lower caste. Thus the high caste people can receive family planning extension services more readily than the lower caste people.

RELIGIOUS GROUPS AND FERTILITY

Religious groups are one among the various demographic variables mentioned as a factor effecting fertility control. Prasad's study (1956:184-88) of an urban population group of 100 women provided insight on the complex relationship between religion and birth control. He found that only 6 percent of those who indicated an unfavorable attitude toward using birth control measures mentioned religion as a reason for their attitude.

In contrast, Reeder and Krishnamurthy (1964:222) found that among those who did not practice birth control, 62 percent felt it irreligious. The above differences in both the studies may be due to rural-urban differences. The authors also found that on the whole the Muslims in the sample showed less receptivity toward family planning.

Hussain also found in her study of urban fertility that differences in fertility were due to various religious factors.

In general fertility rate was highest among Sikhs, and the lowest among Christians. Poor

Hindus and Muslims fell in between these two, but the latter had a low fertility than the former (Hussain 1970:121).

In contrast to the above mentioned studies other studies exist which did not show any difference in fertility levels between various religious groups. For example, Agarwala, himself a demographic researcher, summarizes the main conclusions from the several dozens of studies of attitudes toward birth control in India as follows:

The family planning surveys show . . . (that) knowledge of family planning as well as willingness to learn are significantly correlated with education and the number of living children but not with caste or religion as there is no organized religious or social opposition to family planning (1967:584).

BELIEFS AND FERTILITY

The whole conception of nature and life, having children and rearing them, is complex and deeply rooted among villagers in India. Villagers are very happy when they give birth to children, no matter how large the family. They dance and celebrate. They feel saddened when somebody dies in the family, and mourn the death for a number of days. Birth is not only a happy occasion for one's own family, but also for his neighbor's family.

Childbirth creates unity between wife and husband (see Inden and Nicholas, 1970:5) because the child shares the blood, bones, and flesh of both the parents. In their analysis of Bengali kinship, Inden and Nicholas compare nature to the female. The fruit they (men) give symbolizes the unity of nature and man:

The seed (bij) contains the 'Purus' or structural code for the plant in the world of nature. The plant (gach), flower (phul), and the fruit (phal) produced from the earth symbolize their union (1970:5).

Just as a farmer is happy when he sows seeds and harvests, so is a farmer when he sees his own fruit from the womb. When a man can produce more children, villagers say he is a man (purusudu). When he cannot produce a child, they say he is a woman. Inden and Nicholas point out that the male seed also symbolizes virility, strength, and courage.

A father or mother or many children is highly respected. In Andhra Pradesh the author has seen many occasions at marriage time when a pregnant woman, particularly a woman with many children, was called upon to bless the young couple. She throws rice mixed with vermillion on the heads, blessing the couple to have many sons and daughters, and to be prosperous. Parents with many children are welcome on any auspicious occasion. A villager believes it is profitable to him if he sees a pregnant woman walking towards him, especially when he is going to buy land, purchase cattle, or make marriage arrangements. At the sowing time, too, couples who have had many children are called upon to start the sowing; they at least throw a few seeds in the field in the beginning.

In contrast, the parents who do not have children are not respected in the society. Villagers think that

the couples have committed a great sin in last birth (purva Jamna). A barren woman is not respected in the family (Kolenda 1970:12). She has to be careful in her movements so as not to face people when they are doing auspicious things, such as making an offering to God, marrying, and so on. When a woman does not bear children, her anxieties increase. She visits sacred temples; she takes oaths that if she becomes pregnant, she will give some offering to God; she fasts; she tries in every possible way to get children. So the mother tries hard to get children not only for her satisfaction but for the whole community and kingroup she belonged to.

In India stories are told to the children about parents who had many children and who are very kind; in contrast a barren woman is always portrayed as cruel.

In the villages a female child very often helps parents in caring for younger brothers and sisters and in the cooking. In all these activities she has been mentally prepared by the older people in the family to get married and beget children.

In the villages people believe that the female's womb is comparable to a land when a man leaves semen, so the pregnancy is comparable to the growing of a tree. The

tree gives flowers and fruit (Inden and Nicholas 1970:5). Thus if anything is done to deter the life and growth of the plant it is considered to be a sin (Driver 1963:117-8). Driver illustrates another viewpoint--people often say that they cannot control birth because God gives children and God takes them back.

We cannot control the growth of children. Can we control the growth of trees in the forest? Like that we are trees in the forest of the world. God will come and cut down some trees. If God feels that he wants to limit a particular family he can do so. He has got the account of humanity (1963:117-8).

Many times villagers express their feelings about the large family in this proverb: "Don't you think a tree can always bear its fruits however big and innumerable they may be?" In the same way man can manage. Renown social workers and politicians argue against birth control:

Man is born with two hands and one mouth and should therefore have no difficulty in feeding himself, whatever the increase in population (Bhave 1960).

In the same way the villager says, "God put you into this world he won't forget to feed you."

All of the above beliefs show that villagers want children. Villagers are happy to see parents with many children; why do they think this? Because children are

considered to be wealth. A young mother plays with her child, saying "my gold," meaning that children are precious wealth. The author remembers that once when she asked a woman to tell what property she owned, the woman pointed to her children, saying "these are my wealth."

Children are considered to be sources of income for the family. Myrdal says:

. . . in many parts of India, a child becomes a producer at 7 or 8, particularly where the low agricultural productivity requires many hands, even small ones, on the job (1968:1516).

A large number of children are supposed to be the strength of the family; here male children are especially important. At times of village disputes and fights, males can defend well. Children are old age security for parents. Where parents do not have insurance as in Western countries, they usually stay with sons in time of old age. Sons inherit parent's name and spread the patrilineal family. Also, sons are essential to perform rituals after parents' death.

All of the above ideas are deep-rooted beliefs that parents have about children. These beliefs are transmitted from generation to generation. Grandparents tell stories to their grandchildren. Many sociologists,

demographers, and anthropologists have studied these beliefs as they affect social change. Yet the knowledge, attitude, and practice studies reveal no significant correlation between traditional beliefs and contraception. The basic motivation to have a large family is based on the desire to have approximately five children, including at least two sons, who reach maturity. The special importance of sons has been outlined above.

Mortality rates are still high in rural India where levels of mortality for many centuries have been high, the mere survival of a population required a mobilization of most of the reproductive powers of a society. It is therefore not surprising that traditional values and institutions in developing countries favor early marriages and large families.

SUMMARY AND CONCLUSIONS

In the present study, we have reviewed much of the research pertaining to fertility control thus far, and have assessed the impact of various socio-demographic variables on fertility control. A short summary follows.

Income levels and fertility.--The review reveals that so far, there is no definite trend of impact of different levels of income on fertility in India. However, individuals' income levels may indirectly affect fertility (the impact of income on fertility may be more prominent at the end of the transitional stage of development) in several ways.

- 1) Income affects health measures that one can provide to his family.
- 2) Better care might reduce the infant and child mortality.
- 3) Infant and child mortality affects the levels of fertility where in countries, parents want to make sure that at least the desired number of children reach adulthood.
- 4) Income affects one's desire to buy birth control items which obviously helps in birth control.

- 5) Increased family income may allow the woman the leisure time away from heavy work which she requires to adjust the use of IUD method.
- 6) Income levels affect exposure to mass media. Richer people have increased exposure to mass media which include programming concerning family planning.
- 7) Income levels may affect one's desire to have a higher education. The higher educateds get better jobs and better jobs increase one's income.

The limited income of majority of Indians minimizes any extensive indirect effects which income levels can currently have in reducing population growth. In the threat of increased population growth and economic stagnation a country must adopt policies which directly or indirectly control fertility. But a choice exists: 1) whether to make stronger policies to implement birth control measures or 2) to improve the socio-economic conditions to create thresholds for the take off in fertility decline. (3) To do both the above--implement birth control measures and simultaneously improve socio-economic conditions. The complicating situation at present is that the growing population is impeding the economic growth of the country, and the low economic growth is accelerating the population growth. This aspect needs very careful thinking and planning on the part of policy makers and

administrators. The dilemma here is which aspect should be given priority in planning and implementation whether the policies should be made to improve the general economic levels of the country or whether the policies should be made to lower the fertility level. As demographers show a close relation between population growth and economic development, both are important and both fertility control and economic development should be undertaken side by side. Policies affecting the developmental activities at village level may effect fertility levels also. The community development programs concerning health, agriculture, and family planning for the villagers have a significant effect on the attitude and acceptance of birth control measures. The co-operatives of the small industry and the intensive agricultural programs at the village level, if well planned, could change a whole villages' economy and thereby change the villagers' entire outlook.

Educational levels and fertility control.--Several studies reviewed for India and abroad showed that there is no consistent pattern in the levels of fertility at different levels of education. However, both in India and abroad, fertility tended to decline at high school and two years of college, after which it remained steady.

Education also affects fertility in indirect ways;

(1) Educated people tend to postpone marriage until a later age. This reduces the reproductive period of a person.

Late marriages in European countries and America had contributed to a greater extent in the demographic transition.

(2) Educated people have more access to printed material, and therefore can read the printed matter on population problems and birth control measures. This increases the awareness of family planning. Since knowledge is essential for adoption this could be a primary step in adopting

family planning. (3) Educated people obtain employment with higher salaries. This would increase the levels of income. In some studies (reviewed here) income has an effect on fertility at a particular level. This particular level can be taken as a threshold factor. (4) Educated people often get jobs in cities; this urban contact might facilitate their small family norm.

To implement policies which would bring a mass education and at higher levels would need money and expert planning (this may be difficult to achieve at this time), especially education and job opportunities are more important here. The low age at marriage for females is considered to be a major obstacle for fertility control.

Industrialization and fertility levels.---Industrialization has been discussed in the most general terms as the major factor in the demographic transition. Industrialization in western countries has brought a whole range of changes in socio-economic and technological development. But in India the level of industrialization is not yet sufficient to create those threshold effects necessary for fertility control.

There is not much Indian information to draw upon to show the effect of industrialization on fertility levels. Up to the present time, a limited section of Indian population has been affected by industrialization. Only the educated and the rich people (mostly) got into the better jobs in the industries. Thus industrialization may have an effect on that segment of population consisting of urbanized high income couples. The poor villagers who came to cities to work in the industries increased the size of slums or lower-class areas. In many cases, many persons from the same village move to the city and live in the same area. Thus, they remain the same (as in the village) in their attitudes and behaviors.

Fecundity and Fertility.---Fecundity in India did not show much in favor of fertility growth. Though early

marriages and social norms suggest that people want family and children, other factors like longer lactation period, forced separation of wife and husband at the time of birth are not favorable for high fertility. Also the genetic capacity to procreate is veiled by disadvantages, environmental conditions such as poor nutrition, mode of living, and climate.

Nuptiality and levels of fertility.--Unlike in European countries, in India people have always married at an early age and produced children at an early age. Socio-religious norms had always supported late marriages and non-marriage in Europe. In India certain practices like widows not marrying, "brahmachari" and "Sanyasi" when followed support non-marriage. But proportionately very few do follow these practices (except widows not marrying). The catholicism which spread in the southwestern part of India had encouraged many people to become nuns and ministers who had never married.

Migration.--Migration was very common in European countries, even before the industrial period. In India migration is taking place but some of the negative effects of migration has counter-balanced the positive effect that it had on people.

Family size norm and beliefs.--These are built around the day-to-day life. In India in earlier days epidemics, cholera, small pox, famines had increased the death rates so much that parents wanted living children very much. The child mortality rate often made uncertain the number of living children so parents had to have bigger families to make sure at least some children survived. Agriculture which was a main occupation needed more people to work in the family, so they wanted bigger, joint families.

Change in the family size norm will be possible when the roles of children are also changed. Government should attempt to have old-age insurance programs along with family planning programs.

Urbanization.--Although many studies have been carried out to compare contraception knowledge, attitudes, and practices between urban and rural people, the results thus far are inconclusive.

Some demographers believe that urban people have more knowledge and adoption of family planning than the rural people. Yet other demographers have concluded that urban living has not brought much decline in fertility levels. However, effects of urbanization such as

separation from the joint family and increased mass media exposure may have an impact on family planning.

The review of industrialization and urbanization, fertility control revealed some of the loop-holes in the process and policies. The food and housing shortage has created bad affects on the villagers. Very often they relied on their relatives and village for moral support. The insufficient salaries in the industries made industrial workers take their job as a side business besides agriculture. They still have to go to their village to look after their agriculture. These are some of the factors which cut the villagers from the benefit of urban contact and its effect on their outlook. Government policies should be carefully planned to absorb rural industrial migrants into the cities. Industries should be planted in semi-urban areas where the government can plan well the industrial workers' housing colonies. They should be better paid. There should be compulsory requirements of certain levels of education. Because of the better salaries, people will be motivated to get education, which has an impact on awareness of family planning, awareness in its turn has an impact on adoption of family planning.

Considering the present level of national economy this is hard to achieve within a short time.

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