POPULATION GEOGRAPHY

CONTENTS

INDIA'S POPULATION DILEMMA

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Abstract

During the post –independence decades India experienced a stepped up acceleration in its population growth resulting in nearly threefold increase from 361 million in 1951 to 1028.7 million in 2001.This staggering growth has neutralized a large part of the socio-economic development in the country. With a view to ensuring a wholesome and a dignified living to every individual everywhere, "population control" needs to be pursued with high priority, along with accelerated developmental activities.

An unusually low sex ratio in northwestern India is another problem which has serious demographic, social and economic implications. In recent years, particularly during 1991-2001 this problem has been further aggravated by an alarmingly large decline in child (0-6 age group) sex ratio in northwestern and western India. Female foeticide, female infanticide and neglect of female children on an extensive scale seem to have been instrumental in this development which has disastrous implications for the country in general and the two major regions in particular. This situation warrants early rectification.

Despite great efforts to achieve universal literacy, explosive increase in population numbers has been a serious neutralizing factor. Male-female and rural-urban differentials in literacy are widely prevalent. In the present context of things, enhanced levels of literacy and education (liberal and professional) are needed. The quality of education at all levels needs to be made comparable to the best in the world, to be able to face 'survival of the fittest' principle.

It is commonly agreed that "geography is the study of the earth's surface as the world of man". Alternatively, it is also often stated that geography is anthropocentric. The two statements clearly define the place of man in the whole geographic perspective. When considered in relation to the total process of regional or sectoral development, population emerges as the pivotal point. Following this view, it is only appropriate and necessary to have a focused look at the population situation in the country, at least in relation to some of the crucial aspects, to have some idea of the tasks lying ahead.

With a population of over 1028.7 million in 2001, India is the second most populous country in the world, next only to China which is reported to have around 1285 million inhabitants in that year. During the post-independence decades India experienced a debilitatingly accelerated growth from 361 million in 1951 to 1028.7 million in 2001, giving an absolute increase of over 667 million which is 137 million more than the aggregate population of the whole of Southeast Asia.

During these five decades the density of population in India increased from 117 persons per sq. km to 325 persons per sq km.

It is an exceedingly staggering increase for a country already fairly crowded. The absolute increase in numbers during the last decade 1991 – 2001 alone was as much as 182.3 million which is close to the combined populations of Pakistan, Nepal and Sri Lanka. The implications of such a massive increase have been all too obvious in most spheres of human life – substantially neutralising achievements in socio-economic development during the five decades which by themselves have been quite commendable. Despite serious efforts to reclaim all arable waste lands and to bring them under the plough during the post independence period, the per capita net sown area has declined from about 0.33 hectare in 1951 to nearly 0.14 hectare in 2001. The per capita total cropped area declined from about 0.37 to about 0.18 hectare during the period. However, with the adoption of Green Revolution technologies and other allied reforms in several parts of the country, production of food grains (cereals and pulses) increased about four-fold during the post-independence decades as against nearly three-fold increase in population. Clearly it implied that a large part of the increase in food production got neutralised by the dynamics of population numbers. This process of neutralisation can be adequately curbed, if not stopped, only if the trend of population growth slows down sufficiently and the pace of food production is further accelerated, along with other developmental pursuits. This is not to view the unprecedented increase in India's population during the fifty years in a Malthusian perspective, or in the perspective of the Club of Rome. But seen from the point of view of family welfare and quality of life, as aspired by every individual everywhere, irrespective of caste, creed, gender or economic level, the emerging situation is most alarming, to say the least. With the fast changing times, these aspirations have gone increasingly high and diverse - thanks to the role played by the

T.V., among other factors. Already the country is facing formidable challenges in its fight against poverty, ignorance and disease which are rampant in several parts of our land. About 26 per cent of the total population is living below the poverty line which is defined in terms of bare existential levels. Even the safe drinking water is becoming increasingly scarce all over the country as a result of the explosion of population numbers. The ultimate manifestation of population growth outstripping the supply of housing, even of the humblest type, is houselessness. As per 2001 census, there are nearly two million houseless people in India. This number is increasing consistently with the increase of population. The houseless live wherever they can find some space to sleep at night. It may be in the open, on roadside, pavements, under flyovers and staircases, railway stations, etc.. In Bombay alone, it is estimated, there are around two and a half lac pavement dwellers. On the platforms of most of the important railway stations in India we can find the houseless crowdedly spending the nights. The ever increasing degree of unemployment, even among the educated youth, is creating manifold difficulties. However, many social science scholars, including economists, have been heard saying at academic fora that they are not particularly perturbed by the magnitude of population increase in the country. Their main reliance is on human ingenuity which, they argue, always bails out the people of such problems. There is no doubt that human ingenuity has vast potentialities. But in the context of India's massive population, still increasing at a fairly high rate, it must be remembered that even human ingenuity will take time to be translated into the desired results. There is always several years, if not decades, of preparatory research and experimental work prior to devising and implementing any new

ideas or technological programmes. The Green Revolution, for example, was preceded by several years of innovative research in many disciplines. Things cannot materialize overnight. Vegetative living is not the goal for any self-respecting nation to achieve. What is needed is a wholesome living, a living with dignity, and a reasonably good quality of life for everyone, everywhere.

Despite continuing, though steady, decline in its rate of population growth since 1971 (1961 – 71: 24.80%; 1971-81: 24.66%; 1981-1991: 23.87% and 1991 – 2001: 21.54%) India's current growth rate is still high. The decline in Birth Rate is taking place only at a snail's pace - thanks to the young status of the country's population (about 35% of the total population being below 15 years of age as in 2001), among several other potential factors. The Crude Birth Rate in 2001 was 25.4 live births per 1000 of population, and the total fertility rate 3.1 per woman, which are leaving much to be accomplished yet. In the large states of Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan the Crude Birth Rate was still above 31 per thousand of population in 2001.These four states together account for 35.6 per cent of the country's total population. Only in Kerala and Tamil Nadu among the large states it was below 20. These figures suggest demonstratively that with the   current pace of change in vital rates, it will still take India a few decades to reach the stage of stability in demographic terms. It will be in order to mention that even with the present trend, India is likely to make substantial additions to its population in the years to come, and in all likelihood, surpass China's population by the mid-century.

It may be noted further that India and China together have as much population as the world's next 20 largest countries combined. If the two countries were to use as much oil per person as Japan does today, their demand alone would exceed the current global oil requirements. If China and India were to match the consumption levels of Europe, we would need another full planet earth to sustain these two countries. If we were to consider the per capita annual consumption of grains alone, the comparison is as follows: in the USA it is 918 Kg, Europe 561 Kg, China 292 Kg and in India it is only 173 Kg. Another estimate for India puts it at about 190kg for the year 2001. For a proper living we would need much more than grains. These figures give a concrete measure of the long distance which India has to cover to achieve a comparable status even in grain consumption. In the present context of things, the concept of even modest living will take us far beyond Malthus and the Club of Rome, both quantitatively and qualitatively. The list of bare minimum needs even for moderate levels of living is quite long. Such is the nature of present times. It is bad news for India's nonrenewable resources and environment.

All these comparisons bring to light the severity of the population problem and the great magnitude of the tasks ahead. It also follows from the points made above, that to control further increase in population numbers in India is a concern of one of the highest priorities. However, this control is to be achieved, not through any coercion but through education, persuasion and development. But any delays in achieving this objective can further complicate matters.

To understand closely wide spatial variations in the enormity of population and its growth, scholars should make use of the data available by small areal units and map them appropriately. We are fortunate that we have District Census Handbooks right from 1951 onwards, providing data on various important population attributes by individual

villages and towns. Maps based on such data of ultimate detail for each decade can bring out areal variations in the demographic scenario even at local levels. It is an opportunity as well as a challenge to the scholars to undertake such detailed studies which can be very revealing and educative.

Apart from size and growth, another serious population problem thrown up by the Census from decade to decade, especially by the Census 2001, relates to gender issues, particularly sex ratio. Sex structure is one of the important of all demographic characteristics. It is directly linked with the incidence of birth, death and marriage; it is an important differential in the migration status, occupational structure and in practically all other demographic and socio-economic characteristics; and it has a distinctive place in almost every segment of social structure. In the present context of things, in particular, gender issues have assumed special importance in most social science studies, not only in our country but everywhere in the world.

As per 2001 Census, there are only 933 females per 1000 males in India, one of the lowest sex ratios in the world - a fact which has wide implications in demographic, socio-economic and cultural terms for the country. India's large deficiency of females over males is, in general, in conformity with what is true for many Asian countries, with the important exceptions of Japan, Indonesia and Vietnam. But it is in sharp contrast to most parts of Western Europe, Russian Federation, U.S.A. and several countries of South America and Africa.

The existing deficiency of females over males in India is the result of the working of very complex processes which we know for sure, did not start at the same time in the past, nor did they work at the same pace at different points of time, not to speak of wide regional variations in the nature of working of such processes. As a result of these complex variants, it is extremely difficult to state in precise and exact terms the causal factors which have worked behind the general deficiency of females in India. Infact, this overall deficiency has increased almost consistently over the whole of the 20th century during which India's sex ratio has fallen from 972 in 1901 to 933 in 2001. However, within the country, the trends in sex ratio have been marked by inter-state and intra-state disparities. An understanding of the sex ratio in the country as a whole, as also in its various regions, requires a close acquaintance with the social, cultural, economic and political history of the country and the trends therein in recent times. Basically, two facts need to be gone into to understand the country's existing sex ratio. First, males and females are not born in equal numbers and second, they do not die in equal numbers either in infancy, childhood, youth and old age, or in all ages taken together. In other words, it is the differential in sex at birth followed by differential in the rate of mortality in the two sexes at different ages, which together result in the existing overall sex ratio. The magnitude of migration into or out of the country is far too small to affect the sex ratio of India's population as a whole. Admittedly, however, the in - and out - migration is sizeable enough at several micro and meso regional levels within the country to make significant impact on their emerging sex structure.

Apart from these general processes, an important factor which has been vitiating sex structure in recent years is the alarmingly increasing rate of female foeticide and female infanticide, of course in regionally varying degrees in the country. It is evident from the fact that the sex ratio in child age - group (0-6) has declined at a much higher rate

than the overall sex ratio of the country after 1981. While the overall sex ratio moved from 934 to 933 during 1981-2001, the child sex ratio slided down from 962 to 927 in the two decades. Sharp and massive declines in child sex ratio (0-6 age group) have particularly occurred during the last decade 1991 – 2001: Punjab experienced the largest decline from 875 in 1991 to 798 in 2001 (decline by 77 points); followed by Haryana from 879 to 819 (decline by 60 points); Himachal Pradesh from 951 to 896 (decrease by 55 points); Chandigarh U.T. from 899 to 845 (decrease by 54 points); Delhi U.T. from 915 to 868 (decline by 47 points) Gujarat from 928 to 883 (decline by 45 points), Uttaranchal from 949 to 908 (decrease by 41 points); Maharashtra from 946 to 913 (decline by 33 points); and Goa from 964 to 938 (decline by 26 points). In Daman and Diu the decline was from 958 to 926(decline by 32 points). The unusual and substantial decline in child sex ratio during as short a period as ten years in north- western Indian states and union territories, and also in western India (in Gujarat, Maharashtra, Goa and Daman and Diu) is a matter of grave concern. It has dangerous implications. Although in highly differing degrees, this decline has taken place, practically all over the country. The main exceptions are Kerala and Lakshadweep where it, instead, increased marginally. This decline seems to be indicative of an underlying trend of female foeticide, female infanticide and neglect of female children over most parts of the country, more specially in north-western and western Indian areas. This development seems to bring out recent changes in our society's attitude and outlook towards the girl child. As a result, the proportion of the girl population in the age- group (0-6) to total female population in India has declined from 18.12% in 1991 to 15.36% in 2001. Interestingly, even in predominantly urban

Union Territories like Chandigarh and Delhi where the rates of literacy and levels of education are much higher, the fall in child sex ratio was substantial during the decade. If their slum populations, which have a considerably higher child sex ratio than that of the main cities, are excluded, the core urban areas display a still larger decline in their child sex ratio. It is suggestive of the fact that the decline in child sex ratio among highly literate and educative sections of the urban society is much more than that among the poor and less literate slum dwellers. It further provides the inference that the incidence of female foeticide is occurring more among the relatively better-off and educated people in the urban areas than among the poor and remote ruralites. In Punjab the sex ratio of urban slum population in child age-group is 821 which is significantly higher than the urban child sex ratio of 796 in the State. It is important to note that the sex ratio in the 0 - 6 age -group is far lower than the general overall sex ratio in Punjab (798 as against 876), Himachal Pradesh (896 / 968), Haryana (819 / 861), Uttaranchal (908 /962), and Gujarat (883 / 921). Normally the child sex ratio should be considerably higher than the overall sex ratio.

This trend on an extensive scale, particularly in north-western India and western India, is bound to have a disastrous effect on the population over the years to come, leading to a further fall in sex ratio in the country. The enhanced imbalance which is occurring at this early age-group will be difficult to rectify. It will have demographic, social and economic implications for a long time to come. Ironically, the sizeable decline in child sex ratio has occurred more in urban areas than in the villages, more among the rich than the poor, more among educated people than among the illiterate. The detailed data on child sex ratio by districts for the whole

country brought out by 2001 Census of India offers a challenging task to the scholars to do comprehensive, detailed regional analysis of the problem.

The findings of such studies will be of great utility to the planners, administrators and social scientists. The sharply declining child sex ratio in recent years is an alarming development, meriting high priority in our research agenda. Apart from the use of census data, field investigations focused on individual families and married women will yield better results.

Still another issue related directly to the massive size of India's population, is its impact on the progress of literacy - its neutralising effect despite great efforts being made to achieve universal literacy. "The ability to read and write with understanding in any language" is only an initial stage in the process of human resource development. Just being a literate does not take a person far enough on the road to progress, though it does enable one to understand one's social, economic, cultural and political environment a little better and to take part in it profitably. To be a literate is, therefore, a basic but only a minimum requirement to get out of ignorance and backwardness. Increased levels of literacy and education are needed for learning higher skills and for achieving better socio-economic results, apart from increasing awareness about ourselves and the world at large. In the present context of things in India, universal literacy is a necessary goal. Every attempt should be made to promote higher education, both general and professional, and expand vocational education. To survive in the highly competitive world that we are living in today, educational standards at all levels must be equally and comparably high. Quantity without quality does not mean much.

After the collapse of the British Empire around the middle of the 20th Century, British planners, administrators and scholars realised that universal elementary education which they had nearly achieved, was no longer enough for their people to survive in the highly competitive new world. Now that there were challenges before them for survival in many spheres of activity, they decided to encourage more and more people to come for higher education: both liberal and technical. Now they needed more well qualified graduates and post-graduates, better and higher level skilled workers, and world class professionals. This realisation changed their whole outlook relating to literacy and education. Comparatively, we are 50 years behind them in this matter. Even now they are trying to attract the best of learned people from wherever they may be available. Oxford, Cambridge and other prestigious universities are reaching our top students, offering scholarships and other facilities to them. Also they are trying to lure away our scientists, engineers and doctors. All this is being done to survive in the competitive world of higher education, science and professional services. Many of their own scholars and scientists are moving to the U.S.A. and Canada on highly remunerative assignments. So the struggle goes on for their national sustainability.

In the contemporary world, much of the economy and prosperity is knowledge based. New Ideas, new technologies, new innovations and new and better skills, apart from quality-oriented education, are what is needed to evolve an ever improving and dignified mode of living in every sphere of human activity in this era of globalization. "Survival of the fittest" is the standard guiding principle. In view of this perspective, universal elementary education (not just literacy) and higher level of liberal and professional education are both indispensable, of course at internationally

comparable levels of quality.

As per 2001 census, 64.8% of India's population (aged 7 years and above) (75.3% males and 53.7% females) is literate. Although the country has been making steady progress in the promotion of literacy ever since 1951 when 18.3% of the population aged 5 years and above was literate, we are still way behind the goal of universal literacy – not to speak of universal elementary education. Not only that, the male - female differential in literacy is still wide. So is the rural - urban gap (59.21% literacy rate in rural areas as against 80.66% in urban areas). The male - female differential is wider among the ruralities (71.18% of the males and 46.58% of the females being literate) than among the people living in urban places (where 86.42% of the males and 72.99% of females are literate) . Apparently, there is wide spread diffusion of male literacy in towns and cities throughout the country. Of the 593 districts, in 488 districts, urban male literacy is in excess of 80% . In the country as a whole, only 277 districts registered female literacy rate above the national average of 53.7%. Obviously, a lot remains to be done to achieve simple universal literacy among men and women in rural and urban areas. There are wide regional, inter-state and intra-state disparities in literacy attainments. With 90.9% of the total population literate (94.2% of the males and 87.7% of females), Kerala leads all states and U.Ts. of India, followed by Mizoram where 88.8% of the people (90.7% of the males and 86.7% of females) can read and write with understanding in any language. On the other end of the scale is Bihar with only 47.0% of the population as literate (59.7% males and 33.1% females). In rural female literacy the situation in Bihar (with only 30% females in villages being literate) is dismal. In general, there is an inverse correlation between the overall literacy rates

and the male-female differential therein. In Meghalaya, however, while the overall literacy rate is only 62.6% (even below the national average of 64.8%), the male -female differential is very small (65.4% males and 59.6% females being literate) In fact, it is a little smaller than even in Kerala. This sharp departure from the normal in case of Meghalaya is a problem worthy of scholarly micro-level investigation. Likewise, the census 2001 has thrown up many other similar anomalous issues / situations with regard to other attributes of the population which should be taken up for comprehensive research by scholars as well as other users of census data.

In conclusion, it may be submitted that the massive size of India's population, still growing at a fairly high rate, is a great stumbling block in our attempts to achieve socio-economic progress to a substantial degree and to eliminate poverty. It should receive special attention of leaders of all political parties who have been shying away from even mentioning "population control" as one of the priorities in recent decades. The recently emerging problems of massive decline in child sex ratio (0-6 age group), particularly in north-western and western India, is far too serious to be neglected. It has to be taken up with a sense of commitment at administrative, social and political levels to create awareness of its dangerous implications among the people. Finally, educational efforts at all levels need to be consolidated with a focus on the improvement of standards. We have already enough of universities, colleges & schools. What is needed is to bring them up qualitatively and made comparable to the best in the world. We have the requisite human material, only it needs to be converted into fine product. Quality of education and good management alone can achieve this.

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POPULATION CHANGES IN TUNISIA SINCE INDEPENDENCE: AN EXAMPLE FOR THE ARAB WORLD

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Abstract

Since independence in 1956, Tunisia's population has almost trebled despite decolonization, emigration and greater demographic transition than elsewhere in the Arab World, but its fertility and population growth are now lower than in nearly all Arab countries. It is consequently an interesting case as a demographic pathfinder within those developing regions that have witnessed only limited transition.

Unusual Demographic Transition

Although only a small country of 63,378 sq. miles with just over 10 million people in 2005, Tunisia may claim to have witnessed greater demographic transition than any other country in the Arab World or in mainland Africa. Its demographic regime is becoming less like that of a developing country and more like that of a developed one. This demographic transition from high to lower mortality, fertility and natural increase rates during the last fifty years is not just a matter of rates of population change. It also reflects the fact that Tunisia is now in the category of countries that have experienced medium human development, being ranked 92nd in the human development index (CountryWatch.com, 2002) with a wide variety of interrelated social and economic changes, including:

- rapid European decolonization during the decade following independence in 1956;

- an unusually rapid rise in female status among Arab and Islamic countries, initiated soon after independence by the introduction of the Civil Status Law of 13 August 1956 involving minimum age of marriage, prohibition of polygamy, and annulment of a father's right to determine his daughter's marriage, all leading to the dropping of the veil, better female education, more female employment and declining fertility;

- considerable reduction in infant and child mortality, rise in life expectancy and progressive ageing of population;

- substantial economic growth and higher living standards, evidenced by the prolonged rise of GDP per capita to US$7310 in 2004, along with improvements such as 90% rural electrification and 80% of the population served by approved drinking water systems;

- significant economic emigration, especially to France and Libya, bringing a substantial return of remittances;

- growing internal population mobility, urbanization increasing to 65% by 2005 and the increased urban primacy of Tunis, which now contains more than 2

million people, more than twice as many as the next three largest cities, Sfax, Sousse and Bizerta; and

• changes in the economic utilization of the four main geographical regions (the northern Mediterranean zone, the central largely mountainous zone, the eastern Sahel, and the desertic south), including the decline of pastoral nomadism in southern regions, the growth of irrigated agriculture, the significance of mineral resources, and the major growth of international tourism greatly affecting the eastern coastal fringe.

All these features have contributed in different ways to considerable demographic transition which is a multifactorial phenomenon.

Earlier Mortality Decline

In the two decades before and after independence, the key factor in natural increase was rapid mortality decline (Clarke, 1972), the crude death rate declining from about 26 per thousand in 1946 to 20 in 1956 to a variously estimated 13-16 in 1966 (ECA, 1985). This progress was closely associated with considerable improvements in medical facilities and public hygiene along with a great reduction in infectious diseases (e.g. smallpox, typhus, typhoid and malaria) and in social maladies such as tuberculosis and infant mortality, which by 1966 had dropped to 116 per thousand. Between 1946 and 1966, expectation of life at birth rose from 37 to 55, and this declining mortality was instrumental in bringing about a broadening base to the population pyramid.

Mortality decline continued throughout the latter part of the twentieth century, but it is now slowing down because of the ageing of the population. The UN estimated crude death rate was down to 10 in 1980-85 and 6.4 in 1990-95. It was as low as 5.8 per thousand in 2002, when infant mortality was down to 22.1 per thousand and under-five mortality down to 25.2. Life expectancy at birth has risen

from the low 40s at the time of independence to as high as 71 years for males and 75 for females (INS, 2002), higher than most countries in the Arab World save the oil-rich Libya and the small Gulf States of Bahrain, Kuwait, Oman and the United Arab Emirates, and not far below the levels of more developed countries.

Changes in Fertility

At the time of independence in 1956, fertility was high. The average completed Tunisian family had 5.6 children, and in the following decade there was no marked decline in the birth rates; in 1967-68 they were still as high as 43-44 per thousand (Lapham, 1970). But even in the early post-independence years there were indications of future fertility changes (Clarke, 1972): a reduction in the proportion of women of reproductive age (from 49.3% in 1946 to 43.1% in 1966); later marriage of women, particularly a great reduction in the proportion aged under 20; and the introduction of family planning programs, albeit not very successfully in the early stages because of antipathy to intra-uterine devices. All these early signs reflected the remarkable social advances that took place under the post-independence regime of President Bourguiba, marking it out as very different from other Arab countries: polygamy was prohibited; divorce was modified; the minimum age of marriage was postponed to 17 for women and 20 for men; women were given the vote; and there was a huge increase in the education and employment of women at all levels (Bchir, 1982). Women's activity rates have long been higher than elsewhere in the Arab World, and they now represent a quarter of the workforce. Moreover, their educational level is higher than that of men (ESCWA, 2001).

These advances in the status of women led to profound and long-lasting effects on both marriage and fertility (and also mortality) over several decades. For example, marriage is much later than normally found in the Arab World; between 1982 and 2002 the average age of a bride rose from 23.6 to 26.9, while that of a groom rose from 28.9 to 33.1 (INS,

2002). One consequence is deferred child-bearing, now peaking for women in their late twenties and early thirties, which naturally leads to fertility decline.

As the twentieth century wore on, fertility decline became the key factor in demographic transition and the reduction of natural increase. Between the early 1970s and the late 1990s the estimated crude birth

Fig.1 Total fertility rates of countries in the Arab World (2000-2005)

Source of data : UN, 2005.
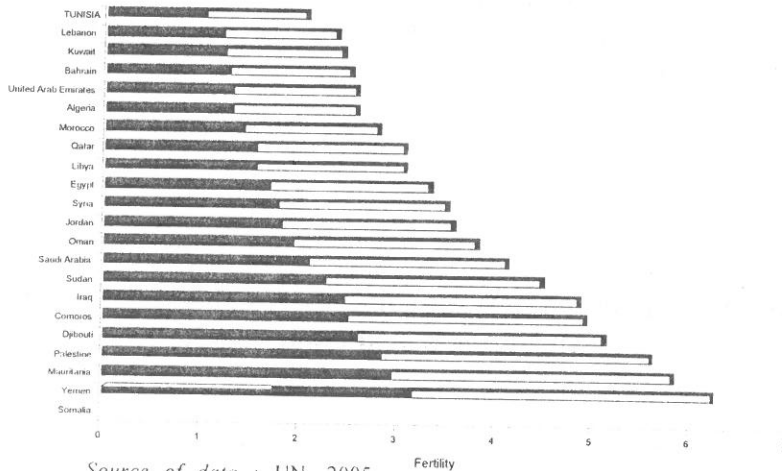
Fig.2 Natural increase rates of countries in the Arab World (2005)

Source of data : Population Reference Bureau, 2005 World Population Data Sheet.
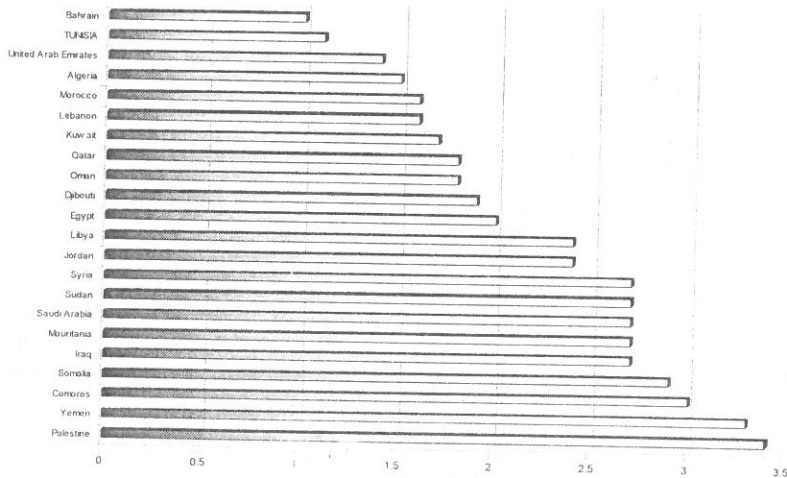
Fig.3 Percentage distribution of the population of Tunisia by broad age groups (1990-2050)

Source of data: ESCWA, 2005

Figure 4: Percentage average annual growth rate of countries in the Arab World (2000-2005)
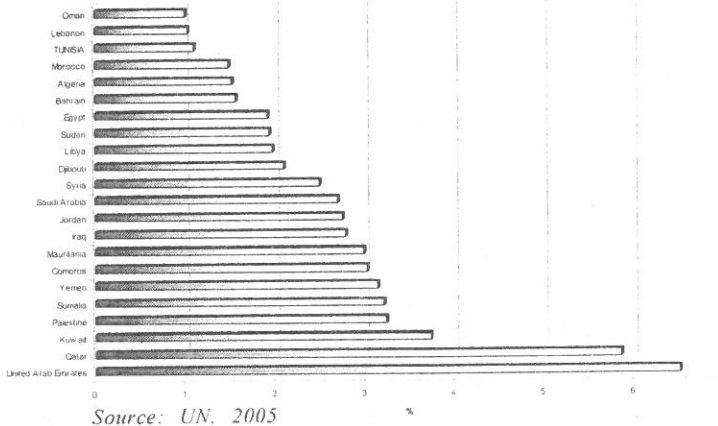
Source: UN, 2005

rate nearly halved from 36.5 per thousand to 18.7 and then dropped to 17.0 in 2000-05; and the total fertility rate fell remarkably from 6 in 1970 to 4.9 in 1980-85 to only 2.0 in 2002, Tunisia becoming the first Ar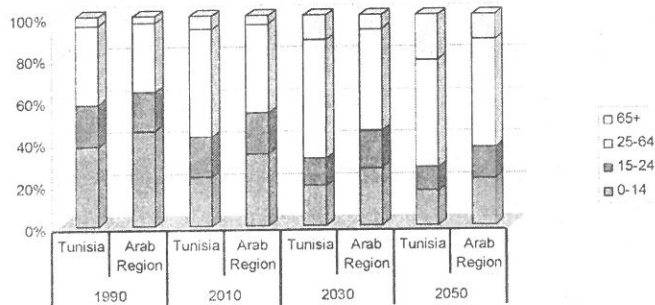ab country to achieve replacement level (see Figure 1) (ESCWA, 2003, 2005). A Tunisian woman now has no more children than one in Marseille of similar education and social level (Khader, 2004:161).

Much of this decline also reflects the highest contraceptive prevalence rate (60% in 2001) in the Arab World save Lebanon (which has a more mixed, partly Christian population) and the lowest polygamy rate, as well as a prolonged government policy to reduce population growth (ESCWA, 2003). Back in 1976, Tunisia was one of only a few Arab countries, including Egypt and Morocco, which considered their population growths to be too

rapid and which intervened to lower them by direct support for contraceptive methods. By 2001, Tunisia's population growth had declined to a level regarded by the government as satisfactory, but the policy was still to lower the total fertility rate, which is expected to go down to 1.77 by 2020-25 and stabilise there.

Natural Increase

Natural increase is now decidedly slower than that of any other country in the Arab World (ESCWA, 2003) or in Africa, save Lebanon and the small Indian Ocean island states of Mauritius and the Seychelles. Back in the mid-1960s it was of the order of 2.6-2.8%, fairly typical of many less developed countries whose population growth was largely determined by rapid mortality decline and much less change in fertility. By 2002, fertility decline had reduced the rate of natural increase to 1.08% (INS, 2002), less than half of that for the total population of the Arab region (2.24%) (ESCWA, 2003). Figure 2, demonstrates that in 2005 only Bahrain had a lower natural increase rate, and that its rate of 1.1% was well below those of other Arab countries.

In sharp contrast, several countries had very high natural increase rates exceeding 3.0% (Occupied Palestinian Territories, Yemen and Comoros), and in six they were between 2.5 and 3.0%: Somalia, Iraq, Mauritania, Saudi Arabia, Sudan and Syria.

An indication of this slower Tunisian population growth is the measurement of population momentum (ESCWA, 2003), which is the tendency of a population to continue to grow after the time when replacement levels of fertility are achieved, where a momentum factor of 1 implies that natural increase is not contributing to population growth. Along with the United Arab Emirates, Tunisia had in 2002 a population momentum of 1.2, the lowest in the Arab World, where in contrast a number of countries had a factor of 2 or more: Comoros, Iraq, Jordan, Mauritania, Occupied Palestinian Territories, Oman, Saudi Arabia, Somalia, Syria and Yemen.

Ageing

Not surprisingly, although Tunisia's population is still young by the standards of more developed countries, fertility decline has contributed to an ageing population. In 2005, an estimated 8.6% of the population was aged 60 or more well above the average for Arab countries in general (UN, 2005), although unlike more developed countries it seems that there are less elderly women than men and their life expectancy is less - an indication perhaps of their lower status when they were young? By 2050, it is projected that 28.8% will be aged 60 or more, and 21.4% aged 65 or more compared to 12.0% in the Arab region as a whole (see Figure 3) (ESCWA, 2005). By then it will clearly have the oldest population.

In contrast, Tunisia has fewer children; only 25.9% of the population was aged 0-14 in 2005, lower than other Arab countries except the Gulf States which have large migrant labour forces, and these gaps are expected to grow (UN, 2005). The proportion aged 15-24 has remained fairly static at 20-21% over the last two decades, but is projected to decline during the first half of this century (Fig.3). On the other hand, a major increase is taking place in those aged 25-64, who are expected to increase from 37.4% in 1990 to 43.2% in 2000, 51.3% in 2010 and 56.1% in 2030. So the working and reproductive populations are ageing but still growing faster than the total population. In 2000, the working age group was about 61% and it is expected to reach 70% by 2010, staying at that level for a couple of decades. Not surprisingly, unemployment is high, about 15% in the early years of this century, and another consequence is that the dependency ratio (56 in 2000) is lower than elsewhere in the Arab World, save the small, oil-rich Gulf States of Bahrain, Kuwait, Qatar and UAE (ESCWA, 2005) which have numerous migrant workers. Not surprisingly, many Tunisians are emigrating for work.

Emigration and Labour Migration

Considerable demographic transition is certainly the most remarkable of the

population changes that have affected Tunisia in recent decades, but there have been many other significant changes, not least the flow of emigrants and workers to Europe and to other parts of the Arab World, most notably to France and Libya.

Calculating the level of emigration is no easy task, as people leave for such different periods ranging from a day to permanently, many acquire new nationalities and the number of clandestine/undocumented migrants is high. For example, the total number of Tunisians leaving the country annually during the years 1990-2002 fluctuated between 1.4 and 1.9 million, but generally a third to a half were Tunisian non-residents who had been visiting home and many others were leaving for short visits abroad. About two-thirds were going to Libya or France, and this has been largely the case since independence. The only other countries to which more than 100,000 Tunisians went in any one year during 1990-2002 were Italy and Algeria, again a reflection of past close connections.

With a rapidly growing population during the early decades following independence, Tunisia was faced with a labour surplus and considerable unemployment problems, to which it responded initially by advocating short-term worker emigration before labour-intensive industries could be created at home (Birks and Sinclair, 1980). This was especially to France, and included some Tunisians accompanying returning French colonists, along with a lesser migration to some other West European countries, notably Germany, but there was also an important flow to oil-rich Libya (Findlay, Findlay and Lawless, 1979). The movements to France were largely from northern Tunisia and those to Libya were mainly from the centre and south, but in 1974 both declined greatly as a result of French government suspension of immigration, encouragement of emigrants to return home, and because of political differences between Tunisia and Libya over oil exploration and the number of clandestine migrants. Movements to the two main receiver countries, France and Libya, other than brief stays,

involved 15-35,000 per annum, so had no great impact upon Tunisia's population growth; indeed, most Tunisians wanted to return home and sent home substantial remittances, which in the late 1970s accounted for about a tenth of the balance of payments (Ismail,1988; Lawless, Findlay and Findlay, 1982).

Since then, the flow of Tunisians to France has continued in a fluctuating fashion but has been much smaller than from other Mediterranean countries particularly from Algeria, Morocco and South European countries, both in the short and long term. The total number of Tunisians in France rose from 52,000 in 1965 to 174, 000 in 1975 (Lawless, Findlay and Findlay, 1982:26) and more strikingly from the mid-1990s to 417,000 in 1999, of whom 202,000 were immigrants, 197,000 first generation born in France and only 18,000 second generation born in France (Tribalat, 2004: 68). Tunisians then comprised 3.1% of the total foreign population of France, about a seventh of the total number from the Maghreb as a whole, but roughly commensurate with its total population. In recent years, the number of immigrants continued to grow from 2-3,000 annually in the mid-1990s to 10,500 in 2003, accounting for nearly 5% of annual immigration (Thierry, 2001; Thierry, 2004).

Wealthy Libya has remained a major destination for Tunisian migrants, where they have numbered about 40,000 in recent years and have competed with many other workers notably from Egypt and other Arab and Asian countries. This situation contrasts with that before Libya became oil-rich, when 20-30,000 Libyans, nearly all Tripolitanians (*Trabelsi*), lived in Tunisia and found work especially in the phosphate mines of Gafsa (Clarke, 1959).

Partly because of its age structure and the substantial value of remittances, Tunisia has generally regarded its emigration level as satisfactory and has wished to maintain it, but of course it also represents a considerable loss of skilled human capital (IOM, 2004).

Tourists and Visitors

Of course, the volume of emigration from Tunisia, much of it short-term, is small in comparison with the inflow of tourists and visitors, who in each of the first few years of this century exceeded 5 million. Among them, Libyans and French were again the most numerous, accounting for about two-fifths, followed by Germans, Algerians, Italians and British, but North African visitors made much shorter visits than European tourists. The average stay of all tourists and visitors within Tunisia was only 5-7 days, so their population impact was more ephemeral than that of the Tunisian short-term emigrants. On the other hand, the effects of tourism upon the economy and geography have been great, generating in 2002 US$1.6 billion in revenue (INS, 2002) and giving employment to 85,000 especially along the eastern coastal fringe (from the city of Tunis and the Cap Bon peninsula to the island of Jerba in the south) where most of the 777 hotels with over 214,000 beds (2002) are located. In addition, the port of Tunis-Goulette receives the bulk of more than a quarter of a million visitors each year from cruise ships, mostly from Europe (Italy, Britain, Germany and France).

Population Growth

It is evident that Tunisia has come a long way demographically, socially and economically since independence in 1956, but despite considerable decolonization, demographic transition and emigration, its population growth has still been substantial, showing that efforts to effect an effective reduction in population growth have to be massive and prolonged.

After the Second World War, at the time of the 1946 census, Tunisia had 3,231,000 inhabitants, of whom 2,920,000 were Muslims, 71,500 Jews, 144,000 French, 85,000 Italians, 6,500 Maltese and 4,200 others (mainly Greeks and Spaniards). By the time of independence in 1956 the total population had grown modestly to 3.6 million, but thereafter more than a quarter of a million Europeans and Jews departed in the late 1950s and early 1960s. This, however, caused merely a blip in overall population growth that rose to 4.5 million in 1966 and continued to increase absolutely but at a declining rate of growth throughout the remainder of the century. The total more than doubled in the next thirty years to 9.1 million in 1996, to reach 10.1 million in 2005, so it is still growing at about 1.1% annually, lower than elsewhere in the Arab World save Lebanon and Oman (Figure 4).

On the other hand, after fifty years of demographic transition, the projected population growth rate of Tunisia is lower than elsewhere in the Arab World except Lebanon. Between 2002 and 2015, like Lebanon it is expected to be just 1.0 per cent or only 107,000 per annum, to raise the projected total to 11.1 million in 2015 (UN, 2005), 12.0 million in 2025 and 12.9 in 2050, very modest increases by the standards of the Arab World, the total population of which is projected to increase from 321 million in 2005 to 598 million in 2050. In many ways, Tunisia is a demographic pathfinder which other Arab countries might follow.

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POPULATION GROWTH AND MIGRATION IN RURAL PUNJAB SINCE 1991

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Abstract

Based on census data, the paper attempts to understand the pattern of population growth and migration in rural Punjab during 1991-2001. The area stands marked by further decline in natural growth rate of rural population, and stepped-up tempo of out-migration. Simultaneously, the area has witnessed a steady rise of in-migration from the BIMARU states. Consequently, rural Punjab is on a new demographic threshold which portends to usher in profound socio-economic changes with far-reaching implications.

Introduction

Punjab's countryside has undergone tremendous socio-economic changes in recent decades. In contrast to the sleepy, isolated, and economically non-buoyant village at the end of the British rule in 1947, the present day Punjab village stands variously linked with outside areas both within and beyond the country. With the onset of globalization in 1991, these linkages with outside world have become all the more strong and effective. This transformation in the basic disposition of Punjab village has been the outcome of the combined effect of several factors. One, the settlement of a huge number of displaced persons from Pakistan in the wake of the partition of the country in 1947 had played a ground-breaking role in opening the Punjab village to outside influences, including development impulses (Nair, 1961, p. 114; Keller, 1975, p. 87). Two, the coming of the famous green revolution in the second half of the 1960s totally connected the village with the market. Three, transformation of both intra- and inter-family relations in the area consequent upon money becoming the central value of life simultaneous with the diffusion of the green revolution. Four, building of an extensive network of rural link roads to literally all villages in the state, mostly in the

late 1960s and early 1970s, was instrumental in the rapid expansion of economic, social and personal connections. Five, rapid growth of rural literacy and education, particularly since the onset of the green revolution, resulted in a greater need and awareness about sources of alternate employment as well as in an unbridled rise in aspiration levels. Six, about a decade long period, 1984-1994, of various types of violence – physical, mental/ psychic, and economic – in the state which worked to generate a pervasive and deep feeling of insecurity among the ruralites at large. Seven, the emergence of a sort of land mafia in the state during the last about a decade or so, which has been instrumental in its own way to effect a redistribution of population; such groups are able to buy, through hook or crook, huge parcels of prime land close to the urban centres or along the main roads/highways, which works to encourage redistribution of the land vendees. Eight, the accelerating flow of information, rapidly rising role of the media, and fast growing pro-urban tilt of rural-urban trade-offs seem to have put the countryside entirely at the receiving end. During the last few years, even the state government has acquired huge chunks of agricultural land, and the process is still progressing further. Most of such peasants whose lands get thus acquired or who

themselves sold their lands due to one reason or the other generally purchase land elsewhere, often at relatively cheaper rates, resulting in significant redistribution of ruralites in recent years. It is worth noting that the rapid pace of redistribution of rural population also leads to further weakening the already enfeebled local community structure in the countryside.

Thus, the combined effect of the aforesaid factors has created such a strong momentum of rural change that the Punjab village finds itself grossly unable to manage this change to its advantage. If it has now become difficult to fully grasp the changes taking place in rural India as a whole, through census data (Gupta, 2005, 752), then it must naturally be doubly so to do it for rural Punjab.

Among various states of the country, Punjab ranked fifth from below in terms of the low growth rate of rural population (12.65 per cent) during 1991-2001 (Table 1). All the states with a lower growth rate than that of Punjab were from south India, i.e., Tamil Nadu (-5.06 per cent), Goa (-1.88 per cent), Kerala (10.07 per cent), and Karnataka (12.29 per cent). Besides, two union territories namely Delhi and Pondicherry, with a much smaller territorial extent, were also below Punjab in this regard. Thus, growth rate of rural population of Punjab during 1991-2001 was the lowest among various states of the country north of Narmada river. The only exception in this regard was the union territory of Delhi. But for considerable in-migration of labourers from U.P., Bihar, Rajasthan, West Bengal and Uttaranchal, etc., the growth rate of ruralites in the state would have been still lower. Significantly, the adjoining states of Punjab, i.e., Haryana, Rajasthan, Jammu & Kashmir, and Himachal Pradesh, had recorded notably higher figures in this regard. Thus, the anomalous situation of Punjab in this connection among the states north of Narmada river poses a few important research questions: (i) what were the main reasons for rapid fall in growth rate of rural population in the state?; (ii) what was the performance of different religious and caste groups in this regard? ; and (iii) what are the socio-economic implications

of this phenomena. The paper is designed to mainly address these questions.

General Trend of Population Growth (1901-2001)

The first decade of the 20th century commenced with considerable decline in rural population attributable primarily to widespread incidence of bubonic plague in the state during this period. However, with gradual elimination of major epidemics from the area, the growth rate of rural population continued to accelerate till 1971 (Table 2). The only exception in this regard was the decade 1941-51 which registered 9.71 per cent decline in the number of ruralites. It was the outcome of huge loss of life as well as massive uprooting and transfer of population between India and Pakistan in 1947. The rise in growth rate of rural population during 1951-61 and 1961-1971 was connected with notable improvement in general hygiene and health-care system, virtual elimination of malaria, and the consequent greater decline of mortality in the area. However, the population growth rate has experienced perceptible decline since 1971 (Table 2) which springs mainly from the following three factors: (i) rapid decrease in the size of family following widespread adoption of two child norm; (ii) acceleration in rural-urban migration; and (iii) gradual, but unmistakable, acceleration in out-migration of rural people, particularly the Sikhs, to foreign countries. Rapid fall in growth rate of rural population in the state during 1991-2001 reveals further intensification of the impact of the above three factors.

The decade 1991-2001 stands distinguished in having recorded the lowest growth rate of rural population, i.e., 12.65 per cent since 1951 (Table 2). If the period 1941-51 is taken as an exception and an unusual one, which it actually was, due to heavy displacement of rural population in the state, then the growth rate during 1991-2001 would be the lowest since 1931. It was the combined result of rapid fall in natural growth rate as well as out-migration to urban areas, to other states, and to other countries. Though both

Table - 1 India : Growth Rate of Total, Rural and Urban Population (1991-2001)

State/UT	Per cent		
	Total	Rural	Urban
India*	21.54	18.10	31.48
Andhra Pradesh	14.59	13.95	16.33
Assam	18.92	16.51	38.24
Bihar	27.29	26.99	29.27
Goa	15.21	-1.88	39.78
Gujarat	22.66	17.28	32.88
Haryana	28.43	21.12	50.82
Himachal Pradesh	17.54	16.11	32.59
Jammu & Kashmir	31.42	29.73	36.82
Karnataka	17.51	12.29	29.15
Kerala	9.43	10.07	7.64
Madhya Pradesh@	22.67	18.70	31.38
Maharashtra	22.73	15.25	34.57
Manipur	17.94	19.48	13.91
Meghalaya	30.65	29.07	37.59
Mizoram	28.82	20.38	38.70
Nagaland	64.53	64.51	64.62
Orissa	16.25	14.08	30.28
Punjab	**20.10**	**12.65**	**37.58**
Rajasthan	28.41	27.56	31.26
Sikkim	33.06	30.19	61.78
Tamil Nadu	11.72	-5.06	44.06
Tripura	16.63	13.61	29.41
Uttar Pradesh@	25.57	23.73	33.01
West Bengal	17.77	16.97	19.88
Union Territories			
Andaman & Nicobar Islands	26.90	16.65	55.02
Chandigarh	40.28	29.24	40.41
Dadra & Nagar Haveli	59.22	34.14	330.39
Daman & Diu	55.73	86.62	20.62
Delhi	47.02	-0.45	52.34
Lakshadweep	17.30	49.09	-7.37
Pondicherry	20.62	12.01	25.46

*The 1991 population figures for India include projected figures for Jammu & Kashmir.
@ For calculating growth rate, the 2001 population figures of Jharkhand, Chhattishgarh and Uttaranchal have been merged with Bihar, Madhya Pradesh and Uttar Pradesh respectively.
Source: Computed from (i) Census of India 1991: State Profile 1991, India,(ii)Census of India 2001: The First Report on Religion Data.

Table - 2 Punjab : Growth Rate of Total, Rural and Urban Population (1901-2001)

Decade	Per cent					
	Total		Rural		Urban	
1901-11	-10.78		-10.46		-13.00	
1911-21	6.26		6.17		6.92	
1921-31	12.02		8.92		34.37	
1931-41	19.82		16.06		41.85	
1941-51	-4.58		-9.71		20.02	
1951-61	21.56		19.47		29.06	
1961-71	21.70		20.63		25.27	
1971-81	23.89		17.48		44.51	
1981-91	20.81		17.69		28.95	
1991-2001	20.10		12.65		37.86	

Source : (i) Census of India 1991, Punjab, General Population Tables and Primary Census Abstract, Part II-A and Part II-B. (ii) Census of India 2001, Data CD.

Table - 3 Punjab: Birth Rate, Death Rate and Infant Mortality Rate of Rural Population (1980-2001)

Year	Per thousand				Natural Growth Rate	
	Birth Rate		Death Rate			
	Rural	Urban	Rural	Urban	Rural	Urban
1980	30.3	28.3	9.2	6.6	21.1	21.7
1990	28.4	25.6	8.5	5.8	19.9	19.8
2001	22.1	18.7	7.2	6.4	14.9	12.3

Source: Government of Punjab (2004): Statistical Abstract of Punjab 2004, P. 497.

Table - 4 Punjab : District-wise Growth of Rural and Urban Population (1991-2001)

State/District	Rural (%)	Urban (%)	Urban-Rural differential (Percentage points)
Punjab	12.64	37.58	24.93
Gurdaspur	14.41	38.45	24.04
Amritsar	13.39	43.21	29.82
Kapurthala	5.82	47.97	42.15
Jalandhar	5.22	39.03	33.81
Hoshiarpur	10.41	31.48	21.07
Nawanshahr	7.11	38.70	31.59
Rupnagar	12.95	55.97	43.02
Fatehgarh Sahib	9.29	49.78	40.49
Ludhiana	12.91	36.24	23.33
Moga	15.24	14.22	-1.02
Firozpur	19.49	23.55	4.06
Muktsar	15.48	29.68	14.20
Faridkot	17.12	29.13	12.01
Bathinda	15.56	32.18	16.62
Mansa	11.65	66.89	55.24
Sangrur	11.67	39.91	28.24
Patiala	12.97	38.32	25.35

Source: Census of India 2001, Data CD.

Table - 5 Punjab: Growth of Rural Population of Religious Communities by Regions (1991-2001)

State/Region	Per cent							
	Total	Sikhs	Hindus	Muslims	Christians	Buddhists	Jains	Others
Punjab	12.65	9.44	20.74	48.79	18.06	68.89	51.54	-29.28
Majha	13.92	12.59	17.23	86.29	14.48	458.45	1168.29	78.86
Bist Doab	7.40	-2.81	17.94	74.78	36.06	65.42	-29.68	-29.20
Malwa	14.10	11.34	24.79	41.58	26.72	3.08	30.43	-38.10

Source: Computed from (i) Census of India 1991, Punjab, Religion (Table C-9), Part IV B (ii).Census of India 2001. Religion Data CD.

birth rate and death rate had come down during the decade, it was mainly the downslide of the former which accounts for low growth rate of population (Table 3). For instance, birth rate had registered a decline of 6.3 and 6.9 percentage points in rural and urban areas respectively during the period, while the corresponding figures for death rate were -1.3 and +0.6 percentage points. Significantly, the fall in birth rate in the countryside during 1991-2001 was more than 3 times than that during the previous decade as against 2.5 times in urban areas. All the districts, except Moga, had registered lower growth rate in rural areas than in urban (Table 4). The lowest urban-rural differential in growth rate was found in Mansa district (55.24 percentage points) followed by Rupnagar, Kapurthala, Fatehgarh Sahib and Jalandhar having values of 43.02, 42.15, 40.49 and 33.81 percentage points respectively. The lowest gap in this regard was recorded in Firozpur district (4.06 percentage points).

Population Growth by Religious and Caste Groups

Among the three major regions of the state, the Bist Doab, known for its long tradition of out-migration (Gosal, 1976, p. 185) to other parts of the country as well as to foreign lands, recorded the lowest growth rate (7.40 per cent) in its rural population during 1991-2001 (Table 5). In contrast, the Majha and the Malwa tracts recorded notably higher growth rates, i.e., 13.92 per cent and 14.10 per cent respectively.

Among the various religious communities, the Sikhs had registered the lowest growth rate (9.44 per cent). It was partly due to lower birth rate among the Sikhs, and partly due to their considerable out-migration to foreign countries, and to urban centres in Punjab and also to other states of the country. The highest growth rate of this community was recorded in the Malwa region (11.34 per cent) followed by Majha (12.59 per cent) and Bist Doab (-2.81 per cent). On the other hand, the growth rate of rural population of the Hindus was more than three times that

of the Sikhs, i.e., 20.74 per cent; it was highest in the Malwa region (24.79 per cent), and lowest in the Majha tract (17.23 per cent), and in the Bist Doab it was marginally higher (17.94 per cent). While there was not much of difference between natural growth rates of the two communities in rural areas, the differential in actual growth rate of the two was primarily connected with notable in-migration of the Hindu population from other parts of the country as well as lower pace of their out-migration from Punjab. Much higher growth rates of the Buddhists (68.89 per cent), the Jains (51.54 per cent), and the Muslims (48.79 per cent) during 1991-2001 were mainly attributable to their in-migration from other states, particularly from the Hindi mega-zone of the country.

The growth rate of the total Sikh population in India has experienced a sharp fall during 1991-2001 (16.9 per cent) as against 25.5 per cent in the previous decade, i.e., 1981-1991 (Registrar General and Census Commissioner, India, 2004, p. xxxviii). The decrease in the growth rate of Sikh population during this decade has been variously explained. The former chairman of the National Minorities Commission along with some other Sikh leaders from Delhi attributed it to under-numeration of the community at the 2001 Census. However, any tangible facts to substantiate this view are not available. On the other hand, it is also held (Premi, 2001, 4300) that widespread incidence of female foeticide among the Sikhs is responsible for rapid decline in their growth rate. Though it might have also made some contribution in this regard, female foeticide could not be accepted as the only factor that has brought about the sudden decrease in the growth rate of the Sikh population.

Now the question arises as to what could be the other factors which have contributed to the quick fall in the growth rate of this community during 1991-2001.Five possible factors which deserve attention in this context can be suggested. One, the entry of the Sikh community into the 'second demographic transition' wherein fall in the

family-size is also closely accompanied by quick rise in age at marriage (Redei, 2006, p. 75). Two, the relatively rapid fall in the Sikhs' growth rate is attributable to their somewhat 'inflated' growth rate during 1981-1991. It is a well-known fact that two-child norm has been quite a common feature among a large majority of the Sikhs, both urban and rural, since late 1970s or early 1980s. The 1981 Census data on fertility rate of the Sikhs and other religious communities in Punjab amply support that the Sikhs had the lowest fertility rate among all these groups in Punjab (Table 6). In this context, it is difficult to accept that the Sikhs had recorded higher growth as compared to the Hindus in Punjab or India during 1981-1991. Three, rapid acceleration in emigration of the Sikhs, particularly to North America, Europe, Australia, and New Zealand since mid/late 1980s. Though, precise numbers in this regard are not available, these are likely to be in several hundred thousands. Even in a small country like Lebanon, which is not a favoured destination for potential emigration from Punjab, there are more than 30,000 Punjabi migrants (The Tribune, 2006, July 25) a majority of whom are bound to be Sikhs, particularly from rural Punjab. Four, as most of the emigrants happen to be young adults, emigration has also contributed toward decline in birth rate in the state. Five, during the eventful decade of 1984-1994, Punjab had witnessed considerable loss of human life due to violence - physical, economic, and psychic - from different sides. As is usually the case, particularly in the developing countries marked by ethnic violence, the figures from the official sources regarding loss of life/property are much below the actual loss, while those furnished by the 'opposite' side happen to be on the higher side. But, one thing is beyond any shade of doubt that the violence during the decade had claimed thousands of lives, largely of the Sikhs, most of whom were from marriageable age. This has also made its own contribution towards a fall in the growth rate of the Sikhs.

Hindus constituted 23.56 per cent of Punjab's rural population in 2001. Their main concentration was in the districts of Gurdaspur, Hoshiarpur, Jalandhar, Ludhiana and Ropar. Significantly, at the time of partition of the country in 1947, the non-farm activities were primarily in the hands of Hindus. During the past 4-5 decades, particularly sinc the coming of the green revolution, most of these non-farm families have migrated to nearby or other big urban centres. Similarly, the period from mid–1980s to mid–1990s had also witnessed out-migration of quite a number of Hindu households to the nearby bigger urban centres, or to the adjoining states. Many of such households have returned to their original homes since around mid–1990s. Interestingly, the share of Hindu population is now again on the rise consequent upon their accelerating in-migration from other states, particularly from U.P., Bihar, Uttaranchal, and Madhya Pradesh, etc.

The growth rate of the total Hindu population in the state during 1991-2001 was 28.74 per cent which raised its proportion from 34.46 per cent to 36.94 per cent in the state's population during the decade. Thus, the proportion of the Hindus is only marginally lower than it was 30 years ago (37.54 per cent in 1971). In other words, in spite of very significant rate of in-migration of Hindus, mainly from the *BIMARU* states, the per cent share of this community in Punjab has remained more or less the same as in 1971. This implies that either there has been significant out-migration of the Hindus, more than that of the Sikhs, from Punjab during the last three decades or there is some major discrepancy in the data pertaining to this community. Had an out-flow of this scale of the Hindus from Punjab taken place, this phenomenon would not have gone unnoticed by the social scientists and political elite of the state/country. In this context, this issue deserves an independent investigation so that its various aspects could be duly analyzed.

The rural scheduled castes recorded a notably higher growth rate of 16.57 per cent than the non-scheduled castes (10.82 per cent) as well as the total rural population (12.65 per cent) during 1991-2001 (Table 7). A similar trend can be observed for the growth of total

Table - 6 Punjab: Fertility Indices for Rural Population of Hindus and Sikhs (1981)

Age group	Age specific fertility rate*	
	Hindus	Sikhs
15-19	0.024	0.018
20-24	0.185	0.163
25-29	0.242	0.217
30-34	0.175	0.154
35-39	0.103	0.084
40-44	0.044	0.042
45-49	0.022	0.018

*Age specific fertility rate: The average number of children born alive during the last year per woman of a particular age group.
Source: Census of India 1981, Punjab, Report and Tables based on 5 per cent Sample Data, Part II -Special, p. 37.

Table - 7 Punjab: Growth Rate of Population of Caste Groups by Sub-Regions (1991-2001)

State/Region		Per cent		
		General Population	Scheduled castes	Non- Scheduled castes
Punjab	T	20.10	22.40	19.19
	R	12.65	16.57	10.82
	U	37.86	44.94	36.13
Majha	T	22.03	24.36	21.18
	R	13.92	17.65	12.37
	U	41.79	48.33	40.15
Bist Duab	T	15.91	16.58	15.55
	R	7.40	11.14	5.06
	U	38.84	37.04	39.53
Malwa	T	20.86	24.41	19.60
	R	14.10	18.68	12.09
	U	36.22	47.51	33.89

Source: Computed from (i) Census of India 1991, Punjab, Religion (Table C-9), Part IV B. (ii)Census of India 2001, Religion Date CD.

Table - 8 Punjab: Migrants According to Place of Last Residence (2001)

Last Residence	Total		Rural		Urban	
	Persons (%)	Sex Ratio	Persons (%)	Sex Ratio	Persons (%)	Sex Ratio
Total Population	24,358,999	876	16,096,488	890	8,262,511	849
Total Migrants (% of population)	9,189,438 (37.73)	2093	5,538,391 (34.41)	3365	3,651,047 (44.19)	1145
Elsewhere in India	8,871,043 (96.54)	2182	5,384,923 (97.23)	3576	3,486,120 (95.48)	1164
Within the state of enumeration	7,121,921 (77.50)	2634	4,723,802 (85.29)	4009	2,398,119 (65.68)	1359
Elsewhere in the district of enumeration	4,667,609 (50.79)	2393	3,285,319 (59.32)	3543	1,382,290 (37.86)	1118
In other districts of the state	2,454,312 (26.71)	3263	1,438,483 (25.97)	5544	1,015,829 (27.82)	1790
In other states beyond the state of enumeration	1,749,122 (19.03)	1112	661,621 (11.94)	1828	1,088,001 (29.80)	832
From other countries						

Source: Census of India 2001, Data CD.

Table - 9 Punjab: Migration Streams*(2001)

Migration stream	Proportion of Migrants(%)	Sex ratio
Rural-Rural	57.24	5467
Rural-Urban	20.28	1131
Urban-Rural	4.45	2812
Urban-Urban	18.03	1459

*Excludes those from foreign countries, as well as unclassifiable migrants.
Source: Census of India 2001. Migration Data CD.

Table - 10 Punjab: Proportion of Migrants by Duration of Residence (2001)

Duration (Years)	All migrants(%)		Inter-state migrants(%)	
	Rural	Urban	Rural	Urban
0-9	26.08	30.30	45.41	46.95
10-19	20.64	20.47	19.88	23.52
20+	35.69	23.88	24.71	18.35
Duration unknown	17.59	25.35	10.00	11.18
Total	100.00	100.00	100.00	100.00

Source: Census of India 2001. Migration Data CD.

as well as urban scheduled castes population as compared to the growth rates for general and non-scheduled castes population in the state (Table 7). It was mainly attributable to significant differentials in migration patterns of the two groups of population, i.e., more in-migration of the former, and more out-migration of the latter. In other words, the decade witnessed continuation of the earlier growth trend in this regard. Consequently, the proportion of rural scheduled castes in the state has reached 33.04 per cent as against 31.93 per cent in 1991. The corresponding increase in their proportion in urban population has been from 19.69 per cent to 20.70 per cent during the decade. Relatively higher growth rate of scheduled caste population is attributable partly to their greater in-migration from other states of the country, and partly to their lesser out-migration from the Punjab countryside.

The rural scheduled castes population had also recorded higher growth rates than the non-scheduled castes in all the three main regions of Punjab. However, the growth rate was the highest in Malwa region (18.68 per cent) followed by Majha (17.65 per cent), and Bist Doab (11.14 per cent). The corresponding figures for the non-scheduled castes were 12.09 per cent, 12.37 per cent and 5.06 per cent respectively (Table 7).

Migration Patterns (1991-2001)

As per the 2001 Census, migrants constituted 34.41 per cent of rural population and 37.73 per cent and 44.19 per cent of the total and urban populations respectively (Table 8). The migrants according to the place of last residence, elsewhere in India, accounted for 97.23 per cent of total migrants, and the remaining 2.77 per cent had come from other countries, particularly Pakistan, in 1947 at the time of the partition of the British ruled India (Table 8). The migrants who came from other states of the country comprised 11.94 per cent of rural migrants. The comparable value for urban areas was 29.80 per cent (Table 8).

As expected females had a strong preponderance among the migrants attributable primarily to movement of females to their grooms' village subsequent to marriage under the patrilocal system of residence prevalent in the study area, as also in most other parts of the country. Accordingly, sex ratio of rural migrants (3365) was substantially higher than that of rural population (890) of the state (Table 8). The highest figure in this regard was found in case of inter-district migrants (5544), and the lowest among those who had come from other states (1828). Even relatively high sex ratio of inter-state migrants was connected with marriage migration from the adjoining states, particularly Haryana and Rajasthan. On the other hand, low sex ratio of urban migrants, especially among those from other states (832), was quite below the sex ratio of Punjab's urban population (849) indicating notable increase of male-selective in-migration.

A little more than 57 per cent of the total migrants in the state had moved from rural to rural destinations, while 4.45 per cent came through the urban-rural stream (Table 9). The remaining 38.31 per cent were involved in urban-ward migration. Expectedly, sex ratio was the highest in rural-rural stream as it continues under numerical dominance of marriage migration. The lowest sex ratio in the rural-urban flow indicates a notably lesser contribution of marriage migration.

About 26 per cent of the rural migrants had moved during the previous decade while, 35.69 per cent had come more than 20 years ago (Table 10). On the other hand, in case of the inter-state rural migrants, the share of migrants entering during the previous decade was as high as 45.41 per cent, reflecting a growing tempo of in-migration to the Punjab countryside from other states of the country. The same trend could be seen regarding the inter-state urban in-migrants. The proportion of females among migrants bears a strong positive correlation with duration of residence. It indicates that despite considerable rise in family migration during the past 20-25 years, migration still continues, except that

Table - 11 Punjab : Proportion of Migrants by Reason of Migration in Rural Punjab (2001)

Last Residence	Work/ Employ- ment (%)	Business (%)	Education (%)	Marriage (%)	Moved after birth (%)	Moved with household (%)	Other reasons (%)
Total	4.32	0.24	0.17	61.04	4.78	7.68	21.77
Elsewhere in India	4.30	0.23	0.17	62.47	4.91	7.03	20.92
Within the state of enumeration	1.97	0.22	0.16	65.04	5.13	5.61	21.88
Elsewhere in the district of enumeration	1.59	0.21	0.13	62.26	4.51	5.31	25.99
Other districts of the state	2.85	0.24	0.21	71.37	6.53	6.32	12.48
Other states	20.92	0.37	0.26	43.86	3.35	17.15	14.09
Other countries	5.03	0.38	0.17	11.94	0.38	30.42	51.68

*Excludes those from foreign countries, as well as unclassifiable migrants.
Source: Census of India 2001, Migration Data CD.

Table - 12 Punjab : Proportion of Rural Migrants and Sex Ratio by Districts (2001)

District	Migrants' share in Rural population (%)	Inter-state migrants' share in Rural migrants (%)	Sex Ratio	
			Total rural migrants	Inter-state migrants
Punjab	**34.41**	**11.94**	**3365**	**1828**
Gurdaspur	32.60	10.31	3050	2480
Amritsar	29.56	3.61	3973	1385
Kapurthala	35.66	7.66	2853	857
Jalandhar	36.99	7.91	2692	869
Hoshiarpur	34.74	14.19	3957	1478
Nawanshahr	35.14	9.65	3927	826
Rupnagar	36.90	25.27	2981	1498
Fatehgarh Sahib	36.44	11.36	3280	961
Ludhiana	40.98	10.66	2234	673
Moga	34.06	3.78	3867	1346
Firozpur	31.83	15.07	3145	3219
Muktsar	34.21	13.29	3943	3045
Faridkot	33.39	6.30	4584	1547
Bathinda	27.51	17.44	4277	3026
Mansa	33.34	17.43	4811	4301
Sangrur	35.38	6.07	4059	2257
Patiala	33.91	25.38	3370	3151

Source: Census of India 2001, Migration Data CD

connected with marriage, to be male
dominated. However, it is notable that the
time gap between male and female migration
in this context has got considerably narrowed
down as compared to that during the 1960s
and earlier.

Reasons for Migration

Table 11 reveals that a little less than
three-fourths of migration in rural Punjab
occurred due to the combined role of marriage
(61.04 per cent), 'moved with household' (7.68
per cent), and 'moved after birth' (4.78 per
cent). The highest combined share of these
three reasons was found in the case of inter-
district migrants (84.22 per cent). Whereas
the proportion of marriage migration
decreased with distance, that of 'moved with
family' experienced increase. Significantly,
work/employment accounted for only 4.32
per cent of the total migrants, and the per cent
share of these migrants increased with
distance, being the highest (20.92 per cent) in
case of those who came from other states
(Table 11). The contribution of business as a
reason for migration was negligible (0.24 per
cent) which points towards a very low
development of business potential of the
countryside of the state. Similarly, there was
very low mobility due to 'education' in the
state which highlights the fact that Punjab's
rural areas have a long distance to go
regarding the development of institutions of
higher learning.

With the state average of 34.41 per
cent in 2001, the proportion of rural migrants
was highest in Ludhiana district (40.98 per
cent), followed by Jalandhar (36.99 per cent),
Rupnagar (36.90 per cent), Fatehgarh Sahib
(36.44 per cent), and Kapurthala (35.66 per
cent). On the other hand, Bathinda district
(27.51 per cent) recorded the lowest
proportion in this connection(Table 12).
Significantly, the proportion of rural migrants
and sex ratio of inter-state migrants were
marked by a moderate positive correlation.

A perusal of Table 12 points out that
all the districts bordering the adjoining states
had recorded a relatively high share of inter-
state migrants. The highest figure in this
regard   was found in Patiala district (25.38
per cent) followed by Rupnagar (25.27 per
cent), Bathinda (17.44 per cent), Mansa (17.43
per cent), Firozpur (15.07 per cent), and
Hoshiarpur (14.19 per cent). The districts of
Amritsar and Moga stand apart in this context
having recorded merely 3.61 and 3.78 per
cent share of inter-state migrants in 2001.
Relatively high proportion of migrants from
other states was primarily due to the role of
marriage migration which is also reflected in
a higher sex ratio in all these districts (Table
12). On the other hand, all the districts with
low sex ratio (below 1000) have been the
favoured destinations of inter-state migrants
arriving for employment/work. The districts
of Ludhiana, Kapurthala, Jalandhar, and
Fatehgarh Sahib emerge prominently in this
connection.

Summary

In tune with rapid changes in its socio-
economic contours, the Punjab countryside
has witnessed important changes in its
demographic complexion during 1991-2001.
The absorption of farm technology at a fast
pace, adoption of small family norm, usually,
two-child, by the population at large,
continuing rise in literacy and education,
and fast growing exposure to and spread of
modernising influences in the area have
together put the Punjab countryside on the
wheels of rapid change. Whether one calls it
development or not, Punjab's rural areas have
taken a new turn in terms of pace of socio-
economic change, particularly since the
beginning of the 1990s.

All these changes are also well
reflected in its demographic dynamics. The
growth rate of rural population has came
down sharply, due partly to a fall in natural
increase, and partly due to out-migration and
emigration. Apart from economic reasons,
some sort of innate propensity of the Punjabis'
to move out for better vistas elsewhere (Nair,
1961, p. 104) has also contributed towards a
stepped-up out-migration from the state. It
bears emphasis that in the Indian context,

Punjabis in general and the Sikhs in particular have shown distinctly higher tendency to move to areas of development rather than waiting for development to come to them (Redei, 2006, p. 104). Simultaneously, there is also a growing stream of in-migration from other states of the country. Consequently, the religious as well as caste composition have experienced significant changes during the study period. Its two main outcomes are (i) a decline in the proportion of the Sikh vis-a-vis the Hindu population and, (ii) a fall in the share of non-scheduled castes in comparison to the scheduled castes. If continued as at present, which is very likely under the obtaining circumstances, these important demographic changes are bound to have far-reaching socio-economic implications for Punjab in the long run. Simultaneous with the decline in growth rate of the Sikhs in Punjab, there has occurred an acceleration in the in-migration of labourers and other workers, along with dependents in many of the cases, from outside Punjab. These opposing trends in the growth rates of the Sikhs and the non-Sikhs portend to effect a radical change in the religious composition of the state. Such a change in demographic composition would have significant political and linguistic implications for Punjab.

Since the migrants from other states of the country are mostly getting concentrated around major urban centres as well as in the districts traversed by main highways/roads, the religious and caste composition of these parts of rural Punjab has undergone notable change during the decade.

There have been huge purchases of land by non-agriculturist rich people - industrialists, bureaucrats, business people, and land speculators - all along the highways and other main roads, and also around the main urban centres during this period. It is a much intensified form of the process which had emerged in the early 1970s immediately after the beginning of the green revolution in the second half of 1960s (Gill, 1987, p. 70). The sellers were invariably small and medium peasants. Quite a large number of people sell their land at relatively higher prices in order to purchase larger chunks of land at cheaper rates in places away from the roads/highways and urban centres. In some cases, however, such purchases are also made under one pressure or the other. Whatever the reasons for the rapid sale of agricultural land in the past 10-15 years, it has added notably towards increasingly greater spatial marginalisation of Punjab's small and medium peasantry during the last about 3-4 decades. This process seems to have acquired an unusually high pace since early 1990s which is bound to have serious socio-economic implications in the long run.

Thus, rural Punjab has been experiencing significant out-migration of more literate and more educated persons. Simultaneously, it has been having an increasing in-flow of people, mostly from the **BIMARU** states, who are much lower on the scale of literacy and education. The above pattern of mobility of population resources into and out of the area is bound to bring down the overall quality life and Human Development Index (HDI) in the state, notwithstanding huge inflow of remittances by Punjabis living abroad.

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Acknowledgement

FACTORS INFLUENCING POPULATION GROWTH IN INDIA- AN INTER-STATE ANALYSIS

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Abstract

In this paper an effort has been made to examine the trends in population growth in major states of India and also to analyse the association of various education and health indicators with total fertility rates. The study finds that all the states do not show a similar type of population growth. There are states like Kerala and Tamil Nadu, which have achieved a very low rate of population growth, while in other states like Bihar, Uttar Pradesh, Rajasthan and Madhya Pradesh, the population growth rate as well as total fertility rates (TFRs) are still very high. In majority of the states population growth rate is falling, which is a positive signal for future population growth. It is found that there is a visible and appreciable association between total fertility rate and educational achievement, particularly of women, infant mortality rates, female expectancy of life and other socio-economic factors, which help in empowerment of women. Kerala could be said to have emerged as a model for achieving a low rate of population growth.

Introduction

Population growth has an important bearing on the social and economic development of a country. Population growth and poverty are the two major problems being faced by India. Many studies have been made regarding the interrelationship between socio-economic development and demographic trends. These studies are based on country level data. The group of scholars led by Kelley (1988)- called the revisionist school- is of the view that the consequences of population growth on development are probably negative, but that the net adverse effect is probably limited. Other scholars led by Ehrlich and Ehrlich (1991), mention that population pressures could have catastrophic consequences for life on earth. There are others like Simon (1981), who believe that in the very long run, population growth has a favourable effect on economic growth, even though its short-run effects may be negative.

According to Dreze and Sen (1988), "how alarming 'the population crisis' actually is in countries such as China and India is a debatable question. It is sometime thought that restraining population growth is an essential means of raising the rate of growth of per-capita GNP or preventing its decline. In fact, however, for countries such as India and China, population policies- important as they may in general be- are likely to make relatively little difference to the rate of per-capita economic growth".

In a country like India controlling population growth is a mammoth task. Although government has made efforts to control population through its family planning programmes, yet the population has crossed the one billion mark. In the next few decades, the country's population will be more than that of China. On the one hand there are states like Kerala and Tamil Nadu which have performed well and have brought the Total

Fertility Rate 'below the replacement level' but, on the other hand, states like Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan are the worst performing states, and are adding to the population at a very high rate.

In this paper an effort has been made to examine the trends in population growth in major states of India and also to analyse the association of various education and health indicators with total fertility rates. The paper also tries to work out the probable factors responsible for variations in population growth rates in different states of the country. The paper has been divided into five sections. Section I analyses the trends in population growth in major states of the country. Section II examines relation of fertility rate with indicators of health. Section III deals with association of population with education indicators. Section IV focuses on the effect of urbanisation and work participation rate on population growth. Section V sums up the main findings of the study.

Section I

Trends in Population Growth

In this section an effort has been made to analyse the trend in population growth in the major states of the country. Table 1 shows that population has more than doubled in the last 50 years in all the major states of the country. In case of Tripura very high increase was registered, where 4.98 persons were alive in 2001 for each person alive in 1951. In case of other states like Haryana (3.72), Rajasthan (3.54), Assam (3.24), Madhya Pradesh (3.12), Gujarat (3.11), Jammu & Kashmir (3.10) and West Bengal population has increased by more than 3 times as compared to that in 1951. In comparison, a relatively small increase was registered in Tamil Nadu (2.06), Kerala (2.35), Andhra Pradesh (2.43) and Himachal Pradesh (2.43). In case of Punjab the corresponding figure was 2.65.

Further, Kerala is the only state where annual population growth rate has fallen below one percent for the decade 1991-2001 (even lower than that of China). Annual population growth rate is less than 1.5 percent for Andhra Pradesh and Tamil Nadu only. Bihar, Haryana, Jammu & Kashmir, Rajasthan and Uttar Pradesh are the states where annual population growth is more than 2.5 percent for the 1991-2001 decade. Kerala as well as Tamil Nadu have achieved lower birth rates and lower Total Fertility Rates because of relatively high literacy rates- particularly among the females, and relatively high status of females in the society.

Another important feature of population growth is that states like Bihar, Gujarat, Haryana and Uttar Pradesh have shown higher decadal growth rate in 1991-2001 as compared to the one in 1981-91. The decadal growth rate has remained almost the same for Rajasthan, Jammu & Kashmir and Punjab. It is notable that population growth rate in case of Bihar, Gujarat, Haryana, Jammu & Kashmir, Madhya Pradesh, Rajasthan and Uttar Pradesh was more than the national average.

Section II

Population Growth and Health Care

The age structure of a country's population, coupled with age specific cause of death patterns is a major determinant of its mortality profile (Sanderson & Tan, 1995). Overall demographic trends in the country point to lower crude death rates. However, much remains to be done for improving life expectancy, reducing infant and child mortality, and lowering total fertility rates. A comparison of crude birth rates and death rates indicates a wide gap between the two in states like Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh (Table 2 and Figure A). This will result in a higher increase in population in future in these states. Among the fast population growing states, the gap between birth rate and death rate has fallen in case of Haryana. Also the natural growth rate is low in states like Orissa, Punjab, Maharashtra, Kerala, Assam, Gujarat and West Bengal. If efforts are made to improve the

Table –1 :
Population of Major States of India (1951-2001)

State	1951	1991	2001	Decadal Growth rate (%)		Ratio of 2001 Pop. to 1951 Pop.
				1981-1991	1991-2001	
Andhra Pradesh	31.12	65.50	75.73	24.20	13.86	2.43
Assam	8.23	22.41	26.64	24.24	18.85	3.24
Bihar	38.78	86.37	109.79	23.38	28.43	2.83
Gujarat	16.26	41.30	50.60	21.19	22.48	3.11
Haryana	5.67	16.46	21.08	27.41	28.06	3.72
H.P.	2.39	5.17	6.08	20.79	17.53	2.54
J & K	3.25	7.72	10.07	30.34	29.04	3.10
Karnataka	19.40	44.97	52.73	21.12	17.25	2.72
Kerala	13.55	29.09	31.84	14.32	9.42	2.35
M.P.	26.07	66.18	81.19	27.24	24.34	3.12
Orissa	14.65	31.65	36.71	20.06	15.94	2.51
Punjab	9.16	20.28	24.29	20.81	19.76	2.65
Rajasthan	15.97	44.00	56.47	28.44	28.33	3.54
TamilNadu	30.12	55.85	62.11	15.39	11.19	2.06
Tripura	0.64	2.75	3.19	34.30	15.74	4.98
U.P.	63.22	139.12	166.05	25.55	25.80	2.63
W.Bengal	26.30	68.07	80.22	24.73	17.84	3.05
India	361.09	846.30	1027.02	23.86	21.34	2.84

Source: Census of India (2001), Provisional Population Totals Paper 1, 2 & 3, GOI

Table - 2
Health and Fertility Indicators in Major States: 2001

| State	Life Exp. at Birth		IMR	CMR		TFR	Female to male Life Exp. Ratio	CBR	CDR
	Male	Female		1981	1998				
AndhraPradesh	62.79	65.00	65	30	20	2.5	103.52	21.3	8.2
Assam	58.96	60.87	75	40	32	3.2	103.24	26.9	9.6
Bihar	65.66	64.79	62	43	33	4.4	98.68	31.9	8.8
Gujarat	63.12	64.10	62	41	27	3.0	101.55	25.2	7.5
Haryana	64.64	69.30	67	37	33	3.4	107.21	26.9	7.5
Karnataka	62.43	66.44	57	24	21	2.5	106.42	22.0	7.8
Kerala	71.67	75.00	14	12	5	1.8	104.65	17.9	6.4
M.P.	59.19	58.01	87	61	37	4.0	98.01	31.4	10.3
Maharashtra	66.75	69.75	48	26	18	2.7	104.51	21.0	7.5
Orissa	60.05	59.71	96	42	29	3.0	99.43	24.3	10.5
Punjab	69.78	72.00	52	26	20	2.7	103.18	21.6	7.4
Rajasthan	62.17	62.80	79	50	40	4.2	101.01	31.4	8.5
Tamil Nadu	67.00	69.75	51	35	14	2.0	104.11	19.3	7.9
U.P.	63.54	64.09	83	60	38	4.8	100.87	32.8	10.3
W.Bengal	66.08	69.34	51	34	20	2.6	104.93	20.7	7.0
India	63.87	66.91	68	41	29	3.3	104.76	25.8	8.5

IMR- Infant Mortality Rate; CMR-Child Mortality Rate; TFR-Total Fertility Rate; CBR-Crude Birth Rate;
CDR- Crude Death Rate.
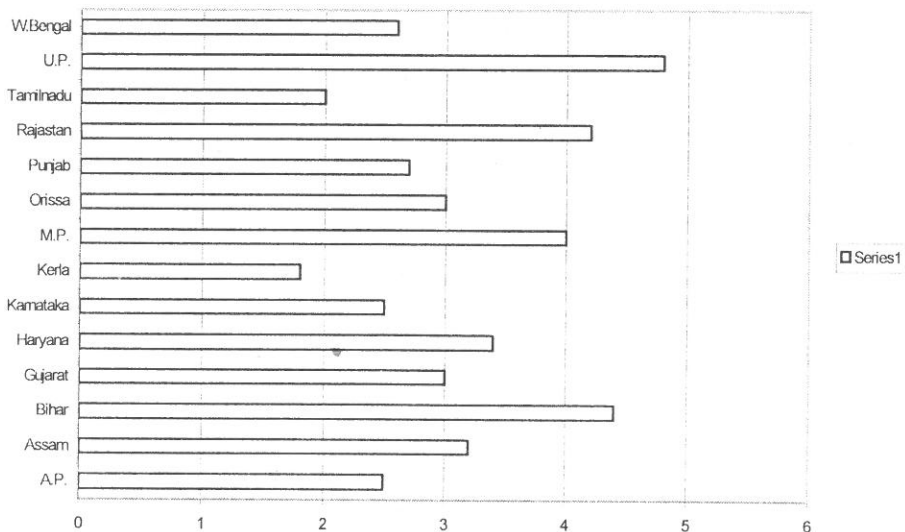*Source: 1. Census of India (2001), Provisional Population Totals Paper 1, 2 & 3, GOI*
*   2. GOI , Economic Survey 2002-03*
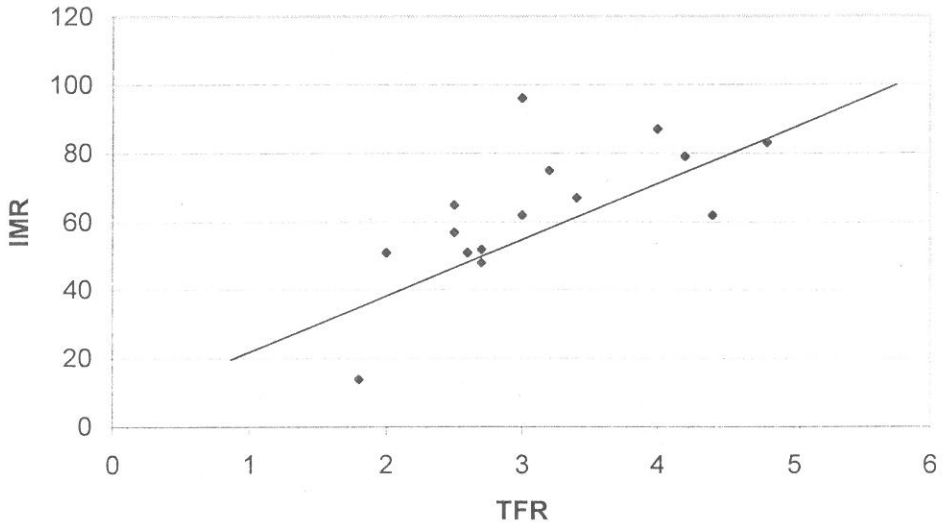*   3. C.S.O. Selected Socio-Economic Statistics of India.*

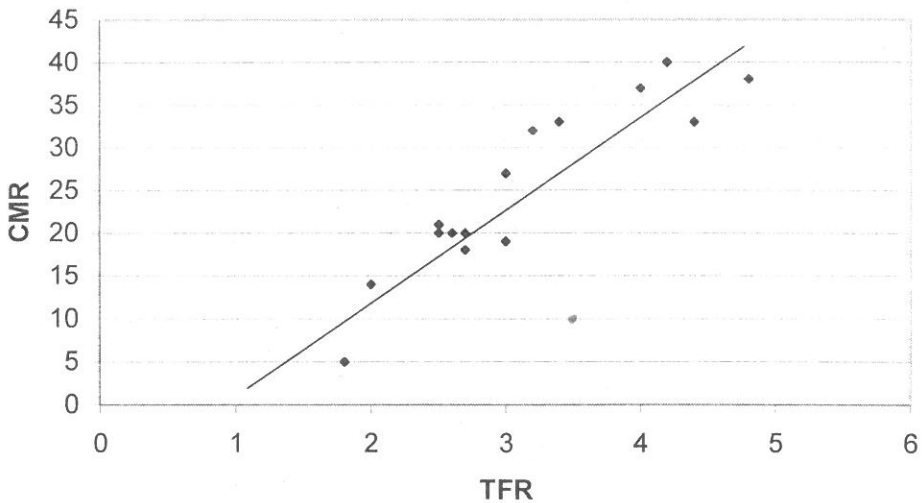# FIGURE A: Crude Birth Rates and Crude Death Rates of Different States
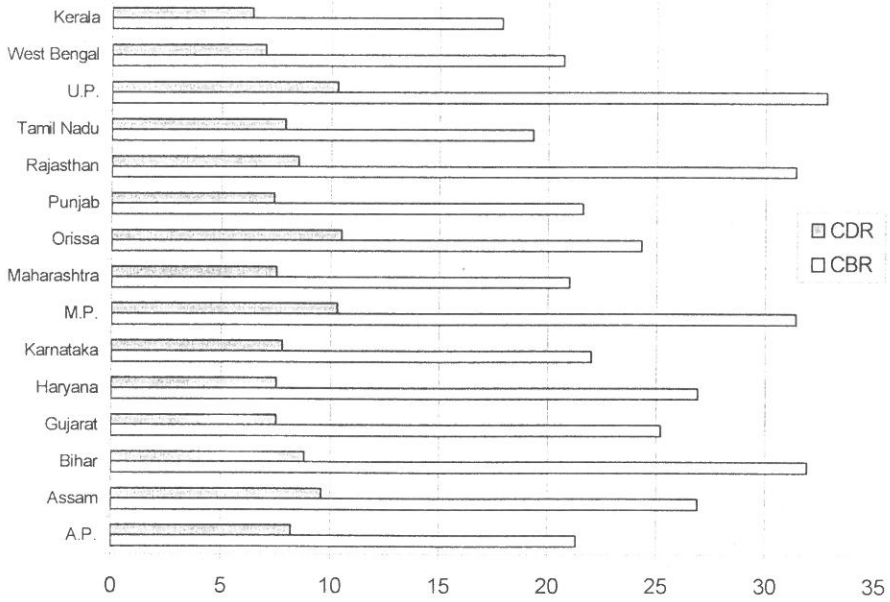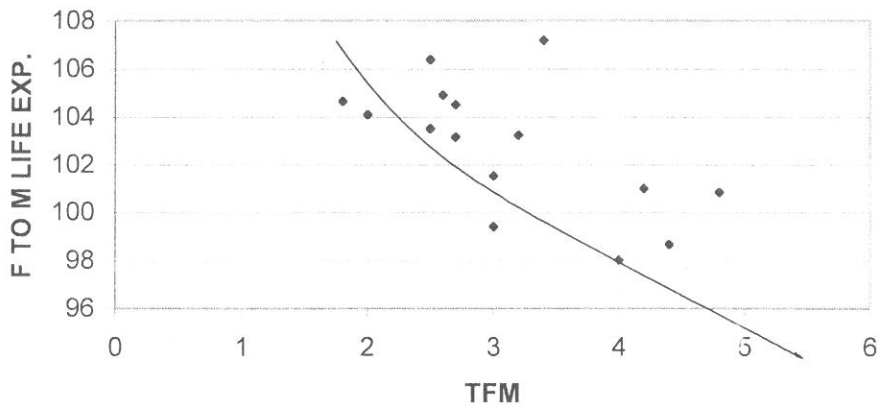

FIGURE B: Total Fertility Rates of Different States

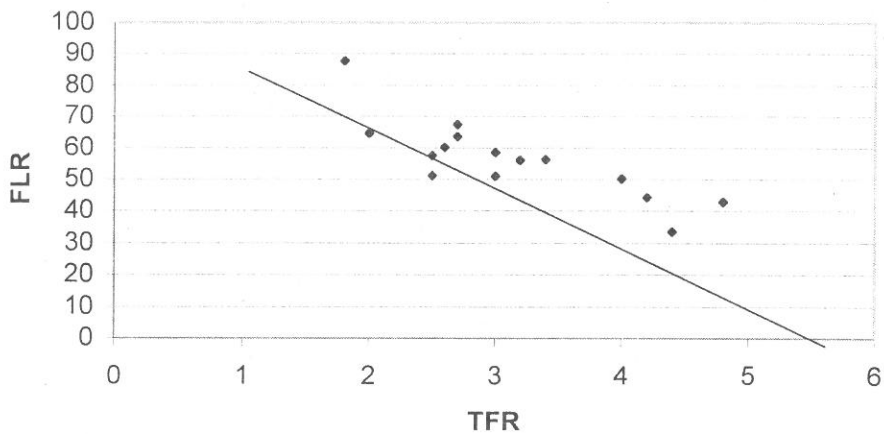FIGURE C: Relation between Infant Mortality Rate and Total Fertility Rate

FIGURE D: Relation between Child Mortality Rates and Total Fertility Rate

FIGURE E: Relation between Female – Male Life Exp. Ratio and Total Fertility Rate

FIGURE F: Relation between Female Literacy Rate and Total Fertility Rate

Table - 3
Total Fertility Rate and Literacy Rate in Major States (2001)

State	Literacy Rate			Total Fertility Rate
	Persons	Male	Female	(TFR)
Andhra Pradesh	61.11	70.85	51.17	2.5
Assam	64.28	71.93	56.03	3.2
Bihar	47.53	60.32	33.57	4.4
Gujarat	69.97	80.50	58.60	3.0
Haryana	68.59	79.25	56.31	3.4
Karnataka	67.04	76.29	57.45	2.5
Kerla	90.92	94.20	87.86	1.8
M.P.	64.11	76.80	50.28	4.0
Orissa	63.61	75.95	50.97	3.0
Punjab	69.95	75.63	63.55	2.7
Rajasthan	61.03	76.46	44.43	4.2
Tamil Nadu	73.42	82.33	64.55	2.0
U.P.	57.36	70.23	42.98	4.8
W.Bengal	69.22	77.58	60.22	2.6
H.P.	77.13	86.02	68.08	2.4
Maharashtra	77.27	86.27	67.51	2.7
India	65.38	75.25	54.16	3.3

Table – 4
Per Capita NSDP, Urban Population,
Work Participation Rate and Total Fertility Rates: 2001

State	Per capita NSDP	Log of Per capita NSDP	Percent Urban Population	Work Participation Rate			Total Fertility Rate
				Male	Female	Total	
Andhra Pradesh	16373	4.2141	27.08	56.4	34.9	45.8	2.5
Assam	10198	4.0085	12.72	49.9	20.8	35.9	3.2
Bihar	5108	3.7083	10.47	47.7	18.8	33.9	4.4
Gujarat	19228	4.2839	37.75	55.0	28.0	42.1	3.0
Haryana	23742	4.3755	29.00	50.5	27.3	39.8	3.4
Karnataka	18041	4.2563	33.98	56.9	31.9	44.6	2.5
Kerla	19463	4.2892	25.97	50.4	15.3	32.3	1.8
M.P.	10803	4.0335	26.67	51.6	33.1	42.7	4.0
Orissa	8547	3.9318	14.97	52.8	24.6	38.9	3.0
Punjab	25048	4.3988	33.95	54.1	18.7	37.6	2.7
Rajastan	11986	4.0787	23.38	50.1	33.5	42.1	4.2
Tamilnadu	19889	4.2986	43.86	58.1	31.3	44.8	2.0
U.P.	9721	3.9877	25.59	47.3	16.3	32.6	4.8
W.Bengal	16072	4.2061	28.03	54.2	18.1	36.8	2.6
H.P.	18920	4.2769	9.79	54.7	43.7	49.3	2.4
Maharashtra	23726	4.3752	42.40	53.5	32.6	43.5	2.7

Source: 1. Census of India (2001), Provisional Population Totals Paper 1, 2 & 3
2. GOI , Economic Survey 2002-03.

health facilities, educational standards and literacy rate, particularly of females, and status of women, this will help in controlling population growth in these states. This will enable the country in bringing the population growth to the replacement level.

With regard to total fertility rates (TFRs) in different states of the country for 2001, Kerala has the lowest fertility rate in the country followed by Tamil Nadu, below the replacement level in both the states. Other states like Andhra Pradesh, Karnataka, Maharashtra, Punjab and W.Bengal have lower TFRs. Gujarat, Orissa and Assam also have lower TFRs than the national average. Total fertility rate is as high as 4.8 in Uttar Pradesh, 4.4 in Bihar, 4.2 in Rajasthan and 4 in Madhya Pradesh (Table 2). As in the case of crude birth rate, it is likely that the variations in TFR are associated with levels of female education, age at marriage, use of family planning measures, and the age structure of women in the reproductive age group. The TFR has fallen over time in all the states, which points to a positive emerging scenario in the country. This gives an indication that with improvement in education and health facilities, particularly for females and in the rural areas, population can be brought under control.

There is a direct association between infant mortality rate and total fertility rates in different states in the country (Fig. C). This reflects the combined effect of factors relating to the supply of and demand for health care. On the supply side, the main factors are health interventions, including immunization services, which bring down mortality among the children, thereby reducing the number of births needed to achieve the desired number of living children. On the demand side, are couples who choose fewer births and are also more likely to invest in better health care for their children, resulting in lower mortality among children. Declining fertility trends thus imply increasing focus on the health services for young children. In order to reduce infant mortality rates, more efforts are required to be made on the individualised care for mothers and children. Similarly there is a close

association between child mortality and total fertility rates in different states (Figure D).

The ratio of female to male expectancy of life is an indicator of who leads a longer life. Where the ratio exceeds 100, females live for more years, on an average, than males and where the ratio is below 100, males live longer than females. It is clear from Table 2 that in all the major states except Bihar, Madhya Pradesh and Orissa, females live longer than males. Relation between total fertility rates and the ratio of female to male expected number of years lived turns out to be inverse (Figure E). This indicates that lower fertility rates are associated with high female-male ratio. It thus highlights the fact that lower fertility rates reduce the risks of maternal mortality.

Section III

Population Growth and Education

Literacy rate and total fertility rates for 2001 for different states are presented in Table 3. An important point that emerges from the table is that states with higher general as well as female literacy rates have low total fertility rates. This strengthens the argument that female literacy rate has a positive impact on reducing fertility rates. Figure F clearly shows that there is an inverse relation between female literacy rate and total fertility rates.

The role of literacy, particularly female literacy, in promoting basic capabilities is very important. Kerala is an exceptional case of extraordinary achievement in the social field. The promotion of literacy at an early stage in Kerala has led to important social achievements later on. In Kerala female literacy rate is highest and total fertility rate is the lowest in the country. In Bihar and Uttar Pradesh female literacy rates are very low (33.57 percent and 42.98 percent respectively) and these are the states with the highest total fertility rates in the country. Himachal Pradesh is another state where fertility rate is low and female literacy is high. The expansion of literacy itself owes a great deal to the freedom and empowerment of women. Almost two-third of primary school teachers in Kerala are women

which is more than that in any other state whereas in states like Bihar and Uttar Pradesh this percentage is very low. Thus, the basic education and economic independence of women tends to have a strong impact on fertility rates. This linkage has been widely observed in international comparisons and is consistent with Kerala's remarkable reduction of fertility rates, and to some extent, with Tamilnadu's success in that direction. On the other hand low socio-economic position of women in the northern states like Uttar Pradesh, Madhya Pradesh, Rajasthan and Bihar seems to have contributed to the relatively high fertility rate in these states.

## Section IV

Population and Urbanisation

There is considerable diversity in the level of urbanisation among the Indian states. There are less urbanised states like Himachal Pradesh (9.79%), Bihar (10.47%), Assam (12.72%), Orissa (14.97%) and relatively more urbanised ones like Maharashtra (42.40%), Tamilnadu (43.86%) and Gujarat (37.35%) (Table 4). Majority of the states have an urban population ranging between 20 to 30 percent. The concentration of people in urban areas is integral to the process of economic development, because of both push and pull factors. Rising productivity in agriculture reduces the demand for rural labour, while better job and income prospects in urban areas attract migrants. These processes underline the positive correlation observed between the extent of urbanisation and per capita income (Figure G). The economic forces of urbanisation are powerful and population growth intensifies them in large part by expanding the pool of potential migrants. No government, which adopted explicit policies to restrain the growth of cities, has been effective in checking rural-to-urban migration (Sanderson & Tan, 1995). In India, states with megacities, e.g., Maharastra (Mumbai), and Tamil Nadu (Chennai) are ahead of other states in terms of urban population.

The total fertility rate in no way shows any association with per capita Net State Domestic Product (NSDP) (Table 4). Kerala, Tamil Nadu and Himachal Pradesh which have the lowest total fertility rates are also the states with low per capita incomes as compared to prosperous states like Punjab, Maharashtra (with moderate total fertility rates) and Haryana (with high total fertility rate). Although no clear-cut correlation emerges between urbanisation and total fertility rates but still states with higher percentage of urban population have relatively low TFRs. Figure H supports this argument. In case of Kerala, where urban population is not very large but still TFR is very low, other factors like education, particularly female education, and women empowerment have played an important role in determining the fertility rates.

Population and Work Participation Rate

Work participation rates vary among the different states (Table 4). The highest work participation rates are found in Himachal Pradesh (49.3%) followed by Andhra Pradesh (45.8%), Tamilnadu (44.8%), Karnataka (44.6%), Maharashtra (43.5%), Madhya Pradesh (42.7%), Rajasthan & Gujarat (42.1% each) and Haryana (39.8%). All these states have work participation rates above the national average (39.3%). Lowest work participation rate is found in Kerala (32.3%) followed by Uttar Pradesh (32.6%) and Bihar (33.9%). Punjab's work participation rate stands at 37.6 percent. Further, Himachal Pradesh has the highest female work participation rate of 43.7 percent. Andhra Pradesh (34.9%), Rajasthan (33.5%), Madhya Pradesh (33.1%), Maharashtra (32.6%), Karnataka (31.9%), Tamilnadu (31.3%), Gujarat (28.0%) and Haryana (27.3%) have female work participation rates which are higher than the national average of 25.7 percent. The lowest female work participation rate is found in Kerala (15.3%) which succeeds Uttar Pradesh (16.3%), West Bengal (18.1%), Punjab

FIGURE G: Relation between Urbanisation and Per-Capita Net State Domestic Product
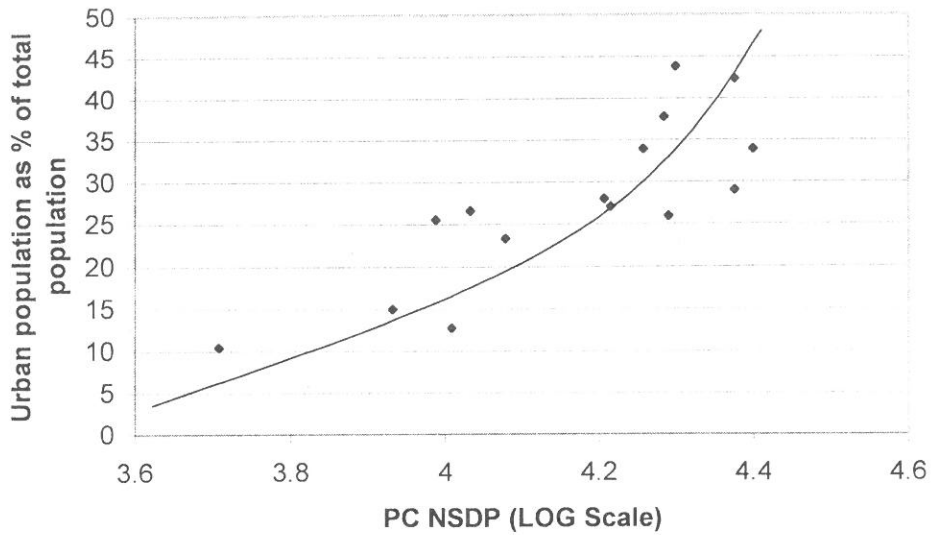
FIGURE H: Relation between Urbanisation and Total Fertility Rate
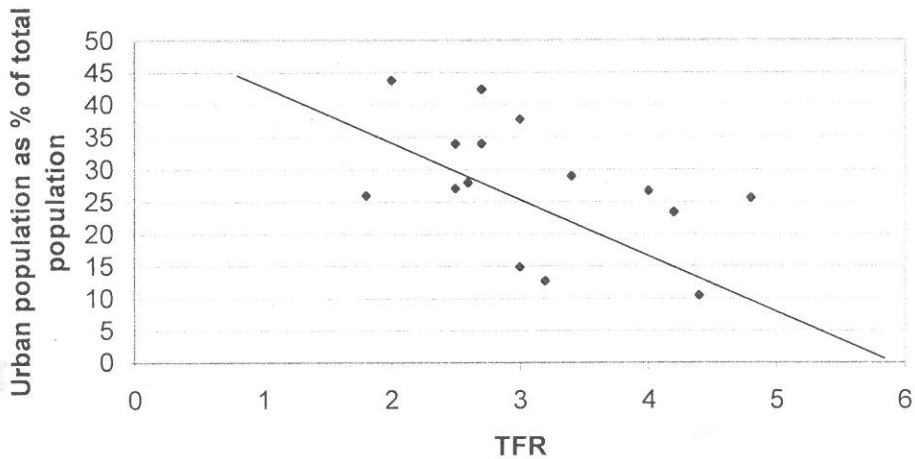
(16.7%) and Bihar (18.8%). In case of Kerala, one of the reasons for low female work participation seems to be the fact that a large number of males work in gulf countries and women live on remittances sent back home and need not work for their living.

Section V

Conclusions

Population has more than doubled in all the states in India in the last 50 years. However, there are states like Kerala and Tamil Nadu, which have achieved a very low rate of population growth. Total fertility rate, in these two states, has fallen below the replacement level. There are other states like Bihar, Uttar Pradesh, Rajasthan and Madhya Pradesh where the population growth rate as well as TFRs is still very high. In a majority of the states population growth rate is falling, which is a positive sign for future population scenario. There is a very visible and appreciable association between total fertility rate and educational achievements, particularly of women, infant mortality rates, female expectancy of life and other socio-economic factors, which help in empowerment of women. Kerala is a model for achieving a low rate of population growth. Early promotion of literacy in Kerala has led to important social achievement later on. Other states, particularly northern states of Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan, also need to follow Kerala's social sector development model to control the population growth. Kerala's success story highlights that social achievements also play an important role along with economic factors in the control of population growth.

It is recommended that states with high population growth should: (i) put more emphasis on educating the masses and raising the literacy rate (ii) take necessary steps to further enhance the status of women and (iii) efforts should be made to reduce the social inequalities based on religion, caste, gender and class. The under privileged be up lifted by making them partners in the process of governance.

As the analysis suggests, things are not that bad in all the states, but four states - Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan are the worst performers on the population front. Some special efforts on the lines suggested above will help the country in achieving, in the near future, the level of total fertility rate, which is less than the replacement level.

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SOCIAL COMPOSITION, SEGREGATION AND PATTERN FORMATION IN HISAR CITY (HARYANA)

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Abstract

The present paper seeks to measure the concentration and identify caste combination pattern in different census wards of Hisar city. It also studies caste based spatial segregation and probability of interaction among major caste households by virtue of their location in different parts of the city. It is evident from the study that the greatest degree of residential segregation in the city occurs among the scheduled castes such as Balmiki, Od and Dhanak. These communities share the residential space with other weaker sections of society and in some cases with the intermediary castes. The Vaishyas, forming the top of social hierarchy numerically, also exhibit a moderately high degree of residential segregation. In comparison, Brahmin households are distributed all over the city. The intermediary castes, particularly Arora and Jat, also have a moderately low degree of residential segregation. The artisans, in particular, Kumhars mainly live in their own *mohallas* (localities). The city does not exhibit a very well forged socio-spatial structure. The socially backward sections of the society continue to face residential deprivation.

Introduction

Hisar, one of the prominent cities of Haryana, is located at 29°5' north latitude and 75°45' east longitude. It is situated 164 km west of Delhi on the National Highway Number 10. Hisar city was founded by Firoz Shah Tughlaq in 1354 AD. 'Hisar' is an Arabic word, which means fort. The fort city 'Hisar' was originally called 'Hisar-e-Firoza' or the 'Fort of Firoz'. But as the days rolled by, the word 'Firoz' got dropped from its original name. The city had four gates, which were subsequently named as Delhi Gate, and Mori Gate (to the east), Nagori Gate (to the south) and Talaque Gate (to the west). After the development of fort city, various caste-based *mohallas* came into existence in its vicinity. This led to the development of the city into a human habitat, which was segregated both socially as well as spatially (Juneja, 1989, p.36). The city which was developed as an

administrative centre by its founder subsequently emerged as a trade centre.

The second phase of growth of Hisar began during the British period when it got connected by railway. The city became an administrative headquarters. Given the potential of agricultural development in the area, livestock and agricultural farms were developed in the vicinity of the city. The third phase of growth of Hisar began following the independence and the partition of the country in 1947 when almost the entire Muslim population migrated to Pakistan and a large number of Hindu displaced persons from Pakistan settled in the city (Gazetteer, 1987, p.71). This transformed the social and demographic characteristics of the city significantly. The fourth phase of growth of the city began with the formation of Haryana state in 1966. Following this, Hisar city emerged as a major human habitat and a hub

of educational institutions, administration and industrial complex. At present it is the fourth largest city in the state with a population of 263,070 persons.

Statement of the Problem

The study of social morphology of historical towns in India has revealed that in majority of the cases, the residential space of the towns was carved out into the socio-spatial units called *mohalla*, *basti*, *tola* etc. These socio-spatial units were either comprised of a single caste or dominated by a caste along with accommodating the castes having social hierarchy similar to the dominant caste. This helped in maintaining a social and spatial distance among the urban dwellers. At the same time, these *mohallas* comprise the basic morphological – functional units and form the basis for social interaction and community cohesion (Sharma, 1993, p.129). The high castes usually occupied the nucleus of the city and better residential areas. While, the labouring castes and menial outcastes were located on the outskirts of the city and lived in poorly structured houses (Brush, 1962). Hisar has a history of about 650 years. The city in its incipient stage was divided into caste-based *mohallas* such as Dogran Mohalla, Gujaran Mohalla, Kumharan Mohalla, Chamaran Mohalla and Balmiki Mohalla. The residents of the city during the medieval period were largely segregated into the residential areas in the form of caste-based *mohallas* on the pattern of village social morphology. The social morphology of most urban centres is akin to the rural model - separate residential areas mirroring ritual hierarchy of castes in the living space of the city (Ahmad, 1999, p.189).

The urban centres used by the British Raj to administer the Indian territory developed some distinct morphological features. The administrative machinery occupied the space for offices, courts and residences. The common colonial landscape features included Civil Lines and Cantonments etc. The caste and community *mohallas* continued to be the integral parts of town morphology (Aditya and Singh, 1994). The town during this period had two-fold social morphology, the British

dominated residential and administrative areas and caste based *mohallas* of Indians. The traditional social morphology of the towns was rarely interfered into by the British (Mahadevia, 1993). This holds true for Hisar city as well. The British built District and Session Court, Cattle Farm, Jail Building, Canal Department, Eliot Club etc. and developed such residential areas as Jahaj Kothi, Commissioner's Residence and Railway Colony. Separate marketing centres for different commodities such as Kath Mandi, Loha Mandi and Grain Market were also developed during British period.

The post independence period has witnessed a rapid growth of population and change in demographic characteristics in most towns of the north and west India. This has led to a further clustering of population in these towns on the ethnic pattern (Nigam, 1960). As mentioned earlier, after partition of the country, a large number of displaced persons from Pakistan settled down in Hisar also. They were provided residual space in Refugee Camp, which to begin with developed into a multi-ethnic locality as its occupants were drawn from various parts of pre-partition Punjab and Sindh. But in due course of time, the residential space in the vicinity of the camp was divided on ethnic pattern. The planned development of the town also began during this period as evidenced by the development of 'Model Town' in the early fifties. This residential colony was mostly inhabited by the rich people among the post-partition inmigrants. The concept of planned towns during the post independence period induced a new form of segregation in the cities. The first type of segregation is at the level of land use, such as residential, industrial, commercial, public and semi-public. The second type of segregation exists in the residential areas in terms of social classes such as low, medium and high-income group (Mahadevia, 1993).

The formation of Haryana as a separate state in 1966 ushered a new era of growth in various urban centres. A developing rural economy established both forward and backward linkages with urban centres. The
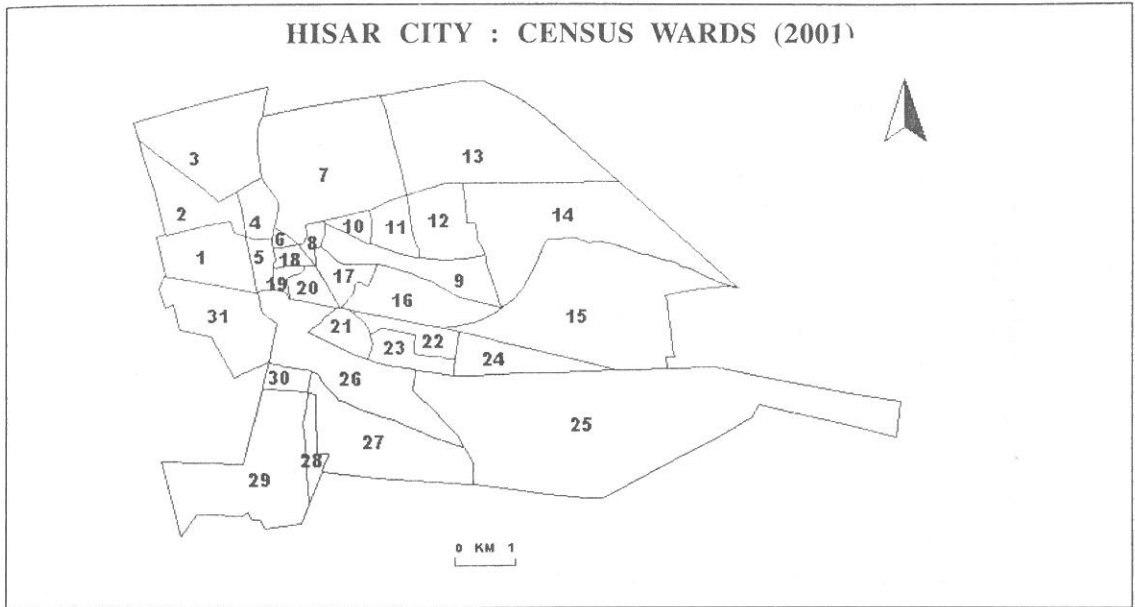
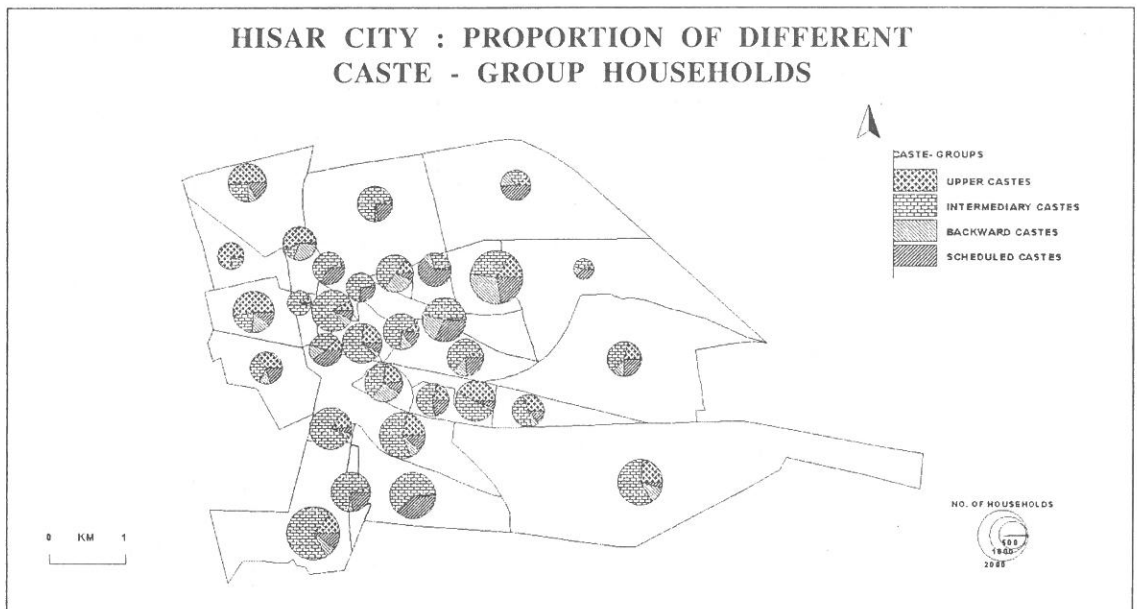Source : Village and Town Directory, Hisar, Census of India, 2001.

Fig. 1

Fig. 2

Table - 1

Social Structure and Composition

(Percentage to total households in the city)

Upper Castes		Intermediary Castes		Backward Castes		Scheduled Castes	
Castes	Households	Castes	Households	Castes	Households	Castes	Households
Vaishya	12.50	Arora	27.19	Kumhar	4.79	Balmiki	5.50
Brahmin	5.96	Jat	12.35	Khatiti	1.91	Chamar	5.33
Rajput	1.10	Saini	7.09	Sunar	1.72	Dhanak	3.54
		Yadav	1.69	Nai	0.93	Od	2.54
		Gujar	1.61	Darji	0.71	Naik	0.28
		Bishnoi	1.07	Maniar	0.30	Sansi	0.25
		Goswami	0.07	Dhobi	0.30	Meena	0.21
				Jhimmer	0.25	Banjare	0.17
				Swami	0.12	Jogi	0.16
				Bharbuja	0.07	Doom	0.14
				Sarogger	0.07		
				Luhar	0.05		
				Thethera	0.06		
Total	19.56		51.07		11.28		18.12

success of green revolution pushed the growing rural middle class to urban areas. On the other hand, the marginalized rural poor also migrated to the towns to earn their living. The fast growth of urban population led to urban sprawl, both planned as well as unplanned. The residential areas that developed during this period were largely heterogeneous in terms of caste but displayed a greater degree of segregation in terms of social classes. Defence Colony, Urban Estate, Sector-13, 14 and 15 etc. are examples of planned development in Hisar city. The urban market forces seem to be dividing the urban living space on the basis of social classes rather than castes at present.

One of the major goals of social geography is to understand the spatial patterns of various social groups and classes in urban space and processes involved in making and unmaking of the social morphological patterns. The spatial pattern of various socio-economic, ethnic and inmigrant groups produces a mosaic of different neighborhoods that together form the city (Karan and Carami, 1989, p.95). The ethnicity based residential segregation has been a topic of significant academic interest in developed countries. Residential deprivation has been taken as an expression of subordinate status of ethnic groups (Carter and Jones, 1989, p.141). Hisar being a city with a long history and one of the fast growing modern educational-industrial cities of Haryana presents an interesting case for study in urban social geography in this respect. The landscape of Hisar city is dotted with caste-based *mohallas* that emerged almost 650 years ago as well as in recent years. On the other hand, it has a modern township called Urban Estate which has caste heterogeneity but contains class homogenous residential sectors. It would be a matter of great academic interest to know the extent to which caste defines the contours of social landscape of this fast growing city of Haryana.

Objectives and Research Questions

The present study seeks to realize the following objectives and investigate research questions related to them:

1. To depict the distribution and concentration pattern of various caste-groups and major individual castes in the city. It tries to seek the answer to the question as why do certain castes in the city tend to concentrate in pockets while others are evenly distributed.

2. To study the caste combination pattern in different localities in the city. It tries to investigate the pattern of caste combination (co-residence) in different areas of the city and the reasons for such pattern.

3. To study the pattern of caste based spatial segregation and probability of interaction among major caste households by virtue of their location in different parts of the city. It seeks to measure the extent of caste based spatial segregation existing in the city and the probability of opportunity of interaction among different castes.

Database and Methodology

The study area of present study comprises the municipal committee area of Hisar city. The campus of C.C.S. Haryana Agricultural University and the localities on the outgrowth of city and various farms are not included in the study area. Since the precise locality level map and secondary data is not available for the smaller residential areas, the present study is based on census-ward level data. The census wards have been demarcated on the criteria of population size. Hence, their boundaries may not be coinciding with the locality boundaries. The study is largely based on primary data collected from July to September 2002. The social characteristics of the households i.e. caste or community attributes, have been identified by visiting the streets and making queries in all the localities in 31 census wards of the city (Fig.1). The survey has identified the social characteristics of 32,149

households in the city, which constitute about 68 percent of the total households in the city identified in Village and Town Directory, Hisar, Census of India, 2001.

On the basis of traditional caste hierarchy in the region, the identified castes of the households have been grouped into four categories or caste-groups i.e. Upper Castes, Intermediary Castes, Backward Castes and Scheduled Castes (Table 1). The Upper Castes are at the top of social hierarchy followed by Intermediary Castes. The Backward Castes are traditionally artisan and form the lower middle level in social hierarchy. The Scheduled Castes are largely placed on the bottom of social hierarchy. The study has been carried out both at the caste-group level as well as at the level of major castes (individually accounting for more than 2 percent of total surveyed households in the city). The minor castes occupy less than 2 percent of total households in the city.

To examine the concentration pattern of different castes, a concentration index (Location Quotient) at the ward level has been computed with the help of the following formula :

$$L.Q = \frac{\textit{Caste 'A' households in the ward } i}{\textit{Total households in the ward } i} \Big/ \frac{\textit{Caste 'A' households in the city}}{\textit{Total households in the city}}$$

The Caste Combination Index is based on the method used for Crop Combination Regions by Weaver (1954) taking least coefficient of variation as a caste combination in the modified formula in which C. V. = $(\sigma / \overline{X})100$ where Coefficient of Variation - (C.V.). Standard Deviation -(σ), and Theoretical mean - $(\overline{X})$ The Index of Dissimilarity has been computed with the following formula (Jakubs, 1977) :

$$D = \sum_{t=1}^{n} \frac{t_i \left| p_i - P \right|}{2TP(1-P)}$$

Where : t_i = Total households of ward $_i$, p_i = Proportion of caste 'A' in ward $_i$, n = Number of wards, T = Total households of the city, P = Proportion of caste 'A' households in

the city. The Index of Dissimilarity represents the dimension of caste based residential segregation. The scale of index varies between 0 and 1, where 0 denotes no segregation and 1 denotes highest segregation.

The Index of Probability of opportunity for interaction (contact) between major castes i.e. x P * y (caste x with y) and y P * x (caste y with x) have been computed with the help of following formula (Massey and Denton, 1988) :

$$x P*y = (x_i / X)*(y_i / t_i) \quad \text{and} \quad y P*x = (y_i / Y)* (x_i / t_i)$$

Where: t_i = Total households of census ward $_i$; x and y are households of X and Y castes in ward $_i$ and X and Y are their total households in the city. The interaction index in both the cases varies between 0 and 1, where, 0 denotes no interaction and 1 denotes highest interaction.

Social Structure and Composition

Table 1 depicts the social structure and composition of population in Hisar city. The households have been classified into four categories based on their social hierarchy. The survey of the social characteristics of households has identified 33 castes in the city. However, only 10 of these individually constitute more than 2 percent of the total surveyed households in the city. These major castes together account for about 86.79 percent of total households in the city. The largest number of minor castes are found among backward and scheduled castes.

1.   **Upper Castes:** There are only three castes in this group and together these account for about one-fifth of total households. Vaishya and Brahmin are major castes in this category accounting for 12.50 and 5.96 percent of total households respectively. The only minor caste in this category i.e. Rajput constitutes only 1.10 percent households.

2.   **Intermediary Castes:** This group accounts for the highest percentage of households (51.07 percent) in the city (Table 1). Three castes, viz. Arora, Jat and Saini, from

Table - 2

Ward-wise Distribution of Households of Major Castes

(in percentage)

Ward	Brahmin	Vaishya	Arora	Jat	Saini	Kumhar	Chamar	Balmiki	Dhanak	Od	Others	Total
1	9.44	44.52	6.35	7.54	1.19	2.06	3.81	1.75	1.35	0.32	21.56	100 (1260)
2	3.73	72.37	12.06	5.26	0.00	0.00	0.00	0.00	0.00	0.00	6.58	100 (456)
3	7.52	41.60	10.96	10.40	0.84	1.11	2.23	14.02	0.00	0.00	11.33	100 (1077)
4	0.00	55.03	6.37	1.91	0.00	26.24	1.66	0.00	0.00	0.00	8.79	100 (785)
5	1.45	8.67	79.19	3.47	1.16	0.00	1.45	0.00	0.00	0.00	4.62	100 (346)
6	0.85	5.11	57.95	0.00	0.57	0.00	9.94	25.57	0.00	0.00	0.00	100 (704)
7	1.46	3.02	47.03	2.80	0.11	2.24	14.56	0.45	6.72	0.11	21.50	100 (893)
8	0.56	1.31	68.66	0.00	1.12	0.19	3.54	21.64	0.19	0.00	2.80	100 (536)
9	0.00	0.76	22.08	5.66	15.25	11.87	7.18	3.38	10.28	7.18	16.36	100 (1449)
10	8.44	4.87	31.98	5.86	3.18	9.53	3.67	1.29	0.00	0.00	31.18	100 (1007)
11	1.27	0.25	13.09	1.02	1.40	4.32	4.45	26.43	5.46	25.54	16.77	100 (787)
12	11.72	2.72	7.63	11.99	5.00	11.67	9.90	0.59	8.27	2.82	27.70	100 (2202)
13	7.27	2.42	1.94	6.30	9.37	4.68	23.26	7.27	5.82	10.02	21.65	100 (619)
14	5.12	4.19	7.44	6.98	12.56	2.33	14.42	2.79	4.65	13.02	26.51	100 (215)
15	16.41	3.49	6.05	28.75	4.89	4.31	5.01	14.20	4.54	0.00	12.34	100 (859)
16	5.22	0.92	2.05	5.12	47.19	2.97	5.94	1.84	13.31	0.10	15.35	100 (977)
17	2.91	3.44	20.78	2.48	41.77	1.72	4.52	3.55	1.51	0.00	17.33	100 (929)
18	4.02	3.31	46.69	0.47	31.47	1.18	3.00	1.58	0.95	0.16	7.18	100 (1268)
19	1.21	10.26	13.90	1.08	17.68	12.15	0.81	0.67	34.82	0.00	7.42	100 (741)
20	5.22	18.58	55.39	1.88	5.99	1.71	2.91	1.88	0.86	0.17	5.39	100 (1168)
21	6.71	10.26	16.97	11.12	10.55	20.13	5.27	1.44	0.38	0.29	16.87	100 (1043)
22	6.11	35.75	25.00	19.38	1.71	0.90	3.09	0.57	0.81	0.65	6.03	100 (1228)
23	4.81	15.91	42.11	11.63	0.27	0.13	6.28	9.36	5.48	0.00	4.01	100 (748)
24	16.81	5.56	15.83	25.42	1.94	2.22	8.89	2.22	1.94	0.42	18.75	100 (720)
25	11.77	12.28	24.62	28.48	3.54	4.37	1.96	0.00	1.52	0.32	11.14	100 (1580)
26	7.29	13.69	38.00	18.22	0.75	3.96	5.65	2.83	1.82	0.19	7.60	100 (1592)
27	1.11	0.31	57.20	2.66	0.37	0.68	3.46	28.54	0.00	4.20	1.48	100 (1619)
28	2.56	2.29	50.93	12.42	0.70	1.59	2.38	1.59	0.53	18.68	6.34	100 (1135)
29	6.65	6.11	17.32	36.01	2.01	1.73	5.93	1.19	0.91	1.82	20.33	100 (2194)
30	6.35	8.03	42.85	31.68	0.23	0.69	2.30	0.23	1.91	0.15	5.59	100 (1307)
31	6.10	29.79	9.79	15.89	2.13	4.11	6.38	11.35	0.71	0.57	13.19	100 (705)
Total	5.96	12.50	27.19	12.35	7.09	4.79	5.33	5.50	3.54	2.54	13.21	100 (342149)

Figures in parentheses show the number of total households
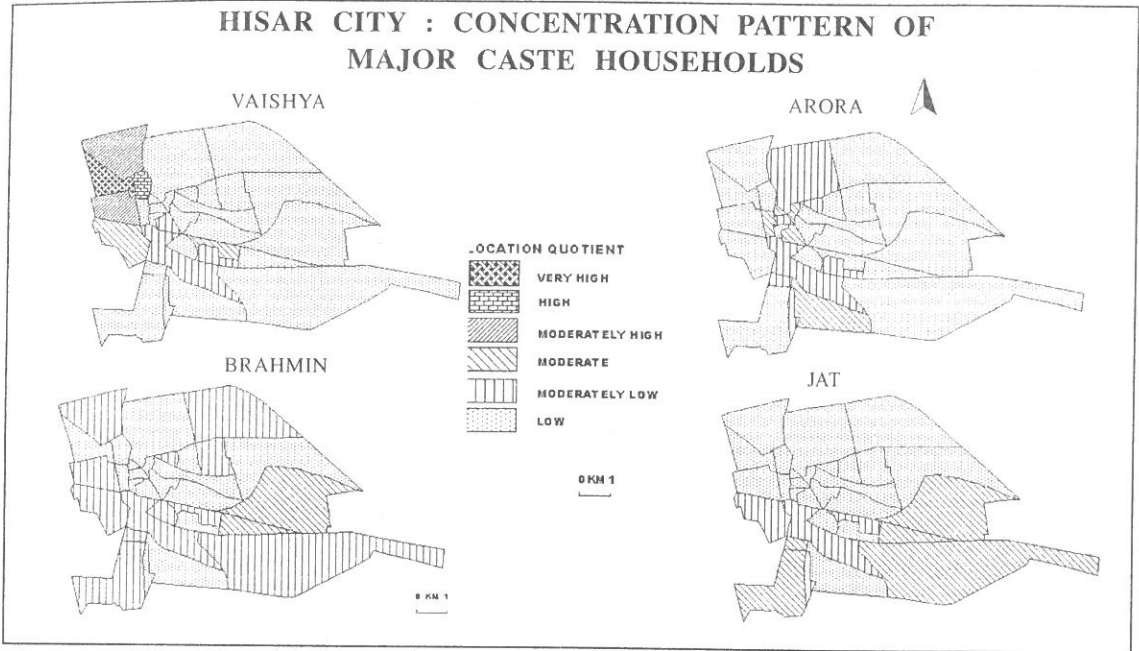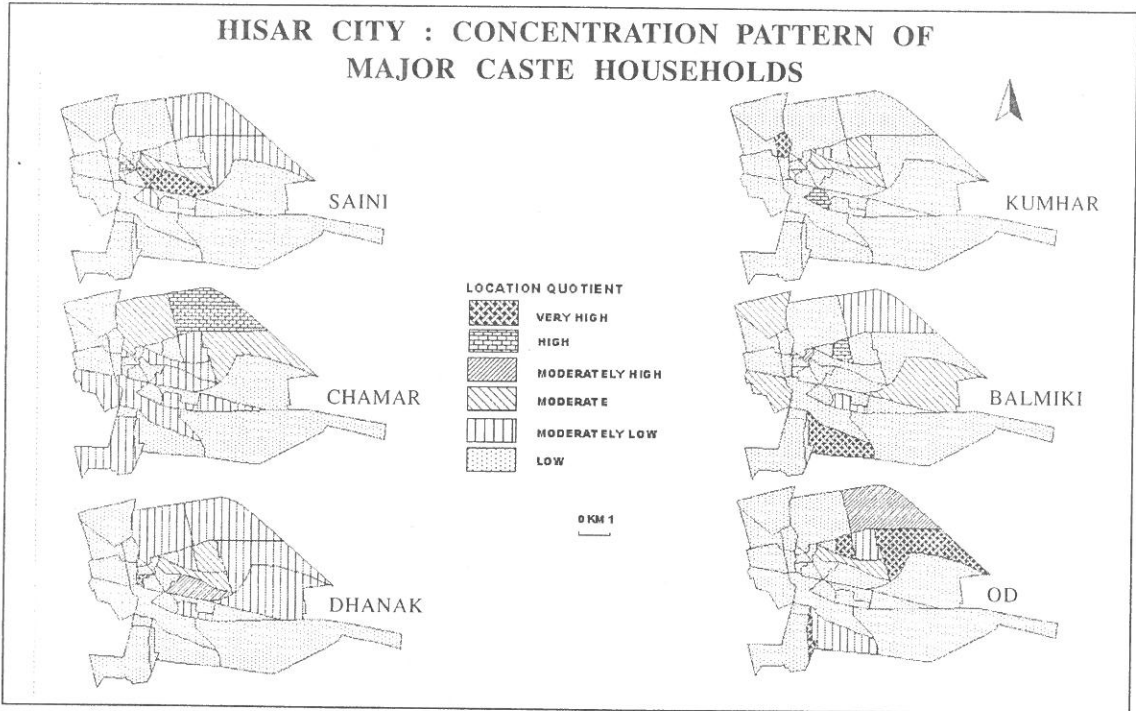
Fig. 3

Fig. 4

this category rank as major castes. Arora is not only a leading community in percentage share of households in this group but also in the city. Dominantly constituted by in-migrants from Pakistani Punjab, this community is a conglomeration comprising of various individual castes and sub-castes. It accounts for 27.19 percent of total households in the city. The other major castes in this category, Jat and Saini comprise 12.35 and 7.09 percent of total households respectively. Yadav, Gujar, Bishnoi and Goswami are the minor castes in this group.

3.   Backward Castes: The backward castes constitute more than one-third of total castes in the city but account for 11.28 percent of total households. Kumhar is the leading caste in this group accounting for 4.79 percent of total households. Khati and Sunar are the minor castes accounting for 1 to 2 percent of total households. The rest of the nine minor castes in this category individually have less than 1 percent of total households.

4.   Scheduled Castes : This category accounts for 18.12 percent of the total households and comprises of 10 castes. Among these Balmiki, Chamar, Dhanak and Od are the major castes accounting for 5.50, 5.33, 3.54 and 2.54 percent of total households respectively. All the six minor castes belonging to this category individually constitute less than half percent of households in the city.

Distribution and Concentration Pattern

Table 2 and Figs. 2, 3 and 4 show the distribution and concentration pattern of households of major castes in the city.

1.   Upper Castes : The upper castes have a high proportion of households in the walled city (Ward 4) and northwestern part of the city (Ward Nos. 1,2 and 3) i.e. more than 50 percent of the households (Table 2). Among the upper castes, Vaishya have high to very high degree of concentration in northwestern part and the walled city Their traditional area of residence has been the compact residential-cum-miscellaneous wholesale and retail trade area

(C.B.D. area) in the walled city i.e. Jain Gali, Moti Bazar, Gandi Bazar, Katla Ramlila area etc. After the partition of the country they also inhabited Pathan Mohalla in large numbers. Being a trading community, it has shown a tendency for clustering in various marketing centres such as Old Grain Market, Loha Mandi, Kath Mandi (Ward 1), New Grain Market (Ward 3) and the planned residential area of Sector 14 (Ward 2). Vaishya households are also found in considerable numbers in Aggarwal Colony which is a continuum or extension of marketing centres (Ward 1). These wards together account for about 44.06 percent of Vaishya households in the city. In comparison, another upper caste group, the Brahmins have a moderately low to low degree of concentration of households in these areas.

It is also observed that upper castes have a moderate proportion of households in the localities along Hisar-Delhi road, nearby Railway Station and Industrials Area (Ward Nos. 15, 23 to 26 and 31). Both Vaishya and Brahmin households have a moderate to moderately low degree of concentration in these areas (Fig.3). However, some Vaishya dominated localities have also been identified in the vicinity of Railway Station and marketing centres such as Rampura Mohalla (Ward 19), Moti Nagar (Ward 20) and Prem Nagar (Ward 31). A similar clustering has also been identified in some of the planned residential areas e.g. Urban Estate (Ward Nos. 22 & 23) and Sector 13 (Ward 26).

Brahmin households, although distributed widely in the city, show a moderate degree of clustering in Vidut Nagar (Ward 24) and Surya Nagar (Ward 15). Surya Nagar is a recently developed area inhabited mainly by people from a near by village 'Satrod'. Brahmin households also have a moderately low concentration in some of the planned residential area i.e. Sector 13 & 15, Urban Estate, Model Town, and Housing Board Colony.

The upper castes have a low proportionate share (less then 20 percent of the households) in some parts of the old city

(Ward Nos. 5, 6, 18 & 19) and northeast, central and mideastern part of the city. Among the upper castes, Brahmins have a moderate concentration in a few localities such as Indra Colony (Ward10), Tiba Danasher, Vinod Nagar and Shiv Colony (Ward 12), Gita Colony and D.C.M. Textile Colony (Ward 13). The Vaishya households have a small proportion in these areas (Table 2). Most of these areas, mainly inhabited by middle and low income group people, are semi-planned or unplanned colonies.

2.   Intermediary Castes: In view of the numerical strength of intermediary castes over other caste-groups, it is quite normal to expect a more uniform and widespread distribution of this caste-group in the city and also that it should constitute the majority in most of the wards. This caste-group has a widespread distribution in Hisar, except in the Walled City and the northwestern part of the city and constitutes majority of the households (between 50 to 85 percent) in 15 out of 33 wards covering the old, central and southern part of the city. There is not a single ward in the city in which the intermediary castes comprise less than 10 percent of the households.

Interestingly the main castes in this group, viz. Arora, Jat and Saini, display contrasting patterns of concentration in different parts of the city. Aroras are concentrated in the old city, and south and central parts; Jats are concentrated in the southern part and Sainis in the central part of the city. Arora households have a moderate concentration in Dogran Mohalla (comprising of Ward 5, part of Ward 6, and 18), Sant Nagar (Ward 20), Patel Nagar (Ward 27) and 8-Merla Colony (Ward 28). After the partition, Patel Nagar and 8-Marla Colony were especially developed to resettle displaced persons who were also allotted evacuee houses of Muslims in Dogran Mohalla. These areas account for about half of Arora households. Majority of people belonging to this community are engaged in trading activities. Hence, in some cases the households from this community have shifted their residences

towards such marketing centres as New Sabzi Mandi and Railway Station and in more recent years to the planned residential areas viz., Urban Estate, Model Town, Sector-13, Housing Board Colony and Jawahar Nagar.

Jats display a striking, though moderate concentration in southern part of the city (Fig. 3). Defence Colony along Hisar-Rajgarh road and Sector 13 and 15, Urban Estate, Model Town Extension, Vidut Nagar, Surya Nagar (Ward 15) and Professor Colony are the main areas of residence of Jat households. These residential areas collectively account for about 58 percent of Jat households in the city. Jats are among the recent most in-migrants in the city. They have settled in the city following the prosperity accruing from green revolution and their increasing employment in the tertiary sector of the economy.

Sainis exhibit very high degree of concentration in the central part of the city consisting of Wards Nos. 16, 17 and 18. These wards together account for about 55 percent of Saini households in the city. This community has traditionally been living in a separate locality known as Sanian Mohalla (Ward 18) since the inception of Hisar town. Later on Sainis clustered around the agricultural land in the central-eastern parts of the city and formed separate localities known as Mahabir Colony (Ward 16) and Dhani Bharwalli (Ward 17). Many families of Sainis are involved in vegetable growing and marketing activities. Interestingly, New Sabzi Mandi is also located at the confluence point of Ward Numbers 16, 17 and 18, which have a high concentration of Saini households.

3.   Backward Castes: The castes comprising this group are concentrated in some pockets in the Walled City, Old City (Ward 19), Krishna Nagar and Dhani Jai Dev (Ward 21), and central, and eastern part of the city (Ward Nos. 9 to 17). Among the Backward Castes, Kumhars constitute the most prominent caste numerically (Table 1). The households of this caste have a very high degree of clustering in Kumharan Mohalla in the Walled City in which they have been living since the inception of the city. There is another locality

HISAR CITY: PATTERN OF CASTE COMBINATIONS IN RESIDENTIAL AREAS
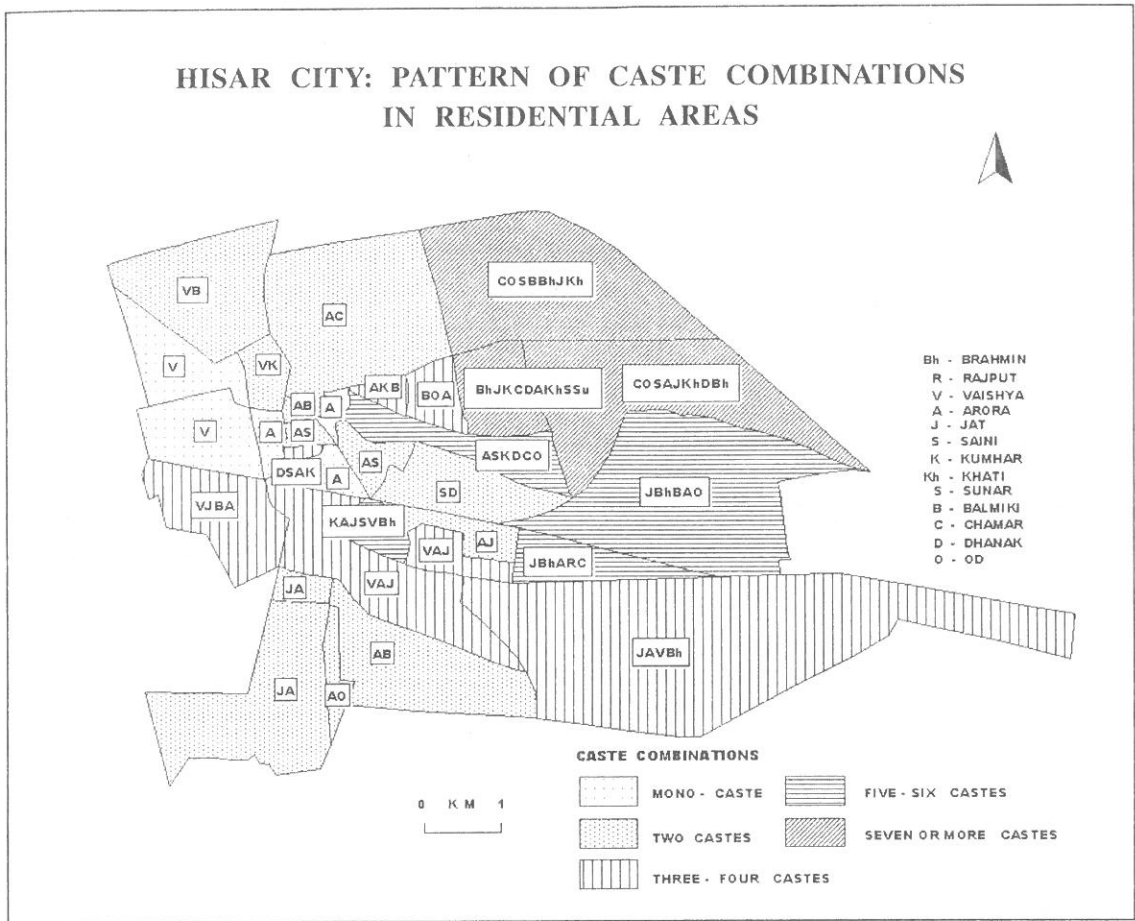
Fig. 5

of Kumhars in Old City in Ward 19. In addition these have a moderate concentration in Krishna Nagar, Shanti Nagar, Indra Colony and Tiba Danasher. The backward caste households are virtually non-existent in most of the planned residential areas in the city.

4.   Scheduled Castes: The Scheduled Castes majority residential areas are situated mainly in the Old City, the central, northeast and eastern part of the city. The northeast and eastern parts of the city mainly comprise of semi-planned and unplanned residential localities. Land prices in these areas are comparatively low and as a result low-income group people, especially of scheduled castes, have settled here. There are only a few separate planned residential colonies for scheduled castes in the city developed by the Muncipal

Committee and the Hisar Improvement Trust e.g., Govind Nagar (Ward 23).

The Balmiki households are concentrated in few localities located in different parts of the city (Fig. 4). They have a very high degree of concentration in Patel Nagar and 8-Merla colonies in southern part of the city, Baghat Singh Nagar (Ward 11) and along Mela Ground Road. They have a high degree of concentration in Balmiki Mohalla in Old City, which was established about 600 years ago. The clustering of this caste in Patel Nagar took place following the in-migration after the partition of the country. The Balmiki households constitute more than 20 percent of households in census Wards Numbers 6, 8, 11, and 27(Table 2).

Chamars, though numerically a very small community, are distributed all over the city. Their highest concentration is found in the northeastern part (Ward 13) of the city and a moderate concentration in Chamaran Mohalla (southwestern part of Ward 7) in which they have been residing since the inception of city. The proportion of Chamar households is very low in better-planned residential areas of the city. Another low caste, Dhanak has a high concentration in Dhanak Mohalla (Ward 19) in the Old City in which they have been living since long. Only in three wards in the city, Dhanaks constitute more than 10 percent of households (Table 2). They are almost non-existent in better-planned residential areas in south and western parts of the city. Another major scheduled caste, Od, is highly concentrated in the northeast, eastern parts and 8-Merla Colony in the southern part of the city. The Od households are largely confined to only four wards (Table 2). It is evident that the residential areas of scheduled castes largely lie outside the ambit of modern planned township in Hisar city and the lower strata of the society face residential deprivation of a high degree.

Caste Combination (Co-Residence) Pattern

It would be quite interesting to examine the extent to which the castes exhibit a pattern of combination (co-residence) in different parts of the city. Fig. 5 reveals that a majority of census wards (17 out of 33) in the city have either mono or two caste combinations. This is particularly so in large parts of old city, and central, northwestern and southwestern parts of the city (Fig. 5). The Vaishya majority areas are either mono caste or are dominated by this caste in two caste combination localities in northwestern and western parts of the city. In the central and north central parts of the city, Arora is a dominant caste and it combines with Sainis, Kumhars and Balmikis to produce two caste combinations in different localities. In the southwestern parts of the city e.g., Defence Colony, Sector 15, Housing Board Colony

and surrounding areas, Jats share residential space with Aroras to produce two caste combination areas. In the east of these colonies in southern part of the city, in Patel Nagar area, Aroras are a dominant caste in two caste regions. The other castes figuring in the region are Balmiki and Od. In fact, Aroras figure in caste combinations of 28 census wards of the city. In some planned residential areas of the city i.e. Sector 13, Vidyut Nagar, Model Town Extension and other parts of Urban Estate, there is a comparatively diversified caste pattern. There exist 3 to 6 caste combinations in these localities. But lower and backward castes do not exist in any caste combination in these areas. This also suggests that the weaker sections of society still lie outside the ambit of modern planned residential areas.

The eastern and northeastern parts of the city (Ward Nos. 9 to 15) exhibit a congruence of almost all the major castes in the city and have 3 to 9 caste combinations in different wards. This region is comprised of unplanned residential localities. It is a mixed caste, low class residential area. The land prices are comparatively low in the most parts of this region. This attracts people mostly from the lower income groups and lower and backward castes. The Vaishyas are conspicuously absent in this residential area of the city.

Level of Residential Segregation

Table 3 shows the index of dissimilarity or segregation of major castes in Hisar city. Its scale varies between 0 and 1. On this scale 0 represents complete similarity (no segregation) in distribution of households and 1 represents the highest level of segregation (complete dissimilarity). It is evident that a lower caste called Od is the most segregated community in Hisar (Table 3). Another caste group from the lower strata of society, Balmiki, also has a high level of residential segregation. Dhanak is also a lower caste and has moderately high level of spatial segregation. The only caste from among the scheduled castes having low level of residential segregation is Chamar, which is identified in

Table 3

Ward Level Segregation (Dissimilarity Index) of Major Castes

Major Castes	Dissimilarity Index	Level of Segregation
Brahmin	0.332	ML
Vaishya	0.519	MH
Arora	0.403	ML
Jat	0.420	ML
Saini	0.605	H
Kumhar	0.452	MH
Chamar	0.276	L
Balmiki	0.605	H
Dhanak	0.536	MH
Od	0.660	H

>0.60-High (H), 0.45-0.60-Moderately High (MH), 0.30-0.45-Moderately Low (ML), <0.30-Low (L)

30 out of the total 31 wards in the city. Another socially backward and artisan caste in the city, Kumhar, also has a moderately high level of segregation. The castes comprising the upper caste group also have a moderate level of residential segregation. From among these castes, the segregation level is comparatively high in the case of Vaishyas. They have a moderately high dissimilarity index. The Brahmins have a lower level of segregation as compared to the Vaishyas as they are economically weaker than later and earn their livings from different sources. The Vaishyas have been traditionally concentrated near the business and trading centres and developed separate colonies. Among the intermediary castes, Sainis have a high dissimilarity index (Table 3). Both Aroras and Jats have a moderately low level of segregation index. While Aroras reside in both old and new township, Jats mostly live in new colonies in the city.

Probability of Interaction Among Different Castes

Table 4 shows the probability of opportunity of contact or interaction among different castes in Hisar city by virtue of the location of their residences. It does not show the actual pattern of social interaction among different castes. The index values range between 0 to 1. On this scale 0 denotes virtually no probability of inter-caste interaction while 1 represents highest probability of interaction. The probability of contact or interaction has been measured both ways, i.e. between caste A to B and vice-versa. It is evident from the table that the probability of inter-caste interaction, in general, is very low in the city. The Brahmins have some probability of interaction with Aroras and Jats (index values 0.21 and 0.17 respectively) but none of these castes would probably reciprocate. Similarly, Vaishyas have some chances of interaction with Aroras (index value 0.20) but all the other castes have a very bleak chance of interacting with them.

Among the intermediary castes, the Aroras have a very low probability of interacting with other communities. But by virtue of their numerical strength and being spatially the most widespread community, the probability of other communities interacting with them is comparatively higher. Interestingly, the probability of Balmikis interacting with Aroras is moderately low (index value 0.35), but highest as compared to all other communities. This may be attributed to the fact that Arora and Balmiki households live in the same residential area in a couple of wards in southern parts of Hisar. Other communities including low castes also have a fair chance of interacting with Aroras. The Jats have a very low probability of interaction with other communities except Aroras (index value 0.23). An almost similar level of probable interaction is found for the Saini, Kumhar and other scheduled castes. It is evident that Aroras happen to be probably the most interacted upon community while Balmiki is probably the most interacting caste with Aroras.

Conclusion

It is evident from the preceding discussion that there prevails a significant degree of spatial concentration and residential segregation among various castes and communities in Hisar city. The highest degree of residential segregation occurs among the scheduled castes such as Balmiki, Od and Dhanak. They either reside in small localities of their own or share residential space with other weaker social sections in the eastern parts of the city. The Balmiki, in some localities, live along with Aroras and hence have a higher probability of interacting with them. But other castes belonging to the lower strata of the society have a very bleak chance of interacting with other communities. Among the upper caste group, the Vaishya households exhibit a moderately high degree of residential segregation. They are found concentrated in northwestern and western parts of the city and form either mono caste or two caste combinations. In comparison, Brahmins are distributed all over the city.   Among the intermediary castes, Arora and Jat, are fairly distributed and have a moderately low degree of residential segregation. The probability of Aroras interacting with other castes is highest among all the communities. But among the intermediary castes, Sainis are a segregated community. The Kumhars, an artisan caste, show a moderately high degree of segregation. They mostly live in community *mohallas* of their own.

The study shows that the pace of assimilation of various communities in the city is not too strong. The urban community continues to be residentially segregated on caste basis. Even the modern township in the city does not have a very well forged socio-spatial pattern. The lower strata of the society and backward castes largely face residential deprivation, as their residential areas are located beyond the ambit of planned township and residential areas favoured by higher castes.

Table 4

Index of Probability of Interaction among Major Castes

Major Castes		Brahmin	Vaishya	Arora	Jat	Saini	Kumhar	Chamar	Balmiki	Dhanak	Od
Brahmin	Contact with	1	0.129	0.210	0.170	0.057	0.048	0.057	0.037	0.031	0.014
Vaishya	Contact with	0.062	1	0.203	0.119	0.029	0.054	0.036	0.037	0.018	0.005
Arora	Contact with	0.046	0.093	1	0.106	0.055	0.031	0.047	0.072	0.022	0.025
Jat	Contact with	0.082	0.120	0.234	1	0.036	0.004	0.051	0.032	0.025	0.018
Saini	Contact with	0.048	0.050	0.212	0.063	1	0.052	0.054	0.028	0.070	0.016
Kumhar	Contact with	0.059	0.140	0.174	0.101	0.076	1	0.056	0.027	0.056	0.025
Chamar	Contact with	0.063	0.083	0.241	0.118	0.072	0.051	1	0.056	0.042	0.031
Balmiki	Contact with	0.040	0.083	0.354	0.071	0.036	0.024	0.054	1	0.021	0.049
Dhanak	Contact with	0.052	0.063	0.172	0.085	0.140	0.076	0.063	0.033	1	0.030
Od	Contact with	0.034	0.026	0.271	0.086	0.044	0.046	0.064	0.106	0.041	1

>0.60 - High, 0.45 - 0.60 - Moderately High, 0.30 - 0.45 - Moderately Low, 0.15 - 0.30 - Low, < 0.15 - Very Low

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