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POPULATION ASPECTS OF MULTICULTURALISM IN SWITZERLAND

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Abstract

Multiculturalism as the (spatial) coexistence of people or groups with different cultural backgrounds has becom the rule in the modern world rather than the exception. It is a reality that cannot be swept away by political measures but has to be accepted as part of everyday life. However, multiculturalism is nothing new but is as old as human societies - it all depends on the definition and the context of reference.

The present paper draws on the example of Switzerland to discuss the two concepts of *native* and *imported* multiculturalism. The former refers to a society that has delineated itself in the course of nation building since the 15th century, whereas the latter sets in with the growing immigration of foreign citizens into a state that has consolidated itself in 1848. Native multiculturalism is about the coexistence of four language groups, but also of 26 very autonomous regional states (the 26 cantons) with their specific political traditions. Imported multiculturalism, on the other hand, is mainly a psychological problem, dealing with the perceptions of and the attitudes to the different groups of immigrants and their Swiss-born children.

The paper concludes with the statement that imported multiculturalism is a termporary phenomenon on the group-level, but long lasting on the national scale, unless immigration ceases and all immigrants have been fully integrated and assimilated into the host society. Native multiculturalism, on the other hand, is an indicator of cultural diversity in a society that has learned to live with and respect it.

Multiculturalism : the rule or the Exception ?

After the melting-pot concept and endless discussions on integration and assimilation, multiculturalism has become an accepted (almost a fashion) term in the debate about the living together of populations with different cultural backgrounds. In a world where absolute or metric space has been progressively replaced by relative and subjective space, and where international migration has become an everyday phenomenon, we are constantly confronted with the 'other', the 'foreigner', usually immigrants from countries where attitudes and ideas about life differ from ours. Multiculturalism is thus usually associated with the migration process.

However, most countries have been experiencing this living together for a long time throughout their history, and multiculturalism is not something entirely

new. If Kymlicka (1995, p. 1) points out that "most countries today are culturally diverse" (emphasis added), he seems to forget the past, i.e. the processes which have led to cultural diversity. By focusing on the North American example, he concentrates on an immigration society which for a long time has seen the melting-pot concept as its socio-cultural guideline. But this is only part of the story of mankind, and despite the current preponderance of North American thinking and customs around the globe, this is not necessarily the model for everybody and for every corner of the world. Cultural diversity has been and will (have to) be an essential component of humanity.

In the present context, multiculturalism is defined as the (spatial) coexistence of people or groups with diverse cultural backgrounds. Culture, "an incredibly slippery term" (Mitchell 1995, p. 104) is understood as the sum of values and customs inherited from the past, modified by the present and likely to be carried into the future. It includes the world view or the spiritual adherence (religion), ways of transmitting knowledge (language, education), social order (political and non-political), attitudes, taboos, techniques and material objects related to the way of living. Certainly, this is but one way of defining this term and not every-body may agree to it, but it serves the purpose of the ideas exposed below. In addition, its dynamic aspect has to be stressed: certain cultural traits will inevitably be forgotten or disappear entirely, whereas new traits will turn up, be it more or less spontaneously or intentionally. Present-day 'cultural industry' is an example for the latter; it is the planned introduction of new cultural traits, implementing "designs for making contested political, economic and social practices appear as if they are natural and inevitable parts of society". (Mitchell, 1995, p.110). The cultural industry is motivated by the drive for power in current economic (profit-oriented) thinking, and it has become one element in the neo-liberal world economy, represented by the WTO.

It is not our intention to discuss the term 'culture' beyond this point but focus on its various aspects in a small country which has experienced numerous processes of cultural transformation. Culture is seen as a value-free concept: there is no superior culture, therefore respect and tolerance are the qualities which are most important in the multicultural context. This may be an idealistic demand, but if we look at the present-day reality of individualism and egoism, it is necessary to emphasize it. Quite naturally, conflicts may arise if different groups have to live together, and in many cases they unfortunately result in violence. The conflict potential is particularly high if multiculturalism is negatively associated with the nation-state (the state as one nation, i.e. one language or religion, one ideology, or one ethnic group - again a problem of power relations). Similarly, questions of identity; and of majority-minority relations may result in friction or even hostility. The notion of racism is quickly at hand on such occasions. Stereotypes, which may originate from a non-tolerant attitude, render peaceful coexistence difficult or even impossible.

Everybody has his and her own personal culture which is tied to his and her personality. The same holds good for the various social groups and the individual countries. Looked at from this perspective, multiculturalism is the rule in every society ill the political discourse, the concept of culture is related to the nation-state or the identity of a society which is bound together by political ties; multiculturalism therefore assumes a political dimension. As a consequence, the cultural mix is first and foremost considered as the result of migration, a domain where governments are determined to exercise as much control over their subjects as possible. Since humans have been migrating for thouands of years, cultures have tended to mingle almost since the origin of man, although the degree of mobility has, of course, been extremely variable. There is nothing like a uniform (national) culture.

As everything else, migrations can be looked at from two sides. On the one hand they bring people together and allow for the exchange of ideas and the imitation of customs, on the other they can be a source of conflict. Unfortunately, violence often accompanies the meeting of people with different ideas, attitudes etc. To live in a multicultural, society is therefore a particular challenge, because it requires two paramount qualities: respect for the other and tolerance towards alternative ways of thinking.

Switzerland - a multicultnral country by tradition

Switzerland is a 'microcosm', compared to the rest of Europe or India. With a surface of barely 41,000 sqkm and 7.2 million inhabitants (2000 census), one could imagine that the population of this small country has no problems at all. However, this is a stereotype rather than the reality. It is true that the Swiss have managed to live together in a very peaceful way, but small (usually non-violent) conflicts do occur and have to be dealt with.

The thesis to be developed below is that Switzerland has been a multicultural society for many centuries, and that the current situation is not radically but only gradually different from the past. A short look back in history may illustrate this process and allow us to distinguish two types of multiculturalism - called 'native' and 'imported' multi-culturalism respectively - which characterize present-day Swiss society and which are to some extent interrelated. This is an important distinction which has to do with Swiss history, and it is a characteristic of the country's socio - political system.

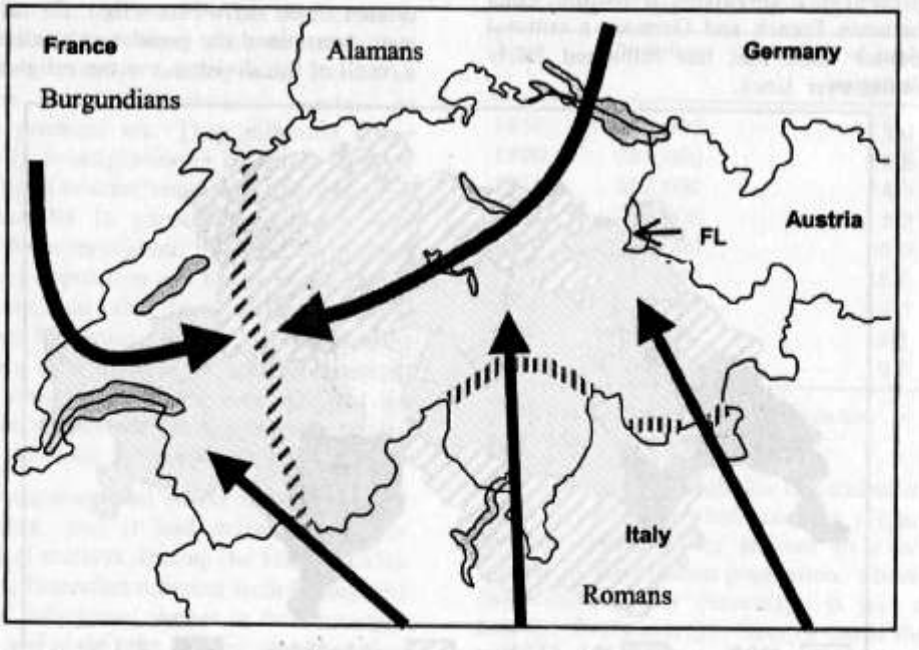

Figure 1: Switzerland, her neighbours, and former invasions

The historical background to Swiss multiculturalism

The territory of present-day Switzerland lies in the heart of Europe, at the crossroads of population movements since Celtic times. Two major invasions have marked the early history of our territory (Figure 1) :

1. The invasion by the Romans (1st cent. BC) who brought the Latin culture to the native Celtic population, and
2. The invasion by Germanic peoples (from the 4th to the 8th cent. AD onwards), characterized by two main migration waves: the Burgundians who arrived from the northwest and had adopted a Latin culture, and the Alemans who penetrated from the north and northeast and brought with them the Germanic culture. The two waves met roughly in the region of the present-day linguistic transition zone between French and German, a cultural border zone that has remained fairly stable ever since.

The core area ofpresent-day Switzerland lay in the German speaking part, and the association of small, independent communities or 'states' grew through alliances from 1291 onwards. German speaking mountain valleys and city-states in the foreland were the first new partners; from the 15th century onwards, Italian and French speaking areas were gradually added, mainly through conquest as dependent colonies. In 1471, the bilingual state of Fribourg joined the alliance, but German was at that time the dominant language of Fribourg's ruling class. The Swiss Confederation was, since the 16th century, a multilingual union.

In the 16th century, the Reformation resulted in a religious cleavage within Europe, between Catholics (essentially in the south) and Protestants (essentially in the nol-th,, meeting and mixing in a transition zone which comprised Switzerland. According to the dictum *Cuius regio eius religo,* the ruler of a state determined the population's religion. As a result of this division, various religious wars

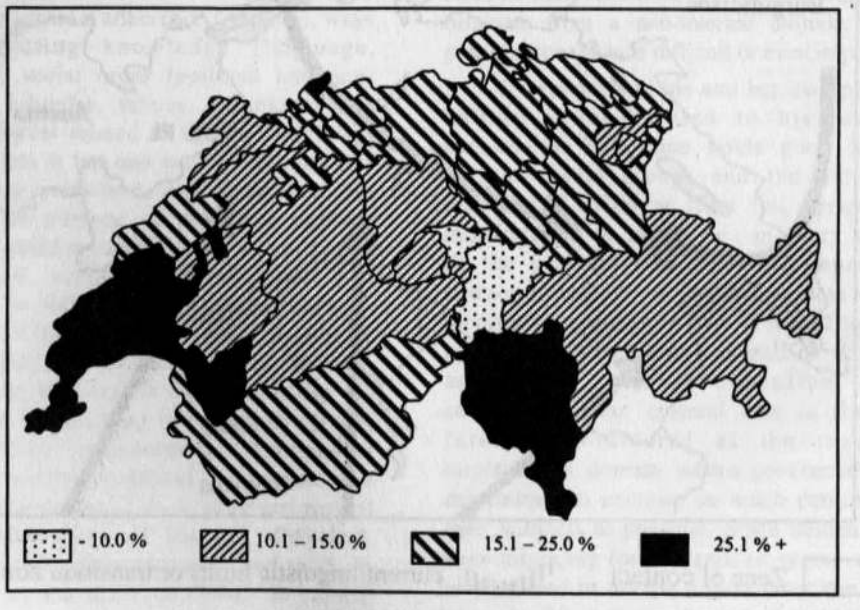

Figure 2: Percentage of foreign residents by canton, 1998

raged between the 16th and 18th centuries in Central Europe. They also put the Confederation to a severe test. However, it survived this turbulent period miraculously.

The French Revolution and in particular the French invasion in 1798 put an end to the old order. The Vienna Congress (1815) reinstalled Switzerland as a state (a confederation), but it was only in 1848, after a short civil war between conservative and progressive forces (cantons), that the modern (liberal) state was founded. Direct democracy (i.e. the control of state power through referenda on constitutional affairs and the validity of laws) and the decentralization of political power tire the cornerstones of the Swiss state.

Switzerland and international migration

From the 16th until the late 19th century, Switzerland has been predominantly an emigration country, sending men abroad as soldiears, builders, architects, vendors of various products etc. They migrated either seasonally to neighbouring countries, or they left for good to other continents (the Americas and Australia in particular). Poverty was driving force throughout this time. It resulted from over-population and the lack of land for agriculture, but also from difficult natural conditions for farming and the two practices of succession. ,The division of holdings rendered farming uneconomic in the long run, and the succession of only one son to a property left his brothers with few choices but emigration.

Immigration had so far been of limited importance, and it had mainly been for ideological motives. During the 16th and 17th centuries, Protestant refugees from France and Northern Italy found shelter in the Protestant cantons, and in the 19th century, representatives of liberal political ideas in conservative European countries (revolutionaries) obtained refuge in liberal Switzerland.

From about 1890 onwards, Switzerland turned into an immigration country, but this time the immigrants were no longer political refugees but workforce. In 1900, immigrants accounted for 11.6% of the resident population, in 1910, this figure had risen to 14.7%. They were mainly German and Italians, i.e. people from two of our neighbouring countries. As a consequence of World War I, their share had dropped to 10% by 1920, and in 1941 it was down at 5.2%. After World War II, Switzerland began to recruit an increasing number of workers in order to satisfy the demand of her industries. While in 1950, immigrants accounted for only 6% of the resident population, their proportion rose progressively to 14% in 1965 and 16% in 1970. Despite the crisis after the oil price shock in the 1970s, it remained at 14.5% in 1980. Currently, about 19.6% of the total population are of foreign nationality (but not necessarily immigrants; Table 1).

Year	Number	% of resident population
1850	72,000	3.0
1900	383,000	11.6
1910	552,000	14.7
1941	224,000	5.2
1950	285,000	6.0
1970	1,003,000	16.0
1980	920,000	14.5
1990	1,245,000	18.1
1998	1,348,000	19.6

Table 1 : Foreign born population in 19th and 20th century Switzerland.

The foreign population is distributed very unevenly over the whole country (Figure 2). In four cantons, they amount to over one quarter of the resident population, whereas in two cantons, their percentage is just about half the Swiss average. Geneva heads the list with 37.4 % foreign residents (almost twice the national average). It is a special case because it houses a wide range of internatic,nal organizations (European headquarters of the United Nations,

headquarters or regional offices of various organizations affiliated to the UN, headquarters of the WTO, of the Red Cross, etc.). An additional factor is the canton's situation on the French border, an element which also holds good for Basle (26.2%) where the conurbation spreads across the border into France and Germany (Leimgruber, 1981, p. 195; Leimgruber & Muggli, 1982). Generally, the proportion of foreigners in a given canton is related to the presence of industry and, to some extent, of tourism.

Needless to say that the immigration process in the second half of the 20th century has had both psychological effects (the rise of xenophobia and, more recently, of forms of racism) and political consequences between 1970 and 2000, the Swiss had to vote on 17 occasions on laws and articles in the Constitution which aimed at limiting the percentage of foreign residents in one way or another. However, the population always refused the extreme attempts to fix quotas in the Constitution. The problem had to be solved pragmatically through laws and decrees, not fundamentally through the Constitution. The question of foreign residents and of immigration remains, however, one of the chief problems of Swiss policy.

More important than the sheer number of foreign residents, however, are their countries and culture of origin, because multiculturalism related to immigration has become an issue ever since the 1960s. While the number of Germans has gradually decreased, the share of Italians passed beyond 50% after 1950 and reached a maximum of 59% in 1960. After that date, Spaniards began to arrive in increasing numbers, followed by Yugolavs (prior to the break-up of the old Federal Republic), Portuguese and Turks. By the end of the 20th century, Italians and citizens from Ex-Yugoslavia account for almost half all foreigners (Table 2).

Itally	24.3
Federal Republic of Yugoslavia	24.2
Portugal	9.9
Germany	7.4
Spain	6.5
Turkey	5.9
France	4.2
Other Countires	17.6

Table 2: Countries of origin of foreign residents in Switzerland, 1999 (in %).

In addition, refugees from all over the world arrived between the 1950s and 1990ies: Hungarians, Poles, Czechoslavaks, Bosnians and Albanians from Europe, Kurds, Vietnamites and Tamiles from Asia, Chileans from South America, and Erythreans, Congolese and others from Africa (Table 3). This recent migration movement must be borne in mind when talking about multiculturalism in Switzerland, especially when people from other continents with a radically different cultural and ethnic background are concerned.

Year	Region or country of origin
1956	Hungary
1959	Tibet
1969 f	Czechoslovakia
1973 ff	Chile
1975 ff	Vietnam, Cambodia, Laos
1979 ff	Africa (Ethiopia, Erythrea, Zaire etc.)
1981 f	Poland
1982 ff	Turkey (incl. Kurds)
1983 ff	Sri Lanka
1989 ff	(Ex-) Yugoslavia

Table 3: Refugees into Switzerland after World.War II.

Native vs. imported multiculturalism

As has been said above, we distinguish two forms of multiculturalism. Every society is first and foremost characterized by endogenous cultural diversity which evolves and changes out of its inherent dynamics as well as through exchange with the outside world. The driving forces, however, are anchored within the native society. On the other hand, the immigration of entire population groups brings about new cultures which are more or less radically distinct from

the host culture. An existing native multicultural society is then enriched (but also complicated) by the new arrivals. Allowing for sufficient time of adaptation, however, the contrasts may eve out if not disappear.

Native multiculturalism

The history of Switzerland contains the multicultural element in itself. Four different languages (German, French, Italian and Romansh) live together, and two major religious groups (Catholics and Protestants) manage to coexist - and in either case, there are further minorities of both language and religious affiliation. It is important to notice, however, that the limits between the religious and the linguistic communities do not coincide at all - there are German and French speaking Prostestants as well as Catholics.

Switzerland is a multicultural society, and the parallel existence of different ways of life can be seen as enriching, although it may also complicate life. To see the positive or the negative side of it is like saying that the glass is half full or half empty. Certainly, multiculturalism promotes the growth of translation cultures, and this is in itself a positive effect.

Important fields in this respect are politics administration, in particular on the federal (national) level. German, French and Italian are official languages, all official texts have therefore to be published simultaneously in these three languages, and they are all considered original text'. Certain laws and, of course, the Constitution, are also translated into Romansh. The same pattern repeats itself in the French and German bilingual cantons (Valais, Fribourg, and Bel-ne) and in the trilingual Grisons (German, Romansh and Italian).

The religious differentiation, on the other hand, has lost much of its former significance (although Catholic cantons usually have more public holidays than Protestant ones). This is due to internal migration on the one hand, which has favoured the mixing ofpopulations, and to the general tendency to secularization on the other: religion has been separated from everyday life and has retreated to the private, the inner sphere of the individual. The Swiss in general still think in a rationalist and utilitarist way, spirituality is a matter for others.

	1950	1990
German speakers	72	63.7
French speakers	20	19.2
Italian speakers	6	7.6
Romansh speakers	1	0.6
Other languages	1	8.9
Total inhabitants (100%)	*4,714,992*	6,873,687

Table 2 : Countries of origin of foreign residents in Switzerland, 1999 (in %).

Native multiculturalism is therefore essentially based on the linguistic diversity, but the four languages have a very uneven weight, and other languages have assumed increasing importance in recent decades (Table-4). The four language regions can - in a somewhat simplified way - be characterized as follows :

- The German part is economically very strong, although the poorest and the richest regions of the country are situated within it. The many local and regional dialects which are common in everyday conversation as well as in radio and TV pose problems to mutual understanding with the other three language groups; German speakers use standard German very reductantly as they want to delimit themselves from Germany.
- The French part is economically less lucky, although it houses the headquarters of one of the world's largest transnational food companies, Nestle. The former dialects have disappeared, they survive locally in traditional dialect associations. Standard French is the everyday language, and through it the French speaking part is linked to the

world-wide francophone community.

- The Italian part is economically weak except for the finance sector which profits from the proximity of Italy, in particular from the economicaly strong Lombardy region. In the Italian speaking region, dialects have survived for private conservation, but standard Italian is clearly dominant.
- Romansh is spoken by a small minority, and it is split into five regional dialect groups. Only recently, a standard language has been developed, and it has met with a lot of scepticism. Romansh speakers need to be bilingual at least in order to make their way in Switzerland, and usually German is the privileged second language.

In Switzerland, every pupil learns at least one second national language at school (a principle which is abut to be written into the Constitution), but the advantage of this knowledge is not fully exploited by many people. They are usually all-aid that their knowledge of the other language(s) is insufficient for ordinary communication fi an attitude which is certainly wrong but difficult to change, There is a sort of distance decay: the farther away from the linguistic divide a person lives, the less he or she is likely to remember school French or German, unless he or she has a distinct opportunity to practise it. There are many possibilities to do so, such as an exchange within the same firm, a professional training course in another linguistic region, working as an au pair. Teacher training colleges or medical schools often require good knowledge of at least one other national language. Despite these and other opportunities, many people do not really appreciate the big chance which our 'native' multiculturalism offers: it is a bridge between different ways of living within one and the same political system, the characteristic trait Swiss of culture.

Apart from linguistic diversity, there is another aspect of native multiculturalism that has to be mentioned. The territorial history of Switzerland is characterized by a cumulative process: small independent states (mountain valleys and city states) joined in an alliance or confederation which grew over time and developed into a liberal state in the middle of the 19th century. Faithful to this past, the Constitution of 1848 preserved the federal system, and present-day Switzerland is still a confederation where the Central State has limited power. The regional states (Cantons) have their own legislative, executive and jurisdictional system, they levy their own income tax (and spend their revenue according to their own budget), they have their own police force and organize the school system according to their own ideas. Even if attempts at a simplification are under way, such a process requires time and patience, and this criversity is likely to persist. There is a deep rooted cantonal identity[2], and there are 26 cantonal cultures and political systems. This may look complicated, but it is possible to live and survive in Suitzerland, even as a minority. We have developed a generosity of the majority towards the minority: it is cherished beyond its share of the total population.

Imported multiculturalism

Apart iroln the variety of native cultures, the Swiss have also been confronted with immigrants and their cultures, and the meeting of culfures has not always been easy. The problem of the immigrant as an 'intruder' has already been felt on the eve of World War I, and it has manifested itself with particular strength from 1960 onwards. It was (and still is) basically a psychological problem related to the idea of the foreigner, the outsider, the 'other' - a stereotype which plays an important aspect in all human relations. It is not confined to the passport (the nationality) but includes people's outer appearance. Clothing, skin and hair colour, physiognomy, and behaviour distinguish 'them' from 'us' and tend to create a cleavage. Although the overall attitude is

still fairly positive, signs of racism do occur from time to time. They have nothing to do with age, rather are they linked to the socio-professional status of the individual. Racism can therefore be found among young and elderly persons. Officially, it is not tolerated. Article 261 bis in the Swiss penal code (enforced in 1995) sanctions all public actions and appeals with racist contents by prison or a fine. Discrimination is forbidden, but it cannot be stamped out completely - overt racism may be banned effectively, but covert or private racism is hard to detect and to punish. Discriminated persons often feel intimidated and do not risk going to court.

If the native population felt threatened, this was due to the arrival of a large number of immigrant workers in the 1950s and 1960s whose presence was motivated by economic necessity but was felt as a cultural menace. Immigrant labour kept the Swiss economy going and facilitated the transition of the native workel·s il-lto the service sector or into highly qualified jobs in industry. Foreign workers Mere usually unqualified, ready to do the chores the Swiss were no longer prepared to do - a phenomenon common to highly industrialized countries around the globe.

The critical domain was culture, more precisely the field of national consciousness or identity. Many Swiss felt their identity menaced by the presence of immigrants, and this feeling eventually led to a political reaction. Emotional arguments prevailed in the discussion, although at the same time the Swiss society gradually adopted numerous elements of foreign cultures (linguistic expressions, food, music, material objects) - a process enhanced by holidays many Swiss spent abroad. Most people, however, did not recognize this ambiguity, they stubbornly clung to tile stereotypes with which they had grown up and which were hammered into their minds by a handful of xenophobes.

To some extent, one can understand the reaction of the native population, because behind the emotional arguments there were rational ones: the immigrants were both partners and competitors on the labour as well as on the housing market, they came from countries with low salaries and had modest consumer demands. Their presence was felt as an economic menace to the native workforce (especially as a threat to the level of salaries), despite the vertical segmentation (Swiss in higll-quality positions, immigrants ill modest jobs). These economic aspects, however, were but a pretext that served to conceal the deep-rooted distrust to 'other' cultures.

In recent years, the growing variety of immigrants from all four comers of the world, the globalization of crime, and drug abuse have modified the image of the menace. Traditional immigrants (Italians, Spaniards etc.) are widely accepted, but new groups potentially threaten our security. Many are simply seen as drug dealers who lead our young people astray. A new stereotype has emerged, manifesting itself in the feeling of insecurity of many people. It is true that crime has assumed a global dimension, but there are also Swiss involved in it, not only immigrants. And it is equally true that drug dealing is done partly by immigrants (through contacts to their home countries, which are often situated on traditional drug routes), but there are also native drug dealers (and the money is deposited on Swiss banks). Besides, drugs are primarily a social problem, not one of the drug dealers.

Despite these recent trends, the difficulties associated with immigration cannot be reduced to the simple polarization of 'Swiss good - foreigners bad'; the issue is much more complicated. But there is unrest, and xenophobia and racism are re-emerging: to preach generosity towards imlnigrants and to put it into practice is not the same.

The present situation of multiculturalism in Switzerland

Native multiculturalism is usually

discussed when remarkable differences in voting behaviour or unemployment rates occur between the different linguistic regions, or- when the first foreign language to be taught at school is at stake.[3] However, such discussions must be interpreted of a sign of awareness of cultural diversity rather than of real conflict and of the consensuality of our social system; secession is not a topic in such situations although the question has been raised on varioils c,ccasions. There is a deep-rooted wish to stick together despite (or maybe because of) the differences.

Imported multiculturalism, on the other hand, has animated political life since the late 1960s, and an end is not in sight. Discussions on immigration, refugees and asylum play an important role in domestic affairs. They are complicated by the fact that "Swiss policy and legislation on aliens is strongly influenced by labour market policy". (Branger 1998, p. 292), i.e. by the necessity to import manpower with no or little qualification for the secondary sector, as well as the need to employ highly qualified specialist in R+D. Behind the many discussions, we can detect our native multiculturalism, i.e. the cultural cleavages inside Switzerland. The Germanic part of the population generally displays a reserved or at times even hostile attitude towards foreigners compared to the French and Italian speakers (Kreis 1993, pp. 177, 179).

Multiculturalism has therefore become a problem for natives and immigrants alike (including their Swiss born children and grandchildren who are foreigners but not immigrants). The native population may feel threatened although the foreign population plays an important role in economic life and is a mediator for certarrl aspects of culture. The foreign population, oil the other hand, lives in the ambiguous situation between attachment to their region and society of origin and to the host country and its population, between inherited and acquired culture (Centlivres et al 1991, p. 20; see also Kürsat-Ahlers 1996).

The problems related to multiculturalism concern different domains, such as employment, socio-professional status, education, political participation, values and attitudes. A particularly delicate issue is naturalization, i.e. the process of becoming a Swiss citizen.

The most sensitive domain where multiculturalism is almost completely banned, is **political participation.** In every country, foreign citizens are excluded from actively participating in the political process. They are obliged to pay taxes and have to comply with the legal system, but they cannot influence it. Every political system is convinced that it is the best - and for the society concerned it may well be hence it will hardly ever make all effort to learn from another system. Political participation for immigrants is therefore beyond discussion, citizenship is the necessary condition.

Switzerland is no exception to this rule : foreign citizens do not participate directly in the political process. They have no right to vote on referenda or to panicipate in elections. To be politically active, they have to become Swiss citizens, a process which is long and thorny. There have been several attempts to include foreigners in local and regional political processes, but the canton of Jura is the only regional state which allows foreign citizens to vote on local and cantonal matters (after a minimum of five years' residence). The canton of Neuchâtel has offered this possibility on the municipal level since 1849.

Education can be considered as the most important factor in familiarizing immigrants with the host society that at the same time can help to eradicate negative stereotypes towards the 'others'. The school is the place where multiculturalism can be fully lived. From kindergarten onwards, it offers children the opportunity to live, play and learn together and take cultural variety for granted. Culture can thus be shown as being dynamic, a living element and constituent of society. However,

the school must not be seen in isolation: to the atmosphere of the classroom have to be added relations with parents and youth associations, but also with the external world of employment, arts and academia (Perotti 1994. P. 94). Multicultural (or intercultural) education is a complex network.

This challenge has not yet been fully met in Switzerland, although a lot of progress has been made. The great difficulty lies in the social differentiation: immigrant children often receive little intellectual and moral support from their parents (who are usually unqualified or are linguistically disadvantaged) in the course education, and both social prejudice and cultural prescriptions prevent them from fully exploiting their intellectual capacities. The responsibility for success in school lies with the pupils and their parents, and success is a question of attitudes and values: what does school mean for the future of the children?

It is obvious that teaching culturally heterogeneous classes is a major challenge to teachers, pupils and parents alike. If more than a third of a class is composed of foreign children who speak several different languages, the individual pupil sees his chances of intellectual promotion diminish. This situation also poses problems to the authorities that may have "to arrange special measures such as transition, introductory, reception or final classes, language courses, systems for small classes and supervision in parallel to education in order to integrate foreign children into their school system". (Branger 1998, p. 308 f.). It is understandable that native children will either receive more attention or be disadvantaged in culturally mixed classes. This drawback continues into non-compulsory tertiary education. Swiss children usually stand good chances to receive further education up to college, professional training and university or polytechnic, whereas immigrant children are less lucky.

Urban areas and industrial regions are particularly concerned by this problem. In Geneva, e.g., almost 80 % of all classes were hetel-ogeneous (i.e. more than one third of the pupils were foreign born; Rranger 1998, p. 308), and in Basle 61 %. In rural areas this figure drops to below 20 % (1993/94 figures from Haug 1995, p. 42).

How to become a Swiss: the problem of naturalization

Citizenship can be considered an instrument to achieve equality, social dignity, and solidarity. Naturalization can therefore reduce disparities and negative attitudes which are based on a person's origin (i.e. passport). Discrimination, however, is not a matter of the passport alone but of other factors, among which outer appearance is still important. Even Swiss citizens who are born in a mixed marriage may face strange looks; and if they arrive from abroad to live in Switzerland (e.g. to do their army service), they may be discriminated in the beginning.

Naturalization can be one instrument to integrate foreign-born persons into their host country and free them from the stigma of being a 'foreigner'. There are two basic principles to obtain nationality: *ius soli* (citizenship is determined by birth in a specific territory), and *ius sanguinis* (citizenship determined by descent). The former is of French, the latter of Germanic origin (Wicker 1998, p. 330). Until now Switzerland follows the principle of *ius sanguinis;* i.e. a foreigner born in Switzerland remains a foreigner, however long he or his parents have been living in the country. This practice has been repeatedly criticized in the course of recent political discussions, and it may well be that within a few years' time the *ius soli* principle will be applied at least for third generation immigrants.

To obtain Swiss citizenship is fairly difficult, due to our complex political system. There is no legal claim that a foreigner can

become a Swiss citizen. A request has to be addressed to the commune (municipality) of residence which will decide. Due to the country's history, a Swiss is first and foremost a citizen of his home municipality, and as a consequence of his of the respective canton - and as a consequence of this, of Switzerland. There is a Swiss passport, but the cantonal authorities issue it.

A person who applies for Swiss citizenship requires patience (and money). Twelve years of residence are usually required, of which three wihtin the five years prior to the request. For young people (between 10 and 20 years of age), every year of residence is counted twice, and for mixed couples the period for the foreign partner will be reduced to five years. All these restrictions have been adopted to minimize abuse.

In the course of the naturalization process, the candidate will become familiar with the bureaucracy and the whims of the people who run it. Citizenship is conferred in a democratic process, but there is no uniform practice throughout the country. In small municipalities, it may be the communal assembly of all resident Swiss citizens, whereas in larger municipalities it is the communal parliament or the assclnbly of the local citizens. Whatever procedure we follow, it is almost impossible to eliminate personal views and stereotypes from the process. The sheer country of origin may be an obstacle, even if the person has been born in Switzelland, lived in this village all his or her life, speaks the local dialect, works there and takes part in public life the final decision may not be based on objective criteria but on subjective emotions. The attitudes generally vary between the different linguistic regions and between rural and urban settings - a consequence of native multiculturalism. Thus, the French speaking part of the country is more liberal than the German speakers.

Naturalizations have varied greatly in the past years (Table 5). For citizens of member - countries of the European Union, the Swiss passport has lost much of its attractivitv, unless agreements on double citizenship have been signed between Switzerland and foreign partners. People from non-EU origin, however, see naturalization in Switzerland as a great chance to build a new life.

Country/region of origin	1991	1998
Europe	77.4	74.9
— European Union	57.1	43.6
— Italy	20.5	26.4
— France	7.7	5.4
— Ex-Yugoslavia	6.9	15.5
Turkey	3.8	9.8
Africa	3.5	6.9
Asia	11.0	11.1
Americas	7.9	6.9
Total naturalizations	*8,757*	21,277

Table 5 : Naturalizations in Switzerland in 1990ies (percentage of all naturalizations)

Conclusion

"Multiculturalism" is often pronounced as a sort of slogan to demonstrate that the speaker is up to date. To use a term and to apply it in practice is, however, not the same. It is an open question whether multiculturalism is considered a normal state of affairs in a society or if it used to conceal a less friendly political programme. Kürsat-Ahlers (1996, p. 115) puts it as follows : "Germans have tended to interpret multiculturalism as a model to facilitate the preservation of their own German culture and shield it from contact with (or contamination from) migrant cultures". This sounds harsh, but I should think that it does not quite apply to Switzerland. The Swiss have a habit of different cultures, they are confronted daily with both native and imported multiculturalism. However, humans have a

general tendency to inertia, and in Switzerland this may be somewhat more pronounced than elsewhere: innovations in technology and culture need more time to be accepted than in many other countries.

The questionnaires of the Swiss census in December 2000 were printed in the four national languages, but an explanatory leaflet was issued to those persons who speak another language (from Albanian to Turkish) and which helped them to fill in the forms correctly. This practice shows that the Federal Office of Statistics takes the question of multiculturalism seriously and applies the principle of generosity.

The different groups in Switzerland continue to live side by side rather than together, but there is not strict segregation. The gradual penetration of external culture elements is continuing, and intermarriage is one indicator for it. This process has been going on for centuries - indeed, Swiss culture (if it exists at all) is the result of constant penetration, selection and adaptation. Ln the long run, the indivi(lual immigrants have become integrated into alld eventually assimilated to the host society.

From this I conclude that multiculturalism is a temporary phenomenon as far as individuals and small groups (e.g. families) are concerned, but a long-term one in an entire society. Individuals and small groups who intend to spend their lives in a new society will eventually try not to be different from the members of the host society because their social success in part depends on the degree of integration, and their identity is related to their social position. Eventually, a future generation will become totally assimilated into the host society. This process should be left to itself, it requires considerably time, but it is irreversible. Assimilation must by no means be the declared goal of immigration policy. Rather, the spiritual values of respect and tolerance for the 'other' are to be promoted.

Finally, multiculturalism is relatively easy to live on the informal level, i.e. in daily life, because personal contacts facilitate coexistence. On the formal (political and administrative) level, on the other hand, it is much more difficult. Laws are relatively static, they change very slowly and not radically. Man usually thinks in an ambiguous way: informally, the 'other' can be accepted easily, but formally, his or her status cannot/must not/shall not be changed too quickly.

As has been demonstrated, multiculturalism is not only the result of international migration but must be viewed from a much wider perspective : it is characteristic of every society. Multiculturalism is also a necessity in a time when the global spread of information facilitates uniformization and standardization. It is imperative to maintain cultural diversity and to cultivate multiculturalism as the (peaceful) coexistence of groups with different cultures. This conclusion joins that of biologists who are advocates of biological diversity (Leimgruber, in preparation). The survival of mankind depends to a large extent on a same environment, but it also requires a variety of cultures which can cross-fertilize each other and thus prevent what Vandana Shiva (1993) has called the monocultures of the mind.

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SLOVAKIA : TRANSITION AND ITS IMPACT ON THE DEMOGRAPHIC SITUATION

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Abstract

The transformation processes of the society, which have been occurring in Slovakia after 1989, are finding their reflection in the demographic behaviour of the population. Transformation has hit population phenomena in different intensity. One group of population phenomena significantly depends on the pace of development and socio-economic conditions and it includes live births, natural population increase, fertility, nuptiality, abortions, reproduction, etc. The second group of the population phenomena is characterised by major persistence, reacting more slowly to socio-economic changes. It refers to such attributes as life expectancy at birth, infant mortality, mean age of women at marriage, mean age of women at birth of first child, birth outside marriages, etc. Their development depends on the overall social changes, cultural maturity, local traditions, being influenced sometimes by religiousity of population. In this paper, we will aim at two demographically relevant areas, i.e., are the processes of natural movement and the age structure changes of the population (ageing of the population).

Introduction

The processes of social transformation in Slovakia after 1989, are finding their reflection not only in the political and economic fields but they have also significant manifestations in the population's behaviour, its cultural and value preferences. One of the areas that reacts to the transformation of the society very sensitivity, is the demographic behaviour of the population. The changes that occur in the development of certain population processes (live-birth rate, fertility, natural increase, reproduction, etc.) as well as the changes in the population structure prove stronger bonds of the population's demographic behaviour to the transformation processes than presumed earlier. These changes are not only connected with the scientific developments and cognition sphere, but also to planning and other national and regional institutions in Slovakia.

Transformation has hit population phenomena and related processes in varying degree. They can be understood better by making two groups. The first group includes population phenomena and processes responding comparatively quickly to socio-economic changes i.e., live births, natural population increase, fertility, nuptiality,

abortions, reproduction, etc. The second group of the population phenomena and processes respond more slowly to socio-economic changes. It refers to such aspects as life expectancy at birth, infant mortaility, mean age at marriage, mean age of women at birth of first child, birth outside marriages, etc. Their development depends on the overall social changes, cultural ethos, local traditions, and religion etc.

The paper focuses on two demographically relevant areas, i.e., the processes of natural movement and the age structure changes of the population (ageing of the population).

1. Changes of the natural movement processes

1.1 Natality

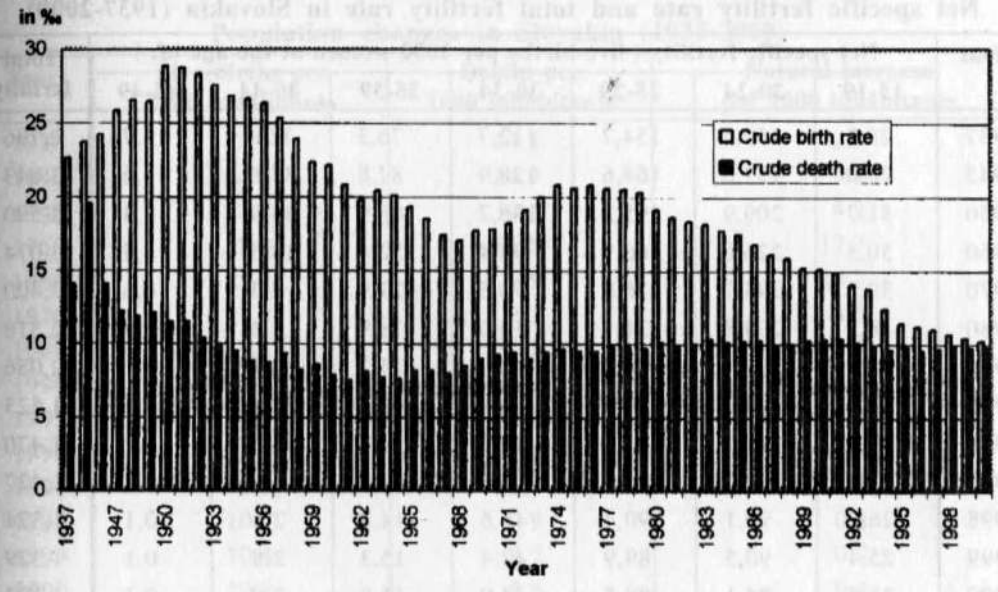
Natality (live-birth rate) is assigned a determining significance in the whole reproduction process, although the relations to the partial population processes as well as to the population structure are quite differentiated. The change in live-birth rate in Slovakia is characterised by two basic features: the irregularity of change and the declining trend.

During the last 100 years, the level of live-birth rate decreased from the values of 40-50% (2nd half of the 19th century) to 10-12% in recent years. This applies also to the absolute number of live-born that fell during the above period, from the level of 100-110 thousand of live-born in one year to the count of 55-60 thousand. This trend is not a specific feature of Slovakia but is considered to be one of the regularities of the demographic evolution of every population. It is related to a number of economic, cultural and social factors. It can be concluded in general that the level of birth rate decreases with the social development.

The irregularity of the change in this regard is reflected in the difference of the number of children born as well as in the fluctuation of the birth rate level. Above all, this is a result of such factors as extensive emigration in the past, wars, economic crises, pro-natality measures, etc. When we observe only the changes since the World War II, there is a characteristic post-war maximum of live-birth rate (Fig. 1). The number of live-born children was 95-100 thousand per year and the level of live-birth rate was 25-28%. Towards the end of the 1950s, there was an onset of a significant decrease of birth rate as well as of the number of live-born children (besides other factors, it was related to the liberalisation of legislation regulating the abortion). Such a development continued until the 2nd half of the 1960s (in 1968 a minimum was achieved when 77 thousand children were born and live-birth rate was 17%). In the seventies, the population reproduction dynamics were restored (especially as a result of population measures) and the second maximum was achieved at the end of the 1970s. The number of live-born reached the value of 100 thousand again and the level of live-birth rate increased to 19-21%. At the beginning of 1980s, there was again an onset of live-birth rate decrease. In addition to the influence of the overall social development reflected in the changes of the population's reproduction behaviour, there was an important effect of the changes in age structure of the population (less number of women entered the age of maximum fertility).

The declining trend in live-birth rate has been observed also after the political and economic system changes in 1989. A special feature of this development is the acceleration of decrease in the live-birth rate. In 1990, the number of live-born children reached the value of almost 80 thousand, and went further down to 55 thousand in 2000. This development is documented by the decrease in the level of live-birth rate from 15% in 1990 to 10.2% in 2000 which was mainly the consequence of the new social and economic conditions. The important factors include lack of housing,

Fig. 1 Historical Development of the Natality and Mortality in Slovakia



unemployment, but also the new opportunities in employment and in entrepreneurial activities, the new family policy (reduction of the loan for newly married, regulation of children's benefits). These factors resulted in postponement of marriages as well as of children's births, especially of the second or third one.

There is a different pattern in the development of abortion rate. In the long term, a maximum was reached in 1988 with almost 60 thousand abortions in Slovakia and the level of abortion rate of 11.3%. Since that year, and especially after 1990, both the count (18.5 thousand abortions in 2000) and abortion rate (3.4% in 1996) have been significantly falling. This is a positive feature of the social and population development. However, the evolution of this population process has a complex relation to the reproduction of the population.

1.2 Fertility

Total fertility rate is an indicator that can be assigned a direct, more comprehensive indicative capability on the way of population's reproduction. The evolution of total fertility rate in Slovakia for the last 50 years is characterised by a comparably rapid decline. While in 1950, it reached the value of 3.6, it fell to 2.1 by 1960 (Table 1). In this period, total fertility rate (like in the development of net fifties and in the mid-seventies. The most decisive decrease can be considered that of 1992 when the total fertility rate got below the level of 2.0 that is the border of prospective population decline. A sharp decrease of this level in the subsequent years below the level of 1.5 (in 2000, it achieved the level of 1.29) proves and underlines these tendencies.

It is natural that the sharp decline in total fertility rate is related to the decrease of net specific fertility and this can be observed in all age categories. The intensity of this decrease was quite different in individual age categories of women. In general, there is a strong relation of fertility decrease to the women's age. The greatest decline was observed in the age categories of women above

Table 1

Net specific fertility rate and total fertility rate in Slovakia (1937-2000)

Year	Net specific fertility (live-births per 1000 women at the age of:)							Total fertility
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
1937	28,7	150,6	154,7	112,7	76,3	32,6	3,7	2,796
1945	28,0	157,0	164,6	128,9	87,8	37,6	4,6	3,043
1950	51,7	209,9	195,2	136,7	86,9	34,3	3,3	3,590
1960	50,5	226,6	166,9	98,4	52,4	18,5	1,5	3,074
1970	39,2	194,7	136,8	70,5	29,9	8,3	0,6	2,400
1980	48,2	204,8	131,1	56,0	18,9	4,3	0,2	2,318
1990	45,5	187,1	116,6	46,3	15,2	2,9	0,1	2,086
1995	32,3	124,4	90,6	40,0	13,8	2,8	0,1	1,523
1996	30,3	115,0	91,5	40,0	14,7	2,6	0,1	1,470
1997	28,6	106,2	89,6	41,3	15,3	2,7	0,1	1,427
1998	26,7	99,1	90,4	41,6	14,8	2,8	0,1	1,374
1999	25,4	90,5	89,9	42,4	15,3	2,8	0,1	1,329
2000	23,8	84,1	88,5	44,0	15,9	2,9	0,1	1,292

Source : Tirpák [1997], Population of Slovakia 1945-2000.

30 years. Among these women, the levels of specific fertility rates in 2000 fell by 2/3 to 4/5 of the values of 1950. At the beginning of the 1950s almost 1/3 of live-born children fell to this age category of women while at present, these categories of women give birth to approximately 18% of children. Marked is especially the decrease in fertility of 30-34 years old women in 1950, it had the value of 136% (almost three times the fertility of 15-19 years old) and it fell to 40% (approximately the same value as for 15-19 years old) in the 1990s. It is just the women in the youngest fertile age (15-19 years) who show the lowest decrease of net specific fertility.

Of a substantial importance for the fertility of women are the levels of specific fertility rates of the two remaining age categories : 20-24 and 25-29 years old. Until 1950, their level was approximately the same (the curves of the specific fertility have two peaks - the main and the secondary maximum). In subsequent development, the highest fertility in Slovakia was reached in the categories of 20-24 years old women (the curves show one peak - a maximum). Until 1980, it ranged above the level of 200% and, by 2000, it fell to 85%. Similarly, the 25-29 years old women's specific fertility fell (approximately to one half), which was traditionally the second highest and it further declined to 88.5% in 2000.

1.3 Natural increase

A decisive importance for the evaluation of population dynamics is the natural increase of population which is a result of the statistical balance of live-birth rate and death rate. In the long-term development, the increase of population was influenced by both these processes. For the last 20 years, however, the degree of general death rate stabilised at relatively low level of 9.5-10.3%. That suggests that the development of natural increase of population is most decisively influenced by the change of live-birth rate

Table 2

Population changes in Slovakia (1935-2000)

Year	Live-births per 1000 inhabitants	Deaths per 1000 inhabitants	Natural increase per 1000 inhabitants
1935	23.6	14.3	9.3
1940	24.0	14.9	9.1
1945	23.7	19.5	4.2
1950	28.8	11.5	17.3
1960	22.1	7.9	14.2
1970	17.8	9.3	8.5
1980	19.1	10.2	8.9
1990	15.1	10.3	4.8
1995	11.5	9.8	1.7
1996	11.2	9.5	1.7
1997	11.0	9.7	1.3
1998	10.7	9.9	0.8
1999	10.4	9.7	0.7
2000	10.2	9.8	0.4

Source : Demografie 1962, Population of Slovakia 1945-2000.

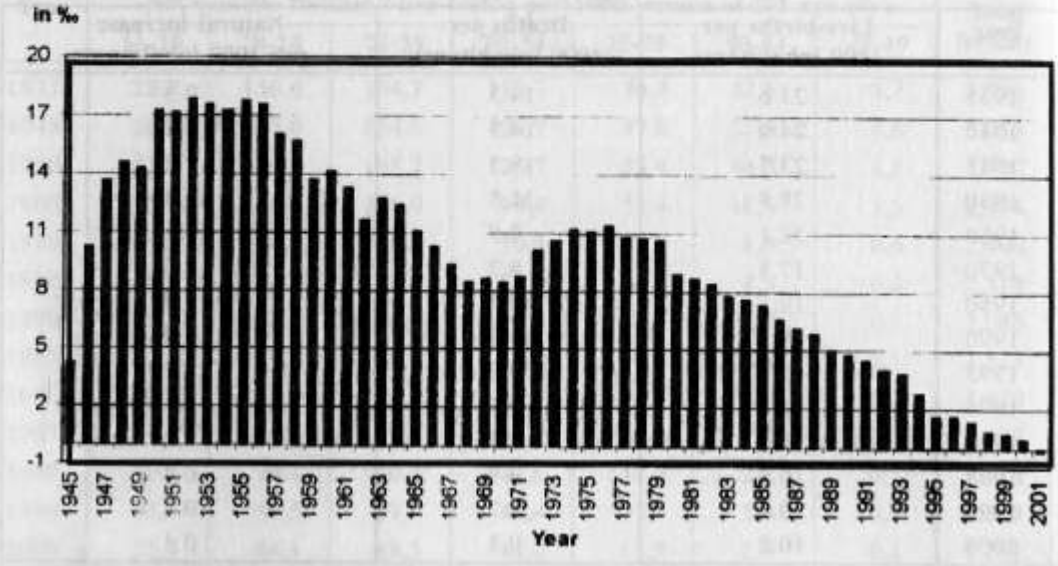
(Table 2).

The first post-war maximum was recorded in the mid fifties with the annual natural increase of population reaching 60-66 thousand that is 17-18%. A second, less pronounced maximum was registered towards the end of the 1970s with the annual increase of 45-50 thousand inhabitants representing a rate of 10-11%. The general decrease of the natural growth rate has been observed at the beginning of the eighties. Still in 1990, there was a increase of 25 thousand inhabitants, representing almost 5% increase. The decrease has been more marked for the last 10 years and in 2000 the increase represented only 2,427 inhabitants, i.e., 0.4%.

In the year 2001, Slovakia entered the group of Europeans countries which have been experiencing decrease in population for the past several last years (Lithuania, Letland, Estonia, Belarus, Bulgaria, Hungary, Czech Republic, Romania, Ukraine and others). (Table 2, Fig. 2).

Another feature of the natural movements of population is its spatial differentiation. In Slovakia, two marked regions have formed. The first comprises the areas of eastern Slovakia, Orava, Kysuce and it could also include the districts of the industrial central region of the Van river's basin. The relatively high natural increase of population characteristic for this area (from 3.0% to 11.0%) has been caused by a high birth rate as well as by a lower death rate in comparison to other regions of Slovakia. It can be seen especially in the area of east Slovakia and Oţava where in 2000 several districts reached the value of natural increase above 6.0%, namely Námestovo (10.7%), Keẑmarok (9.6%), Sabinov (8.4%), Stará L'ubovña (7.2%), Tvrdošín (7.1%), Bardejov (6.4%), Spišská Nová Ves (6.1%), Levoča (5.6%), Vranov nad Topl'ou (5.4%). This region has shown as well, in the most recent period, a decline of the natural increase on average for the last 10 years in each district by 2-4%. Another distinct region comprises west Slovakia and south part of central Slovakia. These are the districts with natural decrease of population, or with a

Fig. 2 **Development of the Natural Population Movement in Slovakia**



very low increase, which is related to the low birth rate in this area as well as to a higher death rate in comparison to the other regions of Slovakia. The greatest natural decrease (i.e., negative natural increase) was seen, in 2000, in the districts of Bratislava I (-7.6%), Bratislava III (-5.6 %), Medzilaborce (-4.8%), Myjava (-4.6%), Banská Štiavnica (-4.2%), Nové Zámky (-4.1%), Turčianske Teplice (-3.9%), Detve (-3.2%), Levice (-2.9%), Komárno (-2.8%), Vel'ký Krtíš (-2.7%), Nové Mesto n. V. (-2.7%), Sobrance (-2.4%), Krupina (-2.1%). Recently, in this region three has occurred a natural decrease of population, and many districts, which five years ago, had had low natural increase, are now included among the districts with a decrease of population (Fig. 3).

Slovakia, in the long-term development, has been reaching the values of net reproduction rate (NRR) higher than the value of 1 (the level of simple reproduction). This testifies to the favourable dynamics of the population development and characterises a certain degree of extended reproduction (values greater than 1). At the same time, however, we are observing a permanent decline in the NRR values. At the end of the eighties, the population reproduction in Slovakia could be considered to be a simple reproduction. Since 1990, the levels of NRR constantly range below the level of simple reproduction with a permanently falling trend. This development of the NRR values proves a gradual transformation of Slovakia's population to the type of simple reproduction and, in recent years, it can be classified as the type of insufficient replacement. The cohorts of girls being born do not quantitatively substitute those of women in reproductive age. In 2000, this development reached a minimum level with the value of NRR of 0.625.

2. Population ageing and ways of its evaluation

One of the general rules of the population development in the majority of the world states is the change in the age structure of their population, i.e., population ageing. From

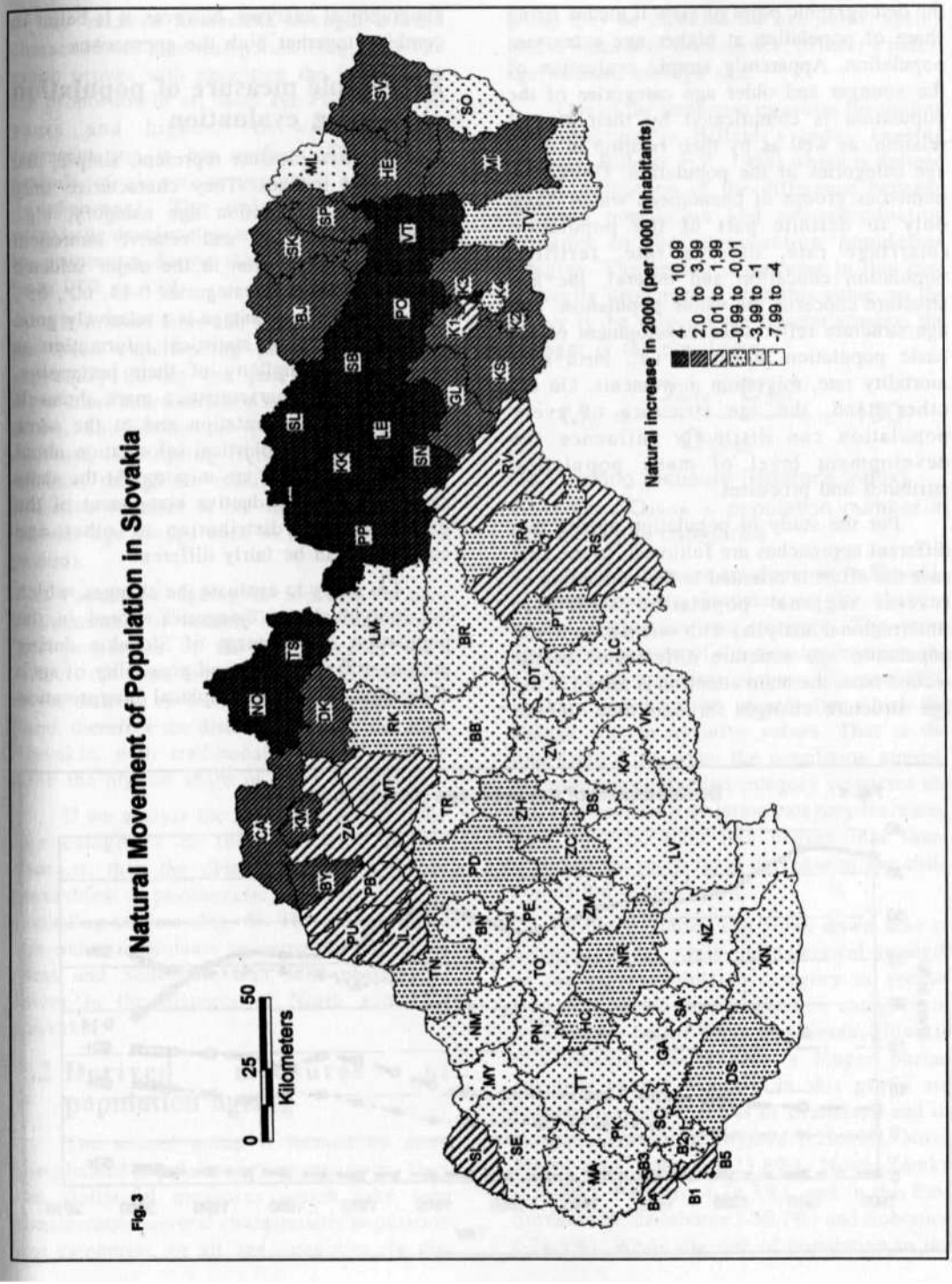

Natural Movement of Population in Slovakia
Natural increase in 2000 (per 1000 inhabitants)
4 to 10,99
2,0 to 3,99
0,01 to 1,99
-0,99 to -0,01
-3,99 to -1
-7,99 to -4
0
25
50
Kilometers

Fig. 3

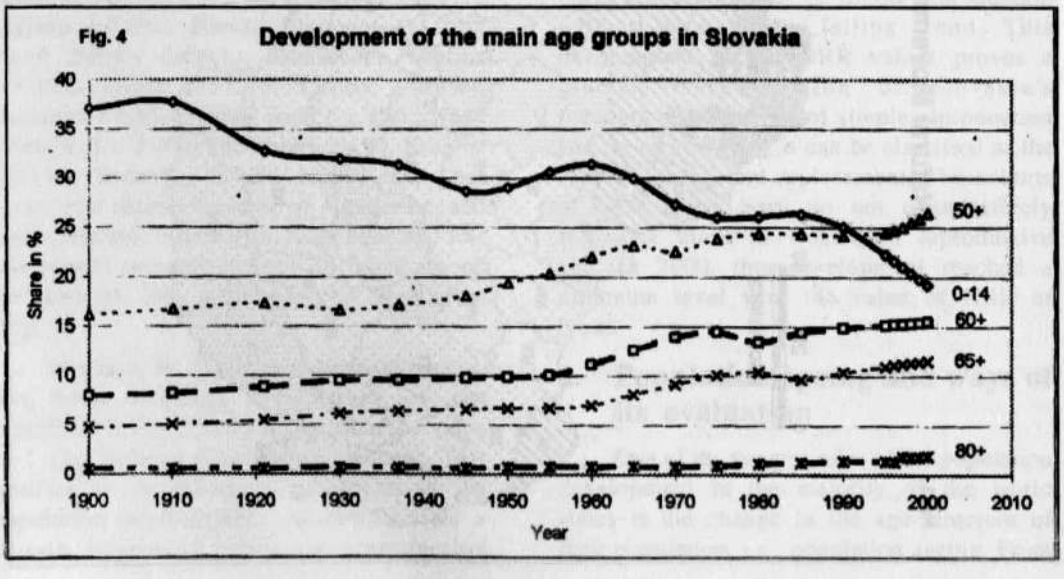
the demographic point of view it means rising share of population at higher age categories population. Apparently simple evaluation of the younger and older age categories of the population is complicated by their mutual relation, as well as by their relation to other age categories of the population. Unlike the numerous groups of phenomena which relate only to definite part of the population (marriage rate, divorce rate, fertility, population education and others), the age structure concerns the whole population. The age structure reflects the development of the basic population processes, i.e., birth rate, mortality rate, migration movements. On the other hand, the age structure of every population can distinctly influence the development level of many population attributes and processes.

For the study of population ageing two different approaches are followed. In the first case the effort is oriented to the comparing of several regional population structures (interregional analysis) with orientation to the population age structure differences. In the second case, the main attention is aimed at the age structure changes through time. In the geographical analyses, however, it is better to combine together both the approaches.

2.2 Simple measure of population ageing evaluation

The first measure represents simple, one component indexes. They characterize only one typical population age category, e.g., indexes of absolute and relative numerical strength of population in the major selected age categories (age categories 0-14, 60^+, 65^+, 70^+, 80^+). Their advantage is a relatively good access to the basic statistical information as well as the simplicity of their processing. Equally, these characteristics mark themself by a simple interpretation and at the same time they offer a plastical information about the other categories are missing. At the same size of the postproductive component of the population the distribution of other age categories can be fairly different.

Let us try to evaluate the changes, which the individual age categories scored in the population development of Slovakia during the last 100 years. A good possibility of such evaluation offers the graphical interpretation



of the relative numerical strength of the characteristics age categories (Fig. 4). The graph proves with exception the increase of the proportion of all older age categories (50 years and higher). Growth of their representation is not uniform. Their occur periods of slower, respectively accelerated development. The only category with decreasing development trend is the 0-14 years. Its proportion during the last 100 years fell from 27% to 19%.

It follows from the above that Slovakia has been experiencing population ageing, especially during the past ten years. Its significant characteristics is the ageing from down, caused by the population fertility decrease. The ageing from top is also quite distinct, though its manifestation is not as intensive (distinct is the influence of small number age groups born in the World War I period).

Population ageing is Slovakia is also characterized by notable regional variations. The proportion of the age category 0-14 reflects the more long-term low fertility level in the districts of West Slovakia. On the other hand, therefore the districts of North and East Slovakia, with traditionally higher fertility have the highest share of child population.

If we analyse the representation of older age categories of the population in the districts, then the obtained picture strongly resembles a photografic negative to the preceding scheme (Fig. 5). The proportion of the older inhabitants is generally higher in West and South Slovakia and substantially lower in the districts of North and East Slovakia.

2.2 Derived measures of population ageing

The second group is formed by more complicated population ageing measures. They are statistical measures which take into consideration several characteristic population age categories, or all age categories. In this group may be included the age index, ageing index, indexes of dependence, Billeter's index, age median, average age.

One of the important measures for studing age structure is Billeter's index (ageing measure, Billeter, E.P., 1954) which is defined as the proportion of the difference between children population and postreproduction category to the reproduction population category. The ageing is however in this case indirectly proportional with this value, so the higher is the value of the Billeter's index, the younger is the population.

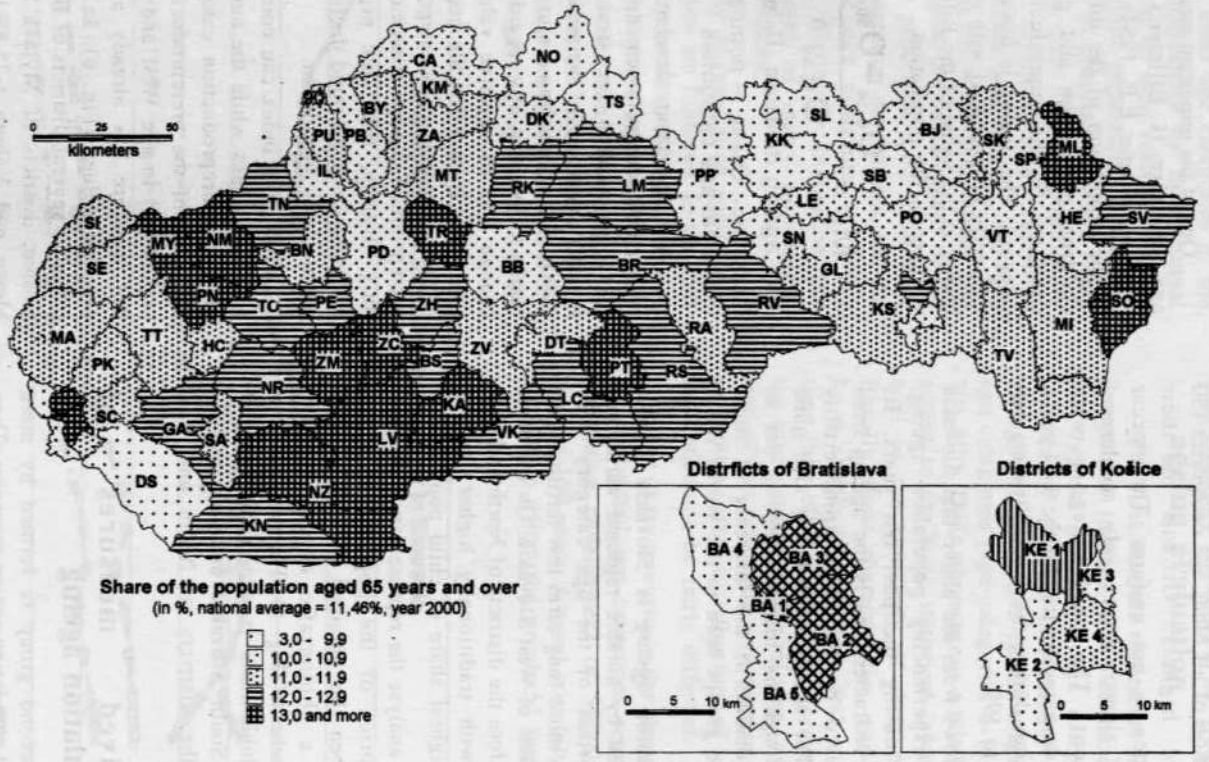
$$M_S = \frac{O_{0\text{-}14} - O_{50+}}{O_{15\text{-}49}} * 100$$

Ms - ageing measure (Billeter's index)
$O_{0\text{-}14}$, O_{50+}, $O_{15\text{-}49}$ – population number in individual age categories

Ageing measure development in Slovakia is unambiguously documenting the changes in the population age structure. The more intensive decrease of the measure came in the 1990s of the preceding century. The year 1992 marks a divide in this regard after which the change was in negative values. That is the time limit from when the population number of the postreproduction category surpasses the prereproduction population category increased only slightly, then this proves that there occurred the more rapid decrease of the child population's proportion.

Billeter's index can come down also to negative values while the numerical strength of the postreproduction category is greater than that of the prereproduction category of population. In the West and South Slovakia this measure has already a longer period negative values (Fig. 6). In this group are included several districts of Bratislava and of Košice, districts of Myjava (-26.8%), Nové Mesto nad Váhom (-25.8%), Nové Zámky (-24.3%), Piešťany (-24.3%), and in the East Slovakia Medzilaborce (-30.7%) and Sobrance (-24.3%). While the size of population in the

Fig. 5 **Age Structure of Population in Slovakia**



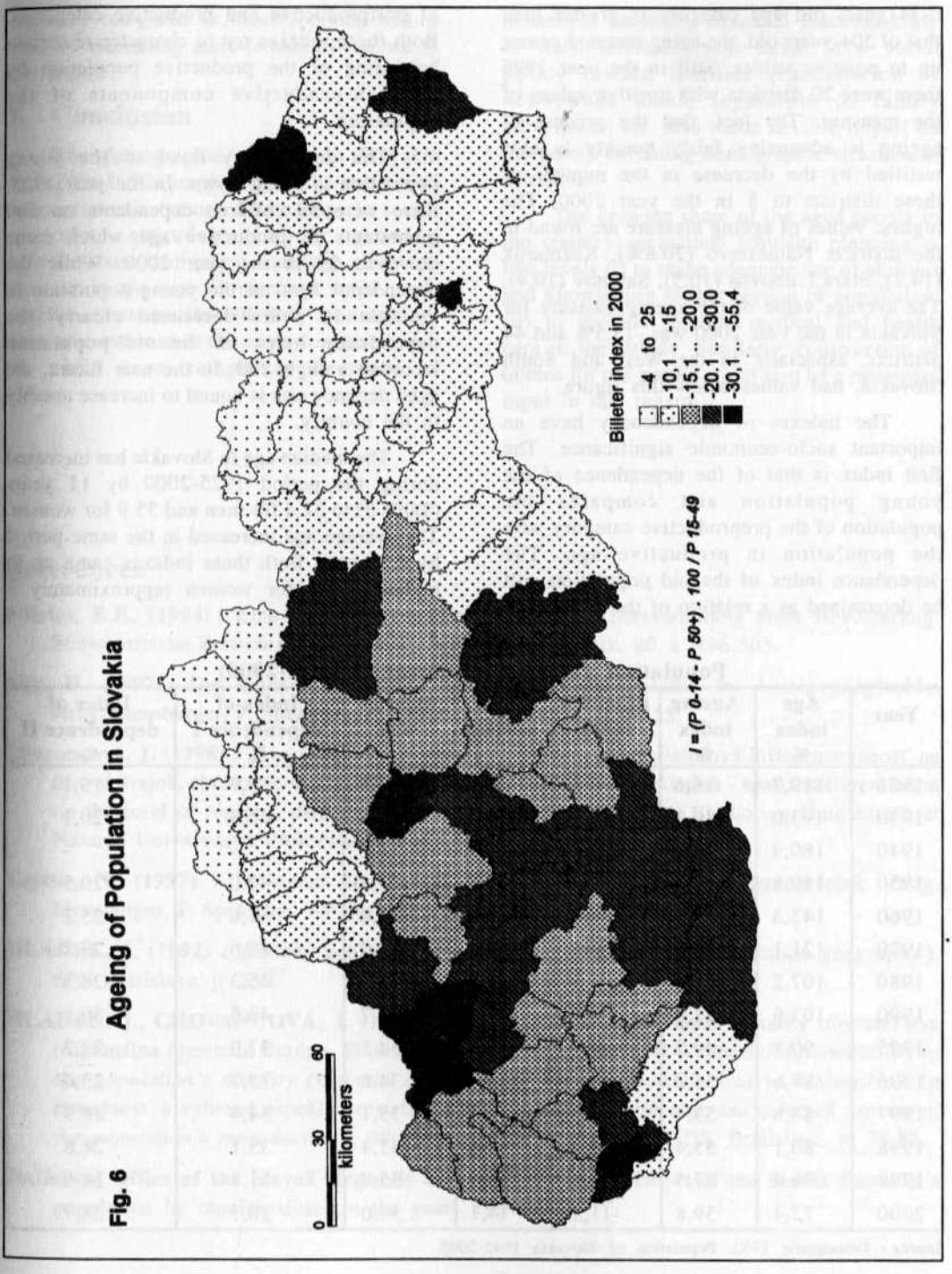


Fig. 6 **Ageing of Population in Slovakia**

0-14 years old age category is greater than that of 50+ years old, the aging measure comes up to positive values. Still in the year 1996 there were 20 districts with positive values of the measure. The fact, that the process of ageing is advancing fairly quickly is also testified by the decrease in the number of these districts to 8 in the year 2000. The highest values of ageing measure are found in the districts Námestovo (20.8%), Kežmarok (14.2), Stará L'ubovňa (10.5), Sabinov (10.4). The average value of the ageing measure for Slovakia in the year 2000 was -13.5% and 44 districts, especially in the West and South Slovakia, had values below this figure.

The indexes of dependencey have an important socio-economic significance. The first index is that of the dependence of the young population and compares the population of the preproductive category with the population in productive age. The dependence index of the old population will be determined as a relation of the population of postproductive and productive categories. Both these indexes try to characterize certain burdening of the productive population by the non-productive components of the population.

The dependency level of the young population is going down. In the year 1925, there were 58 children dependents on 100 inhabitants in productive age which came down to 29 in the year 2000. While the dependence level of the young population in the last 10 years decreased clearly, the dependency index of the old population recorded a slight fall. In the near future, the aged depency rate is bound to increase notably in the country.

The median age in Slovakia has increased during the period 1925-2000 by 11 years (Table 3) to 32.4 for men and 35.9 for women. The average age increased in the same period by 8.7 years. Both these indexes came up to higher values for women (approximately 3

Table 3

Population changes in Slovakia (1935-2000)

Year	Age index %	Ageing index %	Billeter's index %	Age median	Average age	Index of dependence I %	Index of dependence II %
1925	189,7	16,6	30,8	23,1	27,3	57,9	19,1
1930	193,0	19,2	30,2	24,4	27,5	56,3	20,1
1940	180,9	20,9	26,1	26,1	28,6	-	-
1950	149,8	23,1	18,6	27,1	29,8	49,0	20,5
1960	143,3	22,1	21,1	27,6	30,0	57,6	25,2
1970	121,1	33,6	9,5	28,2	32,0	48,6	29,2
1980	107,2	39,7	3,5	29,0	32,6	45,3	28,3
1990	103,6	41,6	1,7	31,4	33,7	43,5	30,1
1995	90,8	49,2	-4,2	32,7	34,5	37,0	29,2
1996	87,6	51,2	-5,7	33,0	34,8	35,7	29,0
1997	83,8	53,4	-7,5	33,3	35,1	34,4	28,9
1998	80,1	55,4	-9,4	33,6	35,4	33,1	28,8
1999	76,4	57,5	-11,3	33,9	35,7	31,8	28,8
2000	72,4	59,8	-11,3	34,1	36,0	30,7	28,7

Source : Demografie 1962, Population of Slovakia 1945-2000.

years) as compared to those for men with a trend of increasing male-female difference in this regard.

3. Conclusion

The demographic changes in Slovakia during the 1990s are the result of a number of socio-economic factors. The change in socio-economic attitudes, rapidly growing individualism, decreasing marriage rate, and increase in the age at marriage have made notable contribution in this connection. Similarly, increase in the costs connected with the child care, temporary decrease of household incomes, financial inaccessability of flats, unemployment threat, new social policy toward families (cancellation of newlyweds loans, regulation of family allowances) etc. also made notable impart on the newly unfolding demographic situation in Slovakia.

The growing share of the aged people in the country necessitate requisite planning at two levels (i) to make adequate use of abilities and knowledges of this section of population; (ii) to provide suitable medical and health care to the elderly. Similarly, construction of homes for old people could also be a necessary input in this regard.

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A CENTURY OF POPULATION CHANGE IN INDIA : A SPATIAL PERSPECTIVE

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Abstract

India's population has increased by more than four times during the past century - from 238 million in 1901to 1027million in 2001, and the density per square km jumping from 77 to 324 during the period. However with in the century four distinct growth periods can be indentified highlighting (i) Stagnant population (ii) Moderate growth, (iii) Stepped up high growth and (iv) High growth with clear signs of slackening. The absolute increase in population during the second half of the century (about 666 million) has been simply mind boggling, with frustating implications.

The patterns of this population growth are marked by clear regional contrasts. The trends in natural growth rates divide the country into two major macro regions: (i) Southern India, experiencing relatively fast decline in birth and death rates which are now far below the national average rates.This macro-region is moving steadily toward population stabilisation, with Kerala as the model state. (ii) Nothern India (excepting Punjab and West Bengal both of which are closer to the southern macro region in demographic transition) covering the so called Hindi Belt (including Uttar Pradesh , Bihar , Madhya Pradesh and Rajasthan) having high birth rates (above 30 per 1000 of population per year) and declining death rates ,both much above the national average rates.The northern macro-region is experincing high rates of population growth, with Bihar in the worst position. A comparision of the birth rates in two macro-regions reveals that the North is about three decades behind the south in fertility transition.With these trends, India as a whole can expect to reach population stability only by the end of the 2030s.

Nothing has debilitated Indian economy and society more than its accelerated population growth over the past five decades: 1951-2001, which is the most significant period in its demography during the whole 20th century. During this fifty-year post-independence period India's population has increased from 361 million in 1951 to 1027 million (provisional) in 2001 - second only to China's mid-2001 population of 1284 million. An absolute increase of about 666 million is most staggering for a country already densely populated. The stupendousness of this increase may be judged from the fact that this increase exceeds the mid-2001 total population of the whole of Southeast Asia plus Japan. Even the increase during the last decade (1991-2001) alone, which was nearly 181 million, is close to the current combined populations of Pakistan, Nepal and Sri Lanka. The density of population in India during the five decades has risen by about 3 times - from 117 persons

per sq. km. in 1951 to 324 persons per sq. km in 2001. 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 of the post-independence period which by themselves have been impressive. This sounds like exerting to run against strong winds without making much headway. This is not to look at the unprecedented increase in India's population during these fifty years in a Malthusian perspective, or in the perspective of the Club of Rome. But viewed from the point of view of family welfare and quality of life, as aspired by every individual everywhere, irrespective of caste or creed, the emerging situation seems most alarming. Already, the country is facing a formidable challenge in its fight against poverty, ignorance and disease which are so prevalent in several parts of our land. The increasing degree of unemployment, even of educated youth, is creating manifold difficulties.

There is no doubt, there has been vast increase in agricultural and industrial productivity and the country has built surplus food stocks over the years. But because of an inefficient distribution system and poor governance, poverty, hunger and disease are still persisting in many areas. Moreover, food alone is not what is needed by the people to survive and live with dignity in a fast changing world. For a society wanting to lead a reasonably happy and respectable life, it is necessary to keep population numbers within affordable limits, so that every individual has all the basic requirements of life available to him.

For a long-range solution of the complex population problem, human ingenuity and advances in technology have, hopefully, all the potentialities of over-coming it, but the immediate concerns about the situation in India are certainly serious and cannot be wished away. Among all the remedial measures, control of population numbers through voluntary and democratic means merits the highest priority.

Although there has been some slackening in population growth in recent years, it will take another around three decades at least to reach stability. By that time the country is likely to experience an addition of another over 500 million people to its present base of 1027 million, making the situation still more grim. With the current trends continuing India is likely to bypass China in its population before the middle of the 21st century and become the most populous country of the world.

For a clearer understanding of India's demographic situation as it has developed during the past five decades, and as it is likely to evolve in the years to come, it may be seen in the perspective of the whole period since 1891 for which relevant data are available. When examined closely, this period extending over 110 years (1891-2001) reveals four distinct sub-periods of population change in India :

1891 - 1921 : Stagnant population

1921 - 1951 : Moderate growth

1951 - 1981 : Stepped-up high growth

1981 - 2001 : High growth with clear signs of slackening.*

During 1891-1921 India's population growth was extremely slow and sporadic (-0.2% in 1891-1901; 5.7% in 1901-11; and -0.3% during 1911-21) with several areas experiencing absolute decline. With crude birth rates staying around 48-49 per 1000 of population per year and crude death rates ranging between about 42 and 49 during this thirty-year period, it was an era of extremely low and fluctuating rates of population growth (Davis, Kingsley, 1951, pp 37 & 69). Consequently, India was in a phase of practically stagnant population. In these thirty years the net increase in the country's population was only about 12 million: from 239 million in 1891 to 251 million in 1921.

These years are known for calamitous happenings - such as famines and epidemics, which took heavy toll of human life.

In marked contrast to this, the following thirty years, (1921 to 1951), registered an absolute increase of about 110 million: from 251 in 1921 to 361 million in 1951. Decadal percentage increase rates rose to moderate levels: 11.0% during 1921-31; 14.22 % during 1931-1941; and 13.3% during 1941-51. With an increasing control over epidemic and endemic diseases, improvement in means of communication and the distribution system, and gradual development of economy, especially in agriculture, the death rate declined to about 27 per thousand of population per year by 1951, while the birth rate continued to remain above 40 (Trewartha, G.T., and Gosal, G,1957, p.71).

The post-independence decades 1951-1981, however, experienced unprecedented acceleration in growth, not only in percentage increase, but also in absolute terms (Gosal,G.S.,1984,p.629). There is a sudden stepping-up of the growth rates to high levels during this period: 21.64 percent increase during 1951-61; 24.80% during 1961-71 and 24.66% during 1971-81. During the two decades, 1951 to 1971 the crude birth rate moved down extremely slowly from over 40 in 1951 to 37.2 in 1971 (1970-72), while the crude death rate slided from about 27 in 1951 to 16.1 in 1971. Apparently, the suddenly stepped-up high growth rate of population during 1951-71 was attributable to rapid fall in death rate while the birth rate hardly showed any significant sign of decline. During 1971-81, however, the two rates declined slowly, and almost equally: birth rate from 37.2 in 1971 to 33.9 in 1981, and the death rate from 16.1 in 1971 to 12.3 in 1981. The overall rate of population growth during 1971-81 came to be 24.66 per cent, which was practically the same (24.80%) as in 1961-71. However, the trends of birth rates revealed a new turn in the process of demographic change during 1971-81. In most demographer's assessment there are definite signs of decline (though at a snail's pace) in birth rate from around 1971 onwards, with the death rate now declining only slowly.

For two decades from 1951, population growth at stepped-up rates in India was practically a function of the decline in mortality rate, with very little happening to the birth rate. But during 1971-81, the two rates declined by nearly the same points for the first time. However, from 1981 onwards the pattern has been gradually reversing: the crude birth rate declining relatively fast, from 33.9 in 1981 to 29.5 in 1991 to 25.4 in 2001, while the crude death rate moved down somewhat slowly: from 12.5 in 1981 to 9.8 in 1991 and to 8.4 in 2001. Thus, during the past two decades (1981-2001) the birth rate declined by 8.5 percentage points, and the death rate was down by 3.9 points. Interestingly, throughout the post-independence period, the fall in infant mortality has been followed by a corresponding fall in birth rate. Consequently, the overall rates of population growth in the country came down to 23.86% during 1981-91, and 21.34% during 1991-2001. The decade 1991-2001 shows the first meaningful deceleration in India's population growth. Although slow, a clear process of deceleration of population growth has set in from 1981. The crude birth rate is likely to take more than two decades (from 2001 to 2021) to reach a level of 15 (China's 2001 rate), during which time the crude death rate may get around to 7. It may be noted that the actual decline in death rate is gradually becoming less and less in every decade, and now approaching the lower limit, while there is still considerable room for decrease in birth rate. The infant mortality rate, which has declined from about 130 deaths per 1000 lives births per year in 1976 to 66 in 2001, is still fairly high. Further fall in this rate is likely to be followed by a corresponding fall in birth rate. But even with these decelerating rates from 1981, absolute

increase in population numbers has been staggering: an increase of 163 million during 1981-91 and about 181 million during 1991-2001, taking the total population of India to 1027 million in 2001.

If the current trends of birth and death rates continue, which seems probable, the birth rate is likely to be around 15 and death rate about 7 per thousand of population per year by 2021, which are about the current rates of China. It, thus, appears that in demographic transition India is behind China by about 20 years. According to the available estimates India is likely to move into the terminal stage of demographic transition by about 2041. Thus, altogether, India will be taking around 120 years (1921-2041) to move through the whole range of demographic transition.

The population history of different countries of the world reveals that the time taken to pass through the various phases of demographic transition varies widely, depending upon the demographic, socio-economic, cultural, political and historical backgrounds of the individual countries. The period of time when transition starts, the base of the population at the initial stage, magnitude of available resources, attitudes and aspirations of the people, educational levels attained, especially by the women, and the role of the state are some of the crucial factors involved in the whole process of population change. What western Europe took some generations, or well over a century, to accomplish population stabilisation, Japan did in a few-decades. With a time lag of some 25 years, South Korea almost repeated the Japanese miracle, and China is doing it now, in about the same 20-25 years. The performance of these countries in substantially bringing down the birth rates within a short period of time, their different political systems notwithstanding, is indeed outstanding. Something close to this had happened in eastern and southern Europe during the inter-war years and a little later. The latecomers to the transition process did have the advantage of benefitting from the experiences of their predecessors, including, among other things, transfer of medical technology, rapid progress in economic development, education, sanitation and birth control measures. But somehow, it has not happened in India. The vitally important processes which were instrumental in bringing about the change so swiftly in east Asian countries, and subsequently even in some of the southeast Asian countries, have been lacking in India (education among women, their autonomy, their employment outside the home, raising their age of marriage, reduction of poverty, efficient health care programme, and active role of the state in bringing about population stabilisation).

Evidently, India has taken far too long to complete each phase of population change. Some of the important factors associated with its slow pace are the following: (i) Despite a firm policy decision taken right from the first five-year plan to control population numbers, practical steps to achieve the targets have been far too inadequate and half-hearted. Family planning programmes have been left too much in administrative hands for implementation, and for creating awareness of the need to have small families through voluntary effort and willing acceptance of the programme. Incentives and disincentives affect only marginally. Coercive methods have been counter-productive. (ii) A large proportion of the country's population is in the young-age group (below 15 years)- it was about 40% in 1951, and still 33% in 2001, working against any quick results in curbing the birth rates. (iii) Literacy and education, especially among the females, have not made a headway fast enough, particularly among a major section of the Indian population comprising scheduled castes, scheduled tribes, backward classes and the rural poor in which female literacy rates are still deplorably low even after 50 years of independence, major constitutional provisions for their socio-economic amelioration

notwithstanding. In fact, mere functional literacy hardly helps. Girls must have eight or more years of schooling to create desirable awareness and motivation. Along with extension of education among women, health care programmes must move speedily and effectively. (iv) Social and cultural barriers (preference for sons, early marriage of girls, etc.) have also stood in the way of a sustained, quick demographic change. Despite a minimum legal age of marriage for girls being 18, over 50 percent of them are estimated to be married before this stage. This leads to too early, too frequent and too many children. Social status and autonomy of women have remained only theoretical issues. The role of improving the social and economic status of women as an important aid to population stabilisation is now well accepted but it needs to be made a reality. (v) Slow pace of socio-economic development, coupled with wide ranging disparities in material well-being, has made its own impact toward a slow pace of demographic change. Family planning has hardly any meaning for over a third of the total population which is below the poverty line. (vi) Lastly, but not the least, there has been an unfortunate lack of will at the political level to solve the population problem. In fact, it seldom received the urgency that was due to it. The family planning programme was never pursued seriously and systematically by any government. The common motivating factor in Japan, and later in South Korea, China, Thailand, etc. was the acute realisation that strict curb on population growth is absolutely essential for an all round national progress and an increasing per capita share in it. The urgencies of the situation in India demand practical lessons to be learnt from its successful Asian neighbours. In India the "National Population Policy 2000", laying down the goal of reaching the replacement level of total fertility (2.1) by 2010, was framed very late and gave little time for its realisation. Adequate attention needs to be paid to the efficiency and effectiveness of the processes of governance, which have a crucial bearing on the effectiveness of development policy framework. It is no use laying down ambitious goals about population stabilisation if the overall economy is not growing fast enough, anti poverty programmes are suffering from massive leakages, and delivery systems for the provision of basic social services are poorly planned and implemented.

It emerges from the above that what is needed is a holistic and integrated approach which places control of fertility in the broader context of evolving an effective development strategy focusing on reduction of poverty, increasing access of the poor to basic social services such as education and health care, and on institutional reforms focussing more sharply on improving the social and economic status of women with a view to enhancing their ability for autonomous decision making regarding issues which have a bearing on their well-being, including the choice of family size and spacing of child births. All these goals need to be pursued effectively and simultaneously for registering a meaningful progress to reach the replacement level of total fertility ratio of 2.1 in a reasonably short period of time.

With this brief review of population change during the past 110 years (1891 to 2001) at the national level, may we have a closer look at the intra-national scenario- at least at the macro-regional variations in the demographic situation ! There are wide inter-state differences in all the vital rates: birth rate, death rate and infant mortality rate. Taking the 2001 national crude birth rate of 25.4 (SRS) as the standard, the country reveals a clear north-south divide in its demographic situation. India stands divided into two distinct demographic macro-regions - the south and the north. In every state in southern India the 2001 birth rate was well below the national average of 25.4, while, on the other hand, in every state in northern India, with the notable exceptions of Punjab and West Bengal, it was

much above the national average. In the southern macro-region, among the major states, Kerala and Tamil Nadu have achieved low birth rates of 17.2 and 19.0 per 1000 of population per year respectively (as in 2001). In the small state of Goa and the Union Territory of Pondicherry the corresponding rates are 13.9 and 17.9 respectively. In the other larger states in the southern macro-region, they are : Andhra Pradesh - 20.8; Karnataka - 22.2, Maharastra-20.6. It is noteworthy, however, that even these states have considerable room for further decline in their birth rates to, say, 12 to 14 per 1000 of population per year. To reach this level it may take these states about two more decades. An important feature of the relatively low birth rates in the southern macro-region is that rural-urban differential in all the states, as in 2001, is very small: (Kerala: 17.4 rural & 16.6 urban; Tamil Nadu: 19.6 & 17.8; Goa: 14.0 & 13.9; Pondicherry: 18.7 & 17.3; Andhra Pradesh: 21.3 & 19.6; Maharashtra: 21.0 & 20.1; Karanataka: 23.6 & 19.0. The far too small rural-urban differential in birth rates in the southern states is indeed a measure of the diffusion of awareness of the need to have small families and their social and demographic advancement. By Contrast, in the macro-region comprising northern India, in the large states the birth rates are very high: Bihar - 31.2; Uttar Pradesh - 32.1; Madhya Pradesh - 30.8; Rajasthan - 31.0. Punjab and West Bengal with their birth rates of 21.2 and 20.5 respectively are indeed major exceptions. Haryana's birth rate of 26.7 and Assam's 26.8 are still on the higher side with reference to the national average. Gujarat, which is locationally in between the two macro-regions at their western ends, has brought down its birth rate from 40.4 in 1971 to 24.9 in 2001. It is noteworthy that in absolute terms Gujarat has accomplished the largest decline in birth rate among all the major states of India during the thirty years, 1971-2001. The rural-urban differential in birth rate in all the major states in the northern macro-region (excepting Punjab), on the other hand, is quite wide - Bihar: 32.3 & 23.4; Uttar Pradesh: 33.2 & 27.0; Madhya Pradesh: 32.8 & 23.0; Rajasthan: 32.3 & 24.7; Haryana: 27.8 & 22.8; Assam: 27.8 & 18.5; Jharkhand: 28.3 & 19.5; Chhatisgarh: 29.0 & 22.4; In Punjab and West Bengal which are demoraphic exceptions in the northern macro-region, the corresponding rural-urban disparities are 22.1 & 18.7 and 22.8 & 13.8 respectively. The lowest urban birth rate in West Bengal among all the bigger states in the country is mainly because of the Kolkata Urban Agglomeration which accounts for an overwhelming proportion of West Bengal's total urban population.

The mountainous states of Himachal Pradesh, Uttaranchal and Jammu & Kashmir, which have overall birth-rates like those in Punjab & West Bengal, have relatively small rural-urban disparities in these rates: 21.3 & 16.8; 21.1 & 16.6 and 21.1 & 16.3 respectively.

The relatively low birth rates and their widespread diffusion in the southern macro-region, particularly in Kerala, Tamil Nadu, Goa and Pondicherry, are associated, among other factors, with certain aspects of their cultural and social attributes, though in varying degrees. In Kerala the diffusion of literacy and education among men and women of different social groups, both in rural and urban areas, is of the highest order in the whole country: 94.20% of the males and 87.86% of the females (aged seven years and above) being literate as in 2001. Here the mean age at marriage for females was 22.3 years in 1991- the highest in India. The age at marriage continues to be positively correlated with a woman's educational attainments. Again, the percentage of women in the reproductive age group not marrying at all is higher here than anywhere else in the country. Kerala state has integrated its health and family planning programmes and has developed an efficient network of doctors, midwives and primary health workers. As a result, not only

Kerala has the lowest birth rate (17.2) among the bigger states in India, but has also the lowest death rate (6.6) and the lowest infant mortality rate (11 deaths per 1000 live births per year) as in 2001. Similarly, the proportion of women employed in the organised sector to the total employed in this sector in the state was 35% in 1984-the highest in India. The betterment of socio-economic conditions at the grassroots level brought about through agrarian reforms had their own impact. Be it noted, however, that even low levels of income and nutrition need not be a constraint, if sustained political support at all levels of administration is forthcoming for an effective family planning drive. The above points closely inter-related with low birth rates in Kerala bring out unambiguously that high degree of economic development and urbanisation are not necessary conditions for rapid decline in fertility. Generally, however, they are very potent factors, as witnessed in many developed countries of the world. The social status (including educational attainments and success in health care programmes) and autonomy of women, their employment outside the home, and certain cultural attributes are far more important factors in this regard. All the points made above together make Kerala a model state in the processes of demographic transition in India. The autonomy of women is a distinctive feature in nearly the whole of the southern macro-region of India, though in varying degrees; even in areas where literacy rates, particularly among women, are not among the highest. In Andhra Pradesh the birth rate has slided down from 35.4 in 1971 to 20.8 in 2001 - one of the maximum declines in absolute terms among Indian states. This is despite the fact that female literacy and education in Andhra have not as yet gone very far. As a result, the rate of population growth in Andhra Pradesh crashed down from 24.20% during 1981-91 to 13.86% during 1991-2001. In no other major state in the country has the population growth rate experienced so large a decline during this decade. Among other things, this decline is also at least partly associated with the recent progress in socio-economic development in the state under the present leadership. The autonomy of women is said to be an important factor in Andhra. During the last decade (1991-2001), Maharashtra experienced an almost parallel change in birth and death rates as did Andhra, but because of continuing in-migration to its major urban agglomerations, the actual growth of population was much higher than in Andhra. Maharashtra has registered significant decline in infant mortality rate - to 45 in 2001; as against 66 in Andhra. Among the larger states, Maharastra is next only to Kerala in infant mortality rate now. It has gone ahead of Tamil Nadu and Punjab where the 2001 infant mortality rates are 49 and 51 respectively. Among the southern states, Karnataka has a longer way to go with regard to demographic transition. The reasons for this slow change warrant scholarly investigation.

There are a few small territorial units outside the main southern and northern macro-regions where the processes of demographic transition have been much like those in Kerala, Goa, Pondicherry and Tamil Nadu. Among them Mizoram is worthy of mention. In this small state the birth rate was 15.4, death rate 4.4, and infant mortality rate 19 in 2001. In literacy Mizoram is next only to Kerala: 90.69% of the males and 86.13% of the females being literate. The local population in this small mountainous state is overwhelmingly Christian. Interestingly, the union territory of Andaman and Nicobar Islands has done almost equally well in demographic transition: birth rate 16.8, death rate 4.7 and infant mortality rate 18 in 2001. Of course, it has a much smaller total population than that of Mizoram.

In the northern macro-region, in the states of Bihar, Uttar Pradesh, Madhya Pradesh and Rajasthan, which together account for over 35 percent of the country's total population, birth rates are continuing to be

among the highest in the country (well above 30 per 1000 of population per year as in 2001). Here the progress in literacy and education, particularly among the females, has been extremely slow. With only 33.57% of the females being literate as in 2001, Bihar is at the lowest rung of female literacy ladder in the country. Jharkhand state which has been carved out of Bihar has only 39.38% female as literate. In the other larger states of northern India, the situation with regard to female literacy, as in 2001, is not much better. In Uttar Pradesh 42.98%, Rajasthan 44.34%, Madhya Pradesh 50.28%, Chhatisgarh 52.40% and in Orissa 50.97% of the females are literate. Among the disadvantaged sections of the society (like the scheduled castes, scheduled tribes and backward classes) in these states, the female literacy rates are far lower still. These low rates of female literacy in the bigger states of the northern macro-region, even fifty years after independence, reflect their continuing low degree of social progress, and bring out an inverse correlation between birth rate (as also death rate and infant mortality rate) and female literacy. Infact, woman is at the centre of the whole process of demographic transition. In these states the average age of marriage of girls is still below 18, legislation on the issue notwithstanding. In Rajasthan, Madhya Pradesh, Bihar and U.P., even now, child marriages are not uncommon. In Rajasthan 13.2 percent of the girls in the age group of 10-14 were married in 1991; in Madhya Pradesh 8.5%; in Bihar 7.2% and in U.P. 7.1%. Here only a fraction of the women are employed in the organised sector. These facts are associated with low social status and severe lack of autonomy among women. The proportion of population below the poverty line is among the highest in these states.

In all the major states of the northern macro-region, discussed above, infant mortality rates are still very high - Uttar Pradesh: 82, Madhya Pradesh: 86; Rajasthan : 79; Orissa: 90; Assam: 73 as against 66 in India as a whole, as in 2001. They were in the range of 140-170 in 1971. Generally, infant mortality rates and birth rates are positively correlated. Despite substantial decline in crude death rates in the northern states in recent years, they are still much higher than the national average of 8.4 as in 2001: in Uttar Pradesh, Madhya Pradesh, Orissa, etc., they are above 10 per 1000 of population per year. By contrast, the current crude death rates in the southern states vary from 6.6 to 8.1. In Punjab and West Bengal the corresponding rates are 7.0 and 6.8 respectively. After going through the macro-regional contrasts in birth, death and infant mortality rates, it will be logical to see their net consequences - the rates of natural growth. Currently, the decennial rates of natural growth of population in the larger northern states range between 20 and 23% as against 10 to 15% in the southern macro-regional states. Punjab (14.2%) and West Bengal (13.7%), which are exceptions in the northern macro-region, follow the demographic pattern of the south. Gujarat (17.2%), which has moved a long way in demographic transition in recent decades falls in between the rates in the south and the north. Haryana (19.1%) is very close to the larger northern states. So is Assam (17.3%). Though a very small state, Goa has the lowest natural growth rate (6.5%) in the country. Other small territorial units with low moderate rates of natural growth include: Himachal Pradesh (14.0%), Tripura (10.5%), Uttaranchal (10.7%), Pondicherry (10.8%), Mizoram (11.3%), Manipur (13.1%), Andaman & Nicobar Islands (12.1%), Chandigarh (12.6%), Delhi (13.6%) etc.

A comparative examination of the decennial growth rates of population of various states of India reveals that the process of deceleration of population growth did not start at the same point of time all over the country, or within the southern and northern macro-regions for that matter. In southern India, while Kerala, Tamil Nadu, Goa, Maharashtra experienced the peak rates of population

growth during the decade 1961-71, there was regular decline thereafter during the decades 1971-81, 1981-91 and 1991-2001. In Andhra, the growth rate continued going up till 1981-91, when it was 24.20%. But within the following one decade (1991-2001), it experienced the sharpest fall to 13.86%.

But in northern India, Bihar has witnessed an upward swing till 1991-2001 (28.43%). And the current growth rates in Rajasthan, Uttar Pradesh and Madhya Pradesh are at a level where Kerala, Tamil Nadu, Goa and Maharashtra were during 1961-71. Even if these major states of the Hindi belt take three decades to reach the current levels of Kerala and Tamil Nadu, it appears that the country as a whole will achieve demographic stability much after 2035.

What emerges from the above brief comparative examination of the processes of demographic transition in the broad southern and northern macro-regions of India is that in what is popularly known as the Hindi Belt, which accounts for a substantial proportion of the country's total population, birth rates, death rates and rates of infant mortality are still very high. Their rates of natural growth are much higher than those in the southern macro-region. In the years to come, the pace of decline in birth and death rates, and the resultant stabilisation of population in India as a whole will largely depend upon the degree of success and speed in controlling the population numbers in the "Hindi Belt" states. In sum, this is the most crucial region to watch.

Lastly, it may be submitted that although industrialisation-urbanisation has almost universally been known to be a major factor instrumental in fertility decline in the past, every decline in fertility need not be associated with it in the present context of things. China, which is still a predominantly agricultural and rural country, is achieving substantial reduction in birth rates both in villages and towns, relative differences apart. Within India, experiences of Kerala and Punjab demonstrate the same truism, though for different reasons. What is important in the ultimate analysis, therefore, is the commitment to family and national welfare. The time and speed with which the process of demographic change is brought to its finale in India will have a dominant effect upon the well-being and security of the country. The odds are too many and too heavy to lead to a more optimistic estimate of the situation.

Table-1

Percent Decadal Variation in Population : 1901-2001

State/Union Territory	1901-11	1911-21	1921-31	1931-41	1941-51	1951-61	1961-71	1971-81	1981-91	1991-01
INDIA	**5.75**	**-0.31**	**11.00**	**14.22**	**13.31**	**21.51**	**24.80**	**24.66**	**23.85**	**21.34**
States										
1. Andhra Pradesh	12.49	-0.13	12.99	12.75	14.02	15.65	20.90	23.10	24.20	13.86
2. Arunachal Pradesh	NA	NA	NA	NA	NA	NA	38.91	35.15	36.83	26.21
3. Assam	16.99	20.48	19.91	20.40	19.93	34.98	34.95	23.36	24.24	18.85
4. Bihar	3.67	0.66	11.45	12.20	10.27	19.76	21.33	24.06	23.54	28.43
5. Goa	2.36	3.55	7.62	7.05	1.21	7.77	34.77	26.74	16.08	14.89
6. Gujarat	7.79	3.79	12.92	19.25	18.69	26.88	29.39	27.67	21.19	22.48
7. Haryana	-9.70	1.95	7.14	15.63	7.60	33.79	32.23	28.75	27.41	28.06
8. Himachal Pradesh	-1.22	1.65	5.23	11.54	5.42	17.87	23.04	23.71	20.79	17.53
9. Jammu & Kashmir	7.16	5.75	10.14	10.36	10.42	9.44	29.65	29.69	28.92	29.04
10. Karnataka	3.60	-1.09	9.38	11.09	19.36	21.57	24.22	26.75	21.12	17.25
11. Kerala	11.75	9.16	21.85	16.04	22.82	24.76	26.29	19.24	14.32	9.42
12. Madhya Pradesh	15.30	-1.38	11.39	12.34	8.67	24.17	28.67	25.27	26.83	22.34
13. Maharashtra	10.74	-2.91	14.91	11.99	19.72	23.60	27.45	24.54	25.73	22.57
14. Manipur	21.71	10.92	16.04	14.92	12.80	35.04	37.53	32.46	29.29	30.02
15. Meghalaya	15.71	7.21	13.83	15.59	8.97	27.03	31.50	32.04	32.86	29.94
16. Mizoram	10.64	7.90	26.42	22.81	28.42	35.61	24.93	48.55	39.70	29.18
17. Nagaland	46.76	6.55	12.62	6.04	8.60	14.07	39.88	50.05	56.08	64.41
18. Orissa	10.44	-1.94	11.94	10.22	6.38	19.82	25.05	20.17	20.06	15.94
19. Punjab	-10.78	6.26	12.02	19.82	4.58	21.56	21.70	23.89	20.81	19.76
20. Rajasthan	6.70	-6.29	14.14	18.01	15.20	26.20	27.83	32.97	28.44	28.33
21. Sikkim	48.98	-7.05	34.37	10.67	13.34	17.76	29.38	50.77	28.47	32.98
22. Tamil Nadu	8.57	3.47	8.52	11.91	14.66	11.85	22.30	17.50	15.39	11.19
23. Tripura	32.48	32.59	25.63	34.14	24.56	78.71	36.28	31.92	34.30	15.74
24. Uttar Pradesh	-0.97	-3.08	6.66	13.57	11.82	16.66	19.78	25.49	25.48	25.80
25. West Bengal	6.25	-2.91	8.14	22.93	13.22	32.80	26.87	23.17	24.73	17.84
Union Territories										
1. Andaman & Nicobar Island	7.34	2.37	8.78	14.61	-8.28	105.19	81.17	63.93	48.70	26.94
2. Chandigarh	-16.07	-1.65	9.10	14.11	7.47	394.13	114.59	75.55	42.16	40.33
3. Dadra & Nagar Haveli	19.52	6.99	23.23	5.70	2.70	39.56	27.96	39.78	33.57	59.20
4. Daman & Diu	1.45	-3.26	15.98	17.52	13.55	-24.56	70.85	26.07	28.62	55.59
5. Delhi	1.98	18.03	30.26	44.27	90.00	52.44	52.93	53.00	51.45	46.31
6. Lakshadweep	4.85	-6.31	17.62	14.43	14.60	14.61	31.95	26.53	28.47	17.19
7. Pondicherry	4.39	-5.06	5.93	10.20	11.31	16.34	27.81	28.15	33.64	20.56

*(a) The population figures for Jammu and Kashmir for 1951 have been worked out by interpolation as the 1951 census could not be conducted in that State. Similarly the 1981 population figures of Assam, where the 1981 census could not be conducted due to disturbed conditions, have been worked out by interpolation. In working out the decadal variation in population these interpolated figures have been used.

(b) As the 1991 census could not be conducted in Jammu and Kashmir due to disturbed conditions, the projected population for that state has been used to work out the decadal variation during 1981-91 for India and Jammu & Kashmir.

(c) In Arunachal Pradesh, census was conducted for the first time in 1961. Hence the growth rates for the previous decades for India do not include figures for this state.

Source of data. Table A3. Census of India, 1991, Part IIA(i) - General Population Tables.

Source: Vijayanunni, M. (1991) State Profile 1991, India, Census of India 1991, 1901 to 1991 Figures. p.278.

Banthia. Jayant Kumar IAS, Registrar General India (2001) Provisional Population Totals, Paper 1 of 2001, Series 1, INDIA, Census of India. 2001 1991-2001 Figures.

Table-2

Estimated Crude Birth Rates

S.No.	India and bigger states	1971	1976	1981	1986	1991	1996	2001	
	INDIA	36.9 37.2 (1970-72)	34.4	33.9	32.6	29.5	27.5	25.4	
Bigger States:		**1970-72**							
1.	Andhra Pradesh	35.4	33.7	31.7	31.6	26.0	22.8	20.8	
2.	Assam	37.9	32.8	33.0	34.7	30.9	27.6	26.8	
3.	Bihar	32.3	31.1	39.1	36.5	30.7	32.1	31.2	32.9 in 1990 32.3 in 1992
4.	Gujarat	40.4	37.4	34.5	32.2	27.5	25.7	24.9	29.6 in 1990 28.1 in 1992
5.	Haryana	39.6	36.3	36.5	35.3	33.1	28.8	26.7	
6.	Karnataka	32.0	29.4	28.3	29.0	26.9	23.0	22.2	
7.	Kerala	31.3	27.8	25.6	22.5	18.3	18.0	17.2	
8.	Madhya Pradesh	39.2	39.8	37.6	37.2	35.8	32.3	30.8	
9.	Maharashtra	32.0	29.3	28.5	30.1	26.2	23.4	20.6	
10.	Orissa	35.8	34.8	33.1	32.5	28.8	27.0	23.4	
11.	Punjab	34.2	31.6	30.3	28.7	27.7	23.7	21.2	
12.	Rajasthan	41.1	33.4	37.1	36.4	35.0	32.4	31.0	
13.	Tamil Nadu	31.3	30.1	28.0	23.8	20.8	19.5	19.0	
14.	Uttar Pradesh	44.5	40.0	39.6	37.5	35.7	34.0	32.1	
15.	West Bengal	NA	31.9	33.2	29.7	27.0	22.8	20.5	

Estimated Crude Birth Rates : Smaller States and UTs

S.No.	Smaller States	1970-72 (1971)	1976	1981	1986	1991	1996	2001
1.	Arunachal Pradesh	35.8 (1971-73)	32.5 (Rural)	34.2 (1982)	40.2	30.9	21.9	22.0
2.	Chhattirgarh	Part of Madhya Pradesh						26.3
3.	Goa	25.4 (1971-73)	24.4	21.4 (1982)	20.7	16.8	14.4	13.9
4.	Jharkhand	Part of Bihar						26.3
5.	Himachal Pradesh	34.2	32.2	31.5	30.6	28.5	23.0	21.0
6.	Jammu & Kashmir	32.5	32.1	31.6	33.4	NA	NA	20.1
7.	Manipur	23.9	25.3	26.6	25.7	20.1	19.6	18.2
8.	Meghalaya	32.6	33.5	32.6	35.4	32.4	30.4	28.3
9.	Mizoram	NA	NA	NA	NA	NA	15.1	15.7
10.	Nagaland	NA	20.3	NA	25.2	NA	NA	NA
11.	Sikkim			31.0	32.1	22.5	20.0	21.6
12.	Tripura	35.1	34.7	26.4	28.5	24.4	18.4	16.1
13.	Uttar Pradesh	Part of Uttar Pradesh						18.5
Union Territories								
1.	Andaman and Nicobar Island	35.5 (1971-73)	39.0	34.0	25.5	20.0	18.5	16.8
2.	Chandigarh	36.9 (1972-74)	31.5	24.6	23.7	13.9	17.5	16.1
3.	Dadra Nagar Haveli	NA	42.1 (Rural)	36.8	43.4 (Rural)	31.1	28.9	29.3
4.	Daman and Diu	25.4 (1971-73)	24.4	NA	30.5	27.9	21.6	22.3
5.	Delhi	31.8 (1970-72)	28.6	26.9	29.5	24.7	21.6	18.7
6.	Lakshdweep	35.9 (1971-73)	35.2	31.8	32.1	27.1	23.4	20.4
7.	Pondicherry	29.2 (1971-73)	31.1	21.7	22.5	19.2	18.1	17.9

Source: **Compiled from :** Sample Registration System Bulletins, published by the Census of India, New Delhi

Table-3
Estimated Crude Death Rates

S.No.	India and bigger states	1971	1976	1981	1986	1991	1996	2001	
	INDIA	16.1	15.0	12.5	11.1	9.8	9.0	8.4	
Bigger States:		**1970-72**							
1.	Andhra Pradesh	15.5	14.5	11.1	9.9	9.7	8.4	8.1	
2.	Assam	17.3	14.9	12.6	12.6	11.5	9.6	9.5	
3.	Bihar	15.5	12.1	13.9	13.8	9.8	10.2	8.2	
4.	Gujarat	16.2	15.3	12.0	10.5	8.5	7.6	7.8	
5.	Haryana	10.3	12.8	11.3	8.7	8.2	8.1	7.6	
6.	Karnataka	12.7	11.7	9.1	8.7	9.0	7.6	7.6	
7.	Kerala	9.1	8.1	6.6	6.1	6.0	6.2	6.6	
8.	Madhya Pradesh	16.9	16.5	16.6	13.6	13.8	11.1	10.0	
9.	Maharashtra	12.3	11.3	9.6	8.4	8.2	7.4	7.5	
10.	Orissa	17.3	15.8	13.1	13.0	12.8	10.8	10.2	
11.	Punjab	11.4	11.0	9.4	8.2	7.8	7.4	7.0	
12.	Rajasthan	16.6	14.7	14.3	11.7	10.1	9.1	7.9	
13.	Tamil Nadu	15.0	14.6	11.8	9.5	8.8	8.0	7.6	
14.	Uttar Pradesh	22.5	20.5	16.3	14.6	11.3	10.3	10.1	
15.	West Bengal	NA	11.9	11.0	8.8	8.3	7.8	6.8	

Estimated Crude Death Rates

S.No.	States/UTs	1970-72 (1971)	1976	1981	1986	1991	1996	2001	
Smaller States									
1.	Arunachal Pradesh	NA	27.0 (Rural)	15.9 (1982)	15.0	13.5	5.5	5.5	
2.	Chhattirgarh	Part of Madhya Pradesh						8.8	
3.	Goa	NA	9.2	6.8	7.6	7.5	7.4	7.5	
4.	Jharkhand	Part of Bihar						8.8	
5.	Himachal Pradesh	15.7	13.5	11.1	8.7	8.9	8.0	7.0	
6.	Jammu & Kashmir	11.0	11.3	9.0	8.6	NA	NA	6.1	
7.	Manipur	8.0	6.9	6.6	6.7	5.4	5.8	5.1	
8.	Meghalaya	13.2	15.5	8.2	10.1	8.8	8.9	9.0	
9.	Mizoram	NA	NA	NA	NA	NA	3.7	4.4	
10.	Nagaland	NA	8.3 (Rural)	6.3 (1983)	5.9	3.3	NA	NA	
11.	Sikkim			8.9	11.7	7.5	6.5	5.1	
12.	Tripura	13.4	10.2	8.0	10.3	7.6	6.5	5.6	
13.	Uttar Pradesh	Part of Uttar Pradesh						7.8	
Union Territories									
1.	Andaman and Nicobar Island	8.0	9.1	8.4	7.8	5.8	4.8	4.7	
2.	Chandigarh	4.0	4.5	2.4	4.6	4.6	4.3	3.5	
3.	Dadra, Nagar Haveli	NA	12.3 (Rural)	14.1	9.4	11.4	9.2	6.5	
4.	Daman and Diu	8.8	9.2	10.2 (1985)	8.1	9.0	9.0	6.7	
5.	Delhi	7.9	7.6	7.1	7.3	6.3	5.7	5.0	
6.	Lakshdweep	NA	8.8 (Rural)	9.6 (1983)	4.9	4.7	6.2	5.0	
7.	Pondicherry	9.5	11.6	7.3	8.3	6.6	7.1	7.0	

Source: **Compiled from :** Sample Registration System Bulletins, published by the Census of India, New Delhi

Table-4

Estimated Infant Mortality Rate : Survey

S.No.	India/State	1971	1976	1981	1986	1991	1996	2001	
	INDIA	NA	130 (1977)	110	96	80	72	66	
1.	Andhra Pradesh		125	86	82	73	65	66	
2.	Assam		115	106	109	81	74	73	
3.	Bihar		NA	118	101	69	71	62	
4.	Gujarat		138	116	107	69	61	60	
5.	Haryana		113	101	85	68	68	65	
6.	Himachal Pradesh		101	NA	NA	70	62	54	
7.	Jammu & Kashmir		62	NA	NA	NA	NA	48	
8.	Karnataka		83	69	73	77	53	58	
9.	Kerala		47	37	27	16	14	11	
10.	Madhya Pradesh		148	142	118	117	97	86	
11.	Maharashtra		108	79	63	60	48	45	
12.	Orissa		147	135	123	124	96	90	
13.	Punjab		105	81	68	53	51	51	
14.	Rajasthan		142	108	107	79	85	79	
15.	Tamil Nadu		103	91	80	57	53	49	
16.	Uttar Pradesh		168	150	132	97	85	82	
17.	West Bengal		NA	91	71	71	55	51	
18.	Delhi		73	NA	NA	44	44	29	
19.	Goa Daman & Diu		58			20	15	19	
20.	Arunachal Pradesh					64	54	39	
21.	Chandigarh					16	46	24	

Infant Mortality Rates

Sr. No.	States/UTs	1970-72 (1971)	1976	1981	1986	1991	1996	2001	
1.	Manipur					24	28	20	
2.	Meghalaya					58	48	56	
3.	Nagaland					10	07	NA	
4.	Sikkim					46	47	42	
5.	Tripura					51	49	39	
6.	Andaman & Nicobar Islands					34	27	18	
7.	Dadar Nagar Havei					68	71	58	
8.	Daman & Diu					57	43	40	
9.	Laakshdweep					31	36	33	
10.	Pondicherry					29	25	22	
11.	Mizoram						25	19	
12.	Chhatirgarh				Part of Madya Pradesh			76	
13.	Jharkhand				Part of Bihar			62	
14.	Uttaranchal				Part of Uttar Pradesh			48	

Source: **Compiled from :** Sample Registration System Bulletins, published by the Census of India, New Delhi.

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PROFILE OF AGED POPULATION IN INDIA : EMERGING TRENDS AND IMPLICATIONS

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Abstract

Aged people comprise a vulnerable group suffering from high level of physical, economic and social insecurity. The demographic ageing of population has several associated policy implications such as provision of economic and social support to the elderly and extension of health care facilities specially focusing on problems faced by the aged. The paper presents a comprehensive analysis of various demographic aspects of aged population in India and is based on census data and a comparative analysis across the states is provided for the decade 1981-91. The emerging regional patterns help us in identifying the main features of population ageing in the country identifying specific thrust areas, so crucial in the context of impending problems of ageing of population. As India is reaching the last stage of demographic transition, ageing population will pose a threat to the socio economic setup of the country. Combating the challenges faced by rapid graying of population requires action from a variety of sectors, including health, social services, education, employment, social security, housing and justice.

Introduction

The culmination of the process of demographic transition results in decline in birth and death rates leading to an increasing proportion of aged population, a process known as population ageing. Aged people comprise a vulnerable group suffering from high level of physical, economic and social insecurity. Therefore, the demographic ageing of population has several associated policy implications such as provision of economic and social support to the elderly and extension of health care facilities specially focusing on problems faced by the aged. The developed countries of the world, having reached the last stage of demographic transition, are facing the problem of population ageing, creating a major demand on the resources of the nations towards welfare programmes for the aged.

Population ageing is emerging as one of the major problems in developing countries as well as these are facing a rapidly growing process of population ageing. The rapid speed of ageing in developing countries can be seen from the fact that while France took 120 years for the proportion of elderly population to increase from 7% to 14%, countries like China, Brazil and Malaysia are expected to

achieve the same in 30 years. This is because of a rapid decline in death rate in the developing countries which is in sharp contrast to gradual fall in mortality experienced by the developed countries. Even poor people living in unhealthy environment have improved the survival rates through vaccination and other effective methods of prevention and treatment. Therefore, the process of ageing is bound to be faster in developing countries.

While in the developed countries population ageing followed the industrial revolution, enabling them to provide better facilities for care of the aged through higher income levels, it is not so in developing countries. They are still poor and hence ageing population leads to a situation of scarce of resources competing with other more pressing productive uses. Ageing thus becomes a major developmental issue for developing countries. It is important therefore to study the pattern of ageing and prepare adequate strategies to deal with the problem in a planned and timely manner. The already resource starved nations have to endeavor to ensure minimum welfare of a growing number of vulnerable population suffering high risk of physical and social insecurity, financial problems and destitution.

The increasing concern for ageing can be seen from the fact that the last decade of the twentieth century was declared a decade of older persons. According to WHO estimate in 1993, 200 million of the 356 million people above age 65 were in developing countries. Thus, in terms of absolute number the magnitude of older persons in developing countries is much larger though their proportion to total population may not be very high. For example, in Canada about 3 million people (12% of the population) are aged, while in India the elderly have a smaller proportion at 6.5%, but number about 60 million, which is colossal as compared to Canada.

In the context of the problem of rapid ageing in developing countries it is important to understand the emerging trends in ageing population in India, its major demographic features and the implications associated therein.

Improvements in public health and medical services resulted in substantial control of mortality and the life expectancy, which rose from 32 in 1947 to 60 years in 2001. The TFR also declined alongside from 6 in 1950 to 3.6 in 1990. This has led to rapid ageing of Indian population. The aged population in India has grown by 26% in 1951 and 1961, increasing to 34.5% in 1971-81. This has further expected to increase to

Table - 1

Comparative account of aged population in the world

Countries	1950	1975	2000	2025*	Magnitude of Increase 1950-2025
China	42.5	73.7	134.5	284.1	6.8
India	31.9	29.7	65.6	146.2	4.6
Former USSR	16.2	33.9	54.3	71.3	4.4
USA	18.5	31.6	40.1	67.3	3.6

* Projection

Source : Kalache A. & K. Sen (1998), 'Ageing in Developing Countries', Pathy J. (ed.) *Geriatric Medicine*, John Wiley & Sons, New York, p. 1562.

Table - 2

Growth of Aged Population in India

	Population above 60 years	Proportion aged to Total Population
1951	19.61	5.43
1961	24.71	5.63
1971	32.70	5.97
1981	43.17	6.32
1991	56.68	6.70
2001*	70.57	6.97
2006*	81.81	7.48
2011*	95.92	8.14
2016*	112.6	8.94

* Projection

Source : *Office of Registrar General of India, 1996.*

37.3% between 1991-2001. The proportion of aged to total population has increased from 6.32% in 1981 to 6.7% in 1991 and is expected to be 6.97% in 2001 (Table 1). The decadal percentage growth in elderly population for the period 1991-2001 would be close to 40, more than double the rate of increase of general population.

This paper attempts to discuss of various demographic aspects of aged population in India, such as rural-urban composition, sex ratio, marital status, literacy level, work status and dependency rates. The analysis is based on census data and a comparative analysis across the states is provided for the decade 1981-1991. The emerging regional patterns help us in identifying the main features of population ageing in the country, so crucial in the context of impending problems of ageing of population facing the developing countries.

Profile of aged population

The proportion of aged population in India has increased from 6.49% in 1981 to 6.76% in 1991 (Table 2). The proportion of females (6.77%) is almost the same as that of the males (6.75%). In absolute numbers as well, female population was less than the male population in most of the states, the exceptions being Maharashtra, Kerala, Gujarat, Andhra Pradesh and Karnataka. The aged constitute a

Table - 3

Proportion of Aged Population in India

CENSUS YEAR	TOTAL			RURAL			URBAN		
	T	M	F	T	M	F	T	M	F
1981	6.49	6.40	6.58	6.84	6.83	6.85	5.37	5.09	5.69
1991	6.76	6.75	6.77	7.11	7.17	7.05	5.75	5.55	5.96

Source : *Census of India (1991) Ageing Population of India : Analysis of the 1991 Census data, Registrar General of India, New Delhi.*

higher proportion of population in rural areas (7.11%) than in urban areas (5.75%). This difference is the result of migration of young people to urban areas in search of employment, leading to a higher proportion of aged people in rural areas.

The proportion of aged population in the states ranges from 4.3% in Arunachal Pradesh to 8.8% in Kerala (Fig. 1) Kerala is the only state in India to have reached the final stage of demographic transition with low birth and death rates; hence it has a significantly high and rising proportion of elderly population. In the case of Himachal Pradesh, out migration of young people in search of employment is a major factor in the high proportion of elderly in that state. Punjab, Haryana, Tamil Nadu, Karnatka, Goa, Maharashtra and Tripura are other states with high proportion of aged people. States with low proportion of aged people included all other north eastern-states along with West Bengal, Bihar, Rajasthan, Gujarat and Madhya Pradesh. The proportion of aged was slightly above the national average in case of Andhra Pradesh and Uttar Pradesh. Kerala, Maharashtra and Himachal Pradesh along with Tamil Nadu also showed the highest increase in aged population between 1981 and 1991. Other states showing significant incrase were Orissa and West Bengal.

Sex Ratio

The sex ratio of the aged population at 930 is almost the same as the overall figure of 929 according to the 1991 census (Fig. 2). It has shown a sharp decline from 960 in 1981 to 930 in 1991. This is against consistent with the trend in the overall sex ratio in India. Sex ratios for th elderly in rural areas are much lower than in urban areas (922 in rural as compared to 960 in urban areas), though it has declined in both areas from 1981 to 1991. This is mainly due to better medical facilities in urban areas. Besides, lower status of females in rural areas as compared to that in urban areas might have also had its own share in this regard. Among the states only Haryana, Himachal Pradesh, Kerala and Punjab have shown an increase in aged sex ratio during 1981-1991. All other states have registered a decline in sex ratio. Sex ratio for the aged was above 1000 in Kerala, Gujarat and Andhra Pradesh. On the other hand, it was very low in Punjab, Haryana, Himachal Pradesh and Uttar Pradesh.

Figure : 1. Aged Population in India, State wise, 1991

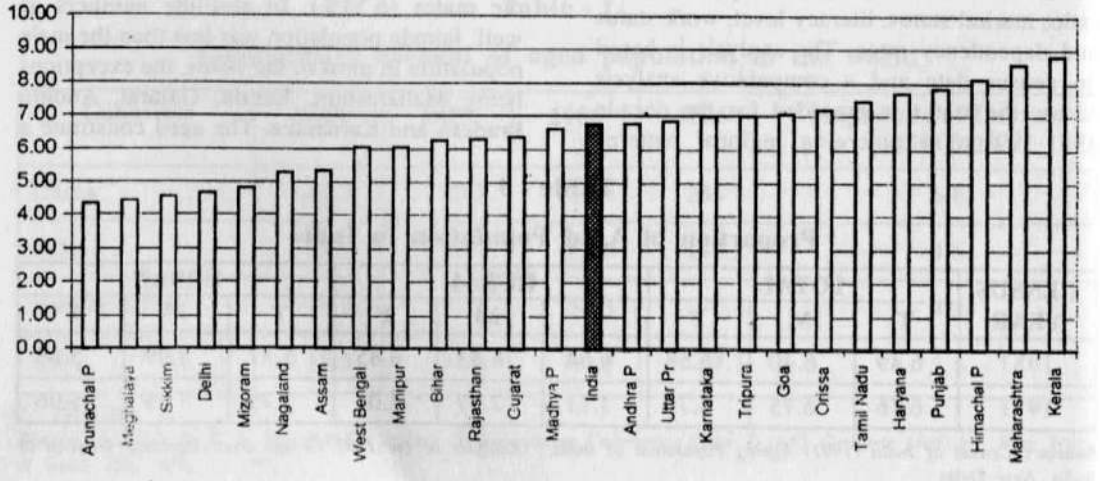
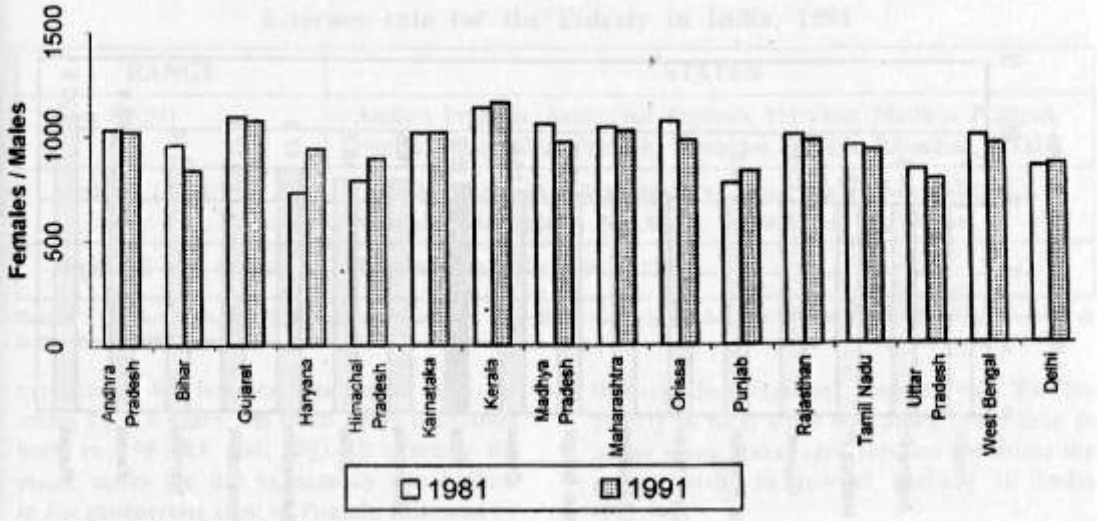


Figure : 2. Sex ratio of Aged in India, 1981 & 1991



Age Specific Death Rate

The age specific death rate (ASDR) of elderly in India was 61.17 in 1981, which came down to 54.93 per thousand in 1991 (Table 3). This is consistent with the improving longevity of the poeple in India. The ASDR for males (59.33 in 1991) was higher than for females (50.73 in 1991), reflecting the biological advantage females have over males in longevity.

Table - 4

Age Specific death rate of Elderly in India

CENSUS YEAR	TOTAL	MALE	FEMALE
1981	61.17	65.97	56.50
1991	54.93	59.33	50.73

Source : *Census of India (1991) Ageing Population of India : Analysis of the 1991 Census data, Registrar General of India, New Delhi.*

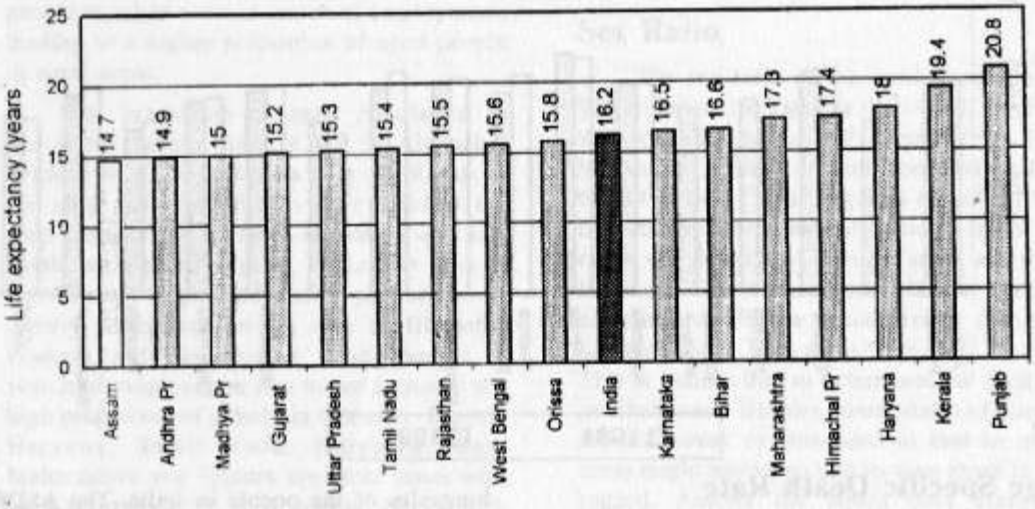
Table - 5

Age Specific death rate of Elderly in India, State wise, 1991

RANGE	STATES
Low (40-50)	Haryana, Kerala, Punjab, Gujarat, Himachal Pradesh.
Medium (50-60)	Karnataka, Maharashtra, Tamil Nadu, West Bengal, Rajasthan, Bihar, Uttar Pradesh.
High (60-70)	Andhra Pradesh, Assam, Madhya Pradesh, Orissa.

Source : *Census of India (1991) Ageing Population of India : Analysis of the 1991 Census data, Registrar General of India, New Delhi.*

Figure : 3. Expectancy of Life for the elderly (60+), 1991-95



ASDRs below 50 were recorded in the states of Kerala, Haryana, Punjab, Gujarat, Himachal Pradesh, Uttar Pradesh and Bihar (Table 4). ASDRs ranged between 50-60 in Karnataka, Maharashtra, Tamil Nadu, West Bengal and Rajasthan. The states with highest ASDRs above 60 were Andhra Pradesh, Assam, Madhya Pradesh and Orissa. Between 1981 and 1991 a sharp declinein ASDR was recorded in Himachal Pradesh, West Bengal and Madhya Pradesh.

Life Expectancy

The life expectancy above age 60 increased in India from 15.4 years in 1981-85 to 16.2 years in 1991-95 (Fig. 3). The life

Figure : 4. Litercy Rate of Aged in India, 1981 & 1991

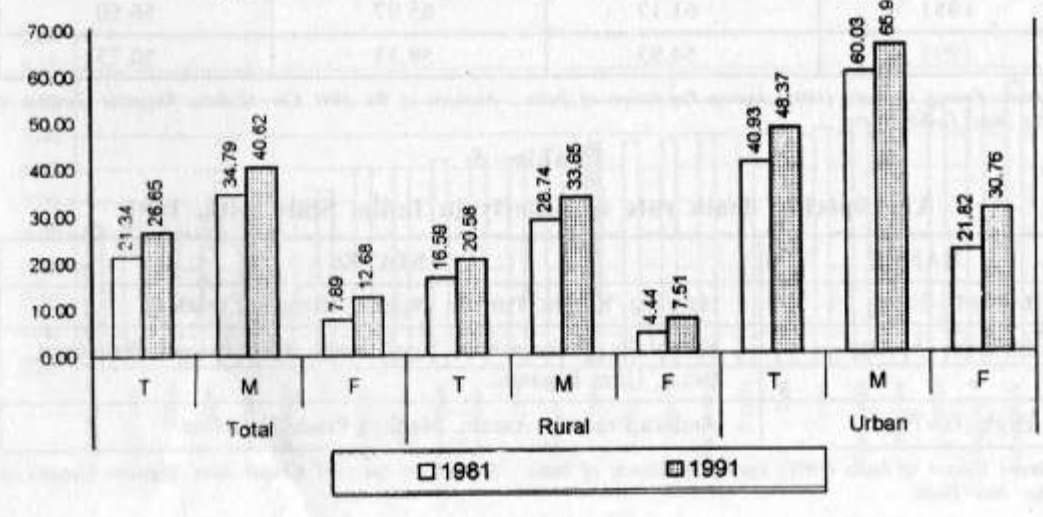


Table - 6

Literacy rate for the Elderly in India, 1991

RANGE	STATES
Low (0-20)	Andhra Pradesh, Arunachal Pradesh, Haryana, Madhya Pradesh, Punjab, Bihar, Uttar Pradesh, Himachal Pradesh, Rajasthan, Sikkim
Medium (20-40)	Gujarat, Karnataka, Maharashtra, Tamil Nadu, West Bengal, Manipur, Meghalaya, Nagaland, Tripura, Assam, Orissa.
High (40 and above)	Kerala, Goa, Mizoram, Delhi.

Source : *Census of India (1991) Ageing Population of India : Analysis of the 1991 Census data, Registrar General of India, New Delhi.*

expectancy for females was higher than for males by 1.8 years, the trend being consistent both in 1981-85 and 1991-95. Among the major states the life expectancy was highest in the prosperous state of Punjab, followed by Kerala, the state with the highest life expectancy at birth in India. They were followed by Haryana, Himachal Pradesh and Maharashtra. As many as 9 states had life expectancy at age 60 below the national average.

Literacy Rate

The literacy rate among the elderly as a group was low at 21.3% in 1981, which rose to 26.6% in 1991. Males had much higher literacy than females. Literacy rate for the elderly in rural areas was much lower than in urban areas. Rural aged females constitute the group with the lowest literacy in India (Fig. 4).

The state-level pattern is similar to that of overall literacy in India. Kerala, Mizoram, Goa and Delhi show the highest literacy rates (above 40%) among the aged (Table-5). The other southern and north eastern states along with the western states of Gujarat and Maharashtra show moderate levels of literacy (20-40%). As many as 10 states had literacy below 20%. This shows the overall prevalence of very low literacy among the elderly.

Figure : 5. Marital status of Elderly in India, 1981 & 1991

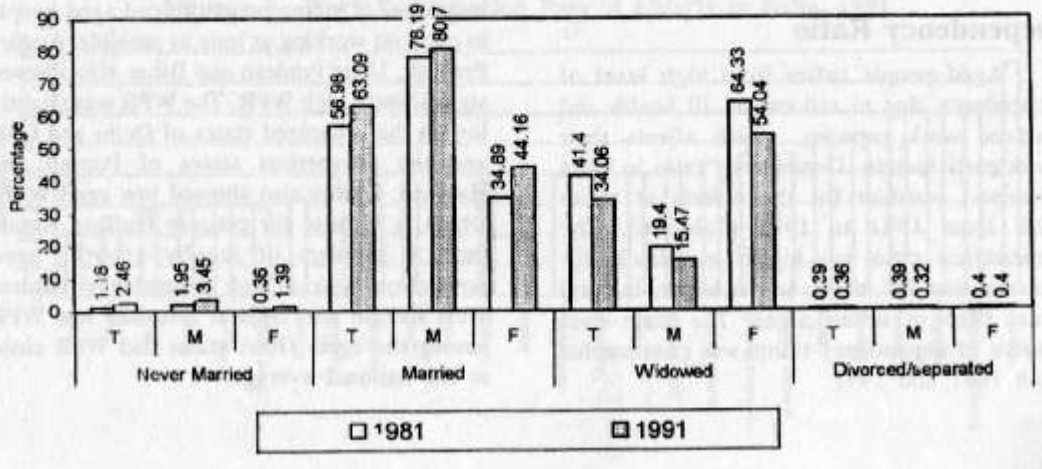


Table - 7

Old Age Dependency Ratio by sex and residence, 1981-91

CENSUS YEAR	TOTAL		RURAL		URBAN	
	M	F	M	F	M	F
1981	11.84	12.24	13.06	12.93	8.53	10.08
1991	12.16	12.23	13.34	12.97	9.21	10.19

Source : *Census of India (1991) Ageing Population of India : Analysis of the 1991 Census data, Registrar General of India, New Delhi.*

Marital Status

The proportion of married people among the elderly increased from 57% in 1981 to 63% in 1991. While 80% of the aged males were married, the corresponding figure for females was only 44% (Fig. 5). The proportion of widowed people also declined from 41% in 1981 to 34% in 1991. However, among widowed people, females proportioned 54% while males only 16% which shows that a greater proportion of females are widows. This serious implications on the economic and social status of females, since widowed status increases the probability of dependence, economic insecurity and destitution among them. Among the elderly, the chances of remarriage among the males is much higher than the females, hence males show very high married status while females show a very high widowed status and are the most vulnerable groups needing special attention.

Dependency Ratio

Aged people suffer from high level of dependency due to retirement, ill health and reduced work capacity, which affects their work participation. Dependency ratio in India remained constant for the elderly at about 12% from 1981 to 1991 (Table 6). The dependency ratio was higher marginally for females than for males. It was higher in rural areas than in urban areas. The state-level pattern of dependency ratios was constant for both 1981 and 1991.

Dependency ratios were highest in Himachal Pradesh, Punjab, Uttar Pradesh, Haryana and Tripura. Other north eastern states though, showed low dependency ratios.

Work Participation Rate

The work participation rate (WPR) for the aged as per the 1991 census (38.34%) was marginally higher than that for all ages (36.90%). Females showed a markedly lower WPR at 16.14% lower than 22.25% female WPR for all ages. Males on the other hand showed higher WPR at 60.53% as compared to that for all ages (51.55%). WPR for both males and females was higher in rural areas due to the predominance of primary occupations in rural areas (Table 7).

The state level pattern shows high WPRs for aged people in the predominantly tribal states states of the north-east (Fig. 6) WPR was also high in Himachal Pradesh, where out-migration of young people forced aged people to carry on working as long as possible. Andhra Pradesh, Uttar Pradesh and Bihar also showed significantly high WPR. The WPR was slightly low in the urbanized states of Delhi and Goa, and the prosperous states of Punjab and Haryana. Kerala also showed low aged WPR, which is a cause for concern because Kerala faces a problem of rapidly growing aged population with a high dependency burden. West Bengal and Gujarat also had low WPR among the aged. Other states had WPR close to the national average.

Table - 8

Work Participation Rate by sex and residence for the age group 60+ year in India, 1991

	TOTAL			RURAL			URBAN		
	T	M	F	T	M	F	T	M	F
All age	36.90	51.55	22.25	39.58	52.48	26.67	29.06	48.94	9.17
60 +	38.34	60.53	16.14	42.16	65.36	18.96	24.62	42.93	6.30

Source : *Census of India (1991) Ageing Population of India : Analysis of the 1991 Census data, Registrar General of India, New Delhi.*

Conclusion

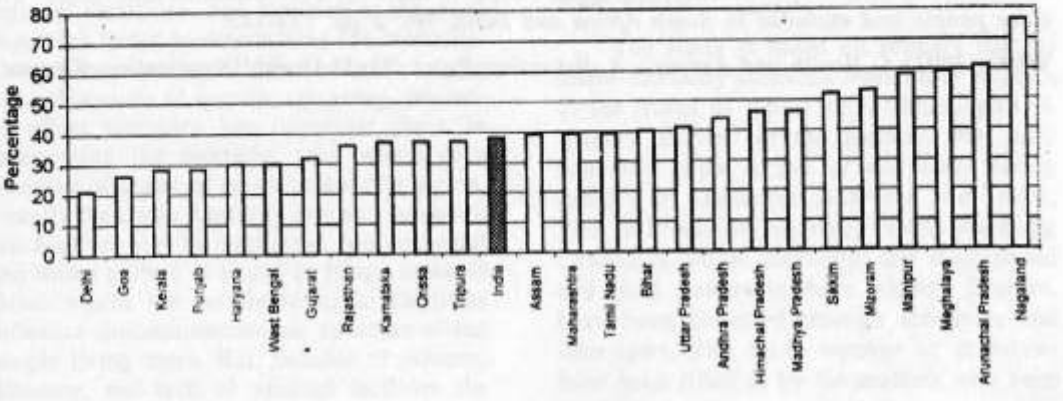
The challenges of population ageing are global, national and local. Ageing of population is a desirable and natural aim for any society, but it should be a positive experience and according to WHO it should stand on three pillars-mainly, health and independence, productivity and protection. Meeting these challenges will require innovative planning and substantive policy reforms in developing countries and particularly countries in transition.

Keeping in view the challenges India is facing due to its rapidly growing older population, the Government of India announced its national policy for older persons (NPOP) in January, 1999. The policy aims to strengthen the rights of old persons to live their lives with dignity and self-respect, cared for by family, society and country.

Aged population in the rural areas needs special intervention towards their welfare since their proportion is higher than in the urban areas mainly due to out-migration of young population, which is posing threat to their economic and social security. The declining sex ratio of the aged in India reflects on the low status of females, especially those in rural areas. Therefore they are in greater need of welfare intervention.

Though the proportion of widows among aged women has marginally declined but still their overwhelming proportion is a cause for concern. They are the most vulnerable and neglected section. Apart from the token measure that government provides in the form of widow pension, a more holistic approach is needed from the society as well as from the family so that they are able to enjoy a life of dignity and respect. The dependency ratio among the aged has increased marginally,

Figure : 6. Work Participation Rate of Elderly in India, 1991



which shows that over the decade the measures for economic security have not reached a wider section of the aged.

Kerala is the only state in India that has reached the last stage of demographic transition with an increasingly ageing population. The states like Tamil Nadu and Goa, which are at the second stage, require special thrust to meet the challenge posed by the impending ageing of the population. Though the northern states are in a high fertility stage but the sheer number of the aged population is colossal and their needs cannot be neglected.

Work participation rates are quite high in the economically poorer states which reflects on the lack of economic security among the aged, forcing them to work even at their stage in life. On the other hand, prosperous states like Punjab and Haryana show high dependency and low work participation rate along with high longevity. This reflects on their high economic security. Hence the aged population of the poorer states needs special attention in the form of financial security.

As India is reaching the last stage of demographic transition, ageing population will pose a threat to the socio-economic setup of the country. Combating the challenges faced by rapid greying of population requires action from a variety of sectors, including health, social services, education, employment, social security, housing and justice. All policies need to support intergenerational solidarity, especially for those who are marginalized.

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INFANT MORTALITY IN THE FRINGE OF RAIPUR, CHHATTISGARH

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Abstract

The aim of this paper is to know the state of infant mortality in the fringe of Raipur city and to analyse the related factors. There were 1148 live births in the fringe of Raipur among them 49 died at their infant stage. Female infants became more prey than the male infants. Mother's age at marriage and at first childbirth, birth interval, mother's level of education are the main factors in this regard. Income of the family, available medical facilities and help, hygienic living conditions have also considerable effect on infant mortality in the fringe of Raipur.

Mortality is one of three basic components of population change. The mortality rate is an indicator of socio-economic progress of any region. The factors responsible for variation in mortality show marked regional variations. Age structure is the most important factor in determining the mortality. Though the mortality is high among the infants and old persons of specific age group, the rate of infant mortality has important place in determining the mortality rate, which is a sensitive indicator of development of a region. Usually the crude mortality rate and mortality rate both are high in rural areas. A mixed rural and urban culture is found in fringe areas of cities where the available civic facilities influence the socio-economic structure of the people living there. But, because of poverty, illiteracy, and lack of medical facilities the infant mortality rate is high in the fringe. Therefore, the study of infant mortality in the fringe of Raipur is important in the present context.

The Data

The study is based on primary data of infant mortality collected from thirty villages of the fringe of Raipur city, Chhattisgarh. A 'Family Survey' of the mothers who have delivered either a live or still baby during January to December 2000 has been done. The information regarding socio-economic conditions, infant mortality, and motherhood and child welfare in these selected families, have been collected through schedules and interviews. The 1,145 number of schedules have been filled in by the mothers who have

delivered 1,148 number of live or still children.

The Study Area

Raipur city (21°15' N; 81°41'E), the capital of newly formed Chhattisgarh State, covers an area of 55.02 sq km. Population of the fringe of Raipur was 91525 persons in 2000, and its area was 125.71 sq km. Agriculture is the main occupation in the fringe. The influence of nearness to the city is clearly visible in the fringe. All villages of the fringe are linked with metalled roads to the city and have primary level educational institutions. Villages namely Birgaon, Khamtarai, Bhanpuri, Mowa, Labhandih, Jora, Amlidih, Deopuri, Chandanidih and Tikrapara, situated along the National Highway Nos.6 and 43, have relatively more civic facilities. The N.H. No.6, passing east-west, divides the city into northern and southern halves. The villages namely Birgaon, Khamtarai, Bhanpuri, Mowa, and Labhandih are situated in the northern half. The inhabitants of these villages are mostly industrial workers or labourers. While the residents of the southern half are engaged in agricultural and commercial activities. As the socio-economic and cultural environment are different in different parts of the fringe, variations in IMR exist in the study area.

Patterns of Infant Mortality

Infant mortality rate (IMR) is an important determinant of socio-economic development, which directly influences the crude mortality rate of a region. In a backward region both the infant mortality and crude mortality rates are high. The infant mortality is usually more than the mortality of sixty five year old persons which reduces the life expectancy (Bogue, 1969). Infant mortality rate in India is 70 per thousand and crude mortality is 9.0 per thousand, while the corresponding rates for the World are 56 and 9 per thousand respectively. The infant mortality in India, is quite high in comparison to the World average, notwithstanding the fact that the infant mortality rate in India has gradually been decreasing during the last six decades. The backwardness of rural areas causes remarkable difference in infant mortality in urban and rural areas. The infant mortality rates in rural and urban areas in India are 75 and 44 per thousand respectively, while the corresponding values for the Chhattisgarh are 95 and 47. Presently, the total infant mortality in Chhattisgarh is 78 per thousand and the crude mortality is 9.6 per thousand. Both the rates are high in comparison to those for India because of lower level of socio-economic developement in the Chhattisgarh.

The IMR, in the fringe of Raipur, is 42.68 per thousand, which is nearly half of the country's average and that of Chhattisgarh. Raipur city is a leading and developed city in Chhattisgarh where administrative, educational, commercial, medical facilities are available. With the benefit of these facilities the IMR in fringe is less than that of distant rural areas. It is noted that more civic facilities are available in the industrial estates and, therefore, a lower IMR (39.11 per thousand) has been reported than that in the southern part (44.37 per thousand).

The infant's age is of specific importance in the study of infant mortality. The infant deaths are divided into perinatal (less than a week) mortality, neonatal (less than one month) and postneonatal mortality (one month to less than one year), according to the age of infant at the time of death. The causes of infant deaths are grouped into (i) endogenous or biological and (ii) exogenous or environmental causes. The endogenous causes are predominant during the neonatal period, while the exogenous causes are responsible for most of the postneonatal deaths (Bourgeois, 1964). The perinatal mortality rate (PMR) is the ratio between the number of dead infants below the age of seven days and the number of live births. The PMR in the

Table-1
Infant Mortality in the Fringe of Raipur City, 2000

Infant Deaths	Total Deaths	Deaths in %	Rate
Perinatal	18	36.7	15.68
Neonatal	34	69.4	29.62
Postneonatal	15	30.6	13.07

fringe of Raipur is 15.68 per thousand. The neonatal mortality rate (NMR) is the ratio between the number of deaths of less than one month old infants and the total number of live births (Table-1). The NMR in the fringe of Raipur is 29.62 per thousand, which is nearly half of the NMR for India i.e. 57.7 per thousand (NFHS, 1995) while the postneonatal mortality rate (PNMR) is the ratio between the number of deaths of infants aged between one month and less than a year, and the total number of live births (Fig.1A), The PNMR in the ringe of Raipur is 13.07 per thousand, which is much less than that of India (36.6 per thousand) (NFHS, 1995). The life expectancy increases with the growing age of infant, therefore, the NMR usually remains high. The resultant effects of pollution comes as high perinatal and neonatal mortality (17.00 and 30.61 per thousand) in the industrial belt. Here the postneonatal mortality is low (8.50 per thousand). The postneonatal mortality decreases with advancing age of the infants, who get due medical care.

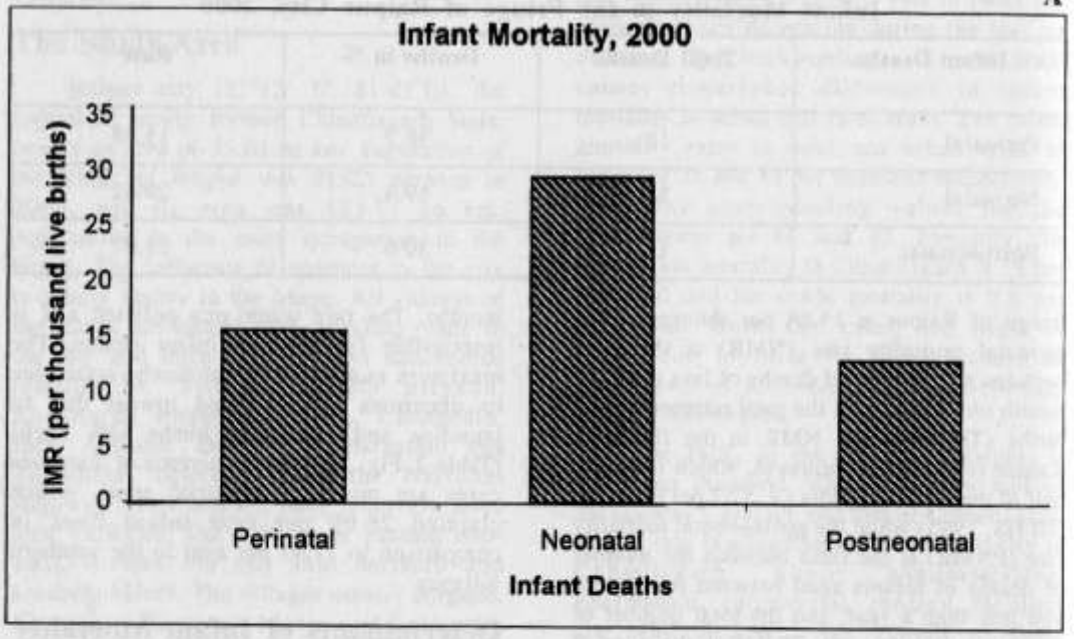
Most of the infant mortality occurs during transitional seasons (Blacker, 1991), while the monsoon is the cause of most of infant deaths in India particularly during the months of August and September (Vaidyanathan, 1972). The maximum number of infant deaths occur in the fringe of Raipur in the month of July (103.44 per thousand) and the minimum in the month of April (10.20 per thousand). July is a month of transitional season when the monsoon onsets after summer months. The rain water gets polluted and is responsible for most of infant deaths. The maximum number of infant deaths occur due to diarrhoea (24.5%) and lowest due to jaundice and premature births (2% each) (Table-2, Fig. 1B). The occurrence of diarrhoea cases are more in industrial areas, which claimed 26.09 per cent infant lives in comparison to 21.43 per cent in the southern villages.

Determinants of Infant Mortality

IMR is a sensitive indicator of socio-economic and cultural development of any region. Availability of medical facilities to the public is more important rather than their mere availability. Therefore, regional variations in IMR exist in the region. Mosley and Chen (1984) have grouped the factors responsible for infant mortality into five categories, namely - maternity, environmental pollution, malnutrition, stroke, and disease factors, Jain (1985) has grouped these factors into three broad groups, namely (i) Personal level which includes mother's age at childbirth, birth order, birth interval, mother's education, place of birth, and delivery assistant; (ii) Family level which includes residential conditions and cleanliness, and (iii) Family income and environment. Chandrashekhar (1959) has grouped these factors into biological, economic, cultural, and social factors with reference to India. Other scholars like Mahadevan (1986), Nag (1988), Jain and Visaria (1988), Ren (1996) have also

Fringe of Raipur City

A



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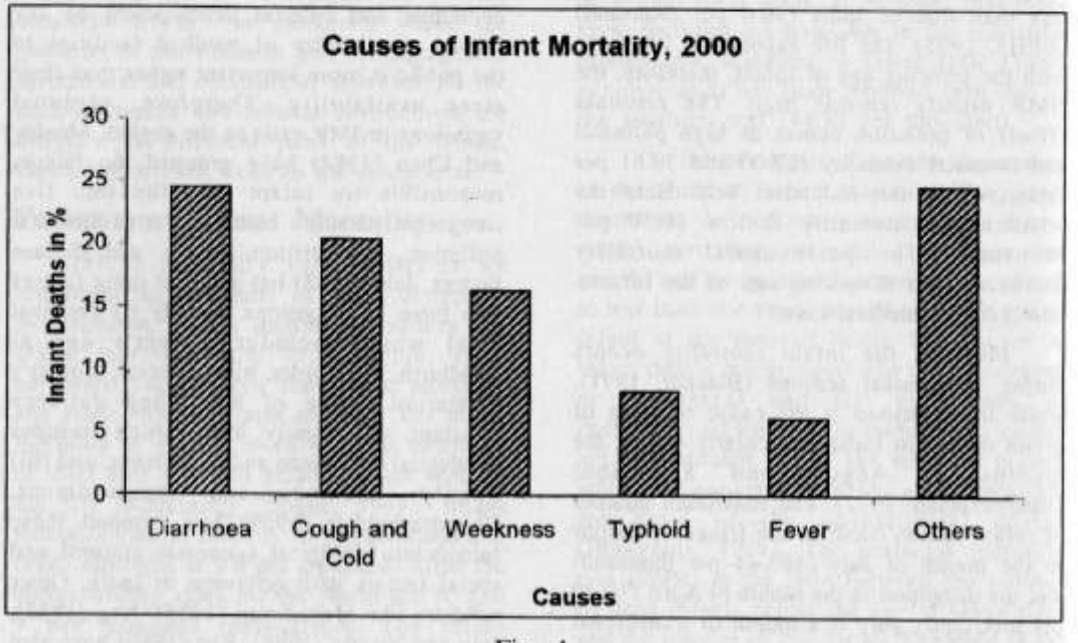


Fig. 1

Table-2
Causes of Infant Mortality

Causes	Infant Deaths	Infant Deaths in %
Diarrhoea	12	24.5
Cough and Cold	10	20.4
Weakness	8	16.3
Typhoid	4	8.2
Fever	3	6.1
Others	12	24.5

studied these factors. The role of demographic, social, economic and cultural factors is more important in determining IMR in India which has been dealt with in the following paragraphs :

1. Demographic Factors

Among the various determinants the age of mother at childbirth and sex of the child are important and directly influence the IMR.

A. Age of the Mother

The age of the mother at childbirth is the most important factor among all the factors responsible for infant mortality. The correlation between the mother's age at childbirth and IMR is high negative and 'U' like. Studies of many scholars (Agarwal, 1978; Pebley and Stupp, 1987; Gondotra and Das, 1988; Talwar, 1988; Rethenford et al., 1989; Koenig et al., 1990) reveal that the IMR decreases with the increasing age of mother. The IMR is low in case of mothers of more than thirty years old. The mother's age at the time of marriage, at first childbirth and at delivery have been considered to analyse the effect of mother's age with the IMR. Mothers of less than eighteen years old experience difficulties in delivering a healthy child because of their immature physical development. And, if the delivery occurs then the chances of weak and immature baby are more and the newly born babies have high risk of mortality. Rural environment prevails in the fringe areas, where the parents prefer early marriage particularly of their girl child and invite the risk of high infant mortality. Such characteristics can be seen in the fringe of Raipur. The IMR has been 55.75 per thousand in case of mothers married below sixteen years of age, while the minimum IMR (21.74 per thousand) has been observed in case of mothers married after the age of twenty one years. Similarly, the IMR has been maximum (68.77 per thousand) in case of mothers aged below seventeen years at the time of first delivery. The IMR has been highest (116.8 per thousand) among the infants delivered by the mothers of less than nineteen years, and the rate gradually decreases with the increasing age of the mother (Table-3, Fig.2A) . In the agricultural belt of the fringe, the IMR reaches to 121.21 per thousand in case the infants delivered by the mothers of less than 19 years. The rate remains to 101.21 per thousand in the northern industrial area. In India, the IMR has been highest (107.3 per thousand) among the infants delivered by the mothers of less than twenty years age which decreases till the age of thirty years, and thereafter increases again. The rate is highest (111.8 per thousand) among the mothers of 40-49 years (NFHS, 1995). The IMR is high

Table-3
Mother's Age at the time of Delivery and IMR

Mother's Age (Years)	Live Births	Infant Deaths	IMR (Per Thousand live births)
< 19	137	16	116.8
20 - 24	391	14	35.8
25 - 29	409	11	26.9
30 - 34	139	05	36.0
> 35	72	03	41.7
Total	1148	49	42.68

among the mothers aged below 19 years who have been married at their early age.

B. Sex of the Child

Biologically females are more resistant to diseases than males and, therefore, mortality rate is high among male infants of every age group. Generally speaking, more care is given for bringing up the male children in India than that given to females as the male child is considered to be the heir. This attitude adversely affects the mortality of female infants. Das Gupta (1990) emphasized the excess mortality among girls in India. The IMR in rural India is 75.6 per thousand for male infants and 75.2 per thousand for female infants, the corresponding rates are 116.5 and 71.3 per thousand for male and female infants respectively in Chhattisgarh. The IMR in fringe of Raipur is 36.61 and 49.36 per thousand for male and female infants respectively, which is much less than the regional and national averages (Table -4). In the northern fringe, the IMR for male infants has been 50.00 per thousand as compared to 46.26 per thousand for female infants. While these rates have been 39.27 and 32.57 per thousand respectively in the southern fringe.

Table-4
Sex Differences and Mortality

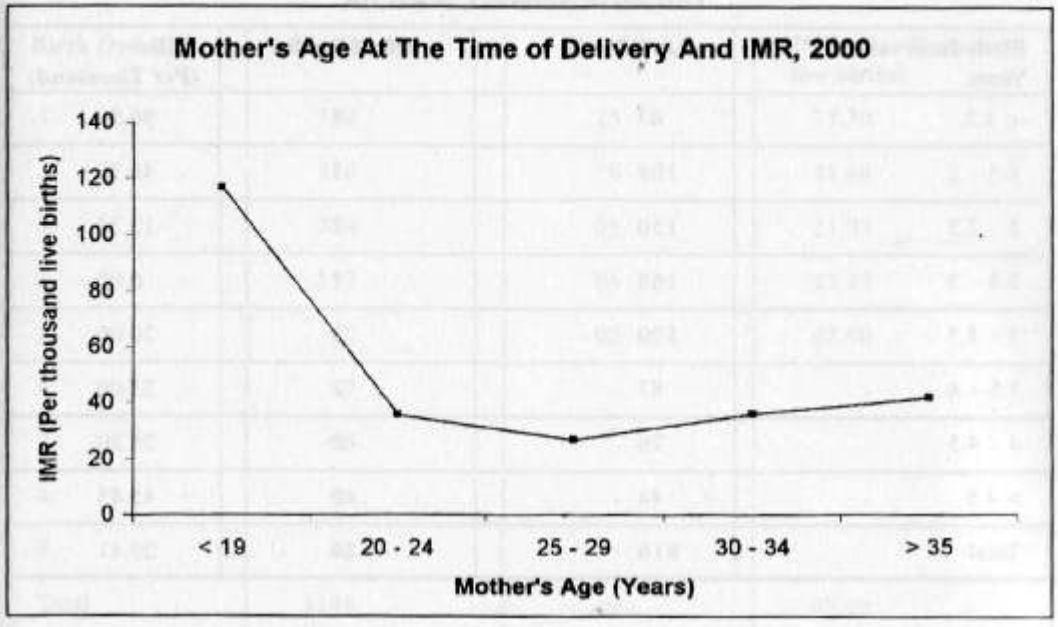
Sex	Live births	Infant Deaths	IMR
Male	601	22	36.61
Female	547	27	49.36
Total	1148	49	42.68

C. Birth Interval

The relation between infant mortality and birth interval is negative. The risk of mortality is high in case of less intervals. The chances of survival are less in case of birth interval of less than two years (Wang and Murphy, 1988; Gupta and Baghel, 1999). The IMR is very high (96.38 per thousand) in fringe of Raipur with a birth interval of one and a half years (Table - 5) ; the rate increases

Fringe of Raipur City

A



B

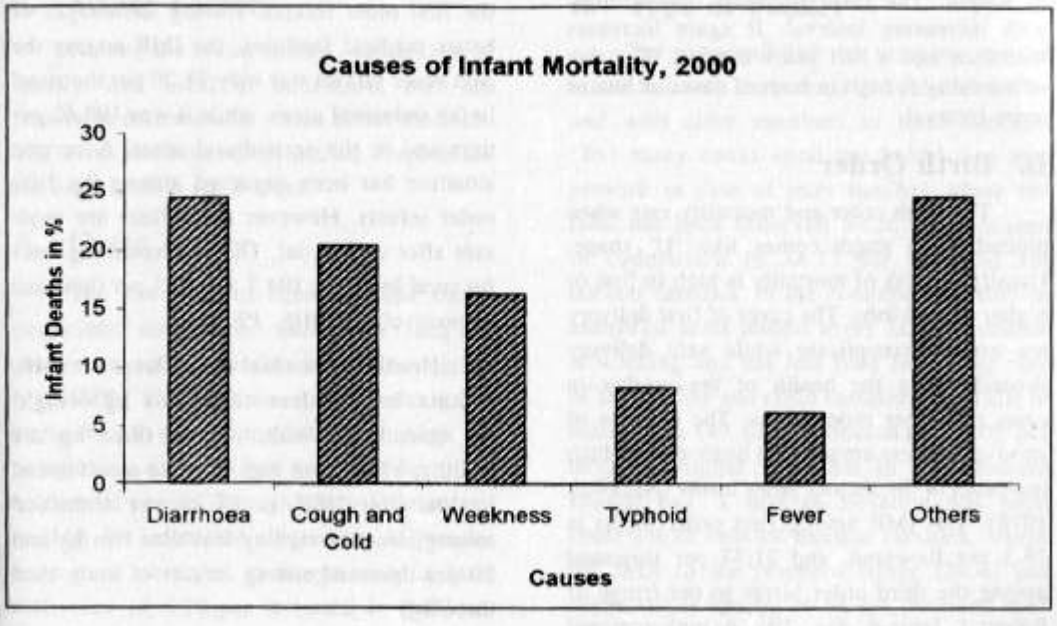


Fig. 2

Table-5
The Birth Interval and IMR

Birth Interval in Years	Live Births	Infant Deaths	IMR (Per Thousand)
< 1.5	83	8	96.38
1.5 - 2	108	5	46.30
2 - 2.5	150	2	13.33
2.5 - 3	168	1	6.00
3 - 3.5	100	2	20.00
3.5 - 4	87	2	23.00
4 - 4.5	76	2	26.30
> 4.5	44	2	45.45
Total	816	24	29.41

to 162.70 per thousand in the northern fringe of Raipur. The IMR gradually comes down with increasing interval. It again increases with four and a half years interval. The risk of mortality is high in both of cases of less or more interval.

D. Birth Order

The birth order and mortality rate when plotted on a graph comes like 'U'. shape. Usually the risk of mortality is high in first or higher order births. The cases of first delivery are usually complicate while safe delivery depends upon the health of the mother in cases of higher order births. The chances of survival are less among first order child which increases in the second order births (Agrawal, 1978). The IMR among first order births is 75.3 per thousand, and 21.37 per thousand among the third order births in the fringe of Raipur (Table-6, Fig. 2B). A high regional variation in IMR has been observed among the first order infants. Having advantages of better medical facilities, the IMR among the first order infants was only 58.20 per thousand in the industrial areas, while it was 100.62 per thousand in the agricultural areas. A reverse situation has been observed among the fifth order infants. However the infants are more safe after sixth order. The corresponding rates for rural India are 104.7 and 78.7 per thousand respectively (NFHS, 1995).

Health of the child also affects the IMR. Infants having less than two kg weight are considered weak, two to three kg are healthy, while more than three kg are of sound health. The IMR is 98.36 per thousand among infants weighing less than two kg and 20 per thousand among infants of more than three kg.

Table-6
Birth Order and IMR

Birth Order	Live Births	Infant Deaths	IMR ((Per Thousand live births)
1.	332	25	75.30
2.	316	10	31.64
3.	234	05	21.37
4.	157	04	25.47
5.	80	05	62.50
6.	17	-	-
7.	06	-	-
8.	04	-	-
9.	02	-	-
Total	1148	49	42.68

2. Social Factors

Among the social factors - caste, type of family, and level of education, etc. are important determinants which affect the IMR. The rural environment is mainly responsible for high IMR is rural areas.

A. Caste Factor

The low level of education and socio-economic conditions alongwith lack of awareness, among the scheduled tribes cause, high IMR. The IMR among ST infants has been 89.28 per thousand, very high in comparison to 16.95 per thousand for other sections of people. Though internal variations, in IMR for infants of all sections of people, have been observed in fringe, only a little difference of 5.20 per thousand in IMR has been reported for other sections.

B. Type of Family

The responsibility of bringing up the infant lies with the parents in nuclear families and with elder members in joint families. 'Too many cooks spoil the broth' is a true proverb in case of joint families where the IMR has been observed 88.76 per thousand in comparison to 34.73 per thousand for nuclear families. In the combined families in industrial areas almost every family member is working and has less time for taking care of the mother and child therefore, the IMR in these areas (89.10 per thousand) is 8.02 per thousand higher than that in the southern fringe. But, a reverse situation has been observed in case of nuclear families, where the IMR in the southern fringe (28.42 per thousand) is less by 10.64 per thousand than the northern fringe.

C. Level of Education

The educated mothers are more aware about child care and utilization of health care facilities (Hobcraft, 1993). More studies can be cited in this regard (Trusell and Hammerslough, 1983; Mosley and Chen, 1984; Tulasidhar, 1993; Hobiraft et al. 1985, Rama Rao et al, 1997). In rural areas the IMR as well as the crude mortality rate are high in case of illiterate mothers. The low level of mother's education does not affect the IMR. The literate mothers usually deliver healthy children whose chances of mortality are less. The IMR reaches to 68.13 per thousand in the fringe of Raipur, relatively higher in northern fringe than the southern fringe, among the illiterate mothers, while it is 28.49 per thousand among literate mothers. The rate is highest (68.13 per thousand) for mothers without any school education and lowest (8.69 per thousand) for mothers having higher secondary level of education (Table -7). The corresponding rates for India are 68 and 47.6 per thousand respectively. The graduate mothers are more careful about the health of their infants. Literate fathers are also aware of the health of their children; accordingly, the IMR in the fringe of Raipur has been high (55.40 per thousand) among the children of illiterate fathers in comparison to that of literate fathers i.e. 36.85 per thousand.

Table-7

Birth Mother's Education Order and IMR

Mother's Education	Live Births	Infant Deaths	IMR (Per Thousand)
Illiterate	411	28	68.13
Total Literate	737	21	28.49
Literate - without level	236	09	38.13
Primary	161	08	49.70
Middle	192	03	15.62
High/Higher Secondary	115	01	8.69
Under Graduate/Post Graduate	30	-	-
Grand Total	1148	49	42.68

3. Economic Factors

Economic condition of a family is the indicator of the level of education of the family (Sapru, 1989). Most of the rural people are either agriculturists or agricultural labourers by occupation and, therefore, their family income, level of nutrition, and health conditions are poor. The IMR is high among the mothers who are doing physical labour, in comparison to mothers engaged in mental work. In the fringe of Raipur the corresponding IMRs are 156.25 and 27.75

per thousand respectively. In the northern fringe 129.03 per thousand IMR has been obtained in case of mothers engaged in agricultural labour followed by labourer mothers (86.41 per thousand). The IMR is almost nil among the infants of mothers who are in government services (Table - 8). Occupation of father also effect IMR. Among the agriculturist fathers the IMR is higher (75 per thousand) than that amongst government servants (18.52 per thousand) and there in other services (13.70 per thousand).

In rural areas, both father and mother earn to run their family. In the fringe of Raipur as the family income is low, the family members are generally ignorant about the pre-and postnatal care of the mother, which ultimately resulted in higher IMR. The IMR for families having monthly income of less than Rs. two thousand is 58.14 per thousand which gradually decreases with the increase in income. The family income is relatively high in industrial areas than agricultural areas. In the northern fringe 26 per cent families have more than Rs. four thousand income per month while only 8.40 per cent families in the southern fringe are in this category. The IMR is low in these families, who are mainly concentrated in the northern fringe.

Table-8

Mother's Occupation and IMR

Mother's Occupation	Live Births	Infant Deaths	IMR (Per Thousand)
House wife	937	26	27.75
Labourer	119	13	109.24
Business	38	05	131.58
Cultivator and Agricultural Labourer	32	05	156.25
Govt. Service	22	-	-
Total	1148	49	42.68

4. Cultural Factors

Availability of health care facilities has definitely increased the chances of survival of infants. The place of delivery, delivery attendant, navelstring cutter, and health care facilities are important cultural factors. Place of delivery affects the mortality of child and the mother. There has been high correlation between the place of birth and the IMR (Ren, 1966). In rural areas the delivery takes place either at home or at hospital. The delivery at home is much risky for the survival of the child and the mother, mainly due to lack of cleanliness and medical facilities. The IMR at home delivery cases is 47.62 per thousand in the fringe of Raipur, which is much higher than the delivery cases at hospital/nursing homes (12.42 per thousand). The 85.54 per cent deliveries have been performed at home in the northern fringe in comparison to 93.57 per cent in the southern fringe. The IMR in these areas has been 43.74 and 47.70 per thousand respectively.

Delivery attendant has an important role in the success of delivery. In case of trained attendant the IMR is low (Khan, 1988). The delivery attendants are usually a doctor, or a nurse, or a trained midwife, but in rural areas the delivery attendants are either untrained midwife, or neighbour, or relative who are responsible for high IMR. Relatively higher IMR in cases of untrained delivery attendants (71.72 per thousand) than those attended by doctors/nurses (13.16 per thousand) has been observed in the southern fringe of the city. In the fringe of Raipur the highest IMR is 66.9 per thousand in case of untrained delivery attendants, while the IMR is 12.42 per thousand in case of qualified delivery attendants like doctors or nurses (Table-9)

The navelstring is usually cut by a razor blade or a scissor. In rural areas blade is used for cutting the string, while scissor is used in hospitals. The blade is more risky which, most of the times, is infectious. Most of the deliveries, in the fringe of Raipur take place at home where blade is usually used as string cutter; in these cases the IMR has been 50.77 per thousand. Blade had been used for cutting the navelstring in about 76.16 per cent delivery cases in the northern fringe and in 71.25 per cent in the southern fringe. While low IMR (19.93 per thousand) has been reported in the cases where scissor is used for cutting the string.

5. Civic Facilities And Environment

Availability of civic facilities and the environment of neighbourhood are directly related to the wellbeing, living, and health conditions of the people. The rural areas are lacking in these facilities while the fringe areas have little more facilities. The influence of these facilities and environment has been analysed at village as well as household level.

A. Civic Facilities and Environment at Village Level

Usually the rural areas are lacking in civic facilities and the environment is inhygeinic, which affect the health of mother, child, and other family members. This ultimately increases IMR and the total mortality rate. In the fringe of Raipur better facilities are available. The effect of these facilities have been analysed in the following paragraphs :

(i) Medical Facilities

Availability of medical facilites is an important criterion of the health of the mother as well as the child. The Primary Health

Table - 9

Place of Delivery, Maternal Attendance and Infant Mortality

Place/Attendant	Live Births	Infant Deaths	IMR (Per Thousand)
Hospital/Nursing Home	161	2	12.42
Home	987	47	47.62
Trained midwives	434	10	23.04
Untrained family member & neighbours	553	37	66.90

Centres, Aanganwadi Centres, and private Nursing Homes are providing medical help during delivery in the fringe of Raipur. Besides, the residents of the fringe are getting medical help from city hospitals, but the poor residents could not manage to get the help in time. The IMR in the fringe of Raipur is 52.44 per thousand for those who could not get medical help while it is 24.61 per thousand for those who get medical help in time. The family income is relatively higher in the northern fringe, who are enjoying more medical facilities while the corresponding figure for the southern fringe was 6.03 only.

ii) Distance From the City

Both the inconvenience in getting medical facilites and IMR increase in the fringe with increase in the distance from the city. The distant residents in the fringe are living in the areas less than 15 km. The highest IMR (72.95 per thousand) has been observed in residences situated at more than 8 km away from the city. The IMR within 4 km has been 17.60 per thousand. The Tikrapara, Purena, Mowa, Khamtarai are situated within 4 km and Sarona, Dunda, Jora, Dumartarai, Boriakhurd, Bhatgaon, Sarora, Chandanidih, Jarway, Sondongari, Birgaon, Ranwabhata, Urkura, Daldalseoni are more than 8 km away.

iii) Location of Educational Institution

It is interesting to note that the location of educational institutions also effect the IMR. In the settlements where only primary schools are located the IMR has been obtained 55.36 per thousand, while the IMR has been 21.01 per thousand in the settlements where higher secondary level institutions are situated. Facilities of education are more in the northern fringe, where 36.41 per cent families availed these facilities in comparison to 3.92 per cent in the southern fringe. The resultant effect of this comes as higher IMR in the southern fringe.

iv) Sources of Drinking Water

The health of people is directly related to the availability of potable water. The sources of water supply in rural areas are either private or public. Lack of cleanliness in public sources increases the risk of high IMR. Wells are the main source of drinking water in the rural areas, which are not properly cleaned. About 38.39 per cent families are getting drinking water from wells in the southern fringe, while 64.61 per cent families in the northern fringe are using tubewell water for drinking. The IMR has been high (86.67 per thousand) in families who have been using well water, and the IMR reaches to 97.67 per thousand in the southern fringe. On the other hand, the IMR is low (16.13 per thousand) among families using comparatively clean tap water. The IMR is 58.82 per thousand among the families of northern fringe who have used tube-well water for drinking purpose.

v) Availability of Electricity

The families having electric supply have amenities for their comfort, which indirectly affect the IMR. Many families in the fringe of Raipur have domestic electricity. Generally, in the families devoid of electricity have high IMR (52.84 per thousand) in comparison to those having electric facility (39.91 per thousand).

vi) Other Facilities in the Household

Households have many facilites other than their basic needs, according to the income of the family. The IMR is low among the families having other facilities. For instance, the families purchasing news papers and having television sets have better awareness regarding health care particularly of the child and the mother, which influence the IMR. In the fringe of Raipur, the IMR was 18.18 per thousand among families purchasing news papers while it was 45.41 per thousand in the families who do not have this facility. Television is playing effective role in bringing awareness about the health care even among

illiterate families. The IMR is low i.e. 26.38 per thousand in the families having television sets in comparison to 50.71 per thousand in the families do not have this facility.

Living conditions are directly related to the health of family members. Families having LPG for cooking, have better health and the IMR is lower (12.82 per thousand) than those who use fuelwood for cooking (56.63 per thousand). The IMR is low in the families having sufficient hygienic living space. The IMR is 47.91 per thousand among the families who live in *kutcha* houses made of mud. The IMR is 102.27 per thousand in families who are living in one room. The IMR decreases with the increase in the number of living rooms (Table -10). Similarly the IMR is high (65.43 per thousand) in the residences situated in unhygeinic areas, while it is only 11.31 per thousand in the areas where general cleanliness is better.

Maternity and Child Welfare

Government has launched many programmes for child and family welfare, to reduce IMR. Special mention be made for 'Aanganwadi' programme in rural areas through which general health care information and vaccinations are given free of charge. But, the number of beneficiaries is less because of low awareness in this regard. An alarming IMR (156.68 per thousand) has been recorded in the case of mothers who were not properly vaccinated. The IMR touches to 189.20 per thousand in the northern fringe against 100.00 per thousand in southern fringe amongst those who have not been vaccinated. While the IMR of 30.36 per thousand has been reported amongst vaccinated cases. The northern fringe is more polluted, due to establishment of more industrial units, and responsible for more infant deaths in this part.

Conclusion

Infant mortality is still quite up in many parts of India like Chhattisgarh. Even the fringe areas of important cities suffer from high infant mortality. The mother's age at marriage, her age at first and subsequent child-births, birth order, birth-interval, education of mother, place of birth, living conditions are various crucial factors affecting the infant mortality in the fringe of Raipur city. Though the civic facilities are more in the fringe than that of the adjoining rural areas, the IMR is quite significant in this part. Similarly, more facilities need to be provided to educate people, particularly females, to enhance awareness so neccessary to bring down infant mortality in the area.

Table - 10
No. of Rooms and IMR

No. of Rooms	Live Births	Infant Deaths	IMR (Per Thousand)
1	176	18	102.27
2	322	17	52.80
3	365	09	24.66
> 4	285	05	17.54
Total	1148	49	42.68

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SEX RATIO DIFFERENTIALS IN NORTHWEST INDIA

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Abstract

Based on census data, the paper attempts to analyze the pattern of sex ratio in Northwest India. It mainly addresses the following aspects : (i) temporal variations in sex ratio; (ii) rural-urban differences in sex ratio; (iii) difference between sex ratio of total population and 0-6 years population; and (iv) spatial pattern of sex ratio. Sex ratio here cannotes number of females per thousand males. Sex ratio in this otherwise female deficiency region has been improving at least since 1951 but there is a recent sharp decline in sex ratio of population under 7 years of age, indicating a fall in sex ratio at birth. Regional variations remain striking.

The Study Area

The study are includes the States of Punjab, Haryana, Himachal Pradesh and the Union Territory of Chandigarh which together cover an area of 150361 square kilometres. The total population of the study region numbered 42,558,509 in 1991 of which 26.02 per cent was recorded in urban areas. The highest level of urbanization was found in Union Territory of Chandigarh (89.69 per cent) followed by Punjab (29.55 per cent), Haryana (24.63 per cent), and Himachal Pradesh (8.69 per cent). The corresponding figure for the country, as a whole, was 26.04 per cent.

The study region is characterized by considerable physiographic, climatic, and cultural diversity. Its topography varies from flat featureless plains of Punjab and Haryana, through the Shivalik hills to the high Himalayan mountains. The climate of the area varies from semi-arid in parts of Haryana, to the perpetual snows in the central Himachal Pradesh. Further, Trans-Himalayan tract, comprising the districts of Lahul and Spiti, and Kinnaur, is marked by desert conditions. Similarly, vegetation cover varies from thick forests in parts of the study area to almost bare mountains in large parts of Lahul and Spiti, and Kinnaur districts of Himachal Pradesh. In tune with its physiographic and climatic diversity, the study area also reveals notable variations in its cultural fabric. Similarly, there has been equally varied historical experience of its different parts.

Table-1

Northwest India : Religious Composition of Population, 1991

Religious Community	Population	Per cent of total Population
Hindu	27,121,193	63.73
Sikh	13,906,871	32.68
Muslim	1,109,787	2.61
Christian	250,327	0.59
Buddhist	91,768	0.21
Jain	58,796	0.14
Others	19,767	0.04

Source : Census of India 1991.

The above mentioned regional diversities also get mirrored in socio-economic and demographic terms at different areal scales. The main factors differentiating types of areas include : (i) major urban centres; (ii) main transport arteries; (iii) important industrial nodes; and (iv) level of agricultural development. Another factor in this regard is the main Himalayan range beyond which the districts of Lahul and Spiti, and Kinnaur in HImachal Pradesh stand out distinctly in the study area.

Table 1 reveals that with a population of 27,121,193 in all, the Hindus constituted 63.73 per cent of the total population followed by the Sikhs (32.68 per cent), the Muslims (2.61 per cent), the Christians (0.59 per cent), the Buddhists (0.21 per cent), and the Jains (0.14 per cent). The Hindus were in majority in the states of Haryana, Himachal Pradesh and the Union Territory of Chandigarh. The Sikh were in majority in Punjab and their proportion declined gradually away from this area. The Buddhist had their concentration in the trans-Himalayan tract of Himachal Pradesh, i.e., in the districts of Lahul and Spiti, and Kinnaur where their share of population was 76.97 and 55.58 per cent respectively. The scheduled caste population accounted for 24.46 per cent of the total population in the study area.

The scheduled tribes were found in Himachal Pradesh only. Their share in the total population of the study area was 0.51 only and the corresponding figure for Himachal Pradesh was 4.22 per cent.

The Study of Sex Ratio

Sex ratio of a place is determined by three factors : (i) sex ratio at birth; (ii) differential mortality of two sexes; and (iii) sex selectivity in migration. As such it is a significant element of demographic character of an area. Besides, it is also an important indicator of the social health.

It has been rightly said that "no society treats its women as well as men" (UNDP, 1995, p. 75). The same is true for India. It is pertinent to point out that along with economic factors, non-economic factors also play a crucial role in determining the status of women in the country (Ahooja-Patel, 1993, p. 305). Apart from its various manifestations, low status of females in India is reflected in low sex ratio

resulting mainly from higher female mortality in various age groups (Wyon and Gordon, 1971, p. 207; Gosal, 1961, p. 123; Gill and Singh, 1985, p. 36). Significantly, female death rate in India has been consistently higher than that of males since the beginning of the twentieth century leading to progressive decline in sex ratio (Mitra, 1979, p. 9). Relatively high female mortality has been attributable chiefly to : (i) neglect of females at various stages of life in terms of food, health care and the like; and (ii) frequent maternity, unskilful midwifery, and inadequate prenatal and postnatal care (Gosal, 1961, p. 124, Krishan and Chandna, 1973 p. 117).

Sex Ratio in the Study Area

Like other countries of South Asia, India is characterized by a pronounced deficit of females. The same is true of the study area which had an excess of 2604,669 males over females in 1991. The sex ratio of the area was 885 only, i.e., it had a deficit of 115 females per thousand males in that year. Significantly, the region has been an area of considerably low proportion of females since the beginning of the twentieth century (Census of India, 1921, p. 143). This large deficit of females in the area was mainly attributable to higher female mortality. However, differential sex selectivity in migration was primarily responsible for shaping out spatial patterns of sex ratio in the study area at the sub-regional scales.

Table 2 shows that the lowest sex ratio was recorded in the Union Territory of Chandigarh (790) and the highest in Himachal Pradesh (976) as against 927 for the country as a whole. There was not much difference between the sex ratios of Punjab (882) and Haryana (865). Chandigarh's very low position in sex ratio was mainly due to heavy incidence of male-selective migration to this Union Territory. However, low sex ratio of Punjab and Haryana mainly stemmed from relatively low status of females which contributes to

Table-2

Northwest India : Sex Ratio of General Population and 0-6 years Population, 1991

		TOTAL POPULATION		0-6 YEARS POPULATION	
		General Population	Scheduled Caste	General Population	Scheduled Caste
Chandigarh	Total	790	810	899	936
	Rural	632	748	910	936
	Urban	810	820	897	936
Haryana	Total	865	860	879	891
	Rural	864	860	877	886
	Urban	868	860	884	916
Himachal Pradesh	Total	976	967	951	964
	Rural	990	975	955	965
	Urban	831	858	904	948
Punjab	Total	882	873	875	896
	Rural	888	873	878	896
	Urban	868	874	866	898
India	Total	927	922	945	946
	Rural	939	926	948	947
	Urban	894	905	935	943

Source : Census of India 1991.

raising of female mortality in one way or the other. Similarly, the mountainous state of Himachal Pradesh's higher placing in sex ratio was mainly connected with relatively high status of females there vis-a-vis that in the neighbouring states of Punjab and Haryana, and the Union Territory of Chandigarh. It is notable that similar differentials in sex ratio existed even in the first decade of the twentieth century (Census of India 1911, p. 208). Significantly, sex ratio of schedued castes in each of the three states and Union Territory of Chandigarh was not much different from that of the general population. However, in all the three states, sex ratio of scheduled caste population was slightly lower than the sex ratio of general population (Table-2). On the other hand, sex ratio of general population was marginally lower than that of scheduled castes. Sex ratio of tribal population (981) was slightly above the general sex ratio in the area.

Changes in Sex Ratio, 1901-1991

India's sex ratio has declined from 972 in 1901 to 927 in 1991 (Table 3). The downward trend in sex ratio of the country was mainly connected with relatively high female mortality than that of males. However, whereas sex ratio in rural areas has been consistently on the decline, that in urban centres has shown a upward trend since 1961. The recent improvement in urban sex ratio is mainly connected with : (a) growing incidence of family migration as well as of male followed by female migration as against excessively male-selective migration in the past; and (b) rapid fall in female mortality in urban area following widespread diffusion of preventive and curative medicines in the post independence period.

In contrast with the downward trend of sex ratio of India, the Northwest part of the country came up with a different experience in this regard during the present century. Its constituent units of Himachal Pradesh and Punjab have recorded significant rise in the proportion of their female population (Table 3). Similarly, Chandigarh's sex ratio has been

Table-3

Northwest India : Change in Sex Ratio, 1901-1991

		1901	1911	1921	1931	1941	1951	1961	1971	1981	1991
Chandigarh	Total	771	720	743	751	763	781	652	749	769	790
	Rural	771	720	743	751	763	781	715	683	688	632
	Urban	—	—	—	—	—	—	639	756	775	810
Haryana	Total	867	835	844	844	869	871	868	867	870	865
	Rural	861	834	848	851	879	877	874	870	876	864
	Urban	908	842	811	792	806	845	842	853	849	868
Himachal Pradesh	Total	884	889	890	897	890	912	938	958	972	976
	Rural	899	905	908	915	907	932	961	976	989	990
	Urban	600	499	490	521	542	664	650	749	795	831
Punjab	Total	832	780	799	815	836	844	854	865	879	882
	Rural	836	785	808	832	855	854	865	868	884	888
	Urban	804	740	735	721	750	807	817	856	865	868
India	Total	972	964	955	950	945	946	941	930	934	927
	Rural	979	975	970	966	965	965	963	949	952	939
	Urban	910	872	846	838	831	860	845	858	880	894

Source : Census of India 1991.

on the rise since 1961 when it was first recorded on an urban centre for census purposes. In case of Haryana, however, sex ratio has remained virtually unchanged between 1901 and 1991 nortwithstanding its moderate fluctuations in the intervening census years.

During the first two decades of the present century, Punjab had suffered a pronounced decline in its sex ratio. This was chiefly connected with higher female mortality consequent upon major outbreaks of plague in the early years of the first decade and of influenza epidemic in 1918. However, these epidemics were much less felt in Haryana as reflected in considerably less decrease its sex ratio. As Himachal Pradesh remained virtually free from these killer diseases, its sex ratio showed rather a slight upward trend even during these decades.

Prevalence of relatively low urban sex ratio in the study area was attributable to notable male-selectivity in rural-urban migration as elsewhere in the country and also in other parts of the Indian subcontinent. A close look at table 3 reveals that rural-urban gap in sex ratio was relatively small in the first two decades of the century. Then there was notable expansion of this gap for the next twenty years, i.e., till 1941 after which it has been continually on the decrease. The temporal trends in rural-urban differential in sex ratio mainly reflect the change in the tempo of male-selectivity in rural-urban migration, i.e., the higher the male-selectivity the greater are the rural-urban differentials in this regard.

The above pattern of rural-urban differential in sex ratio was found in Punjab and Himachal Pradesh, i.e., sex ratio of rural population was higher than that of urban throughout the period 1901-1991. However, in case of Haryana rural sex ratio was lower than its urban counterpart for three census years of 1901, 1911 and 1991. On the other hand, the Union Territory of Chandigarh stood distinct in this regard in having recorded higher urban sex ratio than that of rural ever since the emergence of the Chandigarh city (Table 3). It was mainly attributable to the fact that the countryside of this Union Terrritory acts as a dormitory to a large number of urban male workers, particularly those belonging to the lower income bracket.

Table 4 shows that the highest positive rural-urban gap (i.e. rural sex ratio being higher) in sex ratio was recorded in Himachal Pradesh (159). Punjab's low figure in this regard stemmed from considerably higher incidence of family migraiton in the state in recent years. On the other hand, Chandigarh

Table-4

Northwest India : Rural-Urban differentials in Sex Ratio, 1991

	TOTAL POPULATION (Rural — Urban)		0-6 YEARS POPULATION (Rural — Urban)	
	General	S.C.	General	S.C.
Chandigarh	- 178	- 72	13	0
Haryana	- 4	- 0	- 7	- 30
Himachal Pradesh	159	117	51	17
Punjab	20	- 1	12	- 2
India	45	21	13	4

S.C. stands for scheduled caste.

Source : Census of India 1991.

recorded the highest negative rural-urban gap in sex ratio (-178), i.e., urban sex ratio was higher by 178 females per 1000 males than its rural counterpart. Interestingly, Haryana also registered a negative rural-urban gap in sex ratio (-4) in 1991. The rural-urban differential in sex ratio among the scheduled castes broadly followed the above pattern though it was notably lower than that of the general population (Table 4).

With the exception of Haryana, sex ratio of 0-6 years population was higher in rural areas as compared to that in the urban. The highest figure in this regard was found in Himachal Pradesh (51) followed by Chandigarh (13) and Punjab (12). In case of scheduled castes, 0-6 years population's rural sex ratio was higher than its urban sex ratio in Himachal Pradesh only. It was lower in Haryana and Punjab, while there was no rural-urban gap in Chandigarh.

Sex Ratio by Religion

Table 5 reveals that the Jains recorded the highest sex ratio (930) in the study area followed by the Sikhs (892), the Hindus (883), the Christians (883), and the Muslims (856). Relatively high sex ratio of the Jains (930) was mainly connected wiht "the longer and more intense exposure to modernization of this business community resulting in lower female mortality" among them (Gill and Singh, 1985, p. 37). Sex ratio differentials by religions were mainly connected with patterns of migration of different religious groups. For instance, heavy male-selective migration of the Hindus to Chandigarh has resulted in their very low sex ratio (769) in this Union Territory. The same was true for the Muslims (670).

It is important point out that the Hindus registered the largest difference (211) between the highest (980 in Himachal Pradesh) and the lowest (769 in Chandigarh) sex ratios of the four constituent parts of the study area. The corresponding figures for the Muslims, the Christians and the Jains, and the Sikhs were 202, 90 and 63 and 10 respectively. Very low differential in sex ratio of the Sikhs in this regard was mainly connected with the fact the Sikhs' migration within the study area has become quite restricted in recent decades leading to stabilization of spatial pattern of their sex ratio. Besides, notably higher incidence of family migration among them also played important role in this respect. On the other hand, inflow of the Hindus, especially males, particularly from U.P. and Bihar, have been significantly on the increase to some parts of the study area resulting in large spatial inequalities in their sex ratio.

Sex Ratio by Age Groups

Sex ratio by age groups reveals gender differentials in mortality and migration over a period of time. Each of the four major administrative units included in the study area

Table-5

Northwest India : Sex Ratio by Religious Groups, 1991.

	Christians	Hindus	Jains	Muslims	Sikhs
Chandigarh	967	769	904	670	886
Haryana	931	863	923	872	896
Himachal Pradesh	927	980	884	840	890
Punjab	877	867	947	824	891
India	883	883	930	856	892

Source : Census of India 1991.

shows different pattern of sex ratio by age groups (Table 6). Punjab's sex ratio stays close to the state average except in case of 20-29, and 30-39 years age groups and 70-79 and 80+ years age groups. Relatively low sex ratio in the two 70+ years age group is understandable in view of much higher female mortality in Punjab in the first two decades of the 20th century. However, relatively high sex ratio of 905 and 914 in 20-29 and 30-39 years groups is not explainable either in terms of male-selective outmigration or in terms of higher male mortality. In fact, a very large share of male-selective in migration to the state happens to be of these age groups. It is likely that more females have been enumerated in these age groups who actually belonged either to the below 20 or 40+ age groups. Accordingly, sex ratios in the 15-19 and 40-49 years age groups have got somewhat subdued.

Table 6 shows that Himachal Pradesh recorded relatively high sex ratio in 20-29 and 30-39 years age groups. It was the outcome of male-selective outmigration from the state to other parts of the country. On the other hand relatively low sex ratio in 60+ age groups was mainly due to higher female mortality in the state in the pre-1940 period.

In case of Haryana, relatively low female proportion in 70+ years population was attributable to higher female mortality in the early two decades of the century. However, relatively low sex ratio in 15-19 years group and in 40-49 years group seems to have emerged due to enumerational bias i.e. counting of females from the former to 20-29 years group and and those from the latter to 30-39 years group. Similarly, higher sex ratio (1062) in 60-69 ages resulted due to wrong reporting of female age from the 50-59 and 70-79 age groups.

Chandigarh's sex ratio by age groups makes a U-curve from high till 14 years age groups followed by low from 15 to 69 years

Table-6

Northwest India : Sex Ratio by Religious Groups, 1991.

Age Group (Years)	Chandigarh	Haryana	Himachal Pradesh	Punjab
0 - 4	904	887	945	874
5 - 9	895	880	967	885
10 - 14	846	845	955	886
15 - 19	738	744	965	860
20 - 29	794	911	1048	905
30 - 39	762	896	1023	914
40 - 49	669	818	990	868
50 - 59	666	827	938	885
60 - 69	789	1062	902	867
70 - 79	847	775	846	753
80 +	942	810	928	827
Total	**790**	**865**	**976**	**882**

Source : Census of India 1991.

and then again high in 70-79 and 80+ years groups. In other words sex ratio in the Union Territory of Chandigarh bears invese correlation with proportion of immigrants in different age groups.

Spatial Patterns of Sex Ratio

The study area was marked by considerable spatial variation in sex ratio (Fig. 1). In five districts of Himachal Pradesh namely Kangra, Mandi, Hamirpur, Una, and Bilaspur, there was an excess of females over males. These acreas have been characterized by a long tradition of army service as well as a notable stream of male-excessive outmigration to Punjab, Delhi, Haryana and other areas resulting in rise of sex ratio in the source regions of migrants. Surrounding this core of very high sex ratio, there are five districts, three in Himachal Pradesh (Chamba, Kullu, and Solan) and two in Punjab (Gurdaspur and Hoshiarpur) where sex ratio was between 950 and 1000. All these districts have also been experiencing notable male outmigration, especially from rural areas. Similarly, southwest tip of Haryana (Mahendragarh and Rewari districts) also recorded relatively high sex ratio (between 900 and 950) which stemmed mainly from : (a) a long tradition of army service in the area; and (b) relatively high literacy rate which has been instrumental in encouraging outmigration, largely of males, from the area.

Relatively low sex ratio (below 850) was found in areas experiencing heavy male-selective inmigration. These included the districts of Faridabad and Sonipat which have been the important destinations of migrants, especially from U.P., Bihar and Rajasthan. Notable industrial development in these areas as well as their dormitory character for workers in the national capital of Delhi was mainly responsible for this inflow of people. Similarly, vigorous industrial development in Ludhiana district of Punjab in recent decades has been the main cause of pronounced inmigration, primarily of males, to the area leading to low level of sex ratio. Jind District of Haryana also recorded below 850 sex ratio in 1991.

In a very large part of the study area (24 districts), the sex ratio was between 850 and 900 (Fig. 1). This included large parts of Punjab and Haryana and four districts of Himachal Pradesh. Significantly, all these areas have not been much affected by migration.

Rural-Urban Differential in Sex Ratio, 1991

Rural-urban difference in sex ratio stood at 45 in favour of males in the country, as a whole, in 1991 implying notable male-selectivity in rural-urban migration. The corresponding figure for the study area showed wide areal variations ranging from 178 in Chandigarh through 159 in Himachal Pradesh, 20 in Punjab and 1 in Haryana (Table-7).

Table-7

Northwest India : Rural-Urban differentials in Sex Ratio, 1991

	GENERAL POPULATION (Rural — Urban)	0-6 YEARS POPULATION (Rural — Urban)
Chandigarh	-178	13
Haryana	- 4	- 7
Himachal Pradesh	159	51
Punjab	20	12
India	45	13

Source : Census of India 1991.

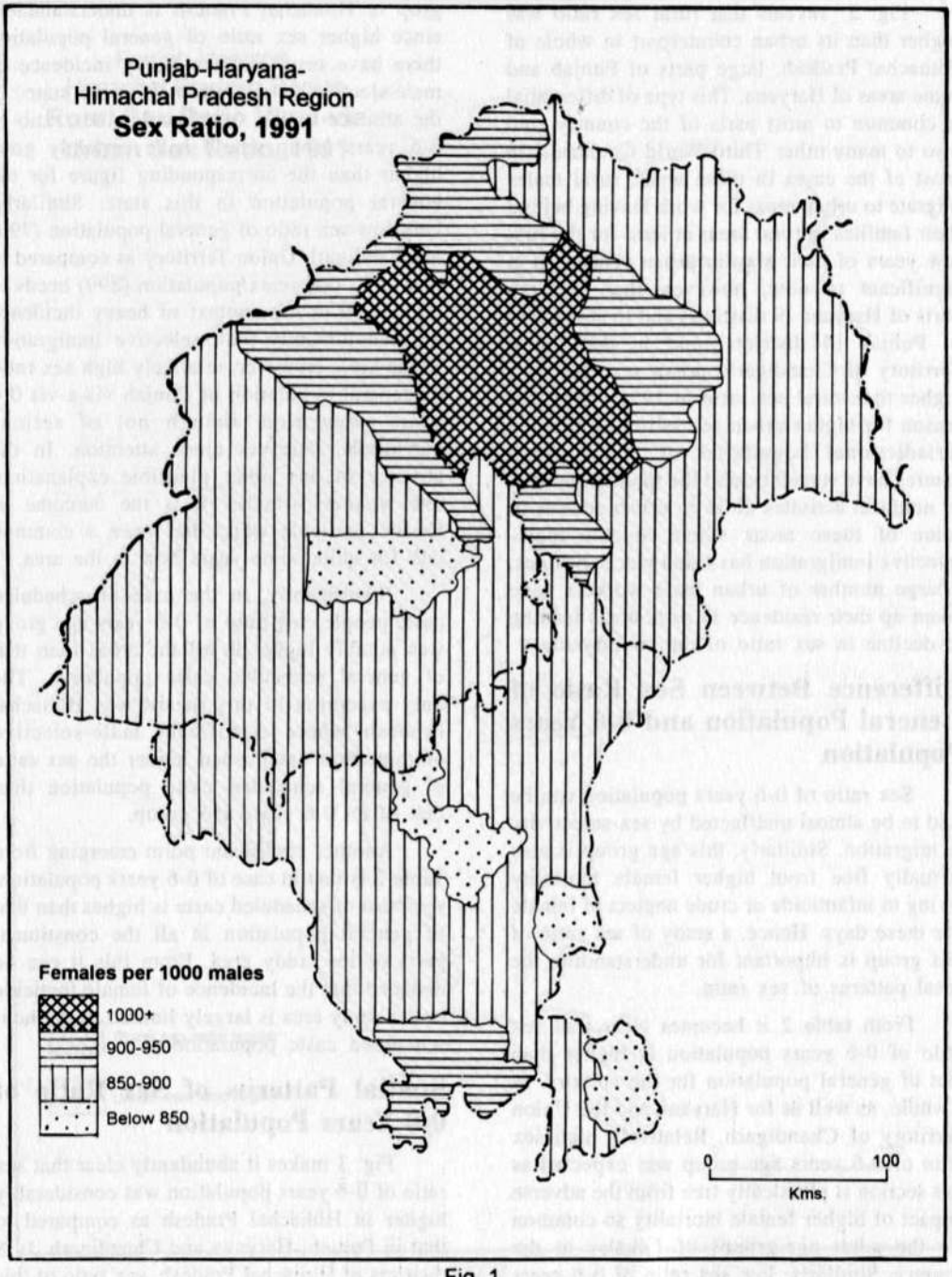
Punjab-Haryana-
Himachal Pradesh Region
Sex Ratio, 1991
Females per 1000 males
1000+
900-950
850-900
Below 850
0
100
Kms.

Fig. 1

Fig. 2 reveals that rural sex ratio was higher than its urban counterpart in whole of Himachal Pradesh, large parts of Punjab and some areas of Haryana. This type of differential is common to most parts of the country, and also to many other Third World Countries. In most of the cases in these areas, rural males migrate to urban areas for work leaving behind their families in rural areas at least for the first few years of their stay in urban centres. It is significant to note, however, that in large parts of Haryana (9 districts) and in some area of Punjab (4 districts) and in the Union Territory of Chandigarh, urban sex ratio was higher than rural sex ratio in 1991. The main reason for higher urban sex ratio was that the jurisdictional boundaries of major urban centres have stayed behind the rapid expansion of nonfarm activitcs close to urban centres in some of these areas where notable male-selective inmigration has taken place. Besides, a large number of urban male workers have taken up their residence in rural areas leading to decline in sex ratio of the countryside.

Difference Between Sex Ratio of General Population and 0-6 Years Population

Sex ratio of 0-6 years population can be said to be almost unaffected by sex-selectivity in migration. Similarly, this age group is also virtually free from higher female mortality owing to infanticide or crude neglect of female life these days. Hence, a study of sex ratio of this group is important for understanding the basal patterns of sex ratio.

From table 2 it becomes clear that sex ratio of 0-6 years population is higher than that of general population for the country, as a whole, as well as for Haryana and the Union Territory of Chandigarh. Relatively high sex ratio of 0-6 years age group was expected as this section is practically free from the adverse impact of higher female mortality so common for the adult age-groups of females in the country. Similarly, low sex ratio of 0-6 years grop in Himachal Pradesh is understandable since higher sex ratio of general population there have resulted from heavy incidence of male-slective outmigration from the state. In the absence of this outmigration, sex ratio of 0-6 years group would have certainly gone higher than the corresponding figure for the general population in this state. Similarly, very low sex ratio of general population (790) in Chandigarh Union Territory as compared to that of its 0-6 years population (899) needs to be viewed in the context of heavy incidence of predominantly male-selective inmigration to the area. However, relatively high sex ratio of general population of Punjab vis-a-vis 0-6 years population, though not of serious magnitude, deserves close attention. In the absence of any other plausible explanation, one wonders whether it is the outcome of female foeticide which has been a common talk for quite some years now in the area.

Significantly, in the case of scheduled caste people, sex ratio of 0-6 years age group was notably higher in all the areas than that of general scheduled caste population. The only exception in this regard was Himachal Pradesh where significant male-selective outmigration has pushed higher the sex ratio of general scheduled caste population than that of its 0-6 years age group.

Another significant point emerging from Table 2 is that in case of 0-6 years population, sex ratio of scheduled caste is higher than that of general population in all the constituent parts of the study area. From this it can be deduced that the incidence of female foeticide in the study area is largely limited to the non-scheduled caste population.

Spatial Patterns of Sex Ratio of 0-6 Years Population

Fig. 3 makes it abundantly clear that sex ratio of 0-6 years population was considerably higher in Himachal Pradesh as compared to that in Punjab, Haryana and Chandigarh. In 8 districts of Himachal Pradesh, sex ratio of this

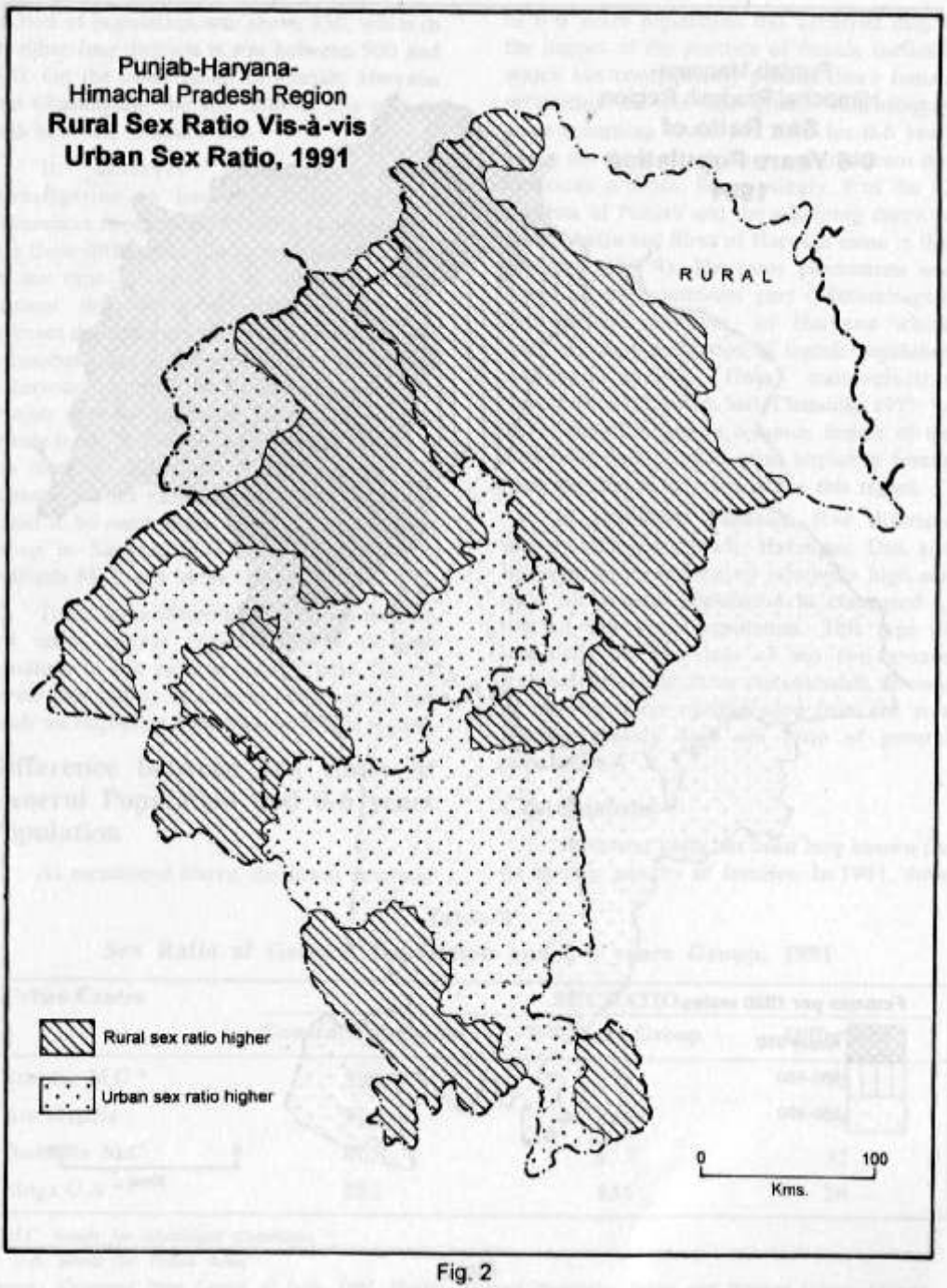
Punjab-Haryana-
Himachal Pradesh Region
Rural Sex Ratio Vis-à-vis
Urban Sex Ratio, 1991
RURAL
Rural sex ratio higher
Urban sex ratio higher
0
100
Kms.

Fig. 2

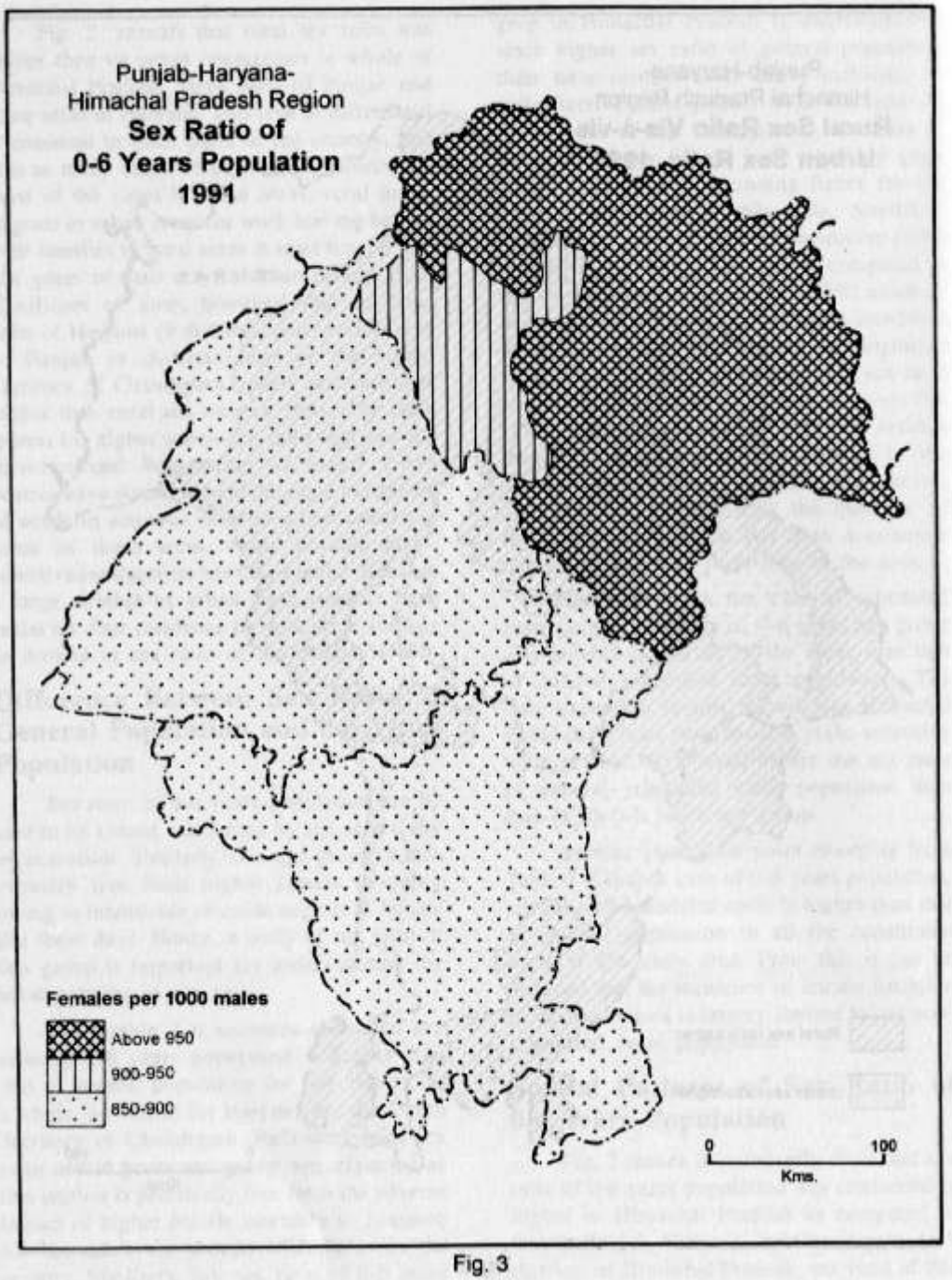
Punjab-Haryana-
Himachal Pradesh Region
Sex Ratio of
0-6 Years Population
1991
Females per 1000 males
Above 950
900-950
850-900
0
100
Kms.

Fig. 3

section of population was above 950, while in its other four districts it was between 900 and 950. On the other hand, in Punjab, Haryana and Chandigarh, the sex ratio of this section was between 850 and 900.

It deserves separate in-depth investigation to understand the regional differences in sex ratio of 0-6 years population. Are these differences due to regional variations in sex ratio at birth? It is very difficult to answer this question without analysing relevant data over a long period of time. There is another facet of the problem i.e. the role of notorious practice of female foeticide in Punjab and its adjoining areas. The role of female foeticide in this regard is confirmed when the focus is sharpened to smaller areas. For instance, the sex ratio of general population was found to be much higher than that of 0-6 years group in Sangrur M.C., Kot Kapura M.C., Bathinda M.C. and Moga U.A. (Table 8).

These large differential between the two sex ratios cannot explained away through variation in sex ratio at birth. These figures reveal that killing of unborn female child has made an important contribution in this regard.

Difference between Sex Ratio of General Population and 0-6 years Population

As mentioned above, the lower sex ratio of 0-6 years population has occurred due to the impact of the practice of female foeticide which has consequently pushed down female proportion in this age group. Accordingly, areas recording lower sex ratio for 0-6 years group are those which have suffered from this notorious practice. Surprinsingly, 9 of the 12 districts of Punjab and the adjoining districts, Kurukshetra and Sirsa of Haryana came in this category (Fig. 4). The same phenomena was found in the southwest part (Mahendragarh and Rewari Districts) of Haryana where relatively high proportion of female population stemmed mainly from male-selective outmigration (Krishan and Chandna, 1973, p. 123) which has been a common feature of the area since long. Besides some impact of female foeticide cannot be ruled out in this regard.

In Himachal Pradesh, five districts namely, Kangra, Mandi, Hamirpur, Una and Bilaspur also experienced relatively high sex ratio for general population as compared to that of 0-6 years population. This type of inequality in sex ratio of the two groups resulted primarily from considerable amount of male-selective outmigration from the area leading notably high sex ratio of general population.

Conclusions

Northwest India has been long known for its chronic paucity of females. In 1991, three

Table-8

Sex Ratio of General Population and 0-6 years Group, 1991

Urban Centre	SEX RATIO		
	General Population	0-6 years Group	Difference
Sangrur M.C.*	895	818	77
Kot Kaputa	904	860	44
Bathinda M.C.	865	833	32
Moga U.A.**	882	856	26

** M.C. stands for Municipal Committee.*

*** U.A. stands for Urban Area.*

Source : Computed from Census of India 1991, Punjab, General Population Tables and Primary Census Abstract.

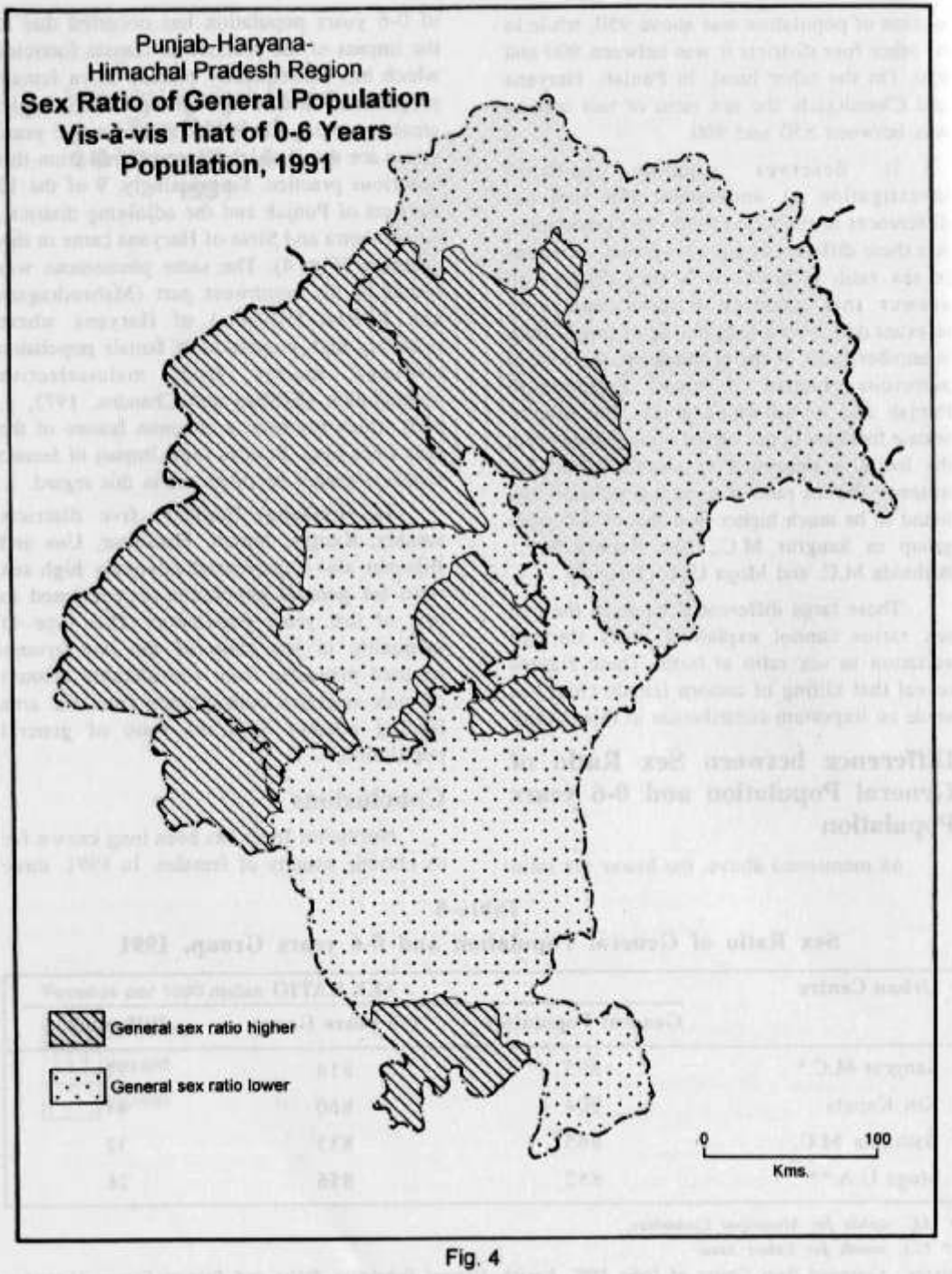
Punjab-Haryana-
Himachal Pradesh Region
Sex Ratio of General Population
Vis-à-vis That of 0-6 Years
Population, 1991
General sex ratio higher
General sex ratio lower
0
100
Kms.

Fig. 4

of its constituent parts, i.e., Punjab, Haryana and Chandigarh recorded lower sex ratio than the national average. However, it is encouraging to point out that unlike the decline in sex ratio at the country level, the study area reported notable rise in this regard during the twentieth century.

Sex ratio of the two major religious groups, i.e. the Hindus and the Sikhs, was quite close to each other. The same was true of the Christians. The Muslims' somewhat lower sex ratio was connected with greater incidence of male-selective inflow of these people to the area.

In tune with its considerable geographical divesity, sex ratio in the area was marked by notable spatial variations. Large parts of Himachal Pradesh along with the adjoining areas of Punjab reported relatively high sex ratio stemming from male-selective outmigration from these tracts. Southwest Haryana also belonged to the same category. On the other hand, relatively low proportion of females was the experience of areas with considerable inflow of male migrants, e.g., the districts of Faridabad, Sonipat and Ludhiana.

The practice of female foeticide has registered its adverse impact in some parts of the study area. Punjab occupied the dubious top rank in this regard as manifested in perceptibly lower sex ratio of the 0-6 years age group than that of its general population. Similarly, non-scheduled castes were also more prone to this practice of killing the unborn female child. Thus, it can be deduced that female foeticide was more prevalent in economically advanced areas and also among economically better-off people.

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MAP SERIES : 7

TURN OVER RATE OF INDIA'S POPULATION 1971-2000

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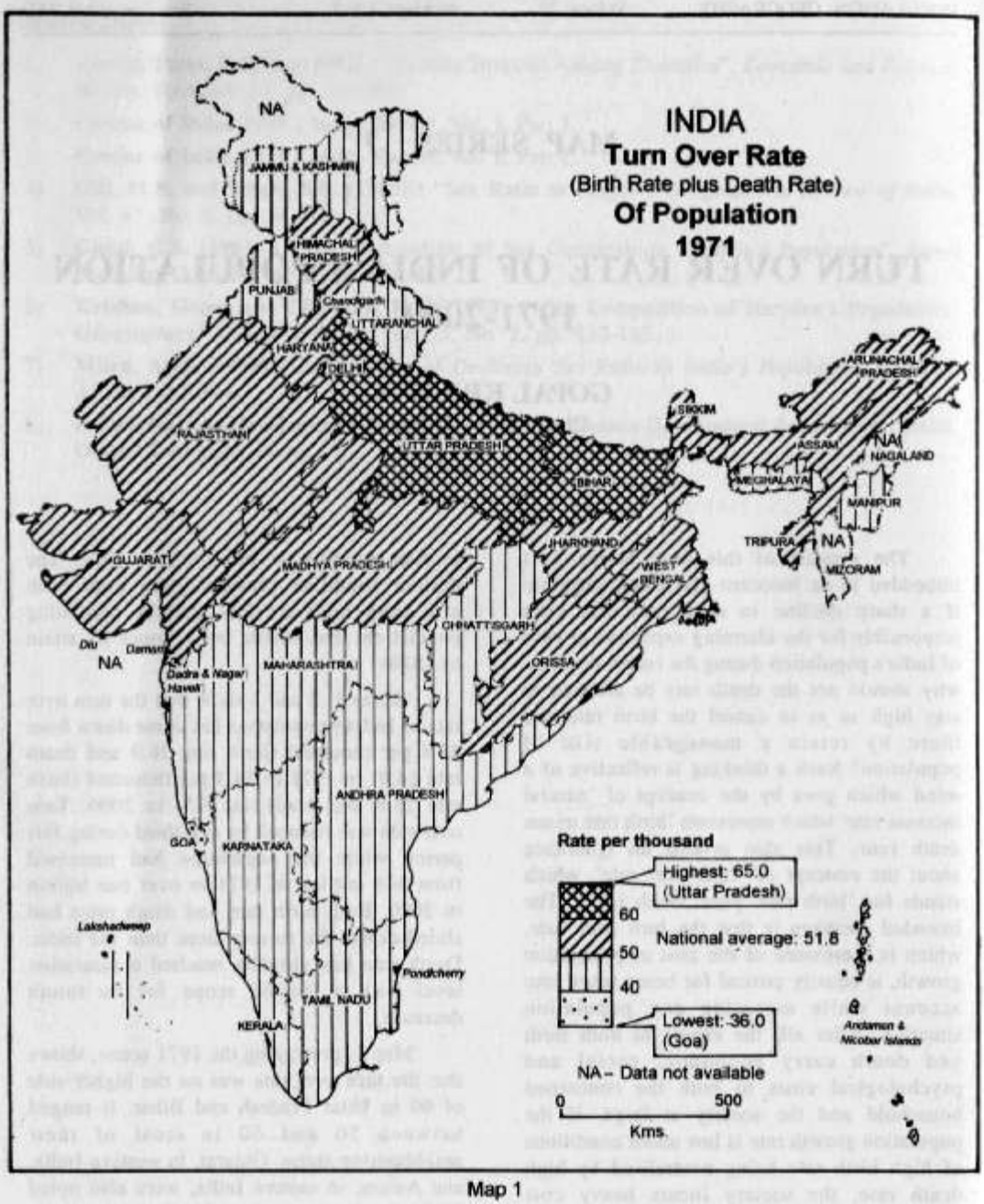
Chandigarh, INDIA

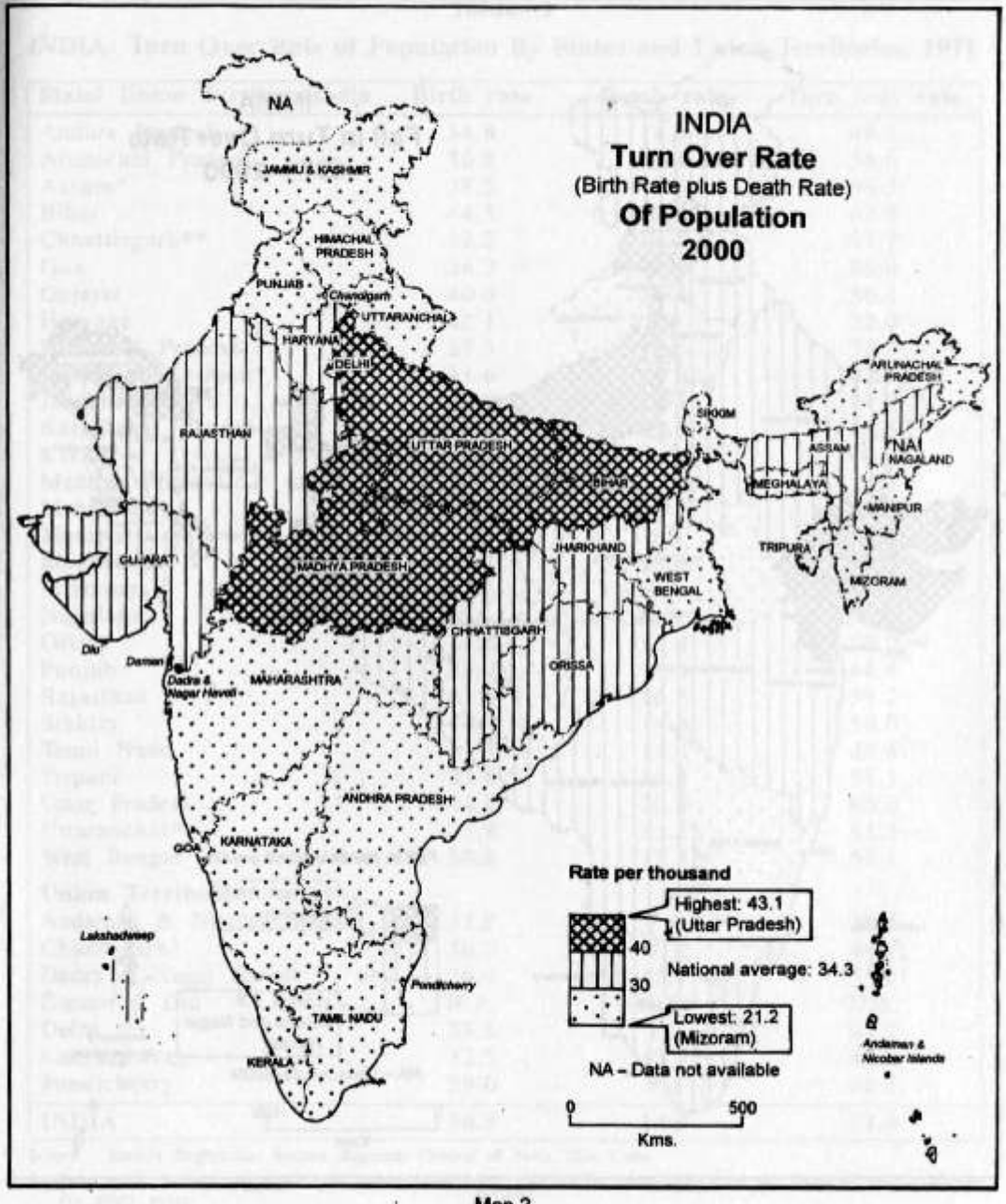
The genesis of this Map Series 7 is imbedded in an innocent classroom question: if a sharp decline in death rate has been responsible for the alarming explosive growth of India's population during the recent decades, why should not the death rate be allowed to stay high so as to cancel the birth rate and there by retain a manageable size of population? Such a thinking is reflective of a mind which goes by the concept of `natural increase rate' which represents `birth rate minus death rate'. This also reveals an ignorance about the concept of `turn over rate', which stands for `birth rate' plus `death rate'. The intended message is that the turn over rate, which is a measure of the cost of population growth, is equally critical for being taken into account while assessing any population situation. After all, the events of both birth and death carry economic, social and psychological costs to both the concerned household and the society at large. If the population growth rate is low under conditions of high birth rate being neutralised by high death rate, the society incurs heavy cost without any significant addition to population, as was the case in India before 1921. The desired condition prevails when both birth and death rates are low, thereby regulating population size which India hopes to attain by 2050.

Tables 1, 2 and 3 show that the turn over rate of India's population has come down from 51.8 per thousand (birth rate 36.9 and death rate 14.9) in 1971 to 34.3 per thousand (birth rate 25.8 and death rate 8.5) in 2000. Turn over rate was reduced by one-third during this period while the population had increased from 548 million in 1971 to over one billion in 2000. Both birth rate and death rates had slided down, the former more than the latter. Death rate has virtually reached a saturation level with a limited scope for its future decrease.

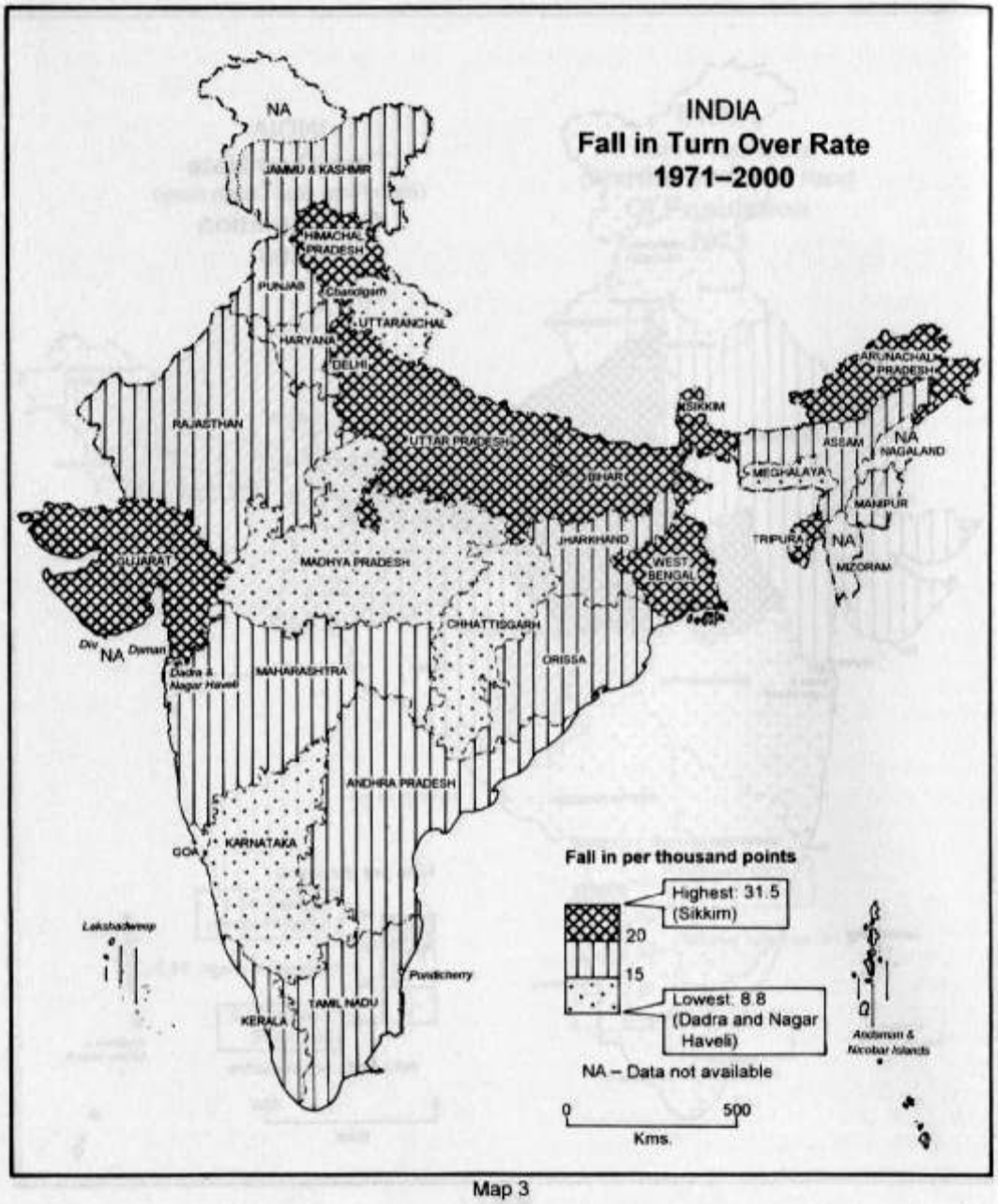
Map 1, portraying the 1971 scene, shows that the turn over rate was on the higher side of 60 in Uttar Pradesh and Bihar. It ranged between 50 and 60 in most of their neighbouring states. Gujarat, in western India, and Assam, in eastern India, were also noted for high turn over rate of 56. By comparison,


INDIA
Turn Over Rate
(Birth Rate plus Death Rate)
Of Population
1971
NA
JAMMU & KASHMIR
HIMACHAL PRADESH
PUNJAB
Chandigarh
UTTARANCHAL
HARYANA
DELHI
RAJASTHAN
UTTAR PRADESH
BIHAR
SIKKIM
ARUNACHAL PRADESH
ASSAM
NAGALAND
MEGHALAYA
MANIPUR
TRIPURA
MIZORAM
JHARKHAND
WEST BENGAL
GUJARAT
MADHYA PRADESH
CHHATTISGARH
ORISSA
Diu
Daman
Dadra & Nagar Haveli
MAHARASHTRA
ANDHRA PRADESH
GOA
KARNATAKA
Lakshadweep
Pondicherry
TAMIL NADU
KERALA
Andaman & Nicobar Islands
Rate per thousand
Highest: 65.0
(Uttar Pradesh)
60
National average: 51.8
50
40
Lowest: 36.0
(Goa)
NA – Data not available
0
500
Kms.

Map 1


INDIA
Turn Over Rate
(Birth Rate plus Death Rate)
Of Population
2000
NA
JAMMU & KASHMIR
HIMACHAL PRADESH
PUNJAB
Chandigarh
UTTARANCHAL
HARYANA
DELHI
RAJASTHAN
UTTAR PRADESH
BIHAR
SIKKIM
ARUNACHAL PRADESH
ASSAM
NAGALAND
MEGHALAYA
MANIPUR
TRIPURA
MIZORAM
JHARKHAND
WEST BENGAL
GUJARAT
MADHYA PRADESH
CHHATTISGARH
ORISSA
Diu
Daman
Dadra & Nagar Haveli
MAHARASHTRA
ANDHRA PRADESH
GOA
KARNATAKA
Lakshadweep
Pondicherry
TAMIL NADU
KERALA
Andaman & Nicobar Islands
Rate per thousand
Highest: 43.1
(Uttar Pradesh)
40
National average: 34.3
30
Lowest: 21.2
(Mizoram)
NA – Data not available
0
500
Kms.

Map 2


INDIA
Fall in Turn Over Rate
1971–2000
NA
JAMMU & KASHMIR
HIMACHAL PRADESH
PUNJAB
Chandigarh
UTTARANCHAL
HARYANA
DELHI
RAJASTHAN
UTTAR PRADESH
BIHAR
SIKKIM
ARUNACHAL PRADESH
ASSAM
NA
NAGALAND
MEGHALAYA
MANIPUR
TRIPURA
NA
MIZORAM
JHARKHAND
WEST BENGAL
GUJARAT
MADHYA PRADESH
CHHATTISGARH
ORISSA
Div
NA
Daman
Dadra & Nagar Haveli
MAHARASHTRA
ANDHRA PRADESH
GOA
KARNATAKA
KERALA
TAMIL NADU
Puducherry
Lakshadweep
Andaman & Nicobar Islands
Fall in per thousand points
Highest: 31.5 (Sikkim)
20
15
Lowest: 8.8 (Dadra and Nagar Haveli)
NA – Data not available
0
500
Kms.

Map 3

Table - 1

INDIA: Turn Over Rate of Population By States and Union Territories, 1971

State/ Union Territory/India	Birth rate	Death rate	Turn over rate
Andhra Pradesh	34.8	14.6	49.4
Arunachal Pradesh	36.8	19.8	56.6
Assam*	38.5	17.8	56.3
Bihar	44.3	17.7	62.0
Chhattisgarh**	33.2	14.5	47.7
Goa	26.2	9.8	36.0
Gujarat	40.0	16.4	56.4
Haryana	42.1	9.9	52.0
Himachal Pradesh	37.3	15.6	52.9
Jammu & Kashmir*	31.6	10.8	42.4
Jharkhand**	36.8	18.1	54.9
Karnataka	31.7	12.1	43.8
Kerala	31.1	9.0	40.1
Madhya Pradesh	39.1	15.6	54.7
Maharashtra	32.2	12.3	44.5
Manipur	33.3	6.9	40.2
Meghalaya*	35.1	13.6	48.7
Mizoram	N.A.	N.A.	N.A.
Nagaland	N.A.	N.A.	N.A.
Orissa	34.6	15.4	50.0
Punjab	34.2	10.4	44.6
Rajasthan	42.4	16.8	59.2
Sikkim	44.4	14.6	59.0
Tamil Nadu	31.4	14.4	45.8
Tripura	35.8	15.3	51.1
Uttar Pradesh	44.9	20.1	65.0
Uttaranchal**	27.8	13.5	41.3
West Bengal	39.6	12.5	52.1
Union Territories			
Andaman & Nicobar Islands	31.9	7.6	39.5
Chandigarh*	40.0	4.7	44.7
Dadra & Nagar Haveli	36.4	15.1	51.5
Daman & Diu	N.A.	N.A.	N.A.
Delhi	33.6	7.6	41.2
Lakshadweep	32.5	15.7	48.2
Pondicherry	29.0	9.1	38.1
INDIA	**36.9**	**14.9**	**51.8**

Source : Sample Registration System, Registrar General of India, New Delhi

* Data on birth rate and death rate extrapolated from the best-fit curve drawn on the basis of data available for other years.

** Estimated on the proportionate basis of data for 2000, pertaining to the parent state and the newly carved out state. For example, a birth rate of 39.1 of Madhya Pradesh in 1971, and birth rates of 31.4 and 26.7 for Madhya Pradesh and Chhattisgarh respectively in 2000, would give a birth rate of 33.2 for Chattisgarh in 1971.

Table - 2

INDIA: Turn Over Rate of Population By States and Union Territories, 2000

State/ Union Territory/India	Birth rate	Death rate	Turn over rate
Andhra Pradesh	21.3	8.2	29.5
Arunachal Pradesh	22.3	6.0	28.3
Assam	26.9	9.6	36.5
Bihar	31.9	8.8	40.7
Chhattisgarh	26.7	9.6	36.3
Goa	14.3	7.4	21.7
Gujarat	25.2	7.5	32.7
Haryana	26.9	7.5	34.4
Himachal Pradesh	22.1	7.2	29.3
Jammu & Kashmir	19.7	6.2	25.9
Jharkhand	26.5	9.0	35.5
Karnataka	22.0	7.8	29.8
Kerala	17.9	6.4	24.3
Madhya Pradesh	31.4	10.3	41.7
Maharashtra	21.0	7.5	28.5
Manipur	18.3	5.6	23.9
Meghalaya	28.5	9.2	37.7
Mizoram	16.0	5.2	21.2
Nagaland	N.A.	N.A.	N.A.
Orissa	24.3	10.5	34.8
Punjab	21.6	7.4	29.0
Rajasthan	31.4	8.5	39.9
Sikkim	21.8	5.7	27.5
Tamil Nadu	19.3	7.9	27.2
Tripura	16.5	5.4	21.9
Uttar Pradesh	32.8	10.3	43.1
Uttaranchal	20.2	6.9	27.1
West Bengal	20.7	7.0	27.7
Union Territories			
Andaman & Nicobar Islands	19.1	5.1	24.2
Chandigarh	17.5	3.9	21.4
Dadra & Nagar Haveli	34.9	7.8	42.7
Daman & Diu	23.7	6.6	30.3
Delhi	20.3	5.1	25.4
Lakshadweep	26.1	6.0	32.1
Pondicherry	17.8	6.5	24.3
INDIA	**25.8**	**8.5**	**34.3**

Source : Sample Registration System, Registrar General of India, New Delhi.

Table - 3

INDIA: Fall in Turn Over Rate of Population By States and Union Territories, 1971-2000

State/Union Territory/India	Turn over rate in 1971	Turn over rate in 2000	Fall in per 1000 points
Andhra Pradesh	49.4	29.5	19.9
Arunachal Pradesh	56.6	28.3	28.3
Assam	56.3	36.5	19.8
Bihar	62.0	40.7	21.3
Chhatisgarh	47.7	36.3	11.4
Goa	36.0	21.7	14.3
Gujarat	56.4	32.7	23.7
Haryana	52.0	34.4	17.6
Himachal Pradesh	52.9	29.3	23.6
Jammu & Kashmir	42.4	25.9	16.5
Jharkhand	54.9	35.5	19.4
Karnataka	43.8	29.8	14.0
Kerala	40.1	24.3	15.8
Madhya Pradesh	54.7	41.7	13.0
Maharashtra	44.5	28.5	16.0
Manipur	40.2	23.9	16.3
Meghalaya	48.7	37.7	11.0
Mizoram	N.A.	21.2	N.A.
Nagaland	N.A.	N.A.	N.A.
Orissa	50.0	34.8	15.2
Punjab	44.6	29.0	15.6
Rajasthan	59.2	39.9	19.3
Sikkim	59.0	27.5	31.5
Tamil Nadu	45.8	27.2	18.6
Tripura	51.1	21.9	29.2
Uttar Pradesh	65.0	43.1	21.9
Uttaranchal	41.3	27.1	14.2
West Bengal	52.1	27.7	24.4
Union Territories			
Andaman & Nicobar Islands	39.5	24.2	15.3
Chandigarh	44.7	21.4	23.3
Dadra & Nagar Haveli	51.5	42.7	8.8
Daman & Diu	N.A.	30.3	N.A.
Delhi	41.2	25.4	15.8
Lakshadweep	48.2	32.1	16.1
Pondicherry	38.1	24.3	13.8
INDIA	**51.8**	**34.3**	**17.5**

Source : Sample Registration System, Registrar General of India, New Delhi.

the turn over rate distributed itself between 40 and 50 in the south Indian states; Goa recorded the lowest turn over rate of 36. Family planning has evidently been far more popular in South India than in the northern counterpart. The union territories, did not differ as widely among themselves, the turn over rate being the highest of 51.5 in predominantly tribal Dadra & Nagar Haveli and the lowest of 38.1 in relatively modern Pondicherry.

Map 2 is a testimony to a universal fall in turn over rate of various states and union territories. The rate was recorded as below 30 in the south India states. The same was true of the hill states, such as Jammu & Kashmir, Himachal Pradesh and Uttaranchal. Union Territories, such as Chandigarh, Delhi and Pondicherry, display a similar pattern, High turn over rates of over 40 were observed in Uttar Pradesh, Madhya Pradesh and Bihar. In their neighbouring states, towards the east and west, the rates ranged between 30 and 40.

Map 3 displays a more complex pattern. The turn over rate fell by more than 20 per thousand points in a variety of states: in Uttar Pradesh and Bihar, where it was exceptionally high in 1971; in Gujarat and Himachal Pradesh, which made rapid strides in human development; and in West Bengal and Tripura, where development programmes at the grassroots level seem to have been relatively more effective. The south Indian states, with comparatively lower turn over rates in the base year, recorded a further decrease by 15 to 20 points. Meghalaya, Jharkhand, Chattisgarh and Madhya Pradesh, with a significant proportion of tribal population, were noted for a smaller decrease by less than 15 points.

By and large, the turn over rate persisted at a relatively high level in the less developed states and union territories. All of them are bearing a heavy cost of population growth at a low level of economy. Turn over rate of Uttar Pradesh is two times of that of Goa and one and a half times that of Punjab. Notably, the turn over rate of Punjab and Himachal Pradesh are virtually the same. It will be worthwhile to compute as to what a birth or a death actually costs to a household in relatively better off and worse off parts of the country. One could hypothesise that this cost vis-à-vis income level is higher in poorer states.