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Regions of Demographic Dynamism in Haryana

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ABSTRACT

There are different types of population structures in different parts of the world, the nature of demographic challenges also differ accordingly. The developed countries like USA, Canada, Japan, Australia and many European countries face a problem of slow or even negative population growth. The main concern of the government in these countries remains on population ageing, decline in working force and increasing dependency ratio. The developing countries like India, Pakistan, Bangladesh and Latin American countries have a common problem of too many people. Their major focus remains upon providing health care services, urban housing and solving social problems like unemployment and social crimes. It is in this context that the studies of population change are of great significance in a developing country like India, which holds the second largest population base in the world, next only to China. Haryana with a total population size of 2,53,53,081 persons as per 2011 provisional census figures, contributes to 2.09 per cent of the country's total population over 1.4 per cent of its total geographical area. The state witnessed significant changes in its population in terms of size, structure and composition since its inception in 1966. The present paper is an attempt to analyse these changes in a spatial context. The study tries to analyse the changes in population structure and its composition in the state during the period 1971 – 2001 and identify the population regions on the basis of a composite index computed from these changes in population attributes.

Keywords: *Demographic Dynamism, Population in Haryana, Population Structures, Population changes, Structure and composition of Haryana Demography*

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Introduction:

Population is among the most important of all the phenomena on the earth's surface. It is the pivotal point in the various interacting elements, and is the point of reference, from which all the other elements are observed and from which they all, singly and collectively, derive significance and meaning (Trewartha, 1953, p.71). We all are a part of one or another population. Population is very dynamic in nature. It changes in terms of size, composition and characteristics over the time. Various factors of population affect the social, economic, cultural, political and historical conditions prevailing in a society and in turn are affected by them. The regionalisation of an area on the basis of changes in its demographic characteristics helps in assessing the pace and momentum of demographic transition in various parts of the state or the country. Such

demarcation of regions of population dynamism on the basis of changes occurred in various population characteristics provides an in-depth understanding of the demographic personality of these regions. A population region, thus identified, maintains a peculiar contiguity within itself as far as changes in its population are concerned. At the same time, these regions make sharp boundaries with respect to each other. Identification of such regions may be helpful for the administrators and the policy makers at the state level.

However, in spite of this significance, regionalization on the basis of change in demographic character of an area suffered a great neglect on the part of geographers largely because this involves a large number of theoretical and practical problems. First and foremost among them is the dynamic nature of the subject matter to be regionalized. Population



characteristics of an area keep on changing over the time and space. Second problem involved is that of measuring this change in quantitative terms or quantifying the changes in population characteristics in a spatial unit over the time. Third problem is that of changes occurred in administrative boundaries over the time. These changes in administrative boundaries and geographical units need to be taken care of while regionalizing an area on the basis of population change. Fourthly, there is a problem of identifying suitable indicators, which may represent the demographic change in the region. Availability of the data and its comparability over different time periods by the selected geographical units is another problem. Last but not the least, selection of suitable statistical technique to calculate a composite index or measure of population dynamism and presenting it cartographically is a major challenge for a population geographer.

Objectives

The present paper is an attempt to analyse the demographic changes in Haryana since 1971, the first census after the state came into existence. The study tries to analyse the population changes in the state during the period 1971- 2001 and identify different population regions in Haryana. The main objective of the present study is to demarcate the state into regions of population dynamism.

Sources of Data and Methodology

The study is based on the data available from the secondary sources like census of India, National Family Health Survey and Statistical Abstract of Haryana. Data thus collected, is processed and analysed by using various statistical and cartographic techniques. Finally, a composite index was calculated to identify the level of demographic development and its changes during the study period, i.e. 1971- 2001. This composite index was put on a map to identify three distinct demographic regions by using choropleth technique. Maps were prepared by using ArcView 3.2 software. Tahsil was taken as a unit of study for the present study.

The Study Area

Haryana is a small state located in the north - western part of the country, between 27°39' and 30°55' North latitudes and 74°27' and 77°36' East longitudes. It comprised a part of the Indo- Gangetic plain. The state covered a geographical area of 44,212 sq. kms and a population of 21,144,564 persons as per 2001

Census of India. Thus, Haryana supported 1.9 per cent of the country's total population over 1.4 per cent of its total land area. It borders with the state of Punjab in the west, Himachal Pradesh in the north, Uttaranchal and Uttar Pradesh in the east and Rajasthan in the south. The National Capital of Delhi lies to the south-east of Haryana (Map 1). The geographical boundaries of Haryana are marked by the Shiwalik Hills in the north- east; river Yamuna in the east; the Aravalli Hills in the south-west and half way by the Ghaggar river in the north-west. Administratively, Haryana was divided into 19 districts and 67 tahsils as per 2001 census of India (Map 1). The capital of Haryana, Chandigarh, is shared by the neighbouring state of Punjab. About 30 per cent of the state's total area falls into the National Capital Region (NCR) of India. In other words, 40 per cent of the total area of the National Capital Region (NCR) is that of Haryana state.

Population Regions in Haryana, 2001

Since demography of an area has a great bearing on its development process, it is recognized both as a factor as well as a consequence of development (Spengler, 1968, p. 175). Trends and patterns in demography are also an important dimension of socio-economic development because priorities in any regional development scheme can be fixed only in the light of prevailing demographic situation (Dubey, 1981, p. 160). Despite its importance and significance, the concept of demographic development is not clear so far. There is no universal definition of the term 'demographic development'. However, some scholars have used demographic variables and attributes as indicators of economic and social development rather than of demographic development. In this background, demographic development may be defined as the demographic performance of an area in terms of pattern of life, as reflected in proportion of its urban and rural populations, quality of population as manifested in its literacy rates, and level of economic dynamism as suggested by its occupational structure (Dubey, 1981, p. 163). Thus, an attempt has been made to identify the levels of demographic development and demarcate the regions of population dynamism in the state of Haryana. For this purpose, seven indicators of population were selected as: (i) Density of population; (ii) Growth of population, 1991-2001; (iii) Sex ratio, (iv) Level of urbanization, (v) Female literacy rate, (vi) Work participation rate, and (vii) Proportion of non-agricultural workers to total workers.

Indicators of Demographic Development

Analysis of composite index of demography revealed that Faridabad tahsil displayed the lowest composite index value of 1.79 and emerged as the most developed tahsil as far as population characteristics are concerned. On the other hand, Loharu tahsil in Bhiwani district recorded the highest composite index value of 53.50 and emerged as the least developed tahsil in the state. On the basis of composite index value, all the tahsils of Haryana were divided into three broad categories, i.e.

- (i) Highly developed tahsils with a composite index value of less than 28.0;
- (ii) Moderately developed tahsils with a composite index value between 28.01 and 40.0; and

Least developed tahsils which displayed a composite index value of more than 40.0

Analysis of data on population characteristics and Map 2 bring out following major observations:

- (i) Tahsils located in the eastern part of the state were found to be more advanced than the western part as far as level of demographic development was concerned. Relatively high level of urbanization along the national highway no. 1 (G. T. Road) from Ambala to Delhi, and in the areas surrounding the national capital of Delhi and the state capital of Chandigarh played an important role in socio-economic development and overall transformation of the state as a whole.
- (ii) Tahsils with district headquarters, old administrative centres and army headquarters were discovered to be more advanced and emerged as major centres of demographic development, from where development dispersed to the nearby surrounding areas.
- (iii) Tahsils which were agriculturally developed as well as industrially advanced attracted large number of migrant labourers from other parts of the state and the country by way of providing better employment opportunities; and thus played an important role in revealing overall demographic scenario of the region.
- (iv) Tahsils of Faridabad, Gurgaon, Panipat, Sonapat, Rohtak, Bhiwani, Bahadurgarh, Karnal, Ambala, Panchkula and Jagadhri emerged as the main urban- industrial centres where most of the manufacturing activities were concentrated and diversification of economy initiated at an early stage.

- (v) Tahsils located in the western and south-western parts of the state (Bhiwani and Mahendragarh districts) were least developed in terms of demographic development due to low level of agricultural and industrial development, low level of urbanization, sand-dune infested terrain and harsh climatic conditions. These tahsils continuously suffered with stagnation of economy, lack of employment opportunities in the secondary and tertiary sectors, lack of infra-structural facilities and out-migration of workers to the relatively developed regions.
- (vi) North-eastern and north-western parts of the state (Sirsa, Fatehabad, Hisar, Kaithal, Kurukshetra and Ambala districts) were highly developed in terms of agriculture due to highly productive soils, better irrigation facilities and use of HYV seeds and chemical fertilizers. These areas created an additional demand for manual labour which was fulfilled by migrant labourers from Bihar and eastern Uttar Pradesh. This resulted in a moderate level of population development in the region.
- (vii) Mewat region in Gurgaon district was identified another region with unique demographic characteristics due to its cultural and socio-economic backwardness. The region consisted largely of Meo-muslim community, which was characterized by a high fertility rate, high growth of population, high infant mortality rate, low literacy rate and low level of urban-industrial development.
- (viii) Among different demographic variables, it was found that proportion of non-agricultural workers to total workers had the highly positive correlation (0.912) and was followed by degree of urbanization (0.798) and female literacy rate (0.586) in the context of level of demographic development. Contrary to this, work participation rate and sex ratio were negatively correlated with the level of demographic development with a correlation value of -0.642 and -0.598 respectively, however, negative correlation with sex ratio was very weak as compared with that of work participation rate.

Haryana: Regions of Population Change, 1971-2001

In the second part of the paper an attempt is made to regionalize the state of Haryana on the basis of changes occurred in various population attributes during the period of last three decades, i.e. 1971-2001. For this purpose change in the seven variables of population as components of population dynamism as mentioned in Fig. 1 were taken into consideration so as to maintain uniformity and continuity with the previous section of the present study. Thus, the following seven indicators of population change were identified as:

- (i) Density of population,
- (ii) Growth of population,
- (iii) Sex ratio,
- (iv) Urbanization,
- (v) Female literacy rate,
- (vi) Work participation rate, and
- (vii) Proportion of non-agricultural workers to total workers.

Data on these indicators were analysed by using range categorization method and computing a composite index which denoted the degree of change in population of an area during the period. For this purpose, first data on each variable was arranged in descending order and divided into four categories depending upon the range between the highest and the lowest values of a particular variable. In the second step, these categories were assigned a rank. Finally, these ranks were summed up for all the indicators by tahsils, and a composite index of change was computed. The lowest value of composite index indicated the highest degree of population change, while the highest value indicated the lowest degree of population change. Among all the tahsils, Panipat tahsils with the lowest composite index value (9) emerged as the most dynamic tahsil, which recorded the highest degree of population change. Barara tahsil in Ambala district and Ballabgarh tahsil in Faridabad district were on the other end of the scale, which had the highest value of composite index (24) and experienced the lowest degree of population change during 1971- 2001. In the third and final step, all the 67 tahsils of Haryana were divided into three categories on the basis of this composite index, viz.

- (i) Areas with rapid population change,
- (ii) Areas with slow population change and
- (iii) Areas with moderate population change.

A. Areas with rapid population change:

This category included all those tahsils which recorded a high degree of population change (composite index value of less than 18) during 1971-2001. Out of a total of 67 tahsils, there were 21 tahsils in this category. These areas experienced a

high increase in density of population, high growth of total population, a sharp decline in sex ratio, rapid increase in the level of urbanization, rapid increase in the work participation rate and proportion of workers engaged in non-agricultural activities and high increase in the female literacy rate during 1971-2001. These tahsils were further classified into three sub-regions on the basis of their location.

North-eastern region: This region is located around the state capital of Chandigarh and covered 7 tahsils of Kalka, Panchkula, Jagadhri, Ambala, Shahbad, Thanesar and Karnal (Map 3). This region experienced rapid changes in its demographic scenario under the influence of Chandigarh Inter-state region. Main urban-industrial centres located in this region included Ambala, Jagadhri, Panchkula, Shahbad and Karnal. Concentration of specialized industries like scientific instruments industries in Ambala, steel utensils and timber industries in Jagadhri, electronic goods and sanitary wares industries in Panchkula and leather goods industries in Karnal promoted the infra-structural development and rapid urbanization in this region. Besides this, establishment of Bharat Electronics Limited (Panchkula), ACC cement (Surajpur), Hindustan Machine Tools Limited (Pinjore), Liberty Shoes (Karnal); co-operative sugar-mills at Shahbad and Yamunanagar; and establishment of cantonment towns in Chandimandir (Panchkula) and Ambala resulted in rapid industrialization in the region, which generated several employment opportunities attracting large number of skilled as well as semi-skilled migrant labourers from the surrounding areas. Close proximity to the state capital of Chandigarh, planned and systematic development of Panchkula as an administrative centre and Kurukshetra as an educational service centre (Kurukshetra University) provided suitable atmosphere for higher education which ensured high female participation rates in secondary and tertiary economic activities. Apart from this, the region as a whole made a tremendous growth in agricultural sector under the influence of Green Revolution. Fertile leveled lands, easily available irrigation facilities, increased use of HYV seeds and chemical fertilizers and mechanization of agricultural operations increased the output production of cereal and non-cereal crops manifold during the study period. The dense network of roads and railway lines strengthened the rural-urban linkages in the region. The region provided shelter to the poultry farming industry, which flourished and grew successfully over the period. Presently, Barwala area in Panchkula district is the leading producer of poultry products in the northern India. The region is also a major producer of bricks and tiles, which are supplied to the states of Himachal Pradesh, Jammu &

Kashmir and the union territory of Chandigarh. The region also experienced a high growth in tourism industry. The historical places of Kurukshetra, Ambala, Panchkula and Pinjore attracted large number of tourists from all over the country. Morni Hills, the only hill station in Haryana is located in Panchkula district and can be promoted as another destination for tourists.

Thus, the region as a whole experienced a rapid increase in the density of population, high growth of population, rapid decline in sex ratio, high increase in the literacy rate particularly female literacy rate, high diversification of rural economy, sharp increase in work participation rate and proportion of workers engaged in non-agricultural occupations along with rapid urbanization and industrial development. As a result, this region emerged as an area of rapid demographic change.

(b) National Capital Region: This sub-region of rapid population change included 10 tahsils which were located around the national capital of Delhi and constituted a part of the National Capital Region (NCR). These tahsils included Sonipat, Panipat, Rohtak, Bahadurgarh, Jhajjar, Rewari, Pataudi, Gurgaon, Faridabad and Hodal (Map 3). These tahsils recorded a very high increase in urban population and rapid industrial development due to their location along the national highways and in close proximity to the national capital of Delhi. Gurgaon (Maruti cars and information technology industries), Faridabad (automobiles, tractors, cars, tyres, sanitary hardwares and electronics goods industries) and Panipat (National Fertilizers Limited, Oil refinery and woolen textile industries) have made their unique place at the national and inter-national level in the recent past, as far as industrial development is concerned. Beside these, Sonipat, Rohtak, Bahadurgarh, Kundli, Rai and Murthal are other towns of industrial importance in the region. These tahsils experienced a sharp increase in the density and growth of population due to over-spilling of urban population from Delhi as well as in-migration of workers from other parts of the state and the country. As majority of these migrants were male-selective, it caused a sharp decline in the sex ratio of these tahsils. However, a part of this decline was attributed to the increasing incidences of pre-birth sex determination tests and female foeticide for a desire to have a male child along with pressure to keep the family size small and maintain the economic standard of life. High cost involved in raising a child in the cities and increasing trend of nuclear families is also responsible for this change. This observation is further strengthened by a sharp decline in the child sex ratio (0-6 year age-group) during the recent past. Medical advancement and technological development coupled with people's attitude, thus, unfortunately

led to further paucity of females in an already female-deficit area in the country. The region recorded a high increase in work participation rate and proportion of non-agricultural workers due to diversification of economy and availability of employment opportunities in the secondary and tertiary sectors. Female literacy rate also increased substantially in the region due to more freedom being given to females and their involvement in the secondary and tertiary sector economic activities.

(c) North-western region: This sub-region of rapid population change consisted of four tahsils, namely Jind, Bhiwani, Hisar and Sirsa. All these were tahsils with district headquarters, and displayed pockets of high degree of change as compared with the surrounding areas with moderate and low degree of change (Map 3). These tahsils were characterized by a relatively high level of urbanization and recorded a high density of population and rapid growth of population. A substantial in-migration of workers from the surrounding areas of the region caused a decline in sex ratio of population during the period. Proportion of non-agricultural workers registered a significant increase in these tahsils due to concentration of administrative, educational, medical, marketing and banking services. These tahsils experienced a rapid growth in the industrial sector in the recent past due to establishment of small and medium scale manufacturing activities. Bhiwani emerged as an important centre of textile industry.

(B) Areas with slow population change:

This category included all those tahsils which recorded a slow degree of population change (composite index value of more than 20) during 1971- 2001. Out of a total of 67 tahsils, there were 21 tahsils in this category. Among them, five tahsils (Barara in Ambala district, Israna in Panipat district, Adampur in Hisar district, Kosli in Rewari district and Ballabgarh in Faridabad district) were entirely rural and had no urban population. The areas with slow population change experienced a low increase in density of population, slow growth of total population, a high increase in sex ratio, slow increase in the degree of urbanization, low increase in the work participation rate and proportion of workers engaged in non-agricultural activities and low increase in female literacy rate during 1971- 2001. These tahsils can be further classified into three sub-regions on the basis of their location, as following:

(a) South-eastern region: This region covered 6 tahsils of Gurgaon and Faridabad districts namely Sohna, Nuh, Ferozepur Jhirka, Punhana, Hathin and Ballabgarh (Map 3). The region as a whole is known as Mewat region and was dominated by Meo-Muslim community. This region is socio-economically and

culturally backward and is at a low level of urban-industrial development. In the periphery of this region, Faridabad and Gurgaon have emerged as two major urban-industrial centres in close proximity to the national capital of Delhi, in which most of the administrative, manufacturing, commercial, educational and health services are concentrated. Highly developed world class infra-structural facilities; conducive environment for private investors with close proximity to Delhi; efficient connectivity with Delhi by Metro railways and rapid population growth due to spillover of urban population from Delhi helped in rapid growth of these two cities and some other city could not grow in this region due to the impact of urban shadow of Gurgaon and Faridabad. However, Palwal and Hodal are emerging as other important centres in the periphery of this region. With the development of Kundli- Manesar- Palwal express highway and establishment of Special Economic Zones (SEZs) along this express highway, this region is expected to grow faster as far as population change is concerned.

(b) Western and north-western region: There were 9 tahsils in this sub-region of slow population change. These included Siwani, Tosham, Bawani Khera and Dadri in Bhiwani district; Kosli in Rewari district; Adampur and Narnaund in Hisar district; Ratia in Fatehabad district and Narwana in Jind district (Map 3). These tahsils were agriculturally less developed and at a low level of urbanization, which resulted in low growth in industrial sector and low diversification of rural economy in these areas. Non-availability of employment opportunities in the secondary and tertiary sector activities, stagnation of economy and relatively low literacy rate caused a large-scale out-migration from these areas. Male-selective out-migration from these tahsils led to a slow growth of population and a positive increase in sex ratio during 1971- 2001.

(c) North-eastern region: This sub-region of slow population change included six tahsils located in the northern and north-eastern parts of the state. These included Barara in Ambala district; Chhachhrauli in Yamunanagar district; Guhla in Kaithal district; Indri and Assandh in Karnal district and Israna in Panipat district (Map 3). These tahsils were located between areas of high development and rapid population change. These areas were neglected in terms of industrial development due to their location in close proximity to the big urban-industrial centres of Ambala, Jagadhri, Karnal and Panipat. Absence of some big urban-industrial centres in these tahsils led to a slow population change during the period 1971- 2001. However, these tahsils experienced diversification of rural economy and high increase in literacy rate in general and female

literacy rate in particular. Growth of population in these tahsils was low due to male-selective out-migration from these tahsils to the nearby urban centres in search of better employment opportunities.

(C) Areas with moderate population change:

All those areas which recorded a composite index value between 18 and 20, were classified as areas with moderate degree of population change during 1971- 2001. Out of a total of 67 tahsils, there were 25 tahsils in this category. These tahsils were classified into two sub- regions on the basis of location.

(a) North-eastern and eastern region: In this sub-region there were 15 tahsils located in the eastern part of the state along Ambala-Delhi national highway (Map 3). These tahsils were located in between areas of rapid population change and were characterized by a moderate to high growth of population, moderate to high change in density of population, and a moderate degree of urbanization resulting into a substantial increase in the proportion of non-agricultural workers to total workers. Sex ratio in these tahsils declined during the period under the influence of urban-industrial development. Females in this region enjoyed a relatively high status in society due to high literacy rate and participation in secondary and tertiary sector occupations.

(b) South-western and western region: This sub-region accommodated 10 tahsils located in the western and south-western parts of the state with a moderate degree of population change. These included Dabwali, Rania and Ellenabad in Sirsa district; Fatehabad and Tohana in Fatehabad district; Hansi in Hisar district; Loharu in Bhiwani district; Mahendragarh and Narnaul in Mahendragarh district and Bawal in Rewari district (Map 3). These tahsils experienced a moderate change in population during 1971- 2001 due to high change in female literacy rate, high change in female work participation rate and total work participation rate and a positive increase in sex ratio during the period. However, the change in degree of urbanization and proportion of workers engaged in non-agricultural activities was low as compared with other areas due to absence of big urban-industrial centres in the region and low level of diversification of rural economy. A low level of agricultural development in the region due to poor irrigation facilities and sand-dune infested terrain was another factor for a moderate degree of population change in the region.

Concluding remarks

Though the concept of population region and population development was difficult to define and conceptualize, an attempt was made to regionalize

the state of Haryana on the basis of population characteristics as per 2001 census and demarcate regions of population change during 1971- 2001. Among different demographic variables, it was found that proportion of non-agricultural workers to total workers had the highly positive correlation (0.912) with the level of demographic development which was followed by degree of urbanization (0.798) and female literacy rate (0.586). Contrary to this, work participation rate and sex ratio were negatively correlated with the level of demographic development with a correlation value of -0.642 and -0.598 respectively. However, negative correlation with sex ratio was very weak as compared with that of work participation rate.

It was found that tahsils located in the eastern part of the state along the Ambala- Delhi national highway and in close proximity to the national capital of Delhi as well as state capital of Chandigarh were highly developed in terms of demographic characteristics and were more dynamic as far as change in population variables during 1971- 2001 is concerned. High degree of urbanization, industrialization and diversification of economy further reflected in a relatively high status of females in the society in terms of high literacy rate among females and their participation in secondary and tertiary sector jobs, played a crucial role in initiating the process of demographic development in this region. Development of manufacturing and service sector in this region led to large-scale in-migration of workers from the surrounding areas which resulted in high growth of population in both urban as well as rural areas and a rapid increase in the density of population in the region as a whole.

Contrary to this, tahsils located in the western and south-western parts of the state experienced slow change in population during 1971- 2001 and a low level of demographic development. These tahsils were characterized by a low degree of urbanization, low industrial development and low diversification of economy. Absence of big urban-industrial centres in the region resulted in slow growth in terms of industrial development and low status of women in terms of low literacy levels and low participation rate in secondary and tertiary activities. However, this region experienced an increase in sex ratio during the period due to male-selective out-migration in western parts of the state, incidences of pre-birth sex determination tests & female foeticide in urban centres, and high rate of natural increase in the Mewat region of Gurgaon district. Socio-economic and cultural backwardness was another factor

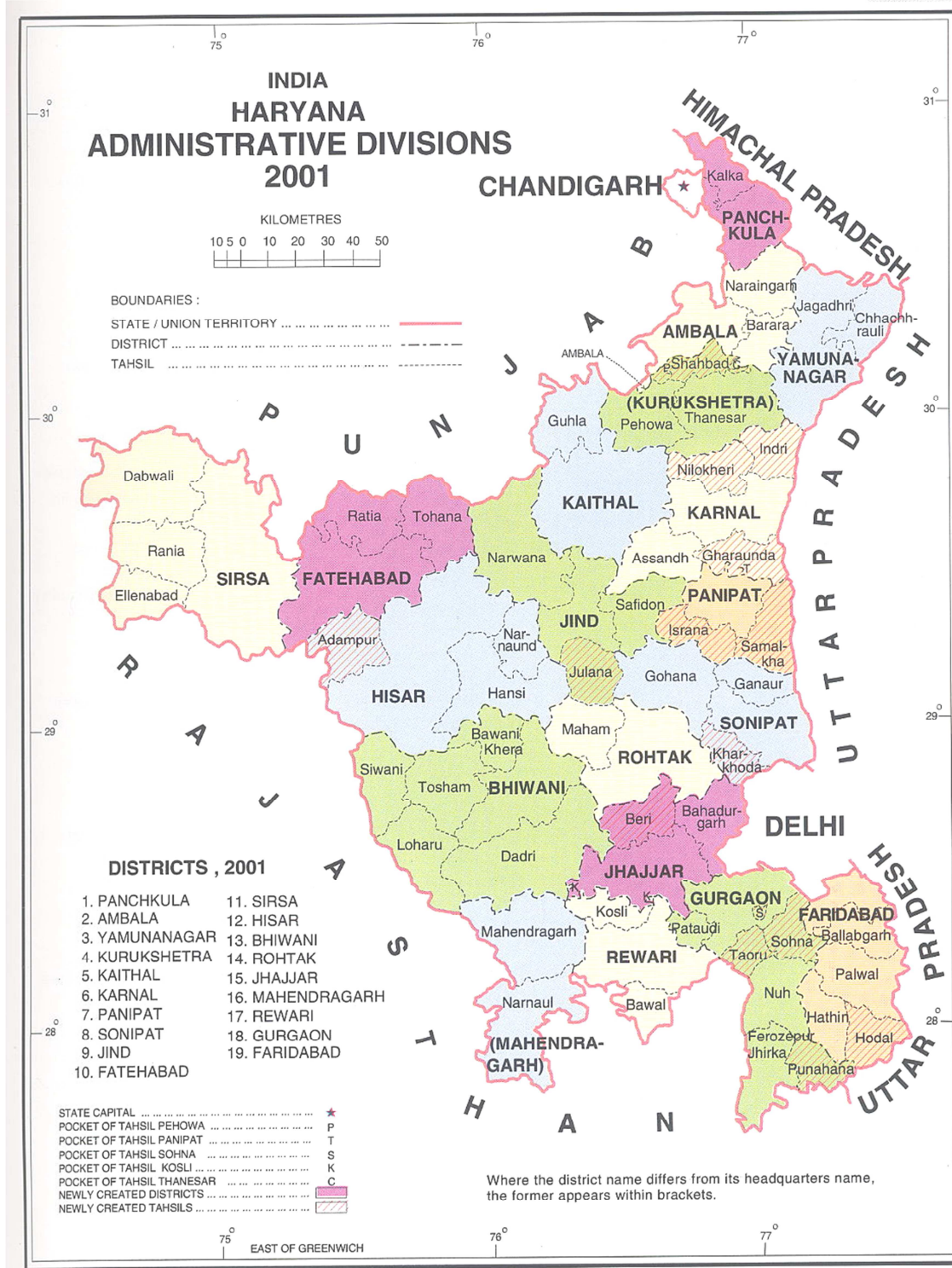
responsible for a slow population change in the region.

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Maps and Figures



Map 1: Administrative Divisions in Haryana

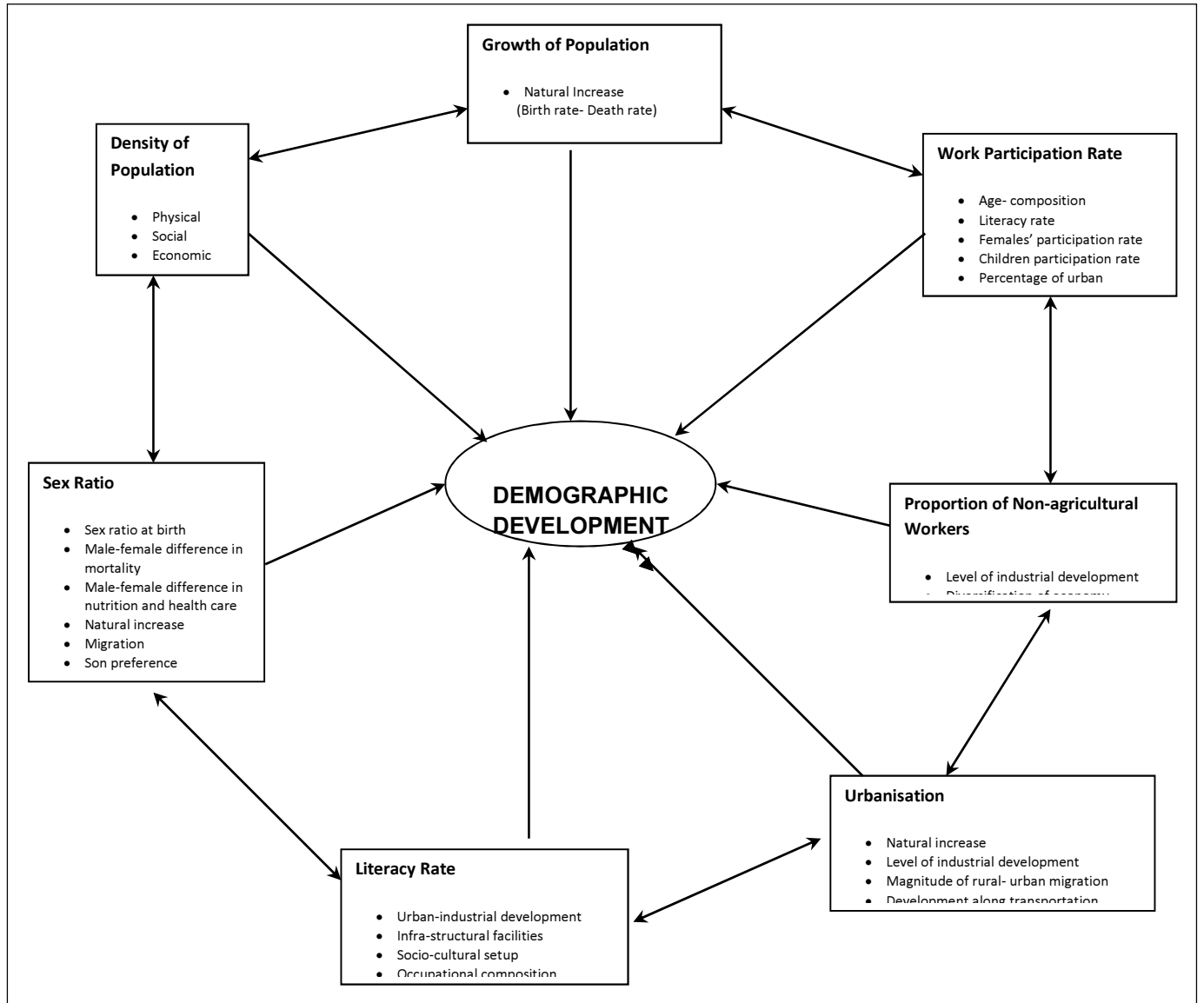
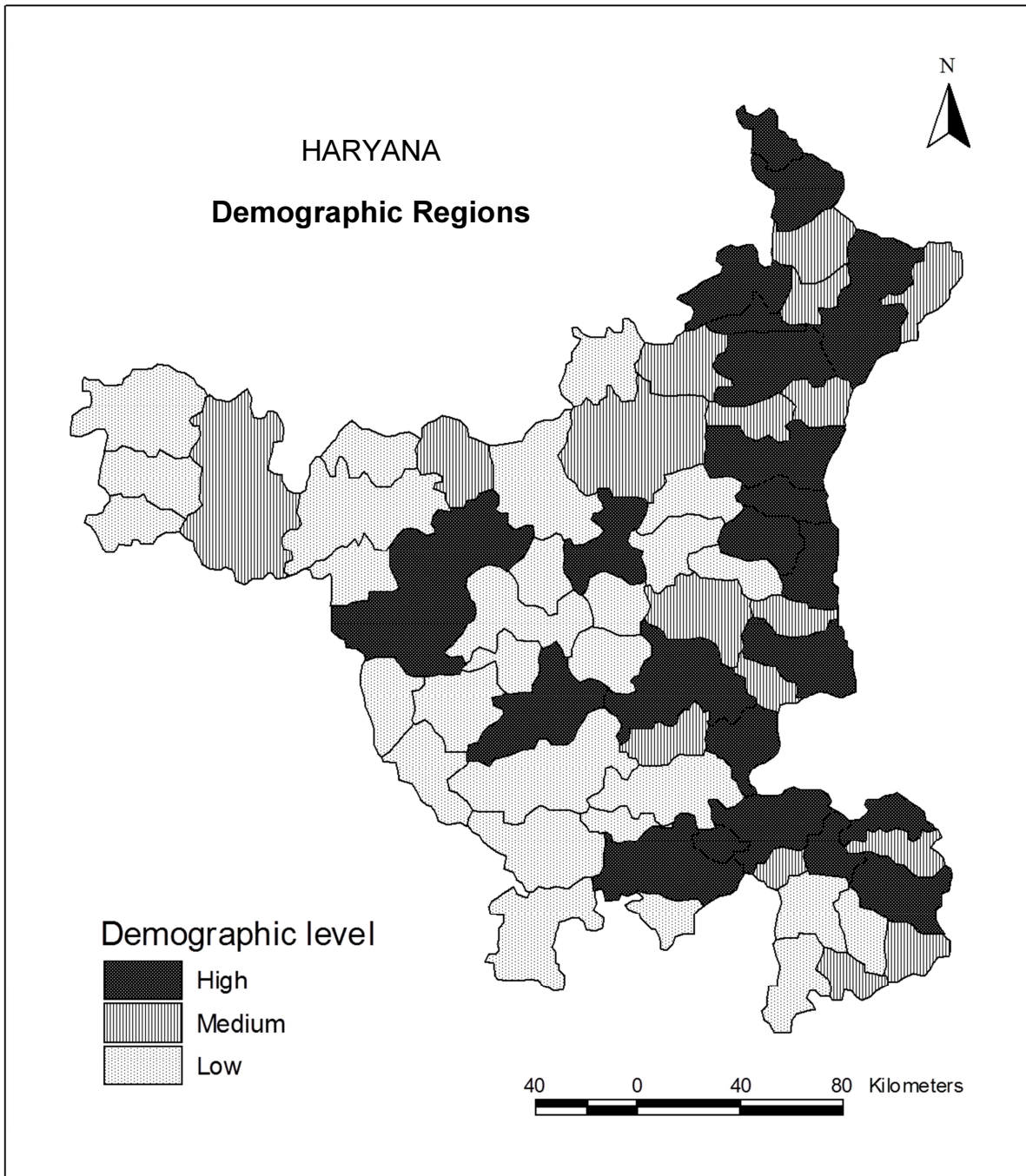
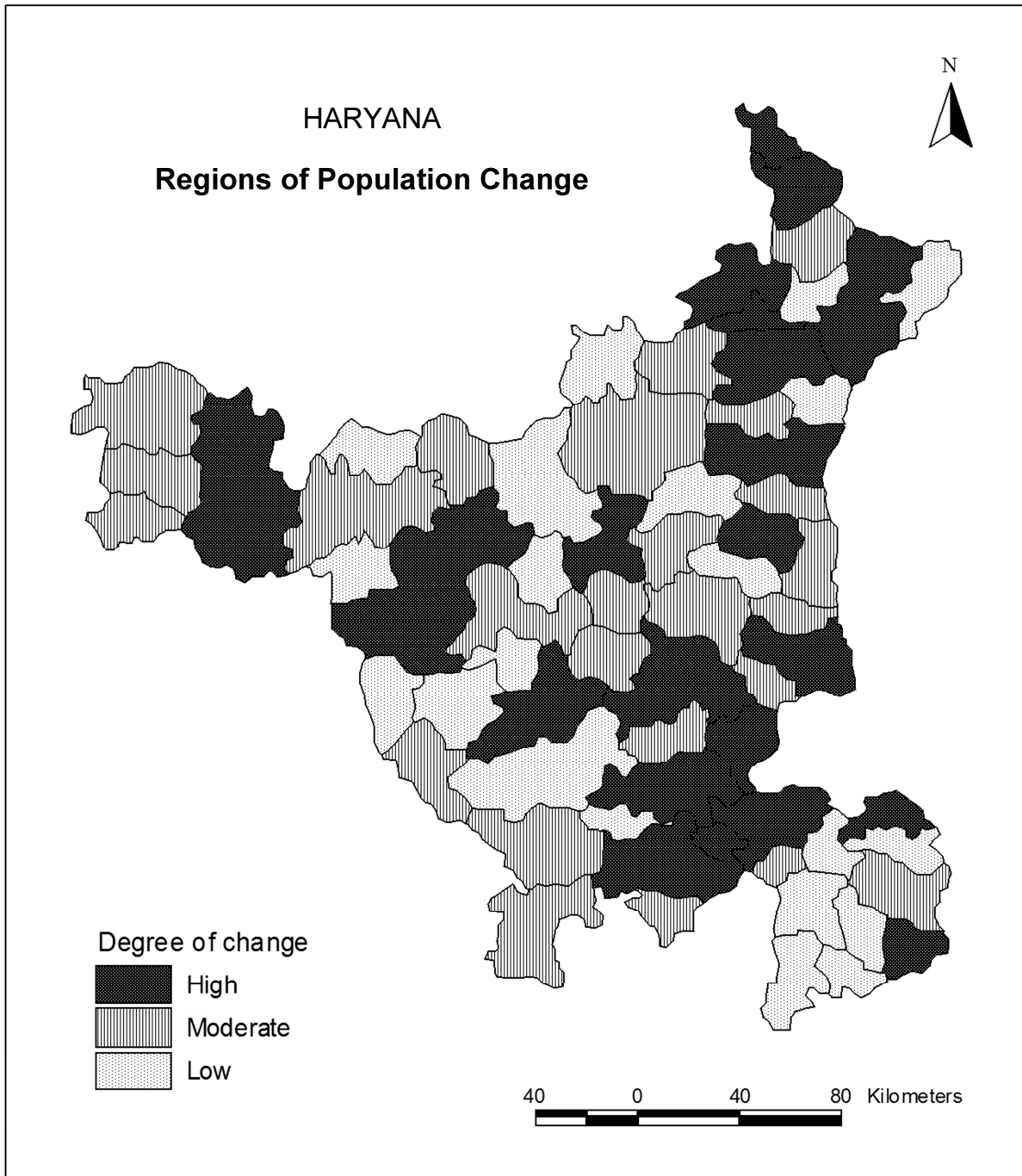


Figure-1: Indicators of Demographic Development



Map 2: Haryana Demographic Regions 2001



Map 3: Haryana Regions of Population Change 1971-2001