

**INTERNAL MIGRATION AND REGIONAL  
DEVELOPMENT: A CASE STUDY OF  
MAHARASHTRA 1971-1981**

*Dissertation submitted to Jawaharlal Nehru University  
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**MASTER OF PHILOSOPHY**

**JAYATI MITTAL**

Centre for the Study of Regional Development  
School of Social Sciences  
Jawaharlal Nehru University  
New Delhi-110067  
INDIA  
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*dedicated  
to  
my family*



जवाहरलाल नेहरू विश्वविद्यालय  
JAWAHARLAL NEHRU UNIVERSITY  
NEW DELHI-110067

CENTRE FOR THE STUDY OF REGIONAL DEVELOPMENT  
SCHOOL OF SOCIAL SCIENCE

### Certificate

This is to certify that this dissertation entitled **Internal Migration and Regional Development: A Case Study of Maharashtra 1971-81**, submitted by **Jayati Mittal**, in the partial fulfilment of six credits out of total requirement for the award of degree of **Master of Philosophy** is a bonafide work to the best of my knowledge and may be placed before the examiner for evaluation.

**A.H. Kidwai**  
(Chairperson)

**Aslam Mahmood**  
(Supervisor)

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*Sujati Mittal*  

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*Jayati Mittal*

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## CHAPTER 1

### INTRODUCTION AND REVIEW OF LITERATURE

#### *Introduction*

A community or a country gains population only through fertility and immigration and it loses population only through mortality and outmigration. In other words, besides fertility and mortality migration is the major source of regional variations in population. Migration cannot be considered as a mere shift of people from one place of residence to another as it is most fundamental to the understanding of continuously changing space content and space-relationships of an area.<sup>1</sup> It indicates a system of social and economic change, and can be regarded as a form of human adjustment to economic, environmental and social problems.<sup>2</sup> There are definite patterns in the growth of mobility and this comprises essential components of modernization.<sup>3</sup>

Population mobility has increased with technical and economic progress.<sup>4</sup> It has been observed that industrialisation and economic

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<sup>1</sup> Gosal, G.S. (1961), "Internal Migration in India-A regional Analysis", *India Geographical Journal*, 36, p.106.

<sup>2</sup> Demko, G.J. et.al (1970), "Spatial Patterns of Population Flows", in *Population Geography: A Reader*, McGraw Hill Book Co., New York, p.I.

<sup>3</sup> Zelinsky, W. (1971), "The Hypothesis of the Transition Mobility" *Geographical Review*, vol.61, no.2, p.221.

<sup>4</sup> Clark, J.I. (1966), *Population Geography*. Pergamon Press London, p.123.

development attract large scale movements of people from countryside to towns, and from towns to the city, and from one country to another.<sup>5</sup> Most migrants move because they expect to find better jobs and higher wages in the new place. Migration is a manifestation of a world-wide shift from a rural agrarian base to an urban industrial base in the economies of developing countries like India. Migration has far-reaching impact on the migrants as well as on societies, specially on the economy, in the place of origin and destination.

Today migration is one of the important factors in the process of urbanization and industrialization which has brought about severe changes in the national economy. It helps to maintain some balance between distribution of population and resources.

In India, there are large scale regional variations in the levels of development. In a country with continental dimensions like that of India, there are bound to be different regions and subregions within a region. Therefore if we look into spatial organisation of the Indian economy we find that there are extreme regional variations in terms of development in different areas such as agriculture, industry, infrastructure, human resources etc. There are certain deterrent factors which come in the way of rapid development of a region, most important of these are the geographical isolation, inadequacy of economic overheads like transport,

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<sup>5</sup> Bogue.D.J (1961), "International Migration" in Philip M. Hausen and Otis Dudley Duncan (Eds). *The Study of Population* New Delhi: Asia Publishing House, p.486.

labour, technology, etc. Disparities exist not only between the different states, but also between different regions within a state.

Historically, the existence of backward regions started accentuating from the British rule in India. The British helped the development of only those regions which possessed facilities for prosperous manufacturing and trading activities. The locational pattern of industrial growth in the past had been influenced by the early pattern of railway construction. These centres of industrial location have attracted a considerable portion of industrialisation towards themselves because of conglomeration economies.<sup>6</sup>

The uneven investment in irrigation in the field of agriculture during the British period helped some areas become more prosperous than others. The introduction of new agricultural technology augmented regional disparities. There have been differences in the use of new technology and the factors which paved the way for the success of the new technology of farm development. The commercial banks have also shown a distinct tendency towards a concentration of investment in the relatively more developed states. New investments, more so in the private sector, has a tendency to concentrate in an already well developed area and thus reaping the benefit of external economies because a well developed area offers private investors certain basic advantages, viz, labour, infra-

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<sup>6</sup> Datt, Rudder and Sundharam, K.P.M. (1991), Indian Economy, S.Chand & Company Ltd., New Delhi pp.374-384.

structural facilities, transport and the market. There is thus a difference in the levels of development of different regions in a country. A relatively more developed area attracts people from other parts of the country. The population of that developed area grows as flow of people come from far and near places.

A significant portion of the growth of urban population in our country has been on account of the migration from rural areas to the towns. On average this has accounted for about 30% of urban growth of population (1975). This figure is much higher in the case of large cities like Bombay, Delhi, Calcutta and Madras. Migration makes possible the utilisation of the special skills attained by part of the labour force.<sup>7</sup> The special abilities obtained by this group can be utilised any where. These persons, therefore, migrate to the communities where their services are in demand.

The relationship among migration and development is complicated. Initially, based on the experience of Europe and North America, economists viewed migration as a relatively smooth geographical reallocation of labour in response to economic growth and so saw urbanization as a natural and beneficial part of development.<sup>8</sup> This shift

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<sup>7</sup> Dhar, D.P. (1975), "Urban Situation in India" in Mayur R. (eds.), *Planning for a Habitable City*, Bombay Pradesh Congress Committee Publication, pp.7-9.

<sup>8</sup> Fei, J.C.H. and Ranis, G., (1961), A Theory of Economic Development. *American Economic Review* 51(4), September p.553-565.

of workers made labour more productive, thus raising incomes and the national product. Further-more, migration was seen as self-limiting, since the shift of workers from the country to the city would eventually eliminate the geographical difference in wages that had inspired migration in the first place.<sup>9</sup> Numerous studies have now documented the fact that, developing countries are not following the pattern of Europe and North America. In developing countries rates of rural-urban migration continue to exceed rates of urban job creation and surpass greatly the capacity of both industry and urban social services to absorb this labour effectively.<sup>10</sup> One fundamental problem of emphasis on industrialization in developing countries like India is the virtual neglect of rural economy. Scarce government resources are poured into the industrial sector and the infrastructure needed to support it--roads, ports, hydro-electric power as well as other amenities such as housing, schools, hospitals etc., are all concentrated in the urban areas. This attitude of the government maintains an artificially wide regional difference in wages and living standards.<sup>11</sup> Another problem here, is a rapid population growth, which

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<sup>9</sup> Mera, K. (1978), The changing pattern of population distribution in Japan and its implications for developing countries. In Lo, F.C. and Salih, K. eds. *Growth Pole Strategy and Regional Development Policy: Asian Experience and Alternative Approaches*. Oxford, Pergamon Press, p.193-2115.

<sup>10</sup> Gugler, J. (1982), Overurbanization reconsidered. *Economic Development and Cultural Change*, 31 (1): October, p.173-189.

<sup>11</sup> Lipton M. (1977), *Why Poor People Stay Poor: Urban bias in Developing Countries*. London, Temple Smith, p.467.

creates potential workers faster than in Europe and North America in their developing stages. In this case, the surplus agricultural labour that migrates to the urban area, is not being absorbed by rapid industrialization. In developing countries the industrialization is based on the consumer needs of upper and middle classes which holds a limited market. The purchasing power of urban and rural poor is very low which stops them from buying expensive manufactured items. And these newly industrialized nations are unable to compete in export market with the advanced industrial nations. Most of these countries are dependent on the industrialized developed nations for good technology as well as for finance thus leading to the domination of multinational corporations which work across countries. But the MNCs generally use highly sophisticated but less labour intensive technology. Here again the demand for labour which has migrated from the rural sector is low.

The growth of employment depends upon both supply and demand. From supply side it is influenced by the size and growth of population and from the demand side by the level of employment generating investment in the non-agricultural sector. Here both the size, the pattern and the source of investment are important. The pattern and source will determine together whether it will generate employment or not. The MNCs are a case in point which shows that investment need not necessarily lead to employment. Again if investment is made to sectors like education,

housing, health, then employment generation will not be high. In this case there is a distortion between demand and supply of labour and hence migrated labour.

From the above discussion, it seems evident that the levels of development of a region will affect the forces of migration as economic development is seen to be one of the most important motivator of migration. Differences in levels of economic development as well as the pattern of it even within a relatively small region, will affect migration accordingly. The state of Maharashtra, is marked by a wide variation in its development levels across the districts. While the districts of Bombay, Nagpur, Pune and Thane are very well developed, Beed, Nanded, Osmanabad are very much underdeveloped. This makes it interesting to study Maharashtra and its districts against the backdrop of migration. We can see how migration and economic development varies across districts and whether the two phenomena are related to each other. This has been the purpose of the present study. Accordingly we have first studied the levels of migration across districts. Secondly, we have looked at the varying levels of economic development across districts. Finally, we have attempted to explain migration by the levels of economic development.

### ***Review of Literature***

The literature on this topic is quite enormous. There has been a



conspicuous dearth of writings, treating the problem from different disciplinary approaches. Most of the migration studies have avoided generalization and have tended to be factual reports, describing the volume of different movement revealed by the data and where possible, differential characteristics of the migrants. Among those who have attempted to generalize, two distinct approaches may be identified.<sup>12</sup> The first considers the differences in characteristics of the places of emigration and immigration as the starting point, in order to find out explanations of the migratory movements which may have occurred. Such studies are situation oriented in terms of push and pull factor. The other approaches seek to formulate empirical generalization to describe patterns of migration, preferably in the form of mathematical models.

Revenstein's papers published in 1885 and 1889, entitled "The Laws of Migration" are the starting points for the second approach.<sup>13</sup> Though Revenstein's laws have been challenged or some exceptions have been pointed out, his observations have provided the basis for fundamental idea underlying the gravity model of Zipf.<sup>14</sup> Stouffer's "model of intervening opportunities", however denies that there is any relationship between

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<sup>12</sup> United Nations (1973), *The Determinants and Consequences of Population Trends*, Population Studies, no.50, vol.1, Deptt. of Economic and Social Affairs, New York, p.209.

<sup>13</sup> Revenstein, E.G. in United Nations (1973), op.cit.

<sup>14</sup> Zipf, G.K. (1946), "The P1, P2/D Hypothesis on the Inter-City Movement of Persons", *American Sociological Review*, vol.xi, no.6, pp.677-85.

population mobility and distance. Rather the number of persons migrating over a given distance is directly proportional to the number of opportunities at the place of destination and indirectly proportional to the number of intervening opportunities.<sup>15</sup> Somermeijer made a major improvement in the Zipf model by introducing explanatory "attractiveness factors", each of them with different values in the place of origin and in the place of destination.<sup>16</sup> This innovation enables the model to describe both net and gross migration instead of only the gross migration between two places. It also permits the incorporation of all the explanatory push-pull factors, supplied by the situation-oriented approach. It assumes that each factor influences a different class of migrants and allows for different subjective values for different persons within the class of migrants influenced by a given factor.

However Wolpert has shown the weakness of Stouffer and other models for giving emphasis to push-pull factor and excluding behavioural parameters. He has borrowed much of the concept in his model building from the behavioural theorists.<sup>17</sup>

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<sup>15</sup> Stouffer, S.(1940), *Intervening Opportunities: a theory relating mobility and distance*, *American Sociological Review*, 5, pp.845-867

Stoaffer, S. (1960), *Intervening Opportunities and competing migrants*, *Journal of Regional Science*, 2, pp.1-26.

<sup>16</sup> Somermeijer (1961), "Een Analyse Van de Binnenlandse Migratie...", as cited in U.N. (1973), *op.cit.*, pp.210.

<sup>17</sup> Wolpert, J. (1970), "Behavioural Aspect of the Decision to Migrate", in G.J.Demko, et.al., *op.cit.*, pp.298-305.

Prior to about 1960, studies of migration did little more than describe net migration patterns. The economic interpretation of migration developed in the 1960s, out of a growing concern among policy makers and planners about the relationships amongst population growth, urbanization and development.

Studies on migration are very few in India because historically speaking, migration has never been considered an important demographic issue on account of the small volume of internal migration compared to the total size of the population.<sup>18</sup> Migration studies in India, particularly since last two decades, have received considerable attention of Social Scientists and Planners. They have viewed the process on the parameters of causal relationship, economic development and policy prescriptions etc.

The push-pull explanation of migration has been one of the principal themes of a substantial portion of the migration literature, perhaps reaching its clearest and fullest expression in Lee's 'Theory of Migration'.<sup>19</sup>

The push-pull hypothesis has proved to be useful for listing all the factors affecting a given migratory movement, and has produced lucid and

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<sup>18</sup> Bose, Ashish, (1983), "Migration in India: Trends and Policies" in Oberai A.S (ed) *State Policies and Internal Migration - Studies in Market and Planned Economies*, London, Croom Helm.

<sup>19</sup> Lee, E.S. (1966), "A theory of migration" as cited in G.J.Demko (1970) op.cit. p.288-298.

convincing expositions of the underlying factors in migration.<sup>20</sup> The forces of accumulated push and pull factors can be so overwhelming that it neglects to make clear, why some migrate and some do not.<sup>21</sup> The use of Lee's conceptual framework, which incorporates push and pull factors at both the place of origin and the place of destination, would overcome this limitation.<sup>22</sup> Zelinsky has approached migration in a completely different perspective. He in his "hypothesis of the mobility transition", has applied the principle of spatial diffusion of innovations to the laws of migration, specially to Lee's assertion that "unless severe checks are imposed both volume and rate of migration tend to increase with time".<sup>23</sup> The 'Rural Push' theory seems to dominate the whole gamut of migration researches in India. It is argued at length that the flow of migration depend largely on the differential level of economic development of different regions.<sup>24</sup>

The process of decision making, however, is stimulated through various socio-cultural factors.<sup>25</sup> Davis is probably the first scholar to study

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<sup>20</sup> Bogul, D.J.(1959), "Internal Migration" in P.M. Hauser and O.D. Duncan, eds., *The study of Population*, University of Chicago Press, Chicago, pp.499-501.

<sup>21</sup> Peterson, W. (1961), *Population*. The Macmillan Co., New York, p.607.

<sup>22</sup> Lee (1966), op.cit.

<sup>23</sup> Zenlinsky, Wilbur (1971), op.cit., pp.219-49.

<sup>24</sup> Chanderaskher (1949), "Population problem of India and Pakistan". *The Eugenics Review*, July.

<sup>25</sup> Mishra, D. (1980), "Some Aspects of Demographic changes: Research need in Migration". *Journal of Social and Economic Studies*, vol.2, pp.210.

in detail, the migration pattern in India. He discussed the extent and direction of Immigration, Emigration and Internal migration. He has studied in detail the volume and type of internal migration, viz, short-run migration, marriage migration and rural-urban migration etc.<sup>26</sup>

Push factors are more likely to be present in a less developed and pull factors in an advanced society.

People can be 'pushed' off the farm after repeated droughts. Others can be 'pulled' to the city as urbanisation and industrialization emerge alongside societal development. Indeed, some people are eventually pulled from the city to its suburbs in their search for a better life as Revenstein pointed out a century ago.<sup>27</sup>

Generally lower unemployment levels in destination areas and higher unemployment levels in origin areas are linked with higher migration rates. The pressure of population is not the only or even the principal cause of the increasing unemployment and poverty of the rural population.<sup>28</sup> Equally important causes are the low rate of investment in agriculture, fragmentation of land, inequalities in the distribution of land and other productive assets, institutional mechanism which discriminate in favour of the owners of wealth and a pattern of relative prices, and

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<sup>26</sup> Davis. K. (1951), *The Population India and Pakistan*, Princeton, London.

<sup>27</sup> Lee (1966), op.cit.

<sup>28</sup> Boserup. E. (1965), *The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure*, London, Allen and Urwin.

therefore investment and technological change, biased against labour.<sup>29</sup>

Several other studies have noticed the flow of migration from rural economy to industrial economy. This kind of migration is due to small land holdings, unemployment, underemployment and the growth of rural population.<sup>30</sup>

Many small farmers are forced to sell their land to the large landowners and seek wage labour in the area, to work as temporary or seasonal workers in other areas or to migrate permanently away from the area.<sup>31</sup> It is said that "the more an individual is poor, landless and socio-economically deprived, the greater the chance of his migration from rural to urban areas".<sup>32</sup>

Richardson has observed that migrants tend to move from low wage to high wage areas and from areas of labour surplus to those with labour

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<sup>29</sup> Standing G. and Sukdeo F. (1977), "Labour migration and development in Guyana", *International Labour Review*, Nov-Dec. Guffern, K. (1976), *Land Concentration and Rural Poverty*, London, Macmillan.

<sup>30</sup> Samsuddin S. Dara (1981), "Aspects of Migration Rural Areas to Industrial-Urban Centres of Bangladesh", in R.B. Mandel (ed.), *Frontiers in Migration Analysis*, New Delhi: Concepts publishing company, pp.212.

<sup>31</sup> Ramero, L.K. and Flinn, W.L. (1976), "Effects of Structural and change variable on the selectivity of migration: The case of a Colombian peasant community". *Inter-American Economic Affairs*, vol.29, no.4.

<sup>32</sup> Mukherjee, S. (1979), "Understanding Colonial Analysis and its Application through human Mobility Research". *Geographical Review of India*, XXXXI (3), p.245.

shortages.<sup>33</sup> The process was deemed socially beneficial since migration was considered in terms of "an investment increasing the productivity of human resources".<sup>34</sup> Some studies have asserted the special significance of migration in the context of developing societies which are in the process of renovating their social structure and thus, where various aspects of life are undergoing changes. Modern technology, industrialization, and urban growth are undoubtedly the most important instruments of change in these societies. A close examination of the conditions obtaining in these societies would show that much of the urban growth is the result of migration of people from villages to cities.<sup>35</sup> A few studies also support the hypothesis that migrants are attracted to cities in search of higher paid jobs or "bright light" of urban entertainment.<sup>36</sup> India has witnessed new patterns of internal migration in the last decades and these types of migrations are significant not due to the volume but its impact on political, social and economic scene. In different regions of India, there is a growing conflict

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<sup>33</sup> Richardson, H.W (1973), "*Resource Mobility in the Space Economy*", in H.W. Richardson (eds.), *Regional Growth Theory*, The Macmillan Press Ltd., London, pp.89-103.

<sup>34</sup> Sjaastad. L.A. (1962), The cost and returns of human migration *Journal of Political Economy*. 70 (Suppl. 5, Pt.2): Oct. pp.80-93.

<sup>35</sup> Zachariah, K.C. (1959), "Migration to Greater Bombay, 1941-51", *The Indian Journal of Social Work*. XX(III), p.45. and Gora, M.S. (1970); "*Migration Neighbourhood, two Aspects of Life in Metropolitan City*". Tata institute of Social Sciences.

<sup>36</sup> Findley, S. (1977), *Planning for Internal Migration. A Review of Issues and Policies in Developing Countries*", Washington, D.C. United States Department of Commerce, Bureau of the Census.

between the "sons of soil" and the "outsiders" - migrants from other states of India.<sup>37</sup>

Several studies have noticed that during the last 30 years, migration has been the result of several famine, drought and was mainly due to gradual decay of traditional occupation.<sup>38</sup>

It has been suggested that the migrants are the innovators of society and are pulled by the lure of better life elsewhere.<sup>39</sup> Glantz has also observed that the poor migrate to areas offering more employment opportunities and higher welfare benefits.<sup>40</sup>

A study has suggested that migrants tend to be better educated and thus perhaps of higher status than non-migrants.<sup>41</sup> Implicit in this assumption is the theory that the less educated are not as likely to realize

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<sup>37</sup> Weiner, M. (1978), *Sons of the soil: Migration and Ethnic Conflict in India*; Bombay. Oxford University Press.

<sup>38</sup> Bose, A. (1978), "Migration streams in India", in Bose A. (ed). *India's Urbanization, 1901-2000*. New Delhi: Tata McGraw Hill Publishing Co. Ltd. and Grae, G.M. (1973); "Process of social change in Scheduled Tribe: A case study of Immigrant Mahadeo Kollis in Poona City". *The Indian Journal of Social Work*, XXXIV (2), and Connell, et.al (1976); *Migration from Rural Areas: The Evidence from Village Studies*. New Delhi, Oxford University Press, and Majumdar. S.P. and Illa Majumdar (1978) *Rural Migrants in Urban Setting*. New Delhi, Hindustan Publishing Corporation, p.114.

<sup>39</sup> Bouvier, L.F., Macisco Jr. and A. Zarate (1976), Towards a theory of migration differential: The case of education in Antony Richmond and Daniel Jubat (ed.), *Internal Migration, New World and the Third World*, London, Saga Publications.

<sup>40</sup> Glantz, F.B. (1975), "The determinants of the Intermetropolitan Migration of the Poor", *The Annals of Regional Science*, vol.9, no.2, pp.25-39.

<sup>41</sup> Long, L.H. (1973), "Migration Differentials by Education and Occupation: Trends and Variations", *Demography*, 10.



such potentials elsewhere and tend to remain behind. With regard to income differentials a bimodal pattern of migration is conceived with the poor migrating for economic reasons, and the rich for better economic pursuits.<sup>42</sup> Persons having better economic position have a higher propensity to migrate from rural to urban areas.<sup>43</sup>

Mehta (1991) in his study finds that persons belonging to poor and landless sections and illiterates have higher frequency of migration, which is due to the fact that their poor socio-economic condition forces them to migrate. However, the migrants from higher economic groups are in lower proportion, who are motivated by the desire to obtain prestigious white collar jobs.<sup>44</sup>

A study on migrants to Dandeli, Maharashtra has an interesting note that depending upon the economic opportunities, only persons having distinctive socio-cultural background migrate.<sup>45</sup>

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<sup>42</sup> Rao, M.S.A. (1974), "The Migrants to City". *Yojana* XVII (20), p.4; and Saxena, D.P. (1977); *Rural-Urban Migration in India: Causes and Consequences*, Bombay: Popular Prakashan, p.88, and Dasgupta, B. and Roy, Lishley (1975): "Migration from Villages", *Economic and Political Weekly* X (2).

<sup>43</sup> Gupta, T.R. (1961), "Rural Family Status and Migration: A Study of Punjab Village". *The Economic Weekly*, XII(4), p.1999.

<sup>44</sup> Mehta, G.S. (1991), "Characteristics and Economic Implications of Migrations", *Journal of Rural Development*, vol.10 (6).

<sup>45</sup> Disouze, U.S.(1964), "Some Socio-cultural aspects of Internal Migration in India", in A.K. Mitra (ed.), *Indian Population Bulletin*, 3. New Delhi, Office of Registrar General of India. p.185.

The basic impetus behind international and internal migration within the Third World Nations is economic betterment.<sup>46</sup> Rapid migration was thought to be a desirable process by which surplus rural labour was gradually withdrawn from traditional agriculture to provide cheap manpower to fuel a growing modern industrial complex.<sup>47</sup>

The rapid development of industrial and urban economy particularly after 1950s, had opened up employment opportunities which pulled the rural masses. Davis comes to the conclusion that modern migrations are an ebb and flow process that result from technological and economic inequalities.<sup>48</sup>

Migration is an investment in human capital the economic return of which accrues over the working life of individuals. The process of migration is linked to such characteristics of the individual as age, education, skill level etc. which contribute to the potential earnings of an individual.<sup>49</sup>

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<sup>46</sup> Mckee, D.L. and Tisdell, C.A. (1988) "The Developmental Implications of Migration from and between small island Nations, *International Migration*, 24, 4.

<sup>47</sup> Fei, J.C.H. and Ranis, G. (1961), op.cit, Lewis, W.A.(1954): Economic Development with unlimited supplies of labour", in *The Manchester School of Economic and Social Studies*, May 1954, pp.139-191.

<sup>48</sup> Davis, K. (1974), "The Migration of Human Population", *Scientific American*, vol.231, no.3, pp.92-105.

<sup>49</sup> Carvajal, M. J. and Upadhiya, A. (1986), "Propensity to Migrate Differentials by Poverty Status: An Empirical Test for Costa Rica", *Journal of Economic Development*", vol.1, no.2.

House and Remple (1980) conclude that income in the migration destination area serves as a significant positive determinant of migration. Income is undoubtedly the most significant factor in migration.<sup>50</sup> Most studies however, have not looked at wages (on income) differentials to explain migration but rather have studied wages in the destination and origin areas separately. Generally destination areas with high wages have high in-migration rates.<sup>51</sup> Michael Todaro and John Harris had proposed that rates of rural-to-urban migration depends on (i) the differences in wages between areas of destination and origin and (ii) the chances of finding a job at the destination.<sup>52</sup> Other studies have similarly linked migration rates with wages as modified by unemployment rates in destination areas.<sup>53</sup> With regional differences in wages on earnings, or with regional differences in unemployment rates.<sup>54</sup>

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<sup>50</sup> House, W.J. and Rempel, H. (1980), "The Determinants of Interregional Migration in Kenya". *World Development*, 8(1); January pp.25-35.

<sup>51</sup> Carvajal, M.J. and Geithman, D.T. Economic Analysis of Migration in Costa Rica. *Economic Development and Cultural Change*, 23 (1): October, pp.105-122, and Greenwood, M.J. and Ladman, J.R. (1978): An Economic Analysis of Migration in Mexico, *Annals of Regional Science*, 12 (2) July: pp.16-31.

<sup>52</sup> Harris, J.R. and Tadaro, M.P. (1970): Migration, Unemployment and Development: a Two-Sector Analysis. *American Economic Review*, 60 (1): March: pp.126-142.

<sup>53</sup> House, W.J. and Remple, H. (1980), op.cit.

<sup>54</sup> Arnold, F. and Cochrane, S.H. (1980), Economic Motivation Versus City Lights: Testing Hypotheses and inter-chagewat migration in Thailand, Washington, D.C., World Bank, p.41.

Most of the migration is short distance (within district).<sup>55</sup> Among the short distance migration, the female section predominates. Internal migration in India, unlike migration in Western countries, is highly selective of males.<sup>56</sup> Men predominates in rural-to-urban migration for work as the major reason for their moves. It was observed that males outnumbered females to a much greater extent in the migrant population than in the non-migrant population as well as in the population of the places of origin.<sup>57</sup> The reason for women migrating reveal a different pattern from men's reason, reflecting social constraints on women's mobility and work. In India marriage and other family consideration account for over 80 percent of women's move.<sup>58</sup>

From the literature survey above, it appears that the economic motives behind migration, depending mainly on the level of economic development of the destination, is one of most important determinants of migration. Other reasons also exist but are themselves sometimes linked with the state of economic development. (For example "the bright lights" incentive talked about by Findley). So economic development forms an

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<sup>55</sup> Bose, Ashish (1978), op.cit. p.39.

<sup>56</sup> Zachariah, K.C. (1964), *A Historical Study of Internal Migration in Indian Subcontinent*, Bombay, Asia Publishing House, p.261.

<sup>57</sup> Zachariah, K.C. (1968), *Migrants in Greater Bombay*, Demographic Training and Research Centre, Bombay, Research Monograph, no.5, Bombay: Asia Publishing House, pp.80-81.

<sup>58</sup> Premi, M.K. (1980), Aspect of Female Migration in India. *Economic and Political Weekly*, 15 (15): April 12, pp.714-720.

important basis for a study of migration pattern. The question of male migration being more important than female is also brought out in the literature survey. We therefore, in this study, have focussed on economic development of Maharashtra and tried to analyse migration pattern on this basis, concentrating on male migration throughout. The state of Maharashtra has been chosen particularly due to the long history of in migration to the state from the surrounding regions. Immigration to Maharashtra in general is economic in nature.

### ***Objectives***

The objectives of the present study are given as below:-

1. To examine the spatial pattern of migration in Maharashtra from other states of India,
2. To examine the level of development in Maharashtra and
3. To identify the relationship between the economic development and migration (spatial and temporal) during 1971-81.

### ***Chapterization of the Study***

In this study we try to analyse the change in the pattern of migration and levels of economic development, and the relationship between migration and the different indicators of economic development in Maharashtra during 1971-81.

The First Chapter gives an introduction to the study and a review of literature. It deals with the characteristics of migration and the causality of the process at work. It also sets out the objectives of the study and the chapterization. The Review of Literature includes the different views and opinions given by different authors on migration and its relationship with economic development.

The Second Chapter deals with the definitions and concepts used in the choice of indicators of migration were chosen. It also provides the sources of data, their characteristics and limitations. In the end, it describes in detail the methodology used for analysis in chapters 4, 5 and 6.

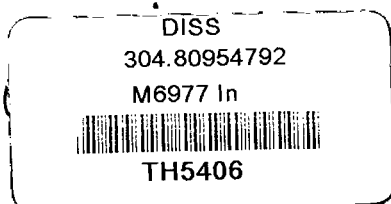
The Third Chapter is concerned with the regional setting, location, and economic condition of the study area.

The Fourth Chapter deals with regional and temporal pattern of total and male migration in 1971 and 1981. The changes in migration during the decade 1971-81, is also discussed in this chapter. Next it deals with male migration classified by distance covered and the direction of movement, together with the change in these during 1971-81.

The Fifth Chapter is concerned with the levels of development based on 21 (1971) and 26 (1981) indicators from different sectors, viz agriculture, industry, infrastructure and human resources of the economy of Maharashtra.



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The Sixth Chapter discuss the relationship between change in migration indicators and changes in economic indicators between 1981 and 1971. We try to establish the relationship between the two, whether it is significant and in which direction it lies.

The Seventh Chapter provides a summary of the entire study. Some conclusion are also drawn in the end.

## CHAPTER 2

### DEFINITIONS, DATA BASE AND METHODOLOGY

The present study is concerned with two phenomena-migration and the level of economic development. In this chapter, we first discuss the definition and concepts which have formed the basis for choosing and collecting the data for each variable involved in the analysis. This chapter also discusses the rationale and nature of the economic indicators chosen. Lastly we layout in detail the methodology used for analysing the issued in hand for chapter 4,5 and 6.

#### *Indicators of Migration*

##### Operational Definitions:

The collection and analysis of migration data in this study is carried out on the basis of a standard set of definitions of concepts. It is, therefore, necessary to define the relevant terms and concepts used in this study.

##### Internal Migration

Internal migration refers to the movement which results in a change of usual place of residence within a country. It may consist of the crossing of the village or town boundary as a minimum condition for qualifying the movement as internal migration. In this chapter Internal migration and migration convey the same meaning.



Census of India, however, uses an operational definition of migration on the basis of birth place data. Census of India classified population on the basis of their rural or urban nature, of place of enumeration as well as birth place. A person whose birth-place is different from the place of enumeration is considered as migrant. If the birth place of the migrants is within the country, he or she is considered as internal migrant other wise it is international migrant.

#### In-Migration

A person who crosses the migration defining boundary in the process of changing residence and entering a given community from some other part of the same country is an in-migrant.

#### Total Migrants

Total migrants refers to the percentage of total population enumerated at a place other than their place of birth.

#### Intra-District Migrants

Persons born outside the place of enumeration but within the same district are termed intra-district migrants. Such migrants have also been termed Short distance migrants.

#### Inter-District Migrants

Persons born outside the district of enumeration but within the same state are called inter-district migrants. Such migrants have also been termed Medium distance migrants

### Inter-State Migrants

Inter-state migrants are persons born in the states/union territories of India, but beyond that of enumeration. This include even the migrants from the adjoining districts of the neighbouring states. Such migrants have also been termed long distance migrants

### Rural to Rural Migrants

Those who were born in a rural area and have been enumerated in a rural area, are the rural to rural migrants.

### Rural to Urban Migrants

Those who were born in a rural area but have been enumerated in an urban area, fall under this group of migrants.

### Urban to Urban Migrants

Those migrants who were born in urban area and have been enumerated in another urban area are termed urban to urban migrants.

### Urban to Rural Migrants

Those who were born in an urban area but were enumerated in a rural area, fall under this category

### **List of variables of internal migration**

On this basis of these concepts, following variables of various aspects of internal migration are chosen:

1. Share of migrants in total population.

2. Change in the share of migrants in total population.
3. Share of male migrants in total male population.
4. Change in the share of male migrants to the total male population.
5. Change in number of male migrants.
6. Share of male migrants to total migrants.
7. Change in the share of male migrants to total migrants.
8. Percentage increase in migrants.
9. Male migrants classified by distance covered.
11. Male migrants classified by streams of movement.
12. Change in the share of male migrants classified by streams of movement.

### ***Indicators of Economic Development***

Any study which is focusing on the inter-relationship of migration and economic development requires clarity about the concept of development. The idea of economic development in the past has been considered in a narrow sense, typically seen in terms of growth of G.N.P. In 1950 and 1960s, many Third World Nations achieved the high per capita income targets but the level of living of the people remained for the most part unchanged.<sup>1</sup> By about mid 1970s the focus of development shifted from the growth of GNP to the reduction of poverty. According to

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<sup>1</sup> This happens when the growth of G.N.P. is accompanied by a more unequal income distribution which is what usually happened.

the United Nations, development is defined as below:

"As the ultimate purpose of development is to provide increasing opportunities to all people for a better life, it is essential to bring about a more equitable distribution of income and wealth for promoting both social justice and efficiency of production, to raise substantially the level of employment to achieve a greater degree of income security, to expand and improve facilities for education, health, nutrition, housing and social welfare, and to safeguard the environment. Thus, qualitative and structural change in the society must go hand in hand with economic growth and existing disparities-regional, sectoral and social-should be substantially reduced. These objectives are both the determining factor and the end results of development, and they should therefore be viewed as integrated parts of the same dynamic process..."<sup>2</sup>

Development must, therefore be viewed as a multidimensional process. Thus the modern concept of development would imply, the achievement of objectives, the more important of which are -

1. increasing the availability and widening the distribution of basic life-sustaining goods such as food, shelter, health and protection.
2. raising the standard of life, in addition to higher incomes providing more jobs, better education, enhancing material well being but also

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<sup>2</sup> United Nations, (1975); "Poverty, Unemployment and Development Policy: A case study of selected issues with reference to Kerala", New York, p.4.

generating greater individual and national self-esteem.<sup>3</sup>

In this light, a development indicator should represent any change in the structural capacity and output in a wide variety of areas, such as industry, agriculture, human resources, and infrastructure in all the above spheres of activity. Otherwise it is very difficult to measure standard of living by a direct measure.

An indicator, however, may be disaggregated, composite or representative. Disaggregated indicators should be homogeneous, mutually exhaustive and mutually exclusive. Indicators are selected to represent the different components, which are broken from a complex phenomenon. A composite indicator means a single indicator which is constructed by grouping up different indices which are given some weights. A representative indicator is a measure by which we can study a particular phenomenon. In other words, it is used to describe a specific situation. In all the cases the indicator should be reliable, sensitive and accurate and it should be consistent with respect to its relation to other development indicators.

To summarize, the following are the variables finally selected for the present study to indicate the level of economic development in the region.

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<sup>3</sup> Todaro, M.P. (1993), *Economic development in the third world*, Orient Longman Hyderabad, pp.90-91.

*List of Variables of Economic Development for 1971-*

*AGRICULTURE*

1. Percentage of Net area sown per agricultural worker (hectare)
2. Percentage of net area irrigated to net area sown
3. Percentage of net area sown to total geographical area

*INDUSTRY*

4. Percentage of urban population to total population
5. Number of factory workers per working factory
6. Number of factory workers per lakh of population
7. Percentage of main workers to total population
8. Female work participation rate
9. Urban male work participation rate
10. Percentage of workers engaged in manufacturing to total main workers
11. Percentage of workers employed in trade and commerce to total main workers

*INFRASTRUCTURE*

12. Road length per 100 sq. km of geographical area (km)
13. Railway kilometerage per 100 sq.km. of geographical area (km)
14. Number of telephones per lakh of population
15. Number of post and telegraph offices per lakh of population

16. Number of commercial banks per lakh of population
17. Percentage of towns and villages electrified

#### *HUMAN RESOURCES*

18. Number of beds in medical institutions per lakh of population
19. Percentage of literates to total population
20. Percentage of rural female literates to total rural female population
21. Number of enrolment in primary and secondary schools per lakh of population.

Apart from these indicators, we have included 5 more indicators for 1981 the data for which were not available for 1971. These are-

#### *AGRICULTURE*

1. Number of tractors for 100 hectares of net sown area

#### *INDUSTRY*

2. Per capita annual earning of employees in manufacturing industries

#### *INFRASTRUCTURE*

3. Per capita domestic consumption of electricity
4. Per capita industrial consumption of electricity
5. Number of motor vehicles per lakh of population

### ***Data Base***

The present study is based entirely on the secondary sources of data. The district has been chosen as the unit of the study. To see the changes over the period, the data have been taken for two point of time 1971 and 1981.<sup>4</sup>

The data for analysis of migration have been collected from table D-I of the Migration tables of the census of India for the years 1971 and 1981. The data of both the tables of 1971 and 81 are based on 'Place of birth' concept.

It is important to add here that persons belonging to the 'unclassifiable' category in the migration table have been excluded from all computations. Persons whose place of birth could not be determined correctly by census authorities have been put under this category. In all the following tables the proportion of such people is less than one percent. The 1971 census figures were based on 10 percent rural and 20 percent urban sample of individual slips. The data on migration in 1981 census have been collected through the individual slip (sample) and have been processed on the basis of 20 percent sample of enumeration blocks.

For measuring economic development, indicators have been taken in the fields of agriculture, industry, infrastructure and human resources.

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<sup>4</sup> The detailed tabulations of the 1991 census migration statistics are not yet available.



To study the relationship between migration and economic development the same time period (1971 and 1981) have been taken for economic development indicators. For the year 1981 total 26 indicators were selected, but for the year 1971 just 21 indicators were considered for the study. This is because the data for the (i) number of tractors, (ii) per capita annual earning of employees in manufacturing industries (iii) per capita domestic consumption of electricity, (iv) per capita industrial consumption of electricity, (v) number of motor vehicles, were not available for the year 1971. The information for economic indicators is collected from the Statistical Abstracts of Maharashtra for 1970-71, 1971-72, 1980-81 and 1981-82 and Handbook of Basic Statistics of Maharashtra State, 1971 and 1981. Scaling of data and relating them to the district's population or geographical area, as the case may be, was carried out suitably.

### ***Methodology***

For the purpose of the present analysis some cartographic and statistical methods have been employed.

Choropleth maps have been prepared to show the spatial pattern of distribution of the phenomenon under consideration, over Maharashtra. Some Pie diagrams have also been prepared to show the types of migrants classified by distance covered and direction of movement.

The main statistical techniques used are ranking method for construction of composite index of economic development and correlation and regression analysis for establishing the relationship between migration and economic development.

### Ranking Method

For Analysing the data on the level of economic development the ranking method has been used in the fifth chapter. The ranking method which comprises the assigning of rank scores to individual indicators and aggregating them at the desired level is the simplest and most commonly used method in regional analysis. In this study the districts were ranked according to descending order for each indicator. Then the ranks of each sector i.e. Agriculture, Industry, Infrastructure and Human resources are summed up separately. Districts were then ranked in descending order on the basis of sectoral total of ranks, to indicate level of sectoral development. After that the rank scores of all the sectors of development were summed up for each district and ranked according to descending order to get the level of overall development.

### Regression Analysis

In the sixth chapter, we have tried to explain the relationship between changes in migration (different indicators/variables) and changes in levels of economic development between 1971-81. This is pursued by

using a stepwise regression analysis<sup>5</sup> across 26 districts where changes in the 21 economic indicators are used as independent variables to explain the changes in the migration variables which are taken to be the dependent variables. The percentage changes in migration variables have been calculated in the fourth chapter. Changes in percentage points between 1981 and 1971 in the economic indicators have been calculated here. Since figures for only 21 indicators are available for both the years we have calculated changes in these and the other 5 indicators for which data was acquired for 1981 could not be used.

The objectives of the exercise was to determine,

- (1) Which of the economic indicators have a statistically significant impact on the 12 dependent variables and in which direction does this impact lie,
- (2) What is the relative importance of each of the 21 economic indicators, in explaining the behaviour of the dependent variables.

For answering the 1st question we have used the simple linear regression method and noted the significance and the sign of the coefficient of each explanatory variable. Significance at 1% and 5% levels have been accepted. A positive sign would indicate a positive relation and vice versa.

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<sup>5</sup> Mahmood, Aslam (1993), *Statistical Methods in Geographical Studies*, New Delhi, Rajesh Publications, pp.151-153.  
Koutsoyiannis, A (1973), *Theory of Econometrics*, MacMillan Education Ltd.

In order to address question 2, i.e. to determine the relative importance of the economic variables in explaining migration behaviour we use stepwise regression analysis. Here a correlation matrix is calculated which gives the correlation coefficient between all the explanatory variables (i.e. % changes in economic indicators), and the dependent variables (each of the change in migration variables taken one at a time). The explanatory variable having the highest correlation coefficient would be the one to explain best, the behaviour of the dependent variable. Therefore we conduct the 1st step of the regression by using only that explanatory variable and a constant to explain the behaviour of the migration variable in question. The  $R^2$  and adjusted  $R^2$  is then noted, and so is the significance of the coefficient. In the 2nd step we add to the above regression the explanatory variable which has the second highest partial correlation with the dependent variable, noting again the  $R^2$  and adjusted  $R^2$  and the significance of the coefficient. In this way, we keep adding in successive stages, the variables which have next highest partial correlations with the dependent variable noting the values of  $R^2$  and adjusted  $R^2$  and the significance of coefficients at each stage.

The changes in adj.  $R^2$  tells us how much each new independent variable is adding to the explanatory power of the model in relation to the degree of freedoms. The increase in adj.  $R^2$  falls with every step, indicating the lower and lower effectiveness of each additional variable in explaining

the behaviour of the migration variable. When the  $\text{adj.R}^2$  starts falling, we discontinue the process and accept the regression with the highest  $\text{adj.R}^2$  as our final model. Successive steps after that, in fact, diminish the explanatory power of the model, and we, therefore, do not consider the rest of the variables important in explaining the behaviour of the dependent variable.

**CHAPTER 3**  
**MAHARASHTRA**  
**THE REGIONAL SETTING**

Maharashtra State has been chosen as the study area. Some of its regions are highly developed and industrialized, for example, Bombay known as the financial capital of India. On the other hand, it consists of underdeveloped districts faced with drought and other basic problems (for example the district of Beed, Nanded etc.). These differences in the economic opportunities available in this region provides differing incentives for migration. This characteristic makes it an interesting region to study. The chapter deals with the Geographical background and economy and people of the state.

***Antiquity***

The settlers who came to the Maratha land from the big kingdoms of the north, named this land Maharashtra. They mingled with the Kolis and the Kathodis, the Bhils and the Gonds, and propagated the older folk strains in Maharashtra. The first step towards forming the Maratha community was taken by the Rattas. The history of region begins with the Satavahanas ruled from Paithan on the bank of river Godavari for 3 centuries from the first century B.C. They were followed by the Chalukyas,

the Rashtrakutas and the Yadavas, apart from the Shilaharas, the Bhojas and the Kadambas.<sup>1</sup> Al-ud-din Khalji was the first Muslim Sultan of the north who penetrated into Deccan in A.D. 1296. Malik Kafur, his lieutenant, completed the mission of Al-ud-din and by 1310, the Yadavas rule came to an end. Muhammad Taghlug met with failure in transferring his capital from Delhi to Daulatabad. The fall of the Taghluks gave rise to new Muslim powers in the Deccan called the Bahamani dynasty (1347), which lasted for nearly 150 years. The fall of the sultanate in the south saw the emergence of the Maratha power. Maharashtra as an entity became a reality under the able leadership of Chhatrapati Shivaji. The Maratha territories expanded and contracted with the rise and fall of the Peshwas. In the end of 18 century, the Maraths were finally defeated and the region passed into the hands of the British with the rest of India.<sup>2</sup>

### ***The Present State of Maharashtra***

The administrative evolution of the state of Maharashtra is the belated outcome of the linguistic re-organisation of the states of India, effected on May 1, 1960. The state was formed by bringing together all contiguous Marathi speaking areas, which previously belonged to different

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<sup>1</sup> Tilekar, S.R. (1966); *"Maharashtra - The Lands, Its People, and their Culture"*, Maharashtra Information Centre, New Delhi.

<sup>2</sup> Karve, I. (1968); *"Maharashtra: Land and Its People"*, Maharashtra State Gazetteers, General Series No.10. Government of Maharashtra, Bombay.

MAP 3.1  
MAHARASHTRA THE STUDY AREA



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administrative hegemonies - the districts between Daman and Goa that formed part of the original British Bombay Province (and later part of the bilingual Bombay state); Five districts in the north and west of the Nizam's dominion of Hyderabad, eight districts in the south of the central Provinces (Madhya Pradesh) and a sizable number of Petty native-ruled states enclaves lying enclosed within the above areas, which later merged with adjoining districts.

It is the third largest state in India, next only to Madhya Pradesh and Rajasthan, with a high level of economic and cultural development symbolizing the process and achievement of the country.

The state ( $15^{\circ}44' - 21^{\circ}40' N$  and  $73^{\circ}15' - 80^{\circ}33' E$ ) embraces an area of 307, 609 sq.km and has a population of 62,693,898 (1981).

The hierarchical pattern of the state's administration finds its expansion in the 4 divisions, 26 districts and as many as 302 talukas into which it is divided (as per in 1981). Besides being the most Industrialized state, Maharashtra handles bulk of the country's international trade, through the port city of Bombay which is aptly described as the economic capital of India.

### ***The Land-Geology and Topography***

Located in the north centre of Peninsular India, with a command of the Arabian Sea through its ports of Bombay, Maharashtra has a

remarkable physical homogeneity, enforced by its underlying geology. The dominant physical trait of the state is its plateau character. Its western upturned rims rises from the Sahyadri range and slopes gently descending towards the east and south-east. The major rivers and their master tributaries have carved the plateau into alternating broad-river valleys and intervening higher level interflutes, such as the Ahmadnagar, Buldana, Yavatmal plateaus.

The Sahyadri range is the physical backbone of Maharashtra, rising on an average to an elevation of 1000 m., and falling in steep cliffs to the Konkan on the west. Eastwards, the hill country falls in steps through a transitional area known as Mawal to the plateau level. The series of crowning plateaus on the crest form a distinctive feature of the Sahyadri range. The Konkan, lying between the Arabian sea and the Sahyadri range is a narrow coastal low land, barely 50 km. wide. Though mostly below 200m, it is far from being a plain country. Highly dissected and broken, the Konkan alternates between narrow, steep-sided valleys and low laterite plateaus. The Satpura hills along the northern border, and the Bhamragad-Chiroli-Gaikhuri Ranges on the eastern border form physical barrier preventing easy movements, and also serve as natural limits to the state.<sup>3</sup>

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<sup>3</sup> Dikshit, K.R. (1976); "Drainage Basins of Konkan Forms and Characteristics", *National Geographical Journal of India*, 22, p.79-105.

### ***The Climate***

The region has two types of climates, semi-arid steppe (BC) climate in the west and monsoon savanna (AW) climate in the east and north-west. So the east of the Western Ghats, a belt of country about 225 km. wide, is situated in the rain shadow area. It receives less than 76 cm of annual rainfall. The rainfall is highly erratic. Therefore scarcity and famine conditions are common in this belt. To the East of the Sahyadri the rainfall diminishes to a meager 70 cm in the Western plateau districts, with Solapur-Ahmednagar lying in the heart of the dry zone.

In the eastern half of the region rainfall increases towards the east due to the influence of the Bay of Bengal monsoon current and cyclones. Annual rainfall at Nagpur is 112.73 cm. The whole of this region is dry for about 8 months in a year.

The highly pulsatory character of the monsoon with its short spells of rainy weather and long dry breaks, floods as well as droughts add much to the discomfort of the rural economy.

### ***The Natural Resources***

- (i) Forests - There is hardly any doubt that forest occupied a much larger area in Maharashtra in the past. The expansion of agriculture and other activities of man, consequent upon an increase in population has led to an ever increasing encroachment on the forest

and a resulting shrinkage of their areas. According to statistics provided by the forest department of Maharashtra, the forest in the State occupy 66725 sq. km. (1981) of area. Vegetation is mainly dry savanna. A large part of the area classed as forests is not only under very sparse vegetal cover but even barren. This exaggerated the figures of area under forest. Forest comprising only 17% of the state area is distributed in 3 zones - the western, the northern and the eastern. These correspond with the 3 relatively heavy rainfall zones and the mountainous areas. The western zone includes the Western Ghats and its foot hills, the northern zone comprises the Satpuras and the Malghat, and the eastern zone corresponds with Ramket upland, Chiroli hills, Ahiri upland, Dewalmari hills and Nawegaon hills. The districtwise distribution shows a concentration of forests in eastern part. Half the forests of the state are in the five districts of Vidarbha, viz Chandrapur, Bhandara, Amravati, Yavatmal and Nagpur. In fact, Chandrapur district alone accounts for 30% of the forested area of state.

- ii. Minerals - The mineral bearing zones of Maharashtra lie beyond the area of the basalts in eastern Vidarbha, southern Kolhapur and the Sindhudung areas. The principal minerals occurring in Maharashtra are Coal, Iron ore, Limestone and Dolomite, Bauxite, Manganese, Charomite, Clay, Copper, Silica and Petroleum. Geologically the coal

fields of Maharashtra belong to the Barakar series of Gondawana system. There are 4 important coal fields:- Kamptee, Umren and Bokhara coalfields, all in Nagpur district and the Wardha Valley coal fields which extend into Chandrapur and Yavatmal districts. Iron ore in Maharashtra is found in Chandrapur, Bhandara and Ratnagiri districts. Though used in a number of industries, the Limestone and Dolomite is massively consumed in cement industry. Maharashtra has a reserve of 5,000 million tonnes of limestone, most of which is in the Yavatmal and Chandrapur districts. The annual production is about 500,000 tonnes, largely in Yavatmal. Manganese, a very important mineral to be used in metallurgical industry is by far the most important mineral of Maharashtra since 30% of the country's reserves of manganese occur here. Besides the main ore body in Bhandara district, some manganese occur in other parts of the state as well in different geological associations. These are manganese with laterite in Satara district, with Kamthi rocks in Yavatmal district and the well known pre-cambrian metamorphic rocks in Nagpur, Bhandara and Ratnagiri districts. The economically exploitable manganese is confined to Bhandara, Nagpur and Ratnagiri districts only. In Maharashtra Bauxite occurs in Kolhapur, Ratnagiri, Raigarh, Thane and Satara districts. Other minerals which could be mentioned include Chromite, Clay, Copper, Silica sand and limenite. The first 3 occurs in the eastern mineral

belt of the state whereas silica sand and limenite are in Ratnagiri district.<sup>4</sup>

### ***Agriculture***

With about 20 million hectares of land under cultivation, that constitutes roughly 60% of the area of the State, agriculture is the primary occupation of nearly two-third of the working population in the region. The state is an important producer of two principal cash crops-cotton and sugarcane. Cotton-the traditional cash crop of Maharashtra and grown predominantly in Khandesh and vidarbha, claims the third largest share in the country, after Gujarat and Punjab. Maharashtra is also the second largest producer of sugarcane next only to U.P.. The state is inching forward in agricultural productivity with increase in irrigated area and introduction of improved seeds.

In Maharashtra the link between agriculture and Industry is very important. This has been evident by the agro-industrial pattern of economic development. That has emerged from the modernisation of agriculture and the establishment of agro-industries in the rural areas. The sugarcane farming has promoted the manufacturing of sugar. The strong complex of sugar cooperatives are turning into important growth centres in rural areas. Other agro-based industries like spinning mills and

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<sup>4</sup> Government of Maharashtra, Nagpur (1978); *Geology and Mineral Resources of Maharashtra*.

dairies have also received encouragement.

Maharashtra is the horticulturist's paradise. The Alphonso mango grown in Ratnagiri is a prized variety. The oranges of Nagpur, grapes of Nasik, bananas of Jalgaon and figs of Pune are famous.

### ***Irrigation***

Irrigated area of the state is not equally distributed, some regions have better developed facilities of irrigation than others. No part of Maharashtra receives rainfall all the year round, nor is there any region where enough moisture in the soil is retained to sustain the crops all the year round. The Panchganga basin in Kolhapur district, Krishna-Koyna plain in Satara, Mular-Mutha plain in Pune, Pravara-Mula lowland in Ahmadnagar and the upper Godavari plain traversing through Nasik district have not only developed fertile plains, but offered dependable sources of irrigation. The source water of these rivers and their tributaries have been harnessed by developing storage reservoirs from which canals have been taken out. There are dams on Bhagavati, Warna, Venna, Krishna, Nira, Bhima, Ghod, Mula, Pravara, and Godavari, and most of these rivers are paralld by canals irrigating considerable acreage down stream, with the exception of Bhandara and Chandrapur where 70% of the cultivated land is irrigated by the tanks as a main source of irrigation. In Pune and Aurangabad canals are an important source of irrigation but well

irrigation also have contributed in agricultural prosperity of these district.

About one-tenth of the cultivated area of Maharashtra is under irrigation. The increase of acreage under irrigation from 1951 to 1981 is about 5% to 10%. Ahmadnagar and Pune stands first and second in the acreage of irrigated area followed by Bhandara and Chandrapur districts. According to the percentage of cultivated land under irrigation Bhandara stand first and followed by Chandrapur, Satara, Pune and Ahmadnagar.

In the absence of any reliable source of irrigation, peasantry depends on dry farming in the districts of Aurangabad, Osmanabad and Parabhani and grows sturdier crops, like pulses, which needed less of moisture and had the capacity to tap water from greater depths. Another crop which retains moisture for long is cotton grown in the districts of Nagpur, Wardha, Yavatmal, Amravati, Akola and Buldana. These districts are equally under-developed in irrigation. The main crop in Bhandara and Chandrapur is rice which gets irrigation from tanks and canals. In Thane and Raigad districts the relatively flat basins of Kal and Kundalika rivers offer a much better scope for irrigation from canals. In Thane district garden crops and floriculture depends on well irrigation. In Raigad rice is covering most of the land and irrigation is practiced only where a second crop of rice is grown.<sup>5</sup>

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<sup>5</sup> Dikshit, K.R. and Jutta (1983); "Identification of Drought-prone Areas and Prediction of Crop expectations in Maharashtra *Geographical Review of India*, Calcutta, 45, (4), pp.48-81.



## ***Industry***

Maharashtra has developed during the last 30 years into a leading industrial state of the country. It has a wide range of industries spread in several parts of the state, but concentrated largely in the Bombay-Pune-Kolhapur belts. Textiles, chemicals, food processing, engineering, automobile and transport equipment, pharmaceutical, machine tools and a host of other industries are located in the state. Improved power position in Maharashtra, after the commissioning of Koyna hydroelectric project and plenty of water from Western Ghat region have worked as a positive influence in the growth of industries in Bombay-Pune region. Part of the credit for the upsurge in industrial growth goes to the city of Bombay which has acted as a powerful magnet to industrialists. Deep-water harbour facilities at Bombay enable this town to import industrial machinery and some raw materials more conveniently than other towns. Proximity to western countries, good linkages with other states of country by road and railways contributed to the rapid industrialization of Bombay. A number of additional industrial areas like Pune, Nagpur, Solapur, Kohlapur, Ahmadnagar, Satara and Nasik have sprung up to relieve the congestion in Bombay and accommodate the spurt in the growth of new industries.<sup>6</sup>

Maharashtra's continued pre-eminence in the sphere of industrial

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<sup>6</sup> Government of Maharashtra (1980-81); *"Economic Survey of Maharashtra"*, Directorate of Economics and Statistics.

development is due to the increasing diversification of Industry. In 1961 the cotton textile industry was a major source of activity and employed nearly 50% of the industrial labour force in the state. By 1982 this number declined to 18.2%. This was not so much the consequence of a fall in employment in cotton industry, but the sharp rise in employment in newly developed industries. These include chemicals and chemical products, pharmaceutical, machinery (both electrical and non-electrical), transport vehicles and equipment, household appliances, rubber, petroleum products and sugar. The newest entrant in the field is the electronics industry. An overall assesment can be roughly obtained by comparing the number of industries and employment in Maharashtra and India.

Maharashtra and more specifically Bombay is a traditional centre of textiles, a position which it still maintains. The cotton textile industry includes textile mills and a subordinate sector which includes powerlooms and handlooms. Maharashtra has over 100 cotton textile factories employing 2.8 lakhs people. Woollen and synthetic fiber textile have another 465 factories with an employment of over 45,000 people. Of these, silk and synthetic fiber factories are largely confined to Bombay and Thane. About 20 to 25% of factories and 60% of the employment in textiles is accounted for by Bombay alone. Besides Bombay other textile centre are Nagpur, Solapur, Nanded, Aurangabad, Jalgaon, Pune and Kolhapur, Solapur is located on Bombay-Madras railway route and lies the in the cotton area. Most textile mills has given the preference to efficient

transport. A large number of mills is tethered to the Bombay-Calcutta or Bombay-Madras railway track. Amalner, Dhulia, Sangli, and Miraj are smaller centers of textiles.<sup>7</sup> An important segment of textile industry is the handloom and powerloom industry. The total number of handlooms operated in the state, (around 80,000) produce roughly 15 crore meters of cloth. Nagpur and Sholapur are the two principal centers of handloom in the state followed by Kamptee, Maindargi, Ahmadnagar and Umrer. Unlike handlooms, about half the powerlooms are located in Bombay and Thane. Kohlapur and Nasik also share a substantial number of powerlooms. There are more than 1,25,000 powerlooms in the state. Bhivandi in Thane district and Malegaon in Nasik district are well known powerloom centers.

Another important group of industries is the metal and machine manufacturing industry. Bombay and Thane are the main centre of machine manufacturing. Pune, Satara, Kolhapur, Nagpur and Nasik are also important centres. Distance from the raw materials and its location none-too-central have not been affected the growth of engineering industry in the region. Automobiles, sugar and cement plants, dairy equipment, tools, oil and diesel engines, pumps, vans and trailers, trucks, scooters, and motorcycles are some of the main engineering industries.

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<sup>7</sup> Anagol, Malati & Shain A.K. (1992), All India Financial Institutions and a Study of Industrial Development of Maharashtra, *Southern Economist*, 30 (17); 1 January; pp.25-27.

Many modern industrial establishments have come up along the railway connecting Pune with Chinchvad. Chinchvad is situated at a distance of 17 km from Pune on the Pune-Bombay railway. Cheap land, as compared to Bombay and the reputation that the Pune has as a centre of education and cultural seat have attracted people from all parts of country and within Maharashtra. This facilitates the easy access to skilled manpower for industrial enterprises. In fact in the Bombay-Pune string development of industries has given rise to large Bombay-Pune bifocal region. Plastics, synthetic yarn and chemicals are manufactured at Pune, commercial vehicles, antibiotics and sugar machinery at Pimpri, oil-engines at Kirkee, diesel engines for earth-moving equipment, lead acid storage batteries and boilers at Chinchvad. Electronic and electrical goods manufacturing industries were set up in the Pimpri-Chinchvad industrial belt. Kolhapur, another nucleus of engineering industry, is particularly noted for its foundry works and for structural fabrications. Walchandnagar (Pune district) and Kirloskarwadi (Satara district) are other secondary centers of engineering industry.

Maharashtra also have industry producing electrical goods and appliances. These include motors, transformers, small generators and other equipment needed in the transmission like Cables and stabilizers.

Another industry which developed without there being adequate local raw material in the region is glassware industry located at Pune, Nagpur and Ogalewade. Local market has compensated for the transport

of silica from other parts of the country.

Maharashtra produces 40% of the total output of chemical in the country. These include heavy chemicals, dyestuffs, chemical products and pharmaceutical. Many chemical producing units are located in Bombay, Pune region for reasons of ready market and availability of raw materials. The textile industry provides ready market for starch, dyestuff, sizing material and other chemicals.

Most of the leading pharmaceutical concerns have their plants in Bombay. The Government runs antibiotics factory at Pune. Bombay provides an ideal site for research, development and testing of chemical and drugs, having hospitals, chemicals laboratories and research institutes.

Sugar refining is another agro based industry. There are in all 70 sugar factories in Maharashtra, 10 Joint stock and 60 in the cooperative sector. The increase in area under sugarcane, concentrated in the area of major irrigation projects, has witnessed an increasing growth of sugar factories which are raw material oriented. The result is that there is a cluster of sugar factories in Western Maharashtra with the largest number in Ahmadnagar district followed closely by Kolhapur, Satara, Solapur. Nasik and Pune share almost equally the distribution of sugar factories. Out of a total production of 6.5 million tonnes of sugar, about 1.2 million is contributed by the state of Maharashtra.<sup>8</sup>

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<sup>8</sup> Government of India (1981, 1982); *"Hand Book of Basic Statistics of Maharashtra State"*, Directorate of Economics and Statistics, Bombay.

Oil mills are diffused all over the region in the areas producing groundnut, particularly in Tapi and Wardha basins. The oil produced in these mills provide the necessary base and the impetus to the growth of hydrogenation plants which are located in three districts of Jalgaon, Buldana and Akola, all of which have a large acreage under groundnut.

Forest based industries are also of some significance in the eastern part of this region. A paper mill using bamboo is located at Balharshah and a particle board factory at Itarsi. Saw-mills are located at Balharshah, Chandrapur, Nagpur and Betul. Ship building at mazagaon dock in Bombay and oil refineries in Trombay are other important industries.

Food products, rubber, plastics, beverages, and tobacco, and non-metallic mineral products are the other leading groups of industries in Maharashtra.

### ***Population***

The state of Maharashtra covers 308,000 sq.km, roughly 10% of India's total area. According to 1981 census over 62 million (62,693898) people lives there. This forms over 9% of the total population of the country.

The districts with large urban centres and an industrial base show a very high growth rate. Bombay, Pune, Thane and Nagpur are such areas, each having more than 30% decennial growth in their population . Thane is an extreme case which lying adjacent to Bombay, has absorbed the spill-

over population and industries of Bombay. It is now the most suitable place for industries, workshops and residences. The Konkan districts of Raigad and Ratnagiri present a contrast. The increase in these districts are below the average for the state. Raigad being near to Bombay, commuting has prevented a migration of the people to Bombay. The plateau districts, on an average, shown 20% decadal increase in population. Variations are due to the difference in agricultural prosperity and the degree of out and in -migration. In Beed, Osmanabad and Buldana poverty and droughts work as a push factor and people migrate towards Bombay or Pune. In Satara, Solapur and Wardha people are out migrating due to pull of employment opportunities in Industrial centers. And they all are showing lower population growth.

Absence of uniformity in the distribution of population is seen in unequal density which varies from about 100 persons per sq.km. in the tribal belt of Thane and Nasik districts to 10,000 in Bombay. The State as a whole, has a density of 204 persons per sq.km. (1981) which is, in a way, representative of the country.

### ***Urbanization***

Maharashtra is the most urbanized state in India and more the one third of its population lives in towns. This stands in sharp contrast to 16.59% of its population living in towns, at the turn of the century. In 1971 urban population of the state was 31.17% which increased to 35.04%

in 1981. The comparable share of urban population of India is only 23.73% in 1981. It is the growth of individual towns which is responsible for this stupendous increase in the urban population, rather increase in the number of towns. The percentage of population residing in class-I cities which was 54.4% percent of total urban population in 1951 increased to 75.24% in 1981, an increase of 20.83 percentage point. In the case of class-III town the percentage point reduction in the share of class-II, IV, V and VI over the 1951 share was of the order of 2.13, 5.91, 12.87 and 1.30 respectively.<sup>9</sup>

In Maharashtra, industry is the most dominant factor of Urbanization. It has accelerated the process of rural-urban migration, and the creation of new and enlargement of existing urban centres. Bombay, Puna, and Nagpur constitute the major industrial cities of the state. Kolhapur, Ahmadnagar and Nasik are also major industrial centers. The spatial alignment of these centres has produced industrial belts and clusters. Bombay-Thane-Kalyan-Panvel-Uran is an industrial belt, contiguous to Bombay. Smaller industrial centres like Shirampur, Ichalkaranji and Kopergaon are new towns which developed following the growth of industries. A number of township like Ogalewadi and Kirloskarwadi owe their existence solely to industries.

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<sup>9</sup> Kutykrishnan, A.C. (1986); "A Profile of Urbanization in Maharashtra", *Indian Journal of Regional Science*, 18(1), pp.33-40.



## CHAPTER 4

### PATTERN OF MIGRATION

The findings based on the place of birth data collected in the 1971 census indicates that, 19092077 persons in Maharashtra were migrants which accounted for 37.87% of the total population in comparison to 30.42% in the whole of the country. This means they were enumerated outside from their place of birth, whether these were village, towns or cities. This number increased to 25870749 in 1981 census accounted for 41.20% of total population. The all India figure for the same was %. Thus we observe the significant proportion of total migration in Maharashtra.

Table 4.1

#### Percentage of Migrant Population

Types of Migration	Male		Female	
	1971	1981	1971	1981
Intra district migrants	12.54	13.71	29.97	30.87
Inter district migrants	9.24	10.52	11.86	13.95
Inter state migrants	7.35	7.62	5.61	6.41
<b>Total</b>	<b>47.37</b>	<b>51.17</b>	<b>29.03</b>	<b>31.83</b>

From the Table 4.1, it is evident that the percentage of female migrants to the total population leads in case of short distance migration. The lifetime migration, tabulated by place of birth separately for males and females,

revealed that male are predominated among the migrants. It was 47.37% in 1971 which increased to 51.7% in 1981. On the other hand among the females only 29.03% female population was counted as migrant in 1971 census which goes up to 31.83% in 1981 census.

Percentage of females among total migrants in case of intra district migration was 68.97% in 1971 and 67.84% in 1981. Among the inter district migrants the percentage of females to total migrants was 54.41% and 55.42% respectively for 71 and 81. And it was 41.57% (1971) and 43.92% (1981) among inter state migrants.

So this is evident that percentage of female migrants among the total migrants decreases as the distance of migration increases. Female migration is to a great extent short-distance migration. It is believed that marriage is the most important factor of this female migration as village exogamy in marriage is almost a rule according to which girls in general are married outside their native villages. This is the reason that the sex ratio is higher in favour of females among the intra-district migrants and less for inter-district and inter-state migrants.

As the basic objective of the present study is to relate migration with economic changes, we have concentrated on male migrants only as males are more responsive for economic opportunities. In Maharashtra the pull factor generated by economic opportunities attracts great influx of people. The concentration of industries, commerce, trade and other economic activities have

accelerated the process of economic development. It became a focal point offering economic opportunities, and people started migrating towards it from different parts of the country.

In Maharashtra too, Bombay has the biggest share of in migrants. It is apparent from Table 4.2 that the share of migrants to the total population is very high in Bombay district (53.74%) in 1971.

**Table - 4.2**

**SHARE OF MIGRANTS IN TOTAL POPULATION - 1971**

Name of Category	Categorisation	Percentage of migrants	Name of Districts.
Very high	above $\bar{X} + 2\sigma$	above 46.55	Bombay
Med. high	$\bar{X}$ to $\bar{X} + \sigma$	36.23-41.39	Thane, Nasik, Jalgaon, Ahmadnagar, Pune, Satara Sangli, Buldhana, Akola, Amravati, Yavatmal, Wardha, Chandrapur.
Med low	$\bar{X} - \sigma$ to $\bar{X}$	31.07-36.23	Nagpur, Bhandara, Ratnagiri, Dhule, Solapur, Kolhapur, Aurangabad, Parbhani, Nanded.
Low	below $\bar{X} - \sigma$	below 31.07	Raigad, Beed, Osmanabad

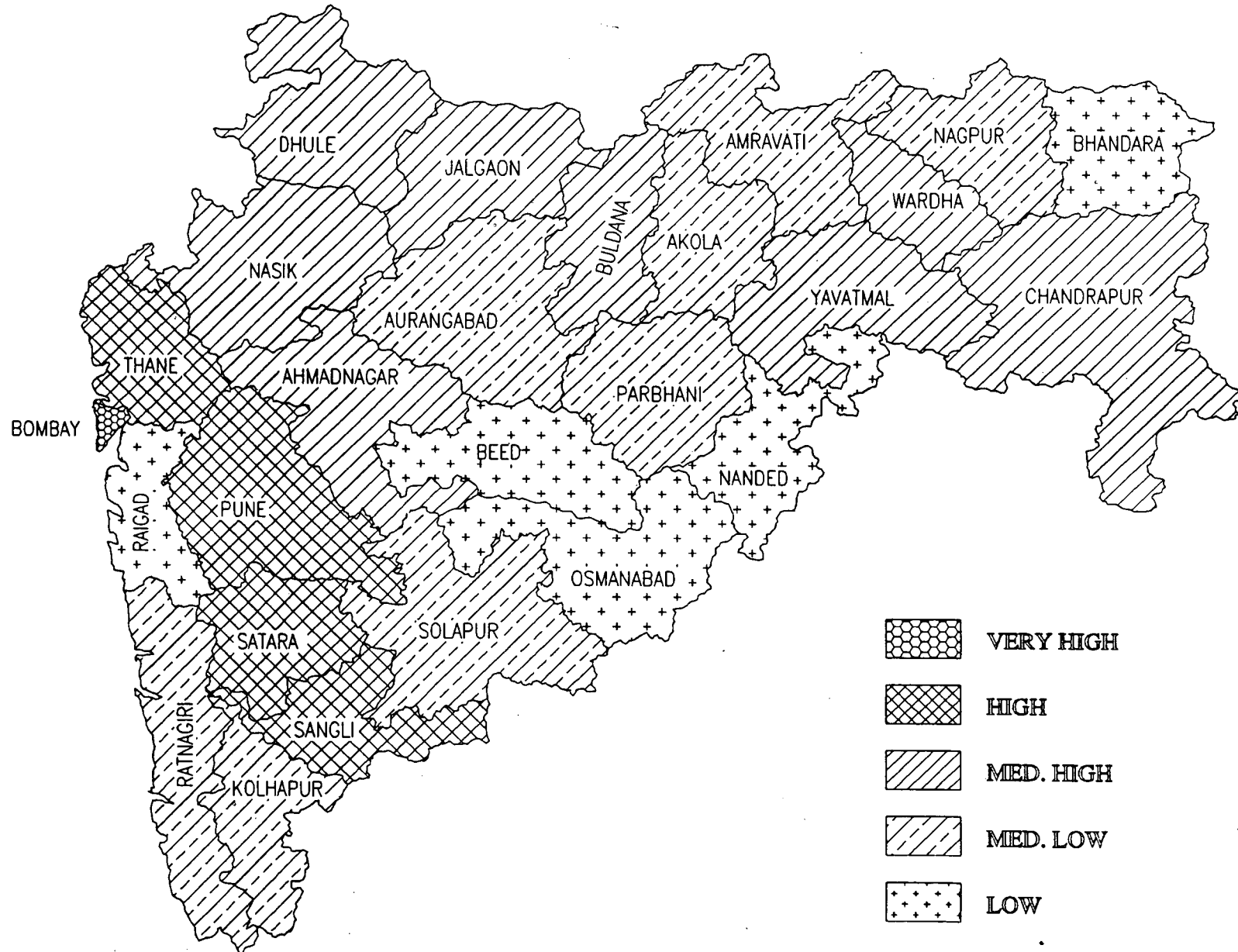
- Note: (i)  $\bar{X}$  refers to the arithmetic mean of the observations.  
(ii)  $\sigma$  refers to the standard deviation of the observations.  
(iii) The category  $\bar{X} + \sigma$  to  $\bar{X} + 2\sigma$ , described as 'high' has been omitted because there is no district in this range.

The regions with medium high share of migrants to the total population have three distinct zones, one comprises Thane, Nasik, Jalgaon, Ahmadnagar, Buldana, while the second includes Pune, Satara, Sangli, and the third consists of Akola, Amravati, Wardha, Nagpur, Chandrapur. The first and second zone are important for industrialization and they enjoy the locational advantage of being close to Bombay. The transport network facilitate the movement in these areas. The third zone is also industrially and agriculturally developed Central Maharashtra including, Parbhani, Aurangabad, Osmanabad, Beed and few patches like Bhandara, Dhule, Ratnagiri, Kolhapur have medium low to low share of migrants. These areas are not industrially developed and agriculture is also not important for commercial purpose. Surprisingly enough, the industrially and commercially developed district Nagpur (Table 5.4, 5.7) has medium low share of migrants (35.42%).

The pattern of 'share of migrants to total migrants' have changed in the year 1981. Bombay is still in the category of very high share of migrant. But Thane, Pune, Satara and Sangli have shifted to the category of high share of migrants. Other districts are showing more or less the same pattern. Thane, Pune, Satara and Sangli districts are the extension of Bombay-Pune industrial belt. The concentration of industries causing congestion in Bombay and the non-availability of land and high land prices are the main cause of development of this belt. The whole area is a continuous built up area along the rail-road corridors.

MAP 4.1

SHARE OF MIGRANTS IN TOTAL POPULATION 1981



**Table - 4.3**

**SHARE OF MIGRANTS IN TOTAL POPULATION - 1981**

Name of Category	Categorisation	Percentage of migrants	Name of Districts.
Very high	above $\bar{X} + 2\sigma$	above 48.46	Bombay
high	$\bar{X} + \sigma$ to $\bar{X} + 2\sigma$	44.11-48.46	Thane, Pune, Satara Sangli,
Med. high	$\bar{X}$ to $\bar{X} + \sigma$	39.76-44.11	Nashik, Dhule, Jalgaon, Yavatmal, Ahmadnagar, Buldana, Wardha, Chandrapur.
Med low	$\bar{X} - \sigma$ to $\bar{X}$	35.41-39.76	Ratnagiri, Solapur, Kolhapur, Aurangabad, Parbhani, Akola, Nagpur, Amravati.
Low	below $\bar{X} - \sigma$	below 35.41	Raigad, Beed, Nanded, Osmanabad, Bhandara

Note: (i)  $\bar{X}$  refers to the arithmetic mean of the observations.  
(ii)  $\sigma$  refers to the standard deviation of the observations.

From the Map 4.2 it is very clear that the districts falling in the industrial belt of Bombay-Pune, like Thane, Satara, Sangli and Kolhapur are the ones which are showing the high change in the share of migrants in total population. These districts accommodated the spurt in the growth of new industries, because the congestion in Bombay has given rise to a number of additional industrial areas. This area, which extends from Bombay right upto the foot of the Western Ghats, is a scene of intense economic activity and forms

the industrial hub of Maharashtra. Apart from the industrialization another region of high change in the share of migrants is the development of transport system. Bombay has shown a low change, because the area extending from Bombay is also the community zone, pulsating with daily flow and ebb of traffic. It seems that the flow of migrants are now choosing the districts with new economic opportunities and the areas with more infrastructural facilities. Bombay already had a high share of migrants for both the years. There is not much change in the share of migrants here.

**Table 4.4**

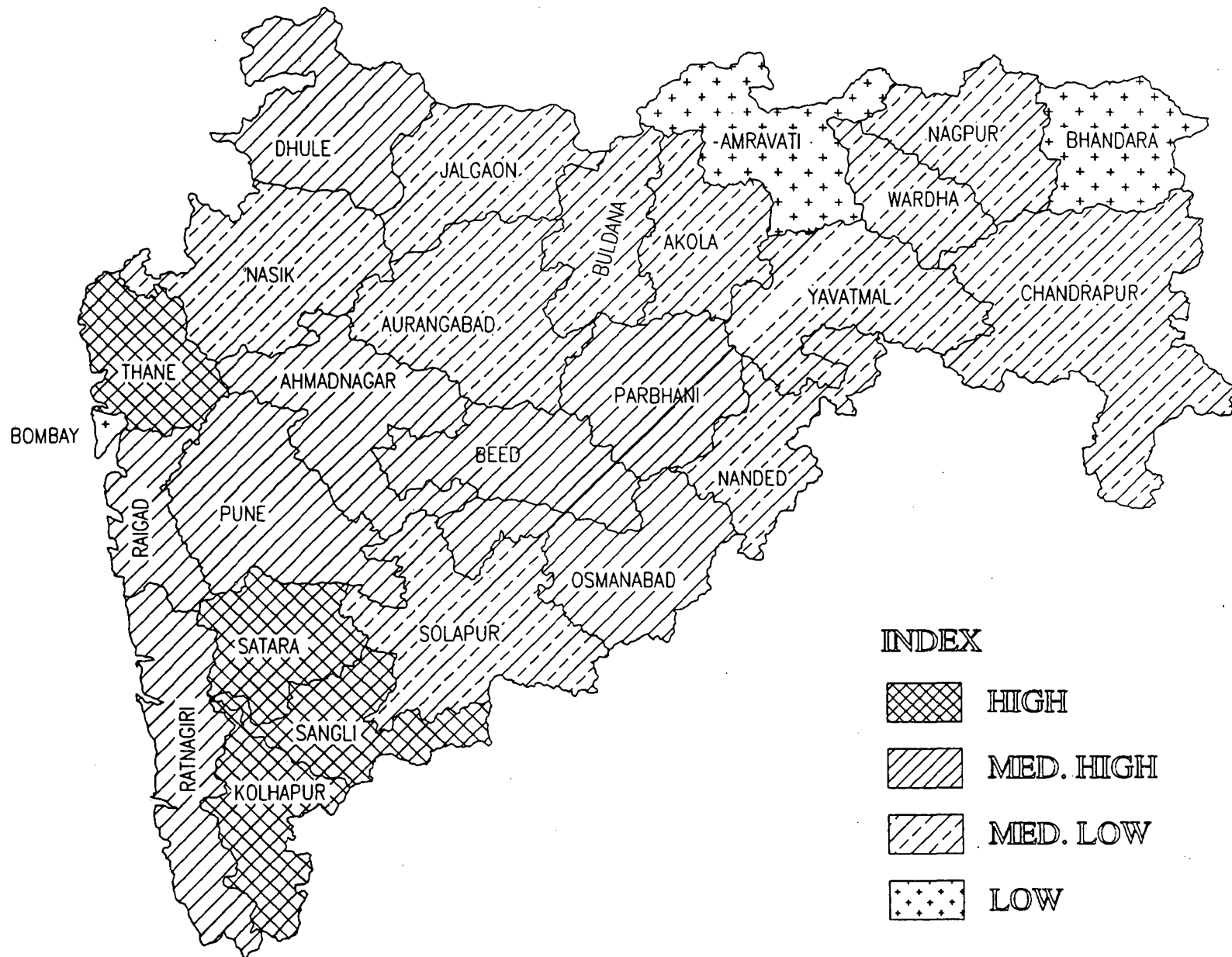
**CHANGE IN THE SHARE OF MIGRANTS IN TOTAL POPULATION - (1971-81)**

Name of Category	Categorisation	Percentage of migrants	Name of Districts.
high	above $\bar{X} + \sigma$	above 6.08	Thane, Satara Sangli,, Kolhapur,
Med. high	$\bar{X}$ to $\bar{X} + \sigma$	3.53-6.08	Raigad, Ratnagiri, Dhule, Ahmadnagar, Pune, Parbhani Beed, Osmanabad.
Med low	$\bar{X} - \sigma$ to $\bar{X}$	0.98-3.53	Nasik, Jalgaon, Solapur, Aurangabad, Nanded, Buldana, Akola, Yavatmal, Wardha, Nagpur, Chandrapur.
Low	below $\bar{X} - \sigma$	below 0.98	Bombay, Amravati, Bhandara.

Note: (i)  $\bar{X}$  refers to the arithmetic mean of the observations.  
(ii)  $\sigma$  refers to the standard deviation of the observations.

MAP 4.2

CHANGE IN THE SHARE OF MIGRANTS IN TOTAL POPULATION (1971-1981)





The pattern of share of male migrants in total male population during 1971 and 1981 has not changed much (Table 4.5, 4.6). In both the years Bombay is having very high share of male migrants. Pune in 1971 has medium share of male migrants (31.83%) and in 1981, it is in the category of high share of male migrants (47.03%).

**Table 4.5**

**SHARE OF MALE MIGRANTS IN TOTAL MALE POPULATION - 1971**

Name of Category	Categorisation	Percentage of migrants	Name of Districts.
Very high	above $\bar{X} + 2\sigma$	42.74	Bombay
high	$\bar{X} + \sigma$ to $\bar{X} + 2\sigma$	34.03-42.74	Thane
Med. high	$\bar{X}$ to $\bar{X} + \sigma$	25.32-34.03	Nasik, Dhule, Jalgaon Ahmadnagar, Pune, Satara, Akola, Amravati, Yavatmal, Wardha, Nagpur, Chandrapur.
Med low	$\bar{X} - \sigma$ to $\bar{X}$	16.61-25.32	Raigad, Ratnagiri, Solapur, Kolhapur, Aurangabad, Nanded, Buldhana, Bhandara.
Low	below $\bar{X} - \sigma$	16.61	Parbhani, Beed, Osmanabad.

Note: (i)  $\bar{X}$  refers to the arithmetic mean of the observations.  
(ii)  $\sigma$  refers to the standard deviation of the observations.

**Table 4.6**

**SHARE OF MALE MIGRANTS IN TOTAL  
MALE POPULATION - 1981**

Name of Category	Categorisation	Percentage of migrants	Name of Districts.
Very high	above $\bar{X} + 2\sigma$	43.37	Bombay
High	$\bar{X} + \sigma$ to $\bar{X} + 2\sigma$	35.75-43.37	Thane, Pune.
Med. high	$\bar{X}$ to $\bar{X} + \sigma$	28.15-35.76	Nasik, Dhule, Jalgaon Yavatmal, Satara, Sangli, Ahmadnagar, Wardha, Nagpur, Chandrapur.
Med low	$\bar{X} - \sigma$ to $\bar{X}$	20.54-28.14	Raigad, Ratnagiri, Solapur, Kolhapur, Aurangabad, Parbhani, Nanded, Buldhana, Akola, Amravati
Low	below $\bar{X} - \sigma$	20.54	Bhandara, Osmanabad, Beed

Note: (i)  $\bar{X}$  refers to the arithmetic mean of the observations.  
(ii)  $\sigma$  refers to the standard deviation of the observations.

Changes in the share of male migrants are shown in the Table 4.7. Again in the high category districts of Thane, Satara and Sangli have come up. As it was stated earlier also for Table 4.4 that these are the districts with more economic opportunities to attract people from all parts of the state and country. Bombay already has a very high share of migrants. It puts great pressure on space, civic amenities, housing, transport and also on the employment avenues. This congestion and competition led to the development

and growth of other districts in the hinterland. The development of rail and road network provided the easy influx of people.

**Table 4.7**

**CHANGE IN THE SHARE OF MALE MIGRANTS TO THE TOTAL MALE POPULATION (1971-81)**

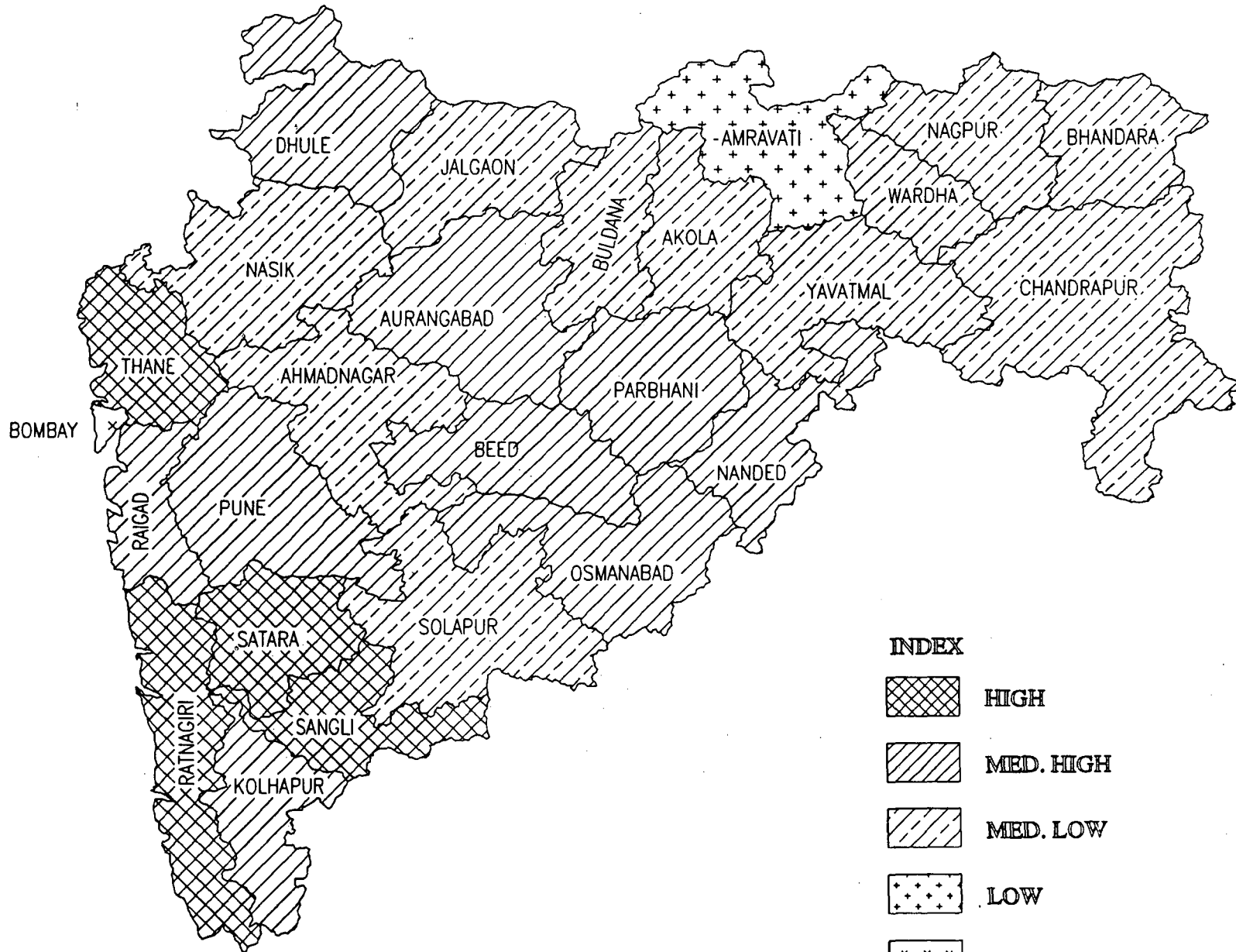
Name of Category	Categorisation	Percentage of migrants	Name of Districts.
High	above $\bar{X} + \sigma$	5.62 - 8.41	Thane, Ratnagiri, Satara, Sangli
Med. high	$\bar{X}$ to $\bar{X} + \sigma$	2.83 to 5.62	Raigad, Dhule, Pune, Kolhapur, Aurangabad, Parbhani, Beed, Nanded, Osmanabad.
Med low	$\bar{X} - \sigma$ to $\bar{X}$	0.04 to 2.83	Nasik, Jalgaon, Ahmadnagar, Solapur, Buldana, Akola, Yavatmal, Wardha, Nagpur, Bhandara, Chandrapur
Low	$\bar{X} - 2\sigma$ to $\bar{X} - \sigma$	2.75 to 0.04	Amravati
Very low	below $\bar{X} - 2\sigma$	-5.54 to -2.75	Bombay

Note: (i)  $\bar{X}$  refers to the arithmetic mean of the observations.  
(ii)  $\sigma$  refers to the standard deviation of the observations.

The pattern of male migrants to total male migrants and total migrants are more or less the same. So the share of male migrants to total migrants have been calculated to further reveal the process at work.

MAP 4.3

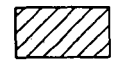
CHANGE IN THE SHARE OF MALE MIGRANTS TO TOTAL MALE POPULATION (1971-1981)



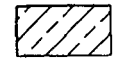
INDEX



HIGH



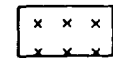
MED. HIGH



MED. LOW



LOW



VERY LOW

The sex composition of the migrants is expected to throw better light on the causes and process of migration because the factors leading to migration of males and females are quite different, particularly in India. The males generally migrate on account of economic causes while the females change their place of residence mostly due to social causes (for example marriage migration).

It is obvious from Table 4.8 and 4.9 that Bombay is the most attractive district for the male migrants followed by Pune, Thane. All these areas are economically more attractive on account of industrialization and commercial agriculture.

**Table 4.8**  
**SHARE OF MALE MIGRANTS TO TOTAL MIGRANTS - 1971**

Name of Category	Categorisation	Changes in Number of male migrants	Name of Districts.
Extremely high	above $\bar{X} + 3\sigma$	above 59.44	Bombay
High	$\bar{X} + \sigma$ to $\bar{X} + 2\sigma$	43.22-51.33	Thane
Med high	$\bar{X}$ to $\bar{X} + \sigma$	35.11-43.22	Nasik, Dhule, Jalgaon, Ahmadnagar, Pune, Solapur, Akola, Amravati, Yavatmal, Wardha, Nagpur, Chandrapur
Med. high	$\bar{X} - \sigma$ to $\bar{X}$	27.00-35.11	Raigad, Satara, Sangli, Kolhapur, Nanded, Buldana, Bhandara
Low	below $\bar{X} - \sigma$	below 27.00	Ratnagiri, Aurangabad, Parbhani, Beed, Osmanabad

- Note: (i)  $\bar{X}$  refers to the arithmetic mean of the observations.  
(ii)  $\sigma$  refers to the standard deviation of the observations.  
(iii) The category  $\bar{X} + 2\sigma$  to  $\bar{X} + 3\sigma$ , described as very high, has been omitted here as there is no district in this range.

It is obvious from Map 4.4 that the areas of high share of male migrants form three distinct zones. The first extends from Ahmadnagar to Dhule including Nasik, the second comprises the district of Satara and the third zone includes Amravati, Wardha, Nagpur and Yavatmal. The first two are traditionally developed areas (Table 4.8), both on account of settling up of a number of industries and other commercial activities. These areas are also agriculturally developed which promoted the development of agro-based industries. The third zone is also industrially developed (Map.5.2). However, the adjoining regions around these areas have medium low to medium high share of male migrants. Change in the share of male migrants to total migrants is shown in the Table 4.10. The change in share of male migrants varies from - 2.92% in Bombay to 4.27% in Aurangabad. Most of the districts of Maharashtra have experienced a negative change in the share of male migrants except a few. The higher positive change in the share of male migrants has been recorded in the medium or less developed districts of Maharashtra. Moreover, the industrial and commercial hub around Bombay has recorded one of the highest negative changes in the share of male migrants during 1971-81.

The above studies indicate that the areas having a higher share of male migrants are those which are industrially developed (Map 5.2) or developed in commercial agriculture, attracting migrants on accounts of economic causes.

**Table 4.9**

**SHARE OF MALE MIGRANTS TO TOTAL MIGRANTS-1981**

Name of Category	Categorisation	Percentage of migrants	Name of Districts
Extremely high	above $\bar{X} + 3\sigma$	above 59.44	Bombay
High	$\bar{X} + \sigma$ to $\bar{X} + 2\sigma$	42.79-49.87	Pune, Thane
Med high	$\bar{X}$ to $\bar{X} + \sigma$	35.71-42.79	Nasik, Dhule Ahmadnagar, Satara, Amravati, Yavatmal, Wardha, Nagpur, Chandrapur
Med low	$\bar{X} - \sigma$ to $\bar{X}$	28.63-35.77	Raigad, Jalgaon, Satara, Solapur, Kolhapur, Nanded, Aurangabad, Buldana, Akola
Low	below $\bar{X} - \sigma$	below 28.63	Ratnagiri, Parbhani, Beed, Osmanabad, Bhandara

- Note: (i)  $\bar{X}$  refers to the arithmetic mean of the observations.  
(ii)  $\sigma$  refers to the standard deviation of the observations.  
(iii) The category  $\bar{X} + 2\sigma$  to  $\bar{X} + 3\sigma$ , described as very high, has been omitted as there is no district in this range.

**Table 4.10**

**CHANGE IN THE SHARE OF MALE MIGRANTS TO TOTAL  
MIGRANTS (1971-81)**

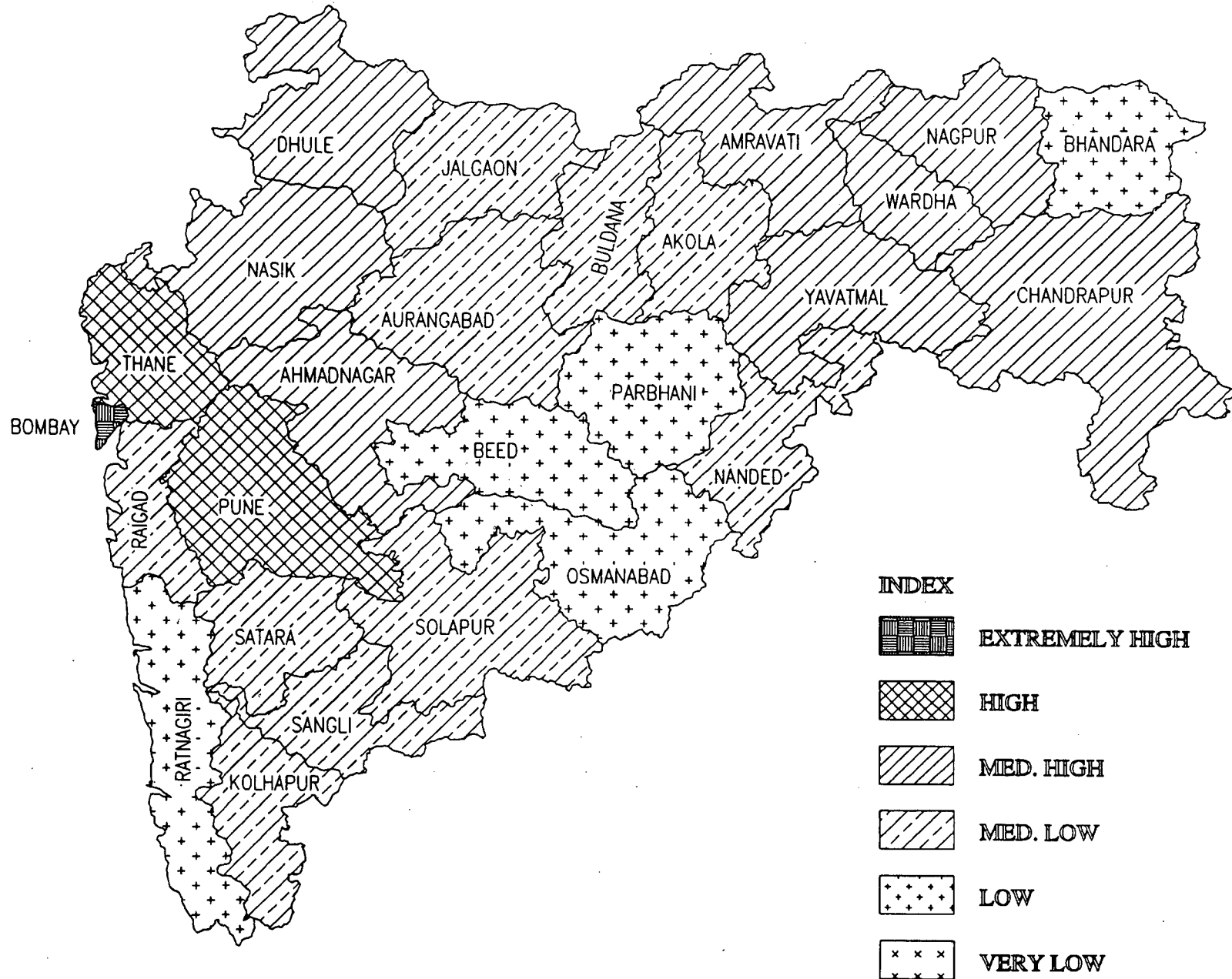
Name of Category	Categorisation	Change in share of male migrants	Name of Districts.
Very high	above $\bar{X} + 2\sigma$	above 3.14	Ratnagiri, Aurangabad.
High	$\bar{X} + \sigma$ to $\bar{X} + 2\sigma$	2.37-3.14	Raigad, Beed
Med. high	$\bar{X}$ to $\bar{X} + \sigma$	0.60-2.37	Satara, Nanded, Thane, Pune, Sangli, Parbhani, Nagpur, Osmanabad.
Med. low	$\bar{X} - \sigma$ to $\bar{X}$	-1.17 - 0.60	Nasik, Ahmadnagar, Solapur, Kolapur, Buldana, Chandrapur, Yavatmal, Wardha, Bhandara.
Low	below $\bar{X} - \sigma$	-1.17	Bombay, Dhule, Jalgaon, Akola, Amravati.

Note: (i)  $\bar{X}$  refers to the arithmetic mean of the observations.  
(ii)  $\sigma$  refers to the standard deviation of the observations.



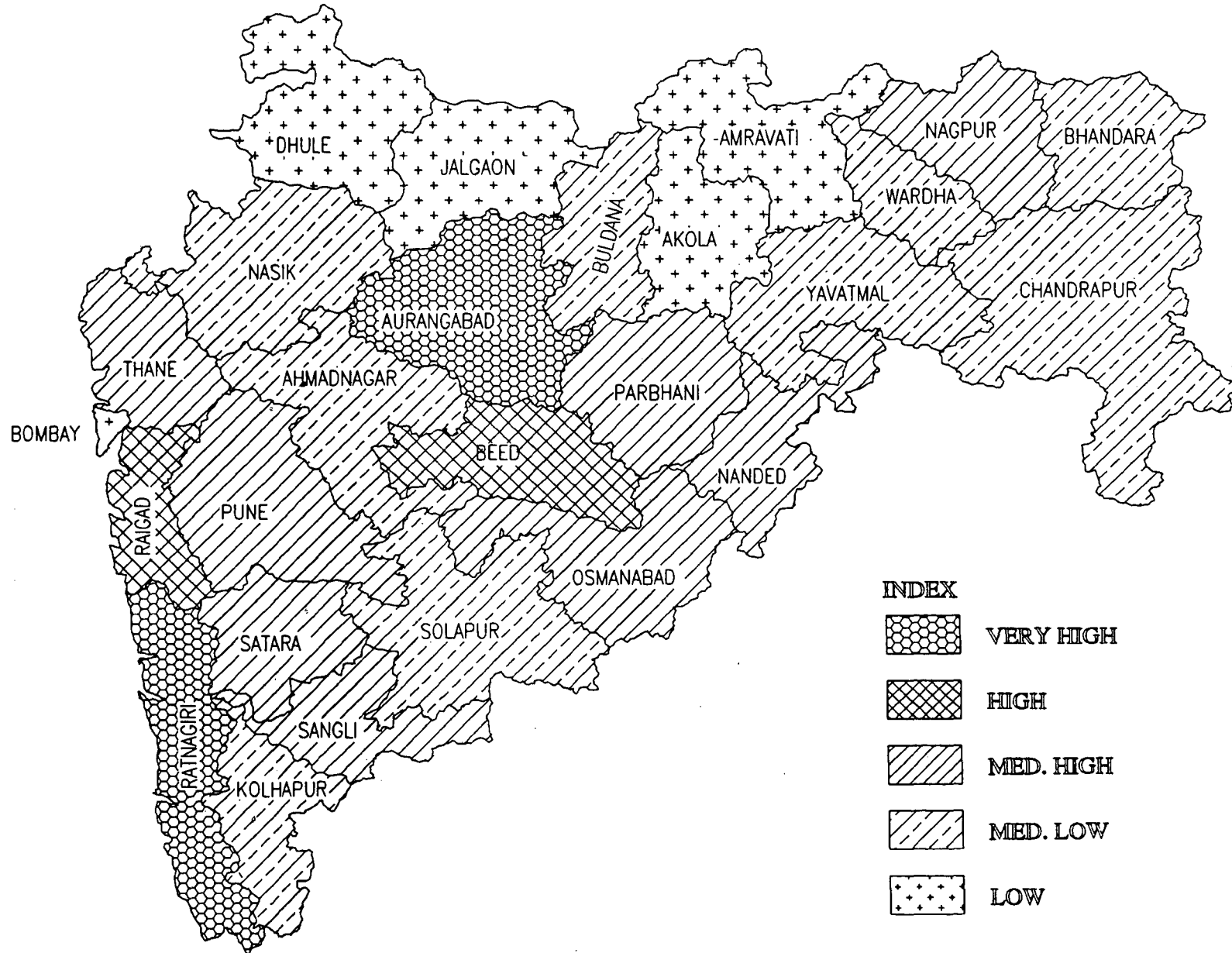
MAP 4.4

SHARE OF MALE MIGRANTS TO TOTAL MIGRANTS -1981



MAP 4.5

CHANGE IN SHARE OF MALE MIGRANTS TO TOTAL MIGRANTS (1971-1981)



The regional pattern of change in number of male migrants in the period 1971-81 is shown in the Table 4.11 Bombay experiencing the extremely high change is followed by very high increase in Thane and high change of male migrants in Pune. The districts of Nasik, Satara, Solapur, Nagpur have recorded medium high change in number of male migrants. All the other districts are in the category of medium low.

**Table 4.11**

**CHANGE IN NUMBER OF MALE MIGRANTS (1971-81)**

Name of Category	Categorisation	Change in Number of male migrants	Name of Districts
Extremely high	above $\bar{X} + 3\sigma$	above 390556	Bombay
Very high	$\bar{X} + 2\sigma$ to $\bar{X} + 3\sigma$	294922-390556	Thane
high	$\bar{X} + \sigma$ to $\bar{X} + 2\sigma$	199289-294922	Pune
Med. high	$\bar{X}$ to $\bar{X} + \sigma$	103655-199289	Nasik, Satara, Solapur, Nagpur
Med. Low	below $\bar{X}$	below 103655	Raigad, Ratnagiri, Dhule, Jalgaon, Ahmadnagar, Sangli, Kolhapur, Aurangabad, Beed, Parbhani, Nanded, Buldana. Osmanabad, Akola, Amravati, Yavatmal, Wardha, Bhandara, Chandrapur.

Note: (i)  $\bar{X}$  refers to the arithmetic mean of the observations.  
(ii)  $\sigma$  refers to the standard deviation of the observations.

The percentage increase in migrants during 1971-81 is shown in the Table 4.12. The pattern of increase in migrants would further clarify the process. Thane recorded an extremely high increase, followed by Pune experiencing a high increase in migrants. Improved power position in Maharashtra, after the commissioning of Koyna hydroelectric project, and plenty of water from the Western Ghat region have worked as a positive influence in the growth of industries in Bombay-Pune region.

**Table 4.12**

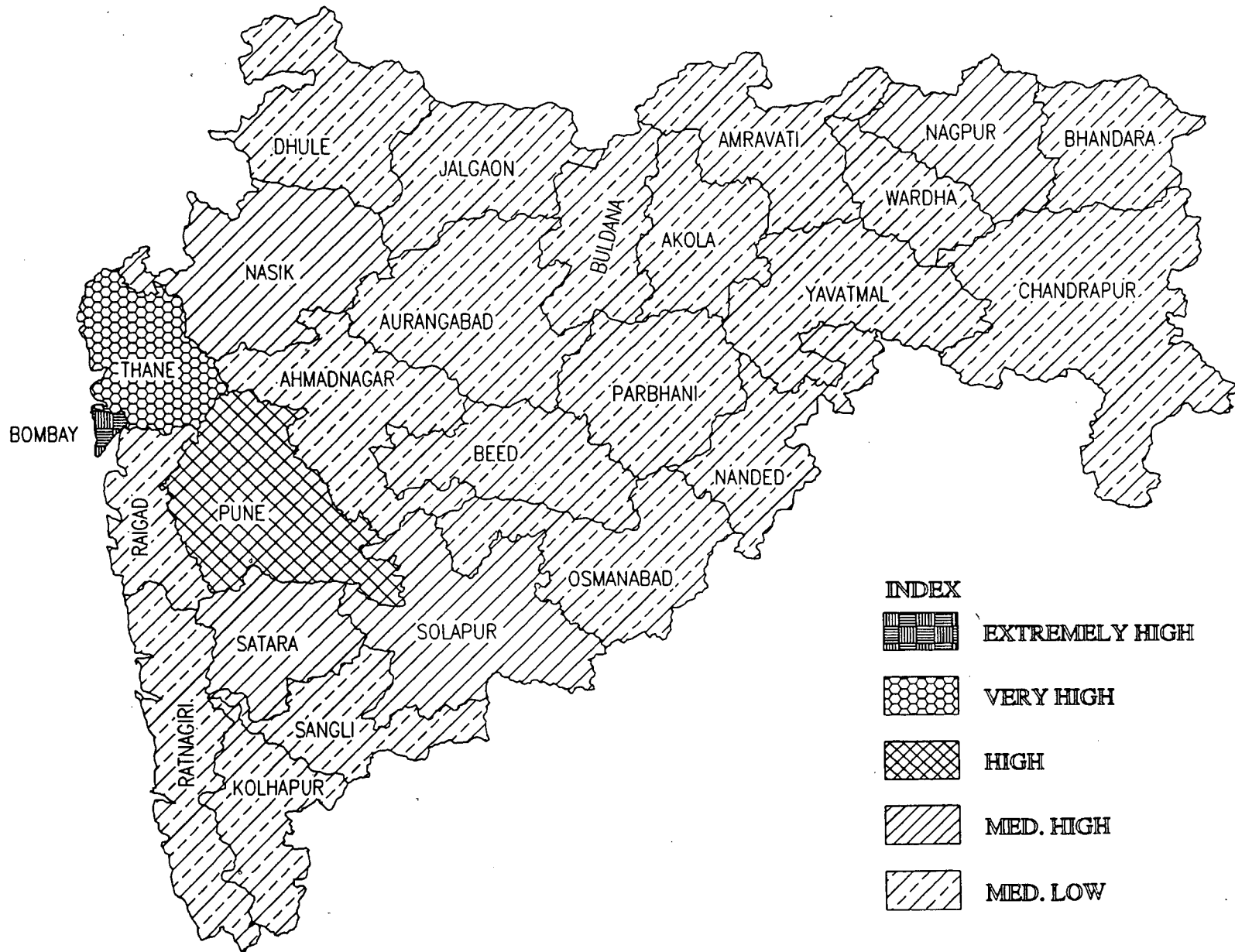
**PERCENTAGE INCREASE IN MIGRANTS**

Name of Category	Categorisation	Percentage change of migrants	Name of Districts
Extremely high	above $\bar{X} + 3\sigma$	above 68.64	Thane
High	$\bar{X} + \sigma$ to $\bar{X} + 2\sigma$	46.64-57.40	Pune
Med high	$\bar{X}$ to $\bar{X} + \sigma$	35.22-46.36	Dhule, Satara, Sangli, Kolhapur, Aurangabad Parbhani, Beed, Nanded, Nagpur, Osmanabad.
Med low	$\bar{X} - \sigma$ to $\bar{X}$	24.08-35.22	Bombay, Raigad, Nasik, Jalgaon, Ahmadnagar, Solapur, Buldana, Akola, Yavatmal, Chandrapur,
Low	below $\bar{X} - \sigma$	below 24.08	Amravati, Wardha, Bhandara, Ratnagiri

- Note: (i)  $\bar{X}$  refers to the arithmetic mean of the observations.  
(ii)  $\sigma$  refers to the standard deviation of the observations.  
(iii) The category  $\bar{X} + 2\sigma$  to  $\bar{X} + 3\sigma$ , describes as very high, has been omitted because there is no district in this range.

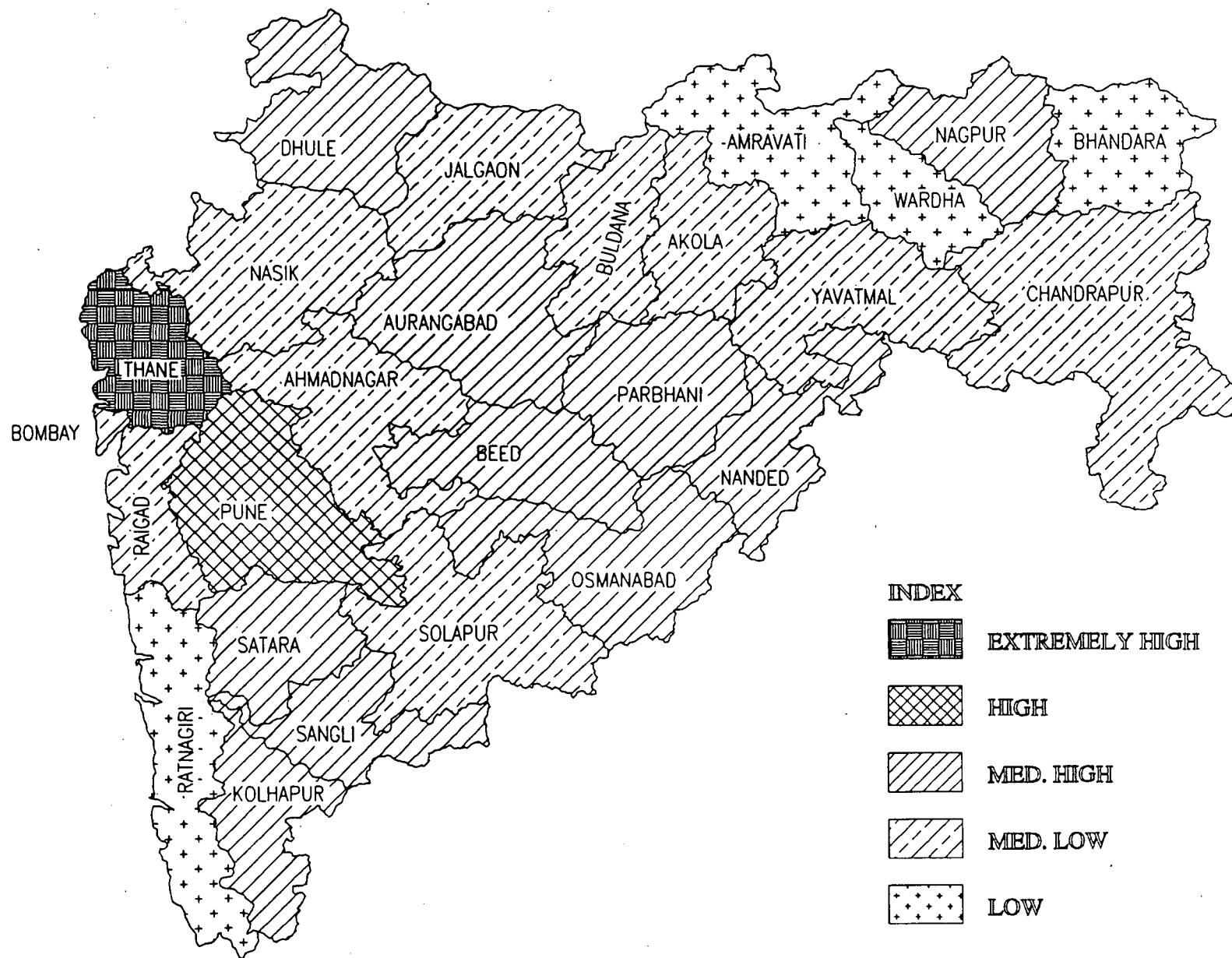
MAP 4.6

CHANGE IN NUMBER OF MALE MIGRANTS (1971-1981)



MAP 4.7

PERCENTAGE INCREASE IN MIGRANTS (1971-1981)



In the category of medium high, we have two distinct zones. The first includes Satara, Sangli, Kolhapur, Aurangabad, Nagpur, while the second has Parbhani, Beed, Nanded, Osmanabad. The first one is industrially very developed and already offering economic opportunities to the migrants. But the second is not industrially developed. Bombay and other districts close to Bombay are showing medium low percentage increase in migrants.

On the basis of distance covered, the total internal migration have been classified into three categories - intra-district, inter-district and inter-state migrants. Intra-district migrants are those who have migrated within a district, inter-district migrants are those who have migrated from one district to the another but within the state of enumeration while inter-state migrants are those who have migrated from one state to the other.

When we consider the distance covered by male migrants, the share of short distance migrants is lower. However, the same belt has higher proportion of long distance male migrants. Percentage of male migrants classified by distance covered for 1971, is shown in Table 4.13. The very high share of long distance male migrants are in the districts of Bombay, Thane, Pune, Kolhapur and Nagpur. In medium distance or inter-district migration, Bombay, Thane, Ratnagiri, Ahmadnagar, Pune, Aurangabad, Akola, Wardha and Nagpur have the highest share of migrants. The districts of Dhule, Jalgaon, Sholapur, Kolhapur, Osmanabad. Yavatmal, Bhandare, Chandrapur shows a very low share of migrants. Dhule, Jalgaon, Panbhani, Beed, Osmanabad (see table

4.13) have very high share of short distance migrants (above 67.27% of the total migrants). In contrast Thane, Pune, Nagpur have low share of short distance (intra-district) migrants (below 56.35%).

**Table 4.13**

**MALE MIGRANTS CLASSIFIED BY DISTANCE COVERED - 1971**

<b>Distance of Migration</b>	<b>Very high (Above <math>\bar{X} + 1/2 \sigma</math>)</b>	<b>Very low (Below <math>\bar{X} - 1/2 \sigma</math>)</b>
Short	Dhule, Jalgaon, Parbhani, Beed, Osmanabad, Buldana, Yavatmal, Bhandara, Chandrapur	Thane, Pune, Nagpur
Medium	Bombay, Thane, Ratnagiri, Ahmadnagar, Pune, Aurangabad, Akola, Wardha, Nagpur	Dhule, Jalgaon, Solapur, Kolhapur, Osmanabbad, Yavatmal, Bhandara, Chandrapur
Long	Bombay, Thane, Pune, Kolhapur, Nagpur	Ratnagiri, Jalgaon, Ahmadnagar, Satara, Aurangabad, Parbhani, Beed, Buldana, Akolla, Yauatmal, Wardha

Note: i)  $\bar{X}$  refers to the arthimatic mean of the observations.  
 ii)  $\sigma$  refers to the standard deviation of the observations.

Male migrants classified by distance covered in 1981 is shown in Table 4.14. The long distance migrants are prominent only in Bombay, Thane, Kolhapur and Nagpur. This belt is industrially developed and agriculturally prosperous. The districts in the category of very low share of male migrants



are not industrially very developed except Satara. The medium distance (inter-district) migrants are also having a high share in economically attractive areas of Bombay, Thane, Pune and Wardha. The short distance migrants are prominent in districts of Nasik, Dhule, Jalgaon (See Table 4.14).

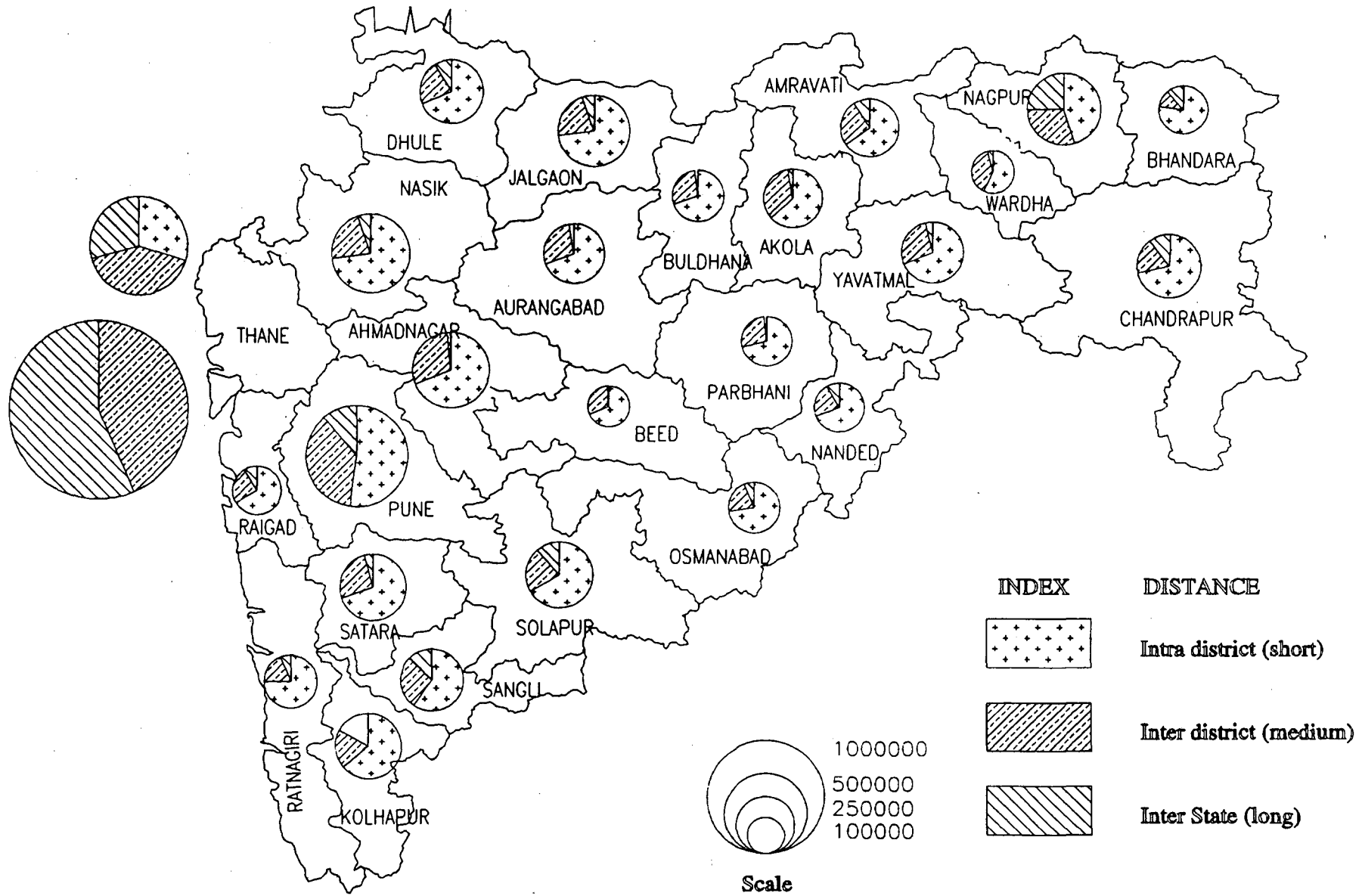
It is obvious from the above discussion that the economically attractive area has a lower proportion of short distant migrants. The regional pattern of the male migrants classified by distance reveals that most of the developed districts of the study area are on the top in the hierarchy of medium and long distance migration of males.

The changes in the share of male migrants in short, medium and long distance migration is shown in the Table.4.15. Thane, Raigad, Ratnagiri, Nagpur has recorded the highest change in long distance migrants. Nasik, Pune on the other hand recorded less positive change in the share of long distance migrants.

The medium distance male migrants also show almost similar temporal pattern as that of the long migrants.

Total migrants can conveniently be classified into four groups on the basis of direction of movement. These are rural to rural, rural to urban, urban to urban and urban to rural migrations. Since rural to urban and urban to urban migration are more important from economic point of view, a study along this line becomes important.

MAP 4.8  
 MALE MIGRANTS CLASSIFIED BY DISTANCE COVERED 1981



MAP 4.9

CHANGE IN THE SHARE OF MIGRANTS CLASSIFIED BY DISTANCE COVERED -1971-81

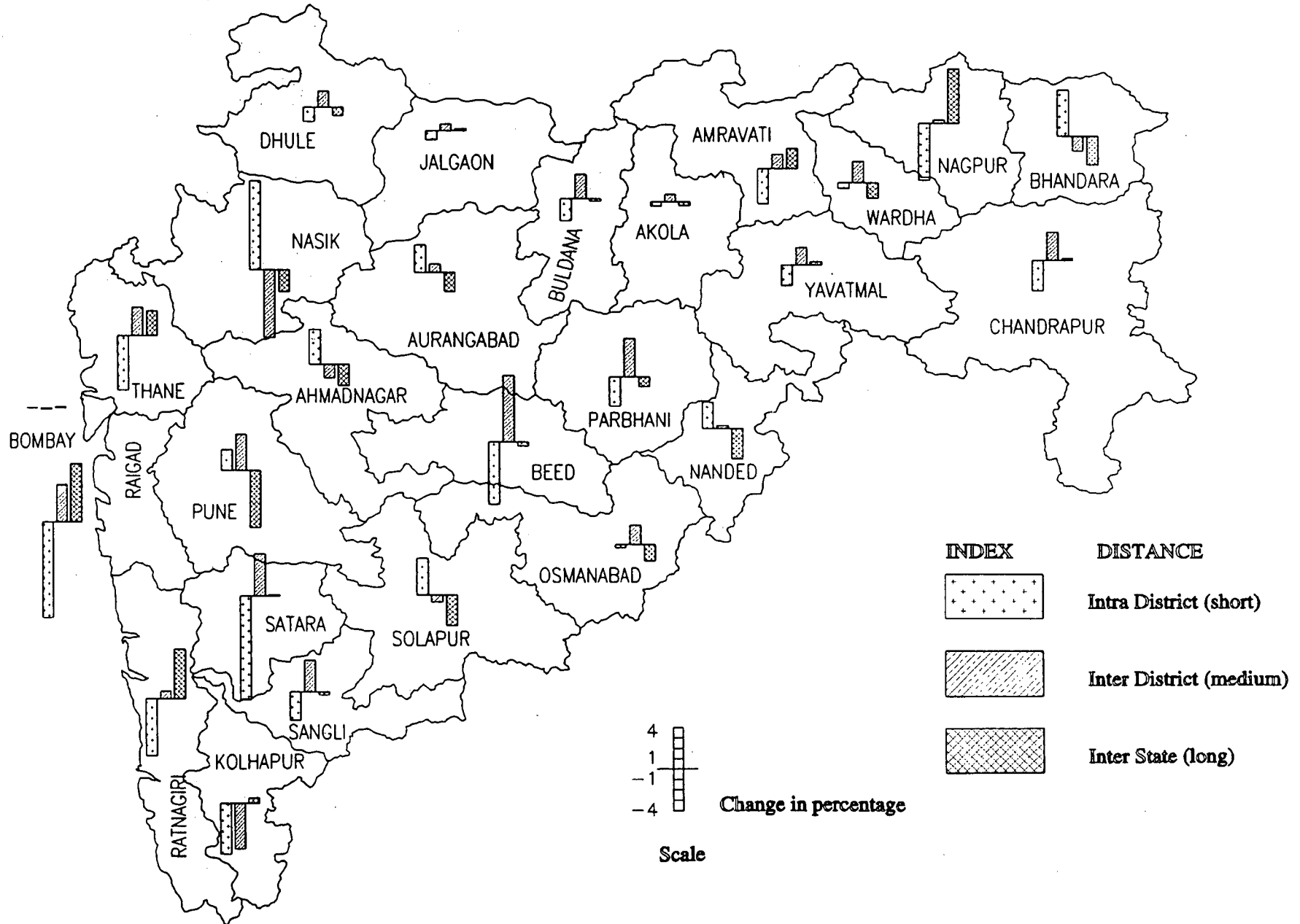


Table 4.14

MALE MIGRANTS CLASSIFIED BY DISTANCE COVERED-1981

Distance of Migration	Very high (Above $\bar{X} + 1/2 \sigma$ )	Very low (Below $\bar{X} - 1/2 \sigma$ )
Short	Nasik, Dhule, Jalgaon, Parbhani, Osmanabad, Buldana, Yavatmal, Bhandara	Bombay, Thane, Pune, Nagpur
Medium	Bombay, Thane, Ratnagiri, Pune, Aurangabad, Akola, Wardha	Nasik, Dhule, Jalgaon, Solapur, Kolhapur, Osmanabad, Bhandara, Chandrapur
Long	Bombay, Thane, Kolhapur, Nagpur	Jalgaon, Ahmadnagar, Satara, Aurangabad, Parbhani, Beed, Buldana, Akola, Yavatmal

Note: i)  $\bar{X}$  refers to the arthimatic mean of the observations.  
 ii)  $\sigma$  refers to the standard deviation of the observations.

Table 4.15

CHANGE IN THE SHARE OF MALE MIGRANTS CLASSIFIED BY DISTANCE COVERED-1981

Distance of Migration	Very high (Above $\bar{X} + 1/2 \sigma$ ).	Very low (Below $\bar{X} - 1/2 \sigma$ ).
Short	Ahmadnagar, Pune, Solapur, Aurangabd, Nanded, Bhandara	Thane, Raigad, Ratnagiri, Satara, Kolhapur, Beed, Nagpur
Medium	Thane, Raigad, Pune, Satara, Sangli, Parbhani Beed, Chandrapur	Nasik, Ahmadnagar, Solapur, Kolhapur, Bhandara
Long	Thane, Raigad,, Ratnagiri, Amravati, Nagpur	Nasik, Ahmadnagar, Pune, Solapur, Aurangabad, Nanded, Osmanabd, Bhandara

Note: i)  $\bar{X}$  refers to the arthimatic mean of the observations.  
 ii)  $\sigma$  refers to the standard deviation of the observations.

The spatial pattern of the migrants classified by streams of movement in 1981 shows that the districts of Dhule, Ahmadnagar, Osmanabad, Buldana, Yavatmal, Bhandara, and Chandrapur are the districts with very high shares of rural to rural migrants. Bombay (72.33%) Nagpur (40.16%), Thane (36.55%) and Pune (36.07) experienced a very high level of rural to urban migration (Table 4.17). In contrast Raigad, Ratnagiri, Ahmadnagar, Satara, Yavatmal, Bhandara, Chandrapur have registered very low share of rural to urban male migrants (varies from 10% to 17%). In urban to urban migration, Bombay (27.67%), Thane, Pune, Nagpur districts are again the leaders while the same districts have low share of male migrants for rural to urban migration. As far as the urban to rural migration is concerned, Raigad, Ratnagiri, Satara experienced very high percentage of male migrants. As compared to them Bombay, Parbhani, Nagpur have very low share of male migrants in urban to rural migration. The pattern for 1971 and 1981 is almost the same (Table 4.16 and Table 4.17).

As far as the regional pattern of Change in males' share in rural to rural migration is concerned, Ratnagiri (4.23%), Satara (3.02%), Solapur, Buldana, Wardha (2.06) and Nagpur (3.66%) are characterized by very high positive change (Table 4.18). In contrast, Thane, Raigad, Nasik, Kolapur etc. experienced a very slow change (less than - 1.295%).

**Table 4.16****MIGRANTS CLASSIFIED BY STREAMS OF MOVEMENTS-1971**

Types of Migration	Very High (above $\bar{X} + 1/2 \sigma$ )	Very Low (below $\bar{X} - 1/2 \sigma$ )
R - R	Dhule, Ahmadnagar, Osmanabad, Buldana, Yavatmal, Bhandara, Chandrapur	Bombay, Thane, Pune, Nagpur
R - U	Bombay, Thane, Pune, Nagpur	Raigad, Ratnagiri, Ahmadnagar, Satara, Yavatmal, Bhandara, Chandrapur
U - U	Bombay, Thane, Pune, Nagpur	Ratnagiri, Dhule, Ahmadnagar, Satara, Sangli, Beed, Omsnadeed, Buldana, Yavatmal, Bhandara, Chandrapur
U - R	Raigad, Ratnagiri, Satara	Bombay, Parbhani, Nanded, Nagpur, Chandrapur

Note: (i)  $\bar{X}$  refers to the arithmetic mean of the observations.  
(ii)  $\sigma$  refers to the standard deviation of the observations.

Table 4.17

MIGRANTS CLASSIFIED BY STREAMS OF MOVEMENTS - 1981

Types of Migration	Very High (above $\bar{X} + 1/2 \sigma$ )	Very Low (below $\bar{X} - 1/2 \sigma$ )
R - R	Dhule, Ahmadnagar, Satara, Buldana, Yavatmal, Bhandara, Chandrapur	Bombay, Thane, Pune, Nagpur
R - U	Bombay, Thane, Pune, Nagpur	Raigad, Ratnagiri, Ahamadnagar, Satara, Yavatmal, Buldana, Chandrapur
U - U	Bombay, Thane, Nasik Pune, Nagpur	Ratnagiri, Dhule, Ahmadnagar, Satra, Omsnadeed, Buldana, Yavatmal, Bhandara, Chandrapur
U - R	Raigad, Ratnagiri, Satara	Bomaby, Dhule, Parbhani, Nanded, Nagpur, Aurangabad

Note: (i)  $\bar{X}$  refers to the arithmetic mean of the observations.  
(ii)  $\sigma$  refers to the standard deviation of the observations.

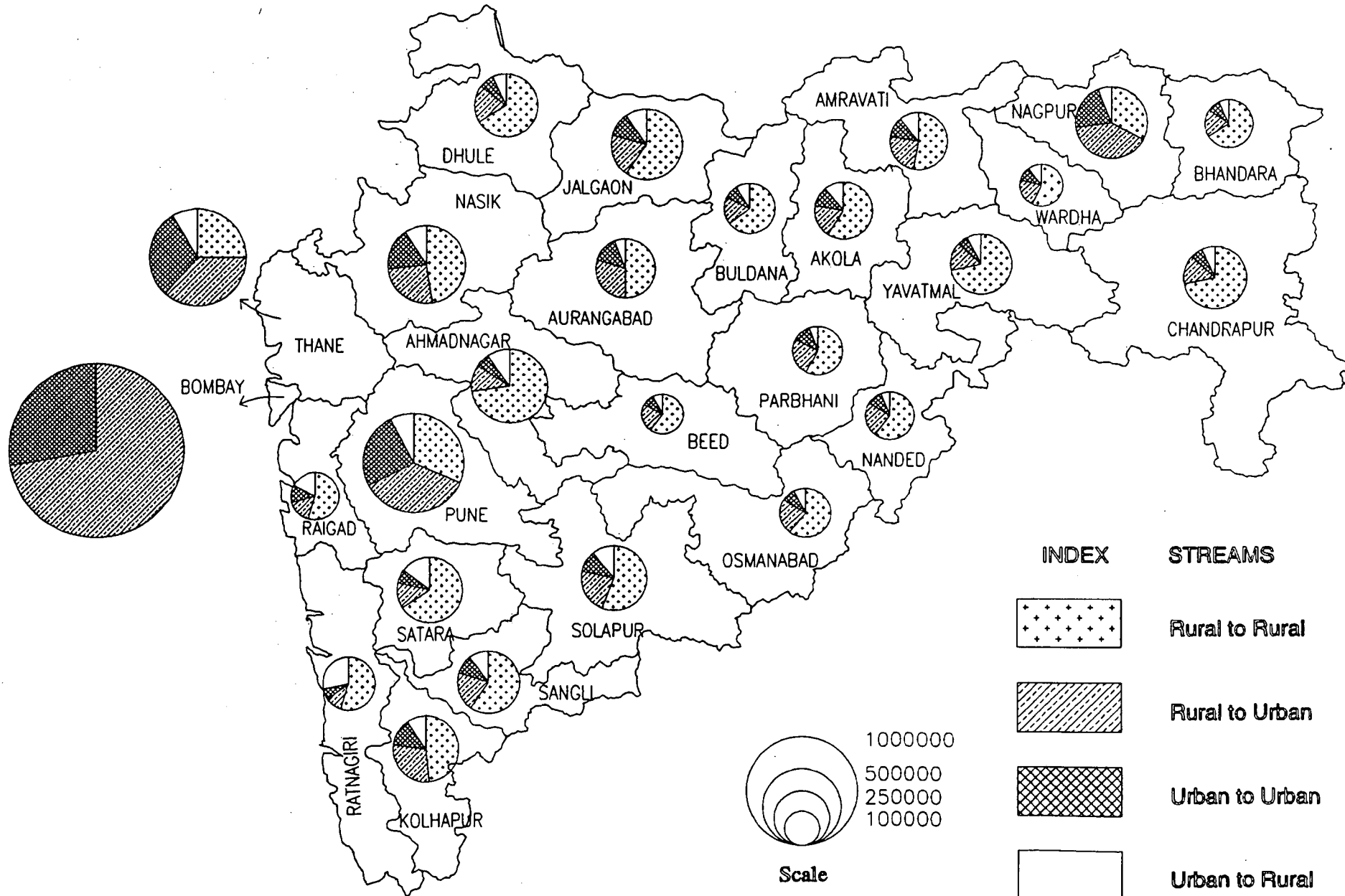
Table 4.18

CHANGE IN MIGRANTS CLASSIFIED BY STREAMS OF MOVEMENTS, 1971-1981

Types of Migration	Very High (above $\bar{X} + 1/2 \sigma$ )	Very Low (below $\bar{X} - 1/2 \sigma$ )
R - R	Ratnagiri, Satara, Solapur, Buldana, Wardha, Nagpur	Chandrapur, Thane, Raigad, Nasik, Kolapur, Aurangabad, Parbhani, Beed, Nanded, Osmanabad, Amravati, Yavatmal
R - U	Thane, Nasik, Aurangabad, Parbhani, Osmanabad, Yavatmal, Bhandara, Chandrapur	Ratnagiri, Ahamadnagar, Satara, Solapur, Buldana, Akola, Wardha
U - U	Nasik, Ahmadnagar, Sangli, Kolhapur, Aurangabad, Parbhani, Beed, Nanded	Bombay, Ratnagiri, satara, Solapur, Wardha, Nagpur
U - R	Nasik, Jalgaon, Satara, Solapur, Nanded, Buldana, Amravti, Wardha	Thane, Dhule, Kolhapur, Aurangabad, Parbhani, Beed, Nagpur, Bhandara

Note: (i)  $\bar{X}$  refers to the arithmetic mean of the observations.  
(ii)  $\sigma$  refers to the standard deviation of the observations.

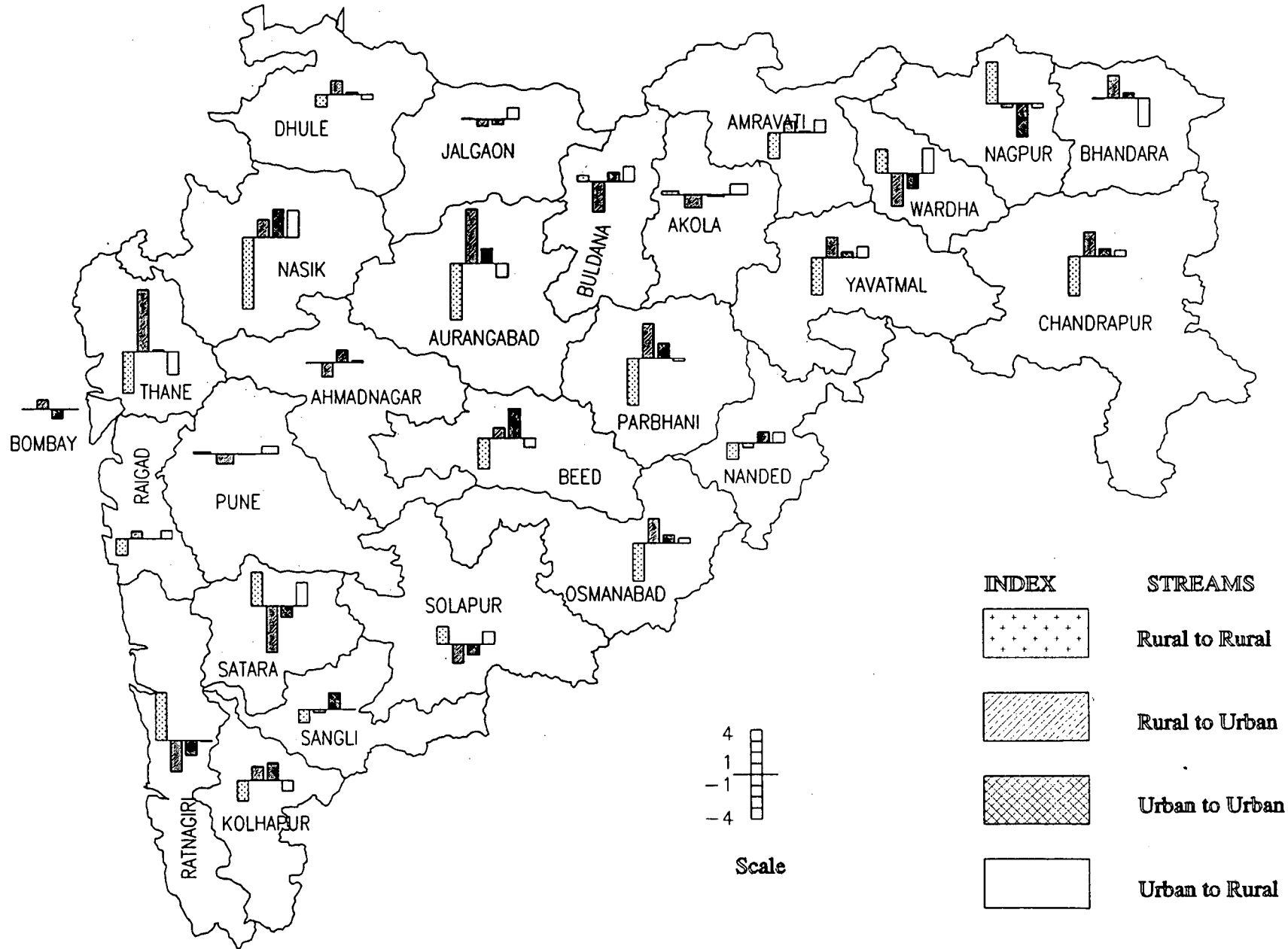
**MAP 4.10**  
**SHARE OF MIGRANTS CLASSIFIED BY STREAMS OF MOVEMENTS 1971-81**





# MAP 4-11

## CHANGE IN THE SHARE OF MIGRANTS CLASSIFIED BY STREAMS OF MOVEMENTS -1971-81



In rural to urban migration, Nasik, Ahmadnagar, Sangli, Kolhapur, Aurangabad, Parbhani etc (Map 4.11) exhibited very high positive change (1.53%) in the share of male migrants. In contrast Ratnagiri, Ahmadnagar, Satara Solapur, Buldana, Akola, Wardha recorded a very low change in the share of male migrants (less than - 0.71%).

In urban to urban migration Nasik, Ahmadnagar, Sangli, Kolhapur, Aurangabad, Parbhani, Beed, Nanded recorded a very high positive change in share of male migrants (above + 0.90%). As compared to them Bombay, Ratnagiri, Satara, Solapur, Wardha, Nagpur have the highest negative change (below - 0.6%). In urban to rural migration Nasik, Jalgaon, Satara, Solapur, Nanded, Buldana, Amravati, Wardha show a very high change in the share of male migrants (above + 0.92%). As compared to them Thane, Dhule, Kolhapur, Aurangabad, Parbhani, Beed, Nagpur, Bhandara recorded a negative change (below - 0.2%).

The above study shows that the already developed or recently developed areas such as Bombay, Thane, Raigad, Nagpur, Wardha have received a high share of migrants in every aspect of migration. The pull factor seems to be working in big industrial and commercial centers. People go in search of jobs into industry, trade, banking, communications, public and private sector. The districts where these are developed, can be identified as Bombay, Thane, Pune, Nagpur etc.

## CHAPTER 5

### LEVELS OF ECONOMIC DEVELOPMENT

The population migration is, to a great extent, a result of regional disparities in the levels of economic development. The massive movements of peoples taking place today within as well as across national boundaries are due to major structural transformation in the economies of developed and Third World countries.<sup>1</sup> Industrialization, by establishing new forms of economic organizations, developing certain areas, causing overcrowding in others, and provoking widespread economic and social imbalance, has resulted in a heavy shift in population, both on national and on the international level. Recently the flow of international migration has slowed down, and internal migration now accounts for principal movement of population.<sup>2</sup> People move out from areas where employment opportunities are scarce, and are attracted to the industrially developed areas. So the extent and pattern of migration flows are explained by employment. Therefore, regional disparity in economic development has become an extremely sensitive issue. It is against this background that an attempt is

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<sup>1</sup> Safe, H.I, et.al. (1975); *Migration and Development Implications for Ethnic Identity and Political Conflict*, Monton Publishers, The Hague, Paris.

<sup>2</sup> Becker, B.K. (1971): "*Internal Migration in Brazil as Evidence of Unbalanced Economic Structure*", Proceedings of the Symposium on Population Geography, 21st International Geographical Congress, New Delhi, National Committee for Geography, Calcutta, pp.123.

**Table 5.1**

**LEVEL OF DEVELOPMENT IN MAHARASHTRA ACCORDING TO RANKING METHOD - 1970-71**

Districts	Agriculture		Industry		Infrastructure		Human Resource		Total	
	Rank Score	Rank	Rank Score	Rank	Rank Score	Rank	Rank Score	Rank	Rank Score	Rank
Bombay	59	23	50	2	56	6	4	1	169	1
Thane	74	26	45	1	84	16	41	11	244	10
Raigad	65	25	103	10	66	11	58	15	292	15
Ratnagiri	43	16	165	24	100	19	31	7	339	19
Nasik	39	12	74	3	63	10	58	15	234	9
Dhule	47	20	122	20	103	21	71	19	343	20
Jalgaon	41	14	105	12	48	3	28	6	222	7
Ahmadnagar	18	1	111	15	52	5	44	12	225	8
Pune	21	4	78	5	47	2	23	4	169	1
Satara	23	5	128	22	61	8	32	8	244	10
Sangli	20	3	116	18	40	1	37	9	213	4
Solapur	19	2	94	9	50	4	55	13	218	6
Kolhapur	36	10	103	10	62	9	65	17	266	14
Aurangabad	27	7	136	23	77	14	57	14	297	16

Parbhani	34	9	127	21	116	23	98	26	375	24
Beed	32	8	182	26	129	25	90	23	433	26
Nanded	38	11	112	17	75	13	95	25	320	17
Osmanabad	24	6	172	25	95	18	84	22	375	24
Buldana	42	15	110	14	106	22	65	17	323	18
Akola	47	20	85	8	85	17	39	10	256	13
Amravati	62	24	83	6	79	15	23	4	247	12
Yavatmal	52	22	116	18	101	20	79	21	348	21
Wardha	44	18	84	7	68	12	18	3	214	5
Nagpur	43	16	77	4	56	6	17	2	193	3
Bhandara	46	19	111	15	119	24	75	20	351	22
Chandrapur	39	12	109	30	134	26	90	23	372	23

Table 5.2

LEVEL OF DEVELOPMENT IN MAHARASHTRA ACCORDING  
TO RANKING METHOD - 1980-81

Districts	Agriculture		Industry		Infrastructure		Human Resource		Total	
	Rank Score	Rank	Rank Score	Rank	Rank Score	Rank	Rank Score	Rank	Rank Score	Rank
Bombay	56	13	57	1	60	1	8	1	181	1
Thane	85	25	60	2	92	8	38	9	275	6
Raigad	89	26	97	5	81	5	45	12	312	13
Ratangiri	76	24	166	25	138	18	29	7	409	19
Nasik	38	8	87	4	87	6	58	15	270	5
Dhule	57	14	146	21	142	20	76	20	421	20
Jalgaon	42	10	102	7	97	10	43	11	284	9
Ahmadnagar	17	1	112	10	126	17	51	13	306	11
Pune	25	2	73	3	75	3	20	5	193	2
Satara	27	3	117	13	105	12	27	6	276	7
Sangli	31	5	130	18	87	6	32	8	280	8
Solapur	39	9	115	12	95	9	60	16	309	12
Kolhapur	36	7	101	6	63	2	53	14	253	3
Aurangabad	29	4	114	11	115	14	77	21	335	15

Parbhani	47	12	145	20	177	24	102	26	471	25
Beed	42	10	165	24	188	26	88	24	483	26
Nanded	57	14	118	14	119	16	98	25	392	17
Osmanabad	34	6	181	26	160	22	84	22	459	23
Buldana	60	17	134	19	141	19	70	17	405	18
Akola	60	17	127	16	117	15	40	10	344	16
Amravati	73	22	128	17	102	11	18	4	321	14
Yavatmal	74	23	158	23	153	21	75	19	460	24
Wardha	62	19	110	9	112	13	15	3	299	10
Nagpur	66	20	106	8	75	3	13	2	260	4
Bhandara	58	16	156	22	161	23	70	17	445	21
Chandrapur	71	21	121	15	179	25	87	23	458	22

made to identify the level of development of the districts of Maharashtra both at the sectoral level as well as aggregate levels for the 1971 and 1981. Since the levels of economic development cannot be measured directly, a number of indicators have been selected for analysing them in the study area. We have already discussed them in chapter 2 (p.26). The identification of levels of development has been done on the basis of ranking method. In order to know the regional pattern of the levels of economic development, the districts of Maharashtra have been categorized under three groups on the basis of the composite rank of the development indicators.

The ordering of districts according to ranking method is presented in Table 5.1 and 5.2 for the years 1971 and 1981 respectively. A comparative picture of the levels of development in each sector and for the aggregate development is given in Table 5.3 to 5.7.

Bombay, from the British period, has been a commercial center which can be attributed to its geographical advantage of being a port city surrounded by its rich hinterland. Ever since the British took possession of Bombay, it has always been an important trading centre, starting from cotton textile industry and having the distinction of being the first to have a railway line from there to Thane. Bombay being the core area which motivates commercial activity, has a positive influence in its periphery which includes the districts Thane, Pune, Sangli, Satara, Kolhapur. The



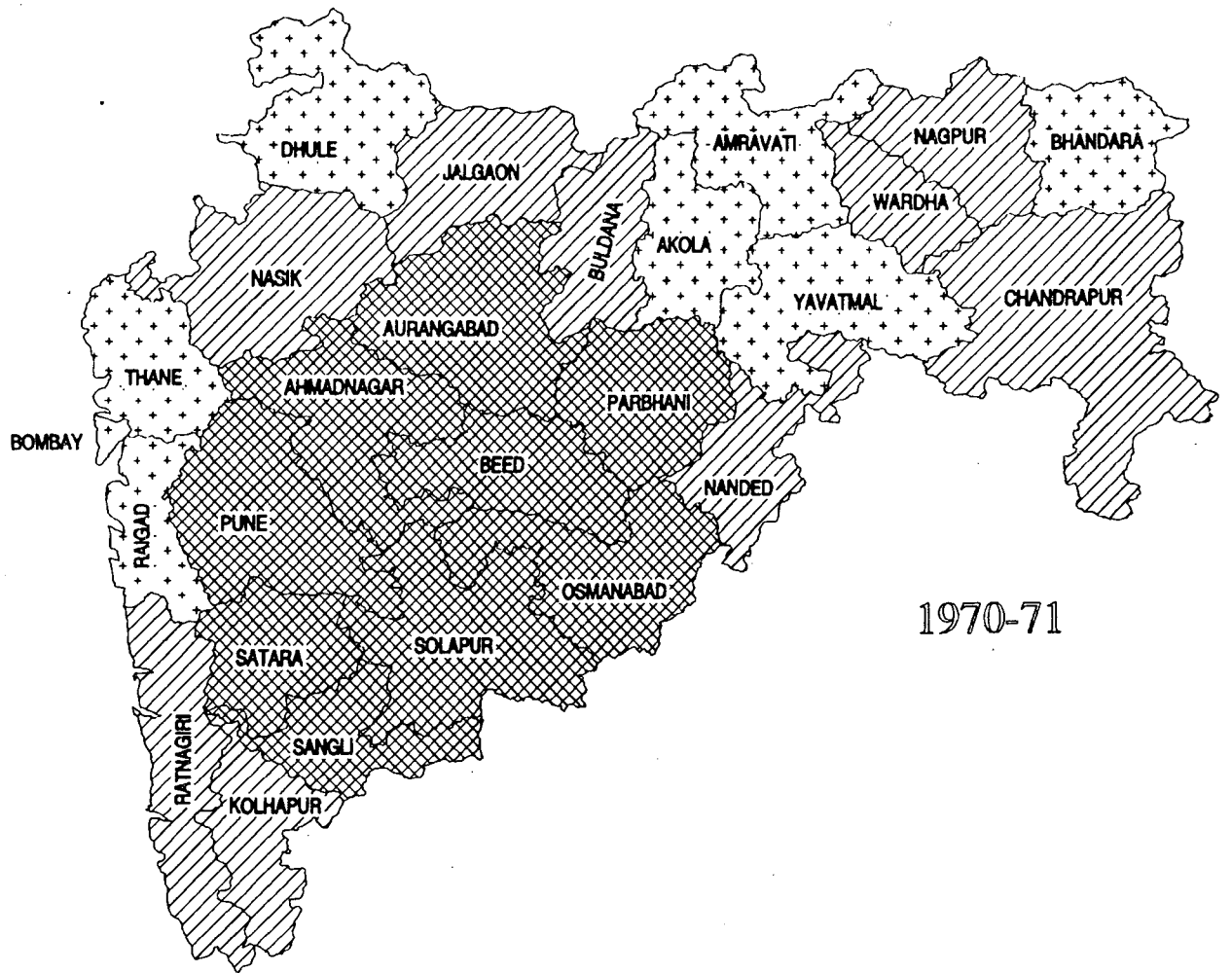
Table 5.1 clearly states that Bombay ranks first as far as infrastructure and industry and human resources are concerned. Bombay has drawn its resources in the form of human resources and raw material for its industrial development. Easy access to imported machineries from being a port city has given an impetus towards its overall level of development. The influence of the Bombay city extends to its surrounding districts through the intense infrastructural development in terms of integrated road and rail network. This transportation network that has developed through the years has increased the efficiency of the outward flows of industrial goods. Commerce and trade and other economic

Table 5.3

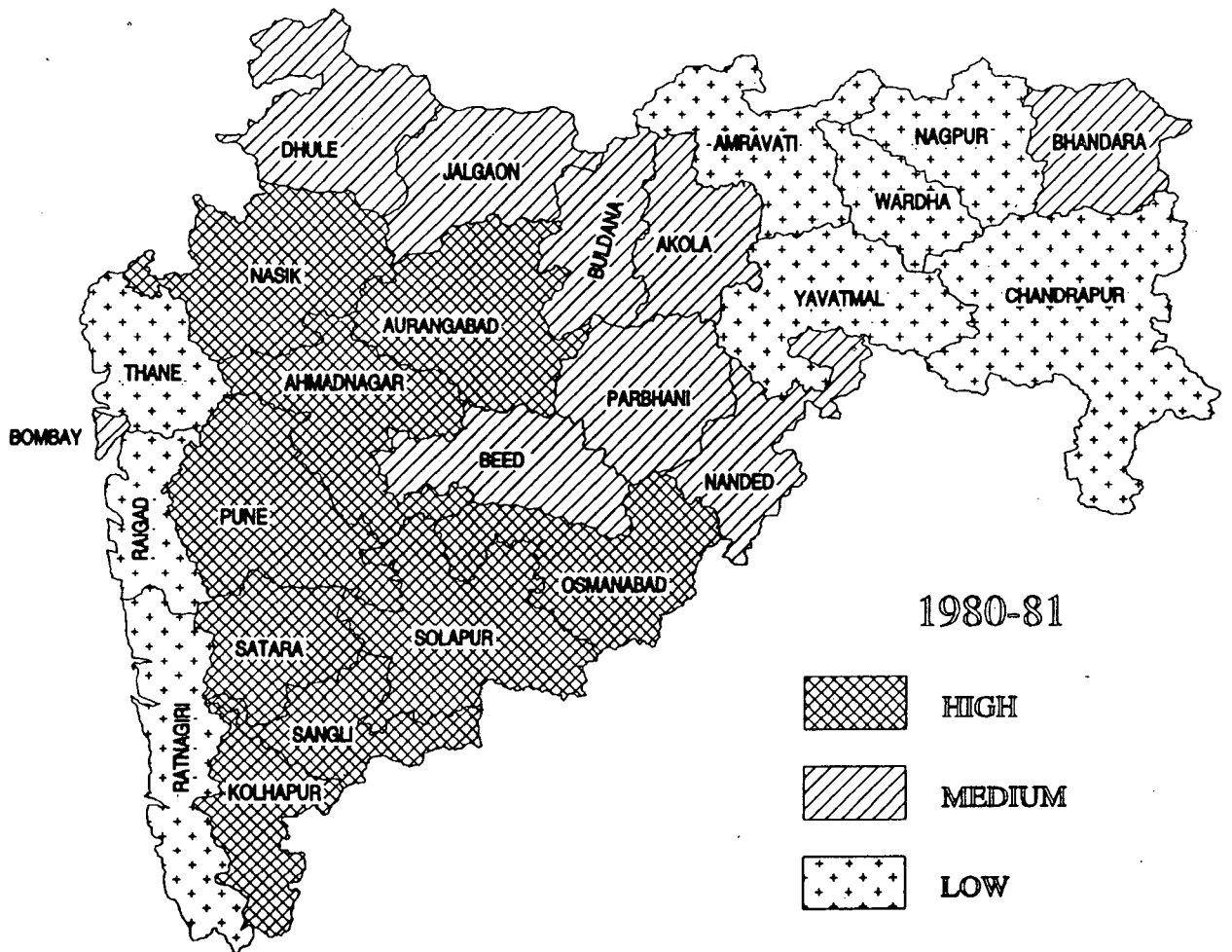
AGRICULTURAL DEVELOPMENT

Level of Development	Rank Category	Name of Districts 1970-71	Name of the Districts 1980-81
High	1 to 9	Ahmadnagar, Pune, Satara, Sangli, Solapur, Aurangabad, Parbhani, Beed, Osmanabad.	Nasik, Ahmadnagar, Pune, Satara, Sangli, Solapur, Kolhapur, Aurangabad, Osmanabad.
Medium	10 to 18	Ratangiri, Nasik, Jalgaon, Kolhapur, Nanded, Buldana, Wardha, Nagpur, Chandrapur.	Buldana, Akola, Bhandara, Bombay, Dhule, Jalgaon, Parbhani, Beed, Nanded.
Low	19 to 26	Bombay, Thane, Raigad, Dhule, Akola, Amravati, Yavatmal, Bhandara.	Wardha, Nagpur, Chandrapur, Raigad, Thane, Ratnagiri, Amravati, Yavatmal.

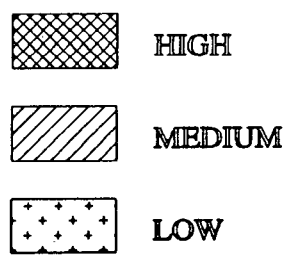
MAP 5.1  
 AGRICULTURAL DEVELOPMENT



1970-71



1980-81



activities. This in return accelerated the process and level of development of the surrounding districts, namely Thane, Pune Raigad, Satara, Sangli, etc. which is apparent from Maps 5.1 to 5.5. The shortage of space in the Bombay city accompanied by high land prices, high cost of living and due to increased communication facilities of road and rail network has resulted in the outward growth in the surrounding districts.

The congestion in Bombay has given rise to a number of additional industrial areas like Pune, Kolhapur, Ahmadnagar and Nasik. These districts accommodate the spurt in the growth of new industries. This has given rise to a larger Bombay - Pune bifocal region.

One can highlight through the Map 5.1 to 5.5 that the same few districts viz Pune, Thane, Nasik, Kolhapur, Jalgaon, Satara, Nagpur have captured the developmental process in all the sectors Agriculture, industry, infrastructure and human resources (for ranks refer to Table 5.3 to 5.7). Better hydropower position, locational advantage (proximity to Bombay) and efficient transport linkage from other parts of the country establishes the base for industrialization in Bombay-Pune Kolhapur belt. Pune lost its second position (1971) in the sector of infrastructural development and became third in 1981. Same with the case for Nagpur in the sector of industry and infrastructure (Table 5.1 and 5.2). It should not be interpreted however that these districts are becoming less developed. It could be possible that other districts are developing at a faster rate than

these districts. The ranking method merely gives the relative position of the districts in the state and therefore can not explain the switches in the ranks. Another reason could be due to the fact that the economic migration towards these districts increased the load on the existing infrastructural facilities.

Another set of districts showing low level of economic development with agriculture being more prominent as a primary occupation. These districts are Beed, Nanded, Ratnagiri, Yavatmal, Chandrapur, (See Map 5.1 and 5.5). On a rough estimate, about three fourths of the cultivated area is under food crops and the remaining under non food crops. Thus despite the introduction of a variety of cash crops providing food to the people remains the main consideration of agriculture in the state. Lack of infrastructural development, lack of resources and industries has prevented the districts of Beed, Parbhani, Bhandara, Ratnagiri from attaining even a moderate level of economic development. The interior location of these districts with undulating topography and non-conducive climatic conditions are the other geographical factors inhibiting the development process. For example in the district of Ratnagiri, around 1/4 of the total agricultural area is unavailable for cultivation due to the lateritic cover and the steep rocky slopes of the Western Ghats.

The Table 5.3 reveals the comparative picture of agricultural development in Maharashtra. The highest category shows a slight

Table 5.4

## INDUSTRIAL DEVELOPMENT

Level of Development	Rank of Category	Name of Districts 1970-71	Name of Districts 1980-81
High	1 to 9	Bombay, Thane, Nasik, Pune, Solapur, Akola, Amravati, Wardha, Nagpur	Bombay, Thane, Raigad, Nasik, Jalgaon, Pune, Kolhapur, Wardha, Nagpur
Medium	10 to 18	Raigad, Jalgaon, Ahmadnagar, Sangli, Kolhapur, Nanded, Buldana, Yavatmal, Bhandara, Chandrapur	Ahmadnagar, Satara, Sangli, Solapur, Aurangabad, Nanded, Akola, Amravati, Chandrapur
Low	19 to 26	Ratnagiri, Dhule, Satara, Aurangabad, Parbhani, Beed, Osmanabad.	Ratnagiri, Dhule, Parbhani, Beed, Osmanabad, Buldana, Yavatmal, Bhandara

Table 5.5

## HUMAN RESOURCES DEVELOPMENT

Level of Development	Rank Category	Name of District 1970-71	1980-81
High	1 to 9	Bombay, Ratnagiri, Jalgaon, Pune, Satara, Sangli, Amravati, Wardha, Nagpur	Bombay, Thane, Ratnagiri, Pune, Satara, Sangli, Amravati, Wardha, Nagpur
Medium	10 to 18	Thane, Raigad, Nasik, Ahmadnagar, Solapur, Kolapur, Aurangabad, Buldana, Akola	Raigad, Nasik, Jalgaon, Ahmadnagar, Solapur, Kolhapur, Buldana, Akola, Bhandara
Low	19 to 26	Dhule, Parbhani, Beed, Nanded, Osmanabad, Yavatmal, Bhandara, Chandrapur	Osmanabad, Yavatmal, Chandrapur, Dhule, Aurangabad, Parbhani, Beed, Nanded

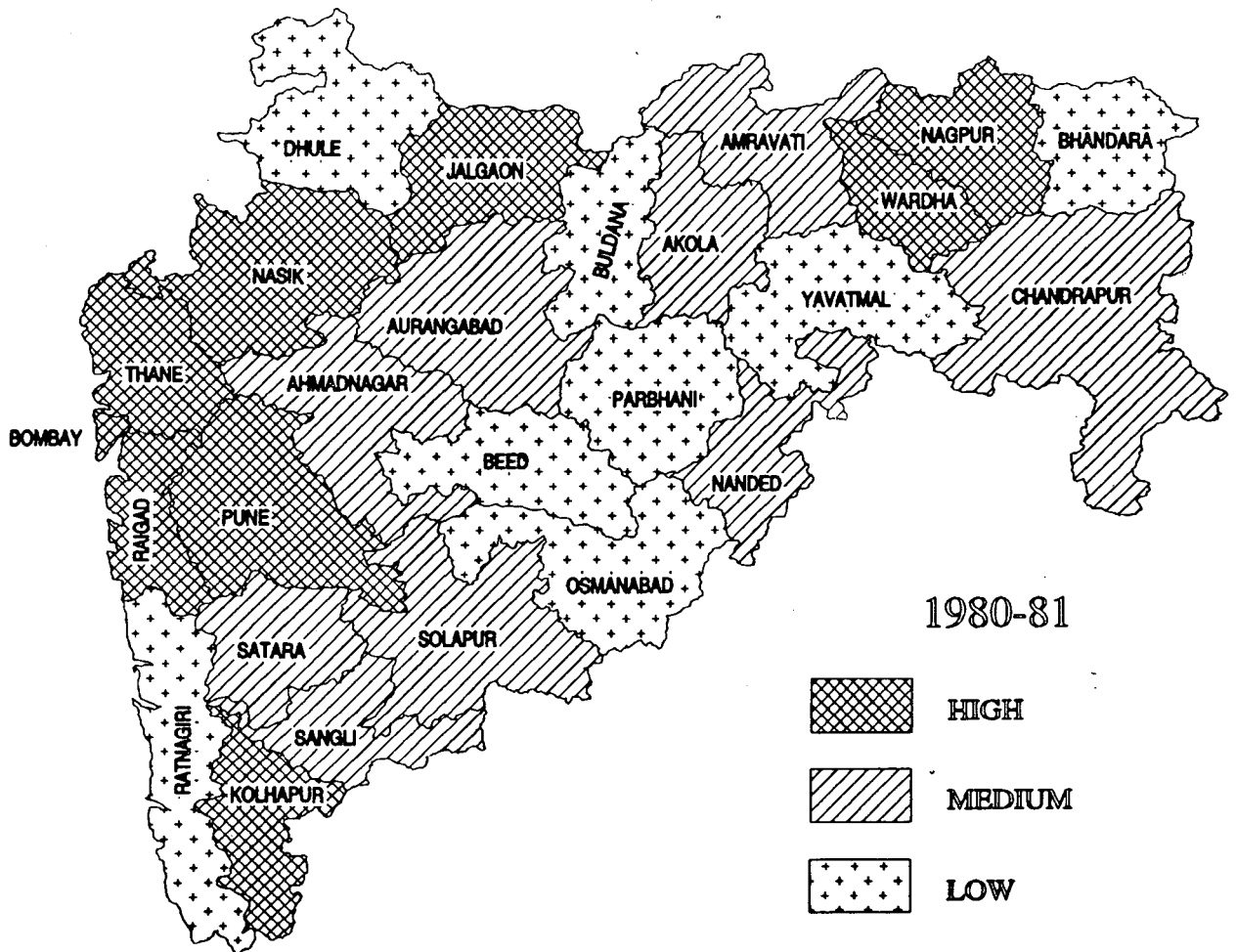
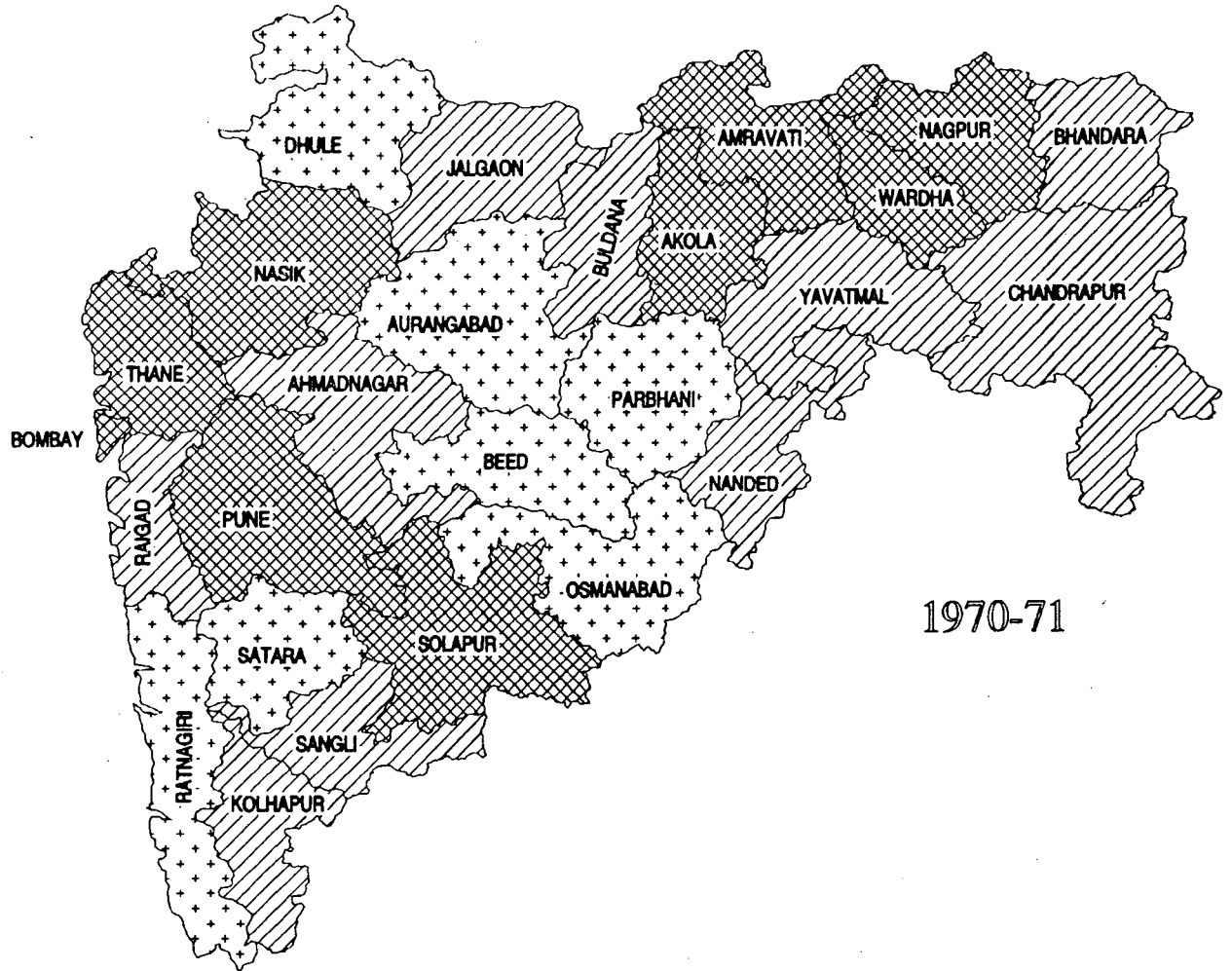
difference from 1971, with Nasik and Kolhapur as the new entrants in the year 1981 while Parbhani and Beed lost their position slipping into the medium level of development. Ratangiri, Wardha, Nagpur and Chandrapur became lowest category districts marking a fall from medium - developed status of 1971. Bombay, Dhule, Akola and Bhandara shows an improvement. They moved from low to medium level of development.

The Map 5.1 shows that most of the districts in the high category of agricultural development belong to the western Maharashtra region.

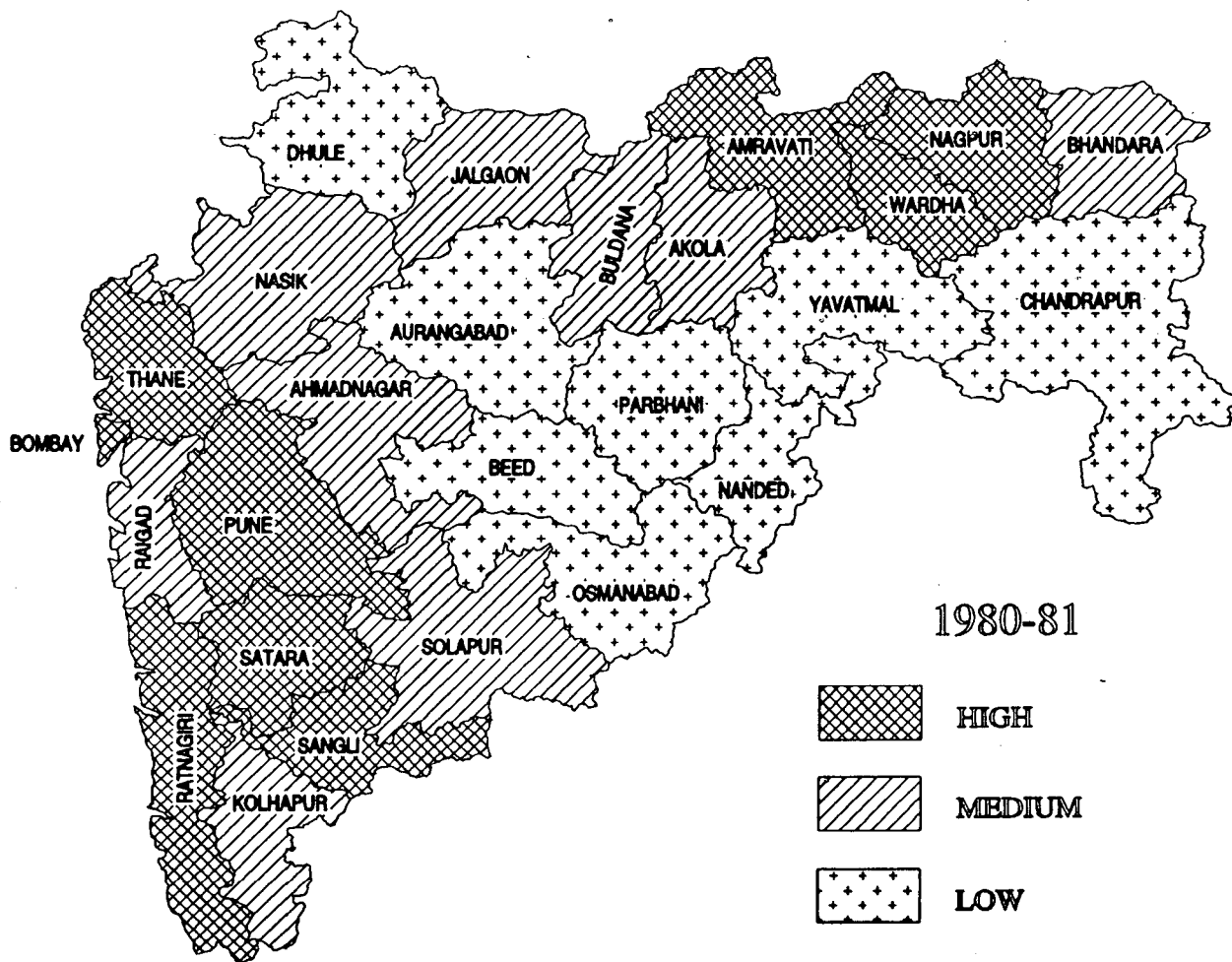
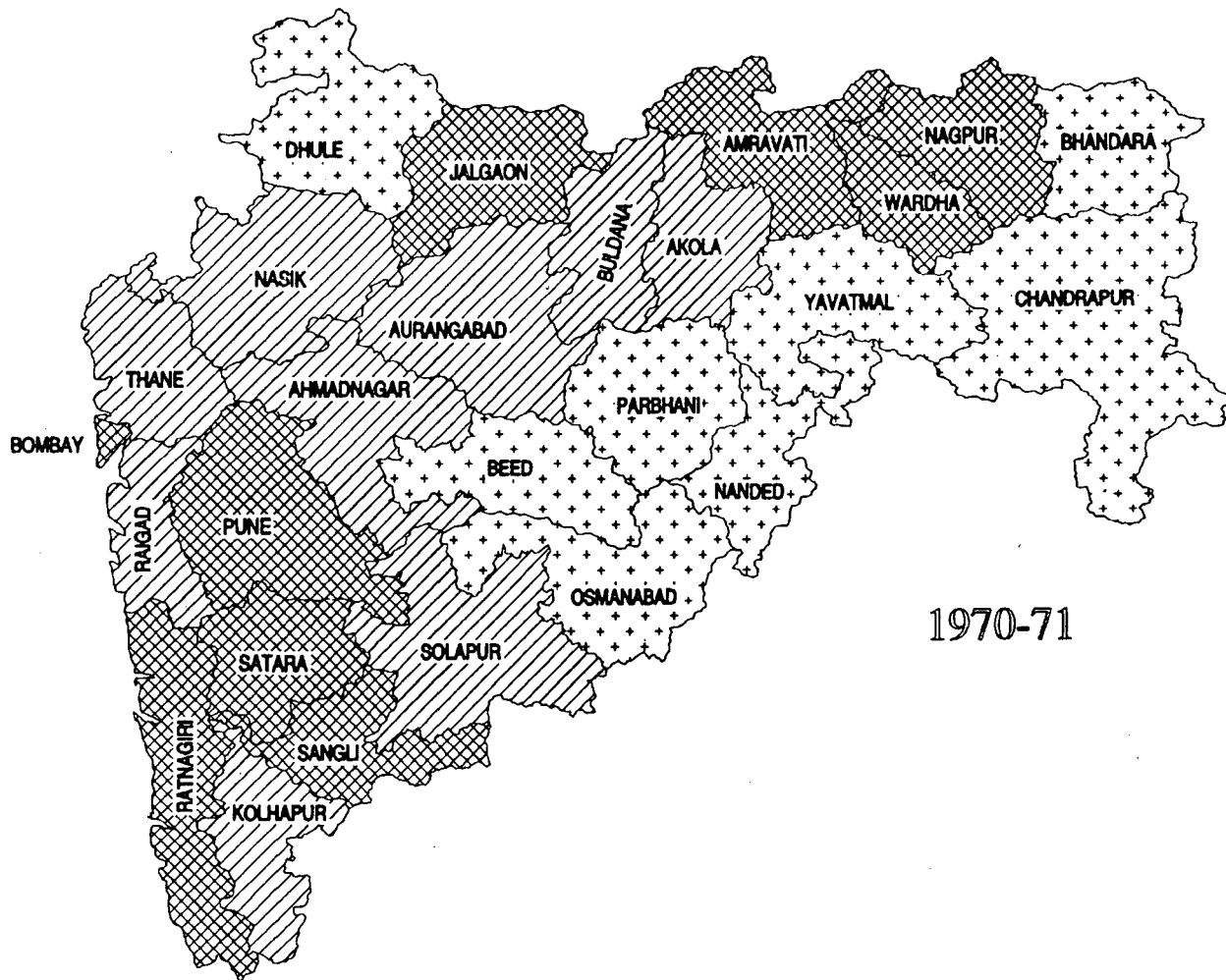
With respect to the industrial sector (Table 5.4) Raigad, Jalgaon and Kolhapur become highly developed districts in 1981 from their medium - developed status of 1971. Solapur, Akola and Amravati changed their status from highly developed to medium developed districts. The Same is true for the case of Yavatmal and Bhandara. Satara shows an improvement from low to medium level of development. Raigad has a locational advantage of being adjacent to Bombay and Pune. Jalgaon and Raigad also are very well linked with other states of India by roads and railways.

The Table 5.5 shows the development of infrastructure in Maharashtra. Thane, Raigad and Nasik emerged in high level of development in the year 1981. The pattern of infrastructure matches with the pattern of industrial development for both the years. It could be explained that industrialization needs the support of infrastructure.

# MAP 5.2 INDUSTRIAL DEVELOPMENT



# MAP 5.3 HUMAN RESOURCES DEVELOPMENT





It is worth noting that Bombay, Thane, Nagpur districts are highly developed in the case of industrial sector, infrastructure, as well as in the sector of human resources. It is clear from Table 5.6 that Thane improved its relative position in human resource sector in the year 1981. At the lowest rung, are the districts of Dhule, Beed and Nanded. There is not much change in relative positions of the districts in the sector of Human resources development between the two years.

**Table 5.6**

**INFRASTRUCTURAL DEVELOPMENT**

Level of Development	Rank Category	Name of Districts 1970-71	Name of Districts 1980-81
High	1 to 9	Bombay, Jalgaon, Ahmadnagar, Pune, Satara, Sangli, Solapur, Kolhapur, Nagpur	Bombay, Thane, Raigad, Nasik, Pune, Sangli, Solapur, Kolhapur, Nagpur
Medium	10 to 18	Thane, Raigad, Nasik, Aurangabad, Nanded, Osmanabad, Akola, Amravati, Wardha	Ratnagiri, Jalgaon, Ahmadnagar, Satara, Aurangabad, Nanded, Akola, Amravati, Wardha
Low	19 to 26	Ratnagiri, Dhule, Beed, Parbhani, Buldana, Yavatmal, Bhandara, Chandrapur	Buldana, Dhule, Parbhani, Beed, Osmanabad, Yavatmal, Bhandara, Chandrapur

The overall development (in all the sectors combined) of Maharashtra is shown in Table 5.7. Thane, Satara and Kolhapur experienced the highest change in the levels of economic development moving from medium to the high category in 1981. The areas of high level of economic development are found mainly in a distinct zone. With the exception of Nagpur, it extends from Bombay through Jalgaon to Kolhapur district. The areas in the next category (medium) of development also emerged near the high level development zone, covering Raigad, Nanded, Aurangabad and Akola.

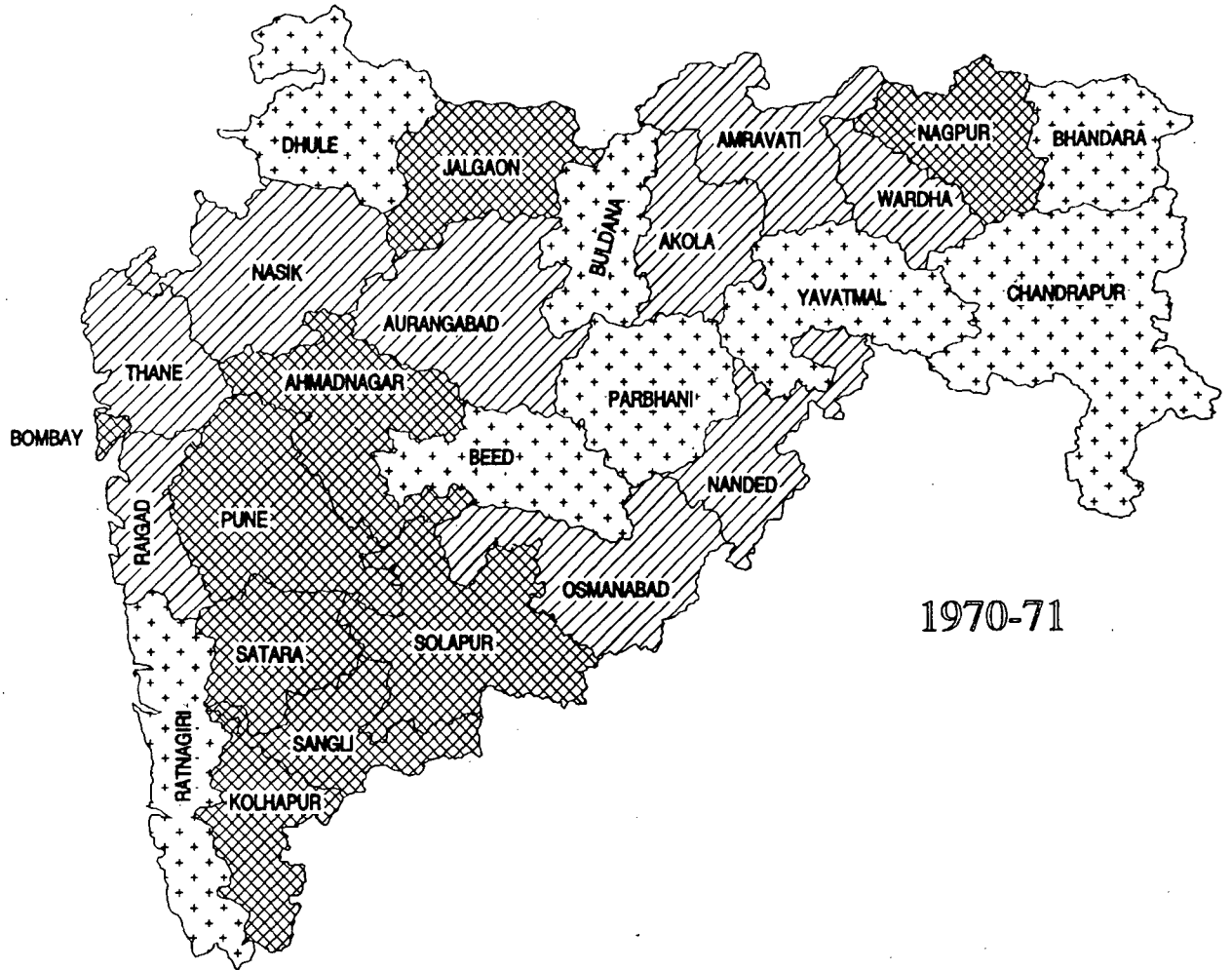
**Table 5.7**

**OVERALL DEVELOPMENT**

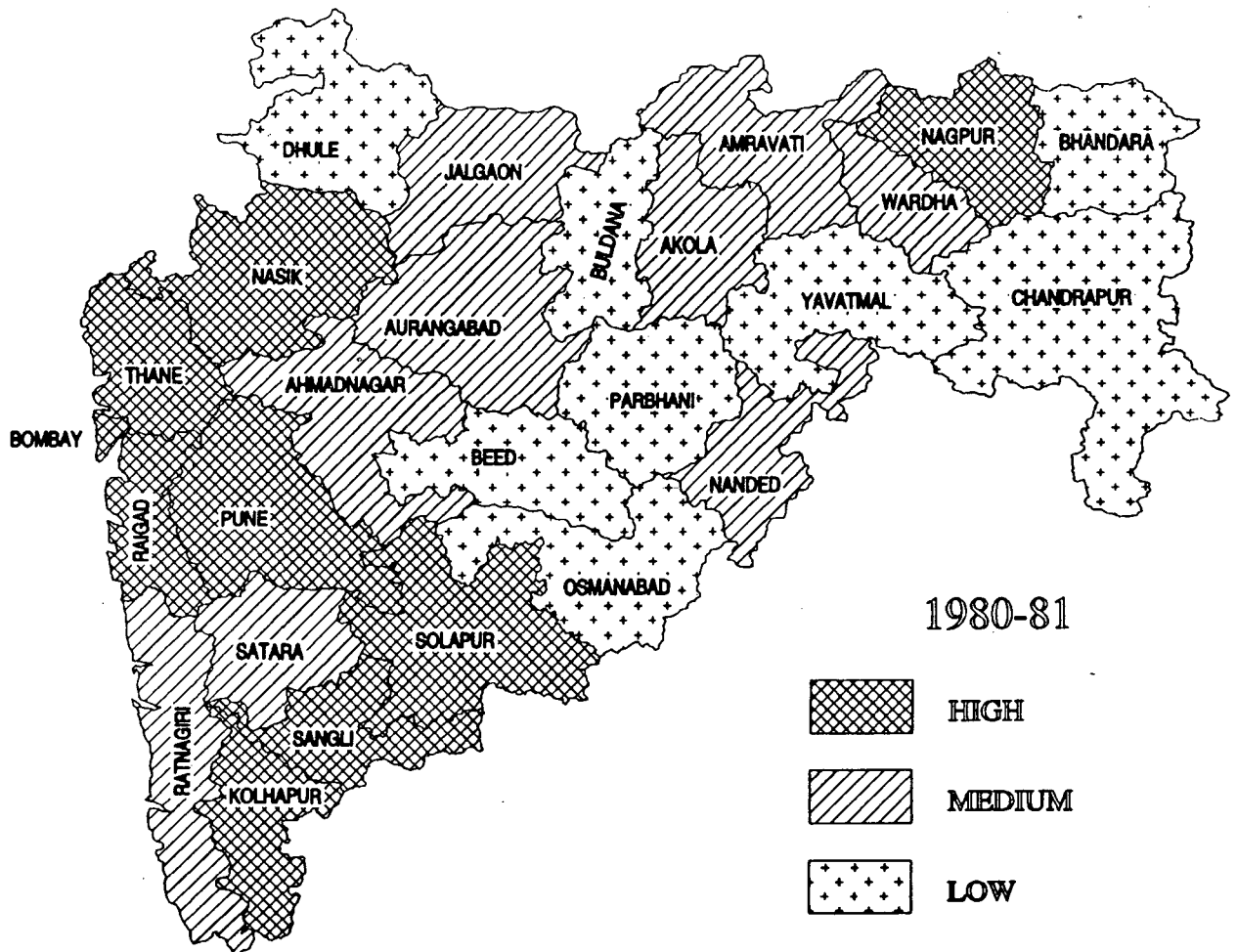
Level of Development	Rank Category	Name of Districts 1970-71	Name of Districts 1980-81
High	1 to 9	Bombay, Nasik, Jalgaon, Ahmadnagar, Pune, Sangli, Solapur, Wardha, Nagpur	Bombay, Thane, Nasik, Jalgaon, Pune, Satara, Sangli, Kolhapur, Nagpur
Medium	10 to 18	Thane, Raigad, Satara, Kolhapur, Aurangabad, Nanded, Buldana, Akola, Amravati	Raigad, Ahmadnagar, Solapur, Aurangabad, Nanded, Buldna, Akola, Amravati, Wardha
Low	19 to 26	Ratnagiri, Dhule, Parbhani, Beed, Osmanabad, Yavatmal, Bhandara, Chandrapur	Ratnagiri, Dhule, Parbhani, Beed, Yavatmal, Bhandara, Chandrapur, Osmanabad

MAP 5.4

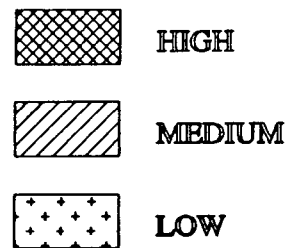
INFRASTRUCTURAL DEVELOPMENT



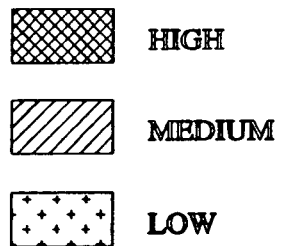
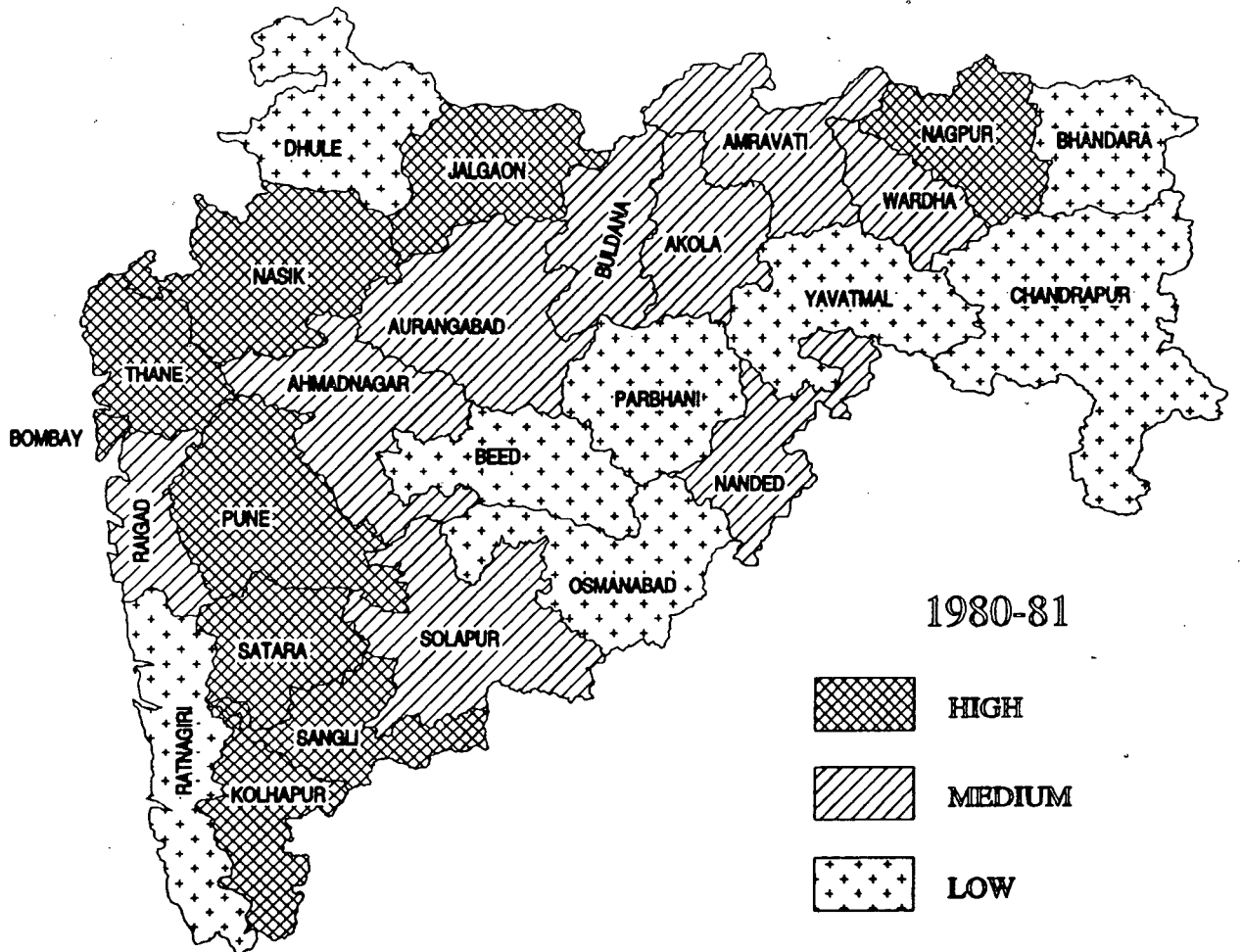
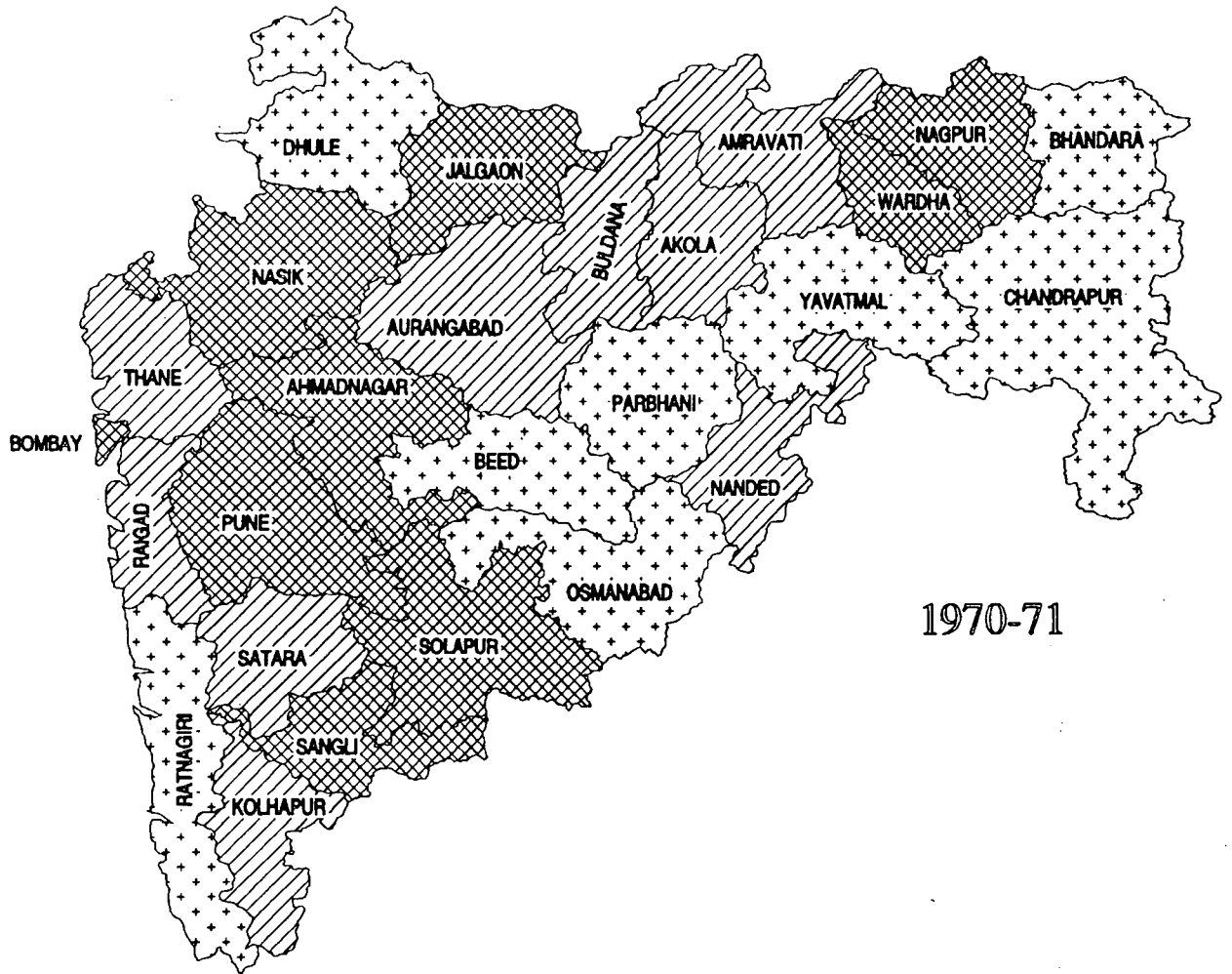
1970-71



1980-81



# MAP 5.5 OVERALL DEVELOPMENT



Thus we can come to the conclusion that the infrastructural development in terms of road and railways provide a base for development and has given a fillip to growth in the surrounding areas. The whole of the surrounding districts are being gradually developed into an extension of the existing industrial belt. This is more prominent in the districts of Pune, Thane, Satara, Sangli, Kolhapur, Nasik and Jalgaon giving the northern limit of development.

In contrast to the high concentration of economic activities of Bombay, Thane and Pune etc. which show a high level of development, we have few districts on the other hand which can be clubbed together as a region of medium level of development (Table 5.7). This can be attributed to agricultural activities, a priority of these areas, since they lack in the infrastructural and human resource development. These districts in fact act as reservoirs of able bodied men to migrate as skilled or unskilled labourers to the developed districts of Bombay, Pune, Thane etc. More over agriculture here is not a commercial activity, as in the developed districts of Pune, Satara, Sangli, Nasik and Kolhapur. In these districts agricultural products provide the raw materials for the agrobased industries like cotton textile, sugarcane, paper industries etc.

It is obvious from the above studies the change in the level of economic development, that development has been higher either in already developed districts or in newly industrialized areas. That is why the

relative ranks have not changed much. From the above analysis it can be concluded that industrial and commercial areas such as Bombay, Thane, Pune, Nagpur, Kolhapur, Nasik, Jalgaon, have higher levels of economic development in both the years of 1971 and 1981. This pattern is not surprising, it is also to be expected in view of its proximity to the Bombay - Thane industrial belt.

## CHAPTER 6

### RELATIONSHIP BETWEEN MIGRATION AND ECONOMIC DEVELOPMENT

In this chapter we pursue the aim set out in Chapter 1 that is, to examine whether there is an discernible relationship between economic development and migration. For this purpose we have used stepwise regression analysis, to see whether any such relationship exists. If so, then our query becomes - which specific aspects of economic development conform to this relationship and in which direction these specific relationships lie. So we have used 21 specific indicators as explanatory variables which underline different aspects of economic development. For migration we have tried to catch different aspects of the phenomenon by considering male and total migration for different streams of rural to rural (R-R), rural to urban (R-U), urban to urban (U-U) and urban to rural (U-R) and migration between different regional units. It is to be noted here that we are talking about a 'relationship' which can run from economic development to migration and vice-versa, too. That is because our explanatory variables are themselves not necessarily autonomous. The list of the dependent and independent variables is given below. All changes are between 1981 and 1971.

<b>EXPLANATORY VARIABLES</b>	
<b>NAME OF VARIABLE</b>	<b>SYMBOL</b>
Change in percentage net area sown per agricultural worker (hectare)	X <sub>1</sub>
Change in percentage of net area irrigated to net area sown	X <sub>2</sub>
Change in percentage of net area sown to total geographical area	X <sub>3</sub>
Change in percentage of urban population to total population	X <sub>4</sub>
Change in number of factory workers per working factory	X <sub>5</sub>
Change in number of factory workers per lakh of population	X <sub>6</sub>
Change in percentage of main workers to total population	X <sub>7</sub>
Change in female work participation rate	X <sub>8</sub>
Change in urban male work participation rate	X <sub>9</sub>
Change in percentage of workers engaged in manufacturing to total main workers	X <sub>10</sub>
Change in percentage of workers employed in Trade and Commerce to total main workers	X <sub>11</sub>
Change in road length per 100 sq.km of geographical area (km)	X <sub>12</sub>
Change in railway kilometerage per 100 sq.km of geographical area (km)	X <sub>13</sub>
Change in number of telephone per lakh population	X <sub>14</sub>
Change in number of post and telephone offices per lakh of	X <sub>15</sub>
Change in number of Commercial bank per lakh of population	X <sub>16</sub>
Change in percentage of town and villages electrified	X <sub>17</sub>
Change in number of beds in medical institution per lakh of population	X <sub>18</sub>
Change in number of percentage of literates to total population	X <sub>19</sub>
Change in number of rural female literates to total rural female population	X <sub>20</sub>
Change in number of enrolment in Primary and secondary schools per lakh of population	X <sub>21</sub>



<b>DEPENDENT VARIABLES</b>	
<b>NAME OF VARIABLES (DESCRIPTION)</b>	<b>SYMBOL</b>
Change in share of Male migrants in total male population	$Y_1$
Change in share of total migrants in total population	$Y_2$
Change in percentage of Intra-district total migrants to total migrants	$Y_3$
Change in percentage of Inter-district total migrants to total migrants	$Y_4$
Change in percentage of Inter-state total migrants to total migrants	$Y_5$
Change in percentage of rural-rural male migrants to total migrants	$Y_6$
Change in percentage of rural-urban male migrants to total migrants	$Y_7$
Change in percentage of urban-urban male migrants to total migrants	$Y_8$
Change in percentage of urban-rural male migrants to total migrants	$Y_9$
Change in percentage of Intra-district male migrants to total male migrants	$Y_{10}$
Change in percentage of Inter-district male migrants to total male migrants	$Y_{11}$
Change in percentage of Inter state male migrants total male migrants	$Y_{12}$

Table 6.1

**RESULTS OF THE STEPWISE REGRESSION ANALYSIS EXPLAINING  
DISTRICTWISE CHANGE IN THE SHARE OF MALE MIGRATION TO TOTAL  
POPULATION BETWEEN 1971-81 WITH THE HELP OF THE CHANGES IN  
ECONOMIC VARIABLES BETWEEN 1971-81 IN MAHARASTHRA**

Steps	Variables entered	Corresponding	Corresponding	Final Model		
		Adj R <sup>2</sup>	R <sup>2</sup>	Coefficient	S.E.	T.Stat
1	X <sub>11</sub>	.29278	.32107	3.12597	.67944	-4.601*
2	X <sub>21</sub>	.45545	.49902	-0.00036	.00024	-1.492
3	X <sub>8</sub>	.48962	.55087	.14694	.03057	4.806*
4	X <sub>15</sub>	.58001	.64721	.16451	.06832	2.408**
5	X <sub>18</sub>	.59183	.67346	.01713	.01291	1.327
6	X <sub>14</sub>	.60909	.70291	-.01479	.00256	-5.754*
7	X <sub>13</sub>	.63302	.73577	1.09622	.19934	5.501*
8	X <sub>20</sub>	.71074	.80330	0.38413	.09223	4.165*
9	X <sub>4</sub>	.73788	.83224	.61227	.15563	3.934*
10	X <sub>7</sub>	.82834	.89700	-.04493	.01409	-3.188*
11	X <sub>12</sub>	.82969	.90463	-.02570	.01648	-1.559
12	X <sub>17</sub>	.83531	.91436	.01964	.01616	1.216*
	Constant			-6.56230	1.20246	-5.457*

F = 11.56660\*

Note = \* Significant at 1% level of significance.

\*\* Significant at 5% level of significance.

Table 6.1 presents the result of regression for change in share of male migrants ( $Y_1$ ) on change of different economic variables. The result shows that change in workers employed in Trade and Commerce ( $X_{11}$ ) explains the maximum proportion of variation in change in share of male migrants. Other variables are enrolment in primary and secondary schools ( $X_{21}$ ), F.W.P.R. ( $X_8$ ),

post and telegraph offices ( $X_{15}$ ), no. of beds in medical institutions ( $X_{18}$ ), number of telephones ( $X_{14}$ ), railway network ( $X_{13}$ ), rural female literacy ( $X_{20}$ ). The contribution of urban population ( $X_4$ ), main workers ( $X_7$ ), road network ( $X_{12}$ ) and towns and villages electrified ( $X_{17}$ ) are however very low in increasing the value of  $R^2$ . In the final model  $X_8$ ,  $X_{15}$ ,  $X_{13}$ ,  $X_{20}$ ,  $X_4$  and  $X_7$  are significantly and positively related to male migrants, with  $X_{10}$ ,  $X_{14}$  having significant and negative coefficient. Workers in trade and Commerce ( $X_{11}$ ) has the highest coefficient (3.125) and it is followed by railway network (1.096) and urban population (0.612).

It could be explained that male migrants are very well absorbed by trade and commerce during this period shown both by the  $R^2$  in the 1st step of the regression and its coefficient in the final model, because the economic opportunities attract migrants, specially male migrants.

The improvement in railway network is also one of the major reasons to encourage migration. Urbanization and migration are also very well related to each other.

The Table 6.2 explains the regression results for change in share of total migrants ( $Y_2$ ) by the change of 21 economic variables. The variables of total migrants can be explained with the help of F.W.P.R. ( $X_8$ ) and U.M.W.P.R. ( $X_9$ ). [ $R^2$  is 0.74 with  $X_8$  and  $X_9$  as explanatory variables]. They both are positively and significantly related to total migrants.  $X_9$  is having a coefficient of 0.53 and for  $X_8$  it is 0.15. It could be argued that the male and female migrants are

**Table 6.2**

**RESULTS OF THE STEPWISE REGRESSION ANALYSIS  
EXPLAINING DISTRICTWISE CHANGE IN SHARE OF TOTAL  
MIGRANTS TO TOTAL POPULATION BETWEEN 1971-81 WITH THE  
HELP OF THE CHANGES IN ECONOMIC VARIABLES BETWEEN  
1971-81 IN MAHARASTHRA**

Steps	Variable	Coresp- onding	Corespo- nding	Final Model		
		Adj.R <sup>2</sup>	R <sup>2</sup>	Coeff.	S.E	T. Stat
1	X <sub>11</sub>	.51927	.53850	1.75664	1.05690	1.662
2	X <sub>8</sub>	.63140	.66089	.15387	.03734	4.121*
3	X <sub>9</sub>	.71368	.74804	.53863	.22625	2.381**
4	X <sub>3</sub>	.71872	.76373	-.07388	.07156	-1.032
5	X <sub>5</sub>	.73767	.79014	.02292	.01442	1.589
6	X <sub>14</sub>	.74481	.80606	-.00269	.00154	-1.743
7	X <sub>16</sub>	.75122	.82088	.62656	.61361	1.021
8	X <sub>17</sub>	.74448	.82624	-.01879	.02594	-.724
	Constant			.31842	1.37397	.232

$F = 10.10478^*$

Note = \* Significant at 1% level of significance.

\*\* Significant at 5% level of significance.

coming in due to the economic opportunities available in the state. It is clear that this kind of migration is basically a job oriented migration and both Male and Female are contributing to this kind of migration.

The result of regression analysing changes in the percentage of intra district migrants is shown in the table 6.3. The net area irrigated to net area sown ( $X_2$ ), number of factory workers per lakh of population ( $X_6$ ), number of telephones ( $X_{14}$ ), female work participation rate ( $X_8$ ) are positively and significantly related with intra district migrants. The variables which are negatively and significantly related to intra district migrants are number of factory workers per working factory ( $X_5$ ), workers in manufacturing ( $X_{10}$ ) and rural female literacy ( $X_{20}$ ). From the final model it is evident that  $X_{10}$  has highest coefficient [though negative, -1.408] followed by  $X_2$  [.39] and  $X_8$  (.21). It could be suggested that decrease in percentage of workers in manufacturing sector means less development in terms of employment opportunities. So people tend to migrate from one place to another in search of employment. And they first search for work within the district. It could be possible that they are moving out of the district but this model is explaining the intra district migration. It could also be possible that the increase in workers in manufacturing sector is eliminating the need for migration. Because people are getting absorbed in the manufacturing sector of that place itself. The relation with the change in net area irrigated to net area sown could be indicating that the places with better development in irrigation attracts the migrants within the district. F.W.P.R. explains that females are also responsive to economic opportunities prevailing within the district.

Table 6.3

RESULTS OF THE STEPWISE REGRESSION ANALYSIS EXPLAINING  
DISTRICTWISE CHANGE IN PERCENTAGE OF INTRA-DISTRICT TOTAL  
MIGRANTS TO TOTAL MIGRANTS BETWEEN 1971-81 WITH THE HELP OF THE  
CHANGES IN ECONOMIC VARIABLES BETWEEN 1971-81 IN MAHARASHTRA

Steps	Variables	Corresponding	Corresponding	Final Model		
		Adj.R <sup>2</sup>	R <sup>2</sup>	Coeff.	S.E.	T. Stat
1	X <sub>12</sub>	.25755	.28725	.00265	.02384	.111
2	X <sub>5</sub>	.43434	.47959	-.05684	.01349	-4.214*
3	X <sub>10</sub>	.54518	.59976	-1.40866	.22515	-6.257*
4	X <sub>3</sub>	.64439	.70128	-.08866	.07156	-1.239
5	X <sub>2</sub>	.68709	.74968	.39808	.10310	3.861*
6	X <sub>6</sub>	.70905	.77888	.01719	.00310	5.536*
7	X <sub>14</sub>	.75021	.82015	.01217	.00247	4.909*
8	X <sub>20</sub>	.77628	.84787	-.32347	.10096	-3.204*
9	X <sub>8</sub>	.82269	.88652	.21188	.05644	3.754*
10	X <sub>19</sub>	.84898	.90939	.13250	.08346	1.588
11	X <sub>4</sub>	.85899	.92104	-.37254	.16633	-2.240
12	X <sub>18</sub>	.86263	.92857	.02528	.01467	1.723
13	X <sub>7</sub>	.87540	.94019	.03560	.02331	1.527
	Constnat			-6.39426	1.4036 1	-4.556

F = 14.51151\*

Note = \* Significant at 1% level of significance.

\*\* Significant at 5% level of significance.

Table 6.4 shows the results of regression for change in inter district migrants (Y<sub>4</sub>) on economic development variables across the districts of Maharashtra.

F.W.P.R. ( $X_8$ ), factory workers per working factory ( $X_5$ ), commercial bank per lakh of population ( $X_{16}$ ) are significantly and positively related to inter district migrants. From the final model it is clear that commercial bank ( $X_{16}$ ) had the maximum coefficient of 1.19 and the next is F.W.P.R. [.10].

Table 6.4

RESULTS OF THE STEPWISE REGRESSION ANALYSIS EXPLAINING DISTRICTWISE CHANGE IN PERCENTAGE OF INTER-DISTRICT TOTAL MIGRANTS TO TOTAL MIGRANTS BETWEEN 1971-81 WITH THE HELP OF THE CHANGES IN ECONOMIC VARIABLES BETWEEN 1971-81 IN MAHARASHTRA

Steps	Variable	Coreesponding	Corresponding	Final Model		
		Adj.R <sup>2</sup>	R <sup>2</sup>	Coeff	SE	T. Stat
1	$X_8$	.22644	.25739	.10718	.02964	3.616*
2	$X_5$	.46168	.50475	.06958	.01660	4.191*
3	$X_{12}$	.49875	.55890	-.00517	.02255	-.229
4	$X_{16}$	.51190	.59000	1.19229	.51245	2.327**
5	$X_3$	.52858	.62286	-.10852	.05657	-1.918
6	$X_7$	.54374	.65324	.03254	.01739	1.872
7	$X_{17}$	.57568	.69449	.03613	.02229	1.621
8	$X_{19}$	.58115	.71518	-.09992	.08992	-1.111
	Constant			-.97009	1.48394	-.654

F = 5.33587\*

Note = \* Significant at 1% level of significance.

\*\* Significant at 5% level of significance.

F.W.P.R. cannot explain much of the movement of the dependent variables [ $R_2$  is .23]. But when factory workers per working factory ( $X_5$ ) was included in the equation, the  $R^2$  increased to 0.50. It gradually increased when

road length ( $X_{12}$ ), commercial bank ( $X_{16}$ ), net area sown to total geographical area ( $X_3$ ), main workers ( $X_7$ ), percentage of town and villages electrified ( $X_{17}$ ) and literacy rate ( $X_{19}$ ) variables were included one by one in the model, and the final  $R^2$  became 0.71.

Commercial banks have a tendency towards a concentration of investments in a relatively more developed area. It also encourages industrial and commercial activities, that attracts people from other parts of the state.

The Table 6.5 shows the results of regression for change in inter state total migrants. Only after the first 4 variables are added does the value of  $R^2$  become 0.74 (i.e., above 0.5). These variables are post and telegraph offices ( $X_{15}$ ), commercial bank ( $X_{16}$ ), workers in manufacturing ( $X_{10}$ ) and factory workers per lakh of people ( $X_6$ ). Other variables in the model are  $X_{18}$ ,  $X_{11}$ ,  $X_9$ ,  $X_{21}$ ,  $X_{12}$ ,  $X_5$ ,  $X_2$ ,  $X_{17}$ ,  $X_1$ ,  $X_{13}$ , and  $X_4$  (see list 6.1). The final  $R^2$  is 0.95. All the variables are very well related to total inter state migrants. Almost all the coefficients appear to be significant in this equation. The post and telegraph office ( $X_{15}$ ), workers in manufacturing ( $X_{10}$ ), urban M.W.P.R. ( $X_9$ ), factor workers ( $X_5$ ), town and villages electrified are positively and significantly related to migrants. Commercial bank ( $X_{16}$ ), factory workers per lakh population ( $X_6$ ), net area sown per agricultural worker ( $X_1$ ), railway ( $X_{13}$ ), F.W.P.R. ( $X_8$ ) are negatively and significantly related.

In the final model it is clear that the highest coefficient value is negative for  $X_1$  (-7.00). The next highest value is  $X_{16}$  (-1.87) followed by  $X_{10}$  (0.57).



Table 6.5

**RESULTS OF THE STEPWISE REGRESSION ANALYSIS EXPLAINING DISTRICTWISE CHANGE IN PERCENTAGE OF INTER-STATE TOTAL MIGRANTS TO TOTAL MIGRANTS BETWEEN 1971-81 WITH THE HELP OF THE CHANGES IN ECONOMIC VARIABLES BETWEEN 1971-81 IN MAHARASHTRA**

Steps	Variables	Corresponding	Corresponding	Final Model		
		Adj.R <sup>2</sup>	R <sup>2</sup>	Coeff.	S.E.	T. Stat
1	X <sub>15</sub>	.27798	.30686	.35375	.07117	4.971*
2	X <sub>16</sub>	.38238	.43179	-1.87561	.33689	-5.567*
3	X <sub>10</sub>	.49271	.55359	.57350	.14197	4.040*
4	X <sub>6</sub>	.69126	.74066	-.00622	.00168	-3.694*
5	X <sub>18</sub>	.69802	.75841	.02226	.01191	1.870
6	X <sub>11</sub>	.70672	.77710	-1.30478	.71634	-1.821
7	X <sub>9</sub>	.73807	.81141	.53733	.15010	3.580*
8	X <sub>21</sub>	.75724	.83492	.00024	.00021	1.135
9	X <sub>12</sub>	.76924	.85231	-.01698	.01934	-.878
10	X <sub>5</sub>	.77769	.86661	.02593	.00897	2.890**
11	X <sub>2</sub>	.78009	.87685	-.09947	.05291	-1.880
12	X <sub>17</sub>	.79518	.89349	.05126	.02085	2.458**
13	X <sub>1</sub>	.79941	.90372	-7.00823	2.29359	-3.056**
14	X <sub>13</sub>	.80108	.91248	-.30496	.10818	-2.819**
15	X <sub>8</sub>	.83847	.93539	-.11189	.04164	-2.687**
16	X <sub>4</sub>	.87591	.95533	.24243	.12096	2.004
	Constnat			3.26171	1.21254	2.690**

F = 12.02899\*

Note = \* Significant at 1% level of significance.  
 \*\* Significant at 5% level of significance.

It can be understood that with the increase of migration the pressure on agricultural land increase and value of agricultural sector falls. So net sown area per worker is falling. The negative relation with commercial banks is difficult to understand.

The Table 6.6 explains the results of change in rural to rural male migration. Final  $R^2$  is 0.30. None of the variables is significantly related to the migration variable. Our model and set of explanatory variables seem inadequate in explaining rural to rural male migration.

The results of regressions analysing the change in rural to urban male migrants are given in table 6.7. Urban population ( $X_4$ ) alone cannot explain much ( $R^2$  is 0.29). But when we include the next variable i.e., road length, ( $X_{12}$ ) the  $R^2$  increase to 0.48. The four variables  $X_4$ ,  $X_{12}$ , main worker ( $X_7$ ) and railway ( $X_{13}$ ) can increase the value of  $R^2$  to 0.79. The four variables mentioned above and net sown area to total geographical area are the one which are significant and have positive signs, except for  $X_7$  and  $X_{13}$ . The highest coefficient in the final model is of urban population ( $X_4$ ) followed by railways ( $X_{13}$ ). The relationship of rural to urban migrants and urban population is obvious. The negative coefficient of railways ( $X_{13}$ ) is difficult to explain.

The Table 6.8 explains the results of regression for the change in urban to urban male migrants ( $Y_8$ ). When we put the first two variables, urban M.W.P.R. ( $X_4$ ) and F.W.P.R. ( $X_8$ ), the value of  $R^2$  became 0.55. The other variables are workers in manufacturing ( $X_{10}$ ), bed in medical institutions ( $X_{18}$ ),

Table 6.6

**RESULTS OF THE STEPWISE REGRESSION ANALYSIS EXPLAINING DISTRICTWISE CHANGE IN PERCENTAGE OF RURAL TO RURAL MALE MIGRANTS TO TOTAL MIGRANTS BETWEEN 1971-81 WITH THE HELP OF THE CHANGES IN ECONOMIC VARIABLES BETWEEN 1971-81 IN MAHARASTHRA**

Steps	Variable	Corresponding	Corresponding	Final Model		
		Adj.R <sup>2</sup>	R <sup>2</sup>	Coeff.	S.E	T. Stat
1	X <sub>11</sub>	.15675	.19048	2.01416	1.03100	1.954
2	X <sub>17</sub>	.19562	.25997	-.04409	.02724	-1.619
3	X <sub>8</sub>	.20674	.30193	.05481	.04767	1.150
	Constant			1.22118	.82528	1.480

F = 3.17181\*\*

Note = \* Significant at 1% level of significance.  
 \*\* Significant at 5% level of significance.

Table 6.7

**RESULTS OF THE STEPWISE REGRESSION ANALYSIS EXPLAINING DISTRICTWISE CHANGE IN PERCENTAGE OF RURAL TO URBAN MALE MIGRANTS TO TOTAL MIGRANTS BETWEEN 1971-81 WITH THE HELP OF THE CHANGES IN ECONOMIC VARIABLES BETWEEN 1971-81 IN MAHARASTHRA**

Steps	Variable	Correspondin g	Corresponding	Final Model		
		Adj.R <sup>2</sup>	R <sup>2</sup>	Coeff.	SE	T. Stat
1	X <sub>4</sub>	.26351	.29297	.45182	.14638	3.087*
2	X <sub>12</sub>	.44112	.48583	.09559	.02156	4.433*
3	X <sub>7</sub>	.55010	.60409	-.09460	.02754	-3.435*
4	X <sub>13</sub>	.63136	.69034	-.25724	.10505	-2.449**
5	X <sub>2</sub>	.64259	.71407	-.24711	.13660	-1.809
6	X <sub>3</sub>	.65883	.74071	.16944	.08025	2.112**
7	X <sub>16</sub>	.66269	.75714	1.04590	.59677	1.753
8	X <sub>9</sub>	.69427	.79210	-.42491	.25130	-1.691
	Constant			-.94330	1.38055	-.683

F = 8.09640\*

Note = \* Significant at 1% level of significance.  
 \*\* Significant at 5% level of significance.

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Table 6.8

RESULTS OF THE STEPWISE REGRESSION ANALYSIS EXPLAINING DISTRICTWISE CHANGE IN PERCENTAGE OF URBAN TO URBAN MALE MIGRANTS TO TOTAL MIGRANTS BETWEEN 1971-81 WITH THE HELP OF THE CHANGES IN ECONOMIC VARIABLES BETWEEN 1971-81 IN MAHARASHTRA

Steps	Variable	Corresponding	Corresponding	Final Model		
		Adj.R <sup>2</sup>	R <sup>2</sup>	Coeff.	SE	T. Stat
1	X <sub>9</sub>	.42378	.44683	.51845	.12400	4.181*
2	X <sub>8</sub>	.51290	.55187	.08543	.02490	3.431*
3	X <sub>10</sub>	.56166	.61426	-.40227	.11555	-3.481*
4	X <sub>18</sub>	.66093	.71518	-.01871	.00981	1.906
5	X <sub>19</sub>	.68619	.74895	-.08810	.04505	-1.956
6	X <sub>11</sub>	.72103	.78798	.69106	.56750	1.218
7	X <sub>3</sub>	.72700	.80344	.07165	.03843	1.865
8	X <sub>16</sub>	.74347	.82556	.42035	.31306	1.343
	X <sub>15</sub>	.75022	.84014	.07099	.05876	1.208
	Constant			-1.41355	.87546	-1.615

F = 9.34329\*

Note = \* Significant at 1% level of significance.  
 \*\* Significant at 5% level of significance.

literacy rate (X<sub>19</sub>), workers in trade and commerce (X<sub>11</sub>), net area sown to total geographical area (X<sub>3</sub>), commercial bank (X<sub>16</sub>) and post and telegraph office (X<sub>15</sub>). The final value of R<sup>2</sup> is 0.84. The X<sub>9</sub>, X<sub>8</sub>, X<sub>10</sub> are significantly related to migration process, in which X<sub>10</sub> has a negative sign. The possible connection between urban M.W.P.R. (X<sub>9</sub>) and F.W.P.R. (X<sub>8</sub>) has already been explained before.

The results of regression for change in urban to rural male migration ( $Y_9$ ) are enumerated in the Table 6.9. The first 3 variables in the table make the value of  $R^2$  0.52. The final value of  $R^2$  is 0.83. The significant variables in the final model are workers in trade and commerce ( $X_{11}$ ), rural female literacy ( $X_{20}$ ), railway ( $X_{13}$ ), road length ( $X_{12}$ ), workers in manufacturing ( $X_{10}$ ), number of telephones ( $X_{14}$ ) and town and villages electrified ( $X_{17}$ ), among which  $X_{12}$  and  $X_{14}$  has a negative sign. The highest coefficient value is 1.10 for  $X_{11}$  followed by that of ( )  $X_{13}$ . From the above results it could be suggested that workers in manufacturing and railways encourage the migration process.

Maharashtra has a lot of agro based industries, so the increase in manufacturing is due to this reason. And that is why it is indicating the relationship with urban to rural migration we have seen above.

It could be argued that change in rural female literacy rate and electrification of town and village, improvement in railways and road indicates the development of rural area. This development attract some migrants.

The Table 6.10 shows the result of regression for the change in intra district male migration ( $Y_{10}$ ) on change of different economic variables. The road length ( $X_{12}$ ) can not explain much of the movement of the dependent variable ( $R^2$  is 0.24). When we include the rural female literacy rate ( $X_{20}$ ) and factory workers per working factory ( $X_9$ ) in the equation,  $R^2$  increased to 0.52. The final value of  $R^2$  is 0.87. The  $X_{14}$  and  $X_6$  are positively and significantly related to the dependent variable.  $X_1$  has the highest coefficient (-17.06) followed by  $X_{13}$  (-2.52) and  $X_{11}$  (-1.72).

Table 6.9

RESULTS OF THE STEPWISE REGRESSION ANALYSIS EXPLAINING DISTRICTWISE CHANGE IN PERCENTAGE OF URBAN TO RURAL MALE MIGRANTS TO TOTAL MIGRANTS BETWEEN 1971-81 WITH THE HELP OF THE CHANGES IN ECONOMIC VARIABLES BETWEEN 1971-81 IN MAHARASTHRA

Steps	Variables	Corresponding	Corresponding	Final Model		
		Adj.R <sup>2</sup>	R <sup>2</sup>	Coeff.	S.E.	T. Stat
1	X <sub>11</sub>	.33908	.36552	1.10863	.24929	4.447*
2	X <sub>20</sub>	.38490	.43410	.13675	.02878	4.751*
3	X <sub>13</sub>	.46195	.52652	.23679	.05445	4.349*
4	X <sub>12</sub>	.50179	.58151	-.02392	.00674	-3.548
5	X <sub>10</sub>	.53732	.62986	.17678	.05918	2.987*
6	X <sub>14</sub>	.62565	.71549	-.00233	.00086	-2.688**
7	X <sub>6</sub>	.63280	.73562	-.00109	.00054	-2.008
8	X <sub>17</sub>	.64363	.75767	.01554	.00646	2.404**
9	X <sub>2</sub>	.66546	.78590	-.04364	.02197	-1.987
10	X <sub>9</sub>	.69550	.81730	.09659	.05731	1.685
11	X <sub>19</sub>	.70333	.83386	.02432	.02059	1.181
	Constant			-1.39639	.37940	-3.681

F = 6.38794\*

Note = \* Significant at 1% level of significance.  
 \*\* Significant at 5% level of significance.

Table 6.10

**RESULTS OF THE STEPWISE REGRESSION ANALYSIS EXPLAINING DISTRICTWISE CHANGE IN PERCENTAGE OF INTRA-DISTRICT MALE MIGRANTS TO TOTAL MALE MIGRANTS BETWEEN 1971-81 WITH THE HELP OF THE CHANGES IN ECONOMIC VARIABLES BETWEEN 1971-81 IN MAHARASTHRA**

Steps	Variables	Corresponding	Corresponding	Final Model		
		Adj.R <sup>2</sup>	R <sup>2</sup>	Coeff.	S.E.	T. Stat
1	X <sub>12</sub>	.21196	.24348	.07347	.06415	1.145
2	X <sub>20</sub>	.35440	.40605	-1.38156	.34491	-4.005*
3	X <sub>5</sub>	.45725	.52238	-.08725	.02126	-4.104*
4	X <sub>21</sub>	.47554	.55945	-.00125	.00063	-1.972
5/	X <sub>11</sub>	.49153	.59322	1.72102	2.01523	.854
6	X <sub>10</sub>	.52940	.64234	-1.38765	.39733	-3.492*
7	X <sub>15</sub>	.55792	.68170	-.20001	.18169	-1.101
8	X <sub>14</sub>	.56451	.70386	.04350	.01017	4.279*
9	X <sub>6</sub>	.59625	.74160	.02378	.00660	3.602*
10	X <sub>13</sub>	.65766	.79460	-2.52054	.68649	-3.672
11	X <sub>4</sub>	.68886	.82576	-.93030	.36386	-2.557**
12	X <sub>1</sub>	.70123	.84464	-17.06484	7.65365	-2.230**
13	X <sub>16</sub>	.74922	.87962	-2.49400	1.33545	-1.868
	Constant			10.45279	4.14756	2.520**

F = 6.74516\*

Note = \* Significant at 1% level of significance.  
 \*\* Significant at 5% level of significance.

The results of regression for change in inter district migrants ( $Y_{11}$ ) is shown in the table 6.11. The value of  $R^2$  is low in the first step (0.07), thus it gradually increases step after step. In step 8, the value of  $R^2$  become 0.50. The final value of  $R^2$  is 0.62. The  $X_5, X_7, X_7, X_{20}, X_{16}$  are positively and significantly related to the dependent variable.  $X_6$  is negatively and significantly related to  $Y_{11}$ . In the final model, the highest coefficient (2.73) is for  $X_{16}$ . The next highest value of coefficient (0.53) is for  $X_{20}$ .

The Table 6.12 present the results of regression for changes in inter state migrants. The first variable  $X_{15}$  alone can make the value of  $R^2$  0.44. The final  $R^2$  is 0.93. These variables in the model can explain the dependent variables very well. The significant values are for  $X_{15}, X_6, X_{10}, X_{16}, X_{11}, X_{14}$  and  $X_8$ . The variables  $X_6, X_{16}, X_{11}, X_{14}$  and  $X_8$  has a negative sign.

The above study shows that the movement total of migrants are explained with the help of female work participation rate, urban male work participation rate. But the movement of male migrants could be explained better with the help of primary and secondary schools, female work participation rate, post and telegraph offices, number of beds in medical institutions, number of telephones, railways network, urban population and main workers.

In the case of intra-district migration process the net area irrigated to net area sown, number of factory workers per lakh of population, number of telephones, female work participation rate are the significant variables. Intra-



district male migration can be explained better with the help of road length, rural female literacy rate, factory workers per working factory. The results of inter-district total migrants suggests that female work participation rate, factory workers per working factory, commercial bank are the most important variables for medium distance migration. For inter-district male migrants are more affected by number of factory workers; town and villages electrified, main worker, commercial bank and rural female literacy rate. Inter-state total migration is related to post and telegraph offices; commercial bank, workers in manufacturing and factory workers. Inter-state male migration can be explained better with the help of post and telegraph office, number of factory workers, workers in manufacturing, commercial bank, workers in trade and commerce, number of telephone, and female work participation rate. Above study is enable to explain the behaviour of rural to rural male migration. The rural to urban migration is explained with the help of urban population, road length, main workers and railway network. The change in urban to urban male migration is related to urban male work participation rate, female work participation rate, workers in manufacturing, workers in trade and commerce, beds in medical institutions, net area sown to total geographical area and commercial bank. Urban to rural male migration can be explained with the help of number of telephone, town and villages electrified, workers in manufacturing, rural female literacy rail and road network, workers in manufacturing and workers in trade and commerce.

Table 6.11

**RESULTS OF THE STEPWISE REGRESSION ANALYSIS EXPLAINING DISTRICTWISE CHANGE IN PERCENTAGE OF INTER-DISTRICT MALE MIGRANTS TO TOTAL MALE MIGRANTS BETWEEN 1971-81 WITH THE HELP OF THE CHANGES IN ECONOMIC VARIABLES BETWEEN 1971-81 IN MAHARASTHRA**

Steps	Variables	Corresponding	Corresponding	Final Model		
		Adj.R <sup>2</sup>	R <sup>2</sup>	Coeff.	S.E.	T. Stat
1	X <sub>12</sub>	.03789	.07638	-.12372	.05940	-2.083
2	X <sub>5</sub>	.04976	.12578	.12517	.03193	3.920*
3	X <sub>17</sub>	.07167	.18307	.12412	.05102	2.433**
4	X <sub>7</sub>	.09302	.23813	.10670	.03542	3.012*
5	X <sub>6</sub>	.13221	.30577	-.01235	.00370	-3.333*
6	X <sub>20</sub>	.17176	.37054	.53714	.18882	2.845**
7	X <sub>16</sub>	.24218	.45437	2.73329	1.08080	2.529**
8	X <sub>14</sub>	.27269	.50543	-.00626	.00296	-2.109
9	X <sub>15</sub>	.33748	.57599	-.30174	.17035	-1.771
10	X <sub>19</sub>	.38084	.62850	-.23662	.16249	-1.456
	Constant			-6.34291	3.69194	-1.718

F = 2.53772\*\*

Note = \* Significant at 1% level of significance.  
 \*\* Significant at 5% level of significance.

Table 6.12

RESULTS OF THE STEPWISE REGRESSION ANALYSIS EXPLAINING DISTRICTWISE CHANGE IN PERCENTAGE OF INTER-STATE MALE MIGRANTS TO TOTAL MALE MIGRANTS BETWEEN 1971-81 WITH THE HELP OF THE CHANGES IN ECONOMIC VARIABLES BETWEEN 1971-81 IN MAHARASTHRA

Steps	Variables	Corresponding	Corresponding	Final Model		
		Adj.R <sup>2</sup>	R <sup>2</sup>	Coeff.	S.E.	T. Stat
1	X <sub>15</sub>	.42389	.44694	.45501	.10413	4.370*
2	X <sub>6</sub>	.52344	.56157	-.01207	.00247	-4.879*
3	X <sub>5</sub>	.58066	.63098	.01778	.01054	1.687
4	X <sub>10</sub>	.60046	.66439	1.05290	.23697	4.443*
5	X <sub>16</sub>	.63827	.71062	-1.36141	.57391	-2.372**
6	X <sub>11</sub>	.66257	.74355	-2.17421	.90754	-2.396**
7	X <sub>9</sub>	.69210	.77832	.34507	.18640	1.851
8	X <sub>14</sub>	.71043	.80309	-.00730	.00202	-3.604*
9	X <sub>8</sub>	.76607	.85028	-.19298	.05467	-3.530*
10	X <sub>2</sub>	.80520	.88312	-.16495	.08221	-2.006
11	X <sub>20</sub>	.82095	.89973	.14064	.14018	1.003
12	X <sub>3</sub>	.85069	.92236	.09935	.06953	1.429
13	X <sub>18</sub>	.85411	.92997	.02857	.01808	1.580
14	X <sub>21</sub>	.85623	.93674	.00039	.00036	1.085
	Constant			4.35714	1.57836	2.761**

F = 11.63472\*

Note = \* Significant at 1% level of significance.  
 \*\* Significant at 5% level of significance.

The above study indicates that most of the variables which affects migration are from the industrial and infrastructural sector of development. The results clearly indicates that migration initiated by the economic reasons. So we can say that the migration is one of the important factors in the process of economic development. From the study of chapter 4 and 5 it is clear that regional variation in the level of development has a significant factor in the migration process. People has a tendency to migrate in an already well developed areas or newly developing areas with more economic opportunities. The most important variables which has impact on migration are coming out to from the industrial and infrastructural sector. More developed districts, like Bombay, Nasik, Pune, Thane, Nagpur are attracting people from all over the places (with in the district, outside the district and other parts of country). With less economic oppourtunities the districts of Beed, Nanded, Osmanabad are having a low share of migrant.

## CHAPTER 7

### SUMMARY AND CONCLUSION

#### *Summary*

Migration is not an immediate action nor is it generated by a single impulse that may vary from one person to another. When an individual or a family moves, the movement is made for certain reasons and the destination is selected for certain reasons. These reasons may be the result of economic, social, political or other factors. These causes may occur in different combination also. In the literature survey, it has been suggested that the most important cause in India is economic. Areas of expanding opportunities for employment are having a higher share of immigration, while other areas of declining or stagnant economic opportunities are having a low share of immigration.

In this present study an attempt has been made to find out the relationship between migration and economic development.

The state of Maharashtra has been selected as the study area. Some of its regions are highly developed and industrialized - for example, Bombay known as the financial capital of India. On the other hand, it consists of underdeveloped districts faced with drought and other basic problems (for example the district of Beed, Nanded etc). These differences in the economic opportunities available in this region provides differing incentives for migration. This characteristic makes it an interesting region

to study.

The study is based on secondary data, collected from the various publications of the census of India related to Maharashtra and Statistical Abstract of Maharashtra. The district has been chosen as the unit of the study. The study compares the situations prevailing in 1981 with that of 1971 in Maharashtra.

Migration pattern for both total and male migrants have been studied together with temporal change during 1971-81. Migration is also classified and studied according to distance and directions.

The levels of economic development have been studied with the help of a number of indicators representing different aspects of development. Composite ranks of the indicators in each sector have been calculated for categorizing the districts into different levels of development. In the next step, the ranks corresponding to overall development have been assigned on the basis of the summation of ranks given to the four sectors.

Finally an attempt has been made to establish the relationship between migration and economic development with the help of step-wise regression analysis.

The share of migrants in total population in 1971 varies between 53% in Bombay to 27.46% in Osmanabad. Industrially developed areas and the areas of agro-based industries viz. Bombay, Pune, Yavatmal, Wardha, Nagpur, Satara, Nasik are the areas with a high share of migrants. In

contrast the areas of Beed, Osmanabad, Raigad, Ratnagiri, Nanded, Parbhani which are not industrially developed have low share of migrants.

The average share of migrants in the state has improved from 36.23% in 1971 to 39.76% in 1981 (showing a change of 3.53%). Only Bombay is showing a little decrease in share of migrants from 53.74% to 49.78% over the decade (indicating a change of -3.96%). The districts surrounding Bombay and part of Bombay-Puna industrial belt are showing high increase in the share of migrants in total population. See for example, the cases of Thane (38.01% to 45.12%), Dhule (34.01% to 40.07%), Nasik (39.83% to 42.21%), Pune (39.17% to 44.67%), Kolhapur (33.04% to 39.27%). Satara shows the maximum increase (+7.67%), having the second highest share of migrants (48.34%) in 1981.

The share of male migrants to the total male population overall has shown the same pattern as for total migrants to total population. It varies from 58.15% in Bombay to 12.63% in Beed in the year 1971. The average share of male migrants has increased from 25.32% to 28.15% over the decade. This shows a +2.83% average change in the share of male migrants. Bombay (-5.12%) and Amravati (-0.73%) show negative change in share of migrants in 1971-81. Thane indicates the maximum positive change of 8.12% and stands second in the share of male migrants.

The share of male migrants to total migrants further indicates the process at work. The share of male migrants to total migrants varies from

63.05% in Bombay to 23.36% in Beed in 1971. These positions still hold for 1981. There is not much change in average over the decade 1971-81 (35.11% to 35.71%). The area of very high share of male migrants are Bombay, Pune, Thane. The district of Nasik, Dhule, Ahmadnagar, Satara, Amravati, Yavatmal, Wardha, Nagpur and Chandrapur have high share of migrants (between 35.71% to 42.79%). Industrially developed districts of Satara, Thane, Pune, Nagpur are predominated by male migration in 1971-81, but on the other hand, industrially developed districts of Bombay, Nasik, Wardha, Kolhapur and Chandrapur are attracting relatively more females in 1971-81 and show a negative change in the share of male migrants in total migrants.

The regional pattern of change in number of male migrants shows positive change in every district of Maharashtra. Bombay experiencing an extremely high change is followed by Thane with very high increase and Pune with high change in the number of male migrants. All the other districts are in the category of medium high and medium low.

The percentage increase in total migrants during 1971-81 varies from Thane (74.37%) to Bhandara (17.95%). The average percentage increase is 35.22%. Pune (49.46%), Nagpur (37.57%), Dhule (45.33%), Satara (40.27%) and Sangli (38.60%) are experiencing a high to medium high increase in migrants. Bombay, Kolaba, Nasik, Yavatmal etc. are in the category of medium low ranging from 24.08% to 35.22%.



The male migrants classified by distance covered have revealed that the districts with a very high share of short distance migrants are the ones experiencing a very low share of long distance migration. The average share of intra-district male migrants in total male migrants is 58.23% for all the districts together, inter-district share is 28.85% and inter-state share is 12.92% in 1981. The long distance migrants are prominent only in Bombay (57.75%), Thane (37.50%), Kolhapur (21.21%) and Nagpur (31.17%). Medium distance migration is also prevalent in the belt, though only in Bombay (42.23%), Thane (44.02%), Pune (41.54%), and Wardha (37.79%). The short distance migrants are prominent in Nasik, Dhule, Jalgaon and Parbhani. The change in share of male migrants in short medium and long distance shows that recently developed areas are attracting more people from outside states viz. Thane, Raigad, Nagpur etc. The district of Pune, Thane, Raigad, Satara, Sangli shows a very high change in medium distance migration. Pune is showing a very high change in short distance migration.

Migration classified by streams of movement shows that rural to urban and urban to urban migration are predominant in the industrially developed districts viz Bombay, Pune, Nagpur, Thane etc. The district of Dhule, Ahmadnagar, Ratnagiri, Bhandore, etc. are shows very high share of made migrants in rural stream. The high change in the rural to urban and urban to urban are in Thane, Nasik, Parbhani, Kolhapur etc. For the

same Ratnagiri, Bombay, Satara, Solapur, Wardha and Nagpur show very low change in the movement of male migration.

The economically most developed areas in 1970-71 are around the hub of industrially active Bombay. The least developed areas are predominantly agricultural areas where neither commercial agriculture nor industry is developed. Two distinct zones can be identified as very developed in Maharashtra. The first is the most economically developed area which includes Bombay, Pune, Thane, Nasik, Satara, Sangli and the second zone includes Nagpur, surrounded by medium developed districts of Wardha, Amravati and Akola. The ranking method is used for a number of variables in the 4 development sectors. Bombay, Nagpur, Thane etc. shows a low level of development and Pune, Nasik, Satara, Sangli, Kolhapur, Ahmadnagar shows a high level of development in agriculture sector. Bombay, Thane, Nasik, Pune, Wardha, Nagpur are industrially very developed and Ratnagiri, Beed, Dhule, Osmanabad are in the level of low development. It is true for both the years 1971 and 1981.

Infrastructural development follows the same pattern as that of industrial development, because for industrialization support of infrastructure is a must. Human resource development is high in Bombay, Ratnagiri, Pune, Satara, Sangli and Thane gains high level of development in 1981 only. Dhule, Beed, Nanded, Osmanabad, Yavatmal etc. are in the low level of development for both the years.

The regression analysis has been conducted between the decadal changes in economic development indicators and decadal change in the different indicators of migration from 1970-71 to 1980-81. The results shows that the different indicators of migration are affected by the different indicators of economic development.

Female work participation rate, urban male work participation rate, main worker, number of factory workers, commercial bank, workers in manufacturing, rail and road network, urban population and workers in trade and commerce are the variables which are very important for the migration processe. Most of these indicators are from the industrial sector of development while a few indicators are from the infrastructural sector. It is obvious from these results that the pull factors are strong in Maharashtra. Most of the pull factors are generated by industrialization. But in case of short distance migration and rural inmigration the railways, female literacy rate, town and villages electrified and net area sown are important.

### ***Conclusion***

It can be concluded that migration and economic development in Maharashtra in the decade 1971-81, are closely related. Bombay, Puna, Thane, Nasik are coming out to be the districts with very high share of migrants, specially male migrants. These districts are highly industrialised

and form Bombay-Pune bifocal industrial zone. Pune, Satara, Sangli are industrially as well as agriculturally also developed which promoted the agro based industries there. The districts adjoining Bombay-Pune-Kolhapur belt are coming out to be the most important zone for immigration from within the district and outside the districts and from other states also. The variables from industrial sector viz Commercial bank, female work participation rate, urban male work participation rate, main workers, number of factory workers, workers in manufacturing industries, workers in trade and Commerce are thrown out by the regression analysis to be important in the migration process.

## **Appendices**

APPENDIX 1

Districts	Total Population 1971	Total Male Population 1971	Share of Male Migrants in Total Male Population 1971	Share of Male Migrants in Total Migrants 1971	Share of Migrants in total population 1971	Change in the share of Male Migrants to total Male Population 1971 - 81	Total Population 1981	Total Male Population 1981	Share of male Migrants in total Male Population 1981	Share of Male Migrant to total Migrants 1981	Change in the Share of Male Migrants to total Migrants 1971 - 81	Change in the No of Male migrants 1971 - 81	Share of migrants in total Population 1981	Change in the share of migrants in total Population 1971 - 81	Percentage increase in the share of Migrants 1971 - 81
BOMBAY	5970575	3478378	58.15	63.05	53.74	-5.12	8243405	4652646	53.03	60.12	-2.92	444400	49.78	-3.96	27.90
THANA	2281664	1204855	33.39	46.39	38.01	8.12	3351562	1779645	41.40	48.72	2.34	334490	45.12	7.11	74.37
RAIGAD	1263003	614278	20.40	32.19	30.83	4.49	1486452	726512	24.89	34.58	2.39	55454	35.18	4.35	34.28
RATNAGIRI	1990583	886995	16.94	23.57	32.02	5.85	2111311	943395	22.79	27.46	3.89	64767	37.08	5.06	22.84
NASIK	2369221	1221419	29.62	38.35	39.83	0.92	2991739	1544532	30.54	37.35	-0.99	109867	42.21	2.38	33.83
DHULE	1662181	849601	25.60	38.47	34.01	3.74	2050294	1043140	29.34	37.25	-1.22	88528	40.07	6.06	45.33
JALGAON	2123121	1089840	27.34	36.19	38.78	1.32	2618274	1342963	28.66	34.88	-1.31	86884	42.15	3.36	34.02
AHMADNAGAR	2269117	1160205	29.30	37.95	39.47	2.67	2708309	1382632	31.97	37.49	-0.46	102086	43.53	4.06	31.63
PUNE	3178029	1643864	31.83	42.04	39.17	5.11	4164470	2150088	36.94	42.69	0.65	270914	44.67	5.51	49.46
SATARA	1727376	848092	26.52	32.01	40.67	7.69	2038677	989122	34.21	34.33	2.32	113460	48.34	7.67	40.27
SANGLI	1539820	790165	25.95	34.80	38.27	5.79	1831212	931187	31.74	36.19	1.38	90462	44.60	6.33	38.60
SOLAPUR	2253840	1165927	22.22	35.12	32.73	2.56	2610144	1344147	24.78	35.57	0.45	74056	35.88	3.15	26.95
KOLHAPUR	2048049	1045474	21.98	33.96	33.04	4.25	2506330	1273881	26.23	33.95	-0.01	104287	39.27	6.22	45.43
AURANGABAD	1971006	1014481	17.07	26.53	33.11	4.69	2433420	1249632	21.77	30.80	4.27	98882	36.29	3.18	35.32
PARBHANI	1506771	768662	16.40	26.62	31.43	3.98	1829378	929638	20.38	28.28	1.66	63444	36.63	5.20	41.50
BEED	1286121	658204	12.63	23.36	27.66	4.66	1486030	755971	17.29	26.32	2.95	47556	33.42	5.75	39.56
NANDED	1397762	714820	17.19	27.82	31.59	3.57	1749334	892417	20.76	30.08	2.26	62391	35.20	3.61	39.46
OSMANABAD	1896687	975484	13.50	25.28	27.46	3.71	2230620	1139197	17.21	26.79	1.51	64416	32.81	5.35	40.53
BULDANA	1262978	646303	23.48	32.52	36.94	2.20	1508777	770833	25.68	32.53	0.01	46247	40.33	3.39	30.44
AKOLA	1501478	773569	27.01	37.27	37.34	0.19	1826952	937824	27.20	35.54	-1.73	46156	39.29	1.95	28.02
AMRAVATI	1541209	798073	27.09	37.29	37.61	-0.73	1861410	961564	26.36	35.89	-1.40	37254	37.93	0.32	21.80
YAVATMAL	1423677	726072	31.79	40.05	40.48	0.06	1737423	887236	31.85	39.14	-0.92	51711	41.55	1.07	25.27
WARDHA	779562	400040	28.34	36.74	39.58	0.53	926618	475696	28.87	36.32	-0.42	23939	40.80	1.21	22.51
NAGPUR	1942688	1010911	27.72	40.73	35.42	1.40	2588811	1345377	29.12	41.39	0.66	111536	36.57	1.15	37.57
BHANDRA	1585580	798072	18.76	27.46	34.39	0.41	1837577	920159	19.17	27.43	-0.03	26695	35.01	0.61	17.95
CHANDRAPUR	1640137	832567	28.03	36.98	38.47	1.47	2055642	1045692	29.50	37.36	0.38	75167	40.17	1.70	30.88

## APPENDIX 2

	MALE MIGRATION CLASSIFIED BY DISTANCE COVERED 1971			MALE MIGRATION CLASSIFIED BY DISTANCE COVERED 1981			CHANGE IN MALE MIGRATION		
	Intra District	Inter District	Inter State	Intra District	Inter District	Inter State	Intra District	Inter District	Inter State
BOMBAY	0	42.34	57.65	0.01	43.51	56.48	0.01	-0.11	0.1
THANA	23.52	41.32	35.15	29.74	41.11	29.15	-5.05	2.7	2.35
RAIGAD	60.92	28.65	10.42	66.69	24.27	9.04	-8.95	3.49	5.45
RATNAGIRI	61.97	31.85	6.17	74.80	19.35	5.85	-5.25	0.7	4.55
NASIK	63.73	26.77	9.52	72.82	21.93	5.25	8.25	-6.35	-2.04
DHULE	69.03	22.01	8.95	68.58	22.41	9.01	-1.28	1.5	-0.76
JALGAON	72.57	21.02	6.39	72.90	21.56	5.54	-0.81	0.62	0.2
AHMADNAGAR	62.91	32.59	4.49	68.93	29.40	1.68	3.26	-1.28	-1.99
PUNE	41.92	38.15	19.92	52.11	36.67	11.22	1.96	3.39	-5.35
SATARA	66.16	27.19	6.42	69.60	26.25	4.15	-9.57	3.96	0.12
SANGLI	59.24	25.37	15.38	59.84	27.57	12.60	-2.65	2.9	-0.28
SOLAPUR	61.40	22.53	16.05	66.57	21.82	11.61	3.47	-0.64	-2.82
KOLHAPUR	60.32	18.94	20.73	63.90	19.04	17.06	-4.69	-4.21	0.48
AURANGABAD	59.13	33.98	6.87	69.20	27.89	2.92	2.53	0.76	-1.76
PARBHANI	69.41	26.25	4.33	70.99	27.11	1.91	-2.72	3.62	-0.9
BEED	71.33	25.78	2.87	68.32	30.34	1.34	-5.84	6.25	-0.4
NANDED	62.48	25.54	11.97	69.06	22.38	8.56	2.52	0.31	-2.83
OSMANABAD	71.01	20.60	8.37	72.66	21.07	6.27	-0.29	1.82	-1.53
BULDANA	71.55	24.93	3.51	69.61	28.00	2.39	-2.04	2.26	-0.23
AKOLA	62.91	32.46	4.61	63.12	33.81	3.07	-0.37	0.71	-0.34
AMRAVATI	66.20	24.09	9.71	64.91	26.11	8.98	-3.23	1.34	1.89
YAVATMAL	71.88	23.79	4.32	68.67	27.43	3.90	-1.91	1.61	0.3
WARDHA	56.95	35.86	7.17	57.04	38.69	4.27	-0.5	1.93	-1.42
NAGPUR	42.75	31.03	26.21	44.95	29.51	25.53	-5.24	0.29	4.96
BHANDRA	67.68	14.58	17.53	76.95	11.35	11.84	4.18	-1.36	-2.63
CHANDRAPUR	68.26	17.29	14.45	71.66	17.81	11.14	-2.81	2.63	0.18

## Appendix 3

	Male migration by direction				Male Migration by direction				Change in male migration by direction			
	1971		1981		1971-81		1971-81		1971-81		1971-81	
	R-R	R-U	U-U	U-R	R-R	R-U	U-U	U-R	R-R	R-U	U-U	U-R
BOMBAY	0.00	71.47	28.53	.00	0	72.33	27.67	0	0	0.86	-0.86	0
THANA	28.68	31.02	29.78	10.52	25.01	36.55	29.93	8.51	-3.67	5.53	0.15	-2.01
RAIGAD	55.61	16.29	11.85	16.24	54.14	17.00	11.88	16.99	-1.48	0.7	0.03	0.74
RATNAGIRI	50.98	12.79	7.83	28.41	55.21	10	6.49	28.31	4.23	-2.79	-1.34	-0.1
NASIK	53.71	24.26	14.98	7.05	47.34	25.83	17.44	9.40	-6.38	1.57	2.46	2.35
DHULE	67.22	18.03	7.87	6.87	66.15	19.28	8.09	6.48	-1.07	-1.25	0.22	-0.40
JALGAON	59.55	20.15	11.52	8.78	59.62	19.55	11.07	9.75	0.07	-0.60	-0.45	0.98
AHMADNAGAR	72.70	13.02	4.95	9.33	72.67	11.76	6.06	9.51	-0.03	-1.27	1.12	0.18
PUNE	31.32	36.66	24.78	7.42	31.46	36.07	24.76	7.71	0.14	-0.59	-0.02	0.47
SATARA	62.82	16.68	7.75	12.76	65.84	12.56	6.74	14.86	3.02	-4.12	-1.00	2.10
SANGLI	60.83	20.63	8.29	10.25	59.65	20.34	9.77	10.24	-1.18	-0.29	1.48	-0.01
SOLAPUR	54.23	24.28	11.71	9.77	55.78	22.59	10.75	10.89	1.55	-1.70	-0.96	1.11
KOLHAPUR	50.26	27.47	11.85	10.43	48.41	28.68	13.43	9.49	-1.85	1.21	1.58	-0.94
AURANGABAD	54.70	25.12	13.26	6.92	49.71	29.96	14.60	5.73	-4.99	4.83	1.35	-1.19
PARBHANI	61.85	21.72	10.71	5.72	57.68	24.80	12.05	5.47	-4.17	3.08	1.34	-0.25
BEED	62.49	22.17	6.92	8.42	59.72	23.11	9.58	7.60	-2.77	0.93	2.66	-0.82
NANDED	61.92	23.87	9.18	5.03	60.42	23.44	10.17	5.97	-1.50	-0.43	0.98	0.95
OSMANABAD	63.80	21.46	7.83	6.90	60.38	23.68	8.57	7.37	-3.42	2.22	0.74	0.46
BULDANA	64.06	20.01	8.27	7.65	64.60	17.35	9.07	8.98	0.54	-2.67	0.80	1.32
AKOLA	58.81	19.45	11.37	10.37	59.02	18.71	11.26	11.01	0.21	-0.75	-0.11	0.64
AMRAVATI	54.82	23.90	11.40	9.88	52.57	24.91	11.54	10.98	-2.26	1.01	0.14	1.10
YAVATMAL	74.92	13.15	5.22	6.71	71.64	14.96	5.74	7.66	-3.29	1.81	0.52	0.96
WARDHA	54.79	24.92	12.11	8.18	56.85	22.01	10.77	10.36	2.06	-2.91	-1.34	2.19
NAGPUR	29.04	40.51	23.93	6.53	32.70	40.16	21.00	6.14	3.66	-0.35	-2.92	-0.39
BHANDRA	66.21	16.36	7.96	9.47	66.13	18.38	8.45	7.03	-0.08	2.02	0.49	-2.44
CHANDRAPUR	75.21	12.68	5.67	6.44	71.74	14.87	6.38	7.01	-3.47	2.19	0.71	0.57



Appendix 4  
Indicators of economic development 1971

	Percentage net area sown per agricultural worker (hectare)	Percentage of net area irrigated to net area sown	Percentage of net area sown to total geographical area	Percentage of urban population to total population	No. of factory workers per working factory	No. of factory workers per lakh of population	Percentage of main workers to total population	Female work participation rate	Urban male work participation rate	Percentage of workers engaged in manufacturing to total main workers	Percentage of workers employed in Trade & Comm. to total main workers	Road length per 100 sq.km. of geographical area (km)	Railway km/age per 100 sq. km. of geographical area (km)	No. of telephones per lakh population	No. of post & telephone offices per lakh Populn.	No. of Commercial banks per lakh of population	Percentage of town & villages electrified	No. of beds in medical institutions per lakh of population	No. of Percentage of literates to total population.	No. of rural female literates to total rural female populn.	No. of enrolment in prim. & sec. schools per lakh of populn.
BOMBAY	2.8	3.2	10.11	100	96	8239	36.8	7.7	57.6	42.29	22.36	8.2	15.5	2298	5	10.3	100	339	63.8	0	6276.47
THANA	1.4	2	25.11	36.2	100	4600	37.4	18.6	53.4	21.34	7.16	26.7	2.6	392	14	4.9	49.7	112	40.7	18.74	4339.94
RAIGAD	2.3	3.1	24.65	12.1	74	785	35.9	23.4	50	5.88	4.23	55.6	1.2	110	20	2.9	63.3	67	35.3	20.82	4190.48
RATNAGIRI	4.7	3.4	26	8.4	56	198	35	28.1	43.5	4	3.21	40.6	0	64	39	2.6	45.3	81	39.8	27.79	4741.93
NASIK	3.3	11	46.8	28.6	91	842	37.8	23.7	44.8	10.99	4.57	54.8	1.6	182	21	2.9	50.3	66	36.3	16.27	4429.62
DHULE	2.6	8.1	50.35	17.3	78	516	35.7	19.7	43.5	5.97	4.38	48.5	1.2	99	18	2	45.7	69	31.9	16.1	3969.31
JALGAON	2.3	10.4	62.68	23.7	59	637	36.1	22.2	44.6	6.65	4.69	48.9	3.2	120	23	2.1	93.3	57	45.2	27.93	5023.05
AHMADNAGAR	5.1	13.9	65.59	11.1	124	471	35.4	19.2	47	8.18	3.95	83.2	1.2	110	25	2	94.5	84	36.2	20.11	4561.86
PUNE	6.8	11	58.14	41.8	82	2676	32.6	14.6	48.4	16.17	7.3	82.1	1.9	455	20	6	55.1	256	44.6	19.35	5205.97
SATARA	5.6	14.8	51.59	13.2	98	531	31.3	16.5	43.8	7.29	4.25	47.4	1.1	122	28	4.3	54.9	86	38.3	21.7	4978.17
SANGLI	6.2	9.9	66.65	18.6	72	632	31.1	10.7	46.4	9.44	4.99	50.8	1.9	141	26	4.2	74.3	91	37.5	19.53	4808.36
SOLAPUR	4.6	9.3	77.58	27.4	92	916	33.7	14.6	44.9	13.01	6.06	71.3	2.9	155	21	2.7	55.7	143	33.9	15.23	4373.06
KOLHAPUR	3.7	11.7	50.09	21.5	46	898	34	15.7	47.7	11.71	4.89	53.3	0.5	196	20	3.1	92.3	71	35.4	14.52	4210.46
AURANGABAD	4.7	7	67.34	16.7	68	506	37.1	21.1	44	3.5	3.87	38.2	1	121	21	2.6	62.7	76	28.5	9.97	8094.58
PARBHANI	4	2.3	70.95	16.1	78	251	37.4	20	46.3	4.08	3.69	32.1	2.2	47	19	1.5	49.4	30	24.3	8.22	3108.93
BEED	4.7	6.9	59.28	11.6	42	66	35.2	17.6	43.3	4.05	3.06	29.4	0.4	47	20	1.1	52.1	58	24	8.96	3219.6
NANDED	3.8	2.2	68.4	16.3	146	508	35.6	17.3	45.9	6	4.18	48.8	2.1	68	23	1.7	62	44	22.8	7.42	3592.19
OSMANABAD	4.4	7.4	72.63	12.5	65	81	33.8	15.1	43.7	4.27	3.48	34.8	0.9	68	24	1.3	53.5	28	27.9	12.83	4220.08
BULDANA	2.5	2.3	71.42	17.6	86	388	43	30.9	45.3	3.85	3.19	29.3	0.8	76	25	1.6	51	46	37.3	19.15	3998.31
AKOLA	2.4	1	75.93	23.5	86	541	40	27	46.3	4.3	4.32	31.7	3	116	23	1.7	49	85	39.6	21.8	4252.96
AMRAVATI	2.1	2.1	58	27.6	90	476	38.5	24	46.4	5.25	4.72	29.4	1.5	136	23	1.8	60.1	182	42.4	27.26	4734.21
YAVATMAL	2.4	0.8	59.28	13.6	80	337	42.3	30.1	46	3.92	3.26	42.7	0.5	93	21	1.6	53.1	47	31.6	16.73	3323.08
WARDHA	2.8	2.2	67.53	24.5	146	723	39.1	25.7	43.6	6.62	3.83	32.7	2.3	110	21	2.6	63.8	193	41.7	25.45	5059.37
NAGPUR	2.9	7.4	55.15	54.3	67	1319	35.5	19.7	45.3	16.95	8.14	32.7	3.5	471	16	3.9	67.6	221	45.3	19.6	5765.76
BHANDRA	2.1	35.6	42.37	11.4	20	157	46.8	38.5	46.7	18.27	2.55	28.9	3.1	64	16	1.5	48.9	34	35.4	18.23	3365.25
CHANDRAPUR	3	16.9	25.51	10.2	115	334	40.5	25.4	48.1	5.63	2.5	10.2	1.2	65	18	1.4	19.5	53	26.8	12.12	3099.91

Appendix 5  
Indicators of economic development 1981

	% net area sown per agricultural worker (hectare)	% of net area irrigated to net area sown	% of net area sown to total geographical area	No of tractors per 100 hectare of net area sown	% of urban population to total population	No. of factory workers per working factory	No. of factory workers per lakh of population	Per capita annual earning of employment in manufacturing industries	% of main workers to total population	Female work participation rate	Urban male work participation rate	% of workers engaged in manufacturing to total main workers	% of workers employed in Trade and Commerce to total main workers	Road length per 100 sq.km. of geographical area (km)	Railway kilometrage per 100 sq. km of geographical area (km)	No. of telephones per lakh population	No. of post and telephone offices per lakh	No. of Commercial banks per lakh of population populatn	% of town and villages electrified	Per Capital Domestic consumption of electricity	Per Capital Industrial consumption of electricity	Motor vehicles per lakh of population	No. of beds in medical institution per lakh of population	No. of % of literates to total population.	No. of rural female literates to total rural female population	No. of enrolment in primary and secondary schools per lakh of population
1	2.1	12.9	16.3	0	100	83	7508	12665	34.7	8.97	54.8	41.4	21.8	8.9	34	3331	4	12.5	100	137.19	356.27	3812	351	68.18	0	5984.16
2	1.5	2.4	28.1	0.05	44.34	110	4247	14383	37.83	23.23	53.7	27.33	8.07	35.2	1.3	900	14	6.5	63.8	32.44	619.16	1159	158	50.5	27.01	5163.18
3	2.3	4.2	28.4	0	14.12	95	961	14057	37.63	33.3	51.1	9.58	5.06	52.6	2	293	29	5.3	69.5	11.64	297.73	450	87	45.59	30.66	5392.07
4	4.6	4.3	27.7	0	8.73	60	266	6064	34.06	36.35	44.3	5.03	4.48	42.1	0	147	50	5.4	53.5	10.75	12.2	369	134	47.75	36.29	5828.85
5	3.5	12	59.6	0.17	31.02	56	1201	6677	40.77	34.65	47.9	12.86	5.47	39	1.7	388	23	4.8	79.3	13.57	60.58	1263	81	44.36	23.5	5429.26
6	2.7	9.1	49.1	0.12	19.52	79	415	5163	38.01	33.52	43.4	6.47	4.94	41.5	0.2	178	23	4	65.7	9.74	17.9	734	69	37.51	20.79	4669.53
7	2.3	11.4	70.7	0.17	25.14	102	724	7046	39.57	31.92	45.1	6.98	5.24	29	4.3	224	24	3.9	96.5	13.05	25.09	847	72	48.14	29.86	5470.17
8	5	17.2	71.9	0.14	12.97	108	659	4178	41.55	37.69	48.8	9.1	4.35	37.5	1.2	204	25	3.6	78.5	8.96	28.56	1065	93	43.16	25.91	5486.57
9	7	15.4	64.5	0.09	47.33	87	3025	10606	34.95	25.24	48.8	18.93	8.29	40.5	2	876	19	8.2	63.2	37.14	166.1	3123	273	54.03	28.91	6081.56
10	5.7	17.3	53.3	0.14	13.04	99	561	7332	33.56	34.68	44.9	8	5.02	38.9	1.3	214	32	5.4	73.5	12.14	20.75	690	90	48.15	32.77	6331.03
11	6	11.2	70.6	0.09	21.52	54	678	6644	34.16	24.36	47.8	9.88	5.47	44.3	2	266	27	7	72.8	9.6	46.56	1021	143	46.87	29.41	6009.2
12	4.5	11.1	74.5	0.04	29.62	25	1149	4952	37.66	29.02	45.8	15.05	6.17	40.4	3	220	23	5.2	82.4	8.8	55.9	832	154	40.68	21.03	4881.37
13	3.7	14	51	0.33	25.22	57	1132	5150	36.76	28.83	49.8	14.1	5.49	51.3	0.5	426	27	6	81.1	13.7	126.5	1713	92	45.36	24.31	5418.76
14	5	11.1	79	0.06	24.83	91	870	5579	41.22	35.98	44.2	7.18	4.29	32.1	1.1	269	21	4.2	87.4	8.96	67.2	1042	142	35.8	13.62	3980.66
15	4	6	80.2	0.02	19.87	58	203	3119	44.32	39.91	47.8	4.44	4.19	35.8	2.2	85	19	3.5	75.5	4.25	8.8	179	48	30.33	11.07	3626.03
16	4.8	11.5	71.8	0.01	16.28	65	160	4809	40.36	36.26	44.7	4.8	3.66	33.6	0.4	79	21	3	81.1	5.66	6.95	194	66	31.79	13.63	4139.82
17	3.7	4.9	71.8	0.01	18.74	117	470	5660	40.6	41.26	44	6.23	4.9	39.2	2.2	130	27	4.1	90.2	8.41	17.76	356	54	29.78	11.15	3895.63
18	4.3	12.4	81.3	0.02	12.64	63	111	4527	38.87	34.39	44.2	4.98	4.32	33.7	0.9	96	26	3.5	84.4	4.6	15	244	42	35.36	18.48	5160.02
19	2.5	3.9	70.1	0.09	18.49	72	445	1768	57.62	43.92	46.9	4.25	3.95	31.6	0.9	117	25	3.6	80.8	7.64	125.97	530	58	44.64	25.77	4665.28
20	2.4	2.3	78.3	0.05	24.89	66	603	4692	42.38	34.8	45.8	5.18	4.73	23.6	3.1	206	24	3.4	76.3	11.2	29.01	0	100	47.82	30.55	5295.38
21	2.1	4.4	58.8	0.04	29.25	70	551	4985	40.46	30.83	46.1	5.57	4.92	19.1	1.5	370	28	4	78.7	13.6	21.74	0	185	51.82	37.8	5646.43
22	2.4	2.8	63	0.01	15.04	70	412	2789	46.04	41.76	44.2	4.23	3.35	25.8	0.5	120	21	3.2	80	9.06	15.56	0	69	39.29	22.82	4610.55
23	2.7	7.5	68	0.02	24.98	145	825	5701	42.87	35.31	43.4	6.89	4.2	24	2.4	212	23	4.4	80	13.57	42.54	682	189	51.05	35.27	6211.72
24	2.8	9.2	55.8	0.01	56.75	77	1446	6844	35.59	25.07	44.3	16.37	8.27	18.7	3.8	533	23	4.6	82.3	25.75	128.56	1983	218	54.56	29.88	6489.56
25	2	36.5	40.2	0.05	13.1	11	155	2593	49.93	46.39	43.8	14.48	3.06	20.6	3.2	124	19	2.8	65.4	8.78	103.31	499	51	43.92	26.25	4815.61
26	2.9	7.6	26.4	0.03	17.36	66	423	8315	49.13	43.22	45.2	6.27	2.77	12.1	1.2	97	22	3.1	40.2	6.45	184.3	393	63	34.69	18.67	4068.34

## Appendix 6

## Change in migration variables 1971 - 81

DISTRICTS	Change in share of male migrants in total male population	Change in share of total migrants in total population	Change in percentage of intra-district total migrants to total migrants	Change in percentage of inter-district total migrants to total migrants	Change in percentage of inter-state total migrants to total migrants	Change in percentage of rural-rural male migrants to total migrants	Change in percentage of rural-urban male migrants to total migrants	Change in percentage of urban-urban male migrants to total migrants	Change in percentage of urban-rural male migrants to total migrants	Change in percentage of intra-district male migrants to total male migrants	Change in percentage of inter-district male migrants to total male migrants	Change in percentage of inter state male migrants total male migrants
BOMBAY	-2.92	-3.96	0.01	-0.04	0.03	0	-3.21	-1.92	0	0.01	-0.11	0.1
THANA	2.34	7.11	-8.99	5.28	3.71	3.68	5.72	0.83	0.84	-5.05	2.7	2.35
RAIGAD	2.39	4.35	-6.91	3.4	3.52	2.84	2.23	0.83	1.18	-8.95	3.49	5.45
RATNAGIRI	3.89	5.06	-5.16	2.8	2.36	4.31	2	2.14	1.79	-5.25	0.7	4.55
NASIK	-0.99	2.38	2.51	-1.72	-0.79	-1.26	0.15	1.52	1.26	8.25	-6.35	-2.04
DHULE	-1.22	6.06	-5.53	4.69	0.84	3.34	2.24	0.5	0.24	-1.28	1.5	-0.76
JALGAON	-1.31	3.36	-2.55	2.44	0.11	1.34	-0.87	-0.62	0.57	-0.81	0.62	0.2
AHMADNAGAR	-0.46	4.06	1.54	-0.72	-0.82	2.74	-4.9	1.94	0.42	3.26	-1.28	-1.99
PUNE	0.65	5.51	-0.58	3.41	-2.83	5.06	0.41	0.57	1.49	1.96	3.39	-5.35
SATARA	2.32	7.67	-3.49	3.09	0.4	6.78	-0.49	2	1.97	-9.57	3.96	0.12
SANGLI	1.38	6.33	-2.39	2.44	-0.06	4.75	1.36	2.85	0.88	-2.65	2.9	-0.28
SOLAPUR	0.45	3.15	1.58	-0.15	-1.44	2.98	-0.6	-0.41	0.83	3.47	-0.64	-2.82
KOLHAPUR	-0.01	6.22	-2.19	2.09	0.1	2.88	2.13	2	0.4	-4.69	-4.21	0.48
AURANGABAD	4.27	3.18	-2.55	2.75	-0.2	2.7	4.1	1.01	0.18	2.53	0.76	-1.76
PARBHANI	1.66	5.2	-3.63	3.85	-0.22	2.39	4.85	2.2	0.25	-2.72	3.62	-0.9
BEED	2.95	5.75	-3.26	3.13	0.13	3.3	1.91	3.18	0.35	-5.84	6.25	-0.4
NANDED	2.26	3.61	-0.15	1.55	-1.4	2.72	0.99	1.63	0.5	2.52	0.31	-2.83
OSMANABAD	1.51	5.35	-2.19	2.89	-0.7	2.45	3.37	1.15	0.44	-0.29	1.82	-1.53
BULDANA	0.01	3.39	-1.88	1.96	-0.08	2.08	-2.35	1.63	0.654	-2.04	2.26	-0.23
AKOLA	-1.73	1.95	0.31	-0.01	-0.3	0.55	-1.66	-0.61	0.32	-0.37	0.71	-0.34
AMRAVATI	-1.4	0.32	-2.31	1.04	1.27	-0.98	-0.83	-0.7	0.39	-3.23	1.34	1.89
YAVATMAL	-0.92	1.07	-1.61	1.34	0.27	-0.72	1.01	-0.02	0.41	-1.91	1.61	0.3
WARDHA	-0.42	1.21	-1.19	1.88	-0.69	1.22	-2.97	-1.36	0.91	-0.5	1.93	-1.42
NAGPUR	0.66	1.15	-5.5	0.86	4.65	4.32	0.05	-1.36	0.15	-5.24	0.29	4.96
BHANDRA	-0.03	0.61	1.7	-0.61	-1.09	0.56	0.19	-0.61	-0.46	4.18	-1.36	-2.63
CHANDRAPUR	0.38	1.7	-3.08	2.3	0.78	0.76	0.19	-0.53	0.36	-2.81	2.63	0.18

## Appendix 7

## Change in indicators of economic variables 1971-81

	Change in % net area sown per agricultural worker (hectare)	Change in % of net area irrigated to net area sown	Change in % of net area sown to total geographical area	Change in % of urban population to total population	Change in No. of factory workers per working factory	Change in No. of factory workers per lakh of population	Change in % of main workers to total population	Change in Female work participation rate	Change in Urban male work participation rate	Change in % of workers engaged in manufacturing to total main workers	Change in % of workers employed in Trade & Comm. to total main workers	Change in Road length per 100 sq.km. of geographical area (km)	Change in Railway km/rage per 100 sq. km of geographical area (km)	Change in No. of telephones per lakh population	Change in No. of post & telephone offices per lakh Populn.	Change in No. of Commercial banks per lakh of population	Change in % of town & villages electrified	Change in No. of beds in medical institutions per lakh of population	Change in No. of % of literates to total population.	Change in No. of rural female literates to total rural female populn.	Change in No. of enrolment in prim. & sec. schools per lakh of populn.
BOMBAY	-0.7	9.7	6.19	0	-13	-731	-2.1	1.27	-2.8	-0.89	-0.56	0.7	18.5	1033	-1	2.2	0	12	4.38	0	-292.31
THANA	0.1	0.4	2.99	8.14	10	-353	0.43	4.63	0.3	5.99	0.91	8.5	-1.3	508	0	1.6	14.1	46	9.8	8.27	823.24
RAIGAD	0	1.1	3.75	2.02	21	176	1.73	9.9	1.1	3.7	0.83	-3	0.8	183	9	2.4	6.2	20	10.29	9.84	1201.59
RATNAGIRI	-0.1	0.9	1.7	0.33	4	68	-0.94	8.25	0.8	1.03	1.27	1.5	0	83	11	2.8	8.2	53	7.95	8.5	1086.92
NASIK	0.2	1	12.8	2.42	-35	359	2.97	10.95	3.1	1.87	0.9	-15.8	0.1	206	2	1.9	29	15	8.06	7.23	999.64
DHULE	0.1	1	-1.25	2.22	1	-101	2.31	13.82	-0.1	0.5	0.56	-7	-1	79	5	2	20	0	5.61	4.69	700.22
JALGAON	0	1	8.02	1.44	43	87	3.47	9.72	0.5	0.33	0.55	-19.9	1.1	104	1	1.8	3.2	15	2.94	1.93	447.12
AHMADNAGAR	-0.1	3.3	6.31	1.87	-16	188	6.15	18.49	1.8	0.92	0.4	-45.7	0	94	0	1.6	-16	9	6.96	5.8	924.71
PUNE	0.2	4.4	6.36	5.53	5	349	2.35	10.64	0.4	2.76	0.99	-41.6	0.1	421	-1	2.2	8.1	17	9.43	9.56	875.59
SATARA	0.1	2.5	1.71	-0.16	1	30	2.26	18.18	1.1	0.71	0.77	-8.5	0.2	92	4	1.1	18.6	4	9.85	11.07	1352.86
SANGLI	-0.2	1.3	3.95	2.92	-18	46	3.06	13.66	1.4	0.44	0.48	-6.5	0.1	125	1	2.8	-1.5	52	9.37	9.88	1200.84
SOLAPUR	-0.1	1.8	-3.08	2.22	-67	233	3.96	14.42	0.9	2.04	0.11	-30.9	0.1	65	2	2.5	26.7	11	6.78	5.8	508.31
KOLHAPUR	0	2.3	0.91	3.72	11	234	2.76	13.13	2.1	2.39	0.6	-2	0	230	7	2.9	-11.2	21	9.96	9.79	1208.3
AURANGABAD	0.3	4.1	11.66	8.13	23	364	4.12	14.88	0.2	3.68	0.42	-6.1	0.1	148	0	1.6	24.7	66	7.3	3.65	-4113.92
PARBHANI	0	3.7	9.25	3.77	-20	-48	6.92	19.91	1.5	0.36	0.5	3.7	0	38	0	2	26.1	18	6.03	2.85	517.1
BEED	0.1	4.6	12.52	4.68	23	94	5.16	18.66	1.4	0.75	0.6	4.2	0	32	1	1.9	29	8	7.79	4.67	920.22
NANDED	-0.1	2.7	3.4	2.44	-29	-38	5	23.96	-1.9	0.23	0.72	-9.6	0.1	62	4	2.4	28.2	10	6.98	3.73	303.44
OSMANABAD	-0.1	5	8.67	0.14	-2	30	5.07	19.29	0.5	0.71	0.84	-1.1	0	28	2	2.2	30.9	14	7.46	5.65	939.94
BULDANA	0	1.6	-1.32	0.89	-14	57	14.62	13.02	1.6	0.4	0.76	2.3	0.1	41	0	2	29.8	12	7.34	6.62	666.97
AKOLA	0	1.3	2.37	1.39	-20	62	2.38	7.8	-0.5	0.88	0.41	-8.1	0.1	90	1	1.7	27.3	15	8.22	8.75	1042.42
AMRAVATI	0	2.3	0.8	1.65	-20	75	1.96	6.83	-0.3	0.32	0.2	-10.3	0	234	5	2.2	18.6	3	9.42	10.54	912.22
YAVATMAL	0	2	3.72	1.44	-10	75	3.74	11.66	-1.8	0.31	0.09	-16.9	0	27	0	1.6	26.9	22	7.69	6.09	1287.47
WARDHA	-0.1	5.3	0.47	0.48	-1	102	3.77	9.61	-0.2	0.27	0.37	-8.7	0.1	102	2	1.8	16.2	-4	9.35	9.82	1152.35
NAGPUR	-0.1	1.8	0.65	2.45	10	127	0.09	5.37	-1	-0.58	0.13	-14	0.3	62	7	0.7	14.7	-3	9.26	10.28	723.8
BHANDRA	-0.1	0.9	-2.17	1.7	-9	-2	3.13	7.89	-2.9	-3.79	0.51	-8.3	0.1	60	3	1.3	16.5	17	8.52	8.02	1450.36
CHANDRAPUR	-0.1	-9.3	0.89	7.16	-49	89	8.63	17.82	-2.9	0.64	0.27	1.9	0	32	4	1.7	20.7	10	7.89	6.55	968.43

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