CHAPTER IX
SUMMARY AND CONCLUSIONS

Industrial location depends on a number of essential advantages, so that industrial development is inevitably unbalanced over space. But, if this results in very large regional disparities, the effects are undesirable from the viewpoint of economic, political and social considerations. Some problems arising from regionally unbalanced growth are immiserization of the lagging regions caused by an increasingly dualistic economic structure, and a 'drain' of population, enterprise and mobile resources from the backward areas to the over-crowded industrial agglomerations and metropolitan areas due to the inadequate opportunities and facilities available in the 'hinterland'. Under-utilization of human and physical resources in the lagging regions, together with over-utilization of all basic utilities in the metropolises, leads to an overall sub-optimal pattern of resource-allocation. Hence, it becomes imperative for the State to intervene and attempt to mitigate the inequalities and detrimental effects by providing opportunities for the employment of local surplus labour and other resources within the lagging regions.

Since overall disparities across regions are especially intensified by differences in industrial development because the very nature of industry demands agglomerated growth, regional development policies are generally focussed on controlling and guiding the pattern of industrial location.
Most industrial location policies rely on a system of incentives, both positive and negative, and on direct controls, to guide industry away from areas of industrial over-concentration and towards the lagging region. In India, while industrial policies were generally oriented towards achieving an inter-regional balance right since Independence, industrial location was given special emphasis by the Central Government only in the early seventies, when certain areas were identified as industrially backward and special financial subsidies were provided to induce industrial development in these regions. The State Governments have also formulated their own schemes and instruments for guiding industrial location, which supplement the Central Government schemes.

The location decision is one of the most important decisions of a firm because it is generally irreversible and determines the profitability of the unit over its lifetime. The provision of subsidies may be a necessary condition for inducing firms to choose relatively backward locations, but it is unlikely to be a sufficient one. Therefore, the formulation of an effective industrial location policy, which would induce future industrial activity in desired locations, necessitates the identification of factors which influence location decisions.

Traditional location theories attributed the choice of location mainly to resource or market orientation, but the structure and organization of modern industry have brought many other locational factors into play, such as the availability of different types of skills, transport and communications, water and power, services and social amenities.
The objective of the present study was to identify the important causal factors which bear a significant influence on industrial location. It was felt that an analysis of industrial location would be meaningful only if the study was focussed on data at a disaggregated regional level. Therefore, the States of Maharashtra and Gujarat were selected for the regional analysis of industrial location.

Both these States are considered industrially advanced (they rank first and second respectively in terms of value of industrial output), but both are characterized by large intra-state imbalances. It was necessary to undertake a combined analysis of industrial location in these States for a number of reasons. The city of Bombay forms the focus for industrial location in both the States. Large parts of both States constituted the Bombay Presidency till 1950, and the State of Bombay till 1960; even otherwise, industrial location in the two States is considerably interdependent. The strategies and measures used for guiding industrial location are similar (competitive, in fact) and there has been a noticeable shift of industry from Maharashtra to Gujarat in recent years due to the restrictive industrial location policies, and also the detracting factors (especially relating to labour attitudes and costs of production), operating in the developed parts of Maharashtra.

Industrial location policies in Maharashtra and Gujarat incorporate both positive and negative strategies. Industrial development has been restricted by deliberate policy in the developed areas -- the Bombay-Pune belt in Maharashtra and all towns in Gujarat (the 'lanned areas') -- and encouraged in the less developed regions, and especially in selected growth centres, through a package of financial
and non-financial incentives.

The district-level analysis of industrial location was undertaken for two decades -- 1960-61 to 1970-71 and 1970-71 to 1980-81 (i.e., prior to the introduction of the Central Government incentive schemes for backward areas, and after). It was observed that, in terms of the level of industrial employment, little change had taken place in the regional distribution in either of the States over these twenty years.

In 1960-61, nearly 60 per cent of total industrial employment in Maharashtra was in Bombay and the share of this district was nearly 40 per cent even in 1979-30. The three relatively developed districts of Bombay, Thane and Pune together accounted for about two-thirds of the State's industry in 1960-61, 1970-71 as well as in 1979-80. The thirteen backward districts (eligible for Central Government incentives), on the other hand, together had less than 10 per cent of total industry in 1960-61 and, even in 1979-30, their share was below 15 per cent. Similarly, in Gujarat, 55 per cent of industrial employment in 1960-61 was in Ahmedabad and, even in 1980-81, the share of this district was 40 per cent. Ahmedabad and Vadodara together accounted for over 60 per cent of total industrial employment at all the three points of time whereas the share of the ten backward districts, though greater than the combined share of the backward districts in Maharashtra, was only around 18 per cent.

Significant changes in the regional distribution of industry are likely to take a longer period of time than two decades. Hence, it was considered more useful to observe the changes in the location pattern of new or incremental industrial activity. The distribution
of incremental industrial employment was somewhat more in favour of
the backward districts than that of industrial employment at a
particular point of time. From 1960-61 to 1970-71, only 10 per cent
of incremental industrial employment in Maharashtra was generated
in the backward districts whereas, during the next decade, these
districts received about 30 per cent of incremental industry. In
the 1960s, the emphasis of industrial location policy was to
restrict further industrial growth in Bombay. The only viable
alternative locations at this time were the nearby Thane and Pune
districts and industry did, in fact, locate there. Thus, over 40
per cent of new industrial employment created in this decade was
in Thane and over one-fourth was in Pune. In the next decade,
though the restrictive policy was continued, the stress on positive
strategies led to the development of industry in other parts of the
State. During this period, although the combined share of the
three relatively developed districts was more than one-third of
total incremental industrial employment, Bombay's share was below
four per cent and other, relatively backward, districts, notably
Aurangabad, Ahmednagar and Kolhapur, had fairly large shares.

Such a trend, however, is not noticeable in Gujarat. Here, although
the share of the backward districts in incremental industrial
activity was 19 per cent and was greater than that in Maharashtra in
the first period, there was actually a marginal reduction in their
share in the later decade to 17 per cent. In the 1960s, more than
half of the total new industrial activity in Gujarat was located
in the three relatively developed districts of Ahmedabad, Vadodara
and Surat, and their combined share rose to 66 per cent in the next
period. Other districts with significant shares were Kheda, Junagadh, Jamnagar and Bharuch in the earlier period, and Rajkot and Valsad in the 1970s.

On the whole, it appeared that the relatively industrialized districts attracted comparatively more new industrial activity as well. In order to determine whether industrial location in a region was influenced by some factors other than the prior existence of industry, and to assess the role of government intervention in industrial location, correlation and regression analysis were undertaken separately for the two States. The variables selected for the causal analysis, though limited by the non-availability of adequate district-level data, were those considered most relevant for explaining industrial location. The independent variables included were the initial level of industrial employment in a region, the relative cost-output ratios and factor productivities, availability of infrastructural facilities (transport, power and social amenities) and industrial credit, and government assistance in the form of subsidies. In order to ensure only a one-way causal relationship, the analysis attempted to relate the incremental industrial employment over a period to the locational advantages of the region (as measured by the independent variables) at the beginning of the period. It was necessary to assume such a lagged relationship because, otherwise, many of the independent variables (such as those measuring the availability of infrastructure and credit) may themselves be considered as dependent on the extent of new industrial activity.

The correlation analysis showed that the most important variable explaining location of new industry in districts other than Bombay in
Maharashtra and Ahmedabad in Gujarat was the initial level of industrial employment but, when these two districts were included, the relationships were not significant. This implies that the restrictive location policies have curbed industrial expansion in Bombay and Ahmedabad, but entrepreneurs still prefer relatively industrialized districts as alternative locations. Other variables which had significant relationships with incremental industrial employment were labour productivity and the availability of power in both the States and in both decades. The availability of government assistance and industrial credit were important in the 1970s.

It was found that nearly all the independent variables were significantly related to the level of industrial employment at the same point of time. These results show that industrial units located in relatively industrialized districts are likely to be more efficient since cost-output ratios are lower and factor productivities are higher in these areas. Therefore, the attraction exerted by the relatively industrialized districts for industrial location is due to the prior existence of industry (which implies the availability of local markets and input sources), as well as to the existence of many complementary factors -- the availability of infrastructural facilities, lower costs of production, higher industrial credit -- which provide external economies and strengthen the locational advantages of the already industrially developed areas. These advantages have, often, been further compounded by government assistance in the form of subsidies; this variable was highly correlated to the level of industrial employment, implying that
relatively industrialized districts have received greater government assistance.

In order to identify the more important variables explaining the location of new industrial activity, step-wise regression analysis was undertaken. It was found that, other than the initial level of industrial employment, important explanatory variables influencing incremental industrial employment in a region in the 1960s were labour productivity in Maharashtra, and the availability of power, transport and other amenities in Gujarat. In the later decade, the availability of power and industrial credit were important causal factors for industrial location in both the States. Though government assistance did not enter the best-fit regression equations in most cases, this variable was strongly related to the significant explanatory variables which entered in each case. This suggests that the effect of subsidies on industrial location was subsumed in the variation explained by the statistically significant factors. There were several other independent variables which did not enter the best-fit equations, but which had strong inter-correlations with the significant explanatory variables. These were the cost-output ratio and the availability of power in both the periods, and labour productivity and the availability of transport and industrial credit in the second period.

On the whole, the results of the district-level causal analysis showed that a combination of factors is required to attract industry to a region; it is difficult to identify any one or two factors as specifically and individually important. Also, the weak relationships observed between incremental industrial employment and some of the
independent variables suggested that location decisions may be more strongly influenced by the conditions of industry and infrastructure at individual locations than those in the district as a whole. Therefore, a field survey was carried out in three centres each in Maharashtra and Gujarat.

A major objective of the field study was to assess the impact of industrial location policies. Therefore, Pune and Vadodara were selected to represent 'spontaneous' growth centres (where industry had developed without the benefit of subsidies). Further, two 'induced' growth centres in industrially backward districts were selected in each State, of which one had been successful in attracting industry and the other had been unsuccessful. Thus, Aurangabad and Kudal were selected in Maharashtra, and Ankleshwar and Godhra in Gujarat.

The results of the district-level analysis were supported by the field data. Industrially developed areas usually form the first location preference because skilled manpower, good transport and communications, and access to raw materials and markets among other facilities, are assured in these places. However, backward areas have often been selected as the second-best location. The restrictions placed on industrial expansion in the developed areas, together with the development of industrial estates and growth centres, and the provision of subsidies, in the less developed areas, have been responsible for inducing industry away from established industrial centres and towards the less developed regions. It was found that, although natural deglomerating forces such as exorbitant land prices, soaring costs of production and labour trouble in the centres of industrial over-
concentration (like Bombay) have been forcing entrepreneurs to seek alternative locations, really it is the government policies of industrial location which have catalysed the process of industrial dispersal.

Government assistance (by way of cheap land, subsidies and developed industrial estates) has been of significant help in the industrial development of the backward areas, not only by diverting industry from developed to backward locations, but by assisting the development of local entrepreneurial skills and by generating local employment in the less developed regions. (90 per cent of the firms surveyed in the backward area centres would not have been set up in these locations without active government intervention, and many of the small-scale units may not have been set up at all.)

It was found, however, that industrial development may be successfully induced only under certain conditions. Of the induced growth centres surveyed, Aurangabad and Ankleshwar may be rated as successful because the process of industrial development, which was induced in these centres, has become sustained. These locations had certain inherent advantages such as good access to established industrial centres (which implied access to markets and inputs). These advantages were strengthened by government intervention in the form of subsidies. These positive inducements, together with the restrictive policies regarding industrial expansion in the developed areas, provided the initial stimulus for local growth of industry. Sustained industrial development, and especially the development of large-scale industry, is leading to the development of agglomeration economies which is providing further impetus for the growth of industry in these centres.
On the other hand, attempts to promote industrial development in very remote and backward regions, such as Kudal and Godhra, have been unsuccessful and have resulted in wasted resources (as represented by the existence of a large number of 'sick' units). In these two unsuccessful growth centres surveyed, the majority of units have been set up by local persons who became entrepreneurs mainly because subsidies were available. However, subsidies only assist the entrepreneur in meeting fixed capital requirements; various other factors determine the viability of the unit. Many of the local entrepreneurs lack business experience and contacts, and the promotional agencies provide inadequate guidance in this regard. This has led to various operational problems, especially those relating to working capital requirements and marketing. As a result, the mortality rates among these units are high. (For instance, in Kudal, of about 150 units registered, only one-third are functioning.)

Thus, incentives alone are not sufficient to induce industrial development in very backward areas. Upto 1933, there was no difference in the rates and quantum of Central Government incentives available in the two induced growth centres surveyed in Maharashtra, and Kudal was eligible for higher State Government incentives than Aurangabad. Kudal is located on the national highway from Bombay to Goa, whereas Aurangabad is located on a state highway. However, Aurangabad provides more developed facilities and better access to Bombay and Pune than Kudal does. Apart from Aurangabad, there are several other locations, such as Nasik and Ahmednagar, which offer these advantages. Therefore, despite the availability of higher incentives in Kudal, this has not proved to be an attractive location for industry.
A similar picture emerged in Gujarat. Both the induced growth centres surveyed were eligible for the same incentives up to 1983. Both these centres are located on the main Western Railway line and within 100 kilometres of Vadodara, Ankleshwar to the south of Vadodara and Godhra to the north. Ankleshwar has been successful in attracting industry because it is relatively nearer Vadodara and Bombay. In fact, many of the new industrial centres in Gujarat owe their success, at least partly, to Maharashtra's regional policy. Rather than locate their units in relatively remote areas in Maharashtra, many Bombay-based entrepreneurs have preferred locations in Gujarat which are nearer Bombay. Hence, growth centres which lie between Bombay and Vadodara, such as Ankleshwar, have been successful. Development in the somewhat more remote centre of Godhra has been especially hampered by the promotion of Halol and Kalol. These induced growth centres, located between Vadodara and Godhra, have been preferred because they are within commutable distances of Vadodara and industry is developing rapidly in these centres.

Thus, it appears that industrial development may be successfully induced only in places where incentives are available in conjunction with other facilities required by industry, especially transport and communications, urban facilities and access to markets and inputs. Since developed centres best provide these facilities, backward locations which are successfully emerging as new industrial centres are those which are relatively nearer to the developed areas, or have easy access to them.

On the whole, in both the States, industry is developing along corridors provided by the major highways, and radiating outwards
from Bombay. Apart from this corridor development with its focal point at Bombay, industry is developing in a concentric pattern around smaller 'nodes' provided by other industrial agglomerations. Thus, industry is spreading outwards in the hinterlands of Pune and Vadodara, in particular, and this 'percolation' process has begun around Aurangabad as well. It appears that, as new industrial centres emerge along the growth corridors, they act as foci for the development of industry in their hinterlands, in turn. Such 'corridor' and 'radial' or 'concentric' patterns of development are found to be characteristic of industrial location and should probably be encouraged for their agglomeration economies (as long as they do not begin to impinge on the local environment).

It seems that government intervention does have the result of helping in the formation of new industrial centres, so that a process of 'decentralized concentration of industry' is gradually taking place. This induced industrial development has, in turn, provided greater employment opportunities in the lagging regions (because industrial units in these areas prefer to employ local labour). It was found, however, that there are several drawbacks in the current industrial location policies and instruments of the Central and State Governments.

Over the years, the number of districts/areas eligible for subsidies has been gradually increased and, today, three-fourths of the country has been designated as industrially backward and eligible for subsidies by the Central Government. This has been dictated primarily by populist political considerations, so that selectivity in granting incentives has gradually come to be diluted and economic criteria have tended to get neglected. It has, subsequently, been
impossible to concentrate resources and the quantum of assistance available in each eligible backward area is, naturally, limited.

The essence of deliberate regional development policies appears to lie in the identification and selection of regions for special assistance which would respond quickly to promotional efforts. The preceding analysis showed that industry cannot be promoted everywhere and all at once; neither resources nor the economics of industrial production permit a full-scale locational balance among all areas and regions. Therefore, it appears necessary to concentrate efforts and resources on a few regions at a time and to especially favour areas which would provide early returns to investments (which have been made by diverting resources from developed to backward locations). This would increase the investible resources available for further assistance to the lagging regions and thus enable their development to take place in turn. Such a process of decentralized concentration of industry may be catalyzed through the adoption of a growth centre strategy, favouring the selection of regions which are 'intermediate' (in terms of development and location) to the most backward areas on the one hand and the highly developed metropolises on the other. The adoption of such a growth centre approach enables the development of counter-magnets to established industrial centres, utilizes the advantages of agglomeration economies and requires fewer initial investments for developing the requisite facilities.

It was found that growth centres which have been developed as counter-attractions to the established industrial centres have tended to be more successful because their selection has been guided primarily by economic criteria and expected growth prospects. Examples are Nasik,
Aurangabad and Ahmednagar in Maharashtra, and Ankleshwar and Vapi in Gujarat. Growth centres, in whose selection political motives have outweighed economic considerations, have often been unsuccessful. From this point of view, the growth centre strategy of the Central Government appears to be unsound. These centres are to be developed in the most backward regions, the so-called 'No-Industry Districts', by developing industrial estates in these areas and persuading entrepreneurs to locate units there. It appears to be futile and uneconomic to attempt development of industry, and especially of large-scale industry, in such backward areas. Regions which have hitherto failed to attract large and medium scale industry have inherent disadvantages, such as inhospitable geographical features or poor accessibility, which incentives and the development of local infrastructure are unlikely to overcome immediately. The provision of such facilities cannot transform such backward areas into 'growth centres' overnight. For example, Dangs -- a No-Industry District in Gujarat -- is a forest area with a wholly rural population. It appears that there are few clearings large enough for setting up even small-scale units, so that attempting to promote larger units would be very difficult. Therefore, at present, in these very backward areas, efforts may be directed towards the development of basic amenities. Rather than attempting to promote large-scale industry, cottage or small industries based on local resources and crafts may be encouraged to improve employment opportunities in the area.

For selecting regions where industrial development is to be induced through special schemes, it may be useful to derive pointers from the district-level analysis. The weak results relating to some of
the explanatory variables suggest that the methodology adopted by the Central Government for identifying and classifying backward areas, using district-level indicators, may be erroneous. It would appear that a more disaggregated regional level -- say, at least, the taluka level -- is required to implement the special schemes of assistance effectively. The Governments of Maharashtra and Gujarat have adopted taluka-level classifications for implementing the State Government incentive schemes. The locational strategies of the Central and State Governments could be made to correspond if the Central Government incentives were also made operative at the taluka level. The talukas in each State could be selected and graded on the basis of Centrally-specified indicators, incorporating the factors required for industrial location (indicating local potential for industrial development) as well as measures of relative backwardness (indicating the quantum and type of assistance required), so that identical criteria would be used for classifying all the talukas in the country.

In selected backward states, the Central Government could concentrate on developing growth centres in talukas which would respond most favourably to special promotional efforts and provide the initial 'big push'. After development became sustained in these areas, and a 'take-off' stage was reached, such developmental activities could be extended to the more backward talukas. The responsibility of initiating industrial development in potentially responsive talukas in the relatively advanced states could be left mainly to the respective State Governments, while the Centre focussed its resources largely to the backward ones. While such a solution may not be politically acceptable, it is likely to be more equitable and beneficial in terms of overall national considerations.
Other than the absence of region-selectivity, industrial location policies in India also fail to incorporate adequate industry-selectivity. There appears to be no attempt to develop an interwoven network of main and ancillary industries between the industrially developed and the industrially backward areas, nor to promote the establishment of regionally planned industrial complexes which would utilize backward and/or forward linkages among industries and regions.

There has been no attempt even to identify the industries best-suited to the requirements of each 'backward' region, and there is no uniform policy regarding the type and scale of industries to be promoted in the assisted areas. For instance, while there is no provision at all in the Central Government schemes for industry-specific incentives, resource-based industries are actually discouraged in Maharashtra by granting only lower incentives to such industries. In Gujarat, on the other hand, the scheme of incentives provided for a special subsidy to encourage mineral-based industries in the selected backward areas upto 1983.

As far as the scale of firms to be promoted in the backward areas is concerned, different roles have been assigned to large and small scale units. The adoption of a growth centre strategy implicitly assumes a process of rapid industrial growth through the location of large dynamic innovative firms which, in turn, are expected to induce ancillary growth of manufacturing and service industries. Promotional agencies have tended to favour the development of large-scale firms in all backward areas (observe the higher incentives offered to 'pioneer' units in both the States) irrespective of the type of industry, with the expectation that these units would induce ancillary growth. Such
firms were also expected to induce a 'snowballing effect' over and above ancillarization, so that more industries would be attracted to the backward areas and industrial growth would be sustained. Till 1983, however, there were no attempts to determine whether the units promoted in the backward areas were, in fact, capable of inducing ancillary growth. It was only then that the Central Government introduced a special incentive for 'nucleus plants' which was based on the ability of the plant for ancillarization.

The development of small-scale industries was expected to promote employment-creation and especially the development of local entrepreneurship in the lagging regions. The field survey showed that the induced growth of small-scale industry has, in fact, assisted local skilled persons to become entrepreneurs, but the mortality rates among these units were very high, especially in the growth centres promoted in the very remote and backward regions.

On the whole, between large and small scale units, the former have tended to be more successful in the less developed areas, in terms of their own growth as well as by way of assisting overall development in the region. It was found that such firms could generate internal economies of scale and, thus, compensate for the general absence or weakness of external economies in relatively backward regions.

Summing up, it may be stated that regional disparities in India continue to be large, and industrial development within States is even more inequitably distributed than that across States. The movement of industry towards new centres, stimulated by external and internal diseconomies of scale in the over-crowded metropolises like Bombay,
has received further impetus from active government intervention. It was, however, also clear that subsidies and incentives have been far more effective in promoting industry in areas which are near the established industrial centres, or have easy access to such places, and which have fairly developed urban and industrial facilities. These results imply that a combination of all such advantages is required to attract industry to a region. Therefore, it appears that government assistance in the lagging regions has to take the form of financial aid, as well as the development of infrastructural facilities and amenities of various kinds, if it is to make a significant impact on the locational pattern of industrial activity.

An important finding was that, not only is considerable new industrial activity being located around existing industrial centres and in corridors with easy access to these places, but that there is little likelihood of industrial development taking place in relatively remote areas till the former locational possibilities are exhausted. Such clearly discernible locational preferences should not be ignored when formulating location policies. In effect, this implies concentrating incentives on a few well-chosen growth centres, with more development potential because of their being intermediate -- geographically and otherwise -- between the industrially most developed and most backward areas. Such efforts are likely not only to yield quicker results but, also, as a result of speedier returns to investment on subsidies and infrastructure, enable more financial assistance to the development of the very backward areas. On the whole, current industrial location policies need to be revised on the basis of past experience and by using well-defined economic criteria, rather than continuing to be moulded by political considerations.