INDUSTRIALISATION AND TERRITORIAL DEVELOPMENT: A CASE STUDY OF GUJARAT

Thesis Submitted To

The Maharaja Sayajirao University Of Baroda

For The Award of the Degree of

Doctor of Philosophy

In

Business Economics

BY

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September-2012

CERTIFICATE

This is to certify that the thesis entitled **"INDUSTRIALISATION AND TERRITORIAL DEVELOPMENT: A CASE STUDY OF GUJARAT"** is submitted by me in partial fulfillment of the requirement of the degree of Doctor of Philosophy in Department of Business Economics, Faculty of Commerce, The Maharaja Sayajirao University of Baroda has been carried out under my guidance and supervision.

The present study embodies the result of bonafide research work carried out by me and my indebtness to other works/publications has been duly acknowledged at the relevant places. This work has not been submitted so far in part or in full, for any degree or diploma of this university or any other university /institution.

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Seeptember-2012.

Place: Vadodara Date: 27/09/2012

ACKNOWLEDGEMENT

My head bow on the feet of God, for without his blessings this work would not have been possible.

This academic endeavor of mine would not have become reality without the co-operation extended to me by a number of people at different stages of my work.

I am very grateful and deeply indebted to my guide Dr. Dinkar Narsinh Nayak, for his encouragement, advice, valuable guidance, constructive criticism and his faith on me for doing justice to this topic, despite his many other duties and engagements. His guidance, teaching, support as well as mentoring throughout my work was invaluable. I also appreciate his patience and tolerance during my several mishaps. His friendly approach made it a pleasant experience to work under him. Along my guide, I also equally express my gratitude to his wife Mrs. Nita Nayak who has also been a constant support to me during my work.

Apart from my guide, I owe a debt of gratitude to Prof. D.V. Baloni and Prof. A.S. Rao for providing me benefits of their expertise in this field with their valuable suggestion as well for their words of constant encouragement. I am equally indebted to Dr.Akash Kumra, Dr. Anshu Surve Dr. Jayesh Shah for their cooperation and useful suggestion for the study.

I record my thanks to the entire staffs of H.M.Library for furnishing all the required material for the preparation of my work.

I express my sincere gratitude to many other people without whom the collection of data would not have been possible. Some of them are Mr. S.S. Pandey, Statistical Officer, Jilla Panchayat, Vadodara, Mr. Manubhai Patel, Research Officer Jilla Panchayat, Vadodara, Mrs. Madhuben Statistical Officer, DIC, Amreli, Mr. Chavada, Statistical Officer, Jilla Panchayat, Amreli, and Dashrath Patel for helping me in the collection of various secondary data.

Last, but not the least I have deep sense of gratitude to all family members-my parents, my parents in laws, my brothers along with their wives and children as well as my wife Sangeeta for keeping patience, having faith in me and becoming for supporting pillar in completion of my work.

(Shankar Jha.)

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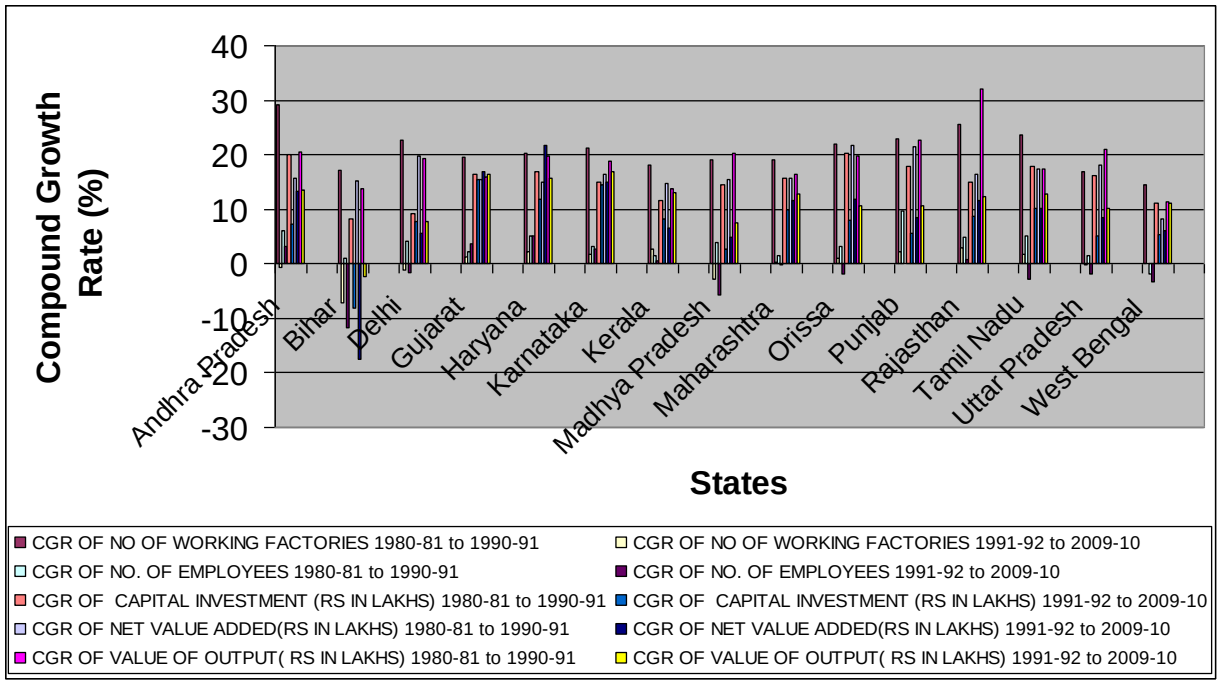

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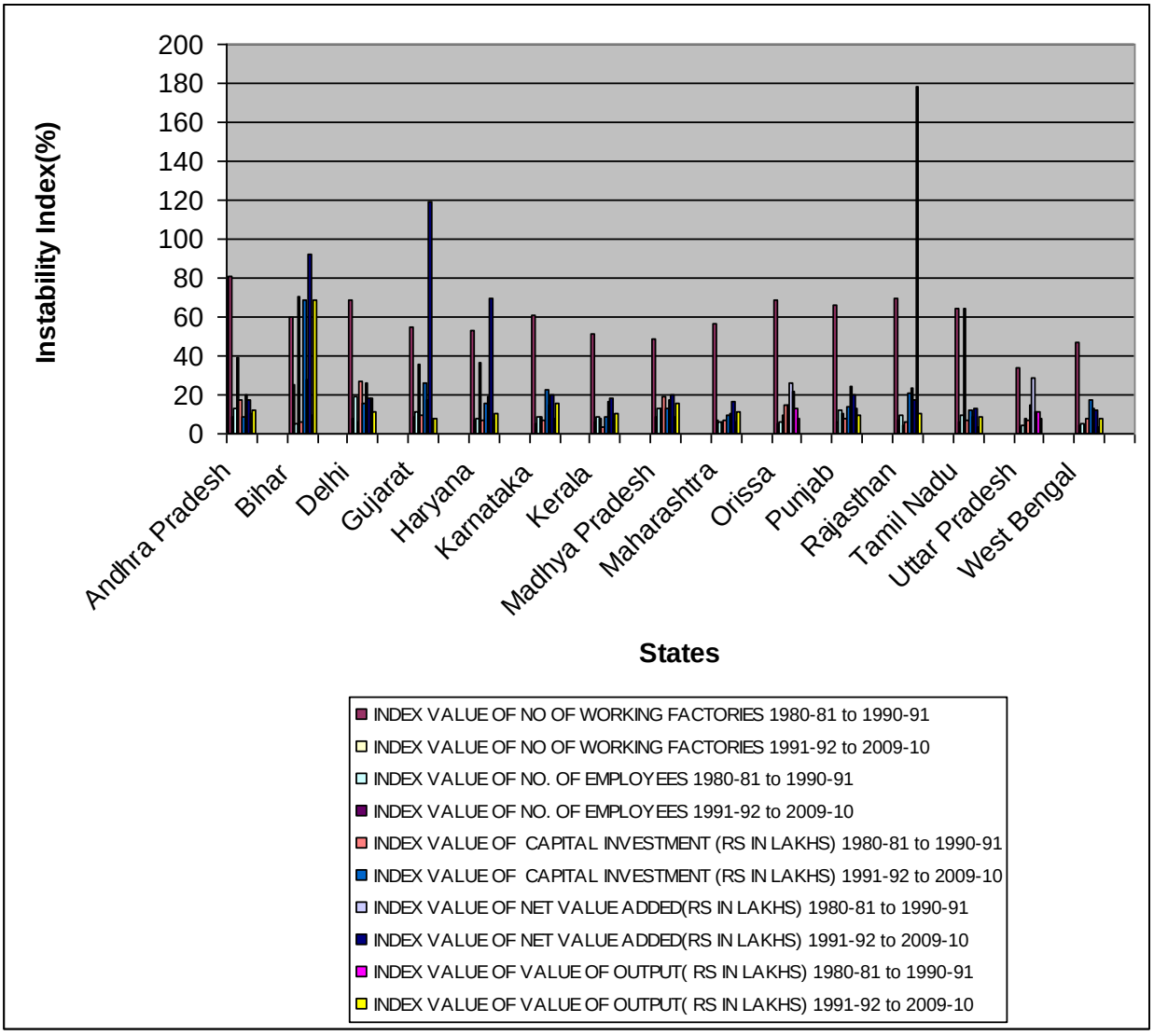

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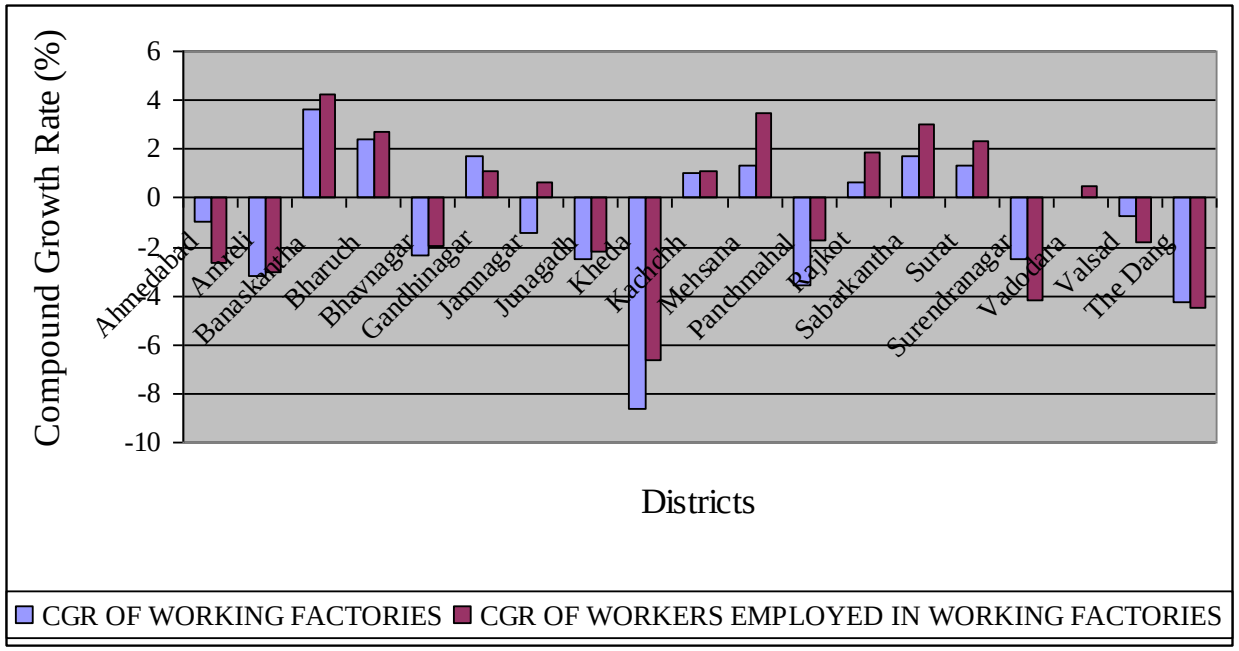

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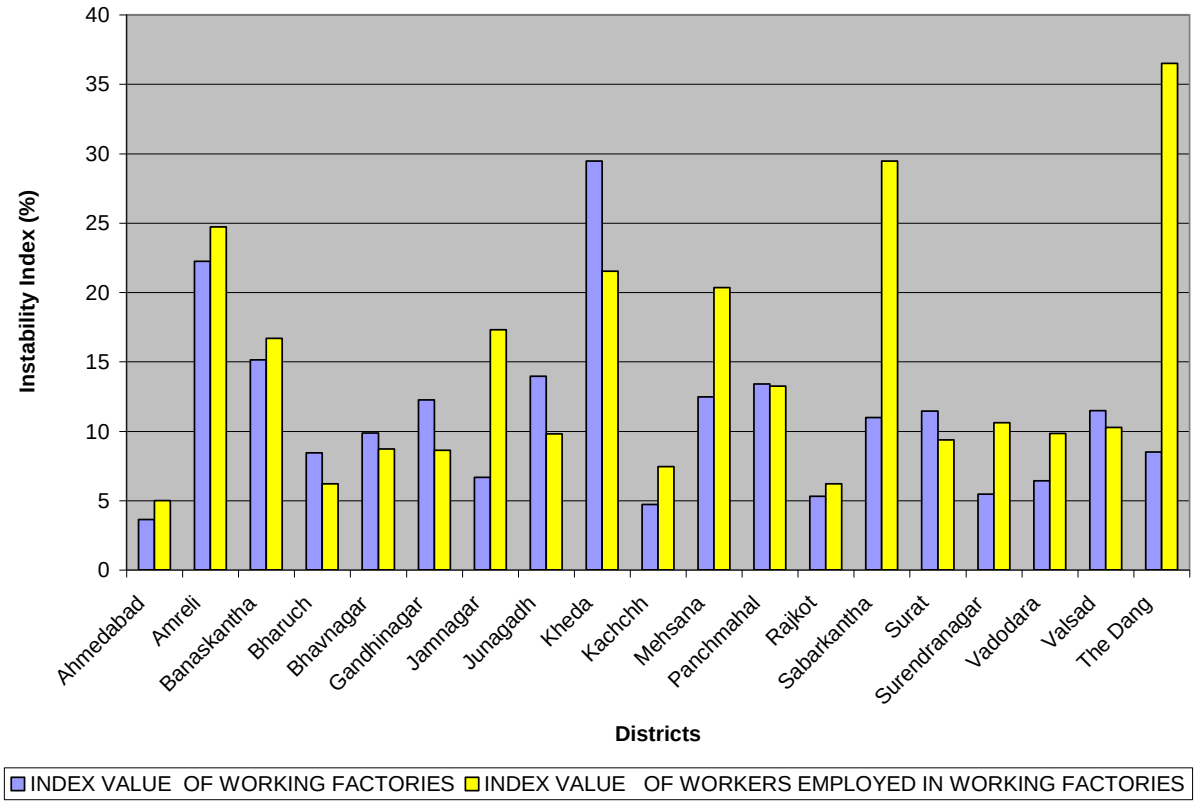

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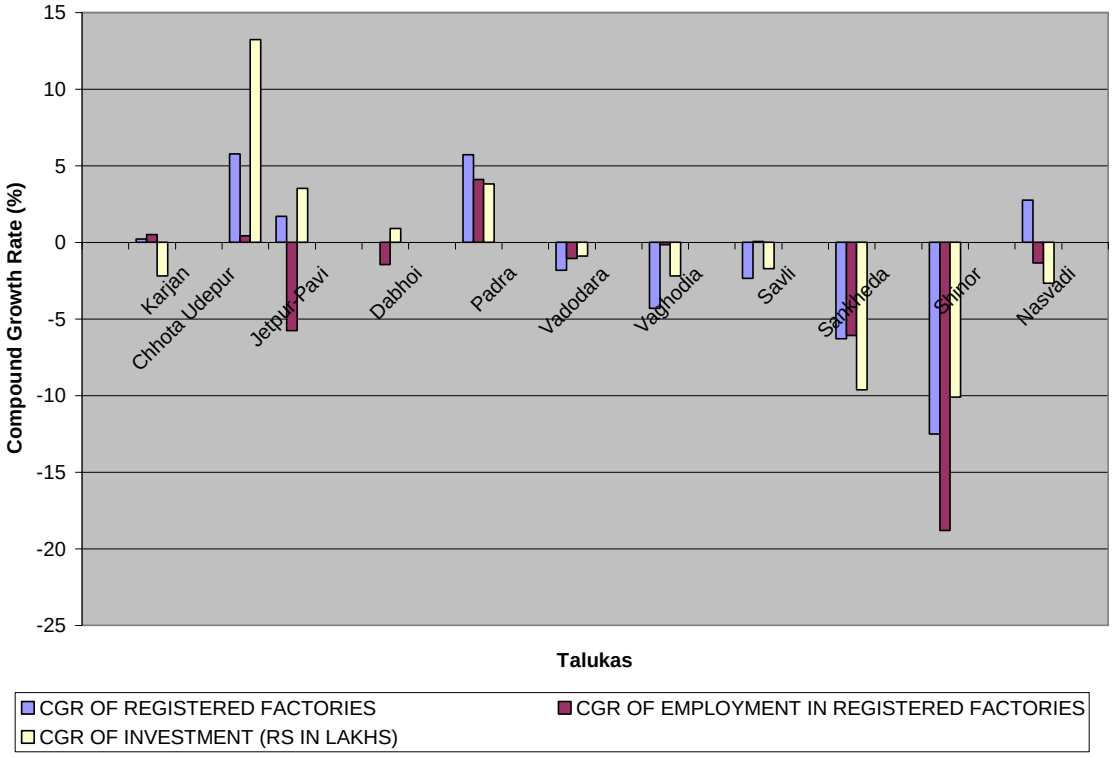

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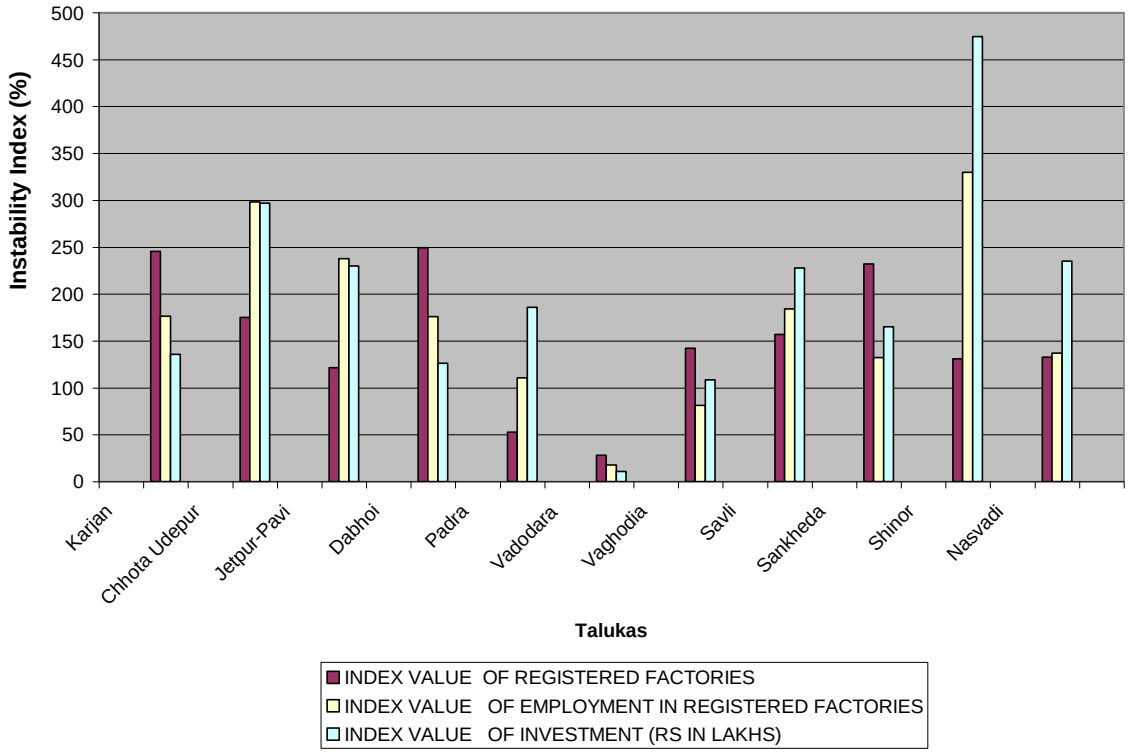

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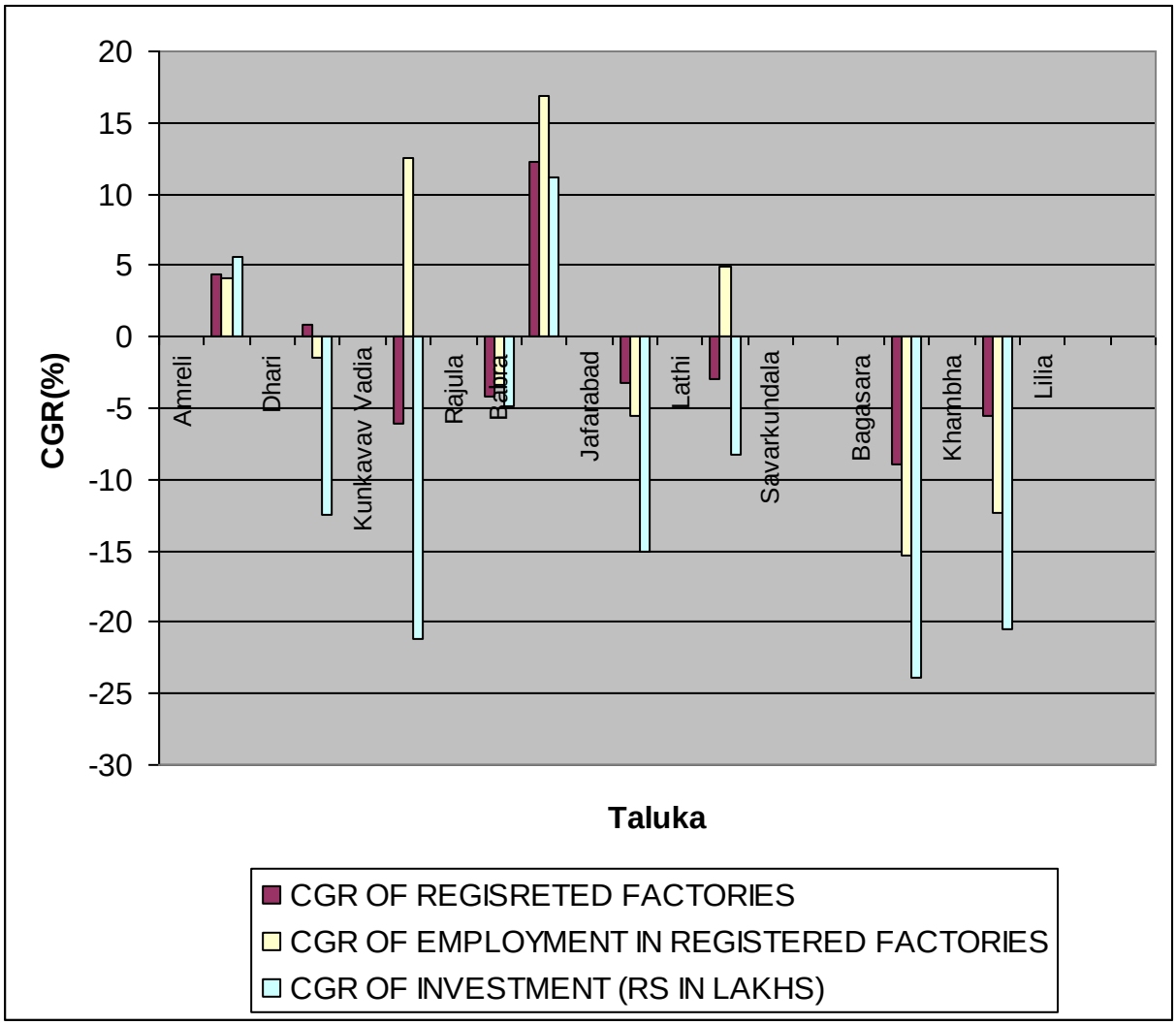

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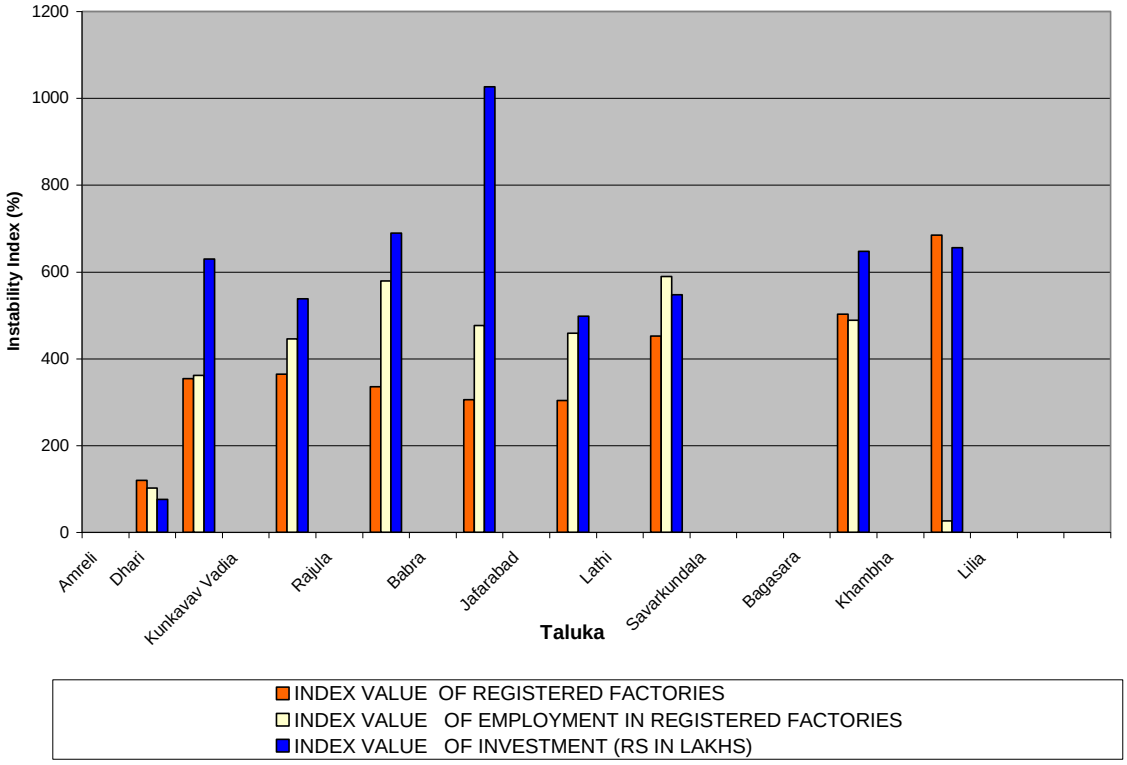

Chapter I
INTRODUCTION

I INTRODUCTION:

Industrialization is regarded as synonym with economic development; in fact these two terms are most often used inter-changeably. For industrialization as a process, ultimately results in economic progress.[1] This is because it exploits the idle resources of the economy and leads to multi sector development. This ultimately encourages economic welfare of the society. It is for this reason that industrialisation has been emphasized for absorption of rural unemployed people and accelerate the economic development of the country. In fact, Rostow's famous "Stages of Growth" also asserted that the take off stage from the subsistence level is based on the creation of an infrastructure for industrialisation. Thus, the lack of development of industrial sector is widely seen as a major cause of economic and social backwardness of an economy. This has forced the government of different countries to encourage industrialisation in their economy.

While industrialisation is desirable, the pattern of industrial development observed from the past experience indicates that it has an inherent tendency to get concentrated in few favourable regions.[2] The uneven distribution of investment, employment and other related industrial activities may be held responsible for giving rise to regional disparities.[3]

Further, the lack of industrialisation leads to territorial disparity in economic development.[4] This is a serious problem experienced by all the countries of the world, irrespective of their level of development. In this regard, the development of industries in backward regions has been accepted as a means to reduce regional disparity.

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[1] See Sadhak (1986)
[2] See Hirchman (1958)
[3] The term territory and region are used inter changeably. It represents a specific area posing particular characteristics all over the defined region. These characteristics may be of linguistic base, social difference or economic conditions. See Patnaik (1981)
[4] Regional disparity means the differences in PCI, level of literacy, availability of health and education service or level of industrialisation. See Government of India 11th Five year plan.

The need for industrialization is stressed explicitly in the theories of economic development. The underdeveloped countries which have been stagnant for centuries together need a big push to come out of underdevelopment. Balanced and stable growth of an economy is possible through stimulation of investment in large number of different industries. In a historical perspective, Myrdal established a positive relationship between industrialization and economic development.

Though the industrialization is a desirable policy, the pattern of industrial development witnesses so far is of a tendency to concentrate in a few favourable territories, developing that particular territory at a faster rate and leaving other areas, without industrialization or without any benefits of industrialization, as backward. It is a fact that industrialization has a tendency to increase territorial disparity and at the same time, industrialization is used as an important tool to reduce territorial disparities at a faster rate.

The reason for the regional disparity could be manifold. Regional disparities could exist due to historical reasons, differences in initial conditions and natural resources endowments. Few factors which are associated with physical features and geographical location cannot be altered, but some other factors can be influenced by improving the level of education, providing uninterrupted power supply and also by providing the infrastructure on a larger scale.[5]

This disparity in development of industries and other related modern economic activities between different regions arises due to some unsatisfactory conditions of development which are associated with substantial areas. These unsatisfactory conditions are related to historical process of development of an underdeveloped regions as well as geographical distribution of natural resources. While due to historical reason and favourable geographical setting some enclaves became the centre of 'Politico-economic activities' the other areas remaining out of the mainstream of development.[6] By regional development we mean developing regions to its maximum potentials.

[5] See Godbole (1978)
[6] See Sadhak (1986)

In a country like India, industrial development contributes towards three major economic objectives (i) Facilitate rapid economic growth (ii) Bring about stability in the economy and (iii) Promote territorial development of the backward region.

Over the last six decades, the development of industrial sector in India has been remarkable features of its overall economic development. The process of industrial sector initiated as a conscious deliberate policy in the early fifties. In pursuance of this policy, large investments have been made in building up capacity over a wide spectrum of industries. Moreover, since the second five year plan industrialisation was considered the means to accelerate the growth of the economy by utilizing efficiently the unexploited resources in different parts of the country. It was planned to lay a strong foundation for future development of the country in initial stages.[7] In this process no doubt India has achieved great heights and attained the position of the tenth biggest industrialized countries of the world. However, looking at the pattern of industrial development in India from the regional point of view, there has been a lop-sided and unbalanced growth which has led to the inter-regional disparities and imbalances.

In India, industrial development was recognized as a key factor in economic development of the country, even before independence by Dr. M.Visveswaraiah, whose economic philosophy was "industrialize or perish". Even after independence, the earlier Indian philosophy continued to be industrialization of the economy. In fact, first Prime Minister of India, Jawaharlal Nehru expressed that the real progress must ultimately depend on industrialization. As a consequence, from the second five-year plan onwards, the Mahalanobis model of industrialization was adopted.

India is one of the few countries in a developing world which has consciously adopted certain specific policies, strategies and programmes at the national and sub-national levels for the accelerated development of backward areas.[8] In India, industrial dispersal policy in the initial phase was heavily dependent on concessions and subsidies, to promote industrial investment in the backward regions, compared to other regions. The significant feature of industrial development in India is that it has concentrated in few states like Gujarat, Maharashtra, Tamil Nadu, Karnataka, West Bengal, etc., where

[7] See Rao (1973)
[8] See Sundaram (1982)

industrial growth rate is high. It is for this reason that these states are called as industrialized states. However, even within the advanced states, some districts are industrially advanced districts, and some districts are industrially backward districts, leading to intra-state disparities. However, other states like Bihar, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh etc. have not received any significant share in industrial growth. This has led to inter state disparities in industrialization also. Nevertheless the fact is that neither concession nor subsidies could reduce altogether regional disparity in the country. Later on, government realized that it is the non-availability of infrastructure in the backward regions that has led to the regional disparities. Thus, in the late 1990's government of India started encouraging infrastructure in the remote areas and from year 2000, concessions and subsidies were eventually withdrawn. Thus, the main thrust of the government was the creation of infrastructure, with the abolition of concessions and subsides from the year 2000 onwards, except in the Jammu & Kashmir as well as North-East states of India.

The liberalization policy that adopted by the government of India in 1991 was based on market friendly policies. Since then, the economy has been experiencing structural changes, so the private sector has been playing prime role, government has to play little role. As a part of liberalization policy, the government has withdrawn subsidy and concessions. Thus, all the state government are encouraging infrastructure to encourage private investment both domestic as well as foreign to develop industries.

Many scholars and researchers had opined that in the state of Gujarat, the economic growth is higher and rising at a faster rate but the gains of rapid growth have not reached all parts of the state in an equitable manner. This view is supported by available statistics for the several indicators. However, widening disparities between the districts in the state is a matter of serious concern. Many researchers are also of the opinion that reforms have widened the regional disparity while others opine that reforms have reduced regional disparity. The present study is carried out to study whether the reforms have increased or decreased regional industrial disparity in the state of Gujarat in general and in Vadodara and Amreli district in particular.

It is in this context that the present study focuses on territorial disparity in industrial development in the state of Gujarat, particularly in the post reforms period. The

study attempts to examine the effects of reforms on industrial development in the state of Gujarat, in terms of growth of industries, employment, output, value added and investment in manufacturing sector.

II OBJECTIVES AND HYPOTHESIS OF THE STUDY:

The economy has witnessed a period of two decades of reforms. Since one of the objectives of introducing reforms was to accelerate growth through industrialization, it becomes desirable to evaluate the impact of reforms on the industrial sector within the state of Gujarat as a case study. This is required because very few existing studies have highlighted the inter-district and intra-district disparity in context of industrialization in the state of Gujarat. Thus, the major objectives of the study are:

1. To review the industrial policies at the state and central level.
2. To examine the profile of the state of Gujarat and make a comparison with other states.
3. To evaluate the district wise industrialisation in Gujarat.
4. To examine the pattern and diversification of industries in the talukas of Vadodara and Amreli districts.
5. To examine the localization of industries
6. To find out the stability of industrial growth.

Based on these objectives, the central hypothesis of the present study is that

"The reforms have led to reduction in the territorial industrial disparity in the state of Gujarat." Following from this central hypothesis; it is hypothesized that:

1. Reforms have led to faster industrial growth in Gujarat as compared to other states.
2. The reforms have led to harmonized industrial development of all districts of Gujarat.
3. Reforms have led to dispersal of industries in the state of Gujarat.
4. All talukas in industrially advanced district of Vadodara have developed equally.
5. All talukas in backward district of Amreli have industrially developed harmoniously.

6. Reforms have led to stability in industrial growth.

III DATA SOURCES AND METHODOLOGY:

The study is essentially of an empirical in nature and its basic sources of data are secondary in nature. Such data are collected from Annual Survey of Industries, Commissioner of Industries of Gujarat, Industrial Extension Bureau of Gujarat, Socio-Economic Review of Gujarat, District Industries Centres, and Socio-Economic Review of the District surveyed.

The industrial development within the state of Gujarat has been examined on the basis of the Compound Growth Rate and Instability Index for the period between1980-81 to 2009-10. Further this period is sub divided into two periods, 1980-81 to 1990-91 and 1991-92 to 2009-10, that is pre and post reform periods. The methodologies are discussed in detailed in relevant chapters.

Further, for the study of industrial development and industrial backwardness of all talukas of Vadodara and Amreli districts, the location quotient of Industries have been calculated.

IV JUSTIFICATION OF THE STUDY:

A number of studies have been conducted in India and other countries which have dealt with the issues of industrialisation and regional development. These studies have considered one or the other aspects of industrialisation. In addition, only few studies have been conducted with the reforms as the backdrop. Further, the studies pertaining to Gujarat state have not examined the inter taluka variation in industrial development or regional disparity. Moreover, the existing studies have considered a limited time period. Thus, the available literature are limited either in their coverage or in terms of time period. It is this gap in the knowledge that the present study attempts to overcome.

V LIMITATION OF THE STUDY:

Although every attempt has been made in the present study to fill in lacuna of earlier studies, still the study suffers from number of limitations as elaborated below:

1. The required data was collected from District Industries Centre pertaining to registered units only. The data with respect to units which are not

registered with DIC are not available. Further, DIC data also considers petty shops as SSI units.

2. The taluka wise data are not available for all the parameters.
3. Further, it was not possible to compare the industrial development taluka wise in the post reform period with that of pre reform period, due to non availability of the required data.
4. In certain cases group wise data are not available because of small number of units, they are merged into some other groups.

VI CHAPTER SCHEME:

The first chapter, which is the introductory chapter, introduces the topic of the present study. In this chapter the objectives of the study and the hypotheses are stated. It also provides an over view of the data source and the methodology adopted for testing the hypothesis. It also provides an overview of the subsequent chapters and limitation of the current study.

The second chapter titled "Territorial Development and Industrial Location: Theory and Literature Survey" is divided into two part. In the first part, various theories associated with the regional development and industrial locations have been examined. In the second part the existing literature on the subject has been reviewed, so as to provide a justification for undertaking the present study.

The industrial policies formulated by the government of India as well as by the state government have been examined in the third chapter. In addition the reports of various committees formed for identifying backward areas have also been studied in this chapter.

In the fourth chapter, the profile of the state of Gujarat is presented. The emphasis here is on industrial development of the state from its inception in 1960. A comparison with other states has also been attempted in this chapter. The comparison is made on the basis of different parameters such as the growth of numbers of registered factories, capital investment, and number of employees, net value added and value of out put.

The fifth chapter attempts to highlight the inter-district industrial variation in the state of Gujarat. This chapter also highlights the fact that, industrial activities are

concentrated in six districts out of twenty five districts of the state. Thus reveals the territorial industrial imbalance in the state of Gujarat.

The sixth chapter focuses on the inter-taluka industrial profile in Vadodara district. Along with it, the future star and star industrial groups are also identified within each taluka of the district

Chapter seven examines the pattern of industrial development in Amreli district which is one of the most industrially backward of the state. Here also the inter-taluka industrial variation has been attempted. Further, future star and star industrial groups in each taluka have been identified.

The last chapter is the concluding chapter, where the whole study has been summarized on the basis of which the conclusions are drawn. The chapter also suggests policy implications based on the findings of the study.

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CHAPTER: II

TERRITORIAL DEVELOPMENT AND INDUSTRIAL LOCATION: THEORY AND LITERATURE SURVEY

INTRODUCTION:

Industrialization is regarded as synonym with economic development; in fact these two terms are most often used inter-changeably. This is due to the fact that industrialization is a process, which ultimately results in economic progress. This happens because industrial development exploits the idle resources of the economy and leads to multi- sector economic development, thereby promoting economic welfare of the society.

Industrial development can contribute to three major economic objectives of developing countries like India. These are (i) To facilitate rapid economic growth, (ii) To bring about stability in the economy, and (iii) To promote territorial development of backward region. It is in this context that this chapter attempts to study theories associated with territorial industrial development as well as to examine the literature available in this area. The main purpose for this is to provide a justification for conducting the present study. The chapter is divided into two parts: - the first part, deals with the theories associated with territorial economic development, while the second part deals with survey of literature in the area.

I

THEORITICAL FRAMEWORK:

The theoretical framework can be looked at from two angles; first, theories associated with the problem of regional disparities in industrial development; second the theories of industrial location. This is because the problem of regional disparities and industrial location are inter- connected. In fact, it is the concentration of industries in selected regions that may lead to faster development of these regions at the cost of other regions.

A. THEORIES OF REGIONAL DISPARITIES IN INDUSTRIAL DEVELOPMENT :

In this section of the present chapter, an attempt is being made to provide a theoretical explanation for the problem of regional disparity in industrial development, so that a solution to regional disparity can be drawn from these theories.

There are several regional economic theories which explains, why some regions develop industrially and others are labeled as' Industrially Backward Regions. '

The territorial disparity between different regions may be because the process of development initiated in a region, their degree and speed is different from another territory. This may be due to some natural and man made advantages in that regions.

One of the first theoretical explanations was provided by Perroux (1955). He developed the concept of “growth pole" in the development process. He said that, the forces that come into play in a market economy generally tend to increase inequalities between the regions. Growth poles are centers from which centrifugal forces originate and to which centripetal forces are attracted. Each centre being the centre of attraction and repulsion, has its proper field, which is set in the field of other centers. The theory recognizes that inequality functional or spatial is inherited in the process of development. According to him, "growth does not appear everywhere at the same time with variable intensity, it spreads through different channels, with variable terminal of effect on the whole of the economy." The accumulation and concentration of human, capital and other resources in centre (pole) give birth to other centres. The basic idea behind the growth pole concept is that, economic activity tends to concentrate around certain focal points. Economic development is thus polarized and it inevitably resulted in clusters of economic activity.

In 1958, Myrdal used the concept of cumulative causation to explain why growth gets concentrated in the regions, where it has been initiated. He supported the view of Perroux that economic growth starts in some regions rather than in all regions. Once the region starts growing, all activities begin to concentrating there, because of ever enjoying internal and external economies of scales, which are cumulative advantages of growth. Thus, “because of such circular causation, a social process tends to become cumulative and often together speed up at an accelerating rate". Myrdal further argues that the free play of market forces normally tend to increase, rather than decrease inequality between

the regions. According to Myrdal, by nature, free market system causes advanced region to grow, at least in part, at a cost of other region and as an effect, income inequality takes place.

To explain inter-regional disparity in the development process, Myrdal used the concept of “Backwash effect" and “Spread effect”, which are functionally opposite to each other. Once the development process starts, the developing regions would attract labour, capital and commodities from the lagging regions by offering higher wages and interest, which would support the further growth of the developing regions. This process according to Myrdal is "Backwash effect". Thus, the "Backwash effect” refers to all those unfavorable forces which causes disparity in development among the different regions. The backward regions losses their best labour due to migration from backward areas to developing areas. Likewise, due to this "backwash effect" that, the backward regions are also lacking in social infrastructure. In absence of education and other facilities, the society continues to remains traditional and anti-progressive. In absence of education and other facilities, the society continues to remains traditional and anti-progressive which further leads to income inequality and poverty. The backwash effect is strengthened with the passage of time, because as the developing regions grow rapidly, the socio- cultural gap between the developing and backward regions goes on increasing. However, development process in the developing regions does generate "Spread effect". The expansion in economic activities in the developing regions may increase the demand for agricultural products, raw-materials produced by the backward regions. Even the labourer who has migrated from backward to developing regions may send remittances to their region; which increases the income and saving of these backward regions. All these factors would lead to a self-sustained economic growth in lagging regions. Thus, the “Spread effect" refers to all those favourable forces which brings about inter-regional parity, but the "Spread effect" works only when the country has reached to high level of economic development.

Myrdal has explained why the rich and the poor countries differ in their strategies to tackle regional disparities. He said in the early stages of development the “backwash effect” are stronger than “spread affects”, therefore he opined that there is a strong need of government intervention in distribution of economic activity to induce strong spread

effect as to remove regional disparities. Regional disparities in development especially in industrial development cannot be removed unless the government intervenes in distribution of industrial activities by influencing location decision of industries, which in absence of government intervention is guided by free market forces, if left free increases further inequality in industrial development and economic growth.

Hirchman (1958) in his theory, has explained the causes of inter- regional disparity in the process of development. Like Myrdal he also used two concepts- "trickle down effect" and "polarization effect ". These concepts are opposite to each other. Like Myrdal, he also supported Perroux statement that the growth does not take place in all the regions at the same time. He is of the opinion that growth is necessarily unbalanced and inter- regional inequality of growth is an inevitable condition of growth. Though he is of the view that growth is necessarily unbalanced, but he believes that regional inequality is not a permanent phenomenon. Later on, in the growth process, spread effect would be stronger than backwash effect, if the developed region depends on backward regions for the requirement of raw material and food. This will ultimately encourage primary activities and food processing manufacturing industries, thereby promoting the development of the backward region. This has been termed as "Trickle down effects". According to him, trickle down effect is "by far the most important effect is the increase that is sure to take place, if economies of the two regions are complimentary. In short, trickle down effects are those favourable forces, which brings about inter-regional parity, which Myrdal explained as "spread effects".

By polarization effects, he means, all those unfavorable forces which causes regional disparity or divergence. The unfair competition between the manufacturers of the North and South and the undesirable inter migration of human resources are by far most important polarization effects. Among the unfavorable forces, according to him, internal brain drain is the most unfavorable forces. Because of this, the development of the backward region detoriates and at the same time development of developed regions speeds up at the cost of backward regions. This is because the advanced regions, of the presence of internal and external economies, leads to more investment than in backward regions.

The theoretical generation in the pioneering work of Perroux, Myrdal and Hirschman and others provide the concept of "Backwash effect" versus "Spread effects" and “Polarization effects” verses "Trickle down effects". The development process in the economy is worked by two concomitant but opposite spatial tendencies, concentration and dispersion or convergence and divergence. Concentration or convergence leads to clustering of economic activities in a few growth centres, where as dispersion or diversion brings about an even spread of activities in other regions. When the process of concentration multiplies, the dispersion process is weakened .However, if any strong concentration process is counter balanced by an equally strong injected dispersion; the result is decentralization.[9]. The above discussed theories, agree that growth does not take place everywhere at the same time, and start with, the growth is necessarily unbalanced. They also accept that development process involves the operation of both, the divergence causing and convergence causing forces. These theories also strongly supports that, the existence of the regional disparities is due to economic reasons.

It is also felt that the play of free market forces tends to increase in regional disparities. To remove this, disparity, government intervention becomes a must. Government through certain incentives subsides and through making easy availability of finance, can develop backward region.

B. THEORIES OF INDUSTRIAL LOCATION:

In the present time, with the changing industrial environment, the concept of industrial location is also changing rapidly. Due to the globalization, market area of the particular firm becomes wide and open, and there is always an interdependence of industries, which always add to complexity in choosing the industrial location. The location of industries is not very random. The pattern of industries in the world reveals the industries tend to concentrate in certain places. The tendency of some industries to 'concentrate' and some to 'disperse' is the combined result of individual decisions, which are affected by factors of industrial location.

Since the problem of regional disparities arises due to the uneven distribution of industrial investment and industrial employment and concentration of the above in a few developed centres, the regional disparities can be thought of, as a problem of industrial

[9] See Sarkar (1999)

location. Thus in this section, an attempt is made to give a brief overview of some of the locational theories so as to focus on the important locational factors.

It was Weber (1909) who first developed his famous “Least Location Theory”. He attempted to develop a general theory of industrial location, which could be applied to all industries for all the times. The basic objective of Weber's theory was to find out minimum cost of an industry. He identified three factors (i) Influence of transport cost (ii) Influence of labour cost (iii) Agglomeration, which determines industrial locations.

And for an optimum location site, least transport cost was considered as the most influenced one. The advantage of transport cost largely depends on the nature of raw materials used, which may be ubiquitous or localized. Transportation costs also vary according to the weight.

With regard to 'labour cost', Weber assumed that, an industry would be located away from the site of least labour cost, if the labour cost saving is lower than the increment in transport cost ,at this site, above the minimum possible transport cost. To measure the importance of labour as a location factor, Weber used the average cost of labour per unit weight of product as an index. Greater the labour cost index; the greater will be the susceptibility to move from the least transport cost site.

Weber next examined in theory the effects of agglomeration. Agglomeration means concentration of production for a commodity at a place. There can be two types of effects as a result of agglomeration, (a) economies of scale within a plant, (b) economies from the association of several plants. A plant would tend to be located in agglomerated area, if the saving of production cost at this location offset the increase in transport cost, as a result of a shift from least transport cost location.

This theory considering costs as an important aspect of production, advocates that the production activity may become profitable at a point at which the costs are minimum. According to this theory, factory sites would be chosen at such a place, where cost will be at minimum to earn better margin between the costs to the manufacturer and the price at which he can sell his product in the market.

Palander (1935) developed a theory called "Market Area Theory" of industrial location. His theory is an extension of Weber's theory and also be made valuable contribution to the locational theory by adding the market area dimension to it. In his

theory, he considered two different, but inter–related questions. First, given the price and location of materials and the situation of market, where would production take place, second, given the place of production, factory costs, and transportation rates, how does price affect the extent of the area in which a particular producer can sell his goods?

The size of market area would influence the profit of the firm. Given the production cost and the rate of profit per unit of output, larger the market area more will be the total sales and therefore, total profits of the firm. According to him, industries are attracted to market, indirectly proportionate to the size of market. To raise or capture the market, the important variables are production costs and transport cost. By controlling these costs, price can be kept low and increase the sales and thereby the profits. Thus, he linked the least transport cost analysis of industrial location with the market area analysis.

Hoover (1948) had developed a new approach to the theory of industrial location and called it "Minimum Production Costs" in location theory. According to him, probable site for industrial location is the minimum production costs site and not the minimum transportation costs site. Minimum transport cost site as advocated by Weber, may not be the site of minimum production cost site because it depends on three factors (i) Cost of agglomeration of raw materials, (ii) Cost of transportation of finished goods to the market, and (iii) The processing cost that involves labour costs and technology cost. While calculating transport costs, he emphasized on (a) Terminal costs and (b) Line and haul costs. In this theory, he had incorporated both production costs and transport costs as determinants of industrial location. Thus according to him the site of the industries would be chosen by taking minimum production costs into consideration.

Another theory called “Central Place Theory” was developed by Losch in 1954. He applied the profit maximization approach to the industrial location problem. The central theme of this theory is that industrial location is characterized by conditions of monopolistic competition and not perfect competition as assumed by Weber. Losch assumed that firm would locate at place, not necessarily, but certainly, where revenue is maximum and thereby profit is maximum. Thus, instead of least cost Losch emphasized on demand, which will give maximum revenue. This theory sought to explain that the size and shape of market would command the largest revenue. He assumed in his theory of location, demand as a major spatial variable. He asserted that the right approach is to

find the place of maximum profits, where total revenue exceeds total costs by the greatest extent.

Isard (1960) advocated "Industrial Complex Theory" of location. It is an example of linked firms clustering together to create their own cost competitive environment. Firms supplying raw materials or consuming by products from one another can also benefit from location in close proximity of industrial complex.

An industrial complex has been defined as "a ramified chain of a functionally inter connected industries" The presence of all links in the chain of interacting industries maintained by production technique. This inter connection is such that all the industries when function together, can operate optimally rather than when they function together over a wide areas. Industrial complex is conditional by input structure and distribution of output. Though the propulsive industry is not an absolute necessity for functioning of an industrial complex, economics of agglomeration and concentration is must. Such an industrial complex is generally "planned and has well developed industrial infrastructure.[10]

A brief review of the theories of industrial location explained above shows that, from the partial cost analysis, the theories have moved forward to cover demand, profit and revenue in locational analysis. In the earlier theories of industrial location, transport cost and labour cost assumed greater importance. However, modern theories emphasized demand as a significant factor. In practice, the choice is governed by not only cost and demand factors but also by personal factors, government policies etc. Nevertheless, ultimate goal of an industry is to maximize the profit, so they would prefer to locate their unit at a place where profit is maximum.

The ironic part is that none of the theories of regional disparities or industrial locations have indicated that there should be a role of government intervention in choosing location site and even how the government should intervene in location of industries, so that territorial disparity can be minimized. It is one of the issues that the present study will address.

After having examined the theories associated with territorial disparities and industrial location, in the next section a review of existing literature has been undertaken.

[10] See Sadhak (1986)

II

LITERATURE SURVEY:

The existing research on territorial industrial development and territorial industrial disparity lays emphasis on location of industries, which is further influence by various historical, economic, social and geographical factors. Several studies have been conducted so far, which have dealt with this issue of industrialization and territorial development. These studies are reviewed in this section. Just, as the theories were looked at from two angles, so also the literature survey. The first part deals with the literature on industrial location, regional development and policies pertaining to other countries. The second surveys the literature on the subject pertaining to India. The core purpose behind conducting literature survey is to identify the gap in the knowledge and there by provide justification for undertaking the current study

One of the first studies on regional development was conducted by Finger (1971). In his study, he made an attempt to analyze the efforts of the government of Israel in encouraging industrial development in general and backward areas in particular. He analyzed the impact of number of grants and subsidies on industrial development and concluded that these subsidies and incentive led to considerable industrial development.

The study by Rodger (1979) focused on the policy of Italian government, aimed at reducing disparities in industrial development between the northern and the southern parts of the nation. The Italian government prominently banked an incentive measures and huge investments were made in the south. As a result, industrial employment in south witnessed a stupendous growth during 1951 and 1957.

The joint study by Brugger and Stuckey (1987), proved that the problem of regional disparity in industrial sectors was also found in a developed countries like Switzerland. Their paper focuses on innovative activities at entrepreneurial level and regional disparities in Swiss economy. The study showed that sectoral, structural and entrepreneurial changes in the global economy had both direct and indirect spatial impact on the productive activities in Swiss regions.

Mercado (2003) in his study analyzed the regional development policy of Philippines, which is one of the developing countries, facing the universal problem of regional disparity. As the economy of Philippines has been adopting regional development policies since 70's, the economy now is witnessing a gradual reduction in disparities. This was possible because of a strong linkage between agriculture and industry. According to him, regional development can take place by enhancing agricultural productivity and small scale industrial development. He stated that dispersal policy along with the infrastructural development has led to the regional development of Philippines.

De (2008), in his paper analyzed how the availability of infrastructure in India and China has led to regional disparity in both the countries. Availability of good quality, infrastructure in coastal and non coastal belt of China is better than India. This has led to attracting a number of industries and progressive employment in China. According to the study, regional disparities arising out of industrial development has been gradually reducing in China, where as India has witnessed a reverse trend.

The studies reviewed above leads one to conclude that government incentive plays an important role in reducing regional disparity and promote development of backward regions.

In India one of the pioneering studies was conducted by Pathak (1971).He measured the impact of industrialization on the per capita income and employment of the people in Chhotaudepur region of Gujarat: He made an attempt to access the impact of Fluorspar Plant, a public sector project on backward economy of Chhotaudepur. The finding of this study revealed that there was a positive impact of this project on employment of un-skilled and semi skilled workers of this region and thereby on income and expenditure level of the people. He opined that project should be undertaken in all backward region of the state, where ever it is possible.

Hajra (1973) in his study compared the regional disparities between one of the most developed states of India– Punjab, with one of the most backward states of India – Bihar. According to his study, industrial disparity between Punjab and Bihar had increased during 1959 to 1966. The factor that contributes to the widening of disparities

between Punjab and Bihar are ascendance in industrial growth of Punjab and crippled industrial growth of Bihar, which in turn is due to non availability of infrastructure.

Gupta (1973), in his paper emphasized, how the investment in public sector had reduced regional disparity. He used PCI (per capita income), as a yardstick of measuring regional disparity and assessed the impact of public sector investment on PCI of that region. He concluded that regional imbalance in India, between the periods 1950-65 has decimated because of public sector investment made in a backward regions of India.

Palsapure (1974), in his work probed the reasons for industrial backwardness of Vidarbha and existing regional disparity in terms of industrial development in the state of Maharastra. His findings states that there was intense concentration of industries within the limits of Mumbai – Pune region, where as rest of the state remained under developed. Bombay alone accounted for 77% net value added by manufacture in the state and 66% of the total factory employment in 1961. According to him, Vidarbha, a mineral and forest rich region, invites and establishes mineral and forests based industries, than it would leads to an upsurge in employment and industrial development, and a consequent decrease in disparity in the sate of Maharastra.

Godbole (1978), has dealt with "Industrial Dispersal Policies" measured inter district industrial disparity in the state of Maharastra. He expressed a serious concern on the acute nature of intra-state disparity in industrial development in the state. Bombay – Thane and Pune lying on a 120 miles corridor, accounting for four-fifth of the total factory employment in the state, leaving the other areas of the state industrially backward. He tried to measure the impact of the state on regional industrial development. He arrived at the conclusion that industrial dispersal policies have reduced regional industrial disparity in Maharastra.

Hashim (1979) in his paper has analyzed the regional variation in industrial development from 1950 to 1971.He found that industries in factory sector generally tend to develop in clusters. As a part of the methodology adopted, he took state wise employment and value added in factory sector. The outcome of his analysis reveals that Maharastra, Gujarat, West Bengal, Tamil Nadu, Kerala, Punjab and Haryana are the most benefited states owing to some historical reasons and the clustering of industries in particular regions. Moreover, government decision to invest in a public sector in the

states like Bihar, Madhya Pradesh, Orissa and Assam has initiated the development of industries in industrially backward region. However, this did not lead to any significant improvement in terms of employment in the factory sector. He asserted that private sector investments though of considerable significance have continued to flow in the states that have already reached the zenith of industrial development. This has contributed to increase in regional industrial disparity.

Pathak's (1981), in his work "Industrial Dispersal in Gujarat" is notable because of an in-depth examination of the regional aspects of industrializing the backward regions and suggestions about the strategies for industrial planning. His work analyses region wise industrial structure and development prospects among the categorized regions in the state of Gujarat. His work further examines the fast growing industries, basic and service industries and regional industrial concentration. Industrial diversification policy is examined in the context of building a case for industrial dispersal, so as to quicken the process of industrial dispersal and analyses the extent and spread of industrial linkages across the categorized regions of the state. He concluded that in industrially advanced regions, government must discourage the location of industries, where as it must be encourage in a backward region, to develop them industrially.

Joshi (1982) assessed the distressing causes of relative backwardness of one area compared to other developed areas. The work "strategy for the development of backward areas – with special reference to Gujarat", is remarkable for categorization of various factors that bring about such geo-physical, economic social and historical factors, which leads to differentiation between the developed and backward areas. According to him, agriculture being the main source of activity in backward areas demands greater infrastructural facilities on the part of the government to substantiate the agricultural development and consequent rise in the income of the people. He proposed the establishment of labour intensive industries in the backward regions.

Jha (1982), in his paper laid emphasis on grouping the indicators of inter-state disparities as indices of income, poverty and unemployment, agricultural indicators, industrial indicators, infrastructural indicators, social services indicators and resource allocation indicators and their impact on regional disparity. He says that many poor states of India are blessed with rich natural resources but only the region with high rate of initial

capital formation continue to grow, where as the rest lagged behind. Thus, according to him, the disparity between the two regions exists due to initial disparity in capital investment.

Bharadwaj Krishna (1982), in his study concluded that industrial expansion directly depends upon availability of agricultural surplus and effective demand for products of industry indicated by high level of standard of living. According to his study, industrial development of Gujarat and Haryana is because of availability of agricultural surplus and high standard of living of the people there, where as Bihar, Orissa, Uttar Pradesh, Rajasthan, Madhya Pradesh seem to explain the case of retardation.

Kaur Kulwinder (1983) in her research probed the inter-regional disparities in industrialization in the state of Haryana. The parameters to study disparity in industrialization, used by Kaur are number of registered manufacturing factories per lakh of population workers engaged in secondary sector as a percentage to total workers, workers in registered factories per one lakh of population and electricity consumed for industrial purposes as a percentage of total consumption of electricity. According to this study, Kurukshetra was the least industrialized district, where as Gurgaon ranked first, followed by Ambala and Sonepat districts during the study period of 1966 and 1978. The study concluded that the regional disparities in industrialization had not declined in the due course of study period rather it had noticed a sharp increase due to concentration of industries in 1978 as compared to 1966.

Uday Sekhar (1982), tried to analyze the trends in inter state disparities in industrial development in India, during the period 1961 to 1975 to find whether industrial regional disparity has increased or reduced. He analyzed the secondary data by using Hirshman – Herfindhal Index and Theil Index. According to him, there had been a significant decline in state wise concentration especially the value added in manufacturing sector. Theil Index exhibited a decline in a disparity to the extent of 40 percent in value added and 30 percent in employment; where as Hirshman Herfindhal Index also exhibited a decline in disparity by 18 percent in value added and by 15 percent in employment.

Mathur (1983) in his paper investigated the pattern of spatial economic disparities in India during 1950 to 1975. According to his study, until 1960's the disparities in terms

of income through agricultural sector were declining and thereafter it increased at a faster rate. The regional disparities through industrial development, witnessed a rising trend and then a consistent decline was noticed in disparities. He found that regional disparities in primary and tertiary sector revealed on 'U' shaped behaviour while secondary sector revealed an inverted “U” shaped behavior.

Tewari (1985) in his paper analyzed regional disparities in Uttar Pradesh. He observed a wide disparity among the five regions of the state (Hill, Western, Central, Eastern and Bundelkhand). Agriculture, being the main occupation of the people, dominates the state economy. He also pointed out that in industrial sector too, there exists wide disparity among the five regions in the state. There were nine factories per lakh of population in the Western region, eight factories per lakh of population in the Central region, only two factories per lakh of population at Bundelkhand, Eastern and Hill regions. The Western region industrially advanced in the state, ranks first in industrial output to total output. He concludes that there exists region disparity in both agriculture and industrial development among various regions of the state.

Bajpai (1985), in his paper laid a pertinent emphasis on inter – regional disparities in industrial development by using per capita industrial output in the study period from 1969 to 1977. According to him, regional disparity in industrial development during the study period declined. The study revealed that Gujarat, Maharastra, Haryana, West Bengal, Tamil Nadu were industrially developed sates in 1969 and maintained their status till 1977, in terms of per capita industrial output. The coefficient of co-relation in terms of per capital output was significantly high indicating that inter regional pattern of industrial development, which existed in 1969 continued to persist until 1977.

Sadhak (1986) in his study, he attempted to assess, the impact of incentives and subsidies on the notified backward districts and developing districts in the state of Maharastra. He considered Aurangabad district, which was categorized as one of the most backward district of Maharastra during the period 1970-1971 to 1980-1981. He came forward with the observation that incentive played a crucial role in inducing industrial development in Aurangabad district. There was significant growth in industries, industrial investment and employment. He also reiterated that there is a positive relationship between industrial growth, state economy and state income. He concluded

that the incentive policy of the central and state government have had a positive influence on the industrial development of the Aurangabad district.

Singh (1987) in his work has made and attempt to explore the causes and impact of disparities in industrial growth on the economy of Rajasthan. Within the state of Rajasthan, some districts are industrially backward while some are industrially progressive, leading to regional disparity in the state. He studied the extent of disparity between 1961 and 1981. His observation that out of 26 districts, 16 districts are found to be industrially backward and 10 districts are noticing industrial growth is due to the variables in the availability of resources. One of the reasons for industrial disparity in the state is lack of basic infrastructure. He concluded that there is definite co-relation between regional resources and industrial development.

Appa Rao (1987) critically examined that to what extent is planning in India, responsible for creating regional disparities. According to him, planning in India has been used as an instrument for bringing about regional development and a measure to remove regional imbalances. He concluded that, during the plan period, the cumulative result of plan outlays and central assistances has been more in favour of relatively developed states, thus widening the gap between developed and backward states. So our planning itself is responsible for regional disparity.

Vyasulu (1987) in his work on the development of backward areas emphasized on the decentralization of production, particularly on small-scale industries. According to him, small scale industries do not require substantial capital investment. This feature of small-scale industries ensures as well as perpetuates regional development. A number of empirical works assert that decentralization in the process of regional development will give a fillip to the quality of life in a district. He surveyed Koraput district of Orissa. He concluded that within the small scale industrial development and decentralization planning, the Koraput district which was one of the most backward district of Orissa, witnessed to some extent improvement in the quality of life by people there.

George Rasen (1988), has made an attempt to study the industrial development of three southern states namely Andhra Pradesh, Karnataka and Tamil Nadu. He considered a study period from 1952 to 1981. He found that among the three states Tamil Nadu grew very rapidly between 1950 and 1970, during 1970 and 1981, industrial development in

Tamil Nadu slowed down. Industrial development in Karnataka was tremendous during 1960 and 1975. He arrived at the conclusion that the potentiality of growth of industries in three southern states depends more on the investment policies of both central and state government.

The emphasis of Jayalakshami and Abdul Aziz (1988) their study was on industrialization and regional imbalance in the state of Tamil Nadu. Indicators such as the numbers of registered factories per 1000 sq. Km. of geographical area productive capital in industry- district wise in the state, value added and employment in the factories per lakh of population served as the major parameters to study regional imbalance in the state. They inferred that level of disparities in industrial development between the districts of Tamil Nadu persisted as earlier.

Sebastain and Leanard (1988), attempted to study district wise industrial development of Tamil Nadu in the stipulated study period from 1976-1982. Three indicators; district wise distribution of registered factories, number of employees per district and district wise distribution of the value added serves as determinant for the extensive study. They found that five major districts of Tamil Nadu- Coimbatore, Salem, Tirunaveli, Madras and Chegalpattu dominated the factory sector, they accounted for 63.8 percent of the total registered factories, where as the remaining districts accounts for only 36.2 percent of the total registered factories. The outcome of the study reveled that the degree of disparity in industrialization between the districts of Tamil Nadu had not been reduced.

Ziauddin (1988), in his article stated that the effect of disparities can be visualized in terms of economic activity, unemployment, per capita income and rate of employment growth, because of divergent process of development. According to him, regional disparities in the development, especially in industrial development cannot be removed unless and until government intervenes in the distribution of industrial activities by influencing location of industries.

Dadibhavi (1989), in his work is on the regional disparities in the state of Karnataka between the period of 1960-61 and 1975-76. The co-efficient of variation, co-relation and multiple regressions were employed as the parameters to measure the disparity. The study revealed that in spite of industrialization, the disparities in the level

of development in the districts of Karnataka persisted because of wide variation in the level of development during the study period.

Rao's (1989) study of inter state disparities by using fixed capital, employment, output and value added as indicators led to the inference that there exists a positive relationship between per capita income of the state and proportion of working force in industrial as well as service sectors of the state. According to him, the inter state disparities in manufacturing sector had increased. Maharastra, Gujarat, West Bengal, Tamil Nadu had occupied the first four places. These four states noticed rapid industrial growth as compared to other states. This fact led to the conclusion that the three and half decade of planned development in India had not been enough to reduce inters state disparities in industrialization.

Das (1993) in his paper examined the strategies adopted in planned development of the Indian economy, with specific thrust on removing regional imbalances. According to him, though there was a great trust in industrial dispersal through various measures like financial support schemes, industrial licensing but in practice, the state already recognized as advanced state managed to obtain a lion's share of the entire range of benefits. The pattern of industrial development had been lopsided resulting in depressed region being starved of essential infrastructural investment. He concluded that the financial flows have been so far in favour of advanced states.

Jaishankar Raman (1996) in his paper used Barro and Sala– i Martin model and Sahay and Cashan Model to analyze how convergence had led to regional development in India. According to him, financial grants offered to the states of India are unconditional but despite this, the disparity persists. This is because granting financial support for industrialization, government did not take population of that particular state into consideration, Uttar Pradesh and Bihar constituting 25% of total India population received meager grants. He arrived at the conclusion that inter-state disparities have increased during 1960-90, which shows that the claim of convergence of regions cannot be stated as true.

Bhandari (1998), his work focused on the central and state government incentives for the development of backward region and their impact on industrial development of backward areas and regions of the country in general and of Uttar Pradesh in particular.

According to him, availability of concessional finance and subsidy has not been a significant motivating factor in location decisions. He stressed on development of infrastructure of the backward areas. He also analyzed that, central government incentives for the development of backward areas are mainly directed to backward region of developed states, rather than backward areas of the backward state. He is of the opinion that for the industrial development in both developed as well as backward areas, the central and state government required to work in co-ordination with each other.

Sarkar (1999) initiated his study on regional disparities in India" covering a span of thirty years i.e. from 1960-61 to 1689-90 using per capital income as the signal indicator of development, to measure the level of disparity. In order to probe the causes of inter state disparity, the analysis of over all development of the states was carried out by employing twelve (12) indicators pertaining to agriculture, industry and infrastructure. Various statistical techniques were used to analyze the disparities. According to the study, state disparities in terms of per capita SDP showed that the disparities had widened during the study period. This has been reflected in the fact that the gap between three highest income states and the three lowest income states had increased.

Somik Lal (1999) in this paper tried to establish relationship between public policies and regional growth, as well as the role of public investment in the development of the region. The infrastructure has a direct impact on output and thus influences the location decision of private industry. The availability of infrastructure can attract new business, if it is feasible in backward region. According to him, it is possible that infrastructure investment can influence regional disparity by changing the competitive and comparative advantages of neighboring states. The states with prominent industrial advancement are due to more investment in infrastructure and the backward states are because of low investment.

Dholakia (2000) in his paper focused on the liberalization policy of 1991.He found that the industrial sector of Gujarat has benefited, while agricultural sector has been totally neglected. It is because of this, after 1990's regional disparity increased with in the state of Gujarat. According to him, this policy of liberalization has favored the organized sector more than unorganized manufacturing sector. Even amongst the SSI, more SSI has been located in metropolitan and urban areas, whereas after 1995, only 37

percent of registered SSI in rural Gujarat. This is due to the availability of better quality of infrastructure in urban Gujarat. He concluded that this policy of liberalization has led to high growth of industrial economy in particular and the economy of Gujarat in general, but at the same time it had led to increase in regional disparity.

Similar conclusion was arrived by Awasthi (2000) in his study. He tried to analyze the changing pattern of industrial structure in post liberalization period. According to him liberalization has helped Gujarat economy and its manufacturing sector, in particular. According to him, in post liberalization period regional disparity in industrial development in the state of Gujarat has increased. Out of total project investment, major investments are concentrated in the districts, which are already industrially advanced. However, other districts have also potentiality to attract investment. Gujarat needs to focus on the infrastructure to retain its dominant position in manufacturing sector.

Ghuman (2000), in his paper said that liberalization policy has accelerated industrial development in India. However, the benefits are not evenly distributed among the states. The gains of liberalization policy are enjoyed by two western states – Gujarat and Maharastra and one southern state- Tamil Nadu. The other beneficiaries are West Bengal, Karnataka and Orissa. These states enjoy certain added advantages such as proximity to ports, vigorous implementation of reform policy, a strong industrial base, (except – Orissa), greater availability of mineral resources, relatively better-developed infrastructure, and political stability. The remaining states either have gained little or have suffered losses during the liberalization. Most of these states are located in north India.

George (2001), He tried to examine the possible impact of reforms on regional disparities as well as industrial development. He concluded that existence of wide regional disparities in India is an inheritance from its colonial past. The study revealed that the phenomenon and process of widening disparities prevailed and persisted.

Jha (2001), focused on the result of economic reforms, the flow of both domestic and foreign investment was directed more towards better pertaining regions. The low performing regions received only a small fraction of commercial bank credit and credit

from All India Financial Institutions. These findings indicate that inter regional disparities are likely to rise in the course of development in future.

Baruah (2001) in his paper put forth the statistical evidence that industrial disparities in India both during pre and post reforms period has persistently been widening. His study reveals that North Eastern states, in spite of being rich in natural resources were placed at the bottom of the ranking in the composite index of Industrial development. According to him, it is the infrastructural bottle necks which are responsible for regional industrial disparities. He summarized in his paper that the centre should come forward in a big way in providing infrastructural facilities to enable North Eastern states, to reap the benefit of economic reforms.

Khare and Yadav (2001) conducted a study based on the data provided in the annual survey of industries. The variables – number of registered factories, number of workers, capital investment, value added, population, geographical area etc. Simple statistical tools of mean, standard deviation and co-efficient of variation of different ratios have been used. The study concluded that both internal and external factors determine the process of regional industrial development. Regional disparity in industrial development has widened in the process of industrial development.

Somra S. S. (2002) attempted to explore the uneven spatial development in India in a post liberalization period. According to the study, there has been a steady increase in disparity in terms of per capital state domestic product. This shows a steady increase in NSDP during 90's but the gains of prosperity were distributed unevenly. Developed states gained much while poor state become poorer. He used co-efficient of variation as a statistical tool. His analysis shows that in post liberalization period disparities among the states increased with a larger gap. According to him, reforms have benefited those states that are already industrialized. This can be seen in the list of forthcoming industrial investment proposals. As in the past, the lion's share has gone to the industrially developed states like Maharastra, Gujarat, Tamil Nadu and Karnataka.

Sridhar (2003) in his paper, attempted to examine the impact of growth centers on firms in India. His study is based on primary data collected from several growth centers. According to him, it is a not incentive that attracts industries in the region but it is the infrastructural facilities that attracts industries in a particular region. The impact of

incentives on industrial location is quite significant only when infrastructures are provided. Out of 68 growth centers spread all over India, he surveyed Hassan district of Karnataka, Bawal district of Haryana, as well as Sathari, and Shajanwa districts of Uttar Pradesh. He concluded that there is a strong relationship between growth centre infrastructure and tax incentives on firm's location decision.

Chakravarty (2003) tried to find out what factors drive the industrial location decision in post reform period in India. To find out the took five sectors, that is heavy industries, chemicals and petroleum, textiles, agro-business and utilities. He used regression as a methodology to prove his findings. According to him, one of the most significant factors that influences industrial location in a region in post liberalization period in India are the existence and size of new investment from pre-reform period and existence as well as the size of new investment, in the neighboring districts. That means, districts that were successful earlier continue to receive new investment but degree of post success is not the best indicator of the degree of current success. According to him, the situation in India in the post liberalization period is one of "concentration with dispersal" or "concentrated decentralization" where the new growth centers are in advanced region rather than in periphery.

Desai (2003), in his paper discussed the role of information technology in industrial development of the region. He found that the reform of 1990's had led to the faster development of more advanced states, leaving other backward states even more backward, thus causing greater regional imbalance. According to his paper, information technology for industries needs some specific infrastructure support, supply of IT skilled workers and desired policy decision. If the state wants to raise per capita income and standard of living of the people, they have to link I. T. with their industrial sector. The states that have achieved I. T. industrial sector linkage collaboration have witnessed the growth of industries at a faster rate.

Thomas (2003) explains that the regional disparities in India's industrial growth arise due to economics of scale, technical progress and reflection on cumulative growth differences. He considered a period from 1959 to 1998, used correlation as a methodology. He observed that during the study period two major states from the Western India – Maharastra and Gujarat have continued to dominate Indian industry,

whereas the eastern states of West Bengal, Bihar and Assam have continually losing their prominence. According to him, with the economics of scale there is a possibility that productivity grows fast and unit cost declines as production expands to the larger scale. There are certain states: Maharastra, Gujarat, Madhya Pradesh, Rajasthan, Andhra Pradesh, Tamil Nadu and Karnataka that have realized economics of scale in industries where potential economics of scale exists. TFP has been faster in these states. He concluded that, it is the realization of economics of scale, which causes regional disparities in India's industrial growth

Lall and Chakravarty (2004), in their study focused on understanding the process of spatial industrial variation – identifying the spatial factors that have cost implications for firms and the factors that influence the location decision of new industrial unit. They tried to analyze the impact of industrial location on spatial inequality; here they attempted to understand spatial inequality in terms of industrialization and industrial location proposed the argument that geographical variation in industrialization is the primary cause of geographical variation in average income in developing regions. They focused on how recent policy changes have led to increasing spatial industrial inequality and therefore spatial income inequality. According to them, new industries will locate where other industries already exist, this is due to in order to have productivity advantages in existing industrial regions. With the increasing dominance of private sector industrialization, industries will be more spatially concentrated in leading industrial regions, which will lead to higher levels of spatial inequality so under the regime of liberalization and structural reforms, the role of the state as on industrial location regulator has been reduced. They used several statistical and econometric models. Empirical evidences from Indian firms show that the cost saving is the most significant factor among firms of all sizes, as well as in sectors of manufacturing industry, because private industry seek profit maximizing location. However, the policies that encourage the creation and growth of mixed industrial districts are likely to be more successful than single industry concentration. They concluded that liberalization and structural reforms have led to higher levels of spatial inequality in industrialization in India.

Singh V. S. (2004), in his paper focused on how regional industrial disparities in the state of Uttar Pradesh can be reduced. Within the state, there are wide inter-district

disparities in the level of development. The state government is now more concerned about reducing inter-district industrial disparities, since 1982-83; where the government introduced decentralized planning process, to raise the economy of relatively less develop districts. According to him, less developed districts may possess much more potential than that of the developed once. What is therefore needed is to identify these potentialities and measures for their maximum exploitation. Some industries related to availability of the resources in the backward districts can increase per capita income of these districts.

Katharia and George (2005) in their study, attempted to analyze the factors influencing the agglomeration, in the context of 21 major states of India. The process of agglomeration or cluster formation concentrates many firms into industrial region or zones. The agglomeration takes place because these firms realize the monetary benefits from sharing specialized input factors. The idea of a "cluster" depends largely on the inter-firm relation that lowers the cost of production through the reduction of transaction cost faced by the firms. According to this study, the issue of agglomeration is pertinent particularly for developing countries as they have relatively lower levels of over all investment and the economic activity is concentrated in one of few growth centres. In India there is severe agglomeration of industries. In India, government in some region is trying to disperse industries by introducing certain policies such as incentives, taxes, subsidies, licenses etc, but success has been illusive. According to them, cluster formation in India at a number of places was an outcome of the existing clusters rather than an effect of infrastructural facilities made available by the respective state governments. The analysis finds that extractive industries like those that iron and steel and cement, lime and plaster are highly agglomerated and are found in those states where the raw material is in abundance. On the other hand, the industries like textiles and wearing apparel are mostly clustered in Tamil Nadu, Pharmaceuticals firms are located mainly in Maharastra and Gujarat, and the rubber products industry is located mainly in Kerala and Delhi. They concluded that agglomeration industries are mostly located in few states like Tamil Nadu, Maharastra, Gujarat and Andhra Pradesh, so the efforts made by the government, to disperse the industries between the regions have failed.

Bagchi et al (2005), in this paper they tried to focus on the growth and structural changes taken place between 1970 and 2000 in Gujarat. As per this paper, the economy of Gujarat grew in an unbalanced and volatile fashion, during the study period. The economic growth of the state is maintained at higher level by secondary and tertiary sectors, where government neglected primary sector, particularly agricultural sector, even though in the state it provided major source of employment. In 1990's, there was more concentration of factory sector in the state of Gujarat than any other state of India. This sector has enhanced imbalanced development in the state, at the same time has also led to regional imbalance, both in the state as well as in the country.

Majumdar (2005), in her paper tried to establish connectivity between regional development levels and regional infrastructural levels. She took the study period 1971 to 2001. She observed that in the first two decades regional disparity has narrowed down, but in the last decade, it has increased in transport, education and health infrastructure. This paper projects a strong association found between development indicators and contemporary infrastructural facilities and the association found to be stronger for industrial development and for physical infrastructure. According to her, regional inequalities in India can be narrowed down by focusing on development of the lagging and for which infrastructural development programme will have to play a leading role.

Sabyasachi and Sakthivel (2007), tried to measure the impact of economic reforms on regional inequality in India. They took a study period from 1980-81 to 1999-2000. They have divided study into two phases: Pre-Reform (1980-81 to 1990) and Post-Reform (1990-91 to 2000). According to them, in pre-reform period, the regional industrial inequality existed there, but remained stagnant; this is because of the role of public sector in maintaining regional parity in India by directing resources to backward areas. While in the post reform period inequality has increased because reforms have given greater freedom to private sector, which always found attracted towards relatively more developed regions, because of relatively developed infrastructure. They concluded that in the post reform period the rise in regional inequality is due to regional industrial inequality.

Dholakia R. (2007), in his paper focused on the sources of growth in the state of Gujarat. For his study he compared pre and post liberalization period. According to him,

liberalization has benefited Gujarat more than any other state of India. According to his paper, in order to achieve regional development or to reduce regional disparity, certain sectors and sub-sectors can be the source of growth for Gujarat. He emphasized more in industrialization as a source of growth, which can reduce regional inequality in the state of Gujarat.

Ramaswamy (2007), as per study, the inter-state disparity is due to degree of changes in diversification adopted by the states. More diversified states have attracted more investment in manufacturing sector particularly private organized sector, as a result employment and productivity in manufacturing sector has increased. As Andhra Pradesh, Karnataka and Gujarat have benefited more due to diversification in sectoral composition. His study pronounces that disparity has increased during the study period 1993 to 2005.

Kumnoor (2007), in his study analysed the pattern of industrial development in the backward region of the state of Karnataka. According to the study, a wide spread industrial disparity prevails in Karnataka state. Bangalore alone contributing 50 percent of registered factories and 60 percent of the factory employment where as Gulbarga, one of the most backward districts of Karnataka contributed only 9 percent of registered factories and 8 percent of the factory employment. However, the fiscal and financial concession led to increase in the share of backward districts in industrial units and employment over the period of time. He concluded that this fiscal and financial support given to backward region, led to reduce regional disparity.

Gurubasappa (2008), in his work ,investigated how the small scale industries play an important role in reducing regional imbalance, also ensuring development in backward regions. He took Bidar and Dharwad districts of the state Karnataka as the loci case study. According to him, among the factors influencing location decisions of entrepreneurs, incentives and concession have proved to be most important factor. Since natural location factors like availability of raw materials, availability of labour, location of similar industries, transport facility etc. has a very marginal influence on the location decision of most of the industries located in Dharwad and Bidar districts. According to his work, small scale industries have developed only in these two backward district of Karnataka and generated employment therein.

CONCLUSION:

Many studies on industrialization and territorial development as well as the nature and trend of territorial disparities was carried out in India and abroad since the middle of previous century.

A brief review of theoretical approaches to the theory of industrial location shows that from partial cost analysis, the theories have now moved ahead to take account of demand, profit and institutional as well as non-institutional factors in location analysis. In the earlier approaches, transport costs as well as labour costs assumed importance, later on demand became a noteworthy factor. The integrated approach emphasizes that profit maximization is the basic motive of choice of location rather then cost minimization or revenue maximization. In practice, location, in addition to cost and demand factors, also influenced by personal factors and government policies.

The above discussed the theories of regional development does not provide guidelines for the formulation of government policies. Nevertheless, the theories have a spatial place in regional analysis as they have been either explicitly or implicitly used for formulation of government policies.

Regarding the study of industrialization and territorial development, several studies have been conducted on India level but very few studies are on the state of Gujarat. Further, at the district level also in the state of Gujarat, very few studies have been undertaken so far. To the best of my knowledge no study has been conducted on taluka level industrial disparities in the state of Gujarat.[11] Thus this study is an attempt to fill in the gap in research. The present study is focused on, industrialization and territorial development in various districts of the state of Gujarat, with comparison between industrially developed and industrially backward territory. The comparative analysis is done between Vadodara a district, which is one of the most industrially developed districts, with Amreli district which is industrially backward district. It is against this backdrop that the next chapter looks into the government policies towards industrialisation in India.

[11] In fact as per the editorial note in Indian Economic Journal, there is a dearth of taluka level studies pertaining to India. See IEJ (2006), Volume 54, No-2

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CHAPTER –III

GOVERNMENT'S POLICIES TOWARDS INDUSTRIALISATION AND TERRITORIAL DEVELOPMENT

I INTRODUCTION:

Balanced development of all territories in a country is not only necessary for the proper utilization of the available human and natural resources but also to enable the whole population to share the benefits of development. Thus planned development is the main plank of any economic policy.

The experience of developing countries reveals that economic activity tends to concentrate in one or few urban areas, giving rise to the problem of regional disparity, these disparities can be progressively reduced through appropriate regional policy. But the goal of regional policy however is not merely as to develop all regions equally but to develop each region to its maximum potential. Thus, an ideal territorial development policy should therefore be following the criteria of "selective dispersal" choosing growth points within the less developed areas of the country.[12]

The territorial policies depend to a large extent on incentives and control to promote industrial investments in backward regions. It is widely accepted that territorial development policies can be a tool for reducing regional disparities.[13].In India number of committees have been appointed by the Indian as well as Gujarat government for the identification of backward regions, so as to enable appropriate policies for their development It is in this light that the present chapter focuses on policies adopted in India at large and Gujarat in particular with the aim of reducing territorial disparity in industrialization.

The rest of the chapter divided into four sections: section II – deals with the methods for identification of backward territories in India, section III –deals with balanced territorial development in different plan periods, section IV –focus on industrial policy of India and Section V focuses on the industrial policy of the state of Gujarat.

[12] See Kumnoor,(2007)
[13] See Degaonkar (1990)

II THE IDENTIFICATION OF BACKWARD TERRITORY:

As mentioned earlier, it is necessary to identify backward territory, so as to formulate a set of incentives and concessions that should be provided for attracting entrepreneurs to establish industries there. In India the central government has setup number of committees for the identification of the backward area. These committees have adopted different criteria. The committee not only took the task of identifying backward region but also recommended necessary policies for the development of backward region. The reports of these committees are described below.

It was only in third five year plan that government of India took special attention to the problems of balanced regional development. As a consequence at the time of launching the fourth five year plan, **Planning Commission appointed a Study Group** for suggesting the criteria for the identification of backward region. This study group as a part of fourth plan classified backward areas into 5 categories; a)Desert areas b)Chronically drought affected areas c)Hill areas including border areas d)Areas with concentration of tribal population e)Areas with high density of population with low levels of income, employment and living etc.

This study group suggested the following 15 indicators:

(i)Total population and density of population (ii)Number of workers engaged in agricultural including agricultural labourer as a percentage of total workers (iii)Cultivable area per agricultural worker (iv)Net area sown per agricultural worker (v) Percentage of gross irrigated area to net sown area (vi)Percentage of area sown more than once to net sown area (vii)Per capita (rural population) gross value of agricultural output (ix)Establishment (manufacturing and repair) using electricity (x)Number of workers per lakh of population employed in registered factories (xi)Mileage of surfaced roads (a)Per 100 Sq. Miles (b)Per lakh of population (xii)Number of commercial vehicles registered in a district.(xiii)Percentage of literate population (a)Men (b)Women (xiv)Percentage of school going children (xiv)Number of seats per million populations for technical training.(a)Craftsman (b)Diploma level (xv)Hospital beds per lakh of population[14]

[14] Pathak M.T.(1973)

Although the identification was comprehensive as it not only covered agricultural and industrial backwardness but also socio-economic backwardness .Nevertheless, it was argued by critics that some of the indicators do not reflect the backwardness of the area.

Subsequently the **Pandey committee** was established for suggesting strategy by which regional imbalances could be minimized or even eliminated. The committee submitted its report in 1968. On the basis of the available data up to the district level the committee suggested the adoption of the following criteria for identifying backward region.

(i.) Total per capita income (ii) Per capita income from industry and mining (iii.)Number of workers in registered factories (iv) Per capital annual consumption of electricity

(v) Length of surfaced road in relation to: (a) The population (b) the area of the state

(vi) Railway mileage in relation to (a) The population (b) The area of the state.

In addition the committee recommended additional indicators of backward districts, such as-.

(i)District outside a radius of about 50 miles from large cities or large industrial projects (ii) Poverty of the people as indicated by the low per capita income starting from the lowest to 25% below the state average (iii)High density of population in relation to utilization of productive resources and employment opportunities (iv)Inadequate availability of electric power or likelihood of its availability within 1-2 years (v)Non-availability of transport and communication facilities or likelihood of their availability within 1 – 2 years (vi)Inadequate availability of water or likelihood of availability within 1 – 2 years.[15]

It is to be noted that the Pandey Committee considered district as regional unit for the identification of backward region. Further the committee identified backwardness in terms of industrial development and not on the basis of agricultural development.

It was therefore criticized by critics who argued that committee was biased in favour of industries. In the same year another committee was appointed-Wanchoo Working Group to recommend incentives both fiscal and financial for the development of backward regions.

[15] Planning Commission, Govt of India (1969).

The **Wanchoo Working Group** has recommended the set of following fiscal incentives: (i)To grant higher development rebate to industries located in backward areas (ii)To grant exemption from income tax, including corporate tax for 5 years after providing for development rebate (iii)To exempt import duties on plant and machinery, components etc., imported by units which are setup in backward areas (iv)To grant exemptions from excise duties for period of 5 years (v) Sales tax exemption, both on raw materials and finished products to units setup in specified backward areas for a period of 5 years, from the date of commencement of production, and (vi)Transport subsidy up to 400 miles distance should be considered as normal and beyond that transport cost for finished products should be subsidized for such backward areas, in states of Assam, Nagaland, Manipur, Tripura, NEFA and Andamans. For the state of Jammu and Kashmir the transport subsidy is given up to 50% of the cost of transportation.[16]

In addition, the group also advocated certain special incentives to the backward areas, inter alia, in the matter of fixed assets such as supply of developed plots, built up accommodation, machinery and equipment.

In October 1972, the planning commission constituted a committee under prof. S **Chakravarty**. Although this committee could not submit its final report, it identified 155 hardcore of backward areas in the country. This identification was based on a set of 14 indicators:

(i)Density of population per square k.m. of area (ii)Percentage of agricultural workers to total working force (iii)Gross value of output to food grains per head of rural population (iv)Gross value of output of non food grains per head of rural population (v)Gross value of output of all crops per head of rural population (vi)Percentage of household establishment using electricity to total number of establishment (manufacturing and repairs) (vii)Percentage of household establishments using electricity to total household establishments (viii)Percentage of non household establishment using electricity to total non household establishments (ix)Number of workers in registered factories per lakh of population (x)Length of surfaced roads per 100 Sq. Km of area (xi)Length of surface roads per lakh of population (xii)Percentage of male literates to total male population

[16] Development Commissioner (Small Scale Industries) Government of India, New Delhi.,1969.

(xiii)Percentage of female literates to total female population (xiv)Percentage of total literates to total population.[17]

Some of the above indicators measures agricultural backwardness, some of measures industrial backwardness and while other measure social backwardness. Among the fourteen indicators chosen by Chakravarty Committee, some are closely related, while others are not, hence these are combined into a single index of overall development. This involves two alternative methods; one is to rank all the units, such as districts, in descending or ascending order in terms of each indicators. As for instance, the districts may be ranked ordered according to the density of population per square kilometer and given ranks. The other alternative is to convert all indicators into corresponding indices with a common base as hundred. Thus, the density of population in a district can be expressed as a percentage of average density in Stage as hundred, both the methods reduce the several indicators to a common base, so that they may be combined.

After having converted the several indicators to a common base, either by rank – ordering or indexing, these are combined into a single composite index in which the Chakravarty Committee has given equal weight to all indicators. There is still another method known as the method of principle component analysis which is used to reduce one set of indicators to a smaller number of indicators by taking into account the inter-correlations amongst the indicators in the original set.

The use of all the three methods has resulted in declaring 155 common districts as backward which, according to Committee, constitute the hard core of backward area in the country.

At the time of formulation of the sixth plan, there was a thinking that the working of various programmes for the development of backward areas needs to be reviewed and suitable strategy to be adopted for the development of backward areas. In the light of this **The National Committee On Development of Backward Areas** was set in 1978,under the chairmanship of B.Sivaraman. The committee felt that backwardness could be identified in terms of fundamental factors which inhibit development and the problem of industrial development of those areas should be considered in terms of structural factors.

[17] See Report on inter ministry task group, Government of India (2005)

The National Committee has suggested the following types of fundamental backwardness may be considered for determining backwardness.

(i)Tribal areas (ii) Hill areas inclusive of Hill station (iii) Drought prone areas (iv) Chronically flood affected areas (v)Coastal areas affected by salinity (vi)Desert areas.

The committee mentioned that the classification of backwardness will be unrealistic for any area larger than that of a "block" and anything smaller than a "block" will be unworkable. This committee accepted "Block" as a territory to study as a backward area.[18]

For the purpose of planning, the areas identified as a backward must have three key characteristics:(a)They must have potential for development (b)There must be some inhibiting factor which prevents this potential from being realized (c)There must be need for special programs to remove or mitigate the inhibiting factor and realize full potential for development.

An examination of different committees mentioned above reveals that there are number of common indicators of identifying an industrially backward region, such as (i) number of registered factories (ii) employment in registered factories (iii) number of workers per lakh of population (iv) industrial units using electricity.

The state government also appointed the committees to look into the issue of regional disparities for instance a committee was appointed by Maharashtra In 1983 under the chairmanship of **Dr. V.M.Dandekar**.It identified the following criteria;

(i)Per capita net domestic product (ii)Per capita consumer expenditure (iii)Per capita net domestic product from agriculture (iv)Per capita net domestic product from registered manufacturing (v)Proportion of urban population (vi)Proportion of workers in non traditional occupation (vii)Consumption of electricity (viii)Per capita bank credit (ix)Literacy (x)Proportion of weaker section ,i.e. Schedule Tribes, Schedule Caste and agricultural labourers.

In Gujarat one of first such committees was appointed in December 1983, chaired by **Dr. I. G. Patel**. It submitted its report in August 1984. It used number of indicators – Economic, Industry, Infrastructure and Quality of life. The details of which are given below:

[18] Report of NCDBA, Government of India, New Delhi, 1981.

I. Economic Indicators

a) Agriculture :

(i)Net cropped area per agricultural worker (ii) Percentage of area sown more than once to net area sown (iii) Percentage of gross irrigated area to gross cropped area (iv) Number of electric pump sets and diesel engines per 1000 hectors of gross cropped area (v) Number of tractors per 1000 hectors of gross cropped area (vi) Percentage of villages having milk co-operative societies to total inhabited villages.

b) Urbanization:

(vii) Percentage of urban population to total population.

II. Industry :

(viii)Number of registered factory workers per lakh of population (ix) Number of registered small scale industries unit per lakh of population (x) Percentage of workers in household industries to total workers (xi) Percentage of secondary and territory workers to total workers.

III. Infrastructure Indicators :

a) Power:

(xii) Percentage of population of electrified villages and towns to total population of talukas.

b) Transport and Communication:

(xiii) Length of surfaced pucca roads per lakh of population (xiv) Length of surfaced pucca roads per 100 Sq. kms of area (xv) Percentage of villages having all weather facility to total inhabited village (xvi) Number of post and telegraph offices per 100 Sq. k.m. of area (xvii) Number of bank offices of scheduled commercial banks per lakh of population (xviii) Number of co-operative banks and primary agricultural co-operative credit societies per lakh of population.

IV. Quality of life indicators :

(a) Education

(xix)General literacy rate of Taluka (xx) Female literacy rate of taluka (xxi) Rural literacy rate of taluka (xxii) Number of secondary and higher secondary schools per lakh of population.

(b) Health

(xxiii) Number hospital beds per lakh of population (xxiv) Percentage of villages having an allopathic or ayurvedic doctor to total inhabited villages (xxv) Percentage of villages having drinking water facility to total inhabited villages.[19]

On the basis of the recommendation of I.G.Patel Committee, the Gujarat Government appointed a committee in 2003, under the Chairmanship of Additional Chief Secretary (planning) for reviewing 56 backward talukas. The committee submitted its report in 2004. However; no action was taken on this report. Yet another committee was constituted chaired by **V.R.S.Colwagi** in October 2004. The committee ranked all 225 talukas of the state in order of backwardness. The committee did so by using 44 indicators which were grouped into four main categories, like demography, economic, social and infrastructural indicators. After obtaining ranks individually for each taluka, level of backwardness was obtained as a total of 44 indicators. These indicators are:

I. Level of Living

(i)Density of population (ii) Percentage of SC and ST to total population (iii)Percentage of children in age group of 0 to 6 to total population (iv)Percentage of cultivators and agricultural labourer to total workers.(v) Percentage of urban population to total population (vi) Number of persons employed in non agricultural establishments to total population (vii) Percentage of households without electricity facilities (viii) Percentage of households without latrine facilities (ix) Percentage of households without drainage facilities (x) Percentage of households without access to tap water facilities (xi) Percentage of families living below poverty line.

II. Economic Indicators*:*

(xii) Percentage of gross irrigated area to gross cropped area (xiii) Percentage of area sown more than once to net area sown (xiv) Area under food crop to gross cropped area (xv) Number of electric pump sets and diesel engines per 1000 hectors of gross cropped area (xvi) Number of power operated farm equipment other than above, per 1000 hectors of gross cropped area (xvii) Percentage of milk animals to total population (xviii) Mechanization in live stock management (xix)Total number of poultry birds per 1000 population (xx)Number of registered SSI units per lakh of population (xxi)Employment

[19] See Report on inter ministry task group, Government of India (2005)

in registered SSI units per lakh of population (xxii)Investment in SSI units per lakh of population (xxiii) Number of medium and large scale industrial units per lakh of population (xxiv)Employment in medium and large scale industrial units per lakh of population (xxv)Investment in medium and large scale industrial units per lakh of population.

III. Infrastructural Indicators:

(xxvi) Percentage of villages getting three phase power supply for 24 hours (xxvii)Length of surfaced roads (pucca) per lakh of population (xxviii)Length of surfaced roads (pucca) per 100 Sq. Kms. of area (xxix)Number of scheduled commercial bank branches per lakh of population (xxx)Number of Cooperative bank branches per lakh of population (xxxi)Number of banks available in the district (xxxii)Percentage of villages having number of trips by state transport bus services to total inhabited villages (xxxiii)Percentage of villages having one trip of state transport bus to total inhabited villages (xxxiv)Number of post offices per lakh of population.

IV. Social Development Indicators:

(xxxv) General literacy rate of talukas (xxxvi) Rural female literacy rate (xxxvii) Extent of physical amenities available in primary schools (drinking water, electricity, toilet facility, compound wall and play ground) (xxxviii) Number of secondary and higher secondary schools per lakh of population (xxxix) Number of schools with science stream in higher secondary school per lakh of population (xl) Number of students appearing in HSC examination (average of last 3 years) per lakh of population (xli) Number of hospital beds per lakh of population (xlii)Doctors (Ayurvedic and Homeopathic) population ratio (xliii) Percentage of Institutional deliveries (xliv)Percentage of malnourished children (0 to 6 age group)[20]

Using these 44 indicators, the committee identified most backward taluka of the state; those were the ones that fell in the last quarter of the composition index (between the state average and lowest score that were divided into four equal parts)[21]. The committee has identified Kavant taluka of Vadodara district as most backward taluka of the state. The second most backward taluka are Dhonpur taluka of Dahod District, and

[20] District plan report of Narmada district (2009-10)
[21] Mehta Niti (2009)

there after Kaparada, Ghoghamba, Dediapada, Garbada, Sagbara, Uchchhal, Dang and Umarpada taluka of the state

One thing which was quite astonishing was the fact that this committee found three talukas of the Vadodara district, (which is one of the most developed district), as amongst backward talukas, they included talukas of Kavant, Nasvadi and Pavi Jetpur.

Most of these backward talukas are quite depressed in terms of demographic factor including nature of employment and amenities available. The backwardness of these talukas is due to poor industrial development and poor availabilities of infrastructural facilities. Most of the talukas are suffering from the multiple causation as poor as their level of backwardness is concern. It is clear from the above that economic, social and infrastructural variables are considered for identifying backward regions.

Having discussed the criteria adopted for the identification of industrially backward area, both by the Central as well as State Government over the years. In the forgoing section the policies adopted by the government to deal with the problem of backwardness have been presented. This section is divided into 3 sub-sections-At the outset five year plans are discussed in brief, further Industrial policies of Indian Government and finally Gujarat Government policies towards industries have been dealt with.

III BALENCED REGIONAL DEVELOPMENT AND FIVE YEAR PLANS:

The First five year Plan (1951 – 1956) did not lay any special emphasis on regional balanced development as an objective of economic planning in India. However the plan document had clearly stated that "Industrial Development in India has so far been on an unplanned basis and it has been concentrated in a few select areas. Although there has been a trend towards wide dispersion of some industries like cotton textile and cement, industrial development in some part of the country has lagged behind seriously. Further, if industrial development in the country is to proceed rapidly and in a balanced manner, increasingly greater attention will have to be paid to the development of those states and regions, which have so far remained backward. There are large potentialities of industrial development in several other states and it is desirable in order to secure a

balanced regional development in the country, to give increasing preference to such areas in the matter of location of new industrial undertakings[22]. However this broad approach could not be translated into action in any effective manner as the share of industry in overall investment was very limited in the first plan.

The Second Five year Plan (1956-61), went in so far massive industrialization on the basis of the success on the agricultural front during the first plan. The basic philosophy was to give big push to the economy so that it enters the take off stage. The second plant admitted that "in any comprehensive plan of the development, it is axiomatic that the special needs of the less developed areas should receive due attention. Further it was noted that as development proceeds and larger resources become available for investment, the stress of developmental programmes should on extending the benefits of investment to the under developed regions[23]. These considerations have been kept in mind while formulating in second five year plan. The second five year plant considered three different approaches to industrial dispersal and development: First, the programme for setting up decentralized industrial production had to be vigorously pursued. Second, in the location of new enterprises, public and private, the need for developing a balanced economy for different parts of the country had to be taken into consideration. A wide diffusion of development nuclei is essential from this point of view. Third, steps to promote greater inter regional mobility of labour in the country with matching schemes of migration and settlement from relatively low population areas have to be devised .In spite of these provisions, the desired result was not forthcoming.

It was in the Third Five year Plan (1961-66) that the issue of regional backwardness dealt explicitly. For achieving this objective of balance regional development the following approach to industrialization of backward areas was indicated in the plan "Large scale industries, specially basic and heavy industries, frequently serve as a spearhead of intensive and broad based development. Apart from the basic and capital goods industries and other large industries, there are other industries, whose possibilities need to be fully explored such as labour intensive industries of the traditional type, small scale industries of the modern type, agricultural progressing industries, forest

[22] Government of India, First Five Year Plan (1951)
[23] Government of India Second Five Year Plan (1956)

industries, assembly operations and recreational industries. Each region should endeavour to identify, plan for and promote industries which are specially suited to its conditions and for which it can provide relatively great facilities"[24].

The Third Plan emphasized the important of location decisions in the public sector and licensing policy was to be used as an instrument for promoting industrial dispersal. The third plan state "The industrial policy resolution visualized that facilities such as power, water supply and transport should be made available in areas which are at present lagging behind industrially or where there is greater need for providing opportunities for employment, so that suitable industries could be established there. To give effect to the suggestion, the third plan includes a proposal for setting up "industrial development areas" in backward regions. In such regions, in selected areas, basic facilities like power, water and communications are to be provided, and factory sites developed and offered for sale or on long lease to perspective entrepreneurs." The third plan also laid particular emphasis on the need to disperse small industries.

The Fourth Plan (1969-1974) took a comprehensive view of the factors responsible for backwardness of certain regions and proposed that a multi dimensional area development approach be adopted in order to accelerate the development of backward areas. Since each backward area represented a unique combination of factors, it was recognized that no uniform programme could be successfully conceived and imposed from the national level. This plan states, "In terms of regional development, there has been natural tendency for new enterprises and investment to gravitate towards the already overall metropolitan areas because they are better endowed with economic and social infrastructure. This plan also laid a great stress on the need of industrial dispersal. In fact it is the fourth plan that recognized and stressed the need for correction of regional imbalance. This plan also recognized the gravity of backwardness, in order to measure backward region. Pandey Committee was appointed in this plan period only. In order to develop industries in backward regions, certain subsidies and concessions need to be offered. The Wanchoo Committee was also appointed in this plan only.*

[24]Government of India Third Five Year Plan (1961)

* Already Discussed Earlier.

The Fifth Five year Plan (1974-79) emphasized on the development of backward areas through special program like hill area development programme, tribal area development programme etc, with a view to redistribute personal income.

An important objective of the Sixth Five year Plan (1980-85) was to bring about a progressive reduction in regional inequalities in the pace of development and in the diffusion of technological benefits. The sixth plan stressed on achieving 5% growth rate with reduction of regional inequalities This plan stated that, it is the responsibilities of the state government to reduce inter-state disparities, identifying local development potential and providing the administrative and financial support needed for the local programmes. The plan adopted an integrated approach to remove regional backwardness. Integrated Rural Development Program (IRDP) was proposed in this plan. It was expected that benefits of IRDP would go more to backward areas. During the same plan period National Commission for the Development of Backward Areas (NCDBA) was constituted and their suggestions and recommendations were implemented during the same plan period.

Further the Seventh Five year Plan (1985-90) clearly mentioned in its documents that; "The dispersal of industries and balanced regional growth have been an important objective of planned development. This is necessary not only from the point of view of balanced development regionally, but also give relief from the increasing pressure on land, civil facilities and transport in the industrialized urban centres. A policy for locating industries near the small district towns which have not been industrialized so far might be more effective and will also help the general economic climate for growth in each district. Policies have to be oriented in this direction." [25] The planning commission, in consultation with state government had originally identified 246 districts as industrially backward and made them eligible for concessional finance from financial institutions."[26] The seventh plan is expected to contribute towards the reduction of inter-regional disparities in levels of development.

Eighth Five year Plan (1992-97) aimed at managing the transition from a centrally planned economy to a market led economy without damaging the socio cultural fabrics of

[25],Government of India Seventh Five Year Plan (1985)
[26] Ibid Seventh Plan.

the society. The strategy of industrialization will have to sub serve multiple objectives and the balanced regional growth is one of such major objectives. It has clearly stated that the policies pursued in accordance with its approach “will take into account regional diversity in resources endowment and provide for balanced regional development. Further, it also envisaged that the necessary measures must be taken to ensure the spread of industry, particularly in the backward areas. In spite of backwardness, some improvement had been observed in less developed states, regional disparities continue to exist. The removal of large disparities in the development between regions requires flow of resources across regions.

As per The Ninth Five year Plan (1997-2002), document, it was stated balanced regional development has always been an essential component of Indian development strategy in order to ensure the unity and integrity of the nation. With a great freedom and choice of location that is now available to industry, it is more than likely that some states would be able to attract most private investment than others. In such a situation it will be necessary to deliberately bias public investment in infrastructure in favour of the less well-off states. The plan also focused, that regional disparity can be removed by providing better infrastructure like improved connectivity in terms of transport and communications, and provision of marketing support, to agricultural sector and infrastructural sector. As an effect, regional development would take place. Even the state government, in order to attract private investment should offer some fiscal and other concessions.

The Tenth Five year Plan (2002-07), specifically set the targets for the growth rate for each state, so to ensure the consistency between national target and state wise growth rates. During the eighth and ninth five year plan periods, the rate of growth in better-off states like Gujarat, Maharashtra etc. had generally been higher than the states with lower level of per capita income like Bihar, Orissa and U.P. Such a phenomenon resulted in increasing disparities. Different states performed differently, despite the "regionally unbiased” nature of economic reforms that have been pursued .This can perhaps be attributed to the fact that some of the better-off states have generally had better governance and followed growth enhancing policies more effectively than others. The poorer states would have to raise their rates of growth to bridge this gap. With a view to

address this problem, a new initiate in the form of Rastriya Sam Vikas Yojana (RSVY) was operationalized in the Tenth plan. It aimed at focused development programs, primarily to fill gaps, for backward areas which would help to reduce imbalance, speed up development and help these areas to overcome poverty, besides, facilitating the states to move up the ladder of reforms. Under this scheme, flow of funds will be conditional that these fund, need to be utilize for the development of power, irrigation, water-shed development, connectivity etc.

The Eleventh Five year Plan (2007-2012) had the main objectives of "faster and more inclusive growth". In this plan also the target for the growth rate for each state was set. This has led to gradually increasing differences in PCI among the state and raises disparity. This plan specially commented that, the most important factor that causes the territorial disparity through industrial sector is the state of availability of physical infrastructure, particularly power and transport connectivity with rest of the country. It also recommended that territorial disparity is not a result of non availability of skilled manpower. Because, if they are not available in a particular territory, through migration the gap will be filled .According to this plan report, another factor determining disparity is the existence of social stability and existence of the rule of law, giving confidence to the entrepreneurs that their life and property will be safe guarded. If the government addresses these pre-requisites, there would be more balanced industrial development of the country.

In this plan, it was clearly mentioned that, for the development of infrastructure, particularly power and transport, in a backward area special financial support is to be given by the government. As per this plan report, so far as industrial development is concerned Gujarat, Karnataka and Maharastra continued to be the gainers and Chhatisgarh, Jharkhand, Orissa and West Bengal were getting increasing attention.

A close observation of five year plan documents presented above reveals that the issue of territorial backwardness and industrial dispersal has always been a focus of attention, but received a very little policy initiative in the early stages of planning in India. Further the use of licensing policy and location decision of public sector projects was emphasized for the development of backward territory, especially in the third five year plan. It was from ninth five year plan onwards that it was recognized that a balanced

regional development can be possible through provisions of infrastructure .And in the tenth five year plan specific growth rate was set for different states of the country. Further the eleventh five year plan which have the objective of "Inclusive Growth", it was clearly asserted that power and transport provision in backward area through special financial support will be required not only for achieving national and state targeted rate of growth but also for regional balanced development. In general it may be concluded that the government evince an interest in encouraging an industrialization of backward region. But the approach is towards dispersal of industries for achieving the objective of balanced territorial development having not been pursued in a proper manner. Having discussed the broad approaches of different plan to the problem of backwardness in the forgone section, in the subsiding section the policy framework which have been evolving over the years for translating these approaches into action will be over viewed.

IV INDIAN GOVERNMENT POLICIES TOWARDS INDUSTRIAL DEVELOPMENT:

When India achieved Independence in 1947, the national consensus was in favour of rapid industrialization of the economy. This was seen not only seen as the key to economic development but also for economic sovereignty. In the subsequent years, India's industrial policy evolved through successive industrial policy resolution and industrial policy statements. Specific priorities for industrial development were also laid down in the successive five year plans. As a part of socialized economy, the public sector was envisaged a vital role to build up to commanding heights of the economy. Consequently, **in 1948** immediately after the independence, the government introduced its first Industrial Policy Resolution (IPR). This policy contemplated a mixed economy, reserving one sphere for public sector and another for the private sector.

Thus, the chief concern of 1948 IPR was to lay the foundation for a mixed economy in which the private and public enterprises would march together to accelerate pace of industrial development. It thus outlines an approach to industrial growth and development. The industries, (development and regulations) act were passed in 1951 to implement the IPR of 1948. With this act the "Licensing Raj" ushered in India to exert command and control over industries. This policy however did not explicitly address the problem of industrial disparities.

The second IPR was adopted in 1956 to replace the IPR of 1948. The IPR of 1956 was shaped by the Mahalanobis model of growth, which suggested that emphasis on heavy industries would lead the economy towards a long term higher growth path. The resolution widened the scope of the public sector. The objective was to accelerate economic growth and boost in process of industrialization as a means to achieving a socialistic pattern of society. All industries of basic and strategic importance and those in the nature of public utility services besides those requiring large scale investments were reserved for the public sector.

It was in this policy that the removal of regional disparities through development of regions with low industrial base. Accordingly, adequate infrastructure for industrial development of such regions was duly emphasized. Given the potential to provide large-scale employment, the resolution reiterated the government determination to provide all sorts of industrial base and more equitable distribution of income.

The industrial policy resolution 1956 was a landmark policy statement and it formed the basis of subsequent policy announcement seen as IPR 1970 and 1973. During the regime of twenty years of this IPR, the Industrial sector of India flourished and development at good pace.

In the year 1980, the Congress party once again came to the power The Congress government announced the new Industrial Policy in July 1980.One of the provisions of this policy was to drive to revitalize the efficiency of public sector enterprises. The major thrust of this policy was the objective of removal of regional disparity.

Further **in 1988,** Rajiv Gandhi government for the promoting of industrialization of the backward area in country came out with Growth Centre Scheme. Under this scheme 71 growth centres were proposed to be setup throughout the country. Growth centres were to be endowed with basic infrastructure facilities such as power, water, telecommunications and banking to enable them to attract industries.

Industrial Policy of 1991

In 1991 in the wake of Balance of Payment crises, India was compelled to approach the World Bank and IMF for loan amounting to $7 billion. While agreeing to provide the loan, the agency suggested then government to adopt stabilization measures for regaining internal and external confidence. As a consequence on 24 July 1991 the

New Industrial Policy was announced. The main objectives of the new industrial policy were:

(i)To unshackle the Indian industrial economy from the cobwebs of unnecessary bureaucratic control.(ii)To introduce liberalization with a view to integrate Indian economy with the world economy.(iii)To remove restrictions on direct foreign investment as also to free the domestic entrepreneur from the restriction of MRTP Act, and(iv)The policy aimed to shed the load of the public enterprises which have shown a very low rate of return or were occurring losses over the years.

All these reforms of industrial policy led the government to take series of initiatives in respect of policies in the following areas.

A) Industrial Licensing
B) Foreign Investment
C) Foreign Technology Policy
D) Public Sector Policy
E) MRTP Act.

Although 1991 policy did not attempt to reduce regional imbalance in industrial development explicitly, it can be asserted that indirectly the 1991 policy played the role in reducing regional backwardness.

Over and above the policy initiative, in different five year plans as well as industrial policy resolutions, the Government of India has been providing various incentives for the promotion of private investment in the backward region.

A) Income Tax Concession: New industrial units located in backward areas set up after January 1971 is allowed a deduction of 20 per cent of the profits for computation of assessable income. This concession introduced in April 1974 was to be available for a period of 10 years.

B) Central Investment Subsidy Scheme: The scheme of Central Investment Subsidy, as originally announced in 1970, provided for an outright subsidy at the rate of 10 percent subject to a maximum of Rs 5 lakh on fixed capital investment, viz, land, buildings, plant and machinery. The rate of subsidy was subsequently raised to 15 per

cent and still later to 20 per cent. However , the block/talukas/extensions of townships in category B and C areas which have exceeded an investment limit of Rs 30 crores as at the end of March 1983 were to be excluded from the scope of the Investment Subsidy Scheme. With effect from April 1984, the maximum limit of Central Investment Subsidy has been raised to Rs 50 lakhs at the rate of 25 per cent in the case of electronics industries set up in the hilly districts.

C) Transport Subsidy Scheme: Under this scheme, introduced in July 1971, industrial units set up in hilly, remote and inaccessible areas were entitled to 50 per cent transport subsidy on expenditure incurred for the movement of raw materials and finished goods to and from certain selected rail heads to the location of the industrial units .The scheme is applicable to remote and inaccessible areas in Jammu and Kashmir, and north-eastern hill states.

D) Other measures: The Central Government has also initiated a scheme at assisting state governments in infrastructural development in identified "no industry districts" up to one-third of the total cost of such development, subject to maximum of Rs 2 crores. Under this scheme, the Central Government has helped to develop many growth centres through infrastructure development.

V INDUSTRIAL POLICIES OF THE STATE OF GUJARAT:

In addition to the policy initiative at the centre, different state governments have formulated policies to address the disparities and divides between regions within the state. The Government of Gujarat had also initiated different incentive schemes for the development of backward regions of the state. In one such scheme called the State Capital Subsidy which was launched in 1986, to be operational from1/04/1986 up to 31/3/1991. As per this scheme a list of backward districts was identified for special assistance, by way of provision of capital subsidy as per the following:

NEW UNITS		EXPANSION /DIVERSIFICATION	
SSI	**MEDIUM/LARGE SCALE**	**SSI**	**MEDIUM/LARGE SCALE**
35 % of the fixed capital investment or Rs. 30 lakhs whichever is less.	30% of the fixed capital investment or Rs. 30 lakhs whichever is less.	35% of the fixed capital investment or Rs. 25 lakhs whichever is less.	25% of the fixed capital investment or Rs. 25 lakhs whichever is less.
30% of the fixed capital investment or Rs. 30 lakhs whichever is less.	25% of the fixed capital investment or Rs. 30 lakhs whichever is less.	25% of the fixed capital investment or Rs. 25 lakhs whichever is less.	20% of the fixed capital investment or Rs. 25 lakhs whichever is less.
25% of the fixed capital investment or Rs. 25 lakhs whichever is less.	20% of the fixed capital investment or Rs. 25 lakhs whichever is less.	20% of the fixed capital investment or Rs. 20 lakhs whichever is less.	15% of the fixed capital investment or Rs. 20 lakhs whichever is less.
20% of the fixed capital investment or Rs. 25 lakhs whichever is less.	15% of the fixed capital investment or Rs. 25 lakhs whichever is less.	15% of the fixed capital investment or Rs. 20lakhs whichever is less.	10% of the fixed capital investment or Rs. 20 lakhs whichever is less.

- For Expansion and diversification, the total quantum of the subsidy thought out the life of the unit will not exceed the maximum subsidy available in that area for new units.

- Central subsidy available at present (Included the above rates)

- Dangs -25%, limited to Rs. 25 lakhs.

- Panchmahals, Surendranagar and Bharuch -15% limited to Rs. 15 lakhs.

- Amreli, Bhavnagar, Kutch, Sabarkantha, Mehsana, Banaskantha, and Junagadh -10% limited to Rs. 15 lakhs.

As a result of these above schemes, many backward areas got boost for developing industries in their region. Many industries, particularly the SSI units were set up in the listed backward areas which have led to the industrial development of the backward districts like Bharuch, Mehsana, Bhavnagar and Panchmahals.

Further a comprehensive industrial policy was declared by Government of Gujarat in July 1990, to offer incentives to the cottage, small scale industries and other industries in Gujarat, as per this policy 140 talukas out of 184 talukas were covered for the provisions of various incentives. The talukas covered were classified in to two groups-in the first group 84 talukas were considered in terms of backwardness; it included 8 most backward talukas. The remaining talukas were included in the second group. Fifteen Industrial Estates of GIDC were also included in the second group. As per this industrial policy, various incentive schemes covered the following**:**

(i)Modernization of Industry (ii)Investment Assistance Scheme (iii)Scheme for Testing of Products of small scale units (iv)Sales tax incentives schemes covering sales tax exemption or sales tax deferred advantage (v)Special incentive for electronic industry (vi)Additional sales tax incentives to employment oriented industries (vii)Incentives to 100% export oriented industries (viii)Advance unit incentive scheme and well known unit incentive scheme etc.

Moreover, the government has also declared new scheme for re-establishment of sick industrial units and a modified well known units incentive schemes. The earlier State Capital Subsidy Scheme was extended to cover the period up to 1995.

For the development of village and cottage industry in the state special incentives were to be provided. The number of activities covered under the cottage industry has increased to 3/4th, which includes self employment scheme or service activities.

Further under the Bank Assistance Scheme, the financial ceiling has been increased from Rs. 35,000 to Rs. 60,000 for activities in the cottage industry and it was also decided to provide assistance for factors like pre- requisite facilities, technological aid and equipment, raw materials sales and purchases through GRIMCO for development of the cottage industries and planning industrial freight etc.

On the 16th August 1995, Industrial Policy (1995-2000) was announced. It was to be in operation for a period of five years up to 15th August 2000, unless otherwise specified in the government resolution concerned. The chief objectives of this policy were:

(i)Accelerate the development of the backward areas of the state.(ii)Creation of large scale employment opportunities to absorb the backlog of unemployed.(iii)Increase Industrial Investment(iv)Accelerating the development of Industries and human resources to sustain the long term growth.(v)Achieving sustainable development (vi) Encouraging entrepreneurship and developing technology to promote Swadeshi Spirit.

It was recognized in this policy that, no amount of subsidy or incentives can compensate for the lack of infrastructural development in a particular area. Therefore this policy gives specific emphasis on infrastructural development particularly in backward area.

Thrust Areas:

Rapid industrialization by itself does not really generate significant growth in employment opportunities in the organized sector. Employment quotient per unit of capital is comparatively higher in specific industrial sectors and service sector. The state Government intends to promote and encourage certain thrust areas in order to create adequate employment opportunities to absorb the youth entering the job market every year. These areas are as follows:

(i)Electronics (ii) Ancillary Development (iii) Garments (iv) Gems and Jewelleries, (iv) Food and Agro Processing Industry (v) Handloom and Handicrafts (vi)Leather goods (vii)Other Labour Intensive Industries

Land Laws:

Further it was also recognized that easy availability of right type of land is very crucial factor in the location of industrial unit. It was felt that the present laws governing grant of land for industry are rather cumbersome. The state government will introduce suitable amendments in the present land laws to make land available for setting up industry without delay.

Land use Planning and Zoning:

Government also introduced the concept of land use planning to ensure optimum utilization of land. Government will ensure that rich agricultural land is not diverted for the purpose of industry. For this, it will identify specific sites in backward regions of the state which could be developed for setting up of industrial estates / zones with necessary infrastructural facilities. One of the main objectives of zoning on the basis of land use planning would be the location of industries in clusters so that the environmental protection measures can be adopted through setting up of common effluent treatment plants, disposal of treated effluents etc.

Industrial Townships and Urban Development:

Urbanization is the concomitant to industrialization process. Experience in the state, which is one of the most urbanized states in the country, shows that this is creating a severe burden on the existing urban infrastructure and services which in any case have been already stretched for beyond their designed capacity. In designing industrial growth centres and clusters, therefore, instead of adopting an estate development approach, industrial township approach has become necessary. Creating industrial parks with all urban facilities added on and also promoting new township to act as a focal point in urbanization are some of the aspect which the state would like to promote as a part of the new industrial policy.

Development of such township would decelerate, to some extent the haphazard growth being experienced by the cities and towns in the state. The state would like to promote private sector initiatives in setting up industrial parks and the new townships which can attract investments from not only within the country but also from abroad.

Power:

Gujarat has been fortunate enough to be in reasonably comfortable position as far as availability of power is concerned. Demand for power has been growing of a rate of 8% to 10% per annum. Apart from the requirement of power in the industrial sector, consumption of energy has been growing at a rapid rate in domestic, commercial and agricultural sectors. The state government has taken initiatives of promoting new generating capacities with projects totaling 3000 MW in various stages of

implementation. In the power sector, the state government has welcomed private sector participation.

Port Development:

Gujarat has over 16,000 kms of coastlines, having one major and 40 minor and intermediate ports, which could be the base for tremendous development. To encourage port based industrialization, linkages will be provided by setting up infrastructural facilities like tank terminals, ware houses, custom houses and social infrastructure. More potential sites would be identified and prioritized for development by Gujarat Maritime Board, Gujarat Industrial Investment Corporation for joint sector or for privatization.

Road Development:

The development of road is most important for transportation and communication network. In this policy the stress is given for the development of road for faster industrialization. The state government welcomes private investment in road development too.

Human Resource Development:

Human resource development will have to cover the entire gamut from the basic education, vocational and technical education to professional qualification. Providing skill specific vocational educational facilities to meet the requirement of the industry in a specific area is the best way of generating employment opportunities in local areas. For the purpose industry will be involved to project the area specific requirement of various skills and also in finalizing the curriculum in ITIs and polytechnics so that the local youth could acquire the necessary skills to get the absorbed in the industries coming up in the area.

Mineral-based Industries:

Gujarat has several valuable minerals which if property explored and exploited can go a long way not only in accelerating development of the industry, but also in correcting regional imbalances in the industrial development as many of these minerals are occurring in relatively backward areas. All these minerals are attracting industrial ventures all over the state. In this policy, setting up of mineral based industries would be encouraged.

Agro based Industries:

The state government intends to out emphasis on the development of Agro and Food Processing Industries with specific objectives of ensuring better returns to the farmers for their products as well as creating employment opportunities in the rural areas. The strategy would be to promote industries based on specific farm products in particular areas with priority given to items having export potential. So, that the farmers in specific areas are able to provide the inputs to sustain agro industries complex. Private sector would be encouraged to set up such agro based industrial, complex and export oriented industries, with specific intension measures to compliment the governments' efforts at increasing agricultural yields.

Foreign Investment:

The state government would welcome foreign investment particularly in high tech and high priority industries. The FDI would be encouraged for infrastructure projects and especially for power generation, port development, construction of roads and bridges as well as social infrastructure.

Research of Development and Modernization of Existing Units:

This would mainly encouraged by providing necessary incentives under the incentive policy. The government of Gujarat intends to encourage and facilitate adequate investment in R & D facilities. In addition, government would adopt specific measures to encourage dedicated research sponsored by industries in the universities and technical educational institutions in the state. This would be benefiting both the industry as well as the educational institutions.

Small Scale Sector:

The state government is committed to promote the healthy growth of small scale sector. In this policy, positive support would be provided to SSI, to sustain and to grow. For that, technological up-gradation and modernization, improvement in quality of product through adoption of ISI or ISO 9000 certification. To increase the employment in SSI and to encourage entrepreneurship, the state government would provide training particularly to the women, SCs STs and other backward classes and technically qualified unemployment youth.

Single Window Clearance System:

In order to simplify the procedure for setting up of industries and to make hassle free environment in the state, the state government intends to introduce single window clearance system at the district out the state levels based on common application backed by computerized processing and clearance through committees where all government departments and agencies are represented.

Cottage Industry:

The cottage industry is the important sector in the economy from the employment point of view. Apart from employment this sector contributes one third of country's exports. With low level of capital investment, this sector is able to employ a large number of artisans in the rural areas, amongst them majority of the people are women and other weaker section of society. The present policy keeps the objectives so far as this sector is concern were (i) to enhance the opportunities of the employment and income in the traditional economic activities of cottage industry. (ii) To strengthen the marketing infrastructure in this sector to ensure adequate return to artisans engaged in the production and manufacture of large range of articles. (iii) To preserve the tradition skill and cultural heritage associated with production in this sector.

The activities in this sector being highly diverse and dispersed in remote areas, it has not been possible to service the sector successfully. It is therefore, proposed to identify pockets or areas of concentration where a number of artisans are engage in similar or different crafts, who can be clustered together for common servicing by way of design assistance, raw materials, common facilities etc. This is proposed to be achieved through setting up of Rural Industries Centers to be run either by designed corporations already working in this sector or by voluntary organizations. The Rural Industries Centre will be nodal centre to serve the artisans on a need based manner to help production and improvement in design and technology. It will also have an outlet for marketing, where the exporter or leader can get in contract with the artisans. This sector is always facing the problem of marketing. In this policy, it is already proposed to strengthen the marketing by involving the private sector. The corporations will promote common brand names such as Garvi, Gurjari, Gaurav and Garima with standardization and control in quality and collective efforts for publicity and advertising. The private marketing network

of distributors and wholesalers has to be roped in for the marketing of product in the cottage industries sector to make an impact in terms of adequate returns to be artisans engaged in this sector.

To industrialize the state of the Gujarat, in this policy incentives and subsidies were offered to industries locating in particular region. Over two third of the area, of the state are eligible for benefits under various package of incentives. Thrust industries, premier and prestigious units are eligible for incentives all over the state, except in few banned areas. New chemical units or expansion of existing chemical units are also eligible for incentives. List of ineligible industries are reduced to a minimum.

The industrialists who want to avail such benefits are required to get themselves registered with the DIC during the operational period of the scheme.

Another industrial policy was announced on 15th August 2000. The main objectives of this industrial policy were to make the state small scale units more competitive, for this, the following provisions were made:

(i)To introduce a new scheme providing loans to the new small industrial units with a ceiling of Rs. 2.5 lakh, for a period of 5 years of 5% annual rate of interest.(ii)To provide assistance to the units that have been established with own funds of the rate of 10% of the fixed investment, with a ceiling of Rs. 10 lakh (iii)To give interest loans, with a ceiling of Rs. 15 lakh, for expansion or diversification of the existing units at the annual interest rate of 3% (iv)To provide financial aid, with a ceiling of Rs. 5 crores, per estate for provision of community facilities in the industrial estate (v)To adopt the approach of linking the industrial association and research and development agencies for the development of industrial complexes (vi)To give incentives for the sales of goods produced by the small industries (vii)To give assistance, with a ceiling at Rs. 2 lakh and at the rate of 50% of the cost, for getting certificate for quality (viii)To organize buyer-sellers meet and for guidance to the small industries to create consultancy cells in big cities with co-operation of management institutions.

For The Development of Medium and Large Industries the provision made were as under:

(i)To provide aid at the rate of 25% of the cost and with a ceiling of Rs. 100 lakhs, for infrastructure facilities like electricity connection, water, environment protection,

approach road etc. (ii) if such facilities are extended up to a rural area, the assistance will be up to Rs. 250 lakh. (iii)To provide assistance in getting quality certificate.

For Development of the Technology Sector the provision are made as under:

(i)To provide incentives to Research & Development institute and quality assessment centres (ii)To give aid at rate of 50% of the cost for getting patent registration, with a ceiling of Rs 5 lakh (iii)To provide incentives for getting recognition of the international quality assessment agencies.

For Development of Infrastructure the provision are made as under:

(i)To adopt the new approach of incentives for establishing Industrial parks by private sector (ii)To create asset management fund having debt fund and equity fund for GIIC for implementation of the infrastructure projects indicated in vision 2010 (iii)To give priority to industrial units in allotting necessary land (iv)To implement the concept of "deemed NA" (v)To provide more facilities in the GIDC industrial estates (vi)To give assistance for infrastructural facilities of the industrial estates established near cities and industrial complexes being established near ports (vii)To give assistance to industrial units for establishing plants converting salty water into potable water (viii)

The state has decided to give encouragement to international level institution for information technology, biotechnology, marine engineering etc. to be established by big industrial units.

For Development of Industrial Parks the provision are made as under:

(i)Employment Oriented Parks-For the parks having 100 units of providing employment to more than 2500 persons and having 200 units or providing employment to more than 5000 persons, providing assistance at rate of 10% of the investment with ceiling of Rs. 1 crore or Rs. 2 crores respectively (ii) High-Tech Parks-To give assistance at the rate of 50% of investment with a ceiling of Rs. 2.5 crores (iii) Investment Oriented Park-To give contribution at the rate of 10% of the paid capital with a ceiling of Rs. 2.5 crore, for the parks having more than Rs. 500 crores as industrial investment (iv)Trade Centre-To give assistance up to Rs. 50 lakh for construction of more than 5000 Sq. mts. and up to Rs. 100 lakh for construction of more than 10,000 Sq. mts (v)Critical Infrastructure Fund-To give assistance up to 50% for creating special infrastructural facilities of the investment to the large industrial project (vi)Backward Area Development-To undertake detailed

studies of industrially backward talukas. To give 25% more assistance in all the scheme to industrial units to be established in backward talukas (vii)Environmental Protection - To give assistance for establishing plants for mass purification of polluted water, for disposal of solid waste etc.

Development of Special Industrial Sectors the provisions are made as under:

(i)To give incentives for development of special industries like agriculture and food processing, mineral based industries, electronic and information technology, gems and jewellry, pharmaceuticals, petrochemicals, plastic processing etc. (ii)Export Promotion-To give incentives for establishments of export parks, 100% export oriented units and for establishing inspection agencies for export goods (iii)To strengthen a cargo complex at Ahmedabad and to establish new such complexes (iv)Entrepreneurship Development-To implement new schemes for giving training in entrepreneurship to management graduates, women getting specialized training for special skills in vocational institutes etc.

In 2003 the Gujarat government announced a new industrial policy. This policy had "Sustainable Development" as the main objective. This was with a view to create large scale employment opportunities and achieving global competitiveness by improving industrial productivity.

This policy has enumerated following aspects as a part of the strategy of industrial development in the state.

(i)Enabling an entrepreneur easy access to authentic source of information (ii)Sensitizing government officials from grass root level to the apex level, to be able to emphasize with legitimate concerns to an entrepreneur (iii)Developing better than the best infrastructure (iv)Empowering industrial estate (v)Producing quality human resources in accordance with contemporary requirements of industries (vi)Ensuring development and environment go hand in hand (vii)Deriving maximum benefits from the Narmada water supplemented by extensive use of advanced technology and good management practices, to usher in the new era of prosperity through green wealth viii)Developing more and more industrial clusters and strengthening the existing clusters by encouraging them to create and sustain common facility centres (ix)Equipping small and medium enterprises with advanced technologies, sensitizing and assisting them on issues pertaining to

quality, technology up-gradation, patents and other relevant aspects (x)Strengthening manufacturing base of Gujarat on the platform of high quality research and development processes (xi)Adopting focused marketing and promotion activities for creating and sustaining a global brand image of product manufactured in Gujarat (xii)Rejuvenating the industries in Gujarat with cheap and clean sources of energy – natural gas (xiii)Commitment to reforms agenda in the regime of taxation (xiv)Convergence of self – actualization needs of NRIs / NRGs with development imperatives of Gujarat (xv)Harnessing the potential of ports to be the future gateways of the state's prosperity. (Industrial policy of Gujarat, 2003)

An important feature of the Industrial policy 2003 is the scheme of cluster development. In the state 83 clusters have identified with a range of industries. Currently 19 of them are being strengthened with government assistance in the form of developing common facilities centres, up-gradation infrastructure, conducting training programs for skill up-gradation. While formulating this industrial policy, the government emphasized on making Gujarat based industries competitive enough to meet with the challenges of globalization. For this purpose government had announced various schemes such as empowerment of cluster, assistant for technology up- gradation, quality up-gradation, subsidy for Research & Development activities and interest subsidy to SMEs etc.
All such schemes are extended for 5 years.

Further, the Gujarat government in order to accelerate industrial investment and industrialization framed a new industrial policy – 2009. The main aim of this policy was to attract global investors in the state. The policy of 2009 had a primary focus on making Gujarat the most attractive investment destination of not only of India, but also that of the world. The new industrial policy has been formulated in line with the vision that has been formed for the state. The primary policy objectives are as under:
(i)Facilitate investments in the state (ii) Employment generation and employability enhancement. (iii) Adherence to high quality standards.

In order to enhance the investment in the state through industrial clusters, Industrial Estates, Industrial Parks, Special Economic Zones and new idea of generation Industrial Investment, that is Special Investment Regions (SIRs); more infrastructure facilities would be provided. The state government is committed to spread on benefits of

economic development across the state up to the last person. For this purpose, it is necessary to increase employment opportunities and improve employability. For that purpose any sector which provides more employment will be encouraged like SME sectors. Human Resources would be also developed through increasing number of technical or non technical institutes. To survive in this competitive world and promote "Brand Gujarat" it is necessary to give special emphasis on quality of products as well as quality of the producers, the environment and the resulted development. In order to build "Brand Gujarat" no compromise is to be made in the process of production.

VI CONCLUSION:

In this chapter, we began with the criteria adopted for identifying a backward region in India. Several committees have been appointed connected with this. Majority of committees have related backwardness either in terms of economic indicators or in terms of industrial parameters, such as number of registered factories, workers, number of registered SSI etc. The chapter also highlighted policy adopted in different five year plan to achieve the objective of balanced regional development.

The government and policy makers have accepted the fact that industrialisation is the necessary for economic development and for regional dispersal of industries. The central and state government has formulated industrial policy. The main thrusts of these policies have been in the form of provision of fiscal incentives. This issue also has been taken in this chapter. Having examined the industrial policies of the central as well as state government, particularly after 1991 in this chapter, the subsequent chapter would attempt to analyze the impact of these policies on the industrial development in the state of Gujarat.

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CHAPTER IV
INDUSTRIAL PROFILE OF GUJARAT

I INTRODUCTION:

In the previous chapter, an overview of industrial policy adopted by central government and the state government was presented. It was seen from this chapter, that industrial policy has undergone a change, both at the centre as well as in the state of Gujarat. It is also pertinent to note that the period from 1991 onwards was the period of liberalization in industrial sector. It is against this background that the present chapter is devoted to the study of growth and structural changes in the industrial sector of the state of Gujarat.

Gujarat came into being on 1st of May 1960, as the result of bifurcation of the former Bombay state. At present, the state of Gujarat has 26 district including 19 existing and 7 newly created districts. These 26 districts are made up of 226 talukas. The state occupies an area of 196024 square km, which is around 6.40% of the total area of the country and a population of 5.07 crores as per 2001 census. As per census 2001 the percentage share of workers to the total population is 42.10%.

After the formation of Gujarat, the state government has adopted various industrial development policies from time to time. The process of industrialization in the state had taken a new turn since the introduction of the economic reforms in 1991. After the Government of India announced the New Industrial Policy (NIP) in 1991, with the objective of implementing of economic reforms in a industrial sector, the Government of Gujarat has also responded favourably and announced it own industrial policies. The state industrial policy 1990-95 was already in operation when NIP 1991 was declared by the Central Government. The Gujarat Government declared the New Industrial and Incentive Policy 1995-2000 in August 1995, there after Gujarat 2000, 2003 and 2009 industrial policies were announced to speed up the industrial development in the state.

Though the policy declarations by the Government of Gujarat are essentially based on the general framework of the NIP-1991, these are more aggressive in terms of promoting and facilitating new industrial investments. The state's approach is "to compete not only with the other Indian states, but also with the newly emerging high growth regions of the South East and East Asian countries" in the industrial sector.[27]

However, the focus of the policies, have been reactively more on incentives and concessions and on promotional and development works. There is also a clear emphasis on promoting larger units, which are described as "Premier" (units with investment between Rs. 100 crores to 500 crores), and "Prestigious Units" (units with investment of more than Rs. 500 crores) in the policy statement. All these policies, keeping the centre subsidies and incentives, try to attract more industrial units and investment in the state.[28] But later on Government had realized that concessions, subsidies and incentives are not adequate to attract industries in the state, if the required infrastructure is not available. Thus, Government of Gujarat started giving a high priority to the promotion of infrastructure in the state .In this respect the Government had setup the Gujarat Infrastructure Development Board (GIDB) in 1995, with the objectives of attracting private sector investment in infrastructure, such as roads, power plants, ports, etc. GIDB was tasked to prepare the guidelines for the involvement of private sector, the banks and financial institutions, including the global financial institutions in funding infrastructural facilities in Gujarat. In addition, the state Government has also provided concessions to new industries in acquisition of power, land, water and other infrastructure support and assured these supplies within a limited time. In short, the state government has been aggressive and determined to attract maximum industrial investment to the state.

As a result, the state had attracted the highest industrial investment in large and medium sectors among all the states of India in post reform period. This has not only led to rapid industrialization, but to a sea change in the structure of the industries. It is this structural change that will be examined in the present chapter. Accordingly the present chapter has dealt with the following aspects-

[27] See Hirway 1999.
[28] See Hirway, 1999.

- Growth in terms of number of factories, number of employees, capital investment, net value added and volume of output, both in absolute as well as in percentage share will be examined both state wise as well as group wise.
- The instability index of selected variables will also be examined both state wise as well as group wise.

Several studies have been conducted elsewhere to examine the changes in industrial structure and industrial growth. In one such study, Patwardhan (1988), covering a period of 1960 to 1983 examined the issue of industrial development and regional imbalance for Maharashtra state .He had divided the whole state into five regions. As per this study, it was found that an overwhelming number of establishments with one or more hired worker were located in Greater Bombay. The same was true in case of the share of registered SSI and employment in factories .Thus one and half decade policy trust towards industrialization has yielded limited fruits in reducing regional imbalances in industrial development. Sebastian and Leonard (1988), attempted to explain the process of industrialization in Tamil Nadu between 1976-77 and 1981-82, with special reference to regional imbalances. For the purpose of analysis, they considered district as a regional unit. They found that five districts accounted for 60% of registered factories and employment. These five districts continued to dominate even after five years. Similarly, there was no change in low ranking districts. Even in terms of value added the said five districts dominated. Thus, they concluded from the observed data that the industrial policy has made little inroads to reduce the regional disparities.

Nayak (1994), focused on how over a period of time industrial development in Orissa took place. He compared industrialization of Orissa with other states of India between the period 1970-71 to 1980-81. He concluded from his study that the districts which were industrially backward were unable to attract industries due to lack of infrastructure. In another study by Kumnoor (2007), the industrial development in the state of Karnataka was analyzed. He opined that regional disparity existed in Karnataka state. However, he concluded that fiscal and financial incentives had played a role in the development of industrially backward districts in the state .Singh and Singh (2011), compared the state of industrial development in Uttar Pradesh, Gujarat and Maharashtra. Their study covered the period between 1998 and 2005. The comparison was made in

terms of number of factories, number of employees, capital investment, total output, input output ratio and output/ employment per rupee of invested capital. They found that in all these parameters, the state of Gujarat and Maharashtra was far ahead of Uttar Pradesh. They concluded that central policy of reducing imbalances through industrial policy has been successful only partially.

Few scholars have also focused their studies exclusively for the state of Gujarat as well. In one such study, Joshi (1982) attempted to study those talukas of Gujarat, which were declared as backward by the government of Gujarat in 1969. Through his study he brought out the fact that the development strategy of the backward regions should be formulated keeping in view the resource endowment and availability of the industrial infrastructure of the region concerned. He concluded that large scale industries fail to bring development to the backward regions. It is the SSI which show the way for the development of backward region. This is because SSI units exploit local resource and local manpower better than large units.

Dholakia (2000) in his study on the development strategy of Gujarat opined that although the liberalized process had an affirmative impact on the economy of Gujarat, this impact was not uniform across the sectors. However, he argues that since the government of Gujarat took a new initiative only after 1996, it was too early to scrutinize its impact on the economy. Awasthi (2000) observed that liberalization had a positive impact on the industrial growth rates in the state of Gujarat. According to his study, in the pre-reform period (1986-91) industrial sector grew at the rate of 14.52% whereas in the post reform period during 1991-96 the sector grew at the rate of 22.08%. Thus, according to him reforms had an impact on the investment in the industrial sector in Gujarat as it grew by five times in the post-reform period than in the pre-reform period. Nevertheless, the state still lacks behind in infrastructure compared to competing states like Maharastra, Tamil- Nadu, Karnataka and Andhra Pradesh.

Bagchi et al (2005) also examined the impact of reforms on the industrial sector of Gujarat. The industrial sector of Gujarat according to them had undergone a higher degree of concentration than in the rest of India, particularly due to the capital intensive nature of growth in the factory sector. They concluded that industrial development of the

state is characterized by falling employment per unit of capital and rising labour productivity.

It is evident from the above, that most of the studies have examined industrialization and regional development as a whole rather then district wise in the state of Gujarat. Further, the available studies have been undertaken in 1980's or 1990's and for limited duration. The present study is therefore makes an attempt to fill in the lacunae.

Rest of the chapter is sub-divided into the following section. In section II, sources of data, the methodology and concepts are discussed. In section III, the resulted are presented. Finally in section IV, the conclusions are drawn.

II SOURCES OF DATA, METHODOLOGY AND CONCEPTS:

Data source:

The data used for analysis are based on secondary sources. The study is essentially of an empirical in nature and its basic sources of data are secondary. The data required are collected from Annual Survey of Industries, Commissioner of Industries of Gujarat, Chief Inspector of Factories of Gujarat, Industrial Extension Bureau of Gujarat, Socio-Economic Review of Gujarat, District Industrial Centres, and Socio-Economic Review of the District surveyed.

Methodology:

The industrial development within the state of Gujarat has been examined on the basis of the growth trend and instability for a period between 1980-81 and 2009-10.This period is further sub divided in to two periods-1980-81 to 1990-91 and 1991-92 to 2009-10.This period roughly corresponds to pre and post reform period. Accordingly, two separate regressions are to estimate – one for the pre-reform period and the other for the post – reform period, respectively:

$$\text{Log } Y_t = a + b.t \qquad (1)$$

$$\text{Log } Y_t = a' + b' .t \qquad (2)$$

Since the above two regression equations can be combined into a multiple regression by adding intercept and slope dummies to equation (i), we get the equation :

$$\text{Log } Y_t = a + b.t + (a' - a)\, Dt + (b' - b)\, Dt + u_t \quad \text{---------- (3)}$$

Or

$\text{Log } Y_t = b_0 + b_1 t + b_2 D + b_3 D.t + u_t$ ---------- (3)

Where Y_t is the time series under study or determinant, t is the time variable and D is the intercept dummy which assumes the value one for the post-reform period and zero for the pre - reform period. D.t is the slope dummy, which is nothing but the time variable during the post - reform period and zero otherwise. The coefficient b_1 will be the growth rate of variables in the pre reforms and $(b_1 + b_3)$ will give the growth rate of variable in the post reform period. The slope coefficients b_1 and $(b_1 + b_3)$ give the instantaneous (at a point in time) rate of growth. The compound growth can be computed by taking the anti log as explained above. If the coefficient of, say, slope dummy ,(b_3), is statistically significant and positive , it can be concluded that the regression equation for the post-reform period is different from that of the pre - reform period and that the rate of growth in the series is higher during the post-reform period (as $b_3 > b_1$).

Instability is defined simply as the year-to-year fluctuation in the variables under consideration. Mathematically it can be defined as the difference between the actual and estimated value of any variable, expressing the difference as percentage of average value of variable. In fact, instability should mean a fluctuation around the trend. This means there is a need to estimate the trend first. Otherwise, a state, whose industrial sector are raising fast even at a constant rate, will score high on the instability scale. In the study therefore, the Instability index suggested by Coppock (1962) has been used. This index is used to capture year-to-year fluctuation in growth trends, and will take care of the trend component in the time series data. The index is expressed as:

$I.I = [(\text{Anti log.}), (\text{V log.})^{1/2} - 100]. 100$

Where, $\text{V log} = 1/\ t\text{-}1 \sum (\log X_{t+1} - \log X_t - M)^2$

and $M = 1/\ t\text{-}1 \sum (\log X_{t+1} - \log X_t)$

The concept of employees, capital investment and value added:

The growth of industries in the state has been studied in terms of number workers, capital investment and value added or net output. The definitions of these terms are the same as given by the Annual Survey of Industries. The Annual Survey of Industries has adopted the definition of the terms employees which has been defined as, all workers receiving wages and holding supervisory or managerial position engaged in administrative office,

store keeping section and welfare section, sales department as also those engaged in purchase of raw materials etc, or purchase of fixed assets for the factory and watch and ward staff.[29]

Productive capital consists of both fixed capital and working capital. Fixed capital represents the depreciated book value of fixed assets of the factory as on the closing day of the accounting year. Fixed capital covers all goods, new or used that have a normal economic life of one year or more. Working capital comprise stocks of materials, stores, fuels, finished at bank, net balance of amounts payable as at the end of the year. It excludes fixed deposits and long term loan and investment.

According to the ASI, output comprises of total ex factory value of products and by products manufactured as well as other receipts from non industrial services rendered to others, work done for other on material supplied by them, value of electricity produced and sold, sale value of goods sold in the same condition as purchased, addition in stock of semi finished goods and own construction. Rent received and interest received is not included. Value added by manufacture, is calculated by deducting total input and depreciation from total output.

III THE FINDINGS:

Economic development of the country may be measured in terms of different indicators. In the present study, industrialization is used to measure the level of development. Before examining the trends in growth and instability in industrial development in Gujarat, a comparison between Gujarat and rest of the country will provide a proper perspective of all- India ranking of Gujarat state.

The factory sector in India has experienced considerable growth over the time period. The number of factories has increased from 105037 in 1981-82 to 110179 in 1990-91 to 158877 in 2009-10, with total capital investment at Rs. 5399127 lakhs in 1981-82 to Rs. 19491285 lakhs in 1990-91 to 173992820 lakhs in the year 2009-10 and employment of 7777868 persons in the year 1981-82 to 8162504 persons in 1990-91 to 11792055 persons in 2009-10. The value of output have increased from Rs. 7363046 lakhs to 1981-82 to Rs. 27056353 lakh in 1990-91 to Rs. 373303593 lakhs in 2009-10

[29] See Annual Survey of Industries (2000-2001).

with the increase in the net value added from Rs. 1451257 lakh in 1981-82 to Rs. 5151459 lakhs in 1990-91 to Rs. 59211387 lakhs in the year 2009-10.

The factory sector in Gujarat state has also experienced considerable high growth. The number of factories, which was 2030 in the year 1981-82, have increased to 10943 in the year 1990-91 to 15576 in the year 2009-10, with the capital investment of Rs. 407942 lakhs in 1981-82 to Rs. 1438329 lakhs in 1990-91 to Rs. 29933701 lakhs in 2009-10 and employment of 511625 persons in 1981-82 to 675447 persons in 1990-91 to 1159239 persons in the year 2009-10. The value of output has increased from Rs. 684207 lakhs to Rs. 2759271 lakhs in 1990-91 to Rs. 64265756 in the year 2009-10, with the tremendous increase in value added from Rs. 109775 lakhs in 1981-82 to Rs. 446824 lakhs in 1990-91 to Rs 9002801 lakhs in the year 2009-10.

In terms of Small Scale Industries (SSI) also, Gujarat has continued to witness impressive development. There were only 2169 small scale industries units in 1961. The number of SSI increased to 15849 in 1970, 43412 in 1980, 115384 in 1990, crossed the figure of 310000 in September 2006[30].The trend of SSI registration in the state shows more towards textiles industries followed by machinery and parts, metal products, rubber and plastic products and chemical and chemical products.

On 2nd October 2006 the Small Scale Industries Act was amended and new act called Micro, Small and Medium (MSME) Act2006 was promulgated .Accordingly, from October 2006 separate data for small scale units are not available; the trend is available in terms of MSMEs only. By March 2007, 4130 MSMEs units were registered in Gujarat having an investment of more than Rs 3000 crore and had provided direct employment to 76000 persons. By 2009-10, the number of registered units increased to more then 19000 with an investment of more then Rs 9000 crore and employment provision of more then 240000.[31]

With this as background, in the forgoing section the results of analysis are presented.

[30] Small scale industries act has been revised as Micro, Small and Medium Enterprises (MSMED) Act, 2006 from 2nd October 2006.

[31] According to this Act, Micro Enterprises means investment in plant and machinery does not exceed Rs. Twenty-five lakhs, Small enterprise means investment between twenty-five lakhs and five crores and Medium enterprise means investment between five crores and ten crores.

In the year 1980-81, Gujarat accounted for 2.2% of the total factory in India. In terms of number of employees in the factory, the share of Gujarat was 7.2% of the total number of employees in India. As far as capital investment, net value added was concerned; the share was 7.69% and 6.88% respectively. By 2009-10 the share of Gujarat in all the above parameters had increased. For instance, percentage share of the total factory increased to 10%, in case of net value added, it increased to 16%. As a result of the increase in percentage share in terms of factory, investment, number of employees etc, the ranking of Gujarat in all India bases improved during the study period. For e.g. in terms of investment the ranking has improved from 3^{rd} to 2^{nd} , in case of value added and number of employees from 4^{th} and 5^{th} to 2^{nd} and 3^{rd} respectively.

The position of Gujarat becomes clearer, if we look at the compound growth rate of all industries for selected variables, during the study period under consideration. This is presented in table 4.1(absolute terms). In this table the compound growth rate of the number of factories, Number of employees, Capital Investment, Net Value added of value of output in absolute term is depicted. This table reveals that the fact that during the study period from 1980-81 and 2009-10, in case of number of factories- the highest growth rate has been recorded in Rajasthan(7.69) followed by Tamil Nadu(6.53). The state of Gujarat (4.77) is at the 6^{th} position in terms of the growth rate in the number of factories.

As far as the numbers of employees are concerned, the table reveals that the highest growth rate is recorded by the state of Haryana (3.16) followed by Andhra Pradesh (2.51). The state of Gujarat (1.54) is enjoying 5^{th}. In terms of capital investment, the highest growth rate is recorded in the state of Gujarat (15.99) followed by Karnataka (15.45). In terms of the net value added, also the highest growth has been recorded by the state of Gujarat (16.74) followed by Haryana (15.81). In case of volume of output, Rajasthan (17.19) is again on the top position followed by Karnataka (17.11). The state of Gujarat (16.88) is enjoying 4^{th} position Thus, it is pertinent to note from this table that, the state of Gujarat ranks very high in terms of growth rate of selected variables. Bihar is the only state where negative growth rate is recorded for all the variables for the entire study period.

As mentioned earlier to find out the impact of liberal industrial policy on the development of industries, the study period has been sub divided into two periods viz 1980-81 to 1990-91 and 1991-92 to 2009-10. On the basis of the two sub periods, the compound growth rates of the selected variables are presented in table 4.2(absolute value). It is evident from this table that, in terms of number of factories, the compound growth rate has slackened in all selected states in the post reform period. Same is the case in terms of capital investment. However, in terms of number of employees, net value added and output the compound growth rate has improved in Gujarat, whereas in all other states it has worsened in the post reform period. Further it is evident from the table that Gujarat enjoys one of the highest growth rates in almost all selected variables. From this table it may be concluded that Gujarat has benefited the most from reforms. On the contrary Bihar state has shown negative growth rate in all variables in the post reform period. This shows that the state of Bihar has benefited the least from reforms.

The relative position of the different states in industrial development can also be judged from the trends in the percentage share. The percentage share in the selected variables state wise is presented in table 4.3.This table indicates that the position of Gujarat has improved in case of variables like capital investment, net value added and output in the study period in the country.

If we look at the trends in pre and post reform period in (table 4.4), it is evident that, in terms of capital investment, net value added and output, the state of Gujarat has shown affirmative change in the post reform period.

The forgone analysis, leads one to conclude that,

1. In the period under consideration, Gujarat state has upper hand in almost all parameters.
2. Although reforms have benefited other states also, it is the Gujarat state which has benefited the most.
3. In terms of percentage growth rate again Gujarat a glowing picture emerges.

Thus, we can say that industrial policy pursued in Gujarat has had a favourable impact in accelerating industrial development. Other states which have benefited are

Haryana, Karnataka, Kerala and Andhra Pradesh. The states that have benefited the least are Bihar, Madhya Pradesh, West Bengal and Uttar Pradesh.

TABLE 4.1

Selected State Wise Compound Growth Rate (Absolute) Of All Industries for Selected Variables for Overall Period in the Pre and Post Reform period

Sr No	States	CGR of No. Of Working Factories	CGR of No. Of Employees	CGR of Capital Investment (Rs In Lakhs)	CGR of Net Value Added(Rs In Lakhs)	CGR of Value Of Output (Rs In Lakhs)
		1980-81 TO 2009-10	1980-81 TO 2009-10	1980-81 TO 2009-10	1980-81 TO 2009-10	1980-81 TO 2009-10
1	Andhra Pradesh	5.36	2.51	13.21	14.33	15.69
2	Bihar	-1.19	-7.93	-1.43	-3.30	3.72
3	Delhi	4.20	0.38	9.85	11.89	12.44
4	Gujarat	4.77	1.54	15.99	16.74	16.68
5	Haryana	5.63	3.16	13.27	15.81	16.81
6	Karnataka	5.09	2.42	15.45	15.38	17.11
7	Kerala	5.83	1.56	9.94	10.20	13.73
8	Madhya Pradesh	2.53	-1.68	7.86	10.03	12.66
9	Maharashtra	4.41	0.35	12.67	13.27	14.09
10	Orissa	4.85	0.16	12.12	14.24	13.61
11	Punjab	5.42	2.30	10.24	13.03	14.07
12	Rajasthan	7.69	1.52	10.95	13.77	17.19
13	Tamil Nadu	6.53	0.77	13.55	13.08	14.67
14	Uttar Pradesh	3.50	-0.81	10.51	11.97	13.94
15	West Bengal	3.15	-2.12	9.34	8.47	10.91

Source: Compiled from Various Issues of Annual Survey Of Industries, New Delhi.

TABLE 4.2

Selected State Wise Compound Growth Rate (Absolute) Of All Industries for Selected Variables in the Pre and Post Reform Period

Sr No	States	CGR of No of Working Factories		CGR of No. of Employees		CGR of Capital Investment (Rs In Lakhs)		CGR Of Net Value Added(Rs In Lakhs)		CGR Of Value Of Output(Rs In Lakhs)	
		1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10
1	Andhra Pradesh	29.11	-0.57	6.07	3.11	19.93	7.29	15.74	13.27	20.41	13.57
2	Bihar	17.23	-7.11	1.14	-11.72	8.14	-8.21	15.29	-17.58	13.74	-2.23
3	Delhi	22.63	-1.08	4.13	-1.63	9.30	7.79	19.74	5.72	19.35	7.82
4	Gujarat	19.46	1.38	2.16	3.70	16.36	15.36	15.49	16.88	15.95	16.49
5	Haryana	20.38	2.29	5.21	5.07	16.91	11.87	15.09	21.80	19.74	15.79
6	Karnataka	21.24	1.78	3.26	2.76	15.10	14.44	16.46	15.05	18.73	16.96
7	Kerala	18.15	2.75	1.47	0.65	11.54	8.17	14.67	6.60	13.73	13.01
8	Madhya Pradesh	19.18	-2.72	3.83	-5.74	14.59	2.65	15.49	4.87	20.39	7.53
9	Maharashtra	19.19	0.42	1.44	-0.19	15.79	9.82	15.77	11.61	16.51	12.82
10	Orissa	22.04	1.03	3.28	-1.91	20.30	8.09	21.60	11.92	19.71	10.54
11	Punjab	22.95	2.20	9.76	0.13	17.91	5.68	21.39	8.41	22.72	10.55
12	Rajasthan	25.66	3.04	4.86	0.78	15.07	8.81	16.49	11.61	32.09	12.35
13	Tamil Nadu	23.64	1.68	5.04	-2.85	17.78	10.25	17.29	10.15	17.34	12.76
14	Uttar Pradesh	16.87	-0.25	1.40	-1.85	16.14	5.19	18.08	8.40	21.05	10.16
15	West Bengal	14.40	0.17	-1.83	-3.19	11.21	5.31	8.28	6.04	11.44	11.11

Source: Compiled from Various Issues of Annual Survey of Industries, New Delhi

TABLE 4.3

Selected State Wise Compound Growth Rate (Percentage share) Of All Industries for Selected Variables Overall Period in the Pre and Post Reform period

Sr No	States	CGR Of No Of Working Factories	CGR Of No. Of Employees	CGR Of Capital Investment (Rs In Lakhs)	CGR Of Net Value Added(Rs In Lakhs)	CGR Of Value Of Output (Rs In Lakhs)
		1980-81 TO 2009-10	1980-81 TO 2009-10	1980-81 TO 2009-10	1980-81 TO 2009-10	1980-81 TO 2009-10
1	Andhra Pradesh	3.98	17.88	4.35	4.55	5.97
2	Bihar	-2.65	-17.19	-33.18	-25.27	-21.53
3	Delhi	2.84	-0.43	-2.10	-1.32	-2.53
4	Gujarat	3.32	6.70	47.63	122.37	27.12
5	Haryana	4.20	7.71	2.45	6.93	7.93
6	Karnataka	3.61	9.56	15.35	10.31	11.43
7	Kerala	4.33	3.18	-4.42	-5.15	-1.45
8	Madhya Pradesh	1.13	-7.35	-18.69	-10.67	-5.22
9	Maharashtra	2.99	-4.29	3.70	-4.18	-7.03
10	Orissa	3.37	-0.85	-1.32	1.01	-1.30
11	Punjab	3.89	5.77	-6.58	-0.63	-1.38
12	Rajasthan	6.28	2.24	-4.04	0.95	3.36
13	Tamil Nadu	5.12	13.81	8.75	-2.62	1.41
14	Uttar Pradesh	2.00	-11.48	-13.17	-8.79	-3.56
15	West Bengal	1.68	-20.43	-15.45	-22.45	-17.14

Source: Compiled from Various Issues of Annual Survey Of Industries, New Delhi.

TABLE 4.4

Selected State Wise Compound Growth Rate (Percentage share) Of All Industries for Selected Variables in the Pre and Post Reform Period

Sr No	States	CGR Of No Of Working Factories		CGR Of No. Of Employees		CGR Of Capital Investment (Rs In Lakhs)		CGR Of Net Value Added(Rs In Lakhs)		CGR Of Value Of Output(Rs In Lakhs)	
		1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10
1	Andhra Pradesh	27.49	-1.75	5.62	3.50	5.31	-1.23	2.04	2.70	5.18	0.95
2	Bihar	15.95	-8.69	0.71	-12.53	-5.05	-16.37	1.65	-25.62	-0.64	-14.34
3	Delhi	21.08	-2.12	3.68	-1.67	-4.02	-0.49	5.56	-4.05	4.26	-4.14
4	Gujarat	17.96	0.43	1.73	3.94	2.18	6.75	1.82	6.84	1.28	3.74
5	Haryana	18.87	1.44	4.76	5.36	2.66	3.40	1.46	11.46	4.60	3.17
6	Karnataka	19.72	0.77	2.81	2.70	1.07	6.05	2.68	4.29	3.71	3.94
7	Kerala	16.66	1.79	1.03	0.68	-2.06	-0.16	1.09	-2.95	-0.66	0.59
8	Madhya Pradesh	17.68	-3.88	3.39	-6.04	0.62	-5.68	1.82	-5.28	5.16	-4.46
9	Maharashtra	17.69	-0.56	1.00	-0.23	1.67	1.34	2.07	0.91	1.77	0.25
10	Orissa	20.51	-0.08	2.84	-2.17	5.63	-0.81	7.21	1.01	4.57	-2.11
11	Punjab	21.40	1.04	9.29	-0.13	3.53	-2.95	7.02	-1.76	7.20	-1.78
12	Rajasthan	24.07	2.08	4.41	0.69	1.04	0.48	2.70	1.09	15.38	-0.13
13	Tamil Nadu	22.08	1.04	4.59	-0.13	3.42	-2.95	3.41	-1.76	2.50	-1.78
14	Uttar Pradesh	15.4	-1.43	0.96	-2.12	1.98	-3.07	4.11	0-1.87	5.74	-2.25
15	West Bengal	12.96	-0.81	-2.25	-3.21	-2.35	-3.06	-4.54	-3.89	-2.65	-1.42

Source: Compiled from Various Issues of Annual Survey Of Industries, New Delhi.

Having comparatively analyzed the position of Gujarat on all India bases, it needs to be known whether these states of affair will be sustainable or not. With this purpose in mind, in the next section an attempt is made to estimate the stability in growth in terms of instability index. This will be done as per the methodology discussed in the earlier section.

As mentioned earlier, the instability index shows not only the volatility in growth trends, but also the sustainability of growth. The table 4.5 shows the state wise instability index for selected variables in absolute terms. It is clear from this table that states like Bihar, Andhra Pradesh and Tamil Nadu are having high instability index with regard to number of factories, while Gujarat enjoys better position. However, in case of number of employees, capital investment and net value added, Gujarat's position is unfavorable. It is in case of output that instability index is of the lowest for Gujarat. From this table it can be concluded that, during the study period under consideration, out of five parameters, Gujarat has relative advantage with lower index value then other states in two parameters i.e. number of factories and output.

In order to study the impact of policy reforms on the stability in the states, in selected variables, table 4.6 is divided into pre reforms periods and post reforms. For the number of factories, all the states had shown declining index value in the post reform as compared to pre reform periods. Whereas, in case of other variables, mixed picture is observed. For some states the index has improved, while other states have deterioratation on the index. [32]In Gujarat although in terms of number of factories, the indexes has improved in post reform period. But still, as compared to other states the index value is still very high. Further in case of all the variables the position of Gujarat has deteriorated in the post reform period. Similar results are evident in terms of percentage share also (table 4.7 & 4.8). Thus, from this finding, we can arrive at the conclusion that reforms have not really benefited the state of Gujarat.

[32] In case of number of factories, number of employees, net value added and output Uttar Pradesh, West Bengal and in terms of investment, Kerala and Maharashtra have shown lower index value in the post reform period. While states like Bihar, Gujarat, Tamil Nadu and Madhya Pradesh have shown higher index value in some of the parameters

After comparing the trends in industrial growth and other statistics of Gujarat with other states, in the next section an attempt is being made to analyze these trends as per industrial group wise.

In the year 1960, (Table 4.9) food and beverages industry had maximum share of 33.57% of total industries followed by textile with 23.15% of total industries. These two groups together contributed to 56.72% of total working factories, rest all groups contributed 43.28% only. Whereas in the year 1980, though little fall in the share of these two groups was observed, but still it occupied prime importance. Textile and food and beverages together contributed to 30.96% of total industries. Whereas, in the post liberalization period, the shift has been observed in the group wise contribution. For instance, in the year 2006, chemical and chemical products (except products of petroleum and coal) group was leading group accounting for about 16.55% of the working factories, followed by textiles 11.39%,

TABLE 4.5

Selected State Wise Instability Index Value (Absolute) Of All Industries for Selected Variables- Overall Period in the Pre and Post Reform Period

Sr No	States	**CGR Of No Of Working Factories**	**CGR Of No. Of Employees**	**CGR Of Capital Investment (Rs In Lakhs)**	**CGR Of Net Value Added(Rs In Lakhs)**	**CGR Of Value Of Output (Rs In Lakhs)**
		1980-81 TO 2009-10	1980-81 TO 2009-10	1980-81 TO 2009-10	1980-81 TO 2009-10	1980-81 TO 2009-10
1	Andhra Pradesh	47.45	42.82	14.14	18.31	11.72
2	Bihar	42.39	58.33	50.19	72.34	49.90
3	Delhi	41.04	12.78	20.43	22.35	15.47
4	Gujarat	33.13	40.01	20.25	83.24	7.73
5	Haryana	32.10	40.85	12.54	88.25	9.15
6	Karnataka	36.08	8.37	17.45	17.95	12.50
7	Kerala	30.73	7.98	7.70	18.51	9.67
8	Madhya Pradesh	31.25	13.54	16.62	19.24	13.82
9	Maharashtra	34.00	5.97	8.57	14.94	10.17
10	Orissa	40.09	8.48	15.46	23.27	11.01

11	Punjab	38.73	11.81	12.83	21.65	11.94
12	Rajasthan	40.97	6.97	16.39	19.88	89.58
13	Tamil Nadu	37.91	47.57	10.19	11.51	7.28
14	Uttar Pradesh	21.89	6.76	13.02	20.31	10.48
15	West Bengal	28.05	4.80	14.60	12.39	6.38

Source: Compiled from Various Issues of Annual Survey Of Industries, New Delhi

TABLE 4.6

Selected State Wise Instability Index Value (Absolute) Of All Industries for Selected Variables – Pre and Post Reform Period

Sr No	States	CGR Of No Of Working Factories		CGR Of No. Of Employees		CGR Of Capital Investment (Rs In Lakhs)		CGR Of Net Value Added(Rs In Lakhs)		CGR Of Value Of Output(Rs In Lakhs)	
		1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10
1	Andhra Pradesh	80.45	9.06	13.02	38.85	17.35	8.55	20.06	17.39	10.59	12.29
2	Bihar	60.09	25.6	5.38	70.38	6.13	68.87	27.62	92.21	9.37	68.44
3	Delhi	68.84	8.18	19.02	6.45	26.94	15.62	25.88	18.21	18.5	11.71
4	Gujarat	54.54	8.50	11.07	35.41	9.37	25.87	17.23	119.21	7.40	8.04
5	Haryana	53.22	6.61	8.10	36.67	6.85	15.37	19.11	69.61	6.69	10.23
6	Karnataka	60.85	5.56	8.85	8.32	7.29	22.60	14.57	20.41	7.56	15.29
7	Kerala	51.28	5.73	9.07	7.46	3.53	9.10	16.33	18.66	6.99	10.55
8	Madhya Pradesh	49.04	8.94	13.08	13.14	19.19	13.38	17.24	19.58	8.44	15.53
9	Maharashtra	56.84	6.61	5.95	6.04	6.59	9.37	10.83	16.23	5.91	11.38
10	Orissa	68.60	5.14	5.92	9.57	14.79	15.07	25.92	21.87	12.96	7.90
11	Punjab	66.08	5.93	11.98	10.81	7.42	14.11	24.37	19.78	13.42	9.59
12	Rajasthan	69.79	6.55	9.67	4.24	5.95	20.86	23.66	17.57	178.13	10.28
13	Tamil Nadu	64.06	5.88	9.19	64.37	6.64	11.87	8.49	12.90	3.70	9.00
14	Uttar Pradesh	33.97	3.72	4.45	7.93	7.07	14.64	28.73	11.36	11.27	7.90
15	West Bengal	46.73	4.44	5.45	4.20	7.89	17.44	12.81	12.33	3.07	8.07

Source: Compiled from Various Issues of Annual Survey Of Industries, New Delhi.

manufacturing of food products 9.18%, manufacturing of fabricated metal products and equipment 8.44%, manufacturing of machinery and equipments N.E.C. 8.22%, manufacturing of basic metal products 7.20%, manufacturing of rubber and plastic products 5.10%, manufacturing of wood products and cork 3.87% and agriculture, hunting and related services activities 2.99%.

Thus, in the post liberalization period, traditionally dominating group of industries have lost their importance in the total working industries. In its place, chemicals, non-metallic mineral products, basic metal industries, metal products, machinery except electrical are now growing at a faster rate, these five groups together contributed at present to 50% of total working factories, and are dominating industrial scenario of the state.

As far as employment in group wise industries were concerned (Table 4.10) in the year 1960, textile group of industries dominated the scene, alone contributed to 70.69% of total industrial employment, which shows labour intensive nature of textile industry. Whereas in the year 1980, though relative share of textiles in the total industrial employment had declined. but still its share was 45.64% of total industrial employment followed by food and beverages industry (10.19%) and chemical and chemical products (9.21%). In the post reform periods, though the relative share of other group of industries in total industrial employment has been rising. Nevertheless still textile is the highest contributor group to total employment. In the year 2006, textile industries contributed 17.13% followed by manufacturing of chemical and chemical products 16.13%, manufacturing of food products and beverages 8.72%, manufacturing of other non-metallic mineral products 7.47%, manufacturing of machinery and equipment NEC 6.57%, manufacturing of basic metal products 6%, manufacturing of fabricated metal products and equipment 5.63%, manufacturing of rubber and plastic products 4.54%, agriculture hunting and related services activities 3.02% and manufacturing of electrical machinery and apparatus NEC 2.83%.

Thus, the industrial mix can be credited for outstanding growth and performance in the industrial development in the state of Gujarat. Following from this, in this section

trend and pattern of the industrial mix is analysed in terms of number of factories and employment in factories.[33]

In terms of working factories as well as number of workers employed, over a period of time the share of textile has declined and in 2008-09 chemical and chemical product has the largest share in terms of working factories in Gujarat, Still in terms of employment textile

TABLE 4.7
Selected State Wise Instability Index Value (Percentage share) Of All Industries for Selected Variables –Overall Period in Pre and Post Reform Period

Sr No	States	CGR Of No Of Working Factories	CGR Of No. Of Employees	CGR Of Capital Investment (Rs In Lakhs)	CGR Of Net Value Added(Rs In Lakhs)	CGR Of Value Of Output (Rs In Lakhs)
		1980-81 TO 2009-10	1980-81 TO 2009-10	1980-81 TO 2009-10	1980-81 TO 2009-10	1980-81 TO 2009-10
1	Andhra Pradesh	47.04	13.68	37.72	20.67	14.55
2	Bihar	41.97	6.78	63.76	65.70	44.54
3	Delhi	41.45	19.28	7.57	22.99	17.49
4	Gujarat	33.38	11.79	34.45	85.11	10.40
5	Haryana	33.49	8.59	36.49	84.40	12.90
6	Karnataka	36.38	10.04	11.45	21.21	16.65
7	Kerala	30.63	9.04	9.22	25.02	13.25
8	Madhya Pradesh	31.07	11.82	8.34	18.77	13.81
9	Maharashtra	33.69	7.17	7.42	14.26	9.70
10	Orissa	39.71	6.97	5.82	20.74	13.02
11	Punjab	38.77	12.16	6.90	23.24	13.39
12	Rajasthan	40.73	9.37	5.14	20.07	88.10
13	Tamil Nadu	37.46	10.26	69.65	13.83	7.38
14	Uttar Pradesh	21.63	2.45	4.65	24.44	11.27
15	West Bengal	27.85	5.79	5.63	14.91	9.67

Source: Compiled from Various Issues of Annual Survey of Industries, New Delhi

[33] Absence of data on other indicators does not permit the estimation of growth trends for these indicators.

TABLE 4.8
Selected State Wise Instability Index Value (Percentage share) Of All Industries for Selected Variables in the Pre and Post Reform Period

Sr No	States	CGR Of No Of Working Factories		CGR Of No. Of Employees		CGR Of Capital Investment (Rs In Lakhs)		CGR Of Net Value Added(Rs In Lakhs)		CGR Of Value Of Output(Rs In Lakhs)	
		1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10
1	Andhra Pradesh	80.18	7.34	13.68	37.72	14.00	13.00	16.79	23.49	11.34	16.33
2	Bihar	60.55	24.10	6.78	63.76	7.95	63.03	28.94	80.52	11.39	59.85
3	Delhi	69.38	8.97	19.28	7.57	24.04	20.47	24.22	20.64	18.56	15.47
4	Gujarat	55.23	7.98	11.79	34.45	7.37	31.22	14.33	123.00	8.83	11.66
5	Haryana	56.10	6.22	8.59	36.49	5.71	21.39	15.93	66.83	8.07	15.48
6	Karnataka	61.44	5.58	10.04	11.45	5.63	27.21	10.44	26.79	8.46	20.95
7	Kerala	50.92	6.33	9.04	9.22	4.14	15.37	18.01	27.83	8.60	15.09
8	Madhya Pradesh	49.48	6.95	11.82	8.34	19.39	11.79	18.42	18.48	9.31	15.11
9	Maharashtra	56.75	4.76	7.17	7.42	6.11	13.00	9.72	16.37	7.20	10.47
10	Orissa	68.11	3.84	6.97	5.82	16.34	16.71	23.01	19.54	14.98	9.75
11	Punjab	66.41	4.87	12.16	6.90	7.75	14.46	23.52	23.19	14.47	11.59
12	Rajasthan	69.64	5.29	9.37	5.14	7.04	23.46	19.24	21.15	172.48	15.11
13	Tamil Nadu	63.43	4.70	10.26	69.65	8.25	12.91	8.73	16.51	6.10	8.15
14	Uttar Pradesh	33.56	3.33	2.45	4.65	7.93	17.51	32.57	16.42	12.68	8.34
15	West Bengal	46.54	3.53	5.79	5.63	8.01	16.07	15.16	14.68	5.03	12.10

Source: *Commissioner of Industries, Gujarat*

TABLE 4.9
Group wise Workers Employed in Factories in the State of Gujarat

Sr No	Industry Group	Years					
		1960	1970	1980	1990	2000	2006
1	Textiles	237853	235782	290111	241984	170642	165005
2	Food Beverages, Tobacco and Tobacco Products	8206	41032	64759	72325	89328	91900
3	Wood & Wood Products Furniture & Fixtures	3952	4559	6847	7659	10946	39268
4	Paper & Paper Products, Printing, Publishing & Allied Industries	5670	9786	15582	21217	23879	24741
5	Leather & Leather Products	435	641	513	811	2289	1580
6	Rubber, Plastic & Petroleum Coal Products	5663	7547	16714	43355	52983	54766
7	Chemical & Chemical Products	11146	24298	58557	100859	153583	154903
8	Non Metallic Mineral Products	19451	29953	40295	54848	63731	67503
9	Basic Metal Industries	2475	9042	18456	33659	51960	53875
10	Metal Products	2659	8775	26135	32866	43488	48912
11	Machinery Except Electrical Machinery	2148	32965	44833	55958	59306	60294
12	Electrical Machinery,Appratus , Appliances & Supplies	287	7745	13945	26674	27577	28121
13	Transport Equipments and	12338	16157	8815	15138	21074	18398

	Parts						
14	Others	4179	9272	30122	40216	95934	117819
Total Gujarat		336462	437554	635684	747569	866720	927085

Source*: *Commissioner of Industries, Gujarat

TABLE 4.10
Group wise Working Factories in the State of Gujarat

Sr No	Industry Group	Years					
		1960	**1970**	**1980**	**1990**	**2000**	**2006**
1	Textiles	845	1328	1964	2291	2726	2469
2	Food Beverages, Tobacco and Tobacco Products	1225	971	1341	1376	1979	2073
3	Wood & Wood Products Furniture & Fixtures	96	141	624	820	766	1165
4	Paper & Paper Products, Printing, Publishing & Allied Industries	164	220	376	583	741	805
5	Leather & Leather Products	23	31	41	32	50	49
6	Rubber, Plastic & Petroleum Coal Products	30	223	437	867	1141	1191
7	Chemical & Chemical Products	84	199	1108	1767	3502	3594
8	Non Metallic Mineral Products	240	548	1037	1528	1875	1995
9	Basic Metal Industries	106	250	555	1022	1398	1505
10	Metal Products	133	299	922	1159	1640	1735
11	Machinery Except Electrical Machinery	362	681	1099	1427	1869	1875
12	Electrical Machinery,Appratus, Appliances & Supplies	12	94	310	501	544	441
13	Transport Equipments and Parts	137	207	106	187	412	319
14	Others	192	352	754	953	1781	1997
Total Gujarat		3649	5544	10674	14513	20424	21213

Source: ***Commissioner of Industries, Gujarat***

TABLE 4.11
Compound Growth Rate (Absolute) Of Working Factories And Workers Employed In Working Factories In Gujarat –Overall Period in Pre And Post Reform Period

Sr No	Items	CGR Of Workers Employed	CGR Of Working Factories
		1980-81 to 2009-10	1980-81 to 2009-10
1	Textiles	-2.20	0.84
2	Food Beverages, Tobacco and Tobacco Products	1.77	2.59
3	Wood & Wood Products Furniture & Fixtures	9.57	2.04
4	Paper & Paper Products, Printing, Publishing & Allied Industries	1.58	2.43
5	Leather & Leather Products	5.93	3.82
6	Rubber, Plastic & Petroleum Coal Products	2.11	2.19
7	Chemical & Chemical Products	3.02	5.20
8	Non Metallic Mineral Products	1.68	1.67
9	Basic Metal Industries	3.42	2.74
10	Metal Products	3.24	2.57
11	Machinery Except Electrical Machinery	1.13	2.00
12	Electrical Machinery,Appratus, Appliances & Supplies	0.60	-0.54
13	Transport Equipments and Parts	2.27	4.06
14	Others	6.78	4.61
Total Gujarat		1.62	2.61

Source: Compiled from Various Issues of Commissioner of Industries, Gujarat

continues to be the largest employer among different industrial group in the state of Gujarat. In recent times the industrial structure has further under gone change with industries such as non metallic mineral products, chemical and chemical products, machinery have gained importance in terms of number of working factories as well as number of workers employed.

The growth trends in working factories and workers employed is presented in table 4.11(absolute). It is evident from this table that the highest growth rate is accounted by chemical and chemical product (5.2) in terms of working factories during the study period under consideration. This is followed by transport equipments and parts (4.06). Whereas electrical machinery (-0.54) has recorded a negative growth rate. In terms of compound growth rate of workers employed , the highest growth rate is recorded by wood and wood products(9.57), followed by leather and leather products(5.93) and basic metal products(3.42), whereas negative growth rate is recorded in case of textile(-2.2). If we look at the compound growth rate of percentage share of working factories and workers employed then also textile have registered a negative growth rate. The highest growth rate is accounted by chemical and chemical product in terms of working factories and wood and wood products in terms of workers employed (see table 4.12).

If we look at growth trends(in absolute terms) in terms of working factories and workers employed in the pre and post reform period, then the trend is very different from the observation during the entire study period. Certain groups have shown higher growth rate during the post reform period as compared to pre reform period. For instance, food and beverages, wood and wood products, rubber and plastic, leather and metal products have registered a higher growth rate in terms of working factories in the post reform period. Similarly in terms of workers employed food and beverages and chemical and chemical products have registered a higher growth rate. In all other case the growth rates has declined (see table 4.13). A similar trend is observed if we look at compound growth rate of percentage share (table 4.14).[34] From these tables it can be concluded that,

[34] Wood and wood products have registered higher growth rates in working factories as well as workers employed .Whereas negative growth rates is accounted by textile and electrical machinery in post reform period.

although few industries have benefited from reforms either in terms of workers employed or in terms of working factories.[35]

Overall the growth rate has declined after the initiation of reforms in case of workers employed and in case of working factories in the post reform period, it has marginally increased. Industries, which are not found in the above group have recorded positive growth rate, the rest have registered a negative growth rate.

TABLE 4.12
Compound Growth Rate (Percentage share) of Working Factories and Workers Employed In Working Factories In Gujarat –Overall Period in Pre And Post Reform Period

Sr No	Items	CGR Of Workers Employed	CGR Of Working Factories
		1980-81 to 2009-10	1980-81 to 2009-10
1	Textiles	-3.75	-1.72
2	Food Beverages, Tobacco and Tobacco Products	0.15	-0.01
3	Wood & Wood Products Furniture & Fixtures	7.83	-0.56
4	Paper & Paper Products, Printing, Publishing & Allied Industries	-0.03	-0.17
5	Leather & Leather Products	4.24	1.18
6	Rubber, Plastic & Petroleum Coal Products	0.49	-0.40
7	Chemical & Chemical Products	1.38	2.53
8	Non Metallic Mineral Products	0.06	-0.91
9	Basic Metal Industries	1.78	0.13
10	Metal Products	1.59	-0.04
11	Machinery Except Electrical Machinery	-0.48	-0.59
12	Electrical Machinery,Appratus, Appliances & Supplies	-1.00	-3.07
13	Transport Equipments and Parts	0.64	1.41

[35] In terms of working factories food and beverages, wood and wood products, leather, and metal products have been benefited by reforms and in terms of workers employed wood, rubber-plastics and chemical and chemical products are benefited from reforms.

14	Others	5.08	1.95

Source: Compiled from Various Issues of Commissioner of Industries, Gujarat

TABLE 4.13
Compound Growth Rate (Absolute) of Working Factories and Workers Employed In Working Factories in Gujarat-Pre and Post Reform Period

Sr No	Items	CGR Of Workers Employed		CGR Of Working Factories	
		1980-81 to 2009-10	1991-92 to 2009-10	1980-81 to 2009-10	1991-92 to 2009-10
1	Textiles	0.68	-3.15	1.21	-0.72
2	Food Beverages, Tobacco and Tobacco Products	2.76	1.37	1.11	2.29
3	Wood & Wood Products Furniture & Fixtures	4.20	14.12	0.19	3.23
4	Paper & Paper Products, Printing, Publishing & Allied Industries	3.83	0.62	3.15	2.00
5	Leather & Leather Products	7.71	0.73	3.26	4.26
6	Rubber, Plastic & Petroleum Coal Products	2.83	1.78	1.22	1.70
7	Chemical & Chemical Products	1.89	2.22	4.44	3.79
8	Non Metallic Mineral Products	3.48	0.93	2.42	0.96
9	Basic Metal Industries	4.51	2.00	2.90	2.31
10	Metal Products	6.02	2.15	1.59	2.05
11	Machinery Except Electrical Machinery	3.36	1.26	1.65	1.46
12	Electrical Machinery,Appratus, Appliances & Supplies	-0.14	-0.65	0.72	-1.50
13	Transport Equipments and Parts	9.77	1.26	3.85	1.46
14	Others	3.92	6.51	0.63	4.65
Total Gujarat		2.38	1.13	1.89	1.96

Source: Compiled from Various Issues of Commissioner of Industries, Gujarat.

Table 4.10 shows the same result that except wool, silk and services and other industries, all groups of industries have registered negative growth rate. From this it may be concluded that reforms have not helped in improving the growth trends in the state of Gujarat.

In the earlier section the instability was measured to find out the sustainability of growth trends, in the next section also the group wise instability index has been measured. This table 4.15(absolute) illustrates that in terms of workers employed as well as working factories, high instability is accounted by leather and leather products, followed by wood and wood products. In case of working factories lower instability index is found in metal products while in case of workers employed paper and paper products has the lower index value. Index value of percentage share of working factories and workers employed (Table 4.16); also confirm the same result that leather and leather product, along with the wood products have shown higher instability index value. It also reveals that chemicals and chemicals products have recorded low index value.

In table 4.17(absolute), the instability index is measured by considering the two sub periods. In case of workers employed leather and leather products exhibits a high value in both sub periods .In fact other then chemical and chemical product, the instability index has increased in the post reform period. Further overall instability index has declined in the post reform period. If we look at index value of working factories, a similar picture emerges, that is in the post reform period the instability has increased except in case of chemical and chemical product. If we consider instability index in terms of percentage share, than also there has been an increase in the instability index. Thus, we can conclude that group wise also the instability index has not shown any improvement in the state of Gujarat despite the initiation of reform process.

TABLE 4.14
Compound Growth Rate (Percentage share) Of Working Factories and Workers Employed In working Factories in Gujarat –Pre and Post Reform Period

Sr No	Items	CGR Of Workers Employed		CGR Of Working Factories	
		1980-81 to 2009-10	1991-92 to 2009-10	1980-81 to 2009-10	1991-92 to 2009-10
1	Textiles	-1.65	-4.22	-0.67	-2.63
2	Food Beverages, Tobacco and Tobacco Products	0.38	0.24	-0.76	0.33
3	Wood & Wood Products Furniture & Fixtures	1.79	12.85	-1.66	1.24
4	Paper & Paper Products, Printing, Publishing & Allied Industries	1.42	-0.50	1.24	0.04
5	Leather & Leather Products	5.21	-0.39	1.35	2.26
6	Rubber, Plastic & Petroleum Coal Products	0.44	0.65	-0.65	-0.25
7	Chemical & Chemical Products	-0.48	1.09	2.51	1.79
8	Non Metallic Mineral Products	1.08	-0.19	0.53	-0.98
9	Basic Metal Industries	2.08	0.87	0.99	0.34
10	Metal Products	3.56	1.01	-0.29	0.09
11	Machinery Except Electrical Machinery	0.96	0.14	-0.23	-0.49
12	Electrical Machinery,Appratus, Appliances & Supplies	-2.46	-1.76	-1.15	-3.39
13	Transport Equipments and Parts	7.23	0.14	1.92	-0.49
14	Others	1.51	5.33	-1.23	2.64

Source: Compiled from Various Issues of Commissioner of Industries, Gujarat.

TABLE 4.15
Instability Index Value (Absolute) Of Working Factories and Workers Employed In Working Factories in Gujarat- Overall Period in Pre and Post Reform Period

Sr No	Items	Index Value Of Workers Employed	Index Value Of Working Factories
		1980-81 to 2009-10	1980-81 to 2009-10
1	Textiles	5.95	8.33
2	Food Beverages, Tobacco and Tobacco Products	7.38	6.10
3	Wood & Wood Products Furniture & Fixtures	25.76	10.59
4	Paper & Paper Products, Printing, Publishing & Allied Industries	4.49	4.27
5	Leather & Leather Products	42.73	17.14
6	Rubber, Plastic & Petroleum Coal Products	8.57	5.06
7	Chemical & Chemical Products	5.99	6.51
8	Non Metallic Mineral Products	6.41	4.55
9	Basic Metal Industries	6.95	4.45
10	Metal Products	6.90	4.19
11	Machinery Except Electrical Machinery	7.25	4.46
12	Electrical Machinery,Appratus, Appliances & Supplies	13.09	6.88
13	Transport Equipments and Parts	7.59	11.23
14	Others	13.27	20.18
Total Gujarat		4.30	4.67

Source: Compiled from Various Issues of Commissioner of Industries, Gujarat

TABLE 4.16
Instability Index Value (Percentage share) Of Working Factories and Workers Employed In Working Factories in Gujarat- Overall Period in Pre and Post Reform Period

Sr No	Items	Index Value Of Workers Employed	Index Value Of Working Factories
		1980-81 to 2009-10	1980-81 to 2009-10
1	Textiles	5.09	5.86
2	Food Beverages, Tobacco and Tobacco Products	5.98	4.22
3	Wood & Wood Products Furniture & Fixtures	24.43	10.34
4	Paper & Paper Products, Printing, Publishing & Allied Industries	2.57	3.20
5	Leather & Leather Products	40.96	15.84
6	Rubber, Plastic & Petroleum Coal Products	7.73	3.26
7	Chemical & Chemical Products	3.57	3.73
8	Non Metallic Mineral Products	3.86	3.25
9	Basic Metal Industries	4.60	2.32
10	Metal Products	3.81	2.97
11	Machinery Except Electrical Machinery	4.97	2.63
12	Electrical Machinery,Appratus, Appliances & Supplies	10.12	5.34
13	Transport Equipments and Parts	7.85	10.40
14	Others	12.86	17.68

Source: Compiled from Various Issues of Commissioner of Industries, Gujarat

TABLE 4.17
Instability Index Value (Absolute) Of Working Factories and Workers Employed In Working Factories in Gujarat- Pre and Post Reform Period

Sr No	Items	Index Value Of Workers Employed		Index Value Of Working Factories	
		1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10
1	Textiles	2.73	6.61	5.00	9.27
2	Food Beverages, Tobacco and Tobacco Products	5.00	8.10	2.98	6.87
3	Wood & Wood Products Furniture & Fixtures	3.45	30.27	1.81	12.09
4	Paper & Paper Products, Printing, Publishing & Allied Industries	4.11	4.41	2.59	4.67
5	Leather & Leather Products	18.92	49.23	7.72	18.37
6	Rubber, Plastic & Petroleum Coal Products	8.36	8.83	3.03	5.53
7	Chemical & Chemical Products	9.03	4.98	8.37	6.04
8	Non Metallic Mineral Products	5.51	6.74	4.08	4.63
9	Basic Metal Industries	4.99	7.52	3.41	4.81
10	Metal Products	5.94	7.14	3.74	4.28
11	Machinery Except Electrical Machinery	6.15	7.56	3.83	4.74
12	Electrical Machinery,Appratus, Appliances & Supplies	13.04	13.30	3.35	7.55
13	Transport Equipments and Parts	5.35	6.35	3.77	12.98
14	Others	7.77	14.80	6.50	23.34
Total Gujarat		5.03	4.17	4.11	4.94

Source: Compiled from Various Issues of Commissioner of Industries, Gujarat.

TABLE 4.18

Instability Index Value (Absolute) Of Working Factories and Workers Employed In Working Factories in Gujarat- Pre and Post Reform Period

Sr No	Items	Index Value Of Workers Employed		Index Value Of Working Factories	
		1980-81 to 1990-91	1991-92 to 2009-10	1980-81 to 1990-91	1991-92 to 2009-10
1	Textiles	2.37	5.70	0.98	6.78
2	Food Beverages, Tobacco and Tobacco Products	1.22	6.91	1.24	4.77
3	Wood & Wood Products Furniture & Fixtures	3.91	28.54	2.98	11.79
4	Paper & Paper Products, Printing, Publishing & Allied Industries	2.10	2.47	2.68	3.33
5	Leather & Leather Products	16.49	47.41	5.86	17.07
6	Rubber, Plastic & Petroleum Coal Products	4.26	8.70	1.24	3.63
7	Chemical & Chemical Products	3.86	3.47	4.39	3.61
8	Non Metallic Mineral Products	1.42	4.40	0.69	3.41
9	Basic Metal Industries	1.35	5.21	0.84	2.54
10	Metal Products	1.98	4.14	0.86	3.13
11	Machinery Except Electrical Machinery	3.18	5.37	0.62	3.05
12	Electrical Machinery,Appratus, Appliances & Supplies	8.55	10.58	2.90	5.88
13	Transport Equipments and Parts	8.04	6.27	3.75	11.98
14	Others	4.44	14.67	3.96	20.57

Source: Compiled from Various Issues of Commissioner of Industries, Gujarat

IV CONCLUSION:

This chapter highlights the pattern of industrial development in Indian states in general and Gujarat in particular during the study period. The pattern of industrial development has been evaluated on the basis of growth and instability indexes.

Analyzing **Growth trends** that following are evident:

1. In terms of working factories, comparative analysis of pre and post reform period gives an idea that there has been deterioration in the compound growth rate in the post reform period in Gujarat as compared to the pre reform period.
2. As far as the number of employees in Gujarat is concerned, the compound growth rate has increased from 2.16% in the pre reform period to 3.70% in the post reform period.
3. In terms of Investment, Gujarat has shown marginal fall in the growth rate in post reform period from 16.36% to 15.36%
4. In case of volume net value added, the state of Gujarat has registered marginal increase in the growth rate during the post reform period that is from 15.49% in pre reform period to16.88% in the post reform period.
5. As far as output is concerned, again the state of Gujarat has shown marginal increase in the post reform period that is from 15.95% in the pre reform period to 16.49% in the post reform period.

Analyzing **Instability index** it can be inferred that:

In the state of Gujarat instability index of number of registered factories has drastically declined from 54.54 in the pre reform period to 8.50 in the post reform period. However, in case of number of employees, the instability index has increased manifold from 11.07 in the pre reform period to 35.41% in the post reform period; same is the case of investment where in index increased from 9.37% in the pre reform period to 25.87 % in the post reform period. On the other hand, in terms of net value added, the state of Gujarat had a very high jump in its index value from 17.23 in the pre reform to 119.21 in the post reform period. For the output, the state has registered marginal increase in its instability index from 7.40 in the pre reform to 8.04 in the post reform period.

From the above it can be surmised that in terms of compound growth rate, out of the five parameters, state has shown rising growth rate in three parameters in the post reform period. But in terms of instability, only one parameter has shown declining index value.

In terms of group-wise trends, it is clear from results that pattern of industries in the state of Gujarat has been changing. It has been observed that the traditional groups of industries are loosing their significance while modern and new group of industries are taking a lead. The pattern of industrial development in the state of Gujarat group wise has also been viewed on the basis of Growth and Instability.

Growth Analysis illustrates that:

1. Higher Growth rate is registered by Chemicals and Chemical products (5.20%) for the working factories during the entire study period.
2. For the workers employed, Wood and Wood products with 9.57% have showed higher growth rate during the study period.
3. In case of working factories, Food and Beverages, Wood and Wood products, Leather and Leather products, Rubber –Plastics and Petroleum products, Metal products have registered higher growth rate in the post reform period.
4. Wood and wood products as well as Chemical and chemical products have registered higher growth rates for the category of workers employed in the post reform period. On the whole, the growth rates have marginally increased for working factories, while for workers employed it has declined.

Instability Index gives an idea that:

Leather and Leather products have registered higher index value for working factories as well as workers employed during the period under consideration. Chemical and chemical products for the category of working factories in addition to Paper and Paper products for workers employed have attained low index value in the study period. However, Chemical and chemical products alone has registered lower index value in case of both, Working factories and Workers employed in the post reform period than in the pre reform period. Total instability had marginally increase in case of Working factories in post reform period, while in case of Workers employed it has marginally declined from 5.03 in the pre reform period to 4.17 in the post reform period.

In sum, the results presented above indicate that reform process has benefited the state of Gujarat partially. Further, chemical and chemical products has benefited the most in the post reform period. As a result there has been diversion from traditional industrial group like textile. Having examined the overall growth trend within the state of Gujarat, in the next chapter a similar analysis will be attempted district wise .This is attempted in order to find out whether reform policies has any impact on regional development at the district level in Gujarat or not.

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CHAPTER-V

INTER- DISTRICT VARIATION IN INDUSTRIALISATION IN GUJARAT: AN ANALYSIS

I INTRODUCTION:

The development experience in India in the past two decades has indicated that, there has been a reasonably good overall growth of the economy, but still there has been disparity in the growth between different regions of the country. This is basically due to lack of industrial development in certain regions. It needs to be mentioned here that 'Industrial development' (particularly the development of manufacturing activities) has become synonymous with term' economic development.' It is so because, the industrial sector is more powerful in innovation which injects dynamism and brings about lasting increase in productivity of labour. Industrialization not only influences of growth of national output and income, but also influences the national life and the social, political and cultural pattern. Industrial development has further been acknowledged as a means to distribute employment, income and consumption between various regions by giving special emphasis on industrialization of backward regions. Development of industries in the backward regions, are therefore accepted as a means to reduce regional disparities.[36] In view of this, one of the strategy thought of is locating industries in the backward region; such a strategy is required not only for generation of employment and income in the backward region but also for balanced regional development. It is this consideration that has led a number of state governments including Gujarat to use industrial dispersal policies as a major instruments in reducing the inter district disparities. As a corollary to the above, this chapter examines the inter-district variation in industrialization in the state of Gujarat.

In the previous chapter, an in depth analysis of inter-state industrial disparities in the pre and post reform in India has been undertaken. It also provided an overview of industrial development in the state of Gujarat. It was noted that reforms have certainly benefited the state of Gujarat but only partially. It was also clear that there has been a

[36] See Hunker (1980)

shift in the pattern of industrialization from traditionally dominated industries to modern industries. As a sequel in this chapter, discussion of industrial disparities with special reference to regional distribution of industrial activity in the districts of Gujarat has been attempted. Consequently in this chapter, the followings aspects have been dealt:

- Growth in terms of working factories and workers employed both in absolute and as well as in percentage share and district wise total electricity consumption and industrial electricity consumption both in absolute and as well as in percentage share have been examined .[37]
- The instability index of the above selected variables has been also examined.[38]

Several studies have been conducted elsewhere to examine the inter district variation in industrialization. In one such study, Sheshadri (1991), covering a period between 1960 and 1980, examined the industrial disparity in the districts of Karnataka by considering certain variables like number of factories, number of workers in the factories and NDDP. He concluded that there is an excessive concentration of industries in Bangalore. This is because it already had a well developed infrastructure. Gurubasappa (2008), in his study examined how small scale industrial units are distributed among the districts of Karnataka. He considered a period from 1980 to 1995. His study showed that Bangalore and Mysore contributed to about 35% of SSI activities and Kodagu was the least industrially developed district of Karnataka in terms of various parameters like registered SSI units, employment in SSI etc .The concentration of SSI in Bangalore and Mysore was due to 'Natural Location factors'. Kumnoor (2007), covering the period from 1970 to 1988, also focused on the impact of industrialization on the districts of Karnataka. His study proved that there is definitely uneven distribution of industrial growth in the state. This study also proved that in terms of all parameters used in the study, Bangalore alone had a share of 50% of all industrial activities leading to regional disparity.

[37] It is asserted that there exists a positive relationship between industrial development and consumption of electricity (Mathur 1968).

[38] The instability index has been estimated to find out whether the observed growth rates are sustainable or not.

Few scholars have also focused their studies on industrial development in the state of Gujarat as well. It was Pathak (1981) who conducted one of the first such studies focusing on industrial development in the state of Gujarat. He examined this aspect for a period between1960-1979. He used different criteria like number of factories, employment in factories, net value added, and output. He found that industrial activities were more concentrated in the already industrially developed districts like Ahmedabad, Baroda, Rajkot, Surat and Valsad due to agglomeration. However, Pathak's study was under taken for a period prior to the initiation of reform process in the nineties. In another study Joshi (1982), examined the strategy to be adopted for the development of backward areas, with special reference to Gujarat. He found that some special economic factor such as lack of infrastructure and lack of industrial development had led to relative backwardness of some regions. He suggested that the strategy for development of backward area should be formulated on the basis of resource endowment, geo-physical condition, socio-cultural traits of social groups and the level of industrial infrastructure development. This study also pertains to pre reform period. It was Dholakia (2000), who examined the state of industrialization in the post reforms period. In his study Dholakia, evaluated the impact of economic liberalization on Gujarat economy in terms of performance of industrialization in the state. This is because according to him, the development strategy of Gujarat has been unbalanced growth with emphasis on directly productive activity rather than on creating social over head capital. He found that the economic growth of the state has been sustained by secondary and tertiary sector which is quite consistent with development strategy adopted by government. In fact it is only secondary sector in Gujarat which has shown positive and significant growth acceleration during the nineties. Another study by Awasthi (2000), found that Gujarat state had responded well to economic reforms and industry especially manufacturing has grown faster than the national average. Between1990-1996 the manufacturing sector in Gujarat has grown at the rate of 10.7% annual rate of growth compared to 6.9% of all India. He also found that almost 76% of industries was concentrated in an around the industrial poles. Therefore, the industrial development in Gujarat has been regionally lopsided. It may be concluded from the above that the studies surveyed have not analyzed the inter district variation in

industrialization by considering a long period of time, especially the period after 1991. There is thus, a need to examine the sub-regional disparities in the post reform period so as to provide a factual insight on the on going reforms process. It is against this backdrop that the present and subsequent chapters examine the sub regional variation in industrialization.

The rest of the chapter is divided into number of sections. In section II data sources and methodology are discussed, Section III deals with Industrial Activity and Territorial Disparities, in section IV Inter District Industrial Variation are presented and finally section V concludes the chapter.

II DATA SOURCE AND METHODOLOGY:

The disparity conversation of this chapter is entirely based on secondary sources of data. These data were collected from Industries in Gujarat published by the office of the Commissioner of Industries of Gujarat, various issues of Socio-Economic Review of Gujarat by Directorate of Economics and Statistics, Government of Gujarat and from different electricity distributing companies of Gujarat. The regional spread of industrial activity has been viewed from three angles namely number of factories, number of workers and electricity consumption district wise.[39] With regard to the spread of registered manufacturing units, due to data non availability, the present study limits itself to the analysis of the regional disparities in terms of "factories" and "workers' from 1990-91 to 2008-09 and for electricity 2000-01 to 2008-09.

The methodology adopted in this chapter is the same as used in the previous chapter i.e. the compound growth rate and instability index value for the number of factories and workers as well as for electricity consumption has been calculated.

III INDUSTRIAL ACTIVITIES AND TERRITORIAL DISPARITIES:

This section of the present chapter focuses on the fact that there were a number of industrial activities in all nineteen district right from the formation of the state of Gujarat. Nevertheless, the distributions of industrial activity regionally across the state

[39] Although numbers of indicators can be considered to examine inter-district industrial variation, due to non-availability of data only three indicators have been considered here.

are uneven. Majority of the industrial activities were concentrated only in the couple of districts and the remaining districts had very little industrial activity. This is evident from table 5.1.This table illustrates that at the time of formation of the state of Gujarat in the year 1960, Ahmedabad district had registered the highest number of working factories in absolute terms (910) as well as the highest number of workers employed (167015) it also had highest number of average workers per factories (18353). Surat, Kheda, Rajkot, and Vadodara districts ranked the next in that order. In the year 1990, Ahmedabad district had maintained the first position in working factories (4668) and workers employed (256554) but the average numbers of workers per factory reduce to 54.96. Next to Ahmedabad, were Valsad and Vadodara districts in working factories and Vadodara and Surat in terms of workers employed. In the year, 2008, in terms of working factories as well as workers employed Ahmedabad was at zenith followed by Vadodara and Surat district respectively. With respect to working factories, seven districts put together Ahmedabad, Bharuch, Mehsana, Rajkot, Surat, Vadodara, and Valsad district contributed 68% in 1960, 69% in 1970, 73% in 1980, 77% in 1990, and 78% in 2008. Thus, these figures demonstrate that the regional disparity in terms of working factories in the post-reform period has increased. On the other hand, in terms of workers employed, these seven districts contributed 77% in 1960, 76% in 1970, 78% in 1980, 76% in 1990, and 76% in 2008. It is thus evident that in terms of workers employed regional disparity remained almost the same over a period of time.

All these figures gives an idea that, in terms of working factories or workers employed, Ahmedabad, Vadodara, Surat , Rajkot, Bharuch, Mehsana, and Valsad districts has dominated the industrial scenario in the state. For, these seven districts contribute more than two-thirds of industrial activities in the state, leaving other districts with a share of less than one third. Further, three districts Dang, Amreli and Banaskantha contributed to hardly 1% each of industrial activities in the state of Gujarat. This clearly exposes the existence of regional disparity in industrialization in the state of Gujarat.

TABLE 5.1 Selected Characteristics of Registered Manufacturing in Gujarat(1960-2008)

Sr No.	Districts	Working Factories						Workers Employed						Average number of Workers per Factories					
		1960	1970	1980	1990	2000	2008	1960	1970	1980	1990	2000	2008	1960	1971	1980	1990	2000	2008
1	Ahmedabad	910	1508	3115	4668	5150	5217	167015	186296	246701	256554	198334	189878	183.53	123.54	79.20	54.96	38.51	36.40
2	Amreli	58	55	88	41	24	33	2169	2215	4490	3402	2187	2554	37.40	40.27	51.02	82.98	91.13	77.49
3	Banaskantha	20	19	32	42	51	86	510	497	1289	1816	2454	3524	25.5	26.15	40.28	43.24	48.12	40.98
4	Bharuch	68	88	223	665	1449	1384	8020	10538	14916	35902	63708	64641	117.94	119.75	66.89	53.99	43.97	49.71
5	Bhavnagar	232	330	499	461	502	429	13473	14019	16772	23277	24318	20540	58.07	42.48	33.61	50.49	48.44	47.88
6	Gandhinagar	4	8	33	146	204	260	295	1166	3211	9908	12000	14360	73.75	145.75	97.30	67.86	58.82	55.23
7	Jamnagar	137	223	516	372	458	439	10638	13375	18262	19649	20667	24481	77.65	59.98	35.39	52.82	45.12	55.77
8	Junagadh	138	203	365	301	396	341	7764	14617	22383	22471	20525	21206	56.26	72	61.32	74.65	51.83	62.19
9	Kheda	299	527	585	778	294	331	18744	28033	34016	38966	19866	17561	62.69	53.19	58.15	50.08	67.57	53.05
10	Kachchh	39	64	114	187	274	293	3751	5032	6871	12526	11928	16066	96.18	78.63	60.27	66.98	43.53	54.83
11	Mehsana	102	123	256	683	1291	1235	12793	15328	20679	36183	69051	66593	125.42	124.62	80.78	52.21	53.49	53.92
12	Panchmahal	60	83	174	399	397	362	5393	5618	8433	18346	24966	19353	89.88	67.69	48.47	45.98	62.89	53,46
13	Rajkot	295	496	1057	1100	1815	1853	11321	17966	34927	30666	44300	51604	38.38	36.22	33.04	27.87	24.41	27.85
14	Sabarkantha	53	56	85	132	232	235	4208	5052	7732	9844	9921	15797	79.40	90.21	90.96	74.58	42.76	67.22
15	Surat	696	832	1022	1165	2097	2270	23689	31543	52751	69549	119211	135403	34.04	37.91	51.52	59.70	56.85	59.65
16	Surendranagar	108	129	371	412	512	458	11881	11781	16401	16955	18332	12583	110	91.33	44.21	41.15	35.80	27.47
17	Vadodara	251	461	1302	1396	2398	2281	29410	52444	87478	79022	96381	109910	117.17	113.76	67.19	56.61	40.19	48.19
18	Valsad	178	337	835	1551	1772	2054	15371	21981	38252	62431	61154	58394	86.35	65.23	45.81	40.25	34.51	28.43
19	The Dang	1	2	2	4	3	3	17	53	120	102	67	65	17	26.5	60	25.5	22.33	21.67
20	Anand	0	0	0	0	490	568	0	0	0	0	21796	17105	0	0	0	0	44.48	30.11
21	Dohad	0	0	0	0	57	64	0	0	0	0	1979	2523	0	0	0	0	34.72	39.42
22	Narmada	0	0	0	0	18	16	0	0	0	0	2246	2214	0	0	0	0	124.78	138.38
23	Navsari	0	0	0	0	368	385	0	0	0	0	14274	14385	0	0	0	0	38.79	37.36
24	Patan	0	0	0	0	117	128	0	0	0	0	2759	2944	0	0	0	0	23.58	23
25	Porbandar	0	0	0	0	55	52	0	0	0	0	4296	3602	0	0	0	0	78.11	69.26
Total Gujarat		3649	5544	10674	14513	20424	20777	346462	437554	635684	747569	866720	887286	94.95	78.92	59.55	51.51	42.44	42.70

Source: Various Issues of Socio-Economic Review of Gujarat.

TABLE 5.2

District wise Number of Registered SSI in the State of Gujarat

Sr No	Districts	Year					
		1960	**1970**	**1980**	**1990**	**2000**	**2008**
1	Ahmedabad	660	3940	10919	29661	58332	65101
2	Amreli	6	111	392	1426	3929	4835
3	Banaskantha	6	169	543	1755	5003	6704
4	Bharuch	28	162	546	3815	10874	14076
5	Bhavnagar	119	857	2465	5152	10613	11717
6	Gandhinagar	0	04	40	843	2958	4680
7	Jamnagar	153	1098	2894	5396	10413	13075
8	Junagadh	53	370	1184	2632	6283	7871
9	Kheda	139	1245	2528	5669	11216	13300
10	Kachchh	17	152	649	1746	4780	6001
11	Mehsana	74	803	2312	5290	12299	14474
12	Panchmahal	16	277	761	2071	5483	6607
13	Rajkot	269	2014	5088	14417	27874	32148
14	Sabarkantha	8	168	800	2362	6497	8439
15	Surat	220	2349	5486	16764	36069	46589
16	Surendranagar	103	374	1480	2949	6792	8471
17	Vadodara	216	1041	3020	6648	14209	18130
18	Valsad	81	712	2298	6778	13805	15782
19	The Dang	1	3	7	10	24	53
20	Anand	-	-	-	-	848	2209
21	Dahod	-	-	-	-	342	1038
22	Narmada	-	-	-	-	300	769
23	Navsari	-	-	-	-	1152	3227
24	Patan	-	-	-	-	731	2202
25	Porbandar	-	-	-	-	262	727
	Total	2169	15849	43412	115384	251088	308225

Source: Commissioner of Industries, Gujarat

Ever if we consider district wise small scale industries (SSI) registration (Table 5.2) the picture is the same. In the year 1960, Ahmedabad district had registered highest number of SSI (660) which was 30% of the state followed by Surat and Vadodara district. In the year 1970, Ahmedabad registered again highest number of SSI (3940) which was 24.86% followed by Surat and Jamnagar districts. In the year 1980 the trend remained unchanged. In the year 1990, Ahmedabad had highest number of SSI units (29661) which accounted

for 25.70 % SSI units followed by Surat and Rajkot districts. For the 2008, again the trend remained unchanged. Thus, in terms of SSI registration also, Ahmedabad, Bharuch, Mehsana, Surat, Vadodara and Valsad districts accounted for more than two third of registered small scale industries in the study period under consideration.

Further, the picture in terms of MSMEs also shows that, Ahmedabad district has the highest number of registered MSMEs in the state, constituting 21% of the total MSMEs present in the state. Surat ranks 2nd with 15% of the total MSMEs units registered in the state followed by Rajkot with 10% of the total registered MSMEs units. These three districts of Ahmedabad, Surat and Rajkot together constitute approximately 50% of the total registered MSMEs in the state. For MSMEs, Ahmedabad, Surat, Rajkot, Vadodara and Valsad are the major clusters in the state.

Region wise, Central Gujarat accounted for 39.65% of total MSMEs followed by Saurastra 26%, South Gujarat 24.35%, North Gujarat 8% and Kuchchh just 2%. Thus, district wise and region wise distributions of MSMEs shows that they are concentrated in few districts only particularly in the region of Central Gujarat. Ahmedabad, Surat, Rajkot, Vadodara, Valsad, Bharuch and Bhavnagar district contribute approximately more than 65% of MSMEs.

In addition there has been a concentration of medium and large scale industries in Surat (17.19%), Valsad district (13.9%), followed by Bharuch, Vadodara, Ahmedabad, Kachchh districts. With these data, the study concludes that the districts like Ahmedabad, Bharuch, Gandhinagar, Kachchh, Mehsana, Surat, Vadodara and Valsad contribute 81.60% to total number of large scale and medium scale industry. At the same time, rest all districts of the state contribute only 18.40% of total large and medium scale industries.

From the above it is clear that the efforts of the government do not seem to be commensurate with the enormity of the problem. Few districts have been growing at the faster rate than other and thereby perpetuating regional disparities

The inter district variation in industrial activities will be more evident if we look at it in terms of compound growth rate and instability index. This is attempted in the next section.

IV INTER DISTRICT INDUSTRIAL VARIATION: AN ANALYSIS

The compound growth rate of all districts of Gujarat in terms of working factories, and workers employed, during the study period under consideration is presented in Table 5.3 (absolute terms). This table reveals that the fact that during study period, highest growth rate for working factories were found in Banaskantha followed by Bharuch, Sabarkantha, whereas lowest growth rate was recorded in the Kheda, Dang, Panchmahal and Amreli districts. The districts where growth rate was found higher than state average are Banaskantha, Bharuch, Sabarkantha, Mehsana, Gandhinagar, Kachchh, Rajkot, Surat and Vadodara districts, rest all districts have shown lower growth rate than the state average. As far as the workers employed were concerned, the highest growth rate was found in the districts of Banaskantha, followed by Mehsana and Sabarkantha, where as lowest growth rate are found in the districts of Kheda, followed by Dang, Surendranagar and Amreli. The districts which have shown higher growth rate than the state average are Banaskantha, Mehsana, Sabarkantha, Bharuch, Gandhinagar, Jamnagar, Kachchh, Rajkot, Surat and Vadodara, rest all districts have shown lower growth rate than the state averages.

The trends in the percentage share for working factories and workers employed that are presented in Table 5.4 also indicate a similar pattern of growth as indicated by the compound growth rate.

From the preceding analysis, one may conclude that (i) industrially advanced district like Ahmedabad is loosing its significant position in terms of growth rate and newly industrialized districts like Banaskantha and Sabarkantha are gaining the momentum in terms of industrial development. These may be due to the policy of the Gujarat government encouraging minerals and agro based industries in Banaskantha and Sabarkantha districts (ii) Some highly industrialized districts like, Surat, Vadodara Rajkot although has better growth rates than the state average but its relative position/strength is weakening. (iii) There are some backward districts like Dang, Amreli, Surendranagar and Panchmahal whose positions either in absolute term or in growth rate terms have not improved.

TABLE 5.3

District wise Compound Growth Rate (Absolute) of Working Factories And Workers Employed In Working Factories In Gujarat From 1990-91 to 2009-10

Sr No	Districts	CGR Of Working Factories	CGR Of Workers Employed In Working Factories
1	Ahmedabad	1.10	-1.81
2	Amreli	-1.19	-2.16
3	Banaskantha	5.77	5.13
4	Bharuch	4.54	3.59
5	Bhavnagar	-0.36	-1.14
6	Gandhinagar	3.80	1.98
7	Jamnagar	0.65	1.51
8	Junagadh	-0.49	-1.34
9	Kheda	-6.77	-5.79
10	Kachchh	3.08	1.94
11	Mehsana	3.41	4.38
12	Panchmahal	-1.56	-0.89
13	Rajkot	2.72	2.74
14	Sabarkantha	3.81	3.87
15	Surat	3.44	3.23
16	Surendranagar	-0.46	-3.36
17	Vadodara	2.11	1.34
18	Valsad	1.35	-0.96
19	The Dang	-2.25	-3.68
20	Total Gujarat	2.07	0.86

Source: Compiled from Various Issues of Commissioner of Industries, Gujarat

TABLE 5.4

District wise Compound Growth Rate (Percentage) of Working Factories And Workers Employed In Working Factories In Gujarat From 1990-91 to 2009-10

Sr No	Districts	CGR Of Working Factories	CGR Of Workers Employed In Working Factories
1	Ahmedabad	-0.95	-2.64
2	Amreli	-3.19	-3.00
3	Banaskantha	3.63	4.23
4	Bharuch	2.42	2.70
5	Bhavnagar	-2.38	-1.99
6	Gandhinagar	1.70	1.11
7	Jamnagar	-1.39	0.64
8	Junagadh	-2.51	-2.18
9	Kheda	-8.65	-6.60
10	Kachchh	0.99	1.07
11	Mehsana	1.31	3.49
12	Panchmahal	-3.56	-1.73
13	Rajkot	0.64	1.86
14	Sabarkantha	1.71	2.98
15	Surat	1.35	2.35
16	Surendranagar	-2.47	-4.19
17	Vadodara	0.04	0.47
18	Valsad	-0.70	-1.81
19	The Dang	-4.23	-4.50

Source: Compiled from Various Issues of Commissioner of Industries, Gujarat.

TABLE 5.5

District wise Compound Growth Rate (Absolute) Of Industrial and Total Electricity Consumption in Gujarat From 2000-01 to 2009-10

Sr No	Districts	CGR Of Industrial Electricity Consumption	CGR Of Total Electricity Consumption
1	Ahmedabad	6.35	11.18
2	Amreli	8.35	11.58
3	Banaskantha	7.13	12.81
4	Bharuch	1.12	6.22
5	Bhavnagar	6.62	8.07
6	Gandhinagar	11.31	5.14
7	Jamnagar	6.72	10.22
8	Junagadh	1.60	2.04
9	Kheda	8.04	5.57
10	Kachchh	12.50	14.11
11	Mehsana	14.77	17.77
12	Panchmahal	10.48	5.80
13	Rajkot	-5.18	-2.13
14	Sabarkantha	3.45	12.57
15	Surat	0.72	3.12
16	Surendranagar	6.79	4.48
17	Vadodara	6.01	5.80
18	Valsad	5.30	6.50
19	The Dang	4.42	9.36
20	Total Gujarat	3.89	6.40

Source: Compiled from Various Reports of (i)M.G.V.C.L., Vadodara, (ii) D.G.V.C.L, Sura (iii) U.G.V.C.L, Mehsana (iv) P.G.V.C.L, Rajkot

As stated earlier an indication of industrial development of a region can be ascertained in terms of consumption of electricity. In table 5.5 is district wise growth rate of industrial electricity consumption (absolute terms) and total electricity consumption (absolute terms) has been presented. From the table it can be noted that in terms of industrial electricity consumption a higher growth rate is recorded in Mehsana, followed by Kachchh and Gandhinagar districts whereas, a lower growth rates are recorded in the district of Rajkot, Surat and Bharuch during the study period under consideration. For the total electricity consumption, highest growth rates is recorded in Mehsana, followed by Kachchh and Banaskantha where as lowest growth rates is record in Rajkot, Junagadh and Surat districts. The picture remains the same if we consider the percentage share (table 5.6) of electricity consumption district wise in the state during the study period under consideration. Thus from these angle also it is found that Banaskantha district has a favourable trend.

TABLE 5.6
District wise Compound Growth Rate (Percentage) Of Industrial and Total Electricity Consumption in Gujarat from 2000-01 to 2009-10

Sr No	Districts	CGR Of Industrial Electricity Consumption	CGR Of Total Electricity Consumption
1	Ahmedabad	2.83	4.49
2	Amreli	4.30	4.86
3	Banaskantha	3.12	6.02
4	Bharuch	-2.66	-0.18
5	Bhavnagar	2.63	1.56
6	Gandhinagar	7.15	-1.19
7	Jamnagar	2.73	3.58
8	Junagadh	-2.21	-4.10
9	Kheda	4.00	-0.79
10	Kachchh	8.29	7.24
11	Mehsana	10.47	10.68
12	Panchmahal	6.35	-0.57
13	Rajkot	-8.73	-8.02
14	Sabarkantha	-0.43	5.80
15	Surat	-3.05	-3.08
16	Surendranagar	2.80	-1.81
17	Vadodara	2.04	-0.57
18	Valsad	1.36	0.09
19	The Dang	0.52	2.78

Source: Compiled from Various Reports o of (i)M.G.V.C.L., Vadodara, (ii) D.G.V.C.L, Surat (iii) U.G.V.C.L, Mehsana (iv) P.G.V.C.L, Rajkot

In the forgone section an analysis of the growth trends was undertaken. The question which arises here is whether this growth trend is sustainable or not. The answer will be provided by the calculation of instability index. Table 5.7 shows the district wise instability index for factories and workers in absolute terms. It is clear from this table that the districts like Ahmedabad and Rajkot are having low index value for number of factories and districts like Kheda, Amreli, and Banaskantha have registered high instability index value.

TABLE 5.7

District wise Instability Index Value (Absolute) Of Working Factories and Workers Employed In Working Factories in Gujarat From 1990-91 to 2009-10

Sr No	Districts	Index Value Of Working Factories	Index Value Of Worker Employed In Working Factories
1	Ahmedabad	5.48	7.05
2	Amreli	24.33	24.58
3	Banaskantha	14.84	16.69
4	Bharuch	8.56	5.90
5	Bhavnagar	13.09	9.98
6	Gandhinagar	12.23	7.91
7	Jamnagar	6.54	16.76
8	Junagadh	15.21	10.32
9	Kheda	29.59	22.11
10	Kachchh	6.79	10.10
11	Mehsana	12.42	20.88
12	Panchmahal	13.33	14.38
13	Rajkot	5.70	7.75
14	Sabarkantha	13.86	28.07
15	Surat	13.89	10.22
16	Surendranagar	8.99	13.28
17	Vadodara	8.15	11.08
18	Valsad	14.07	11.61
19	The Dang	6.81	36.29
Total Gujarat		4.66	4.02

Source: Compiled from Various Issues of Commissioner of Industries, Gujarat.

TABLE 5.8
District wise Instability Index Value (Percentage) Of Working Factories and Workers Employed In Working Factories in Gujarat From 1990-91 to 2009-10

Sr No	Districts	Index Value Of Working Factories	Index Value Of Worker Employed In Working Factories
1	Ahmedabad	3.63	4.99
2	Amreli	22.22	24.7
3	Banaskantha	15.13	16.69
4	Bharuch	8.43	6.20
5	Bhavnagar	9.86	8.70
6	Gandhinagar	12.25	8.61
7	Jamnagar	6.68	17.30
8	Junagadh	13.95	9.81
9	Kheda	29.47	21.52
10	Kachchh	4.71	7.45
11	Mehsana	12.45	20.33
12	Panchmahal	13.41	13.24
13	Rajkot	5.30	6.19
14	Sabarkantha	10.98	29.45
15	Surat	11.44	9.35
16	Surendranagar	5.45	10.62
17	Vadodara	6.42	9.84
18	Valsad	11.46	10.26
19	The Dang	8.49	36.51

Source: Compiled from Various Issues of Commissioner of Industries, Gujarat.

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TABLE 5.9

District wise Instability Index Value (Absolute) Of Industrial and Total Electricity Consumption in Gujarat From 2000-01 to 2009-10

Sr No	Districts	Index Value Of Industrial Electricity Consumption	Index Value Of Total Electricity Consumption
1	Ahmedabad	9.20	6.11
2	Amreli	6.03	8.56
3	Banaskantha	4.64	3.25
4	Bharuch	9.14	6.79
5	Bhavnagar	8.28	6.28
6	Gandhinagar	12.56	3.28
7	Jamnagar	4.13	3.79
8	Junagadh	1.86	2.49
9	Kheda	7.11	5.35
10	Kachchh	12.45	11.82
11	Mehsana	18.39	13.60
12	Panchmahal	6.13	3.86
13	Rajkot	25.24	26.07
14	Sabarkantha	5.03	6.42
15	Surat	14.37	3.52
16	Surendranagar	7.71	13.07
17	Vadodara	5.26	3.30
18	Valsad	10.90	9.62
19	The Dang	12.21	2.02
Total Gujarat		5.39	1.48

Source: Compiled from Various Reports of (i) M.G.V.C.L., Vadodara, (ii) D.G.V.C.L, Surat (iii) U.G.V.C.L, Mehsana (iv) P.G.V.C.L, Rajkot

TABLE 5.10

District wise Instability Index Value (Percentage) Of Industrial and Total Electricity Consumption in Gujarat From 2000-01 to 2009-10

Sr No	Districts	Index Value Of Industrial Electricity Consumption	Index Value Of Total Electricity Consumption
1	Ahmedabad	10.33	5.51
2	Amreli	6.22	8.00
3	Banaskantha	5.46	3.06
4	Bharuch	12.23	5.58
5	Bhavnagar	11.46	5.67
6	Gandhinagar	13.15	3.70
7	Jamnagar	7.02	3.19
8	Junagadh	5.10	2.59
9	Kheda	7.29	6.15
10	Kachchh	14.04	11.04
11	Mehsana	19.12	14.74
12	Panchmahal	8.52	3.42
13	Rajkot	26.97	25.74
14	Sabarkantha	8.32	5.42
15	Surat	8.95	2.88
16	Surendranagar	8.94	13.68
17	Vadodara	5.85	3.76
18	Valsad	12.56	10.41
19	The Dang	15.85	1.44

Source: Compiled from Various Reports of (i)M.G.V.C.L., Vadodara, (ii) D.G.V.C.L, Surat (iii) U.G.V.C.L, Mehsana (iv) P.G.V.C.L, Rajkot

In case of workers, the districts like Bharuch, Ahmedabad and Rajkot have shown low index value, whereas Dang, Sabarkantha, Amreli have shown high index value.

As far as consumption of electricity, total as well as industrial are concerned, table 5.9 illustrates that in case of industrial consumption, low index value was recorded in case of Junagadh followed by Jamnagar district and high index value is accounted in Rajkot followed by Mehsana district. So far as total consumption is concerned, low index value was found in case of Dang district followed by Junagadh district, and high is recorded in Rajkot district followed by Mehsana district. The picture is more or less remains the same if we consider percentage share (table 5.10) of district wise consumption of electricity. Thus, in terms of instability index, the districts such as Banaskantha and Sabarkantha have the high value although they have high growth trends. In other words, it seems that the high growth trends in these districts are temporary.

V CONCLUSION:

This chapter highlights the regional distribution of industrial activities in all the districts of the state during the study period. The pattern of industrial development has been evaluated on the basis of growth and instability indexes.

Analyzing the **Growth trends**, followings emerges out:

1. In terms of working factories, high growth rates are recorded in Banaskantha, Bharuch, Sabarkantha, Mehsana and Kachchh districts.
2. In terms of workers, the districts which are better off in growth rates are Banaskantha, Mehsana Sabarkantha, Bharuch and Surat.
3. Negative growth rates in both the parameters are recorded in the districts of Amreli, Bhavnagar, Junagadh, Kheda, Panchmahal, Surendranagar and Dang.

Analyzing **Instability index** it can be inferred that Kheda and Amreli districts in terms of factories have shown high index value, where as Ahmedabad and Rajkot have shown low index value. Amongst the districts which has higher growth rate, only Kachchh has low instability index value where as all other district has high instability index value. In terms of workers, Bharuch Ahmedabad and Rajkot districts have recorded low instability index value where as Dang and Sabarkantha have shown has high instability index value. Amongst the districts which has high growth rate for the workers,

barring Bharuch district, all other districts have high index value. Thus, it can be inferred from the above that high growth trends are not sustainable.

The district wise consumption pattern of electricity reveals that **growth rate**:

1. In case of Industrial consumption of electricity, Mehsana, Kachchh and Gandhinagar have registered high growth rate, whereas in case of total consumption of electricity too, Mehsana and Kachchh are at apex for growth rate followed by Banaskantha.
2. For the Industrial consumption of electricity, the lower growth rate is registered in the districts like Rajkot, Surat and Bharuch whereas in case of total consumption of electricity also Rajkot is at bottom of the growth rate followed by Junagadh and Surat districts.

High **instability index**, in terms of total consumption of electricity as well as industrial consumption of electricity is found in the districts of Rajkot and Mehsana, while low instability index value is found in the districts of Dang, Junagadh and Jamnagar.

A comprehensive analysis of industrial development of different districts in the state conveys out clearly that there is an uneven distribution of industrial growth in the state. Consequently, the overall analysis of industrial growth in the state from various angles and with different statistical methods clearly indicates uneven spread pattern of industries in the state despite the initiation of reforms.

The regional disparities of industrial activity in the state of Gujarat are not of recent origin. The roots of inter district disparities are found from the inception of the state-hood of Gujarat.

The in-depth analysis of district wise distribution of the industrial activity, judged from three criteria namely Factories, Workers and Electricity consumption, reveals the fact that there exists inter-district disparities during the study period. Excessive concentrations of industrial activities are found in Ahmedabad, Vadodara, Bharuch, Surat, Rajkot, Valsad and Mehsana districts.

Whereas districts like Dang, Amreli, Banaskantha have very low industrial activities. However it is not necessary that industrially advanced district like Vadodara is developed entirely and industrially backward district like Amreli is backward in totality.

There may be pockets of industrial backwardness in the Vadodara district; similarly some pockets may be highly advanced in Amreli district. The picture will be clear if we examine the taluka wise industrial development within a particular district. This issue has been taken up in the next chapters, where two districts Vadodara and Amreli have been considered to substantiate the fact that the industrial disparity exists not only at the district levels but also penetrates at the taluka level.

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CHAPTER VI

INDUSTRIAL LOCATION AND TERRITORIAL DEVELOPMENT IN VADODARA DISTRICT

I INTRODUCTION:

It has been asserted that industrialization plays a crucial role in the economic development of a region. In fact, economic development is generally not possible unless the region has wide and strong industrial base.[40] But the problem is the tendencies of industries to locate in some regions and neglect other regions. These tendencies lead to the problem of regional disparity in development, making some regions developed, while other remains either backward or depressed. These backward regions have remained at the rear in the competitive struggle of modern industries and are characterized by low levels of employment and income as compared to other regions of the country.[41] The regional disparity in the development of industries arises due to natural factors as well as historical process of development. Some regions are endowed with abundant natural resources and once the process of development starts, they attract many industries as compared to other regions. Thus, disparity in endowment of natural resources or geographical concentration of natural resources is one of the causes for regional disparity in industrial development. But at the same time in some cases government policies or lack of it also lead to concentration of industries in some regions.

In the previous chapter, an in-depth analysis of inter-district industrial disparities in the state of Gujarat was done. It also provided an overview that there exists high level of industrial concentration in Ahmedabad, Vadodara, Bharuch, Surat, Rajkot, Valsad and Mehsana districts. At the same time in districts like Dang, Amreli and Banaskantha, the growth of industries are comparatively lower. As a sequel, in this chapter, an analysis of industrialization in the Vadodara district has been attempted. The District of Vadodara

[40] The disparities in development among regions are intensified by the differences in the industrial growth. It is for these reasons that development policies to reduce disparity primarily take the form of steps to guide the location of industry through positive and negative incentives.
[41] See Sadhak (1986)

has been chosen for the study for two main reasons; (i) This district is comparatively more industrially developed than other districts. It will, therefore provide an insight as to how a region develops industrially (ii) So far very few studies have been undertaken to examine the issue of industrial location and development in this district.

In India district wise analysis of industrial development has been undertaken by several authors. In one such study Sadhak (1986), examined the issue of industrial growth taluka wise in the district of Aurangabad. He found that most of the industrial development took place mainly in Aurangabad and Jalana taluka; these are the two main industrial centres in the district. He also found that financial incentives have not induced the dispersal of industries to other talukas. It is the development of infrastructure in a particular region that made it more attractive for location of industries in that region. Another study by Gurubasappa (2008), also examined taluka wise territorial development and industrialization in Bidar and Dharwad districts of Karnataka. He found that industrial unit; especially SSI units are not evenly distributed in these districts. In fact 50% of SSI units are concentrated in Bidar taluka of the Bidar district and Hubli taluka of the Dharwad district. He found that incentives have encouraged the growth of SSI units in both the districts but this growth has been uneven. Few studies have also examined the issue of location quotient.[42] For instance, Kumnoor (2007) calculated the location quotient industrial group wise in the Hyderabad- Karnataka region. He found that out of nineteen groups of industry, only six groups exists in the region and out of which in only three groups i.e. manufacture of Non Metallic mineral products, Food products and Repair & service, the location quotient exceeds one.

It is evident from the above that, analysis of industrial development in terms of location quotient has not been attempted in Gujarat state. It is this lacuna that the present study attempts to fill.

The existing data indicate that industrial development in Vadodara district has not been evenly distributed in all talukas. Historically, industries were mainly concentrated in the Vadodara taluka. This has created serious disparities in regional development. The industrial dispersal policy of the Central as well as State government,

[42] Location Quotient measures the propensity of each industry for the location. See Kaya (2006)

had led to the dispersal of industries into few more pockets of the district.[43] Despite this, the uneven growth of industries between talukas created regional problems of distribution of employment and income. The developed talukas continued to prosper by generating employment and income, and the backward talukas remained almost stagnant. In fact in some talukas there was slowing down in the pace of industrial development. In the light of above, in this chapter the following aspects have been examined.

1. Location Quotient of industries for different group of industries in all talukas of Vadodara has been calculated. The location quotient measures the degree of concentration of a particular industry at a particular place. Thus, it indicates the propensity of each industry for location.
2. The taluka wise growth and instability index of registered factories, employment and investment-both in absolute as well as in percentage share are measured.

The rest of the chapter is divided into number of sections. In section II socio-economic background as well as the present industrial scenario of the district has been presented; III discusses the data source and methodology; in section IV the results are presented. In section V, the inter taluka industrial variation has been examined. Finally in the last section conclusions are drawn.

II THE SOCIO-ECONOMIC BACKGROUND AND INDUSTRIAL SCENARIO OF VADODARA DISTRICT:

The Vadodara district is located in central Gujarat. The district has total area of 7555.55 sq kms with 12 talukas, 1548 villages and 16 urban areas. As per the 2001 census, the total population of the district was 3641802 people with a population density of 482 persons per sq km. This is much higher than the state average of 258 persons per sq km. The rate of urbanization in the district is 45%. This is again much higher than the state average of 37.36%.

As per 2001 census, the total workforce was 41.71% of the population in the district. Out of these, 53% found their livelihood in agricultural sector either as a farmer or as an agricultural labour. Thus, the district is still agriculturally dominated. The

[43] The district of Vadodara consists of twelve talukas

workforce in industrial sector is just 1.5% of the total workforce and the rest 45.5% workforce depends upon other activities.

Agriculture:

The district even today depends heavily on agriculture, with total geographical area of the district 57,603 hectors. The main crops of the districts are Paddy, Bajra, Jowar, Maize, Pulses, Castor, Cotton, Wheat, Sugarcane, and Ground nuts. Further district has a good agricultural productivity in Cotton, Maize, Pulses and Paddy.

Minerals:

The district is endowed with many rich mineral resources which are useful for industrial development The minerals which are found in the districts are Dolomite, Black trap, Quartz, Marble, Clay, Fluorspar, Manganese, Vermiculite etc. Amongst all minerals, Fluorspar and Dolomite are found in abundance.

Infrastructure Facilities available in the district:

Adequate infrastructural facilities are the pre-requisites for the industrial development of the district. Infrastructure covers wide spectrum of economic activities of creating facilities such as transport and communication, power, education institutions, banking, developed industrial plots, financial institutions, and organized and unorganized markets etc. The Vadodara district is fundamentally infrastructure rich district. A brief review of existing infrastructural facilities in Vadodara district is undertaken in the foregoing section. .

(i)**Transport and communication**:

The district is well connected with road and railway network. The total length of road network at present in the district is 5316 kms, out of which 4878 kms (91.77%) is pucca road, and 438 kms (8.23%) is kucca roads. All villages of the district are accessible throughout the year. The district is also well connected with the railway facilities. The district is located on main Delhi- Mumbai railway lines. It also has an airport connected to all the metropolitan cities and capital of all states of India.

(ii) **Banking:** The Bank of Baroda is the leading bank of the district. At present there are 348 branches of nationalized banks located within the district. Other banks have also branches located in Vadodara district. The ratio of banks to population is 1: 8509, which is considered to be reasonably good.

(iii) **Education:** The district is known as the "Education Hub" of the state. It has 2406 Primary schools, 284 Secondary and 169 higher secondary schools, with 43 higher educational institutes in the year 2010.

The district also has the only English medium university The Maharaja Sayajirao University of Baroda. There are thirty-three ITIs in Vadodara district offering facilities to train the workforce at shop floor level, which is a major requirement for all industries. Apart from this, three engineering colleges and nine polytechnic offer courses in all branches.

(iv) **Power**: Vadodara has a well developed network of 48 sub-stations. Gujarat electricity Board supplies electricity to 1546 villages and 14 cities and towns, 66 KV distribution systems spread over the district.

The district of Vadodara is one of the most industrially developed districts, not only of the state but also of the country. The industrialization of the district is not a recent phenomenon but, it has taken place since, the regime of his Highness Shri Maharaja Sayajirao Gaekwad III. The Maharaja had appointed an Industrial Commission in 1894 to decide what was to be done to bring industries to various parts of Vadodara. The department of Commerce and Industries was separated from the Revenue Department in 1908 to give incentives to the setting up of cottage industries. In the same year, Bank of Baroda was incorporated with the initial capital of Rs. 20 lakhs to meet the financial requirement for the industries. Baroda District Central Co-operation Bank limited was established in 1912 to cater financial help to credit societies.[44]. The Kalabhavan Technical Institute established in 1890, started providing industrial training to the people and generating a class of indigenously trained industrial workers. The Maharaja had also constituted a special cell to co-ordinate and speed up the growth and development of industrial units headed by an economic advisor. The Alembic Chemical works was established in 1907, Sayaji Iron Works was set up in 1914, followed by Dinesh Mill Limited in 1935. All this gave impetus to industrialization in the district.

In the post independence years, Vadodara experienced both qualitative and quantitative changes in industrial structure. Between 1957 and 1961, many new industries

[44] See Dash and Kumar(2010)

were started and the industrial base of Vadodara got diversified. As per, 1961 census, there were 216 registered factories in Vadodara.

With the bifurcation of Bombay State into Maharastra and Gujarat in 1960, Vadodara naturally received a special attention from the government as a city with an abundance potentiality of growth. The first decade (1960-70) of a new state was worked with the commencement of three public sector undertakings namely Gujarat State Fertilizer Corporation (GSFC), Indian Oil Corporation (IOC) Refinery and Indian Petrochemical Corporation Limited (IPCL) - the largest petrochemical complex in Asia. The collective investment of Rs 750 crore of these three public sector undertakings broadened the scope of multidimensional industrial growth of the city. Besides, several large scale engineering and other industries such as Asia Brown Boveri (ABB), Sussan Textiles, Tensile Steel, Hindustan Traders, Oil and Natural Gas Corporation (ONGC), Gaskets and Radiation Precision Bearings India Limited etc gradually started getting established in and around Vadodara city. The effects of these developments were manifested in the changing demographic pattern, work structure, growth in small and medium scale industries in the private sector and upgrading capabilities of the local government to cope up with the increased responsibilities.[45] Further, the industrial scenario of Vadodara got diversified in the decade of 1980's. During this period, various big, medium and small industrial units were set up. Notable amongst them are Heavy Water Project, Gujarat Electronics and Communications Limited, Windsor Food Product Limited, Novino Batteries, and many more. The older industries too continued to expand by adding various allied units. Along with the rapid growth of large and medium scale industries, small industries also have a sizable growth since 1980's. In order to have planned growth, a few industrial estates were also established. Apart from this, the Gujarat Industrial Development Corporation (GIDC) has also developed the industrial sector at Nandesari and Makarpura. With the help of the federation of Gujarat Mills and Industries and the Baroda Industrial Development Corporation Industrial Estate at Gorwa was also set up. There were also a few private and co-operative industrial estates in

[45] Government of Gujarat-1995: "Industrial location in Gujarat -1986-87, Vol I & II, Directorate of Economics and Statistics, Gandhinagar

Vadodara. Table 6.1 provides the latest information about industrial estates within the district.

TABLE 6.1

Industrial Estates (GIDC) in Vadodara District-2009-10

Sr No.	Name of Industrial Estate	Taluka	Land (in Hectors)	Number of Sheds
1	Makarpura	Vadodara	355.07	685
2	Nandesari	Vadodara	271.67	157
3	P.C.C.	Vadodara	666.15	-
4	Palani(Autonagar)	Vadodara	42.53	24
5	Por (Ramangamdi)	Vadodara	134.44	148
6	Dabhoi	Dabhoi	10.91	24
7	Sankheda	Sankheda	0.81	12
8	Vaghodia	Vaghodia	369.04	185
9	Savli	Savli	544.29	-
10	Jabugam	Jetpur Pavi	0.95	6
11	Makarpura (Diamond)	Vadodara	-	-
Total			2395.86	1241

*Source**: Regional Manager, GIDC, Vadodara*.

The above table depicts that out of total industrial estates of GIDC, 55% of estates are located in Vadodara taluka, one each in Vaghodia, Dabhoi, Sankheda, Savli and Jetpur Pavi talukas respectively. Nevertheless, the talukas like Chhota Udepur, Kavant, Padra, Karjan, Shinor, and Nasvadi talukas does not have even a single industrial estate of GIDC. This factor is one of the reasons for the industrial backwardness of these talukas.

In addition to G.I.D.C. there are ten co-operative industrial estates and fifteen private industrial estates present in the Vadodara district. Out of the ten co-operative industrial estates, eight are located in the Vadodara taluka and remaining one each in Savli and Vaghodia taluka. Similarly out of fifteen private industrial estates, fourteen are located in Vadodara taluka and only one in the Savli taluka.

As per 2000 census of Small Scale Industries, 13 industrial clusters are located in the district, of which only one cluster is present in Chhota Udepur taluka and rest all are

in Vadodara taluka. Table 6.2 provides other information about these clusters In these clusters, altogether 1194 units were functioning with a total investment of Rs. 10051.10 lakhs. It provided employment to 6981 persons. Apart from these thirteen clusters, there are three more clusters; two Chemical clusters each at Nandesari (Vadodara taluka) and Padra and another cluster of Steel Furniture at Dabhoi.

TABLE 6.2

Number of SSI Industrial Clusters within Vadodara District 2000

Sr No	Name of the Products	Name of the taluka	No. of Units	Investment (Rs in lakhs)	Employment
1	Wood product and Furniture	Vadodara	110	192.88	380
2	Publication of Books	Vadodara	142	1681.86	776
3	Printing and Book Binding	Vadodara	45	256.35	244
4	Spectacle Frame	Vadodara	46	215.73	324
5	Plastic Molded	Vadodara	127	2470.91	312
6	Dolomite Power/ (stone and Marble cutting)	Vadodara / Chhota Udepur	41/79	319.50/ 1778.67	180/799
7	Casting Forging	Vadodara	76	1032.13	776
8	Fabricated Item	Vadodara	279	2350.15	1773
9	Steel/Aluminum Furniture	Vadodara	40	249.31	173
10	Chemical M/C	Vadodara	64	765.57	449
11	Electronics Instruments	Vadodara	33	278.08	329
12	Diamond Processing	Vadodara	38	286.70	171
13	Data Processing	Vadodara	74	523.41	295
Total			1194	10051.10	6981

*Source**: SSI Census 2000***

It is evident from the above table that the cluster producing fabricated item has the largest number of units, providing employment to more then 25% of the labour force.

The industrial scenario can also be looked at in terms of registered industrial units, investment and employment both in small sector as well as large scale sector. In Table 6.3, the industrial progress in terms of the above aspects has been presented. Out of

twelve talukas in Vadodara district, large scale units are located in six talukas only. The bulk of industrial units were located in Vadodara taluka. In fact more than 50% of the large scale units are located in Vadodara taluka. The picture is similar if we look at the investment in these units and also in terms of employment. Savli taluka accounted for about 20% of large scale units. Similarly it also accounted for second highest investment

If we look at SSI registered units in the district, it is found that most of units are concentrated in Vadodara taluka. In the year 2009-10, 75% of SSI units are concentrated in Vadodara taluka, 6% in Savli taluka and 4% in Vaghodia.

TABLE 6.3

Industrial Progress in Vadodara District: 2009-10

Sl no	Talukas	Number of units		Investment		Employment	
		Large	SSI	Large (in Crores)	SSI (in Lakhs)	Large	SSI
1	Vadodara	260	16410	7031.34	37681.48	44875	118087
2	Padra	85	613	1378.03	3354.88	13368	5505
3	Savli	107	1380	1381.04	8872.53	11788	9932
4	Vaghodia	44	905	264.19	7092.42	6167	9023
5	Sinor	02	106	41.00	78.44	188	430
6	Karjan	16	423	1405.26	1486.79	4993	3858
7	Chhota Udepur	-	383	-	591.92	-	1978
8	Jetpur Pavi	-	191	-	117.16	-	597
9	Sankheda	-	554	-	957.10	-	2685
10	Dabhoi	-	546	-	1328.74	-	3078
11	Nasvadi	-	151	-	102.07	-	465
12	Kavant	-	98	-	46.52	-	205
Total		514	2170	11500.86	61710.05	81379	155843

Source: ***DIC, Vadodara***

From the above discussions, it is quite clear that all industrial activities are concentrated mainly in Vadodara taluka. This taluka was industrially developed even before the formation of the state of Gujarat. However, if we compare the industrial scenario in Vadodara district in the year 2009-10 with the scenario that existed in 1990-91, then it emerges that a slight industrial dispersal has taken place away from Vadodara taluka. For instance in 1990-91, 77% of registered units was located in Vadodara taluka,

which has slightly declined to about 74% in 2009-10. Similarly Savli taluka accounted for 4% of industrial units in 1990-91 but in 2009-10 it increased to almost 7%.[46] Thus it can be stated that government of Gujarat's industrial dispersal policy has succeeded to some extent in achieving the objective of the dispersal of industrial units to various regions of the state.

In Table 6.4 industrial group wise and taluka wise employment generated in the year 2009-10 has been presented. The data pertaining to fourteen groups are available. In terms of employment generated also it is evident that Vadodara taluka has contributed the largest in generation of employment in twelve of industrial group. In fact in Textile, Chemical and Chemical product, Metal products and Electrical Machinery, Vadodara taluka has generated more than 75% of the total employment in Vadodara district.

Here it needs to be mentioned from international experience of industrially advanced countries that, as a country progresses, there is a decline in labour intensity along with an increase in capital intensity. This reflects a technological change in favour of capital. Labour intensity and Capital intensity are generally calculated in terms of unit of output. In the present study however, due to absence of taluka wise data regarding output, the factor intensity is calculated in terms of registered units. Similar methodology has been adopted elsewhere also.[47] The taluka wise factor intensity (capital & labour) has been presented in Table 6.5. It is evident from this table that in majority of talukas, the labour as well as capital intensity has increased. This clearly indicates that in Vadodara district there is not only a technological improvement but also there has been increased demand for labour. This may be due to the reason that industries have become more capital intensive, at the same time it has led to rising demand for skilled labour.

From the forgone analysis, it is clear that most of the industrial activities have taken place in Vadodara taluka, more specifically in and around Vadodara city. This suggests that the location of industries in Vadodara district is not optimum, in terms of uniformity. This requires a study of industrial localization by using location quotient.[48] This has been attempted in the foregoing section on the basis of the methodology described in section II.

[46] If we look at the pattern of investment and employment scenario, the picture remains the same.
[47] See Ernst and Janine (2009)
[48] See Florence (1948)

TABLE 6.4
Taluka wise And Industry Group wise Employment Scenario - 2009-10

Sr No	Industrial Groups	Talukas												
		Karjan	Chhota Udepur	Jetpur-Pavi	Dabhoi	Padra	Vadodara	Vaghodia	Savli	Sankheda	Shinor	Nasvadi	Kavant	Total
1	Food Products and Beverages	57	22	10	98	118	3772	345	382	53	04	08	04	4873
2	Tobacco Products	-	02	04	03	04	02	-	-	-	02	02	02	21
3	Textiles	59	04	06	184	191	3825	336	377	-	-	-	-	4982
4	Wood and Wood Products Furniture Fixture	-	04	02	-	02	08	-	-	47	02	10	02	77
5	Paper and Paper Products	02	-	-	04	04	15	06	-	04	-	-	-	35
6	Leather and Leather Products	08	05	04	04	11	42	10	18	18	02	04	02	128
7	Rubber, Plastic and Petroleum	22	-	-	13	68	884	75	20	-	-	-	-	1082
8	Chemical and Chemical Products	19	-	-	15	88	1241	72	123	-	-	-	-	1558
9	Cement and Clay Work	-	-	-	-	04	08	03	02	08	04	-	02	31
10	Basic Metal Industries	25	-	-	24	54	914	51	81	-	-	-	-	1149
11	Metal Products	10	-	-	21	39	570	26	47	-	-	-	-	713
12	Electrical Machinery	16	-	-	18	47	849	58	79	11	-	-	-	1078
13	Transport Equipment	14	-	-	60	62	653	41	79	18	-	-	-	927
14	Repair Service and Others	30	05	05	93	222	2891	97	364	45	04	02	04	3762
Total		262	42	31	537	914	15674	1120	1572	204	18	26	16	20416

Source: D.I.C. Vadodara.

TABLE- 6.5

Taluka wise Labour Intensity and Capital Intensity in Registered SSI, VADODARA district

Sr No	Talukas	1990-91		1995-96		2000-01		2005-06		2009-10	
		L.I	C.I	L.I	C.I	L.I	C.I	L.I	C.I	L.I	C.I
1	Karjan	11.5	3.73	5.5	4.41	3.43	4.94	2.5	4.90	12.15	3.92
2	Chhota Udepur	16.00	1.15	4.67	0.93	3.00	1.56	00	00	4.67	2.69
3	Jetpur Pavi	12.00	1.05	3.67	0.90	7.00	2.06	1.75	0.29	4.42	2.40
4	Dabhoi	8.55	4.86	4.48	4.91	8.53	4.03	1.24	2.20	22.38	4.57
5	Padra	7.57	4.44	4.70	5.49	2.81	4.37	2.07	4.81	21.76	4.75
6	Vadodara	5.77	4.55	4.64	5.96	4.65	4.88	3.02	3.84	17.21	5.73
7	Vaghodia	6.00	4.67	4.76	5.87	5.11	4.68	6.11	4.55	20.36	5.03
8	Savli	5.57	4.25	4.51	5.48	5.02	4.84	7.27	4.63	18.93	5.08
9	Sankheda	6.22	4.47	4.56	4.28	4.45	4.04	1.71	2.61	20.04	4.89
10	Shinor	8.88	2.93	16.2	2.84	11.75	3.82	18.00	3.24	9.00	2.29
11	Nasvadi	5.5	3.10	7.67	2.05	12.33	1.75	1.69	0.71	8.67	1.73
12	Kavant	-	-	-	-	-	-	1.50	0.78	8.00	2.21

Note: **L.I. = Labour Intensity** **C.I. = Capital Intensity**
Source: Compiled from Various Issues of District Industries Centre, Vadodara

III DATA SOURCES AND METHODOLOGY:

The data source is purely secondary in nature. The data were collected from various issues of "Industrial Outline of Vadodara", published by District Industries Centre of Vadodara, various issues of "Socio Economic Review of Vadodara District", by District Panchayat Vadodara.[49]

The location quotient technique is the most commonly utilized economic base analysis method. It is also the main technique for the determination of the degree of localization of a given sector.[50] In this technique the local economy is compared to reference economy in the process attempting to identify specialization in the local economy. In more exact terms, location quotient is a ratio that compares a region to a larger reference region, according to some characteristic or asset for quantifying how concentrated an industry is in a region as compared to larger geographical area.[51]

[49] A taluka within the district is not necessarily a uniform economic unit. But it being an administrative unit within the district, the necessary secondary data are mainly available taluka wise. Thus, inter taluka analysis can be considered to be a proxy for regional analysis.
[50] See Kaya (2006)
[51] See Isserman (1977)

The basic uses of industrial location quotient include these:

i. To determine which industries make the regional economy unique.
ii. To identify the "export orientation" of an industry and identify the most export oriented industries in the region.
iii. To identify emerging export industries beginning to bring money into the region.
iv. To identify endangered export industries that could erode the region's economic base.

The industrial location quotient can be based on employment, income or value added data.[52]

Location Quotient Calculation:

In terms of employment, the industrial location quotient can be calculated by using the following formula.

Location Quotient =	Regional(Taluka) Employment in Industry **i** in Year **T**(**eit**)	÷	National(District) Employment in Industry **i** in Year **T**(**Eid**)
	Total Regional(Taluka) Employment in Year **T** (**et**)		Total National(District)Employment in Year **T** (**Ed**)

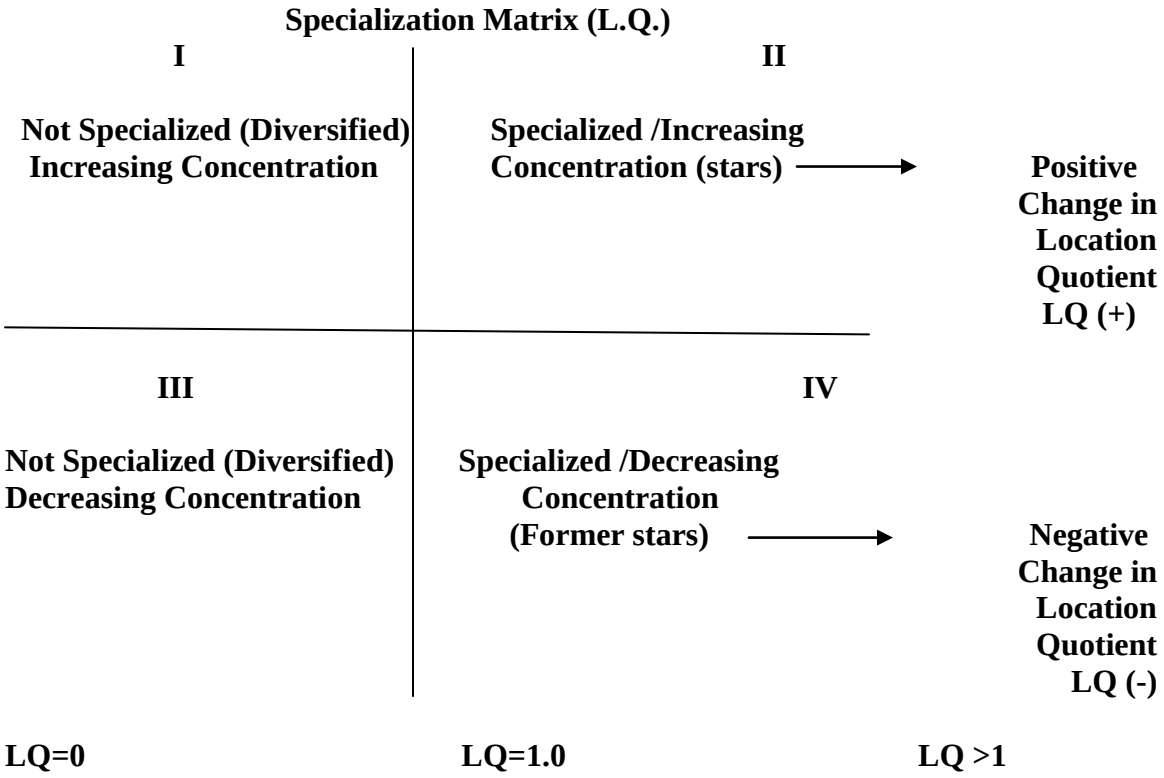
In this formula we compare the regional economy that is the taluka to the national economy that is the district. If the observed value of location quotient is equal to zero, it means that given industry is not located in the taluka/district at all. If location quotient is less than one, it means given industry in the taluka contributes less than proportionate to the total industrial employment in the taluka as compared to the district average. Therefore, that industry is not even meeting local demand for a given good or service. On the contrary, if the location quotient is greater then one, then the industry within the taluka and local employment is exactly sufficient to meet local demand for given good or service. In this chapter the location quotient has been calculated for the determination of the high point industries within a taluka. High point industries are those which accounts

[52] In the present study location quotient is calculated on the basis of employment, since taluka wise data on other variables are not available.

for at least 1.25 location quotient values and employ more than 0.2% of the region's workforce.[53]

Further, the changes in location quotient values between two periods have been computed. The comparison would give an idea of whether the concentration of each industry is increasing or decreasing and what is its relative significance in that region as compared to other regions. Following from Boston Consulting Group, the Specialization Matrix to show the changes in the LQ of each taluka's industrial group between the periods 1990-91 and 2009-10 have been calculated.

The matrix is revealed in the below figure, where the four quadrants represents varying combination, of specialization and concentration changes as represented by the changes in location quotient values.



Source: Boston Consulting Group (2004)

As per the specialization matrix, industrial groups can be categorized into four different categories. This is summarized in the below table.

[53] See D.T.I. (2001)

Quadrants	Matrix Category	Values of LQ in 2009-10	Changes in LQ as compared to 1990-91
1	Future Star	LQ >0<1	Increasing
2	Star	LQ >1	Increasing
3	Declining star	LQ <1>0	Decreasing
4	Former Star	LQ >1	Decreasing

As the taluka wise industry group data for Vadodara district is available for the year 1990-91, 2000-01 and 2009-10, the location quotient has been calculated accordingly. The results are presented in the next section.

IV RESULTS:

The results of an analysis of location quotient in all the twelve talukas of Vadodara district is presented in this section. If we consider Table 6.6, than it is evident that in Karjan taluka, in the year 1990-91, five industrial groups viz Food & Beverages, Textiles, Rubber-Plastic & Petroleum, Chemical & Chemical Products and Metal Products had location quotient of greater than unity. In other words, these groups of industries had larger share of employment in Karjan taluka than warranted by its share in the distribution of employment in the district. Of the remaining industrial groups, six industries had location quotient equal to zero, which means these industrial groups had no contribution in employment generation. Here, it is to be noted that the variation in the value of location quotient of a given taluka in respect to particular industry over a period of time will reflect the changes in the relative importance of the taluka in respect of that industry. In this respect the location quotient of the five groups, mentioned above had declined in the year 2009-10. In other words, these groups of industries have loosened the grip on employment generation. In contrast, industrial groups such as Paper & Paper Products, Leather & Leather Products, Basic Metal, Electrical Machinery which did not figure in employment generation earlier had a location quotient of greater than one in the year one in the year 2009-10. Based on the methodology described above, in this taluka, the industrial groups which can be categorized as stars are Paper & Paper products, Leather & Leather products, Basic Metal, Electrical Machinery and

TABLE 6.6
Location Quotient and Specialization Matrix in KARJAN Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	17	57	24.64	21.76	235.29	-11.69	1.99	0.91	-54.27	3
2	Tobacco Products	-	-	-	-	-	-	0	0	0	-
3	Textiles	19	59	27.54	22.52	210.53	-18.23	1.64	0.92	-43.90	3
4	Wood and Wood Products Furniture Fixture	-	-	-	-	-	-	0	0	0	-
5	Paper and Paper Products	-	02	-	0.76	-	-	0	4.45	0	2
6	Leather and Leather Products	-	08	-	3.05	-	-	0	4.87	0	2
7	Rubber, Plastic and Petroleum	02	22	2.90	8.40	1000.00	189.66	6.60	1.58	-76.06	4
8	Chemical and Chemical Products	14	19	20.21	7.25	35.71	-64.13	7.61	0.95	-87.52	3
9	Cement and Clay Work	-	-	-	-	-	-	0	0	0	-
10	Basic Metal Industries	2	25	2.90	9.54	1150.00	228.97	0.73	1.70	132.88	2
11	Metal Products	10	10	14.49	3.82	0	-73.64	1.45	1.09	-24.83	4
12	Electrical Machinery	-	16	-	6.11	-	-	0	1.15	0	2
13	Transport Equipment	-	14	-	5.34	-	-	0	1.18	0	2
14	Repair Service and Others	5	30	7.25	11.45	500.00	57.93	0.19	0.62	226.32	1
15	Total	69	262	100	100	269.71	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Vadodara

Transport Equipments, whereas Rubber-Plastic & Petroleum and Metal products can be categorized as former stars. And Food & Beverages, Textiles and Chemical & Chemical products can be regarded as declining stars. It is only Repair, Service & Others that can be considered as future stars. However, this group belongs to service sector rather than industrial sector.

If we consider the location quotient for the Chhota Udepur taluka (Table 6.7) than, only three groups of industries that is Food & Beverages, Tobacco Products and Cement & Clay Work had location quotient of greater than one . In fact, Cement & Clay Work in Chhota Udepur has a location quotient which is highest among all talukas. This is mainly due to easy availability of raw materials such as Limestone, clay and Gypsum in the taluka. However, by 2009-10, the importance of Cement & Clay Work has declined where as that of Wood and Wood Products increased In fact, due to easy access to wood as a raw material, Wood & Wood products flourished in this taluka. In this taluka, industrial groups which can be categorized as former stars are Food and Beverages. While Tobacco Products, Leather & Leather are star groups. Whereas Textiles and Wood & Wood Products are the future stars. Thus, encouraging this group in the Chhota Udepur taluka can help to generate more employment in this taluka.

As far as the location quotient for Jetpur Pavi taluka (Table 6.8) for the year 1990-91 was concerned, only two groups of industries Food & Beverages and Textiles had a location quotient of greater than one. However, by 2009-10 Tobacco Products, Wood & Wood Products, Leather & Leather Products emerged as an important group of industries by showing location quotient greater than one. Thus this group of industries generated more employment than the district average. In fact, in this taluka due to presence of forest area, supply of timber is higher as a result the location quotient for the Wood & Wood Products is higher and at the same time supply of raw tobacco has led to the high location quotient value in the taluka. Here star industrial groups are Tobacco Products, Wood & Wood Products and Leather & Leather Products, whereas Textiles are the declining stars. In this taluka no industrial group can be classified as future star.

TABLE 6.7
Location Quotient and Specialization Matrix in CHHOTA UDEPUR Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	6	22	37.5	52.38	266.67	39.68	3.04	2.19	-27.96	4
2	Tobacco Products	2	2	12.5	4.76	0	-61.92	24.91	46.29	85.83	2
3	Textiles	-	4	-	9.52	-	-	0	0.39	0	1
4	Wood and Wood Products Furniture Fixture	-	4	-	9.52	-	-	0	25.25	0	1
5	Paper and Paper Products	-	-	-	-	-	-	0	0	0	-
6	Leather and Leather Products	-	5	-	11.90	-	-	0	18.98	0	2
7	Rubber, Plastic and Petroleum	-	-	-	-	-	-	0	0	0	-
8	Chemical and Chemical Products	-	-	-	-	-	-	0	0	0	-
9	Cement and Clay Work	2	-	12.5	-	-	-	36.24	0	0	N.A.
10	Basic Metal Industries	-	-	-	-	-	-	0	0	0	-
11	Metal Products	-	-	-	-	-	-	0	0	0	-
12	Electrical Machinery	-	-	-	-	-	-	0	0	0	-
13	Transport Equipment	-	-	-	-	-	-	0	0	0	-
14	Repair Service and Others	6	5	37.5	11.90	-16.67	-6.83	0.96	0.64	-33.33	3
15	Total	16	42	100	100	162.5	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Vadodara

TABLE 6.8
Location Quotient and Specialization Matrix in JETPUR PAVI Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	2	10	16.67	32.26	400	93.52	1.35	1.35	00	N.A.
2	Tobacco Products	-	4	-	12.90	-	-	0	125.44	0	2
3	Textiles	6	6	50	19.35	0	-61.3	2.99	0.79	-73.58	3
4	Wood and Wood Products Furniture Fixture	-	2	-	6.45	-	-	0	17.10	0	2
5	Paper and Paper Products	-	-	-	-	-	-	0	0	0	-
6	Leather and Leather Products	-	4	-	12.90	-	-	0	20.58	0	2
7	Rubber, Plastic and Petroleum	-	-	-	-	-	-	0	0	0	-
8	Chemical and Chemical Products	-	-	-	-	-	-	0	0	0	-
9	Cement and Clay Work	-	-	-	-	-	-	0	0	0	-
10	Basic Metal Industries	-	-	-	-	-	-	0	0	0	-
11	Metal Products	-	-	-	-	-	-	0	0	0	-
12	Electrical Machinery	-	-	-	-	-	-	0	0	0	-
13	Transport Equipment	-	-	-	-	-	-	0	0	0	-
14	Repair Service and Others	4	5	33.33	16.13	25	-51.61	0.85	0.87	2.35	1
15	Total	12	31	100	100	158.33	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Vadodara

TABLE 6.9
Location Quotient and Specialization Matrix in DABHOI Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	28	98	29.79	18.25	250.00	-38.74	2.41	0.76	-68.46	3
2	Tobacco Products	2	3	2.13	0.56	50.00	-73.71	4.24	5.43	28.67	2
3	Textiles	14	184	14.89	34.26	1214.29	130.09	0.89	1.40	57.30	2
4	Wood and Wood Products Furniture Fixture	-	-	-		-	-	0	0	0	-
5	Paper and Paper Products	2	4	2.13	0.74	100.00	-65.26	1.41	4.34	207.80	2
6	Leather and Leather Products	-	4	-	0.74	-	-	0	1.19	0	2
7	Rubber, Plastic and Petroleum	-	13	-	2.42	-	-	0	0.46	0	1
8	Chemical and Chemical Products	-	15	-	2.79	-	-	0	0.37	0	1
9	Cement and Clay Work	-	-	-		-	-	0	0	0	-
10	Basic Metal Industries	-	24	-	4.47	-	-	0	0.79	0	1
11	Metal Products	10	21	10.64	3.91	110.00	-63.25	1.07	1.12	4.67	2
12	Electrical Machinery	21	18	22.34	3.36	-14.29	-84.96	2.08	0.63	-69.71	3
13	Transport Equipment	5	60	5.32	11.17	1100.00	109.96	3.53	2.46	-30.31	3
14	Repair Service and Others	12	93	12.77	17.32	675.00	35.63	0.32	0.94	193.75	1
15	Total	94	537	100	100	471.28	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Vadodara.

The location quotient for Dabhoi taluka (Table 6.9) for the year 1990-91 was more than unity for six groups Food & Beverages, Tobacco Products, Paper & Paper Products, Metal Products, Electrical Machinery and Transport Equipment. But by 2009-10, Food & Beverages, Electrical Machinery and Transport Equipment had lost their relative importance in employment generation. In contrast, Tobacco products, Paper & Paper products and Textiles gained in relative importance. Easy availability of raw materials for these industries and well developed transport network was the main reasons for the shifting of relative importance. The future star groups here are Rubber Plastic & Petroleum, Chemical & Chemical product, and Basic Metal, by encouraging these groups more employment can be generated in this taluka. Whereas star category of industries is Tobacco products, Textiles, Paper & Paper products, Leather & Leather products and Metal products. In this taluka Food & Beverages, Electrical Machinery and Transport Equipments are the declining stars.

In Table 6.10, the location quotient for Padra taluka is presented. This table shows that, for five groups viz Food & Beverages, Rubber Plastic & Petroleum, Basic Metal, Metal Products and Electrical Machinery had been greater than one. However, by the year 2009-10 ten groups of industries had location quotient greater than one. Further, few groups of industries which did not figure in the earlier period fared better as an employment generator in 2009-10. This is mainly due to the shifting of units from the Vadodara taluka to Padra taluka. In this case, Textiles and Wood & Wood products can be regarded as future stars, whereas Tobacco products, Paper & Paper products, Leather & Leather, Chemical & Chemical products, Cement & Clay work, Metal product, and Transport Equipments are star industrial groups. While Rubber-Plastic & Petroleum and Basic Metal as former stars, the Food & Beverages and Electrical Machinery are the declining stars.

TABLE 6. 10
Location Quotient and Specialization Matrix in PADRA Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	31	118	29.25	12.91	280.65	-55.86	2.37	0.54	-77.22	3
2	Tobacco Products	-	4	-	0.44	-	-	0	4.25	0	2
3	Textiles	12	191	11.32	20.90	1491.67	84.63	0.68	0.86	26.47	1
4	Wood and Wood Products Furniture Fixture	-	2	-	0.22	-	-	0	0.58	0	1
5	Paper and Paper Products	-	4	-	0.44	-	-	0	2.55	0	2
6	Leather and Leather Products	-	11	-	12.04	-	-	0	1.92	0	2
7	Rubber, Plastic and Petroleum	3	68	2.83	7.44	2166.67	162.90	6.45	1.40	-78.29	4
8	Chemical and Chemical Products	-	88	-	9.63	-	-	0	1.26	0	2
9	Cement and Clay Work	-	4	-	0.44	-	-	0	2.88	0	2
10	Basic Metal Industries	10	54	9.43	5.91	440.00	-37.33	2.39	1.04	-56.49	4
11	Metal Products	11	39	10.38	4.27	254.55	-58.86	1.04	1.22	17.31	2
12	Electrical Machinery	27	47	25.47	5.14	74.07	-79.82	2.38	0.97	-59.24	3
13	Transport Equipment	-	62	-	6.78	-		0	1.49	0	2
14	Repair Service and Others	12	222	11.32	24.29	1750.00	114.58	0.29	1.32	355.17	2
15	Total	106	914	100	100	762.26	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Vadodara

TABLE 6.11
Location Quotient and Specialization Matrix in VADODARA Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	185	3772	7.86	24.07	1938.92	206.23	0.63	1.01	60.32	2
2	Tobacco Products	2	2	0.09	0.01	0	0	0.17	0.12	-29.41	3
3	Textiles	391	3825	16.60	24.40	878.26	46.99	0.99	1.00	0.01	N.A.
4	Wood and Wood Products Furniture Fixture	-	8		0.05	-	-	0	0.14	0	1
5	Paper and Paper Products	18	15	0.76	0.09	-16.67	-88.16	0.51	0.59	15.69	1
6	Leather and Leather Products	1	42	0.04	0.27	4100.00	575.00	0.68	0.43	-36.76	3
7	Rubber, Plastic and Petroleum	5	884	0.21	5.64	17580.00	2585.71	0.48	1.06	120.83	2
8	Chemical and Chemical Products	63	1241	2.68	7.92	1869.84	195.52	1.00	1.04	4.00	2
9	Cement and Clay Work	-	8	-	0.05	-	-	0	0.37	0	1
10	Basic Metal Industries	101	914	4.29	5.83	804.95	35.90	1.09	1.04	-4.59	4
11	Metal Products	240	570	10.19	3.64	137.5	-64.28	1.02	1.04	1.96	2
12	Electrical Machinery	256	849	10.87	5.42	231.64	-50.14	1.01	1.03	1.98	2
13	Transport Equipment	35	653	1.49	4.17	1765.71	179.87	0.99	0.91	-8.08	3
14	Repair Service and Others	1058	2891	44.93	18.44	173.25	-58.96	1.15	1.00	-0.13	3
15	Total	2355	15674	100	100	565.56	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Vadodara

Vadodara taluka which continues to be industrially developed taluka, the location quotient (Table 6.11) for the year 1990-91, shows that five groups of industries viz Chemical & Chemical Product, Basic Metal, Metal Products and Electrical Machinery had Location Quotient of greater than unity. Due to industrial concentration of these industrial groups in the taluka, all above mentioned manufacturing groups had generated more employment than the district average. However, by 2009-10, Food & Beverages in employment generation increased due to the fast growth of tourism activity in the taluka, which resulted in boom in the growth in hotels and restaurants. In this taluka, the future stars industrial groups are Wood & Wood products, Paper & Paper and Cement & Clay work, whereas Food & Beverages, Rubber-Plastic & Petroleum, Chemical & Chemical, Metal Product, Electrical Machinery is the star groups. While Basic Metal group is the former star and Tobacco products, Leather & Leather and Transport Equipments are declining stars.

In Table 6.12, the location quotient for the Vaghodia taluka in the year 1990-91 reveals that, nine groups of industries, Food & Beverages, Tobacco Products, Rubber-Plastic & Petroleum, Leather & Leather Products, Paper & Paper products, Chemical & Chemical Products, Metal Products and Electrical Machinery had a value greater than unity. But, for the year 2009-10 only two groups of Textiles and Cement & Clay works has shown increase in its relative share, where as the rest of the groups shown a decline. The reason for this was the shifting the many industrial units from Vaghodia to the Savli taluka. In this taluka the groups which can be regarded as stars are Textiles and Cement & Clay work, whereas former stars are Food & Beverages, Paper & Paper, and Leather & Leather and Rubber-Plastic & Petroleum industrial groups. While Chemical & Chemicals, Basic Metal, Metal products, Electrical Machinery and Transport Equipments are regarded as declining stars. None of the industrial group can be categorized as future star in this particular taluka.

If we consider the location quotient for the Savli taluka (Table 6.13), for the year 1990-91 eight groups of industries like Food & Beverages, Tobacco Products, Paper & Paper products, Rubber Plastic & Petroleum, Cement & Clay, and Metal Products, Electrical Machinery and Transport Equipment had location quotient of greater than one

which shows their relative importance in generation employment is more than that of the district average. However, Chemical & Chemical Products, Leather & Leather Products, Transport Equipment had shown an increase in their relative importance in generating employment in the year 2009-10.For this taluka Textiles group can be classified as the future star, whereas Leather & Leather, Chemical & Chemical and Transport Equipments are categorized as star industrial groups. However, Food & Beverages, Rubber-Plastic & Petroleum, Cement & Clay work, basic Metal, Metal products and Electrical Machinery are the declining stars.

A similar picture emerges for Sankheda taluka, (Table 6.14) the location quotient for the year 1990-91, or six groups of industries where Food & Beverages, Textiles, Wood & Wood Products, Paper & Paper products, Cement & Clay work and Transport equipments had the location quotient greater than one. But by the year 2009-10, Wood & Wood products, Paper & Paper products, Leather & Leather products, Cement & Clay work had increased its relative importance in the taluka. In this taluka Food & Beverages are found former star, while Wood & Wood, Paper & Paper, Leather & Leather, Cement & Clay work, Electrical Machinery and Transport Equipment are categorized as star groups. In this taluka no industrial group can be classified as future star. None of the industrial group can be categorized as future star in this particular taluka.

In Shinor taluka a relatively backward region the location quotient (Table 6.15), for the year 1990-91, for only three groups of industries like Food & Beverages, Textiles and Cement & Clay work was greater than one, where as in the year 2009-10, five groups has location quotient greater than one. Since in the year 2009-10 Tobacco products, Wood & Wood products, Leather & Leather products and Cement & Clay work had shown rising trend, and for the eight groups location quotient is equal to zero, which means these groups are absent in the taluka.

TABLE 6.12
Location Quotient and Specialization Matrix in VAGHODIA Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	38	345	18.62	30.80	807.89	65.41	1.51	1.29	-14.57	4
2	Tobacco Products	2	-	0.98	-	-	-	1.95	0	0	N.A.
3	Textiles	24	336	11.76	30.00	1300.00	155.10	0.70	1.23	75.71	2
4	Wood and Wood Products Furniture Fixture	-	-	-	-	-	-	0	0	0	-
5	Paper and Paper Products	16	6	7.84	0.54	-62.5	-93.11	5.21	3.12	-40.12	4
6	Leather and Leather Products	1	10	0.49	0.89	900.00	81.63	7.82	1.42	-81.84	4
7	Rubber, Plastic and Petroleum	2	75	0.98	6.70	3650.00	583.67	2.23	1.26	-43.50	4
8	Chemical and Chemical Products	6	72	2.94	6.43	1100.00	118.71	1.10	0.84	-23.64	3
9	Cement and Clay Work	-	3	-	0.27	-	-	0	1.76	0	2
10	Basic Metal Industries	8	51	3.92	4.55	537.5	16.07	0.99	0.81	-18.18	3
11	Metal Products	27	26	13.24	2.32	-3.70	-82.48	1.33	0.66	-50.38	3
12	Electrical Machinery	24	58	11.76	5.18	141.67	-55.95	1.10	0.98	-10.91	3
13	Transport Equipment	4	41	1.96	3.66	925.00	86.73	1.30	0.80	-38.46	3
14	Repair Service and Others	52	97	25.49	8.66	86.54	-66.03	0.65	0.47	-27.69	3
15	Total	204	1120	100	100	449.02	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Vadodara.

TABLE 6.13
Location Quotient and Specialization Matrix in SAVLI Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	24	382	18.75	24.30	1491.67	29.6	1.52	1.01	-33.55	3
2	Tobacco Products	2	-	1.56	-	-	-	3.11	0	-	N.A.
3	Textiles	17	377	13.28	23.98	2117.65	80.57	0.79	0.98	24.05	1
4	Wood and Wood Products Furniture Fixture	-	-	-	-	-	-	0	0	-	-
5	Paper and Paper Products	2	-	1.56	-	-	-	1.03	0	-	N.A.
6	Leather and Leather Products	-	18	-	1.15	-	-	0	1.83	-	2
7	Rubber, Plastic and Petroleum	2	20	1.56	1.27	900.00	-18.59	3.60	0.24	-93.33	3
8	Chemical and Chemical Products	2	123	1.56	7.82	6050.00	401.28	0.59	1.03	74.58	2
9	Cement and Clay Work	1	2	0.78	0.13	100.00	-83.33	2.26	0.84	-62.83	3
10	Basic Metal Industries	5	81	3.91	5.15	1520.00	31.71	0.99	0.92	-7.07	3
11	Metal Products	14	47	10.94	2.99	235.71	-72.67	1.10	0.86	-21.82	3
12	Electrical Machinery	14	79	10.94	5.03	464.29	-54.02	1.02	0.95	-6.86	3
13	Transport Equipment	2	79	1.56	5.03	3850.00	222.44	1.04	1.11	6.73	2
14	Repair Service and Others	43	364	33.59	23.16	746.51	-31.05	0.86	1.26	46.51	2
15	Total	128	1572	100	100	1128.13	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Vadodara.

TABLE 6.14
Location Quotient and Specialization Matrix in SANKHEDA Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	22	53	19.64	25.98	140.91	32.28	1.59	1.09	-31.45	4
2	Tobacco Products	-	-	-	-	-	-	0	0	0	-
3	Textiles	32	-	28.57	-	-	-	1.70	0		N.A.
4	Wood and Wood Products Furniture Fixture	06	47	5.36	23.04	683.33	329.85	24.41	61.09	150.27	2
5	Paper and Paper Products	10	04	8.93	1.96	-60.00	-78.05	5.93	11.43	92.75	2
6	Leather and Leather Products	-	18		8.82	-	-	0	14.07	0	2
7	Rubber, Plastic and Petroleum	-	-	-	-	-	-	0	0	0	-
8	Chemical and Chemical Products	-	-	-	-	-	-	0	0	0	-
9	Cement and Clay Work	02	08	1.79	3.92	300.00	118.99	5.18	25.83	398.65	2
10	Basic Metal Industries	-	-	-	-	-	-	0	0	0	-
11	Metal Products	-	-	-	-	-	-	0	0	0	-
12	Electrical Machinery	-	11		5.39	-	-	0	1.02	0	2
13	Transport Equipment	02	18	1.79	8.82	800.00	392.74	1.19	1.94	63.03	2
14	Repair Service and Others	38	45	33.93	22.06	18.42	-34.98	0.87	1.20	37.93	2
15	Total	112	204	100	100	82.14	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Vadodara.

TABLE 6.15
Location Quotient and Specialization Matrix in SHINOR Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	29	04	40.85	22.22	-86.21	-45.61	3.30	0.93	-71.82	3
2	Tobacco Products	-	02	-	11.11	-	-	0	108.02	0	2
3	Textiles	19	-	26.76	-	-	-	1.60	0	0	N.A.
4	Wood and Wood Products Furniture Fixture	-	02	-	11.11		-	0	29.46	0	2
5	Paper and Paper Products	-	-	-	-	-	-	0	0	0	-
6	Leather and Leather Products	-	02	-	11.11	-	-	0	17.72	0	2
7	Rubber, Plastic and Petroleum	-	-	-	-	-	-	0	0	0	-
8	Chemical and Chemical Products	-	-	-	-	-	-	0	0	0	-
9	Cement and Clay Work	06	04	8.45	22.22	-33.33	162.96	24.50	146.35	497.35	2
10	Basic Metal Industries	-	-	-	-	-	-	0	0	0	-
11	Metal Products	06	-	8.45	-	-	-	0.85	0	0	N.A.
12	Electrical Machinery	-	-	-	-	-	-	0	0	0	-
13	Transport Equipment	-	-	-	-	-	-	0	0	0	-
14	Repair Service and Others	11	04	15.49	22.22	-63.64	43.45	0.40	1.21	202.5	2
15	Total	71	18	100	100	-74.65	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Vadodara.

TABLE 6.16
Location Quotient and Specialization Matrix in NASVADI Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	12	08	54.55	30.77	-33.33	-43.59	4.41	1.29	-70.75	4
2	Tobacco Products	-	02	-	7.69	-	-	0	74.78	0	2
3	Textiles	-	-	-	-	-	-	0	0	0	-
4	Wood and Wood Products Furniture Fixture	01	10	4.55	38.46	900.00	745.27	20.71	101.98	392.42	2
5	Paper and Paper Products	-	-	-	-	-	-	0	0	0	-
6	Leather and Leather Products	-	04	-	15.38	-	-	0	24.53	0	2
7	Rubber, Plastic and Petroleum	-	-	-	-	-	-	0	0	0	-
8	Chemical and Chemical Products	-	-	-	-	-	-	0	0	0	-
9	Cement and Clay Work	-	-	-	-	-	-	0	0	0	-
10	Basic Metal Industries	-	-	-	-	-	-	0	0	0	-
11	Metal Products	-	-	-	-	-	-	0	0	0	-
12	Electrical Machinery	-	-	-	-	-	-	0	0	0	-
13	Transport Equipment	-	-	-	-	-	-	0	0	0	-
14	Repair Service and Others	09	02	40.91	7.69	-77.78	-81.20	1.05	0.42	-60.00	3
15	Total	22	26	100	100	18.18	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Vadodara.

TABLE 6 .17
Location Quotient and Specialization Matrix in KAVANT Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	-	04	-	25.00	-	-	0	1.04	0	2
2	Tobacco Products	-	02	-	12.50	-	-	0	121.52	0	2
3	Textiles	-	-	-	-	-	-	0	0	0	-
4	Wood and Wood Products Furniture Fixture	-	02	-	12.50	-	-	0	33.14	0	2
5	Paper and Paper Products	-	-	-	-	-	-	0	0	0	-
6	Leather and Leather Products	-	02	-	12.50	-	-	0	19.93	0	2
7	Rubber, Plastic and Petroleum	-	-	-	-	-	-	0	0	0	-
8	Chemical and Chemical Products	-	-	-	-	-	-	0	0	0	-
9	Cement and Clay Work	-	02	-	12.50	-	-	0	82.32	0	2
10	Basic Metal Industries	-	-	-	-	-	-	0	0	0	-
11	Metal Products	-	-	-	-	-	-	0	0	0	-
12	Electrical Machinery	-	-	-	-	-	-	0	0	0	-
13	Transport Equipment	-	-	-	-	-	-	0	0	0	-
14	Repair Service and Others	-	04	-	25.00	-	-	0	1.35	0	2
15	Total	-	16	-	100	-	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Vadodara.

Here Tobacco products, Wood & Wood products, Leather & Leather products and Cement & Clay works can be regarded as star industrial groups. However Food & Beverages group are the declining star. None of the industrial group can be categorized as future star in this particular taluka.

In case of Nasvadi taluka, the location quotient (Table 6.16), for the year 1990-91, only two groups- Food & Beverages and Wood & Wood products had the location quotient greater than one, where as eleven groups had location quotient equal to zero. Which means major groups of industries are absent in the taluka. However by the year 2009-10- Tobacco products, Wood & Wood products and Leather & Leather products their relative importance in the taluka in employment generation has increased. In fact, due to easy access to wood as a raw material, Wood & Wood products flourished in this taluka. As a result by 2009-10, the importance of wood & wood products has increased. In this taluka Tobacco product, Wood & Wood products, Leather & Leather can be regarded as star industrial groups, whereas Food & Beverages are found former star in Nasvadi taluka. In this taluka so far no future star industrial group is found.

The Kavant taluka separated from Panchmahal district and become a part of Vadodara district in the year 1998, consequently the data for this taluka are available from 2001-02 onwards only. The location quotient (Table 6.17), for the year 2009-10 for this taluka shows that six groups has location quotient greater than one. And industries producing tobacco products has the location quotient in the year 2009-10 been the higher among all the talukas. The easy availability of Timru leaf the basic raw material for producing “Bidi” a tobacco product, is the main reason for the highest location quotient. Here, Food & Beverages, Tobacco products, Wood & Wood products, Leather & Leather and Cement & Clay work are star industrial groups and no industrial group can be classified as future star.

The data presented in the forgone tables reveals that there has been a shifting of the relative importance of a particular industry in a particular taluka. Further it is also evident that baring few talukas, majority of the talukas has exhibited an improvement in the number of industries having Location Quotient of greater than one.

It is also evident that, future stars that is when location quotient value is<1<0, are located in five talukas namely Chhota Udepur, Padra, Vadodara, Dabhoi and Savli and in each of the five talukas different industrial groups are future stars.

After having examined the localization of industries, in the next section the taluka wise and group wise the growth rate and instability index has been estimated, so as to provide an insight on inter taluka industrial variation within the district of Vadodara. This is estimated on the basis of several parameters with the help of methodology described in the earlier chapters.

V. INTER-TALUKA INDUSTRIAL VARIATION IN VADODARA DISTRICT:

The compound growth rate in absolute terms of all the talukas of the Vadodara district in terms of registered factories, employment and investment in registered factories during study period under consideration is presented in table 6.18 (absolute & percentage share). In terms of registered factories, out of twelve talukas only five talukas –Karjan, Chhota Udepur, Jetpur Pavi, Padra, and Nasvadi have registered higher growth rate than the district average whereas five talukas Vadodara, Vaghodia, Savli, Sankheda and Sinor have registered negative growth rate during the study period. It is evident from this table that highest Growth rate for registered factories is accounted by Chhota Udepur (6.84%) followed by Padra taluka (6.79%). The setting up of the mineral based industries in Chhota Udepur and electrical & electronic industries in Padra taluka have led higher growth of registered factories in recent time. Kavant taluka in Vadodara district is yet to have any manufacturing unit.[54]. With regards to employment, it found that the highest growth rate is found in Padra taluka (4.64%) followed by Karjan taluka (1.01%) where as Sinor taluka registered a negative growth rate of the district. In the district, only four talukas Chhota Udepur, Padra, Karjan and Savli have shown higher employment growth rate than the district average, where as six talukas have registered negative growth rate during the period of 1990-91 to 2009-10. The employment growth rate of the district itself is lower than the state average. As far as the investment in registered factories are

[54] As per 2002 Gujarat government committee report, Kavant taluka is the most backward taluka of the state in terms of industrial and social development

concerned, the highest growth rate is found in Chhota Udepur taluka (13.97%) followed by Padra taluka (4.49%). This trend is obviously due to the reason that these two talukas accounted for the largest growth in the registered factories. The talukas Chhota Udepur, Jetpur Pavi, Dabhoi, and Padra have shown higher growth rate in terms of investment than the district average and rest all talukas have shown lower growth rate than the district average.

It can be concluded from the above that, only Padra and Chhota Udepur talukas have shown positive growth rate, where as the Vadodara taluka in spite of having more concentration of industries have shown negative growth rates in all three parameters, because in Vadodara taluka industries are getting dispersed to neighboring talukas like Vaghodia and Savli talukas. Savli taluka which has an upcoming industrial belt has shown positive growth rate in registered factories as well as in the investment. The worst performance in the district is found in the Shinor taluka, which has registered highest negative growth rate in all three parameters. The trend in percentage share in all parameters also evidences a similar pattern of growth as exhibited by the trend in absolute growth rate.

The group wise compound growth rate (absolute & percentage share) in the Vadodara district in terms of registered factories, employment and investment has been presented in Table 6.19. This table reveals that the highest Growth rate in terms of registered factories was found in case of Leather and Leather products (10.6%), followed by Rubber, Plastic and Petroleum product (9.73%) , where as the lowest Growth rate was registered in case of Paper and Paper products. Textiles, Leather and Leather products, Rubber, Plastic and Petroleum product and Transport equipments have registered higher Growth rate than the average Growth rate. As a corollary to the above, in terms of employment, the highest Growth rate is found in Leather and Leather products (15.54%) followed by Rubber, Plastic and Petroleum product (12.38%). As far as the trend in investment was concerned, the highest Growth rate is found in Rubber, Plastic and Petroleum product (9.6%) followed by Leather and Leather products (9.32%) where as the lowest Growth rate is registered in case of Wood and Wood Products, Furniture and Fixtures (-8.99%). The trends in percentage share also show a similar pattern.

It is obvious from the above discussions that some talukas as well as some industrial groups are exhibiting positive growth in terms of all three parameters. At the same time some talukas and industrial groups have shown a positive growth rate in one or the other parameters. Now the issue is whether observed growth rate would continue or not, it can be examined with the help of instability index. The result of the conclusion of instability index is presented in table 6.20.

The Table 6.20 (absolute & percentage share) shows that for selected variables the value of instability index is high for Savli, Dabhoi and Shinor talukas. While Vadodara, Vaghodia and Nasvadi talukas have registered the lowest instability index, in terms of percentage share also the instability index value have shown a similar trend.

If we look at the instability index group wise as presented in Table 6.21(absolute & percentage share), then it is clear that in terms of registered factories the index is high for Textile, Leather & Leather products, and it is lowest for Paper & Paper products. In terms of employment also Textile, Leather & Leather products have shown high instability index, while for Paper & Paper products the value is low.

TABLE 6.18
Taluka wise Compound Growth Rate of Selected Variables of Vadodara District From 1990-91 to 2009-10

Sr No.	Talukas	CGR Of Registered Factories Absolute (%)	CGR Of Employment In Registered Factories Absolute (%)	CGR Of Investment (Rs In Lakhs) Absolute (%)
1	Karjan	1.24 (0.22)	1.01 (0.50)	-1.55(-2.19)
2	Chhota Udepur	6.84 (5.76)	0.95 (0.43)	13.97(13.23)
3	Jetpur-Pavi	2.71 (1.68)	-5.29 (-5.77)	4.21 (3.53)
4	Dabhoi	0.96 (-0.06)	-0.96 (-1.46)	1.56 (0.90)
5	Padra	6.79 (5.71)	4.64 (4.11)	4.49 (3.80)
6	Vadodara	-0.82 (-1.82)	-0.55 (-1.06)	-0.25(-0.91)
7	Vaghodia	-3.33(-4.31)	0.35 (-0.16)	-1.54(-2.19)
8	Savli	-1.37(-2.36)	0.58 (0.06)	-1.08(-1.73)
9	Sankheda	-5.34(-6.30)	-5.61(-6.09)	-9.02(-9.62)
10	Shinor	-11.61(-12.51)	-18.46(-18.88)	-9.51(-10.1)
11	Nasvadi	3.79 (2.74)	-0.84(-1.34)	-2.03(-2.67)
Total		1.02	0.51	0.66

Source: Compiled from Various Issues of District Industries Centre, Vadodara.
Parenthesis in the bracket indicates the growth rates in terms of percentage share.

TABLE 6.19

Group wise Compound Growth Rate of Selected Variables in Vadodara District From 1990-91 to 2009-10

Sr No.	Item	CGR of Registered Factories Absolute (%)	CGR of Employment In Registered Factories Absolute (%)	CGR of Investment (Rs In Lakhs) Absolute (%)
1	Food Products and Beverages	-4.40 (-5.30)	-2.14 (-2.63)	0.70 (0.08)
2	Textiles	9.36 (8.32)	3.76 (3.24)	3.73 (3.08)
3	Wood and Wood Products Furniture Fixture	-4.36 (-5.30)	-3.33 (-3.82)	-8.99 (-9.56)
4	Paper and Paper Products	-9.09 (-9.95)	-9.36 (-9.81)	-2.36 (-2.97)
5	Leather and Leather Products	10.61 (9.56)	15.54 (14.96)	9.32 (8.64)
6	Rubber, Plastic and Petroleum	9.73 (8.69)	12.38 (11.82)	9.61 (8.92)
7	Chemical and Chemical Products	-4.27 (-5.17)	-1.50 (-1.99)	-0.28 (-0.90)
8	Cement and Clay Work	-6.85 (-7.73)	-1.73 (-2.23)	-5.36 (-5.95)
9	Basic Metal Industries	-3.08 (-3.99)	-2.23 (-2.72)	-3.15 (-3.75)
10	Metal Products	-4.93 (-5.83)	-7.67 (-8.14)	-6.76 (-7.34)
11	Electrical Machinery	-6.47 (-7.36)	-4.64 (-5.12)	-4.02 (-4.62)
12	Transport Equipment	4.86 (3.87)	4.80 (4.27)	4.61(3.95)
13	Repair Service and Others	0.42 (-0.53)	-1.30 (-1.79)	0.10(-0.52)
Total		0.95	0.50	0.63

Source: Compiled from Various Issues of District Industries Centre, Vadodara.
Parenthesis in the bracket indicates the growth rates in terms of percentage share

In the forgone section, we have examined the growth rate and instability index separately. But, to reap the benefits of industrialization in a long run, we need to assess

whether these growth in the industrial sector are sustainable or not. The aim is to have higher growth in industrial sector of the district at the same time instability should be lower so as to have a sustained growth in industrial sector for a long period of time. This necessitates an analysis of the growth and instability together. An examination of the relationship between growth and instability will indicate four different possibilities:

1. A declining in growth rate with decreasing instability
2. A declining in growth rate with increasing instability
3. Increasing growth with an increasing instability
4. Increasing growth with a decreasing instability.

Of these, the fourth possibility can be regarded as the most ideal situation.

As mentioned earlier in terms of registered factories, Chhota Udepur registered high growth but with high instability, so this taluka would not be preferred as a good destination of industrial cluster in a long run. Instead, Padra taluka with high growth and low instability can be preferred taluka in the district with regard to registered factories.

In case of employment in factories, high growth rate was found in Padra taluka but also has registered high instability. In case of Vaghodia taluka, though growth rate is relatively lower and positive, it was a low instability index Thus; this taluka is an ideal destination from employment generation point of view.

In case of investment, although Chhota Udepur has registered high growth rate but it has high instability, so this taluka is not favoured taluka for investment. Rather, Dabhoi taluka, with positive growth rate and low instability can be desired in the long run.

With respect to Group wise registered factories, as it was found that Leather and Leather Products has registered high growth rate but with high instability which is not favourable scenario. Transport Equipment having a high Growth rate with low stability is more preferable.

In terms of employment, Leather and Leather Products are having very high growth rate mingled with high instability index, thus is not preferred Instead Rubber-Plastic & Petroleum, with high growth rate along with low instability is more preferred from employment point of view.

TABLE 6.20

Taluka wise Instability Index Value of Selected Variables of Vadodara District From 1990-91 TO 2009-10

Sr No.	Talukas	Index Value Of Registered Factories Absolute (%)	Index Value Of Employment In Registered Factories Absolute (%)	Index Value Of Investment (Rs In Lakhs) Absolute (%)
1	Karjan	219.07 (245.49)	249.04 (176.42)	131.7 (135.68)
2	Chhota Udepur	198.82 (175.06)	243.46 (298.00)	264.54 (296.87)
3	Jetpur-Pavi	114.51 (121.33)	154.43 (237.78)	188.52(229.99))
4	Dabhoi	322.65 (249.48)	210.23 (176.10)	102.95 (126.06)
5	Padra	98.34 (52.57)	277.02 (110.68)	254.76 (185.64)
6	Vadodara	78.72 (28.01)	137.58 (17.56)	63.87 (10.70)
7	Vaghodia	88.28(142.29)	100.79 (81.17)	95.32 (108.38)
8	Savli	222.27 (157.08)	486.75 (184.10)	384.23 (227.55)
9	Sankheda	181.89 (232.02)	125.47 (132.43)	143.50 (165.11)
10	Shinor	122.43 (130.86)	306.62 (329.55)	330.17 (474.44)
11	Nasvadi	126.82 (132.50)	95.01 (137.06)	206.47 (235.3)
Total		42.88	122.12	55.58

Source: Compiled from Various Issues of District Industries Centre, Vadodara.

**** Parenthesis in the bracket indicates the index values in terms of percentage share.***

TABLE 6.21

Group wise Instability Index Value of Selected Variables in Vadodara District From 1990-91 to 2009-10

Sr No.	Item	Index Value Of Registered Factories Absolute (%)	Index Value Of Employment In Registered Factories Absolute (%)	Index Value Of Investment (Rs In Lakhs) Absolute (%)
1	Food Products and Beverages	91.34 (64.97)	217.41 (88.26)	78.57 (43.95)
2	Textiles	384.51(248.67)	358.00 (131.05)	220.66(146.68)
3	Wood and Wood Products Furniture Fixture	69.80 (39.16)	156.54 (63.26)	49.99 (44.08)
4	Paper and Paper Products	66.53 (70.37)	100.94 (62.61)	147.63(168.80)
5	Leather and Leather Products	214.24(153.58)	428.92 (241.94)	369.43(294.92)
6	Rubber, Plastic and Petroleum	173.83(149.43)	166.31 (125.10)	170.00(152.75)
7	Chemical and Chemical Products	110.44 (65.53)	168.92 (55.06)	70.27 (29.76)
8	Cement and Clay Work	84.32 (42.46)	186.21 (60.33)	406.91(349.35)
9	Basic Metal Industries	83.86 (84.64)	107.31 (58.36)	65.12 (50.49)
10	Metal Products	0 (0)	0 (0)	0 (483.85)
11	Electrical Machinery	108.75 (63.36)	132.68 (38.62)	70.19 (52.34)
12	Transport Equipment	73.02 (43.53)	168.48 (53.25)	179.89(158.77)
13	Repair Service and Others	20.73 (25.6)	98.30 (57.89)	43.90 (41.13)
Total		0	0	0

Source: Compiled from Various Issues of District Industries Centre, Vadodara.
**** Parenthesis in the bracket indicates the index values in terms of percentage share***

In terms of investment, Rubber- Plastic & Petroleum has registered high growth rate with relatively low instability, would be preferred group from the investment point of view finally.

In sum it can be stated that, if the aim of industrial development is employment generation than Vaghodia taluka should be a preferred taluka. In terms of industrial group the preference should be Transport equipments. It needs to be mentioned here that, Vaghodia taluka is dominated by industrial cluster producing Transport equipments.

VI CONCLUSION:

For increasing the economic growth rate in a country like India, it is essential to have rapid industrial growth also. However, the regional disparity in industrial development has led to regional disparity in the growth in India. Considering this, the essence of deliberate regional development policy requires the identification and selection of those regions which is more conducive to the promotional efforts. It is in this context that in the present chapter an attempt was made to analyze the industrial location and territorial development in the district of Vadodara. The chapter began with an examination of the socio economic background and the industrial scenario of Vadodara district. It was clear from the data presented, that most of the industrial activities in the district have taken place mainly in Vadodara taluka, more specifically in and around Vadodara city. Thus, it is evident that, although Vadodara district as a whole is developed district, there are few talukas which have not kept pace in the industrial development process. This leads one to conclude that location of industry in Vadodara district is not optimum in terms of uniformity.

Despite this the labour as well as capital intensity has increased in almost all talukas. Thus, technological improvement has led to an increase in the demand for skilled labour.

Further, in this chapter a two part analysis of industrialization is under taken. In the first part, an attempt was made to find out specialization and concentration of industries within district, taluka wise. This is done by computing location quotient. Based on location quotient, the specialization matrix has been calculated for the identification of

future stars.[55] By understanding the future star industry in a region, it will be possible to have an appropriate development strategy for regional development. In the second part the taluka wise industrial variation has been calculated in terms of compound growth rate and instability index. This has been attempted to find out whether the observed growth rate in industrial development is justified or not.

An examination of the calculation of location quotient reveals the following:

i. Only five talukas have industries which can be considered to be future stars and in each of the five talukas different industrial groups are future stars. The talukas are Chhota Udepur (Wood & Wood products and Textiles), Dabhoi (Rubber-Plastic & Petroleum, Chemical & Chemical products and Basic Metals) Padra (Textiles and Wood & Wood products) Vadodara (Wood & Wood products, Paper & Paper and Cement & Clay works) and Savli (Textiles).

ii. In all talukas one or the other industrial groups can be considered as star groups that is these groups are those which have a location quotient value greater then one and has a rising trend in location value. And these groups are Paper & Paper products, Leather & Leather products, Basic Metals, Electrical Machinery, Transport Equipments, Tobacco & Tobacco, Wood & Wood products, Textiles, Metal products, Chemical & Chemical products, Cement & Clay works and Rubber-Plastic & Petroleum.

iii. In eight talukas the industrial groups which are categorized as declining stars, as those where location quotient value has declining trend. These talukas are Karjan, Jetpur Pavi, Dabhoi, Padra, Vadodara, Vaghodia, Savli and Shinor and the industrial groups are Food & Beverages, Textiles, Chemical & Chemical products, Electrical Machinery, Transport Equipments, Tobacco & Tobacco, Leather & Leather, Basic Metal and Metal products.

iv. Seven talukas have industries which can be considered as former stars. They are those which has location quotient declining trend. The talukas are Karjan, Chhota Udepur, Padra, Vadodara, Vaghodia, Sankheda and Nasvadi. And industrial

[55] Future stars are those, which has Location Quotient value higher than previous study period and LQ>0<1

groups are Rubber-Plastic & Petroleum, Metal products, Food & Beverages, Basic Metal, Paper & Paper and Leather & Leather products.

From the above it can be stated that the government should provide special incentives to future stars and star industrial groups in different talukas, so as to generate more employment especially in those talukas which are lagging behind. This may help to reduce regional disparity. The scheme should be appropriate in terms of targeted industrial groups.

The analysis of Growth that:

- In terms of registered factories, the compound Growth rates is highest in Chhotaudepur and Padra talukas and while it is lowest in Shinor and Sankheda talukas.
- In terms of employment, a high Growth rate is recorded in Padra taluka and lowest in Shinor taluka.
- Whereas, in terms of investment, high Growth rate is evident in Chhotaudepur and lowest in Shinor taluka.
- In all the parameters, a negative Growth rates has been found in Vadodara, Sankheda and Shinor talukas. Vadodara taluka where there is high concentration of industries, in terms of Growth rates it shows negative.
- In terms of industrial group wise Rubber- Plastic and Petroleum and Textiles have shown positive and higher Growth rates in all the parameters considered.
- From the Instability index, it can be inferred that Savli and Chhotaudepur talukas in terms of registered factories have shown high Instability index value, whereas in terms of employment and investment Savli and Shinor have registered high Instability index value. In all the parameters a low Instability index value is seen in Vadodara and Vaghodia talukas.
- If the growth and instability analyze together, then it is evident that to generate more employment with high growth and low instability index, Vaghodia taluka would be ideal taluka in the district and in case of industrial group Transport Equipment would be the ideal group in the district.

From the analysis of Growth, Instability and Location quotient reveals that, there exists inter- taluka industrial disparities during the study period. Excessive concentration of industrial activities is found in Vadodara, Vaghodia, Savli and Padra talukas.

Whereas, in the talukas of Kavant, Jetpur Pavi, Sankheda, Chhotaudepur and Shinor industrial activities have been very low. Nevertheless the fact remains that reforms have led to dispersal of industries from highly developed taluka-Vadodara to industrializing talukas like Savli and Padra and Vaghodia.

Thus, we can conclude from the above that at least in Vadodara district, reforms have reduced territorial industrial disparity.

In the present chapter the analysis was done taluka wise for Vadodara district a district which is still one of the most industrially developed district of the state. In the next chapter an attempt will be made to analyze taluka wise industrial development in one of the most industrially backward district of the state, that is Amreli. This is to ascertain whether reforms have reduced industrial disparity in all the districts of the state, irrespective of whether they are developed or backward.

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CHAPTER-VII

INDUSTRIAL LOCATION AND TERRITORIAL DEVELOPMENT IN AMRELI DISTRICT

I INTRODUCTION:

It is a known fact that industrialization plays a very important role in the overall development of a region. It is due to this fact that planners and policy makers consider "industrialisation" as the most adequate instrument to achieve dynamism in growth process.[56] Industrialisation, in addition, is also a way of achieving a more equal distribution of income. Hence, planners have accepted development of industries as a means to reduce regional disparities as well as promotion of growth in that region.

Historically, industrial development has been invariably unbalanced.[57] Development does not take place every where at the same time. It starts at some point, and then it radiate out to other points. Nevertheless in this course, disparities soon appear in the level of industrial development in different regions.

It is against this back ground that in this chapter the analysis of industrial location and territorial development in Amreli district has been attempted. Amreli district has been chosen for the study for two main reasons. (i) The district is least developed, even though it has vast agriculture, livestock, minerals, and human resources.[58](ii) Very few studies of industrial development in all talukas of Amreli region have been undertaken till date.

Industrial development in Amreli district has not been equally distributed in all talukas. Traditionally, it was concentrated in Amreli, Rajula and Lathi. Over a period of time, industries were getting dispersed as a part of government policy to other talukas of the district, but still the problem of territorial industrial disparity existed. Like Vadodara district, in Amreli too, there are some talukas where industrial agglomeration has taken place. It is a fact that agglomeration of industries enjoys benefits of external economics.

[56] See Sadhak (1986)
[57] See Hirchman (1958)
[58] See I.G.Patel Committee Report

But at the same time it is also recognized that more concentration of industries in certain place is strategically unwise and extremely dangerous from the socio-economic point of view.[59] Industrial dispersal efforts serve the more important objective of creating employment opportunity in backward region, and enable all the regions to benefit from industrialisation.

In the previous chapter, we had analyzed the nature and extent of industrial development in Vadodara district. It was found that within the district, there exists inter-taluka industrial disparity. The districts have experienced significant growth of industries, but are concentrated in few talukas like Vadodara, Savli, Padra, and Karjan district.

As a sequel in this chapter, an analysis of industrialisation at one of the most industrially backward district Amreli has been taken up. In this chapter also, the following aspects have been dealt with:

(i) Location Quotient of industries for different groups of industries in all talukas of Amreli district for the selected year 1990-91, 2000-01 and 2009-10 are calculated

(ii)Growth and instability index in terms of registered factories, employment and investment both in absolute and as well as in percentage share from 1990-91 to 2009-10

The rest of the chapter is divided into number of sections. In section II socio economic background as well as the present industrial scenario of the district has been presented, III discusses the data source and methodology. In section IV the results are presented. In section V the inter taluka industrial disparity has been examined and finally in the last section conclusions are drawn.

II THE SOCIO-ECONOMIC BACKGROUND AND INDUSTRIAL SCENARIO OF AMRELI DISTRICT:

Amreli district is located in the north-east corner of Saurastra region of the Gujarat state. The total area of the district 7403.76 sq km, with eleven talukas, eight urban areas and 618 villages in the district. As per the 2001 census, total population of the district is 1393295 people; density of population was 188 persons per sq km which is much lower than the state average. In the district, out of total population, only 22.46% are

[59] See Sadhak (1986)

living in the urban areas, which are much lower than the state average, this shows the district is mainly rural. It had 60.44 % literacy rate, again lower than the state average.

As per 2001 census, in the district total working population was 43.12%. Of the total workforce nearly 74% were dependent on agriculture; about 4% was engaged in industrial activity and 22% depended on trade commerce and service activities. These figures show that Amreli district is one of the socially backward districts of the state.

A) Agriculture:

As stated earlier, agriculture is the main occupation of the people in the district. Approximately 74% of workforce is engaged in agriculture and allied activities. The main crops of the district are Ground nuts, Bajra, Jowar, Cotton, Pulses, Wheat and some other spices. The district has high agricultural productivity in Cotton and Ground nuts. Climatically, the district is also suitable for good number of horticultural crops like Mango, Chiku, Coconut, Lemon, etc. In view of ever expanding the demand for such fruits, the district has got a wider scope for expansion and at the same time the state government is also proving subsidy to encourage the people to go for horticulture crops, which would stimulate the growth of agro based industries in the region.

Dairy industry is well established in the district and the second largest income generating sector next to agriculture in the district.

B) Fisheries:

The district has the advantage of possessing coastline of sixty-two kilometers on the Arabian Sea, having rich fishing centres of Jafarabad, Kotda, Shailbet, Victor, Rajula and Pipavav. Thus, Amreli is an important marine fishing zone of the state.

C) Minerals:

The district has significant mineral wealth. It has vast deposits of the Limestone; most of it is of cement grade. Other important minerals available in the district are Bauxite, Calcite and Bentonite.

Industrial exploitation of other mineral is not that significant as quantity available is comparatively lower. However, there are a number of mineral based industries such as Calcite grinding, Bentonite powder. These processed minerals are further put to industrial use in many industries.

D) Infrastructural Facilities Exist in The District:

In the absence of infrastructural facilities, industrial development of any region becomes rather difficult. These infrastructures include the availability of roads, power, railway, communication, water, transportation, education, industrial estates, banking facilities, etc. In Amreli district, the existing facilities are elaborated as under:

i. Transport and Communication:

The quality of roads in the district is very poor as compared to other districts. The total road network in the district is also very poor. The total road network in the district is 4219.70 kms, out of which 3364 kms (80%) are pucca road and 855 kms are (20%) are kutcha roads; many of the villages are not approachable during the monsoon season.

In the district out of eleven talukas, four talukas do not have any rail facilities. There is only one airport at Amreli. However, no regular flights are operated by the airport authority. However, the district has the benefit of sixty-two kilometers long sea coast. Where three ports Victor, Jafarabad, and Pipavav are located. These ports were built on PPP basis.

ii. Banking:

The district has 107 branches of the nationalized banks and 52 other branches. The ratio of banks to the people is 1: 8763.

iii. Education:

The role of educational institutions and the technical training institutes are very vital for industrial development in the region. There are good number of schools and colleges in the district. In the year 2010, the number of Primary schools in the district was 966, Secondary and Higher Secondary schools was 171. The district had 20 colleges affiliated to Saurastra University. It has one Polytechnic and one Technical institute, as well as six ITIs providing technical training to youth for the job as well as for the self employment.

iv. Power:

Power supply is the chief necessity for the economies and industrial development of the district. The main source of power supply in the district is Gujarat Electricity Board. Except one village of Rajula taluka, all the villages have been electrified. There are twenty eight sub stations in the district distributing the electricity.

v. Water:

Availability of water is another pre-requisite for the development of industries. However, the fact is that the district water deficit district.

From the above it can be summarized that the quality of infrastructure is poor in the district and at the same time it is not available in every part of the district. This has resulted in the district being industrially backward.

Even today situation has not improved; Amreli district is still one of the most industrially backward districts of the state.[60] As per the I.G.Patel committee report (1984), the government of Gujarat has declared some talukas as industrially most backward talukas and some were industrially backward talukas. The district has eleven talukas, out of these talukas Babra, Jafarabad, Khambha, Liliya and Rajula were declared as the industrially most backward talukas. While Dhari, Amreli, Kunkavav-Vadia, Lathi, Savarkundala as well as Bagasara were declared as the industrially backward talukas. Thus, all eleven talukas of the district were considered industrially backward. As a result the whole district itself can be called as industrially backward district.

The availability of developed industrial plots, readily built industrial sheds in a well chosen locations with basic infrastructural facilities like roads, water, power are the pre requisite to attract and to encourage industries in the long run. It is for this reason that the Gujarat Industrial Development Corporation (GIDC) had extended its activities to Amreli district by establishing six industrial estates, one each at Amreli, Jafarabad, Lilia, Lathi, Babra and Rajula taluka. Table 7.1 shows position of these industrial estates.

From the table, it can be seen that, out of eleven talukas, industrial estates are available only in six talukas and that too of small size, in terms of number of sheds and land acquired. Nevertheless, the existence of the industrial estates in these talukas has led to some development of industrial activities in the district.

[60] This was evident in chapter V

Table 7.1

Industrial Estates (GIDC) in Amreli District

Sr No.	Talukas	Name of the Industrial Estates	Land (in Hectors)	No. of Sheds	No. of Units
1	Babra	Babra I & II	25.81	10	40
2	Lathi	Dam Nagar	14.82	06	38
3	Lilia	Godhavdar	1.00	07	02
4	Amreli	Amreli	14.05	69	110
5	Jafarabad	Babarkot	1.00	07	03
6	Rajula	Rajula	1.00	08	04
Total		-	57.68	107	197

Source: Regional Manager GIDC, Bhavnagar

GIDC has proposed two more industrial estates, one each at Amreli and Savarkundala taluka with 81.00 hectors and 82.00 hectors land acquired respectively. Till date the district does not have any private industrial estate. However, there are two co-operative industrial estates in the district, one at Dhari with six sheds and the other at Rajula with eight sheds. There is a proposal to develop port based industrial estate with 1000 hectors of land at Pipavav.

Apart from industrial estates, the industrial development of the district is to be developed through cluster model. Clusters are geographic concentration of establishments, factories, encompassing both large and small firms of inter related companies and the institutions that "feed" them-producing similar products. Clusters are important features because they allow companies to be more productive and innovative than they could be in isolation.[61]

As per 2000 census of small scale industries the district had eight industrial clusters, one each at Rajula, Bagasara and Savarkundala and five at Amreli taluka. Table 7.2 provides other information of these clusters.

[61] See Kaya (2006)

Table 7.2
Number of SSI Industrial Clusters within Amreli District 2000

Sr No	Name of the Product	Talukas	No. of Units	Investments (Rs in Lakhs)	Employment
1	Soda ash & Salt base industries	Rajula	18	42.11	169
2	Jems & Jewellary	Bagasara	11	37.91	106
3	Electrical Machinery	Savarkundala	40	196. 33	179
4	Metal ware	Amreli	39	169. 57	241
5	Oil mills	Amreli	41	176. 19	339
6	Power looms	Amreli	110	182. 88	467
7	Wood products & Furniture	Amreli	106	145. 67	307
8	Diamond processing	Amreli	58	248. 13	179
Total		-	423	1198. 79	1987

*Source**: SSI Census 2000***

It is evident from this table that, the power looms cluster (textiles) had the largest number of units, providing employment to more than 23% of the labour force.

As far as the registered units were concerned, at the time of the formation of the Gujarat state in the year 1960, there were only 47 registered units in the district. This was mainly concentrated in Amreli, Rajula and Lathi talukas of the district. By 1971, another 82 units were registered. After a decade the number increased to 360 industrial units, out of which 42% were located in Amreli, 15% in Rajula, 11% in Lathi taluka and rest were located in eight talukas. It was only in the eighties that the industrial scenario in the district underwent change. Many small scale diversified groups got registered during this period. Further the first large scale industry of the district namely the Gujarat Co-operative Marketing Federation Ltd was established in Amreli taluka for producing edible oil. The liberalization process in the nineties further helped the Amreli district in industrial development. And by 2009-10 the registered units increased to 6945. In addition 16 more large scale industries got established in the district.

TABLE 7.3

Taluka wise Industrial Progress in Amreli District: 2009-10

Sr no	Taluka	Number of units		Investment		Employment	
		Large	SSI	Large (in Crores)	SSI (in Lakhs)	Large	SSI
1	Amreli	02	1424	6	3211.84	397	4711
2	Dhari	02	1046	2	1445.42	22	2587
3	Kunkavav Vadia	-	516	-	394.32	-	1168
4	Rajula	09	597	2114	2659.08	3561	2656
5	Babra	03	380	18	3350.94	87	1231
6	Jafarabad	01	297	38	514.91	115	728
7	Lathi	-	819	-	1800.52	-	2090
8	Savarkundala	-	341	-	1066.18	-	901
9	Bagasara	-	924	-	1715.92	-	2374
10	Khambha	-	382	-	485.81	-	948
11	Lilia	-	202	-	462.22	-	546
Total		17	6928	2178	17107.16	4182	19940

Source: **DIC, Amreli**

With regards to employment in the year 1960, there were only 153 persons employed in the registered units in the district. This increased to 446 persons by 1970-71. By 2009-10 the total number of persons employed increased to 24122. Similar trend is evident for the total investment. The number of registered units, employment and investment is presented in table 7.3.

It is clear from the Table 7.3 that out of eleven talukas in Amreli district, large scale industrial units are located only in five talukas. Maximum numbers of large scale industrial units are located in Rajula taluka; in fact more than 50% of large scale units are located in Rajula taluka. The picture is similar, if we look at investment in these units and employment. Babra taluka accounted for about 18% of large scale units, over and above it also accounted for second highest investment.

If we look at the distribution of Small scale industrial units in the district in the year 2009-10, it is found that, most of the SSI units are concentrated in Amreli (21%), Dhari (15%), Bagasara (13%) and Lathi (12%) talukas. The picture is alike, if we look at

employment in SSI in this district. However, in terms of investment in SSI, Babra taluka accounted for 20% of total investment; Amreli taluka had a share of 19% and Rajula taluka about 16% of the total investment in the district.

It is quite apparent from the above that most of the industrial activities are concentrated in Amreli, Dhari, Rajula and Bagasara talukas. These talukas had some industrial concentration even before the reforms. However, in comparing the industrial scenario of Amreli district for the year 2009-10 with that of 1990-91, it emerges out that a slight industrial dispersal has taken place away from Amreli, Dhari and Lathi talukas. For instance, in the year 1990-91, 30% of industrial units were located in Amreli taluka, which has declined to 21% in 2009-10. Similarly, Rajula taluka accounted for just 3% of industrial units in 1990-91 but in 2009-10 it increased to nearly 9%. Thus, it can be affirmed that the state government's industrial dispersal policy to some extent has been successful in achieving the objective of more equitable distribution of industries.[62]

The group wise and taluka wise employment generation in the year 2009-10 has been presented in Table 7.4. This table is evidences that in terms of employment generation, it is Amreli taluka that has contributed the largest among all eleven talukas. Further, it is also clear that the Textiles and Chemical & Chemical products have generated almost 80% of the employment in the district.

Experience shows that with economic progress, manufacturing sector witnesses a fall in labour intensity and an increase in capital intensity. The taluka wise factor intensity (labour & capital) has been presented in Table 7.5. It is evident from this table that in majority of talukas, the labour as well as capital intensity has increased. This clearly indicates that in Amreli district like Vadodara district there is not only improvement in technology but also there has been increased demand for labour. This may be due to reason that industries have become more capital intensive, at the same time it has led to rising demand for skilled labour.

From the forgone analysis, it is evident that most of the industrial activities have taken place in Amreli, Dhari and Rajula talukas in the district. Further in terms of employment two industries that is Textiles and Chemical & Chemical products have

[62] Currently the Government of Gujarat has been encouraging Pipavav port and port based industries in Rajula taluka.

TABLE- 7.4

Taluka wise And Industry Group wise Employment Scenario -2009-10

Sr No	Industrial Groups	Talukas											
		Amreli	Dhari	Kunkavav Vadia	Rajula	Babra	Jafarabad	Lathi	Savarkundala	Bagasara	Khambha	Lilia	Total
1	Food Products and Beverages	02	02	01	02	01	-	01	01	01	-	01	12
2	Tobacco Products	-	02	01	01	01	-	01	01	-	-	01	08
3	Textiles	86	14	14	41	47	-	19	22	02	-	11	256
4	Wood and Wood Products Furniture Fixture	02	02	-	03	03	-	02	02	02	-	02	18
5	Paper and Paper Products	03	01	-	01	01	-	01	01	-	-	01	09
6	Leather and Leather Products	-	01	-	01	01	-	01	01	-	-	-	05
7	Rubber, Plastic and Petroleum	02	-	-	04	-	-	01	01	-	-	-	08
8	Chemical and Chemical Products	263	18	08	99	110	-	45	41	-	-	04	588
9	Cement and Clay Work	01	01	-	02	02	-	-	-	-	-	-	06
10	Basic Metal Industries	02	-	-	03	04	-	02	-	-	-	-	11
11	Metal Products	09	-	-	05	02	-	01	-	-	-	-	17
12	Electrical Machinery	03	-	-	03	02	-	-	-	-	-	-	08
13	Transport Equipment	07	-	-	05	05	-	03	02	-	-	-	22
14	Repair Service and Others	24		01	13	14	-	09	15	03	02	06	87
Total			404	41	25	183	193	-	86	87	08	02	26

Source: D.I.C. Amreli

accounted for the bulk of employment. This suggests that the location of industries in Amreli district is not optimum in terms of uniformity. This requires an in-depth analysis industrial localization, which is taken up in the following sections.

TABLE 7.5

Taluka wise Labour Intensity and Capital Intensity in Registered SSI (Amreli District)

Sr No	Talukas	1990-91		1995-96		2000-01		2005-06		2009-10	
		L.I	C.I	L.I	C.I	L.I	C.I	L.I	C.I	L.I	C.I
1	Amreli	4.57	0.94	3.43	1.48	1.99	1.85	1.84	4.62	10.63	4.18
2	Dhari	00	00	2.71	1.12	1.85	1.76	1.00	0.12	2.16	1.00
3	Kunkavav-Vadia	3.30	0.89	1.97	0.88	1.20	1.77	1.00	0.12	2.78	2.44
4	Rajula	3.96	0.95	1.80	2.14	1.88	2.84	3.63	5.29	20.33	5.51
5	Babra	00	00	2.00	0.94	1.50	1.62	1.00	0.12	10.72	4.44
6	Jafarabad	3.00	0.46	00	00	1.30	2.18	00	00	00	00
7	Lathi	2.80	0.83	2.00	1.78	1.29	1.81	1.00	0.12	5.38	2.75
8	Savarkundala	00	00	00	00	1.76	2.42	2.62	5.17	10.88	5.38
9	Bagasara	3.50	0.69	2.47	1.22	1.67	2.25	1.00	0.12	2.00	1.00
10	Khambha	3.60	0.72	2.00	1.36	00	00	5.00	5.00	2.00	1.00
11	Lilia	00	00	00	00	1.60	1.22	1.00	0.12	5.20	2.20

Note: **L.I.= Labour Intensity C.I.= Capital Intensity**

Source: Compiled from Various Issues of District Industries Centre, Amreli.

III DATA SOURCES AND METHODOLOGY:

For the study of inter-taluka industrial-disparity in Amreli district, we have relied on secondary sources of data. These data were collected from "Industrial Outline of Amreli district" and "Socio-Economic Review of Amreli district", published by District Panchayat Amreli, "Industrial Outline of Amreli", published by District Industries Centre of Amreli. The present study in order to analyze inter-taluka disparity, limits itself to the analysis of regional disparities in terms of "Factories", "Employment" and "Investment" from 1990-91 to 2009-10.

The methodology adopted in this chapter is the same as in the previous chapter i.e. the location quotient of industries is used to measure localization of industries. In addition the compound growth rate and instability index value for factories, employment and investment has also been attempted. In the next section the results are presented.

IV RESULTS:

This section deals with the analyses of Location Quotient of all eleven talukas of Amreli district. From table 7.6 it is evident, that in the year 1990-91, five industrial groups viz Food & Beverages, Rubber-Plastic & Petroleum, Cement & Clay work, Basic

Metal and Transport Equipments had location quotient of greater than unity in Amreli taluka. In other words, these five industrial groups had larger share of employment in Amreli taluka than justified by its share in the distribution of employment in the district. Of the remaining industrial groups, six industries had location quotient equal to zero, which means these groups were absent in that particular year in the taluka. As stated before, the changes in the value of location quotient of a given taluka in respect to particular industry over a period of time reflects the changes in the relative importance of the taluka in respect of that industry. In this connection, the location quotient of five groups mentioned above had declined in the year 2009-10. In other words, these groups of industries have loosened their importance in employment generation. In contrast Chemical & Chemical products and Metal products which did not figure in employment generation earlier had location quotient of greater than one in the year 2009-10. Based on the methodology described earlier, the industrial groups which can be categorized as future star in Amreli taluka are Textiles and Electrical Machinery. Whereas, Chemical & Chemical products and Metal products can be categorized as star industrial groups, while Food & Beverages, Wood & Wood products, Rubber-Plastic & Petroleum, Cement & Clay work, Basic Metal and Transport Equipments can be deemed to be declining stars.

The Location Quotient for Dhari taluka (Table 7.7) shows that no industrial group was registered in the year 1990-91, whereas in the year 2009-10 seven industrial groups viz Food & Beverages, Tobacco products, Textiles, Wood & Wood products, Paper & Paper products, Leather & Leather products and Cement & Clay work had a location quotient greater than one. Whereas, five industrial groups of Rubber-Plastic & Petroleum, Basic Metal, Metal products, Electrical Machinery and Transport Equipments had a location quotient value equal to zero, which shows that in this particular year these groups did not generate any employment in the taluka. In this taluka, due to the presence of the forest area, supply of timber is higher, as an outcome, the location quotient for Wood products are higher. Furthermore, the supply of raw tobacco has led to high location quotient value in the taluka. Here, star industrial groups are Food & Beverages, Tobacco products, Textiles, Wood & Wood products, Paper & Paper products and Cement & Clay work. Whereas Chemical & Chemical products are the future stars.

As for as the location quotient for Kunkavav Vadia was concerned (Table 7.8), only three groups of industries viz Food & Beverages, Wood & Wood products and

Cement & Clay work had registered location quotient value greater than one in the year 1990-91. However, in the year 2009-10, Food & Beverages, Tobacco products and Textiles has shown location quotient value greater than one. In the same year, nine industrial groups were absent; as a result their location quotient value is zero. Kunkavav Vadia taluka is basically agricultural based taluka, thus, more number of rice mills and oil mills are present here. Consequently, Food & Beverages had a higher location quotient value. In this taluka, Chemical & Chemical products can be regarded as future star, whereas Food & Beverages, Tobacco products and Textiles can be considered as star industrial groups.

The location quotient for Rajula taluka (Table 7.9), for the year 1990-91, had only two groups i.e. Basic Metal and Metal products with location quotient value greater than one, whereas six industrial groups had location quotient value zero, as they were absent in the taluka. However by 2009-10, the situation has improved. Seven industrial groups viz Leather & Leather products, Rubber-Plastic & Petroleum, Cement & Clay work, Basic Metal, Metal products, Electrical Machinery and Transport Equipments had registered location quotient value greater than one. In this taluka due to presence of Pipavav port, the Rubber-Plastic & Petroleum, Basic Metal, Metal products, Electrical Machinery and Transport Equipments got a boost, so the location quotient value had increased. Here, future star groups are Food & Beverages, Tobacco products, Textiles, Wood & Wood products, Paper & Paper products and Chemical & Chemical products. Whereas, Leather & Leather products, Rubber-Plastic & Petroleum, Cement & Clay work, Basic Metal, Metal Products, Electrical Machinery and Transport Equipments are categorized as star industrial groups.

TABLE 7.6
Location Quotient and Specialization Matrix in AMRELI Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	18	02	20.69	0.50	-88.89	-97.58	1.06	0.43	-59.43	3
2	Tobacco Products	-	-	-	-	-	-	0	0	-	-
3	Textiles	-	86	-	21.29	-	-	0	0.88	-	1
4	Wood and Wood Products Furniture Fixture	02	02	2.30	0.50	-	-78.26	0.43	0.29	-32.56	3
5	Paper and Paper Products	-	03	-	0.74	-	-	0	0.87	-	1
6	Leather and Leather Products	-	-	-	-	-	-	0	0	-	-
7	Rubber, Plastic and Petroleum	13	02	14.94	0.50	-84.62	-96.65	1.84	0.65	-64.67	3
8	Chemical and Chemical Products	-	263	-	65.10	-	-	0	1.16	-	2
9	Cement and Clay Work	02	01	2.30	0.25	-50.00	-89.14	1.08	0.44	-59.26	3
10	Basic Metal Industries	02	02	2.30	0.50	00	-76.26	1.30	0.47	-63.85	3
11	Metal Products	22	09	25.29	2.23	-59.10	-91.18	0.89	1.38	55.06	2
12	Electrical Machinery	-	03	-	0.74	-	0	0	0.97	-	1
13	Transport Equipment	08	07	9.20	1.73	-12.5	-81.20	1.44	0.83	-42.36	3
14	Repair Service and Others	20	24	22.99	5.94	20.00	-74.16	0.80	0.72	-10.00	3
15	Total	87	404	100	100	364.37	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Amreli.

TABLE 7.7
Location Quotient and Specialization Matrix in DHARI Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	-	02	-	4.88	-	-	0	4.29	0	2
2	Tobacco Products	-	02	-	4.88	-	-	0	6.43	0	2
3	Textiles	-	14	-	34.15	-	-	0	1.41	0	2
4	Wood and Wood Products Furniture Fixture	-	02	-	4.88	-	-	0	2.86	0	2
5	Paper and Paper Products	-	01	-	2.44	-	-	0	2.86	0	2
6	Leather and Leather Products	-	01	-	2.44	-	-	0	5.15	0	2
7	Rubber, Plastic and Petroleum	-	-	-	-	-	-	0	0	-	-
8	Chemical and Chemical Products	-	18	-	43.90	-	-	0	0.79	0	1
9	Cement and Clay Work	-	01	-	2.44	-	-	0	4.29	0	2
10	Basic Metal Industries	-	-	-	-	-	-	0	0	-	-
11	Metal Products	-	-	-	-	-	-	0	0	-	-
12	Electrical Machinery	-	-	-	-	-	-	0	0	-	-
13	Transport Equipment	-	-	-	-	-	-	0	0	-	-
14	Repair Service and Others	-	-	-	-	-	-	0	0	-	-
15	Total	-	41	-	100	-	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Amreli

TABLE 7.8
Location Quotient and Specialization Matrix in KUNKAVAV-VADIA Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	08	01	24.24	4.00	-87.5	-83.5	1.24	3.52	183.87	2
2	Tobacco Products	-	01	-	4.00	-	-	0	5.28	-	2
3	Textiles		14	-	56.00	-	-	0	2.31	-	2
4	Wood and Wood Products Furniture Fixture	04	-	12.12	-	-	-	2.29	0	-	N.A.
5	Paper and Paper Products	-	-	-	-	-	-	0	0	-	-
6	Leather and Leather Products	-	-	-	-	-	-	0	0	-	-
7	Rubber, Plastic and Petroleum	02	-	6.06	-	-	-	0.75	0	-	N.A.
8	Chemical and Chemical Products	-	08	-	32.00	-	-	0	0.57	-	1
9	Cement and Clay Work	01	-	3.03	-	-	-	1.43	0	-	N.A.
10	Basic Metal Industries	-	-	-	-	-	-	0	0	-	-
11	Metal Products	09	-	27.27	-	-	-	0.96	0	-	N.A.
12	Electrical Machinery	-	-	-	-	-	-	0	0	-	-
13	Transport Equipment	02	-	6.06	-	-	-	0.95	0	-	N.A.
14	Repair Service and Others	07	01	21.21	4.00	-85.71	-81.14	0.74	0.49	-33.78	1
15	Total	33	25	100	100	-24.24	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Amreli.

TABLE 7.9
Location Quotient and Specialization Matrix in RAJULA Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	12	02	11.65	1.09	-83.33	-90.64	0.60	0.96	60.00	1
2	Tobacco Products	-	01	-	0.55	-	-	0	0.72	-	1
3	Textiles	-	41	-	22.40	-	-	0	0.92	-	1
4	Wood and Wood Products Furniture Fixture	05	03	4.85	1.64	-40.00	361.86	0.92	0.96	4.35	1
5	Paper and Paper Products	-	01	-	0.55	-	-	0	0.64	-	1
6	Leather and Leather Products	-	01	-	0.55	-	-	0	1.15	-	2
7	Rubber, Plastic and Petroleum	03	04	2.91	2.19	33.33	-24.74	0.36	2.89	702.78	2
8	Chemical and Chemical Products	-	99	-	54.10	-	-	0	0.97	-	1
9	Cement and Clay Work	01	02	0.97	1.09	100.00	12.37	0.46	1.92	317.39	2
10	Basic Metal Industries	02	03	1.94	1.64	50.00	-15.46	1.10	1.57	42.73	2
11	Metal Products	39	05	37.86	2.73	-87.18	-92.79	1.34	1.70	26.87	2
12	Electrical Machinery	-	03	-	1.64	-	---	0	2.16	-	2
13	Transport Equipment	02	05	1.94	2.73	150.00	40.72	0.31	1.31	322.58	2
14	Repair Service and Others	39	13	37.86	7.10	-66.67	-81.25	1.32	0.86	-0.35	3
15	Total	103	183	100	100	77.70	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Amreli

As far as the location quotient for Babra taluka (Table 7.10) was concerned, in the year 1990-91, no industrial units got registered in the taluka, as a result, Location Quotient value of all fourteen groups of industries remained zero. However in the year 2009-10, seven industrial groups viz Textiles, Leather & Leather products, Chemical & Chemical products, Cement & Clay work, Basic Metals, Electrical Machinery and Transport Equipments had shown location quotient value greater than one.[63]. In this taluka, Food & Beverages, Tobacco products, Wood & Wood products, Paper & Paper products and Metal products can be regarded as future stars. Whereas, Leather & Leather products, Chemical & Chemical products, Cement & Clay work, Basic Metal, Electrical Machinery and Transport Equipments can be regarded as star group of industries.

Regarding Location Quotient of Jafarabad taluka (Table 7.11), in the year 1990-91 only one group of industries that is Food & Beverages had shown location quotient value greater than one, whereas due to absence of other industrial groups the location quotient was zero. The situation remained the same in the year 2009-10 also. From this it can be asserted that this taluka is one of the most industrially backward taluka of the district.

The location quotient for Lathi taluka (Table 7.12) reveals that in the year 1990-91, Food & Beverages, Wood & Wood products, Cement & Clay work, Basic Metal and Transport Equipments had registered Location Quotient greater than one, whereas seven groups of industries had shown location quotient value zero. However, by the year 2009-10, eight groups viz Food & Beverages, Tobacco products, Wood & Wood products, Paper & Paper products, Leather & Leather products, Rubber-Plastic & Petroleum, Basic Metal and Transport Equipments has shown location quotient value greater than one. As large numbers of oil mills have been set up in this taluka due to availability of ground nuts, the Food & Beverages group has generated more employment. In this taluka Textiles, Chemical & Chemical products and Metal products can be considered as future stars, whereas Tobacco products, Paper & Paper products, Leather & Leather products, Rubber-Plastic & Petroleum are star groups. While Food & Beverages, Wood & Wood products, Basic Metals and Transport Equipments are the former stars.

[63] This is basically due to easy availability of raw materials such as lime stone, clay and gypsum and raw cotton.

TABLE 7.10
Location Quotient and Specialization Matrix in BABRA Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	-	01	-	0.52	-	-	0	0.46	-	1
2	Tobacco Products	-	01	-	0.52	-	-	0	0.68	-	1
3	Textiles	-	47	-	24.35	-	-	0	1.00	-	N.A.
4	Wood and Wood Products Furniture Fixture	-	03	-	1.55	-	-	0	0.91	-	1
5	Paper and Paper Products	-	01	-	0.52	-	-	0	0.61	-	1
6	Leather and Leather Products	-	01	-	0.52	-	-	0	1.09	-	2
7	Rubber, Plastic and Petroleum	-	-	-	-	-	-	0	0	-	-
8	Chemical and Chemical Products	-	110	-	56.99	-	-	0	1.02	-	2
9	Cement and Clay Work	-	02	-	1.04	-	-	0	1.82	-	2
10	Basic Metal Industries	-	04	-	2.07	-	-	0	1.99	-	2
11	Metal Products	-	02	-	1.04	-	-	0	0.64	-	1
12	Electrical Machinery	-	02	-	1.04	-	-	0	1.37	-	2
13	Transport Equipment	-	05	-	2.59	-	-	0	1.24	-	2
14	Repair Service and Others	-	14	-	7.25	-	-	0	0.88	-	1
15	Total	-	193	-	100	-	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Amreli.

TABLE 7.11
Location Quotient and Specialization Matrix in JAFARABAD Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	02	-	66.67	-	-	-	3.43	0	-	N.A.
2	Tobacco Products	-	-	-	-	-	-	0	0	-	-
3	Textiles	-	-	-	-	-	-	0	0	-	-
4	Wood and Wood Products Furniture Fixture	-	-	-	-	-	-	0	0	-	-
5	Paper and Paper Products	-	-	-	-	-	-	0	0	-	-
6	Leather and Leather Products	-	-	-	-	-	-	0	0	-	-
7	Rubber, Plastic and Petroleum	-	-	-	-	-	-	0	0	-	-
8	Chemical and Chemical Products	-	-	-	-	-	-	0	0	-	-
9	Cement and Clay Work	-	-	-	-	-	-	0	0	-	-
10	Basic Metal Industries	-	-	-	-	-	-	0	0	-	-
11	Metal Products	-	-	-	-	-	-	0	0	-	-
12	Electrical Machinery	-	-	-	-	-	-	0	0	-	-
13	Transport Equipment	-	-	-	-	-	-	0	0	-	-
14	Repair Service and Others	01	-	33.33	-	-	-	1.16	0	-	N.A.
15	Total	03	-	100	-	-	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Amreli.

TABLE 7.12
Location Quotient and Specialization Matrix in LATHI Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	05	01	35.71	1.16	-80.00	-0.97	1.83	1.02	-44.26	4
2	Tobacco Products	-	01	-	1.16	-	-	0	1.53	-	2
3	Textiles	-	19		22.09	-	-	0	0.91	-	1
4	Wood and Wood Products Furniture Fixture	02	02	14.29	2.33	00	-0.84	2.70	1.36	-49.63	4
5	Paper and Paper Products	-	01	-	1.16	-	-	0	1.36	-	2
6	Leather and Leather Products	-	01	-	1.16	-	-	0	2.45	-	2
7	Rubber, Plastic and Petroleum	-	01	-	1.16	-	-	0	1.53	-	2
8	Chemical and Chemical Products	-	45	-	52.33	-	-	0	0.94	-	1
9	Cement and Clay Work	01	-	7.14	-	-		3.37	0	-	N.A.
10	Basic Metal Industries	01	02	7.14	2.33	100.00	-67.37	4.04	2.23	-44.80	4
11	Metal Products	-	01	-	1.16	-	-	0	0.72	-	1
12	Electrical Machinery	-	-	-	-	-	-	0	0	-	-
13	Transport Equipment	02	03	14.29	3.49	50.00	-75.58	2.25	1.67	-25.78	4
14	Repair Service and Others	03	09	21.43	10.47	200.00	-51.14	0.75	1.27	69.33	2
15	Total	14	86	100	100	514.29	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Amreli.

If we consider location quotient for Savarkundala taluka (Table 7.13), for the year 1990-91, no industrial units were registered, as a consequence, location quotient value for all groups in this year remains zero for this taluka. But, in the year 2009-10, eight groups of industries like Food & Beverages, Tobacco products, Textiles, Paper & Paper products, Leather & Leather products, Rubber-Plastic & Petroleum and Transport Equipments has registered location quotient value greater than one. This taluka is mainly dependent upon its agriculture and forest resources. Thus all agro based and forest based industries contributed more to employment. Here, only Chemical & Chemical products can be considered as future star, while Food & Beverages, Tobacco products, Textiles, Wood & Wood products, Paper & Paper products, Leather & Leather products, Rubber-Plastic & Petroleum and Transport Equipments are star industrial groups.

The location quotient for Bagasara taluka (Table 7.14) shows that, only Food & Beverages group had location quotient value greater than one in the year 1990-91, the rest had zero value of location quotient. However, by the year 2009-10, three groups viz Food & Beverages, Textiles and Wood & Wood products has the location quotient value greater than one. Like Savarkundala taluka this taluka is also mainly dependent upon on agriculture and forest resources. There is high supply of timber in this taluka; as a result Wood product has the highest location quotient value in this taluka in the district. Here, Food & Beverages, Textiles and Woods and Wood products are star industrial groups. None of the group can be categorized as future star in this taluka.

In Table 7.15 the location quotient for Khambha taluka is presented. This taluka is one of the industrially most backward taluka of the district. In the year 1990-91, four industrial groups viz Wood & Wood products, Rubber-Plastic & Petroleum, Cement & Clay work and Transport Equipments had the location quotient value greater than one, while seven groups had zero location quotient value. However, in the year 2009-10, since no industrial unit got registered in the taluka, so no additional employment was generated by industrial sector in this taluka in this particular year, and thus their location quotient value remained zero.[64]

[64] For the same reason, the specialization matrix could not be worked out.

TABLE 7.13
Location Quotient and Specialization Matrix in SAVARKUNDALA Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	-	01	-	1.50	-	-	0	1.01	-	2
2	Tobacco Products	-	01	-	1.50	-	-	0	1.52	-	2
3	Textiles	-	22	-	25.29	-	-	0	1.04	-	2
4	Wood and Wood Products Furniture Fixture	-	02	-	2.30	-	-	0	1.35	-	2
5	Paper and Paper Products	-	01	-	1.50	-	-	0	1.35	-	2
6	Leather and Leather Products	-	01	-	1.50	-	-	0	2.42	-	2
7	Rubber, Plastic and Petroleum	-	01	-	1.50	-	-	0	1.52	-	2
8	Chemical and Chemical Products	-	41	-	47.13	-	-	0	0.85	-	1
9	Cement and Clay Work	-	-	-	-	-	-	0	0	-	-
10	Basic Metal Industries	-	-	-	-	-	-	0	0	-	-
11	Metal Products	-	-	-	-	-	-	0	0	-	-
12	Electrical Machinery	-	-	-	-	-	-	0	0	-	-
13	Transport Equipment	-	02	-	2.30	-	-	0	1.10	-	2
14	Repair Service and Others	-	15	-	17.24	-	-	0	2.09	-	2
15	Total	-	87	-	100	-	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Amreli.

TABLE 7.14
Location Quotient and Specialization Matrix in BAGASARA Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	04	01	57.14	12.5	-75.00	-78.12	2.94	10.99	273.81	2
2	Tobacco Products	-	-	-	-	-	-	0	0	-	-
3	Textiles	-	02	-	25.00	-	-	0	1.03	-	2
4	Wood and Wood Products Furniture Fixture	-	02	-	25.00	-	-	0	14.65	-	2
5	Paper and Paper Products	-	-	-	-	-	-	0	0	-	-
6	Leather and Leather Products	-	-	-	-	-	-	0	0	-	-
7	Rubber, Plastic and Petroleum	-	-	-	-	-	-	0	0	-	-
8	Chemical and Chemical Products	-	-	-	-	-	-	0	0	-	-
9	Cement and Clay Work	-	-	-	-	-	-	0	0	-	-
10	Basic Metal Industries	-	-	-	-	-	-	0	0	-	-
11	Metal Products	-	-	-	-	-	-	0	0	-	-
12	Electrical Machinery	-	-	-	-	-	-	0	0	-	-
13	Transport Equipment	-	-	-	-	-	-	0	0	-	-
14	Repair Service and Others	03	03	42.86	37.5	00	-12.51	1.49	4.55	205.37	2
15	Total	07	08	100	100	-	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Amreli.

TABLE 7.15
Location Quotient and Specialization Matrix in KHAMBHA Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	06	-	16.67	-	-	-	0.86	0	-	N.A
2	Tobacco Products	-	-	-	-	-	-	0	0	-	-
3	Textiles	-	-	-	-	-	-	0	0	-	-
4	Wood and Wood Products Furniture Fixture	02	-	5.56	-	-	-	1.05	0	-	N.A.
5	Paper and Paper Products	-	-	-	-	-	-	0	0	-	-
6	Leather and Leather Products	-	-	-	-	-	-	0	0	-	-
7	Rubber, Plastic and Petroleum	05	-	13.89	-	-	-	1.71	0	-	N.A.
8	Chemical and Chemical Products	-	-	-	-	-	-	0	0	-	-
9	Cement and Clay Work	01	-	2.78	-	-	-	1.31	0	-	N.A.
10	Basic Metal Industries	-	-	-	-	-	-	0	0	-	-
11	Metal Products	10	-	27.78	-	-	-	0.98	0	-	N.A.
12	Electrical Machinery	-	-	-	-	-	-	0	0	-	-
13	Transport Equipment	04	-	11.11	-	-	-	1.75	0	-	N.A.
14	Repair Service and Others	08	-	22.22	-	-	-	0.78		-	N.A.
15	Total	36	-	100	-	-	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Amreli.

TABLE 7.16
Location Quotient and Specialization Matrix in LILIA Taluka

Sl No.	Industry Group	Employment (Absolute)		Employment (% Share)		Employment Change		Location Quotient		Location Quotient Change	Specialization Matrix
		1990-91	2009-10	1990-91	2009-10	(Absolute)	(% Share)	1990-91	2009-10		
1	Food Products and Beverages	-	01	-	3.85	-	-	0	3.38	-	2
2	Tobacco Products	-	01	-	3.85	-	-	0	5.07	-	2
3	Textiles	-	11	-	42.31	-	-	0	1.74	-	2
4	Wood and Wood Products Furniture Fixture	-	02	-	7.69	-	-	0	4.51	-	2
5	Paper and Paper Products	-	01	-	3.85	-	-	0	4.51	-	2
6	Leather and Leather Products	-	-	-	-	-	-	0	0	-	-
7	Rubber, Plastic and Petroleum	-	-	-	-	-	-	0	0	-	-
8	Chemical and Chemical Products	-	04	-	15.38	-	-	0	0.28	-	1
9	Cement and Clay Work	-	-	-	-	-	-	0	0	-	-
10	Basic Metal Industries	-	-	-	-	-	-	0	0	-	-
11	Metal Products	-	-	-	-	-	-	0	0	-	-
12	Electrical Machinery	-	-	-	-	-	-	0	0	-	-
13	Transport Equipment	-	-	-	-	-	-	0	0	-	-
14	Repair Service and Others	-	06	-	23.07	-	-	0	2.80	-	2
15	Total	-	26	-	100	-	-	-	-	-	-

Source: Compiled from Various Issues of District Industries Centre, Amreli.

In the year 1990-91, no industrial units were registered in Lilia taluka. As a result location quotient value for all fourteen groups was zero that is presented in table 7.16. But, in the year 2009-10, Food & Beverages, Tobacco products, Textiles, Wood & Wood products and Paper & Paper products has the location quotient value greater than one, while seven groups has the quotient value zero in this year. Like Bagasara taluka, this taluka also has vast agriculture and forest resources. As a result, Wood & Wood products, Paper & Paper products and Tobacco products have easy access to necessary raw material, and thus, their contribution in the employment generation is greater than other groups. For this taluka Food & Beverages, Tobacco products, Textiles, Wood & Wood products and Paper & Paper products can be categorized as star industrial groups, whereas Chemical & Chemical products can considered to be future star group.

From the analysis above it is clear that, there has been a shift in the relative significance of a particular industry in a particular taluka. Further, it is also evident that except few talukas, majority of talukas has shown an improvement in the number of industries having location quotient value greater than one. Among eight talukas of the district, different industrial groups emerged as the future stars. This shows that the district has a bright scope to develop those industrial groups in different talukas, so as to minimize the industrial disparity.

After having analysed of location quotient of industries in this section, in the next section, the taluka wise and group wise compound growth rate and instability index has been estimated. This will provide an idea of inter taluka industrial variation in Amreli district. This estimation is undertaken on the basis of several parameters as per the methodology described in the previous chapters.

V INTER-TALUKA INDUSTRIAL DISPARITY IN AMRELI DISTRICT:

The district of Amreli is considered as highly backward in the state in terms of number of industries, investment, and employment in manufacturing sector. From the foregone analysis it is also apparent that, the Amreli district is not only industrially backward, but whatever industrial development has been taken place it is not evenly distributed in all eleven talukas. A clear picture will emerge on the basis of compound annual growth rate analysis. The compound growth rate of all talukas of all the district in terms of registered factories, employment and investment during the study period under

consideration is presented in table 7.17 (absolute & percentage share). This table depicts the fact that, during the study period, in terms of registered factories, high growth is recorded in Babra taluka (7.88) and the lowest in Bagasara taluka (-12.4). However, it is to be noted that except Babra taluka, all talukas of the districts have registered negative growth rate during the study period, as a result the district average is also negative. In terms of employment also, the highest growth rate is recorded in Babra taluka (15.06) and the lowest in Bagasara taluka (-16.62). However, the district average is -1.49. Only two talukas have shown higher growth rate than the district average, they are Babra and Amreli district, other talukas have shown lower growth than the district average. The situation is similar in terms of investment also, highest growth rate is found in Babra taluka (25.8), whereas lowest is in case of Bagasara taluka (-13.91). However, only Babra and Amreli talukas have shown higher growth rate than the district average (13.21), rest all talukas have registered lower growth rate than the district average.[65] Thus in the three parameters, Babra taluka have shown positive and higher growth rate, whereas Dhari, Bagasara, Jafarabad, Khambha and Kunkavav Vadia have shown negative growth rate. Bagasara taluka in all parameters have shown lowest growth rate. If we consider the percentage share, the trend is similar.

If the group wise growth rate is taken into account, then table 7.18 (absolute & percentage share) shows that in terms of registered factories, high growth rate is recorded in Basic Metal (4.29), Chemical & Chemical products (4.22), whereas the lowest is found in Metal products (-13.8) and Food & Beverages (-11.34). In terms of group wise employment, a high growth rate is found in Chemical & Chemical products (11.15) and Textiles (4.82), whereas lowest is recorded in Cement & Clay work (-13.7) and Metal products (-11.88). So far as group wise investment is concerned, a high growth rate is seen in Textiles (21.19) and Food & Beverages (10.53), whereas the lowest is found in Wood & Wood products (-5.25) and Metal products (-4.49). It is pertinent to note that Chemical & Chemical products have shown positive and higher growth rate in all the three parameters. And Transport Equipment too has shown a positive growth rate in selected parameters. Whereas Wood & Wood products, Cement & Clay work and

[65] In the study of Amreli district out of eleven talukas, time series data of two talukas namely Savarkundala and Lilia are not available.

TABLE 7.17
Taluka wise Compound Growth Rate of Selected Variables of Amreli District From 1990-91 to 2009-10

Sr No.	Talukas	CGR Of Registered Factories Absolute (%)	CGR Of Employment In Registered Factories Absolute (%)	CGR Of Investment (Rs In Lakhs) Absolute (%)
1	Amreli	-3.84 (4.33)	2.62(4.17)	19.47(5.53)
2	Dhari	-3.03(0.84)	-3.00(-1.53)	-0.98(-12.54)
3	Kunkavav Vadia	-9.68(-6.07)	-13.8(-12.49)	-10.81(-21.22)
4	Rajula	-7.82(-4.14)	-4.87(-3.43)	7.64(-4.92)
5	Babra	7.88 (12.19)	15.06(16.81)	25.80(11.12)
6	Jafarabad	-6.98 (-3.26)	-6.94(-5.53)	-3.79(-15.02)
7	Lathi	-6.66(-2.93)	-6.35(-4.93)	3.91(-8.21)
8	Savarkundala	--	--	--
9	Bagasara	-12.40 (-8.90)	-16.62(-15.35)	-13.91(-23.87)
10	Khambha	-9.11(-5.48)	-13.62(-12.31)	-9.92(-20.43)
11	Lilia	--		--
12	Total	-3.84	-1.49	13.21

Source: Compiled from Various Issues of District Industries Centre, Amreli.

Parenthesis in the bracket indicates the growth rates in terms of percentage share

TABLE 7.18

Group wise Compound Growth Rate of Selected Variables in Amreli District From 1990-91 to 2009-10

Sr No.	Item	CGR of Registered Factories Absolute (%)	CGR of Employment In Registered Factories Absolute (%)	CGR of Investment (Rs In Lakhs) Absolute (%)
1	Food Products and Beverages	-11.34 (-7.81)	-8.06 (-6.71)	10.53 (-2.45)
2	Textiles	-4.39 (-0.58)	4.82 (6.37)	21.19 (6.97)
3	Wood and Wood Products Furniture Fixture	-9.42 (-5.81)	-10.04 (-8.71)	-5.25 (-16.37)
4	Paper and Paper Products	----	----	----
5	Leather and Leather Products	----	----	----
6	Rubber, Plastic and Petroleum	-4.01 (-0.19)	0.04 (1.52)	5.34(-7.03)
7	Chemical and Chemical Products	4.22 (8.37)	11.15(12.80)	6.60(-5.91)
8	Cement and Clay Work	-10.25 (-6.67)	-13.7 (-12.42)	-4.30(-15.54)
9	Basic Metal Industries	4.29 (8.44)	-2.20(-0.75)	7.69(-4.96)
10	Metal Products	-13.8 (-10.37)	-11.88 (-10.57)	-4.49(-15.71)
11	Transport Equipment	1.83 (5.88)	1.47(2.97)	8.91(-3.88)
12	Repair Service and Others	0.27 (4.26)	2.02 (-0.57)	5.93(-6.51)
13	Total	-3.83	-1.46	13.3

Source: Compiled from Various Issues of District Industries Centre, Amreli.

Parenthesis in the bracket indicates the growth rates in terms of percentage share

TABLE 7.19
Taluka wise Instability Index Value of Selected Variables of Amreli District From 1990-91 to 2009-10

Sr No.	Talukas	Index Value Of Registered Factories Absolute (%)	Index Value Of Employment In Registered Factories Absolute (%)	Index Value Of Investment (Rs In Lakhs) Absolute (%)
1	Amreli	117.80 (119.13)	95.79 (102.12)	99.36 (75.38)
2	Dhari	447.60 (353.99)	392.96 (361.63)	541.09 (629.11)
3	Kunkavav Vadia	327.69 (364.53)	359.45 (445.23)	401.38 (537.94)
4	Rajula	334.92 (334.92)	822.10 (578.99)	940.78 (689.42)
5	Babra	303.20 (305.08)	468.17 (476.72)	885.30(1026.43)
6	Jafarabad	361.48 (303.25)	563.80 (458.87)	569.81 (497.89)
7	Lathi	462.01 (452.33)	604.35 (589.34)	615.70 (547.67)
8	Savarkundala	---	--	--
9	Bagasara	536.57 (502.75)	496.05 (487.97)	643.23 (646.99)
10	Khambha	707.03 (684.52)	449.51 (526.40)	563.87 (655.76)
11	Lilia	--	----	--
12	Total	42.02	64.85	90.62

Source: Compiled from Various Issues of District Industries Centre, Amreli.

Parenthesis in the bracket indicates the index values in terms of percentage share

TABLE 7.20

Group wise Instability Index Value of Selected Variables in Amreli District From 1990-91 to 2009-10

Sr No.	Item	Index Value Of Registered Factories Absolute (%)	Index Value Of Employment In Registered Factories Absolute (%)	Index Value Of Investment (Rs In Lakhs) Absolute (%)
1	Food Products and Beverages	150.51 (141.05)	196.07(179.05)	217.86 (205.89)
2	Textiles	429.23 (441.72)	529.84 (531.64)	558.64 (470.54)
3	Wood and Wood Products Furniture Fixture	200.63 (195.91)	203.72 (247.70)	192.51 (289.37)
4	Paper and Paper Products	----	--	--
5	Leather and Leather Products	----	--	--
6	Rubber, Plastic and Petroleum	125.38 (160.52)	561.29 (587.21)	86.89 (296.74)
7	Chemical and Chemical Products	383.58 (379.61)	1294.37(1076.56)	209.09 (519.05)
8	Cement and Clay Work	271.66 (261.38)	325.56 (343.22)	367.76 (484.75)
9	Basic Metal Industries	233.27 (217.05)	276.59 (321.54)	422.72 (558.23)
10	Metal Products	154.67 (158.25)	224.17 (229.43)	245.98 (131.10)
11	Transport Equipment	443.68 (447.10)	522.26 (670.86)	394.64 (500.28)
12	Repair Service and Others	261.81(238.69)	178.83 (197.40)	316.46 (235.69)
13	Total	41.01	64.92	90.55

Source: Compiled from Various Issues of District Industries Centre, Amreli
Parenthesis in the bracket indicates the index values in terms of percentage share

Metal products have shown negative growth rate in all selected variables.[66] The results of percentage share, shows the similar kind of trends.

[66] Due to non availability of time series data, the growth trends for paper & paper products and leather & leather products could not be worked out.

Further in table 7.19 the instability index of registered factories, employment and investment is presented. In terms of registered factories, low instability index value is found in Amreli taluka (117.8) and high in Khambha taluka (707.03). In terms of employment low instability index value is found in Amreli taluka (95.79) and high in Rajula taluka (822.1).Whereas in case of investment, low instability index value in Amreli taluka (99.36) and high in Rajula taluka (940.78). Thus, in all selected parameters Amreli taluka shows low instability index value. The percentage share of taluka wise instability index shows the similar results.

The group wise factories instability index is presented in Table 7.20 (absolute & percentage share). In registered factories, low instability index value is recorded in Rubber-Plastic & Petroleum (125.38) and high is found in Transport Equipments (443.68). So far as employment is concerned, low instability index value is in Food & Beverages (196.07) and highest is recorded in Chemical & Chemical products (1294.37). However, in case of group wise investment, low instability value is seen in Wood & Wood products (192.51) and high in Basic Metal (422.72). Percentage share of these selected variables shows almost similar results.

In the forgone section, we had analyzed compound growth rate and instability index separately. Nevertheless, to reap the benefits of industrial development in the long run in the region, we need to examine whether these growth rates in industrial sector are sustainable or not. The aim is to have a high growth in industrial sector of the district; at the same time instability should be lower so as to have a sustained growth in the industrial sector for a long period of time. This necessitates an analysis of growth and instability together. Considering growth and instability together, the ideal situation is to have higher growth rate with lower instability index value.

As mentioned earlier, in terms of registered factories Babra taluka registered high growth and in this taluka instability index is relatively lower, thus it can be the preferred taluka in the district with regard to registered factories.

In case of employment in factories, high growth rate was found in Babra taluka but it had registered a high instability index value. Instead, Amreli taluka although had a is relatively lower growth rate but the instability index value is lower. Thus, this taluka is an ideal destination from employment generation point of view.

In case of investment, the high growth rate was found in Babra taluka but with high instability index value. In case of Amreli taluka, the growth rate is also high but with lower instability value, can be considered as ideal destination for investment in the long run.

In case of group wise registered factories, Basic Metal group registered high growth rate with low instability index value, is a favourable group.

In terms of employment, it was found that Chemical & Chemical products has registered high growth rate but with high instability value, not favourable situation. Transport Equipments though has lower but positive growth rate with low instability index value is more preferable group from employment point of view.

As far as investment is concerned, a high growth was found in case of Textiles but instability was also found higher, which is not favourable scenario. The Rubber-Plastic & Petroleum though has relatively low growth rate but it is positive and with low instability value, would be preferred group from investment point of view.

In totality, it can be stated that, if the aim of industrial development is to reduce regional disparity by generating employment, then Amreli taluka should be preferred taluka. In terms of industrial group the preference should be Transport Equipments. It needs to be mentioned here that, Amreli taluka is dominated by industrial cluster producing Transport Equipments.

VI CONCLUSION:

Industrial development is an essential condition for economic development of any region. However, industries have a tendency to concentrate in few favourable regions, which leads to disparities in regional development. Therefore, removal of regional disparities through the promotion of industries in the backward regions has become a vital tool for the policy makers in recent years. Even the government of Gujarat has given high priority to industrial development in the state plans to eliminate regional disparity as well as to achieve growth in employment opportunities in all the districts of the state. It is in this context that in the present chapter an attempt was made to analyze the industrial location and territorial development in the district of Amreli. This chapter begins with the socio- economic background and the industrial scenario of Amreli district. It is apparent from the data presented that most of the industrial activities in the district have taken

place in few talukas such as Amreli, Dhari, Rajula and Lathi talukas. Consequently, these talukas (territories) which had industrial concentration, developed faster and other talukas remained industrially backward region. Thus the location of industries like in Vadodara district is not optimum in terms of uniformity in Amreli district also.

However, labour as well as capital intensity has increased in almost all talukas. Thus, increased use of capital has not led to the displacement of the labour in the district.

An analysis of industrialisation was undertaken in two ways. Firstly, an attempt had been made to find out taluka wise specialization and concentration of industrialisation within the district by working out location quotient. The analysis of the location quotient, paves the way for designing the specialization matrix and the identification of the future stars. Knowing the future star industry in a region, would be helpful in undertaking appropriate developmental approach for regional development. Secondly, the intra-district industrial variation has been analyzed by computing compound growth rate and instability index in order to find out whether the observed growth rate in the industrial development is justifiable or not.

Analyzing location quotient exposes the following:

i. Eight talukas out of eleven have industries which can be considered to be future stars and among these eight talukas industries from different groups constitute the future stars. The talukas of Amreli (Textiles, Paper & Paper products and Electrical Machinery), Dhari (Chemical & Chemical products), Kunkavav Vadia (Chemical & Chemical products), Rajula (Food & Beverages, Tobacco products, Textiles, Wood & Wood products, Paper & Paper products and Chemical & Chemical products), Babra (Food & Beverages, Tobacco products, Wood & Wood products, Paper & Paper products and Metal products), Lathi (Textiles, Chemical & Chemical products and Metal products), Savarkundala(Chemical & Chemical products) and Lilia(Chemical & Chemical products) are the future stars.
ii. In nine talukas, one or the other industrial groups can be considered as star groups- i.e. those groups which have location quotient value greater than one and has a rising trend in location value. These talukas are Amreli (Chemical & Chemical products and Metal products), Dhari (Food & Beverages, Tobacco products, Textiles, Wood & Wood products, Paper & Paper products, Leather products and Cement & Clay works), Kunkavav Vadia (Food & Beverages,

Tobacco products and Textiles), Rajula (Leather products, Rubber-Plastic & Petroleum, Cement & Clay work, Basic Metal , Metal products, Electrical Machinery and Transport Equipments), Babra (Leather products, Chemical & Chemical products, Cement & Clay work, Basic Metal, Electrical Machinery and Transport Equipments),Lathi (Tobacco products, Paper & Paper products, Leather products and Rubber-Plastic & Petroleum), Savarkundala (Food & Beverages, Tobacco products, Textiles, Wood & Wood products, Paper & Paper products, Leather products, Rubber-Plastic & Petroleum and Transport Equipments), Bagasara (Food & Beverages Textiles and Wood & Wood products) and Lilia (Food & Beverages, Tobacco products, Textiles, Wood & Wood products and Paper & Paper products).

iii. Only one taluka i.e. Amreli has an industrial group which can be considered as declining star. The industrial groups are Food & Beverages, Wood & Wood products, Rubber-Plastic & Petroleum, Cement & Clay work, Basic Metal along with Transport Equipments.

iv. Only one taluka i.e. Lathi has an industrial groups that can be categorized as former star, which means its location quotient value had a declining trend. The industrial groups are Food & Beverages, Wood & Wood products, Basic Metal as well as Transport Equipments.

It can be affirmed from the above that the government should provide special incentives to future stars and star industrial groups in different talukas, so as to generate more employment especially in those talukas which are industrially backward and has low industrial employment. This will go long way to reduce territorial industrial disparity. It is also evident that in majority of talukas we have one or other industrial groups as future star or star groups. Thus, the district has a wide scope for future industrial development.

If one looks at the **Growth trends and Instability index value**, then the following emerges:

i. The highest growth rate is found in Babra taluka for the registered factories, employment and investment, whereas the lowest is in Bagasara taluka for the same variables.

ii. For the group-wise registered factories, the highest growth rate is recorded in Basic Metal and the lowest in Metal products.

iii. As far as the group-wise employment was concerned, the highest growth rate is found in Chemical & Chemical products, while the lowest is found in Cement & Clay work.

iv. In terms of group wise investment, the highest growth rate is seen in Textiles and the lowest is seen in Wood & Wood products.

v. Instability index value reveals that for registered factories the lowest index is found in Amreli and highest in Khambha taluka.

vi. The lowest growth rate for employment and investment are recorded in Amreli taluka and highest in Rajula taluka.

vii. The lowest index value in case of group-wise registered factories are found in Rubber-Plastic & Petroleum and higher in Transport Equipments.

viii. The lower index value for group-wise employment is found in Food & Beverages and higher index value is found in Chemical & Chemical products.

ix. The low index value for industry group-wise investment is recorded in Wood & Wood products, while high in Basic Metal.

x. Analyzing the growth and instability together, it is evident that in order to generate more employment with high growth with low instability index, Amreli taluka would be a model taluka in the district and in case of industrial group Transport Equipments would be the ultimate group in the district.

From the analysis of location quotient, growth and instability, it is apparent that, an inter-taluka industrial disparity still exists during the study period. More industrial concentration of industrial activities is found in Amreli, Rajula, Lathi, Dhari and Babra talukas. Whereas, in the talukas of Lilia, Khambha, Bagasara, Jafarabad and Kunkavav Vadia industrial activities have been very slow. But at the same time it is also evident that reforms have led to dispersal of industries from Amreli and Lathi to Rajula taluka.

In sum it can be concluded from the above that reforms have to some extent reduced territorial industrial disparity in Amreli district.

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CHAPTER VIII

SUMMARY AND CONCLUSIONS

I CONCLUSION:

Industrialisation is a key factor not only for economic development of a country but also for improving the standard of living of the people. Slower is the growth of industrialisation slower is the economic growth. Realizing this strong relationship, the developed countries of the world have attributed a dominant role to industrial sector and achieved very high rates of growth.[67]India had realized the importance of industrialisation since the inception of planning in 1951. Therefore, India started emphasizing the process of industrialisation since the second five year plan onwards. Over a period, though India has achieved industrialisation, has become self reliant but still it has not tapped its full potential. At the same time industries in the country are not evenly distributed, rather it has concentrated in a few states creating territorial industrial disparity.

It is well known fact that, industries tend to concentrate in a few favourable regions.[68] It may also be noted that, economic progress by the means of industrialisation appears at few favourable points and hence emerges as a powerful magnet for a spatial concentration of economic growth around the initial starting points.[69] Regions which have initial advantages tend to grow at a higher rate than others and new industries tend to concentrate at growing points due to external economics.

Thus, 'growth is necessarily unbalanced'.[70] This is the reason why industrially developed regions, be it states, districts or even talukas attracts more industries, becoming more and more industrially developed, leaving behind the regions which are less industrially developed, which ultimately leads to disparities in those regions.

Once the regional disparities emerge, it continues due to some social, economic, political and cultural factors. There is no perfect mechanism in the process of development, which would ensure parity in the distribution of the benefits of development across the regions. Furthermore, if the disparities are allowed to continue, these may not only affect the overall development of the economy but also may produce

[67] See Bhandari (1998)
[68] See Hirschman (1958)
[69] See Myrdal (1958)
[70] See Hirschman (1958)

adverse social and economic consequences. Thus, it highlights the need for state intervention.[71] State intervention is always in the form of policies. Uneven distribution of industries is one of the major factors responsible for regional imbalance in the process of development. The government intervenes through industrial dispersal policies.

In order to explain the location of firms and industries, the classical approach of industrial location relies on transport costs as well as labour costs. Later, demand enters in the analysis as a significant factor in determining location choice.[72] However, in practice, locational choice is not only influenced by costs and demand factors but also by personal factors and government policies. Entrepreneurs usually prefer industrially developed regions to locate their firm because of the advantages of external economies of scale.

The state of Gujarat is the second highly industrialized state of India next to Maharashtra. The state is industrially advanced right from its inception in 1960. The government of Gujarat has considered industrialisation as an effective means for economic development and faster growth. For the entrepreneurs, Gujarat is their best destination because of well developed infrastructures, markets as well as due to the industrial agglomeration. In this study it has been analysed that, though Gujarat is industrially very developed, some pockets are highly developed whereas some are not, leading to the disparity.

The study starts with an introductory chapter, wherein the theme, objectives and justification for carrying out the present study are stated. It also explained the hypothesis of the study and methodologies adopted for testing the hypothesis.

The second chapter examined the various regional development theories such as given by Perroux, Myrdal and Hirschman. These theories gave the answer of how and why regional disparity exists. However, none of the theories have given the perfect solution to remove regional disparities. The theories of industrial location as given by Weber, Palander, Hoover, Losch and Isard are also dealt in this chapter. It provides an explanation for preference of the entrepreneurs to a particular region as the location choice for their firm. The second part of the chapter dealt with various studies on industrialisation and regional development in India as well as abroad. It was found that

[71] See Kumnoor (2007)
[72] Ibid

very few studies are on the state of Gujarat. Furthermore, there is dearth of district and taluka level studies in Gujarat. It is this gap that present study has attempted.

The third chapter examined the various committees, which were set up to identify backward regions by the Central as well as State governments. Several committees at different levels have mentioned the causes and consequences of industrial agglomeration at a place and even suggested industrial dispersal policy as one of the remedial measures. It also highlighted policies adopted in different five year plans to achieve the objective of balanced regional development. The second part of the chapter studied various government policies in different plan periods for the development of the backward regions as well as for the reduction of regional disparities. It also focused on industrial policies adopted by Central as well as State governments over the period with special emphasis on liberalization for industrial development of the economy in general and of backward regions in particular. The main thrusts of these policies have been in the form of provision of fiscal incentives.

In the fourth chapter, the industrial development in different states of India in general and Gujarat in particular were analyzed during the pre and post- reform periods. The study was confined to a period of thirty years from 1980-81 to 2009-10, using five indicators like number of factories, employment, investment, output and net value added. For the analysis, the compound growth rate had been used to measure the growth of industries in a region during the study period. In addition, instability index was also calculated to see whether these growth rates were sustainable or not. On comparing the picture of industrialisation in the pre and post reforms period in terms of growth, it emerged that in terms of number of factories and capital investment all states have shown declining trends in the post reform period. In terms of employment, net value added and output the growth rate has improved in the state of Gujarat, while in rest of the states it has worsened in the post-reform period. Thus, as hypothesized it can be asserted that Gujarat has benefited most from the reforms and Bihar is the least benefited state in the country.

Regarding instability index, it was observed that in terms of number of factories Bihar, Andhra Pradesh and Tamil Nadu have registered high instability index value, while the position of Gujarat was better in the case of number of factories as well as for

output. However, in the case of employees, investment and net value added, Gujarat position is not favourable.

From this analysis, we conclude that during the study period Gujarat had upper hand in almost all parameters. The study highlights a very interesting fact that the states which were relatively less developed in infrastructure were also less industrially developed. This establishes the link between industrial development and infrastructural development.

The high growth rates of industries in the state of Gujarat are due to Chemical & Chemical products, Rubber-Plastic & Petroleum and Metal products. However, during the reforms, it is the Chemical & Chemical products industry, which has been benefited the most. As a consequence, there has been diversification from traditional group of industries like Textile to Chemical & Chemical Products.

Chapter five analysed the impact of industrial policy of the state as well as central government on the regional development of all districts of the Gujarat state. The study was confined to the period from 1980-81 to 2009-10, using the number of working factories, employment in factories and electricity consumption as a parameters to test degree of disparities. Same methodologies as in previous chapter were used. The study had attempted to examine some important aspects pertaining to the level and pattern of industrial development in all the districts of Gujarat during the study period.

It was observed that in Gujarat, industries were not evenly distributed over a geographical area. The study revealed that six districts- Ahmedabad, Vadodara, Surat, Valsad, Bharuch and Rajkot had the highest share of more than two third in terms of number of units, employment and consumption of electricity. On the other hand, Dang, Amreli and Surendranagar, which are industrially backward in all respect, had little share in industries.

The growth pattern of industrialisation in the state revealed that there was an unbalanced and lopsided industrial development in the state. Industrially advanced districts like Ahmedabad is losing its significance in terms of the growth rates and newly industrializing districts like Banaskantha and Sabarkantha gaining momentum in terms of industrial development. Some highly industrialized districts like Surat, Vadodara, Rajkot, although had a better growth of industries but its relative position weakened. However, position of few backward districts like Dang, Amreli, Surendranagar and Panchmahals

have not improved. Thus reforms have not led to harmonized industrial development of all districts in Gujarat.

In terms of instability index, Rajkot and Ahmedabad had shown low index value for the number of factories and Bharuch, Ahmedabad and Rajkot had shown lower index value for workers and employment.

The important findings of the study are that, the state experienced the dispersal of industries from central and south Gujarat to coastal belt of Saurastra regions. However, overall analysis of this chapter conveyed that there has been an uneven spread of industries in the state.

In chapter six, in-depth analysis of taluka-wise industrial development of the Vadodara district has been done, for a period between 1990-91 and 2009-10. For the analysis, three indicators namely number of registered factories; employment and investment in factories were used. Location Quotient of industries was calculated to find out which group of industries can be the source of future development of the region and thereby reduce industrial disparities. At the same time compound growth rate and instability index were also tested. It was observed that in Vadodara district, which is one of the most industrially developed districts of the state, industries were not evenly distributed regionally. It highlighted that only the fact that talukas Vadodara, Vaghodia and Savli had a share more than eighty percentages in industrial activities, in both Small Scale Industries and Large Industries.

A comprehensive analysis of industrial development in all talukas of the district was done with the help of location quotient of industries. This indicated uneven spread of industrial group in different talukas due to availability of that a particular resource. The analysis found out industrial groups which can be classified as future star and star groups in different talukas, which can be the source of employment generation and future development of that particular taluka.

The growth pattern indicated that, there was an industrial disparity in the Vadodara district. Some talukas were industrially very developed, whereas some were industrially very backward like Kavant and Jetpur Pavi. On the basis of growth, it can be said that only Padra and Chhota Udaipur talukas have shown positive growth rate in all the parameters used, whereas Vadodara taluka in spite of having high concentration have shown negative growth rates in all parameters. This is because of the reason that

industries were spreading from Vadodara taluka to neighboring talukas like Vaghodia and Savli. The industry group-wise growth rate reveals that for registered factories, it was Leather products that have shown the highest growth rate. In case of employment, it was again Leather products which registered the highest growth rate. Whereas Rubber-Plastic & Petroleum had shown highest growth rate in terms of investment.

In terms of instability index, high instability for all parameters was found in Savli, Dabhoi and Sinor talukas, whereas Vadodara, Vaghodia and Nasvadi have shown low instability index value in all the parameters.

In terms of group-wise industrial instability index, the highest was found in Textile and Leather products and the lowest instability index value in Paper & Paper products.

If the growth and instability are analysed together, then it was evident that Vaghodia taluka would be preferred taluka in the district and that Transport Equipments group would generate optimum employment in the district.

From the analysis we conclude that inter-taluka industrial disparity still exists. Therefore, all the talukas have not developed equally in Vadodara district. However, reforms have reduced disparity in the district of Vadodara, as dispersal of industries has been seen in the district.

In the seventh chapter, a similar exercise had been undertaken for Amreli district, using location quotient, compound growth rate and instability index for the analysis of industrial development in Amreli district. It was observed that in Amreli district, which is one of the most industrially backward districts of the state, industries were concentrated in few talukas like Amreli, Dhari, Rajula and Lathi. These four talukas had a share of more than seventy percentages in industrial activities, both in Small Scale Industries as well as Large Scale Industries. This proves that in the district there was an unbalanced industrial development. The analysis also has brought out very interesting fact that, in the district only those talukas were able to develop industrially which had good infrastructure. Nevertheless, the fact is that entire district have poor infrastructure, so major talukas are unable to attract industries there.

A thorough analysis of industrial development in all talukas of the district was done with the help of location quotient of industries. This analysis clarifies that there was an uneven distribution of industrial groups in different talukas of the district. The analysis

found out industrial groups which can be classified as future star and star groups, can be the source of future development of that particular taluka.

The growth pattern indicated that there was an industrial disparity in Amreli district too. From the analysis, it emerged that in all parameters used, Babra taluka had shown positive and higher growth rate and Bagasara taluka had shown lowest growth rate. While in case of group-wise industrial growth rate, Chemical & Chemical products had shown positive and higher growth rate in all the parameters used, whereas Wood & Wood products and Cement & Clay work had shown negative growth rate in all parameters.

Regarding instability index, in terms of factories, low instability index value was found in Amreli and high in Khambha taluka. In terms of employment, low index was found in Amreli and high in Rajula taluka, whereas in case of investment low value recorded in Amreli as well as high in Rajula taluka. Instability index in case of group-wise industry reveals the fact that, in case of registered factories low instability index value found in Food & Beverages and high instability index value found in Chemical & Chemical products. In terms of investment, low instability index value was in Wood & Wood products and high instability index value was found in Basic Metals.

If growth and instability analysed together than it emerges that Amreli taluka would be an ideal taluka for generating employment and Transport equipment group of industries among the groups for generating employment and reducing regional disparity.

From the above analysis, it is apparent that inter-taluka industrial disparity also existed in Amreli taluka. But still reforms have led to the dispersal of industries from Amreli, Lathi and Babra to other talukas; this to some extent had reduced regional disparity in the district.

From the analysis of Vadodara and Amreli district, it was observed that in both the districts, though having different level of industrialisation –disparities are still seen. Nevertheless, in case of Vadodara, few industrial groups have been identified as future star, while in Amreli in almost all talukas we have future star industrial groups. This shows that in the future Amreli has better scope for industrial development.

II RECOMMENDATIONS:

From the study it has been observed that in spite of the efforts put by the central as well as state governments to reduce regional disparities, the phenomenon of the disparity still exists.

Although the present policy of fiscal incentives has encouraged the growth of industries but still imbalances has not vanished. Therefore, it is necessary to introduce special benefits for those units which are creating relatively more jobs per capital.

Since the pattern of industrial development in each district and taluka is different, there is a need for formulating different policies for different district, for different talukas and for different group of industry. There are certain groups of industries which can be developed in particular taluka/region only; hence there is a need to have selective subsidy system for particular group in particular taluka. For instance, in Vadodara taluka, Paper & Paper products industries should be encouraged by providing specific incentive to this industry rather than all industries.

Further, infrastructural development is an essential pre-requisite for the development of industries. The government should provide good quality infrastructure and can encourage public- private partnership in infrastructural development also

The setting up of DIC in each district of a state has led to development of industries in the district as a whole. It is, therefore, felt that the taluka wise industrial centre with necessary of financial and administrative should be setup in the future for developing targeted group of industries in each taluka. These agencies should also be tasked with the training of people for acquiring entrepreneurial skill.

If such measures are undertaken, then it will go a long way in not only encouraging industrial development but also reduce territorial imbalances.

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APPENDIX –A-1

TALUKAWISE LOCATION QUOTIENT OF INDUSTRIES IN VADODARA DISTRICT -1990-91, 2000-01 AND 2009-10

		TALUKAS											
		Karjan			Chhota Udepur			Jetpur-Pavi			Dabhoi		
Sr No	Industrial Groups	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10
1	Food Products and Beverages	1.99	1.40	0.91	3.04	5.93	2.19	1.35	2.54	1.35	2.41	2.08	0.76
2	Tobacco Products	0	0	0	24.91	0	46.29	0	0	125.44	4.24	0	5.43
3	Textiles	1.64	1.28	0.92	0	0	0.39	2.99	1.33	0.79	0.89	1.78	1.40
4	Wood and Wood Products Furniture Fixture	0	0	0	0	0	25.25	0	0	17.10	0	0	0
5	Paper and Paper Products	0	1.37	4.45	0	0	0	0	0	0	1.41	1.80	4.34
6	Leather and Leather Products	0	5.65	4.87	0	34.82	18.98	0	0	20.58	0	4.45	1.19
7	Rubber, Plastic and Petroleum	6.60	0.97	1.58	0	0	0	0	0	0	0	0	0.46
8	Chemical and Chemical Products	7.61	1.46	0.95	0	0	0	0	0	0	0	0	0.37
9	Cement and Clay Work	0	0	0	36.24	0	0	0	0	0	0	0	0
10	Basic Metal Industries	0.73	1.05	1.70	0	0	0	0	0	0	0	0	0.79
11	Metal Products	1.45	0.45	1.09	0	0	0	0	0	0	1.07	0.66	1.12
12	Electrical Machinery	0	041	1.15	0	0	0	0	0	0	2.08	1.33	0.63
13	Transport Equipment	0	3.49	1.18	0	0	0	0	0	0	3.53	4.58	2.46
14	Repair Service and Others	0.19	0.45	0.62	0.96	1.74	0.64	0.85	4.48	0.87	0.32	0.44	0.94

Source: D.I.C. Vadodara

APPENDIX A-2

TALUKAWISE LOCATION QUOTIENT OF INDUSTRIES IN VADODARA DISTRICT -1990-91, 2000-01 AND 2009-10

		TALUKAS											
		Padra			Vadodara			Vaghodia			Savli		
Sr No	Industrial Groups	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10
1	Food Products and Beverages	2.37	2.29	0.54	0.63	0.69	1.01	1.51	1.16	1.29	1.52	1.37	1.01
2	Tobacco Products	0	0	4.25	0.17	0	0.12	1.95	0	0	3.11	0	0
3	Textiles	0.68	0.87	0.86	0.99	0.93	1.00	0.70	1.19	1.23	0.79	1.05	0.98
4	Wood and Wood Products Furniture Fixture	0	0	0.58	0	0.17	0.14	0	0.84	0	0	0.69	0
5	Paper and Paper Products	0	0	2.55	0.51	0.70	0.59	5.21	0.95	3.12	1.03	0.94	0
6	Leather and Leather Products	0	0	1.92	0.68	0.10	0.43	7.82	0.94	1.42	0	1.54	1.83
7	Rubber, Plastic and Petroleum	6.45	1.59	1.40	0.48	1.10	1.06	2.23	0.94	1.26	3.60	0.89	0.24
8	Chemical and Chemical Products	0	0.33	1.26	1.00	1.10	1.04	1.10	1.11	0.84	0.59	0.99	1.03
9	Cement and Clay Work	0	0	2.88	0	0.14	0.37	0	0	1.76	2.26	0	0.84
10	Basic Metal Industries	2.39	0.96	1.04	1.09	1.17	1.04	0.99	0.77	0.81	0.99	0.84	0.92
11	Metal Products	1.04	1.13	1.22	1.02	1.14	1.04	1.33	0.82	0.66	1.10	1.19	0.86
12	Electrical Machinery	2.38	1.03	0.97	1.01	1.13	1.03	1.10	0.81	0.98	1.02	0.97	0.95
13	Transport Equipment	0	0	1.49	0.99	0.55	0.91	1.30	1.45	0.80	1.04	0.79	1.11
14	Repair Service and Others	0.29	0.21	1.32	1.15	1.12	1.00	0.65	1.03	0.47	0.86	0.69	1.26

Source: D.I.C. Vadodara

APPENDIX A-3

TALUKAWISE LOCATION QUOTIENT OF INDUSTRIES IN VADODARA DISTRICT -1990-91, 2000-01 AND 2009-10

		TALUKAS											
		Sankheda			Shinor			Nasvadi			Kavant		
Sr No	Industrial Groups	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10
1	Food Products and Beverages	1.59	1.00	1.09	3.30	2.08	0.93	4.41	3.84	1.29	0	0	1.04
2	Tobacco Products	0	0	0	0	0	108.02	0	0	74.78	0	0	121.52
3	Textiles	1.70	0.85	0	1.60	1.19	0	0	0	0	0	0	0
4	Wood and Wood Products Furniture Fixture	24.41	11.01	61.09	0	11.93	29.46	20.71	0	101.98	0	0	33.14
5	Paper and Paper Products	5.93	3.62	11.43	0	5.40	0	0	0	0	0	0	0
6	Leather and Leather Products	0	4.47	14.07	0	0	17.72	0	0	24.53	0	0	19.93
7	Rubber, Plastic and Petroleum	0	0.86	0	0	0	0	0	0	0	0	0	0
8	Chemical and Chemical Products	0	0.50	0	0	0	0	0	0	0	0	0	0
9	Cement and Clay Work	5.18	5.78	25.83	24.50	23.00	146.35	0	29.22	0	0	0	82.32
10	Basic Metal Industries	0	0.78	0	0	0	0	0	0	0	0	0	0
11	Metal Products	0	0.72	0	0.85	0	0	0	0	0	0	0	0
12	Electrical Machinery	0	0.89	1.02	0	0	0	0	0	0	0	0	0
13	Transport Equipment	1.19	2.30	1.94	0	0	0	0	0	0	0	0	0
14	Repair Service and Others	0.87	0.89	1.20	0.40	0.89	1.21	1.05	1.98	0.42	0	0	1.35

Source: D.I.C. Vadodara

APPENDIX A-4

TALUKAWISE LOCATION QUOTIENT OF INDUSTRIES IN AMRELI DISTRICT-1990-91, 2000-01 AND 2009-10

		TALUKAS											
		Amreli			Dhari			Kunkavav Vadia			Rajula		
Sr No	Industry Group	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10
1	Food Products and Beverages	1.06	0.88	0.43	0	0.81	4.29	1.24	4.25	3.52	0.60	0.85	0.96
2	Tobacco Products	0	0	0	0	0	6.43	0	0	5.28	0	0	0.72
3	Textiles	0	1.20	0.88	0	1.14	1.41	0	0.68	2.31	0	0.89	0.92
4	Wood and Wood Products Furniture Fixture	0.43	0.62	0.29	0	0.82	2.86	2.29	3.75	0	0.92	1.50	0.96
5	Paper and Paper Products	0	0	0.87	0	0	2.86	0	0	0	0	0	0.64
6	Leather and Leather Products	0	0.36	0	0	0.96	5.15	0	0	0	0	1.75	1.15
7	Rubber, Plastic and Petroleum	1.84	1.63	0.65	0	1.08	0	0.75	0	0	0.36	3.93	2.89
8	Chemical and Chemical Products	0	1.09	1.16	0	0.96	0.79	0	0	0.57	0	3.50	0.97
9	Cement and Clay Work	1.08	0	0.44	0	0	4.29	1.43	0	0	0.46	0	1.92
10	Basic Metal Industries	1.30	0.81	0.47	0	1.08	0	0	0	0	1.10	3.93	1.57
11	Metal Products	0.89	0.87	1.38	0	0.90	0	0.96	0	0	1.34	0.23	1.70
12	Electrical Machinery	0	1.09	0.97	0	1.44	0	0	0	0	0	0	2.16
13	Transport Equipment	1.44	1.30	0.83	0	0.86	0	0.95	0	0	0.31	0	1.31
14	Repair Service and Others	0.80	0.71	0.72	0	0.79	0	0.74	0.96	0.49	1.32	1.34	0.86

Source: D.I.C. Amreli

APPENDIX A-5

TALUKAWISE LOCATION QUOTIENT OF INDUSTRIES IN AMRELI DISTRICT-1990-91, 2000-01 AND 2009-10

		TALUKAS											
		Babra			Jafarabad			Lathi			Savarkundala		
	Industry Group	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10
1	Food Products and Beverages	0	2.12	0.46	3.43	1.96	0	1.83	1.06	1.02	0	0.88	1.01
2	Tobacco Products	0	0	0.68	0	0	0	0	0	1.53	0	0	1.52
3	Textiles	0	0.51	1.00	0	0.63	0	0	0.79	0.91	0	0.88	1.04
4	Wood and Wood Products Furniture Fixture	0	3.75	0.91	0	1.73	0	2.70	1.87	1.36	0	0.76	1.35
5	Paper and Paper Products	0	0	0.61	0	0	0	0	0	1.36	0	0	1.35
6	Leather and Leather Products	0	4.37	1.09	0	4.03	0	0	1.46	2.45	0	0.90	2.42
7	Rubber, Plastic and Petroleum	0	0	0	0	0	0	0	0	1.53	0	0	1.52
8	Chemical and Chemical Products	0	0	1.02	0	0	0	0	1.46	0.94	0	0.90	0.85
9	Cement and Clay Work	0	0	1.82	0	0	0	3.37	0	0	0	0	0
10	Basic Metal Industries	0	0	1.99	0	0	0	4.04	0	2.23	0	2.03	0
11	Metal Products	0	0.59	0.64	0	0.54	0	0	0.78	0.72	0	1.94	0
12	Electrical Machinery	0	0	1.37	0	0	0	0	0	0	0	0	0
13	Transport Equipment	0	0	1.24	0	0	0	2.25	0	1.67	0	0	1.10
14	Repair Service and Others	0	1.44	0.88	1.16	1.77	0	0.75	1.60	1.27	0	0.79	2.09

Source: D.I.C. Amreli

APPENDIX A-6

TALUKAWISE LOCATION QUOTIENT OF INDUSTRIES IN AMRELI DISTRICT-1990-91, 2000-01 AND 2009-10

		TALUKAS								
		Bagasara			Khambha			Lilia		
	Industry Group	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10	1990-91	2000-01	2009-10
1	Food Products and Beverages	2.94	0.70	10.99	0.86	0	0	0	3.19	3.38
2	Tobacco Products	0	0	0	0	0	0	0	0	5.07
3	Textiles	0	0.74	1.03	0	0	0	0	1.02	1.74
4	Wood and Wood Products Furniture Fixture	0	0.82	14.65	1.05	0	0	0	0	4.51
5	Paper and Paper Products	0	0	0	0	0	0	0	0	4.51
6	Leather and Leather Products	0	0.95	0	0	0	0	0	0	0
7	Rubber, Plastic and Petroleum	0	0	0	1.71	0	0	0	0	0
8	Chemical and Chemical Products	0	0	0	0	0	0	0	0	0.28
9	Cement and Clay Work	0	0	0	1.31	0	0	0	0	0
10	Basic Metal Industries	0	0	0	0	0	0	0	0	0
11	Metal Products	0	1.54	0	0.98	0	0	0	0	0
12	Electrical Machinery	0	2.86	0	0	0	0	0	0	0
13	Transport Equipment	0	3.43	0	1.75	0	0	0	0	0
14	Repair Service and Others	1.49	1.47	4.55	0.78	0	12.13	0	1.44	2.80

Source: D.I.C. Amreli