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**UNIVERSIDAD AUTONOMA METROPOLITANA
XOCHIMILCO, DF, MEXICO**

Thesis for a post-doctoral research work in Mexico

**The Regional Disparity in Mexico - An Assessment in the
Context of the Globalization of Mexican Economy**

**(Conducted under Cultural Exchange Program between the Governments of Mexico
and India)**

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CHAPTER – I

INTRODUCTION

CHAPTER - I

INTRODUCTION

The problem of Inter-regional disparity is not a new phenomenon and it is almost universal. Its extent may differ in different economies, but its existence can hardly be challenged. During the first quarter of 19th century, there were many countries, even countries like USA, Canada, UK, France, Netherlands, Sweden, which experienced its severity to considerable extent. The primacy of the advanced regions leaves other regions remain backward, thereby breeding numerous socio-political and economic problems. Inter-regional disparity denotes the failure of a region to exploit the development potential of its initial resource endowments, its latest comparative and absolute resource advantages, relative to other comparable region, and is therefore comprised of the factors which are not natural or physiographic, but human, institutional and historical, socio-political and/or economic-technological. Essentially, inter-regional disparity, according to Myrdal (1), is the consequence of strong 'backwash effects' and weak 'spread effects'. The problem of regional disparity in Mexico is a historical truth, because the nature has made the country like that and because the germ of regional disparity in this country was hidden in the regional development programs and in the different economic policies of the Mexican government. The globalization drive could not reduce this disparity; rather it widened the gap between the rich and the poor. The 1997 Report on Human Development, published by the United Nations Development Program (UNDP), places the Human Development Index in Mexico at 50 (2). Moreover, at the Annual Conference on Economic Development in Latin America and the Caribbean, held towards the end of June 1998 in El Salvador, the World Bank confirmed that poverty and inequality in Mexico had reached 'alarming proportions' (3). According to what was reported by the World Bank, poverty is worse in rural areas, where 47 per cent of the population lives in poverty. The situation is considered alarming in indigenous communities, where 80 per cent of the inhabitants survive in poverty. Around 28 million persons live in poverty; and of those eight million are living in extreme poverty. All this reflects the tremendous imbalance among the different social sectors in Mexico.

The globalization drive in Mexico was initiated in 1980s. In 1982, the economic crisis was provoked by several events: devaluations of the peso, 100 per cent inflation, a current account deficit of 2.7 billion US dollars, a public sector deficit equivalent to 17 per cent of GDP and an external debt of approximately 85 billion US dollars (4). During the first half of 1980s, Mexico negotiated an adjustment program with the IMF and received support from the World Bank for the application of structural changes emphasizing an export-orientation. Since 1982 – the year in which structural economic problems were felt most strongly – the Mexican economy had undergone significant changes in its economic policy as import substitution policies were left behind in favor of export promotion. Among the most important actions undertaken were the freeing up of external trade, the elimination of subsidies and the promotion of direct foreign investment, all of which have affected the productive environment through changes in prices and in quantities or qualities of inputs and outputs (5). The economic crisis brought on by the country's external debt problem, which surfaced in 1982 compelled the government to abandon its long-standing development strategy. It totally reversed its course, and turned to a development strategy

based on neo-liberal principles of trade liberalization, the easing of controls on foreign investment. Following this complete about-face in economic strategy, the Mexican economy experienced a transformation of unprecedented scale (6). With the emergence of the transnational corporation as the principal organizer of production on a global basis, decisions cease to be made with reference to a single nation. It becomes increasingly clear that the nation, or the nation-state, cannot limit capitalist expansion to its own border. Productive decisions are now made on a global scale (7)

The different packages of economic and political reforms implemented during the 1980s cultivated the soil for Mexico's full integration into the world economy. In 1986, Mexico signed the General Agreement on Tariffs and Trade (GATT). The elimination of barriers to foreign trade, the North American Free Trade Agreement (NAFTA) and the removal of other deterrents of foreign participation in reshaping of Mexican society and its economy followed this. This led to the expulsion of old idea of import substituting industrialization, rather the country permitted to import huge amount of consumer's goods to flood the market. According to David Barkin (8), apparently this was meant to purchase political support from various social groups who did not fully understand the program of international economic integration. The neoliberal policies have increased the concentration of capital in large-scale business that tend to dominate the consumer market and have displaced small and medium-scale business from the formal sector. After NAFTA's first year, the Mexican economy fell into one of the worse crisis it has ever experienced. The international financial institutions called it the 'first crisis of the next century' precisely because it reflects the problems brought on by neoliberal globalization. The official explanation of the crisis denied any relation between the crisis and NAFTA. However, the relationship has been documented by many analysts (9). The 'Peso crisis' erupted because Mexico's growing trade deficit was financed by foreign investment. Most of these investments were put in the stock market and the short-term bond market. When the bonds were not renewed, it leads to bankruptcies and the devaluation. The rules included in NAFTA made Mexico more vulnerable than ever to the exodus of speculative capital. According to Arne Kildegaard (10), blame for the currency collapse has fallen primarily on the Bank of Mexico for (i) failing to prevent the growing overvaluation of the peso after 1990; and (ii) a weak response to the capital flight of March and April 1994. In the case of both 'failures', however, the central bank's actions were guided by a concern with the solvency of the domestic banking system, which constituted an enormous contingent liability. While discussing the Mexican peso crisis, James Cypher (11) remarked that the fragility of the banking system was one major result of Mexico's failed experiment in ultra-laissez faire policies, which began in 1982.

Ordinary Mexicans experienced the greatest losses, due to this peso crisis. The devaluations, combined with adjustments measures adopted in March 1995, led to a 6.9 per cent contraction in the economy by year-end. Over a million of Mexicans were left unemployed as a wave of bankruptcies spread across the economy, driving much business into informal sector. With inflation rate 52 percent and wage settlement kept to a minimum. As incomes and consumption fell, soaring interest rates placed an additional squeeze on Mexicans with credit card debt, mortgages or bank loans. More than one of every four Mexicans borrowers fell seriously delinquent in their debt payments (12). In Mexico, the costs of NAFTA have been worse. NAFTA-style economies mired the country in slow growth and after the treaty's passage, led directly to the peso's collapse in 1994 as discussed earlier. The toll: more than 2 million lost jobs, 28,000 small business destroyed;

weaker, less enforceable labor standards and rampant violations of existing worker rights; a rise in already high levels of official corruptions, a slowing of democratic reform process and the outbreak of revolutionary movements such as that in Chiapas. Indeed, one of the greatest ironies of NAFTA is that a treaty aimed in large part at stabilizing Mexico has heightened social and political disorder. In addition, environmental and public health conditions in the US-Mexico border area have significantly worsened. It was articulated in the agreement that NAFTA-induced prosperity would reduce illegal immigration from Mexico to USA. Instead, the loss of small business and jobs along with the real wage drop of 20 per cent have had predictable results; many Mexicans continued to seek their fortunes in the United States (13).

During the six years of Salinas reign, the Mexican economy expanded by only 2.6 percent annually – far too low to create jobs for roughly one million Mexicans entering the labor market every year. In fact, in late 1995, the US embassy in Mexico City reportedly estimated that a stunning 35 per cent of all economically active Mexicans were either unemployed or underemployed (14). In 1997, with about 20 per cent of the working population earning less than one minimum salary and another 15 per cent with no income at all (15). The then President reported in his 1998 State of the Union message that while average real wages for working class covered by the Mexican System of Social Security (IMSS) declined by 24 per cent in real terms between 1994 and 1997. With the imposition of neoliberal economic policies as part of its accelerated process of integration into the world economy and the NAFTA, Mexican government sold a number of sugar mills to the leading industrial consumers with 'soft credits' while ending all support for the workers in the mills and the peasant cane growers (16). The first impact of privatization was a rationalization of production and the layoff of 40 per cent of the workers in the mills. The massive layoff brought unemployment to the semi-rural sugar-towns and widespread social disruption; increased criminality, drug trafficking, school desertion and family disintegration (17). During three years of NAFTA, the portion of Mexican citizens who are 'extremely poor' has risen from 32 to 51 per cent and 8 million people have fallen from the middle class into poverty (18). Many of the Mexican farm-workers living in the countries north have been victimized by NAFTA. Most are indigenous people from Mexico's south, who were displaced from their lands when NAFTA opened the Mexican market to flood of cheap, subsidized US corn. In 1992, a Mexican farmer, discussing a US proposal for elimination of the Mexican import license system for corn, said, "If the US sends subsidized corn into Mexico, send it in trains with benches to bring back the Mexican farmers who will need jobs" (19). The NAFTA has put Mexico's corn farmers out of business.

During the period of structural adjustment, income distribution also got worse. Measured by the Gini coefficient, income inequality increased from 0.450 to 0.475 between 1984 and 1992. Between 1989 and 1992, the average income of the poorest families fell by about 7 per cent whilst the incomes of the richest families rose by 11.3 per cent. Only 21 per cent of Mexican families had an income of more than three minimum monthly wages, whereas 54 per cent of families had monthly income below the minimum wage (20). While discussing about the Latin American countries, Londoño and Miguel (21) remarked that poverty only reduced in the 1980s and 1990s in Costa Rica and Jamaica, and worsened in the same periods in Mexico. In the 1990s, there was a rise in the number of moderate and extremely poor individuals; of the additional 4.56 million moderately poor, four million were in Mexico. Thomas J Kelly (22) also undertook one study to measure the poverty in

Mexico in which he had shown that the situation in rural Mexico deteriorated considerably from 1984 to 1989. The percentage of the rural population falling below the extreme poverty line increased 6.3 percentage points from 34.5 per cent to 40.8 per cent. Kelly has shown the number of the individuals living in poverty in Mexico in the following table:

Table – 1
Number of Individuals Living in Poverty

National	Extreme Poverty	Moderate Poverty
1984	13,140,472	56,583,020
1989	16,698,743	61,809,094
1992	16,857,005	63,550,989
1994	18,222,086	69,028,493
Rural	Extreme Poverty	Moderate Poverty
1984	9,142,501	23,950,000
1989	12,321,599	28,297,360
1992	13,037,650	31,716,800
1994	14,360,386	34,484,793
Urban	Extreme Poverty	Moderate Poverty
1984	3,997,971	32,633,020
1989	4,377,144	33,511,734
1992	3,819,355	31,834,189
1994	3,861,700	34,543,700

Source: Kelly, Thomas J (1997)

From the above table, it is clear that after the globalization drive, people living in poverty in Mexico do not show any decreasing trend, especially in the rural areas.

As a result of globalization, some institutional changes occurred in Mexican economy. According to Barkin (23), these are:

Firstly, Mexico's integration into the global economy began with accession to the GATT in 1986. After that, negotiations began to join the NAFTA and to make agreements for free trade with Colombia, Venezuela, Chile, Mercosur (Argentina, Brazil, Paraguay, and Uruguay), and with the European Union. In 1988, average tariff rate reduced from 25 per cent to 10 per cent. All these contracted employment and output.

Secondly, in 1989, the law to regulate foreign investment was substantially modified to facilitate direct ventures by foreign corporations without the need for domestic partners.

Thirdly, agricultural protection was also reduced.

Fourthly, the highly disputed modification of the land reform legislation removed individual protections in order to facilitate transfer of land rights and the sale to third parties.

Fifthly, in 1987, the Mexican government implemented a very strong wage containment policy that substantially reduced the real purchasing power of minimum wages.

Sixthly, after NAFTA, employment in the maquiladora sector increased to more than one million.

Seventhly, a number of public sector enterprises were sold or auctioned off.

Mexico's changing economic territoriality, triggered by the dominance of the outward – looking economic model is exacerbating regional inequalities that prevailed in the country even before the outset of economic reforms. This is mainly the case of Mexico's southern region, still very agriculture-oriented, and with a deficit of those export-oriented industries currently fuelling economic growth. This region is the least endowed with mobile assets – such as technology, capital, knowledge – in order to exploit the opportunity of market-oriented policies.

It is often said that 'there are two Mexico's'. This tends to happen in any country that is moving rapidly from a traditional way of life to the cut and thrust of a globalized economy, but in Mexico the divide goes back a long way before globalization, a long way even before the Spanish conquest. It goes back to the beginning of the world. As a first approximation, the two Mexicos lie on either side of the Tropic of Cancer. More accurately, the dividing line is 'the transversal volcanic system that divides the neo-artic from the neo-tropical regions ' as Guillermo Vargas puts it (24). To the north, the land is increasingly arid and yellow and often flat, to the south, it is mostly damp and green and hilly. In pre-Hispanic times, the north was sparsely inhabited by nomadic hunter-gathering tribes: the south formed the upper part of Mesoamerica, where ancient civilization rose and fell like tides, scattering temples and ruined cities as the debris of their passing.

Today the south – above all the seven south-eastern states of Guerrero, Oaxaca, Chiapas, Campeche, Tabasco, Veracruz and Quintana Roo – has more poverty, a bigger and more spread-out rural population, higher illiteracy levels, more indigenous people, more non-Spanish speakers, faster population growth, worse infrastructure, lower agricultural productivity, less industry and more hurricanes. The list of built-in disadvantages for the south goes on and on. A subsidy on electricity used for pumping water favors the north, because it pumps more water. In 1999, that subsidy totaled 4.57 billion pesos, of which, the eight most southeastern states got less than 3 per cent. In 1999, per capita gross domestic product in the Distrito Federal was almost six times higher than that of Oaxaca. Appendix – A shows, in details, the situation of all other states. In 1999, Miguel (25) calculated per capita product and showed that all those states situated in northern frontier, the DF, Estado de Mexico have high per capita product. Medium income levels are to the northern regions, Occident and Gulf zones; poorest zones have been indicated to be the southern part of the country. The income gap between Mexico's rich northern border and southern state of Chiapas is wider than the difference in average income between Mexico and the United States (26).

In Mexico, the core of NAFTA is located in the central plateau and northern border regions, the industries of which are strategically connected with Texas and California and other southern US states, as well as with the automobile and machinery cluster of the center-north states. Consequently, those with financial capital, highly skilled workers and highly trained professionals are in the best position to gain from NAFTA-framed factor mobility. Such industries and populations are located mainly in Mexico's central and northern regions, strategically linked to the US core NAFTA states. As a result, the southern part of the country is not in a position to reap the fruits of NAFTA. Empirical records also suggest that it is in central and northern Mexico where most of the gains and benefits of NAFTA-based market-oriented environment are to be obtained (27). Morales (28) earmarked five regions, which are influenced by the NAFTA:

1. Mexamerica - This region consists of a 210 kilometer-wide strip running along the Mexican border, from the Tijuana- San Diego corridor in the west to the twine harbors of Matamores and Brownsville in the East.
2. The Northern high-tech region - This region runs from Baja California to Tamaulipas. It is a dynamic region, producing 23 per cent of overall Mexican output in the transport industry, 28 per cent of machinery and electronic equipment production and 28 percent of primary and fabricated metals.
3. The green sector – This region can be split into two major regions. The northwest zone is comprised of dynamic agribusiness in Sonora, Chihuahua and Sinaloa. These states produce 17.4 per cent of all Mexican agricultural output. The southern part of the green valley is rather poor, with low agricultural productivity. This region is comprised of the states of Durango, Nayarit and Zacatecas. These states have 23, 26 and 45 per cent below the average national per capita income respectively.
4. The central high-tech core – This region is mainly located in the Mexican central plateau that runs from Jalisco to Veracruz. Between these two states, lie the states of Guanajuato, Queretaro, San Luis Potosi, Hidalgo, Tlaxcala, and the state of Mexico, Puebla and Mexico City. This region has both the high-tech and low-tech industries that have been activated by trade liberalization and NAFTA. But all the states of this region are not affected equally by NAFTA. For example, the poorest state is Tlaxcala with a per capita income 43 per cent below the national average. The imbalances of this region can be partly explained by the fact that, despite being the core of manufacturing in the whole country, it still encompasses a significant amount of people living in highly fragmented rural areas. The following table shows that with the exception of Mexico City and its metropolitan zone, people of the central plateau still live in rural areas. More than half of the population of Puebla and Queretaro live in rural areas, though in these two states have an important participation in manufacturing production, especially in the automobile industry. Manufacturing activities are mainly concentrated in the major cities of the high-tech core.

Table –2
Mexico's Rural Population by State

Over 80 %	60 – 79 %	40- 59 %	20- 39%	Below 20 %
Oaxaca	Sinaloa	Zacatecas	Baja Cal. Sur	Coahuila
	Durango	Hidalgo	Sonora	Nuevo León
	Nayarita	Guerrero	Chihuahua	Distrito Federal
	San Luis Potosí	Morelos	Tamaulipas	
	Guanajuato	Tabasco	Jalisco	
	Querétaro	Chiapas	Colima Estado de México	
	Michoacán		Quintana Roo	
	Puebla			
	Veracruz			
	Campeche			
	Yucatan			

Source: Morales (1999)

- 5 The oil and chemical strip – The oil range consists of Campeche with 75 per cent of over all Mexican oil production, Tabasco and Chiapas with 22 per cent of total output, and Veracruz and others with 3 per cent of the total production. The chemical belt goes east west from Veracruz to Jalisco and north south from Nuevo Leon to Tabasco.

The rural population in Mexico still accounts for 25 per cent of the total population, and apart from commodity exports, family farms, and peasant agriculture have been totally abandoned. The flood of imports of basic grains has ravaged the countryside, so the corn growers of Mexico are now in the USA instead of working in the fields of Jalisco, Chiapas, Estado de Mexico, which are the largest corn producers. The design of agricultural policy that has been followed in Mexico is basically that it is better to harvest dollars than to harvest food for own consumption (29). Thousands of Mexicans migrate northward every year to look for jobs. Households send members abroad to diversify their sources of household income and/or to accumulate capital for the purchase of large consumption items or the establishments of new business. Migration indicates that the region where from the people migrate is a backward region and the poorest regions of Mexico (30). Without finding any job, they prefer to migrate to the US in search of job and/or better job. But after going there, they send the remittances that make another type of disparity with other states, as remittances have strong multiplier effect throughout the Mexican economy (31). The following table clearly indicates that total remittances income is larger than state budget of education etc.

Table- 3

Remittances and Federal Expenditure Flows by State, 1996 (in millions of U.S. \$)

State	Remittances (second column)		Federal Expenditures Education, Health Item XXVI ¹ (3rd, 4 th & 5 th columns)		As a % of total expenditure in: Education Health Item XXVI (6 th ,7 th & 8 th columns)		
Guanajuato	652.3	312.1	190.9	45.8	209%	342%	1,424%
Jalisco	523.9	438.6	389.4	43.0	119%	135%	1,218%
Michoacán	360.1	389.7	152.5	71.2	92%	236%	506%
San L Poto	283.7	267.1	115.3	46.6	106%	246%	609%
Guerrero	211.9	406.1	121.4	111.8	52%	175%	190%
Chihuahua	186.4	259.2	216.0	43.7	72%	86%	427%
Zacatecas	179.6	174.8	65.9	40.7	103%	273%	441%

Source: German A. Zarate – Hoyos (2000)

This is a peculiar feature. Initially, some type of economic disparity forces them to migrate for better job. Finally, this migration and thereby remittances engender another type of disparity.

In Mexico, the Local Self-Government Institutions (LSGI) are not well-built. Below the state level, there is only one tier of LSGI – it is municipality or delegation. As a result of this, the general people can not be involved with the grass-root level planning and it engenders corruption, unemployment, lop-sided growth and poverty.

Gerardo Esquivel (32) described and analyzed the characteristics of the process of economic convergence among the states and regions of Mexico during the 1940-95 periods. First, he wanted to show that the regional disparities in Mexico declined at a rate of 1.2 per cent per year between 1940 and 1995. This rate is too low when compared to the experiences of other countries and it has been insufficient to reduce the marked regional inequality that has characterized the country since 1940. Secondly, he identified that the process of regional convergence in Mexico has really taken place in two stages: in the first one from 1940 through 1960, there was a relatively rapid process of regional convergence in Mexico. During the second stage, from 1960 through 1995, the convergence process suddenly stopped and it even began to revert it. It is clear from his study that in spite of globalization drive, regional disparity has not been reduced. The rate of reduction remains 1.2 per cent as before on average.

Appendix- B shows the per capita national income from 1940 to 1995 for all states. It is clear that northern states like Baja Californias, Sonora, Chihuahua, Coahuila, Durango, and Nuevo Leon all along the period are in a dominating stage. On the other hand, southern states like Yucatan, Chiapas, Tabasco, and Oaxaca are lagging behind. In the later chapters, it has been shown that, there is no exception of this trend. As shown in the appendix- B, the Distrito Federal, Nuevo Leon, Tamaulipas, Baja California Norte, Chihuahua, Campeche, Coahuila, Baja California Sur, Sonora are always in the leading position. It will be seen also in the following chapters. Even the lagging states Chiapas, Nayarit, Guerrero, Oaxaca, Tabasco, Colima, Zacatecas, Michoacan, San Luis Potosi will show the same trend as shown in the appendix - B. Appendix - C shows the ranks of the states in three different years. It is important to note that most of the states did not change their position radically. In comparison with 1940, in 1995 Campeche has come up for her vast oil field; whereas some states like Durango, Queretaro lagged behind. Out of first ten states of 1940, eight retained their position in the first ten in 1995; similarly out of last ten states of 1940, eight remained in the last ten in 1995.

Different times, for analyzing regional problems, total Mexico has been divided into different regions. For analyzing regional inequality, Enrique Hernandez (33) used the division of regions made by L. Unikel (34). This is as follows:

1. Northeast: Baja California North, Baja California South, Nayarit, Sinaloa, and Sonora.
2. North: Coahuila, Chihuahua, Durango, Nuevo León
3. Gulf: Tamaulipas and Veracruz
4. Central North: Aguascalientes, San Luis Potosí and Zacatecas
5. Central West: Colima, Guanajuato, Jalisco and Michoacan
6. Central : Hidalgo, Morelos, Puebla, Querétaro and Tlaxcala
7. Valle de México: Distrito Federal and Estado de México

8. South and Southeast: Campeche, Chiapas, Guerrero, Oaxaca, Quintana Roo, Tabasco and Yucatan.

Being based on the above regions, Enrique tried to show the inequality among the regions in respect of per capita gross domestic product. The following table shows that since 1900 to 1980, Valle de Mexico, Northeast and North regions are always ahead of other regions.

Table - 4
Per Capita Gross Domestic Product for Different Regions
(Thousand of Pesos of 1980)

Regions	1900	1940	1950	1960	1970	1980
Northeast	13.1	19.7	30.1	36.0	57.0	63.3
North	15.0	19.8	28.4	39.4	55.8	78.3
Gulf	9.2	16.9	28.5	30.9	39.9	57.3
Central North	8.1	9.2	13.7	12.5	18.5	34.2
Central West	5.9	8.4	12.3	15.0	23.5	50.3
Central	7.5	8.6	11.2	12.5	18.0	43.8
Valle de México	12.3	39.9	43.7	62.7	82.9	88.3
South and Southeast	5.5	7.0	10.7	12.9	17.3	47.9
National	8.5	16.2	22.1	29.5	43.1	63.5

Source: Laos, Enrique Hernández (1986)

Angel Bassols Batalla (35) discussed some regions in Mexico, which were made in different times being based on different objectives. Perhaps for the first time, in 1865. Manuel Orrozco and Berra of 'Departamento En La Division Territorial del Imperio Mexicano' divided Mexico in fifty regions. In 1936, the 'Secretaria de Agricultura Y Fomento' tried to delimit all economic-agricultural regions of Mexico where 37 regions were earmarked. At the same time, the Director General of Statistics divided total Mexico into five zones: Northeast, North, Central, South Pacific and Gulf. In 1938, engineer Emilio Alanis Patiño framed eight zones based on the economic characteristics of the country: Central, Northeast, North, Oriental, Southeast Peninsula, South Pacific, Southeast Pacific and Northeast Pacific; and these eight zones have been divided into 44 regions, and 344 districts. In 1959, two different sets of regions were created – one by the 'Secretaria de Comunicaciones Y Transporte' and other by one group of economists headed by Fernando Zamora Million. Both the works were published in two separate books. In 1961, researcher Y. Mashbitz indicated seven economic regions in Mexico being based on six aspects. In 1963, engineer Francisco Quintanas wanted to show 52 economic-agricultural regions; this was done under the stewardship of the 'Secretaria de Agricultura Y Ganaderia'. In 1965, for the fixation of minimum salary, the government of Mexico created 111 economic zones

in Mexico. In recent times, different writers, for the sake of analysis of regional problems of Mexico used the following ten regions:

- I. Federal District -Federal District
- II. North Gulf - Nuevo Leon and Tamaulipas
- III. North - Chihuahua and Coahuila
- IV. North Pacific – Baja California North, Baja California South, Sonora, Sinaloa and Nayarit
- V. Península – Campeche, Yucatán and Quintana Roo
- VI. Central Pacific – Colima, Jalisco and Michoacán
- VII. Central Gulf – Veracruz and Tabasco
- VIII. Central – Morelos, Estado de México, Guanajuato, Puebla, Querétaro, Tlaxcala and Hidalgo
- IX. Central North – Aguas Calientes, Durango, San Luis Potosí and Zacatecas
- X. South Pacific – Chiapas, Guerrero and Oaxaca

For the preset study, in true sense, regions have not been earmarked. On the contrary, we have tried to show the inter-state regional disparity. But, as it has also been studied to show the gap between northern part and the southern part of the country on the one hand, and being based on Yates' (36) study of 1960, top ten states and bottom ten states have been earmarked on the other. For this purpose, all the states are grouped in the following manner:

1. North – Baja California North, Baja California South, Sonora, Chihuahua, Coahuila Durango, Sinaloa and Nuevo León
2. South -Yucatán, Quintana Roo, Campeche, Tabasco, Chiapas and Oaxaca.
3. Federal District and Valley - Distrito Federal, Estado de México, Morelos. Tlaxcala, Hidalgo, Puebla, Querétaro and Guanajuato.
4. West – Nayarit, Colima, Jalisco, Michoacán and Guerrero
5. East – Tamaulipas and Veracruz
6. Central – Zacatecas, Aguascalientes, San Luis Potosí and Guanajuato

For the purpose of comparison with recent situation, Yates classification of 1960 of 'Top Ten States' and 'Bottom Ten States' has been used in this work. These are:

Top Ten States: Distrito Federal, Nuevo León, Tamaulipas, Baja California North, Estado de México, Chihuahua, Campeche, Coahuila, Sonora and Morelos.

Bottom Ten States: Chiapas, Nayarit, Guerrero, Oaxaca, Tabasco, Aguascalientes, Colima, Zacatecas, Michoacán and San Luis Potosí.

In the above two developed and least developed groups of states, marginal states are Baja California Sur and Quintana Roo respectively.

Framework of the Study

There are five chapters in this thesis. The first chapter is the introductory chapter. In the second chapter, a theoretical framework has been developed and studied. This includes the concept of region, central place theory, growth pole theory, growth center concept and the

concept of globalization. The third chapter will be devoted to show the disparity in the industrial sector of Mexico. The fourth chapter deals with the study of disparity in the infrastructure sector in Mexico. The fifth chapter will conclude the thesis by giving some recommendations. As no separate chapter has been made to analyze the agricultural sector, so the results of the Principal Component Analysis for the Agricultural sector and total sectors taking together have been analyzed in the conclusion.

Hypothesis

Mainly three hypotheses will be tested in this thesis:

First, Regional disparity is a historical constant in Mexico.

Secondly, A wide disparity exists between northern and southern parts of the country.

Thirdly, The globalization of the Mexican economy increased regional disparities.

Methodology

The following methodological sequences will be followed in the present study:

- (i) Making an inventory into the aggregate picture of development of country economy.
- (ii) A study on the causes and nature of inter-regional imbalances due to the globalization of economy.
- (iii) Examining inter-regional disparity through industrial index of development and infrastructure index using relevant indicators.
- (iv) In order to find out inter-regional disparity, the Principal Component Analysis has been used. This is a very sophisticated tool for ranking, classifying and comparing different regions. This method has been used in industrial, agricultural and infrastructure sectors separately to measure the level of development in this respective sector; and finally taking all sectors together a composite index of development has been constructed.

Database

For the present study, secondary data have been used and the source of the data is INEGI, the Bank of Mexico and different government documents. INEGI data have been available on compact disk.

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CHAPTER – II

THEORETICAL FRAMEWORK

CHAPTER –II

A THEORETICAL FRAMEWORK OF THE STUDY

Region

A region can be defined in various ways. A clear-cut and well-defined spatial definition of the term 'region' is not possible in the face of highly dynamic integration process from top to bottom. Perhaps, no term in the literature has received more attention than region. According to Fisher and West (1), these definitions can be classified broadly into two groups viz. (i) Subjective definition, and (ii) objective definition. The subjective definition tries to identify the essence of a region in terms of subjective characteristics such as home, immediate neighborhood and other places within which a person operates. The subjective view sees a region as a means to an end. It is simply an idea or a model, which helps in the study of the world. It may be described as a method of classification, a device to sub-divide aerial features. According to this view, regions are seen as descriptive tools, defined according to particular criteria, for a particular purpose. There may be as many regions as there are criteria to define them. Here region is taken as an idea independent of consideration of space.

On the other hand, the objective view sees the region as an end in itself, a real entity, and an organism that can be identified. It tries to identify a region independent of the individuals that comprise it. An objective definition is done in terms of collectivities, viewed from the various angles, for example, political, geographical, economical so on. Using objective view, A.J. Herbertson (2) divided the world into 'natural region' on the basis of four criteria --

- (i) land configuration
- (ii) climate
- (iii) vegetation, and
- (iv) population density

but with the climate as a dominant factor. After that, a number of writers applied his analytical approach at more local levels. The idea of the city region has been put forward by R.E. Dickinson (3). He sees it as a 'natural social unit' which links a central town or city with its rural hinterland. Ziolkowski (4) defines a region as a group of people living together in given area under condition of natural interdependence, sharing a sense of common solidarity. Thus in a way region goes parallel to the concept of community also (5). Richardson (6) has classified a region into three broad categories:

- (i) homogeneity
- (ii) nodality
- and (iii) programming

According to him, a homogeneous region is homogeneous in respect of certain factors, e.g. dominant industry, specialized function, per capita income level, employment level, language etc. In nodal concept, each region has one or more cities or dominant nodes. Programming regions are also known as planning or political administrative region and are defined by law and state policy instruments.

As a method of classification, the concept of region evolved through two distinct phases from a simple agrarian economy, which can be named as formal region, to a complex industrial system, which sees the development of the functional region (7). A formal region is a geographical area, which is uniform or homogeneous in terms of selected criteria. In early definitions of formal regions, the criteria were predominantly physical such as topography, climate or vegetation, linked with the concept of geographical determination. Later, criteria shifted to economic elements such as industrial or agricultural type and even to political elements such as party political allegiance; but economic formal regions are solely based on types of industry or agriculture. Some attempts were made to delimit economic formal regions being based on criteria such as income level, rate of unemployment and rate of economic growth (8).

A functional region is a geographical area, which displays certain functional coherence, an interdependence of parts, when defined on the basis of certain criteria. It is sometimes referred to as a nodal or polarized region and is composed of heterogeneous units, such as cities, towns and villages, which are functionally interrelated. Ebenezer Howard (9) tried to name the functional region as 'nodal region'. According to him, the solution to the problem of a big urban area is possible by developing some new towns near this big urban center and which will be functionally related with it. Patrick Geddes (10) introduced the term 'city region' which is synonymous to nodal region. He emphasized on the interdependence and interrelationship of factors in a region. Later on Dickinson (11), Smailes (12) Greens (13) contributed much to the concept of nodal regions, but their indicators were different. For example, Dickinson used the distribution of the Leeds based on "Yorkshire Evening Post"; where as Green used the frequency of bus services.

A combination of formal and functional regions may give a third type of regional classification, which is known as planning region. A number of writers like Boudeville (14), Keeble (15), Klaassen (16) tried to define the planning regions. According to Boudeville, planning regions are those areas that display some coherence or unity of economic decisions. Keeble defines it to be a large area, which enables substantial changes in distribution of population and employment to take place within its boundaries. Klassen looks at it in some different ways. He opines that there should be at least one growth point in the regions, which will be large enough to take investment decision of an economic size. This region should be capable of supplying its own industry with the necessary labor and it will have a homogenous economic structure.

On the basis of the nature of problems, regions can be categorized into four distinct ways: undeveloped, underdeveloped, reconversion and congestion regions (17). In underdeveloped regions, industrialization is limited; agriculture is a declining source of livelihood, and out migration is heavy. The remaining population is lacking in technical skill and higher education. The undeveloped regions are worse than the underdeveloped regions. The economy of the underdeveloped region is commercial character, whereas that of an undeveloped region is clearly a mixture of commercial and subsistence elements. Still differences between underdeveloped and undeveloped regions are not clearly articulated.

Reconversion regions have clear-cut characteristics:

first, these regions have industrial structure, but these are no longer viable;

secondly, the major industries are found to be secularly declining or stagnating;

thirdly, the workers in these industries tend to be paid below the national average;

fourthly, the regions exhibit a below national average occupational structure;

fifthly, there are considerable amounts of obsolete social overhead capital in unsightly urban areas;

sixthly, there exists a relationship between non-viable industrial structures of these regions and their declining national average economic growth.

The fourth type of region is characterized by its congestion problem, which is usually associated with densely populated urban areas, in these types of regions rising material prosperity is accompanied by faster rising social costs, which are borne by the community. These congested regions tend to act as magnets and drain the surrounding rural areas of their populations, especially the young and better educated.

Central Place Theory

Walter Christaller (18), a German economist is the pioneer of the notion of Central Place Theory. After that, a number of writers developed the idea. Among them, Dickinson, Losch, Berry and Garrison are the forerunners. Christaller's central place theory can be explained with certain basic concepts. Suppose service activities can be classified into four homogenous trade groups on the basis of functional qualities (19):

- (i) repair work and other services carried out directly on physical objects;
- (ii) distribution and transport of goods;
- (iii) processing and distribution of information including organization, administration and education;
- (iv) attendance to various personal and collective needs, such as security and health.

In scale, the activity may vary to a greater extent within these groups. For example, postal services may vary from a rural post office to a general post office. This means there is a hierarchy of service activities ranging from low order services found in every center – city, town or village – to high order services found in the major centers. Naturally, a big city will get a better service than the smaller one.

Each service activity has a threshold population and market range. The threshold population is the minimum population necessary to support the service activity. If the population falls below the threshold level, the service will cease to operate. The profit level varies directly with the increase in population. If the population increases the profit level will also be increased and consequently this will lead to an increased competition through increased provision of service activities. In this context, the frequency of use of the service is very important. One person may visit a coffee-shop everyday, but he may visit a theatre once in a month. Naturally, threshold population will change its figure in two cases.

The market range of a service activity is that distance which people are willing to travel to reach the service. The market range may depend on the nature of the commodity. For luxury items, the people may prefer to go to a big city center, but for tortias, he may prefer local shop. Though the market range is a simple function of linear distance, but it is also influenced by time and cost factor. The market range also depends on some other factors like size and importance of the center and the income level of the hinterland.

In the central place theory, some assumptions are taken:

First, as the service activities are distributed over the landscape, so the specified landscape is assumed to be an even plain and with an even distribution of natural resources.

Secondly, there is an even spread of population. Here population indicates farmers.

Thirdly, it is assumed that one group of farmers travels to have goods to another group of farmers up to that distance where the travel costs give them comparative benefit.

Fourthly, it is assumed that with improved transport and communications, consumers are willing to travel further, and that with improved production methods. In this situation, producers will also lower their prices and market areas will expand to cover most of the landscape.

Fifthly, around a system of central places, the hexagonal markets areas will be developed.

In Christaller's central place theory, the concept of hierarchy is very important. A hierarchy of central place can be explained by the following manner: it is said that with more than one service activity, the situation can develop in several ways. The original central places may attract additional services with the same threshold population and market places. Smaller central places may develop at the points where the hexagonal service areas meet, providing more low order service activities. The resultant central places will be numerous than the original centers, because these service activities need smaller threshold populations and market areas. It may happen that certain original central place may attract 'high order' service activities, but this will require larger threshold population and market range. There are three levels in a hierarchy of central places: 'A' centers possess service activities 1 to n, with 1 being the local store and n being a large supermarkets. 'B' centers would possess a more limited range of activities, perhaps from 1 to (n - 1), while the smaller 'C' centers would possess a small number of service activities from 1 to (n - 20). Christaller (20), in his study of Southern Germany, identified seven levels of central places ranging from the small hamlet to the metropolitan city. According to him, the central places could be organized according to three principles:

First, the marketing or supply principle gives maximum choice of central places to individual sub-centers. In this hierarchy the central place has the allegiance of one third of each of six sub-centers plus the original center, giving a total equivalent of three dominated centers. Christaller termed this three the k-value, which is the total number of settlements of a certain order served by a central place of the next higher order.

Secondly, the transporting principle also gives a hierarchy, which minimizes the distance between the sub-centers and the main center; because in one route there may be so many important places. The sub-centers may have dual loyalty if they exist along the routes between main centers. Christaller assumed that under the transporting principle, the k-value is four.

Thirdly, the administrative principle leads to each center to have complete control of the six surrounding sub-centers with no divided allegiances. Here the k-value is seven.

One problem crops up regarding the k-value, when $k=3$ or 4 , there are the problems of divided allegiance of sub-centers. Christaller recognized this problem, and according to him, once the k-value has been determined, it remains fixed throughout the hierarchy.

Losch (21), in the process of clarifying the central place theory, differed from Christaller. Instead of the concept of discrete hierarchy of settlements of Christaller, Losch advocated that settlements were of a continuous distribution. The continuous hierarchy of Losch and the rigid hierarchy of Christaller created a debate. According to Losch, Christaller hierarchical principles were merely special cases of a whole series of possible central place systems. Though both Losch and Christaller agree on many basic principles of special structure, Christaller's approach is purely an explanation of the service elements in spatial structure, whereas that of Losch, it is an explanation of the spatial distribution of market-oriented manufacturing industry. According to Hermansen (22), Christaller and Losch based their models on three fundamental factors; namely, the existence of space exploiting activities, transportation costs, and scale economies, of which the two latter generally differ from product to product. Furthermore, they assumed that each product has a corresponding demand function, which also differs from product to product. Finally, all producers and consumers were assumed to behave rationally minimizing costs; production and utility functions being taken as given data.

On the basis of their assumptions Christaller and Losch had allowed for the empirically found fact that output per plant and optimum sales areas vary among products. For each product, a hexagonal market area surrounding the production site is assumed, because the hexagon is the regular polygon that in a completely filled plain would come closest to a circle, which would be optimal from the point of view of the individual plant. The difference between the two models arises from their different way of treating the key problem, namely, the combination of the market areas of individual plants in a systematic spatial organizational structure. Christaller starts with the good that has the widest spatial range and develops his organization from above, while Losch starts at the bottom with the good having the smallest spatial range and subsequently derives the organization from the below. One can be seen as a special case of other. It appears that the two models apply to different types of goods: Losch's model to transportable commodities and Christaller's to immobile services.

Christaller aims at a 'general deductive theory' which explains the 'size, number and distribution of towns, that is a positive model explaining the horizontal as well as the vertical features of spatial organizations' (23)

The empirical studies to support the theoretical system have been conducted in two ways: inter-urban studies and intra-urban studies. For inter-urban studies, the pioneering work was done by Smailes (24) and Smith (25) on a national basis. Later on, such empirical studies were conducted by Brush and Berry (26), Carter (27) and Berry and Garrison (28) on a regional basis. Their studies basically involved the classification of towns into a hierarchical framework. On the other hand, Carruthers (29), Smailes and Hartley (30) and Thorpe and Rhodes (31) did empirical works on intra-urban studies, which involved the classification of centers within an urban area into a hierarchical framework.

The main defect of the central place theory is that it relates only to the service element. But one settlement may develop due to the localization of natural resources. For example, a tourist spot may develop having a beautiful coastline and good climate, but a

coalfield may engender a manufacturing center. Christaller assumed all such factors constant. The theory also assumes a uniform distribution of population, which is unrealistic. The factors upon which the population density depends, such as soil fertility, climate etc varies to greater extent from place to place: as a result picture changes. This theory also has been criticized for its static and descriptive approach. According to Glasson (32), it identifies the relationship between centers and their hinterlands at one point in time, but fails to take into account the revolutionary process of spatial structure. A central place system indeed is not fixed and is in a constant state of change. Thus an increase in the service activity of one center, perhaps with the development of a new multiple store, will have an impact on the service activity of other competing centers. The theory does not provide a through dynamic explanation of these changes.

Niles (33) explained the central place theory through the concept of polarization of region. According to him, a polarized region can exist at any scale and smaller polarized regions will tend to 'nest' within larger ones. The idea of a polarized region is therefore compatible with the central place structure of a hierarchy of cities of ascending size and function, with the growth centers normally being the largest city or cities in the region, at whatever scale is being considered

The 'range of a good' and the 'threshold population' are the key concepts in central place theory. The range of a good denotes the zone around the central place from which persons travel to the center to purchase the goods or services offered at the place. In theory the upper limit of this range is the maximum possible sales radius, beyond which the price of the good is too high for the consumers. The lower limit is the threshold population.

The lowest level of center performs certain functions or provides certain goods that are limited in number and kind by the limited population within usual range of the center. The center of the next higher order performs all the functions of the lower order center plus a group of additional functions. The next higher order of the center will offer all the goods offered by the first two levels but will be differentiated from the order just beneath it by a group of goods with greater ranges than those possessed by any of the goods of the next smaller center. In this manner, a hierarchy of centers is determined.

Wang (34) develops a spatial equilibrium model of a system of cities, and emphasis the spatial dimension of their hinterlands by modeling interurban transport costs and non-uniform two-dimensional rural areas. His model considers only two levels of cities in order to examine the mechanism of forming a central place structure. According to him, the order of industries in a hierarchical system of cities is determined by some economic parameters of productions, consumption, and transportations, and therefore prediction of an urban system's structural change is possible based on the change of economy and technology. The model explains how many small cities a large city can support, and how much rural population a city can support to. This model also shows how the rural population density and prices of goods vary across space in the context of spatial equilibrium. This is new one in his model. He also pointed out that k -value is no longer restricted to and determined by some presumed 'marketing, transportation and administrative principles', but rather flexible and controlled by economic forces.

Huff (35) proposed a simple hierarchical migration model as a mechanism for the redistribution of population within a Christaller Central Place hierarchy. According to him, given a predefined functional hierarchy, the migration process causes any initial population distribution to converge to an equilibrium distribution. Under certain special conditions, the

equilibrium is identical to a central place population distribution derived from economic base concepts.

One problem with the study of urban hierarchies is whether differentiated classes actually exist as discrete entities. The number of classes in any given study may be a result of arbitrary decision, whether conscious or unconscious. Moreover, if discrete classes actually exist they may vary among countries or even among regions within a single country. An even greater problem is identifying precisely how growth is transmitted through a given hierarchy. Central place theory is essentially a static theory. Dynamic one is required to explain the growth in its spatial dimension.

Growth Pole Theory

Gruchman (36) hold the view that the concept of growth poles is closely linked to the central place theory. Their significance to development is based mainly on service functions exercised for the benefit of a region. Growth poles, on the other hand, have a wider and more significant role to play. They are supposed to exert their economic influence over the entire country or the greater part of it. The theory of growth pole tried to answer many of the criticism leveled against central place theory. This theory is inductively derived from observations of the process of economic development, while the central place theory is deductive in nature. The German domination is clear in central place theory, but primarily the French economists have developed the growth pole theory. Writers like Gruchman (37), Zaremba (38) expressed the view that a static theory like Christaller's central place theory does not give all the answers to urban development questions, more dynamic models are required to deal with the regional problems of the 21st centuries. The economic basis of growth poles cannot be confined to services only. They must have strong manufacturing foundations developed as comprehensive industrial complex. The growth pole theory and its pioneer French economist Perroux had a deliberate attempt to break away from the limiting geographical dimensions adopted by Christaller and Losch in their central place theory.

According to Perroux (39), growth does not appear everywhere and all at once, it appears in points or development poles, with variable intensities; it spreads along diverse channels and with varying terminal effects to the whole of the economy. Originally, Perroux was not particularly concerned with the spatial aspects of development in its purely geographical sense, application of the growth pole theory have been concentrated mainly on problems of inter- and intra-regional development. According to Hermansen (40), growth-pole theory is an umbrella term embracing a large number of more specific theories, which are positive and normative; static and dynamic; sociological, economic and geographical. The essence of the idea is that development is selective in its initial incidence, and that sociological, economic and geographical theories relating respectively, for example, to innovation diffusion, industrial complexes or central places are merely elaborating this idea in their respective disciplines or dimensions.

Boudeville (41) defines growth poles as a set of expanding industries located in an urban area and inducing further development of economic activity throughout its zone of influence. Mosely (42) indicated some features of Perroux's work in growth poles:

Firstly, Perroux was concerned with development, not just growth: that is to say, he was concerned not just with quantitative expansion, but also with the process of structural change as well.

Secondly, his focus was multidimensional: because he was concerned with growth and structural change in social systems, in the economy as well as in the geographical space.

Thirdly Perroux had a novel conception of 'space' within which development occurs.

Fourthly, with regard to 'space' as a field of forces with which he was mainly concerned, Perroux claimed that development was unbalanced; it took place first at key nodes from which development impulses spread to other objects.

Fifthly, Perroux stressed that it is the propensity of these key nodes to adopt innovations that assures their development. Hence he borrowed the idea of Schumpeter.

Sixthly, certain of these nodes or foci, because of their large size, high degree of connectivity, high rate of innovation adoption and rate of growth are able to so dominate the objects with which they are linked that they, the dominant nodes, effectively control the latter's rate of development. Such dominant nodes he termed 'growth poles'. But Hermansen (43) remarked that not every center of a nodal region qualifies to be called a growth pole. Only those, which contain propulsive firms, should be regarded as geographical poles of growth. The propulsive firms, he means, are large firms, which are technically advanced, innovating and dominating and able to generate growth over a prolonged period of time.

According to Moseley (44), the nodal locations are towns or wider urban areas, given the marked natural reinforcement of accessibility and urbanization. Darwent (45) tried to review the growth-pole concept and stated that "it has become associated with an enormous variety of indistinct and ill-defined concepts and notions. The concept of growth-poles and the related body of theory were originally developed as a tool to describe and explain the anatomy of economic development in abstract economic space. However, in the course of time, the scope of the theory and the concept itself have been broadened and reoriented to include also the normative issues of policy-intervention and planning. Thus, according to Hermansen (46) the theory is now viewed as a general theory of development in a simultaneous sectoral-temporal-spatial setting. He is of the opinion that Perroux's concept of a growth pole is a highly abstract one (47). According to him, Perroux and the French school of regional economics use the terms pole and polarization in a way different from that usually used in English. To Perroux, pole simply means a clustering or a concentration of elements in abstract – but also in geographical space - so that a pole is sticking up like a peak in a more or less plain density surface. The term polarization is used to mean the process by which poles are created and enlarged, also decline of poles. On the other hand, the English meaning of the term polarization is that of the process by which two extremes opposing each other attract the elements in between them. Thus, according to this meaning, there will normally be two poles, which according to the French meaning, there can be more than two at the same time.

While analyzing the case of Poland, Regulski (48) expressed that the concept of the sub-regional town can be regarded as a fairly characteristic example of the practical application of development poles and development centers. Though the sub-regional towns can be regarded as growth-poles which not only exist in physical space, but these regional towns, as industrial centers, can not be regarded as central places in the sense used by Christaller and Losch, since it is not their purpose to serve the region in the immediate vicinity. Nicholas (49) is of the opinion that a growth pole is an urban center of economic activity which can achieve self-sustaining growth to the point that growth is diffused

outward into the pole region and eventually beyond into the less developed region of the nation.

Perroux developed his theory in search of an explanation of how the modern process of economic growth deviates from Cassel's stationary concept of equilibrium growth (50). In doing this he based his argument heavily on Schumpeter's theories of innovations. Inter-industry linkages, the theory of industrial interdependence together with the Schumpeter theory generated by waves of innovations can be said to constitute the two corner-stones upon which Perroux bases his theory (51). But some difficulties are involved in joining the Schumpeter theory of innovation and the theory of industrial inter-dependence. Perroux originally aimed at a truly dynamic theory of development and therefore, he adopted the Schumpeter theory and framework as one of his corner stones; the Leontief-type formalization of industrial interdependence is of an essentially static character, and since the latter theory is operational and the former not. But the heavy use of Leontief-type input-output technique shifted the French school away from Perroux's original translation of Schumpeterian development. In the words of Lasuen (52), "drained the growth pole concept of its original temporal and dynamic meaning and recharged it with a static and/or comparative static content".

Morgan (53) felt the need to introduce the study of productivity within the concept of growth-pole theory. Productivity has been primarily studied at a high level of industrial aggregation within a non-spatial framework. If growth-pole theory is to provide better policy instrument, then we must have information about inter-industry linkages at highly disaggregated levels. A highly disaggregated sectoral framework is necessary if the notion of the growth pole is to be used as a policy instrument for effecting structural change and growth in a specific city or system of cities. It is in this context, Morgan argued to carry out productivity studies at similar levels of sectoral disaggregating. He also argues that if growth-pole theory is to continue to be the source of policy instruments, which are meant to bring about desired structural change in specific locations, and then it is necessary to integrate location theory into growth-pole theoretic framework. Location theory must be given a sound temporal framework if it is to be meaningfully integrated into an economic growth theory such as the growth pole theory.

Morgan(54) argued that inter-industry linkages played a critical role in the context of growth-pole theory. Growth transmission of a centripetal and centrifugal nature flow along the inter-industry linkages centered on plants located in the growth pole. Perroux has asserted the territorially agglomerative nature and economic effects of at least some of these networks of linkages. Information on inter-industry linkages is needed not only at intra-urban and inter-urban levels but also such information may be required for individual plants rather than for industries.

From various writings on growth poles and growth centers, Glasson (55) identified three basic economic concepts:

- (i) The concept of leading industries and propulsive firms. This concept states that at the center of growth poles are large propulsive firms belonging to leading industries, which dominate other economic units. There may be just one single dominant propulsive firms or a core of them forming an industrial complex. The original geographical location of such industries in certain focal points in a region may be due to several factors – the localization of natural resources, the localization of more man-made advantages or possibly

just chance. In reality, the growth points are often grafted on to the existing framework of central places.

- (ii) The concept of polarization states that the rapid growth of the leading industries includes the polarization of other economic units into the pole of growth. Implicit into this process of polarization, three types of agglomeration economies have been identified by Glasson:
 - (a) Economies internal the firm. These are the lower average production costs resulting from an increased rate of output.
 - (b) Economies external to the firm, but internal to the industry. These are the reductions in cost per unit of output to the firm as the industry expands at a particular location.
 - (c) Economies external to the industry, but internal to the urban area. These are the downward shifts in the average costs of each firm as many industries grow in one place.

This economic polarization will inevitably lead to geographical polarization with the flow of resources to and the concentration of economic activity at a limited number of centers within a region.

- (iii) The concept of spread effects states that in time the dynamic propulsive qualities of the growth pole radiate outwards into the surrounding space. Myrdal (56) and Hirschman (57) talked of this 'spread' or 'trickling down' effects of growth poles in contrast with the 'backwash' or 'polarization' effects. A very few empirical studies were done in order to assess the spread effects. Vida Nichols (58) tried to measure the spread effects from the growth pole of Atlanta into the rest of the relatively depressed state of Georgia, USA.

Misra (59) does not recognize the growth-pole theory as one theory; he says that the growth-pole hypothesis has not yet acquired the status of a theory. For this he showed three basic weaknesses from which the growth-pole hypothesis in its present form suffers. These are

- (i) Functional rigidities
- (ii) Conflict between trickle-down and polarization process; and
- (iii) Relevance to varying development situation.

The hypothesis has its root in western economic thought and has yet to shed of its preconceived role of accelerating development through industrialization. Industrial development is indeed a major contributor to general economic growth but it can occur only at a few places with a favorable socio-cultural base, which may not be available everywhere. The second point contended that the trickle-down process would start operating if regional growth poles or growth centers are developed in underdeveloped regions. But, in the developing countries they may prove to be nothing but parasitic in nature. The trickle-down process does not distribute growth equitably to each hamlet and individual and it can only work through the hierarchy of settlements. The operation of the trickle-down process is halted if a particular level in the hierarchy of growth foci is missing.

While analyzing the case of India, Misra put forward a new concept of four tier growth poles, which he named as 'growth foci'. These are:

- (i) Service centers at the local level
- (ii) Growth points at the sub-regional level
- (iii) Growth centers at the regional level.
- (iv) Growth poles at the national level

The creation of growth poles in backward regions will have some consequences. It may serve as an incentive to the economic development of the region as a whole or of a significant part of it; again it may barely affect the region at all since the basic interests of the growth pole will fall outside the regional limits. In some other cases, it may cause part of the population to shift from outlying areas into the zone of the growth pole and thus adversely affect conditions in the main part of the regional territory. Gokham and Karpov (60) are of the opinion that the most rational growth poles from the point of view of the state are to be found, more often than not, in the most developed regions of a country. This is especially true of developing countries where political and other needs lead to the creation of growth poles in the least developed regions often with negative effects on development rates of the country concerned as a whole.

Criticizing the growth pole theory, Zaremba (61) told that it did not answer satisfactorily all questions related to development. Firstly, it is not possible to separate economic planning from physical planning, or to neglect the importance of the latter. Secondly, it is not at all certain that concentration is the most powerful means of developing human activity. Glasson (62) also told that growth pole theory and central place theory provide a partial explanation of the spatial structure of regions. Neither theory satisfactorily explains the elements of spatial interaction.

The Growth Center Concept

It is the growth-pole theory that provides the stimulating hypothesis that development is polarized in geographical space around nodes and these nodes may be designed as 'growth centers'. But, when different authors (63) tried to define the growth center, such definitions contain recurrent themes, relating to urban status, size, functional role, location and growth, but the emphasis varies and few authors explain the relative importance of the characteristics they list. From this list, it is very difficult to single out the irreducible minimum. Most writers seem to be describing their mental picture of a growth center, whether it represents a meaningful concept or not. Moseley (64) considered the opinions of 13 writers and he has shown that at least there is *seven* basic issues emerge from their definitions. The growth centers, Carol identifies in southern Ontario, are simply high- and middle-order central places as defined by the level of their retail sales. Tolosa and Reiner prefer a nodality interpretation of centrality and advocate the spatial analysis of economic and information flows and the application of graph theory to identify nodes or vertices in those flows. Vertices with above-average growth rates are then growth centers. Boudeville employed telephone call data. Semple sought growth centers within the state of Sao Paulo, using composite indices of growth relating to each center in that state.

Though most of the writers included both static and dynamic variables, but Moseley undertook principal component analysis exclusively of dynamic variables in his search for

growth centers in East Anglia and in Brittany. Almost all the writers employed a similar multivariate technique, but each sought growth centers in a quite different way.

The EFTA report (65) sets out five prime indices upon which areas for designation as growth centers should be identified:

- (i) An increase in per capita income equal to or greater than the national average;
- (ii) An increase in gross income greater than the national average;
- (iii) Substantial investment and production expansion;
- (iv) A rapid rate of increase in total population; and
- (v) Sufficient size to support a wide range of services.

Milne (66) recommended use of the following criteria for the identification of growth centers in six problem regions of the United States: rapid employment growth, high intra-regional immigration and market per capita income growth.

There is no universally acceptable definition of the growth-center concept. It is almost impossible to come to a unique conclusion. In words of Moseley (67), it is as hard "as for a dog to chase his tail".

The difference between growth poles and growth centers is a matter of scale. Growth poles, in which large capital investments are made, whereas growth centers have an accessory significance in that they promote local goals, decisively condition the attainment of development targets. Even so, the successful development of growth centers is closely connected, as a rule, with that of corresponding growth poles.

The development of growth poles leads to the corresponding development of all the systems into which they enter; and the choice of growth poles and the centers depends to an appreciable extent on the development aims assigned. The aim that is cited most frequently is the attainment of a high level of prosperity and happiness. Human happiness cannot be defined as the product of one or two purely material factors.

Globalization

Now the term 'globalization' is one of the most 'widely used - and misused' word in the field of international relations. The business circle and media personnel described it to be increased internationalization of economic activities or political negotiations. Academics interpret it to specific forms of internationalization – ones that involve the 'deepening' rather than just the 'widening' of international linkages. They stressed that globalization is a micro economic process – in contrast to regionalization, which links countries, and is therefore described as macro economic. Globalization is thus defined as the process by which enterprises become interdependent and interlinked globally through strategic alliances and international networks. According to O'Neill (68), deregulation, privatization and technological progress especially in communications are perceived as engines of globalization. Tariffs have become less important as impediments to international trade flows, the focus of liberalizing efforts has shifted to non-tariff barriers. The improved communication facilities facilitate wider and faster linkages between people and places. The integration of financial markets is perhaps the most remarkable manifestation of the role of the new information technology in the globalization process. Thomas Friedman (69), includes many of these elements when he defines globalization as 'the loose combination of free trade agreements, the internet and the integration of financial markets

that is erasing borders and uniting the world into a single lucrative but brutally competitive market place.

According to Fernandez Jilberto and Mommen (70) globalization means the production and distribution of products and/ or services of a homogeneous type and quality on a worldwide basis. Globalization refers to the multiplicity of linkages and interconnections between states and societies, which make up the present world. It represents two distinct phenomena: scope and intensity. It implies intensification in the levels of interaction, inter-connectedness and interdependence between states and societies. It embraces a set of process covering most of the globe. Many neo-liberal authors tried to point out the future of the globalizing economy as a borderless world (71). The states and national economies will fade away and give birth to an integrated world market. Globalization is altering the world economic landscape in fundamental ways. It is driven by a widespread push towards the liberalization of trade and capital markets, increasing internationalization of corporate production and distribution strategies, and thereby creating wider markets for trade, an expanding array of tradable, larger private capital inflows, improved access to technology. Day and Riebshtein (72) observed, "globalization and technological change are spawning new sources of competition, deregulation is changing the rules of competition in many industries, markets are becoming more complex and unpredictable and information flows in a tightly wired world permit companies to sense and react to competitors at a faster rate".

Globalization is affecting the class structure, the labor process, and the application of technology, the structure and organization of capital, family life, the organization of cities and the use of space. Mc Grew (73) described globalization as 'the forging of a multiplicity of linkages and inter connections between the states and societies, which make up the modern world system. The process by which events, decisions and activities in one part of the world can come to have significant consequences for individuals and communities in quite distant parts of the globe'. Globalization has to be understood as a process of suppressing state influence on the economy and of giving private capital hegemony over any investment decision.

In a 1995 study entitled 'States of Disarray: The Social Effects of Globalization', the United Nations Research Institute for Social Development (UNRISD) lists six key trends of globalization:

- (i) The spread of liberal democracy;
- (ii) The dominance of market forces;
- (iii) The integration of the global economy;
- (iv) The transformation of the production system and labor markets
- (v) The speed of technological change; and
- (vi) The media revolution and consumerism;

Michel Comdessus (74) of the IMF associates globalization with more open liberalized trade policy, privatization, foreign exchange and financial liberalization; deregulation, increased access to international markets, a reduced role of government in the economy; less import substitution industrialization and more emphasis on export-led growth; and comprehensive adjustment and reform programs.

Sederi (75) pointed out that the emergence of a global economy entails the diffusion to distant countries of identical consumer goods, including consumerism, patterns of demand and the homogenization of market rules and structures. It also entails the spread of

values, such as the dominance of market forces, and a preference for liberal democracy. The phenomenon of globalization is necessarily a totalizing or homogenizing force whose scope extends beyond the realm of economies to embrace science, politics, culture and life styles. Globalization enables the economy, politics, culture and ideology of one country to penetrate another. National borders have become permeable and protectionism is no longer a guarantee of economic stability. Trade has steadily grown faster than output and FDI has grown even faster than trade.

According to Hirst and Thompson (76), a world-wide international economy is one centered on nation-states, their growing strategic interdependence built first around the importance of international trade, but progressively replaced by foreign investment. Once considered the basic unit of geopolitics, the dominant role and independence of national states are being undermined by diverse challenges, all connected to the process of globalization. According to UNCTAD (77), there are three layers of internationalization. Globalization is the third layer of it. The first two are the expansion of international trade and financial integration. Cook and Kirkpatrick (78) divided global economy into two parts – shallow integration and deep integration; and they identified deep integration as globalization. But UNCTAD is in favor of taking both to define globalization.

Simai (79), through an economic approach defines globalization as 'the entirety of such universal process as technological transformation, interdependence caused by mass communication, trade and capital flows, homogenization and standardization of production and consumption, the predominance of the world market in trade, investment and other corporate transactions, spatial and institutional integration of markets, and growing identity of similarity of economic regulations, institutions and policies'. Bob Deacon (80) said that globalization includes following processes:

- (i) flows of short-term foreign investment based on speculative currency trading;
- (ii) longer-term foreign direct investment;
- (iii) world trade, with policies aimed at further reducing barriers to trade;
- (iv) the share of global production and trade associated with transnational corporations;
- (v) the global interconnectedness of production; due in part to changes in the technology of production and servicing;
- (vi) the movement of people for trade and labor purposes;
- (vii) the global reach of new forms of communications, including television and Internet.

These processes and related phenomenon resulted in economic activity becoming more global. They have also led to the emergence of a global civil society sharing a common political and cultural space.

The liberalizing globalization of the past decades has been shown to have a number of undesirable social consequences globally. These include:

- (i) increased inequality both within and between countries; and increased impoverishment;
- (ii) increased vulnerability of people to social risks, such as unemployment and crime; and

- (iii) increased chances of exclusion of individuals, communities, countries and regions from the benefits of globalization.

Processes of liberalizing globalization may also have damaged the capacity of governments to act in a socially compensatory way:

- (i) Globalization sets welfare states in competition with each other. This generates the danger of social dumping, deregulation and a race to the bottom in terms of welfare provisioning.
- (ii) Globalization raises issues of social redistribution, social regulation and social empowerment to a regional and global level. As a result, new super national actors enter the picture, complicating the policies of welfare. These include intergovernmental organizations – such as Bretton Woods institutions, the United Nations etc.
- (iii) Globalization generates a global discourse within and among global actors on the future of national and super national social policy. The future of social policy at the national and super national levels is being shaped by a struggle between super national organization for the right to participate in shaping policy, and within and between super national organizations for the content of social policy.
- (iv) Globalization creates a global market in welfare providers. Globalization generates increased opportunities for private providers of welfare service to operate in many countries, undermining national social service provision and regulatory policies.

Giffen and Khan (81) observed that the arms technology and militarization of the oceans and the outer space have made political boundaries largely irrelevant in most of the world. In the absence of an immediate enemy – as occurred at the end of the cold war when western countries lost the common purpose under which they had cooperated for so many years – the nation-state becomes less significant to the citizen. One of the most dangerous temptations of globalization correctly identified by them is the tendency to skimp on higher education in order not to lose resources through brain drain and to run a low wage, low human development economy in order to keep costs low and international competition at bay.

Globalization and technology, Bradley and Jerry (82) said, are mutually reinforcing drivers of change. Competition has been, and continues to be a force for management exploitation of the full potential of the global market. This pressure to exploit the global market has turned up a powerful enabler in information technology. Application of existing technology, resulting in the realization of partial benefits of globalization, leads management to demand more sophisticated technology. The newer technology required meeting this more need-specific demand enables further globalization.

Even if neo-materialist writers decry globalization as one of the indicators of the contemporary international order, it is difficult to deny that globalization in the realm of information and ideas adds a new dimension to the concepts of democratization and participation that far outweighs the evils attached to global trade and international market practices.

The term 'globalization' has a spatial connotation in that it dialectically combines the local and global. At the local level takes place all kinds of exchanges amongst individuals and groups (83). Their transactions are confined to a particular space and the

consequences of these transactions affect only the communities in that locus. The 'global' scale lies at the other extreme: it implies that the interactions within local and national communities are ruled by a foreign international order and that global orders are antithetical and bad for the healthy development of local initiatives. It can be argued that this portended antithetical and dialectic split between the 'local' and the 'global' is just a matter of interpretation of the horizons that are attributed to the inhabitants of local places by theoreticians of developed nations, considering that the globalization of communication is bringing them closer together in universal transformations and debates.

Hirst and Thompson (84) are convinced that while increased internationalization and integration have been occurring, globalization is largely a myth. They contrast the international economy with a stylized globalization one, within which, they state, distinct national economies are subsumed and rearticulated into the system by international processes and transactions. One of the many consequences of a globalizing international economy would be the transaction of MNCs into genuine TNCs as the major actors in the world economy.

The 'optimistic' school of thought argues that globalization will lead to a greater integration of developing countries into the global economy, to net benefits and to convergence at the global level. The 'pessimistic' view sees globalization as being largely confined to the North, as widening existing inequalities and further marginalizing the vast majority of developing countries -- a process of divergence, which is set to continue. Lester Thurow (85) thinks that since the fall of communism, the capitalist system no longer has a competitor to curb its excess. As a result, there will be growing inequalities between the rich and the poor, large-scale unemployment, increased homelessness and the breakdown of the family and ultimately it will lead to a 'vicious circle of individual disaffection, social disorganization and a consequent slow downward spiral'.

Bob Deacon (86) thinks that for the developing countries and many emerging economies, globalization has had the following effects:

- (i) Globalization has generated severe indebtedness, undermining the capacity of governments to provide education, healthcare and social protection.
- (ii) Globalization has threatened assets and standards. Globalization has encouraged the economically rational response of selling off country assets at any price, including assets arising from low labor costs, in order to attract capital.
- (iii) Globalization has segmented social policy within many countries so that different sectors of the population are living under very different internal welfare regimes.

Globalization has created zones of exclusion from the formal global economy in Africa and elsewhere, in which the normal functions of the state, such as taxation, regulation and social spending are non-existent (87). In such areas, a form of adverse 'incorporation' is taking place whereby the poor, without formal rights, are obliged to engage in informal exchange and clientele relationship to secure their survival needs. In this context, the informal economy of drugs, prostitution, arms dealing and illegal trade flourishes.

The global economy 'is leaving millions of disaffected workers in its train, inequality, unemployment and endemic poverty have become its handmaidens'. The UNDP (88) itself sees globalization, not necessarily as positive-sum game, but as a 'two-

edged sword ... with winners and losers'. Divergence rather than convergence is the result in many cases; income inequality is clearly on the rise in many countries including Mexico that have opened their economies. The UNCTAD also felt concern about the danger of marginalization. Liberalization and globalization in many countries enhance new uncertainties and anxieties regarding growth and prosperity. According to UNRISD (89), some people and some countries have gained enormously from globalization, but in many parts of the world, it has contributed to increased impoverishment, inequalities, work insecurities, weakening of institutions and social support systems, and erosion of established identities and values. Sideri (90) is of the opinion that globalization can bring forth the danger of cultural pollution, which has been attributed to audio-visuals, and foreign companies access to the print and film media. In Mexico, the effect of globalization is not good. It widened the gap between the rich and the poor. It could not reduce the intensity of regional disparity. In forthcoming chapters, we will discuss it in details.

Another group of writers thinks that the concept of globalization is nothing new. It existed hundred years ago even. Hirst and Thompson (91) concluded that there is nothing very new about the globalization of modern economy. According to them, the current international economy is less open than the regime that prevailed from 1870 to the outbreak of the First World War. Sachs and Warner (92) also described the period between 1860 and 1914 as one characterized by low trade barriers and capital mobility. Malone and Rockart (93) compared globalization with the Industrial revolution of England, and they wanted to say that globalization is not a new phenomenon. But there is a critical difference this time. The industrial revolution of the 19th century was driven by changes in the economies of production and transportation; the primary changes in the revolution underway today are being driven out not by changes in production, but by changes in coordination.

There is also an undercurrent, which recognizes that there existed a previous period of globally integrated markets. A hundred years ago, it is suggested, prior to the disruptions of two world wars and the collapse of commodity and financial markets in a global depression, markets were very big as internationalized as today. Other economists have expressed this view also. Zevin (94) believes that "while financial markets have certainly tended towards greater openness since the end of the Second World War; they have reached a degree of integration that is neither dramatic nor unprecedented in the larger historical context of several centuries". Sachs and Warner (95) argue that the reemergence of a global, capitalist market economy since 1950, and especially since the mid-1980s, in an important sense reestablishes the global market that had existed one hundred years earlier.

Rodrik (96) wrote that 'in many ways, today's world falls far short of the level of economic integration reached at the height of gold standard'. The first age of globalization ultimately collapsed in a great depression in which trade warfare and a global financial crisis played prominent parts. Globalization today raises new issues of governance not just because it is conjoined with a political system, which gives a louder voice to special interests, but also because the economic phenomenon itself is different; integration is deeper and broader than hundred years ago.

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CHAPTER – III

DISPARITY IN THE INDUSRIAL SECTOR

CHAPTER – III

REGIONAL DISPARITY IN THE INDUSTRIAL SECTOR

Up To 1910

The industrial history of Mexico is not very old. Before the Spanish conquest in 1520, the Aztecs had developed an economic base capable of supporting not only those directly engaged in producing food but also providing a surplus for the maintenance of a large number of other persons. These nonproductive consumers were the priest and warrior-noble class. After the conquest, the Spaniards started exploring the rich mineral deposits of Mexico in order to export them to their country. For improving mining activities, some new technology was developed. Up to the 1880s, mining was by far the most important capitalistic sector of the economy. Originally, the labor force for the mines and refining works was supplied by the "repartimiento" and to lesser extends, by Indian and Negro Slaves (1). In 1793, some wool-weaving centers were created in Queretaro, Valladolid, San Miguel and Acambaro. These centers provided employment to about 1,500 people (2). In the manufacture of cotton, Puebla held the principal place with over eleven hundred looms in use. The cities of Oaxaca and Mexico stood next in importance, but with only about half as many looms as those in Puebla.

The most surprising thing is that Guadalajara was relatively insignificant from the point of view of the distribution of the handicraft textile industry at this time, though it was one of the most populous areas and that it raised both cotton and wool. Traditionally, Guadalajara used to send raw materials to places like Queretaro and Puebla and used to get finished goods from these places. However, after the decade 1793, Guadalajara was transformed into a textile center. In 1803, in Puebla, it was reported that half of the municipal population was devoted to cleaning and spinning cotton for the use of the city's 1200 weavers (3). The man, who assumed the Mexican presidency on April 1, 1829, was Guerrero by name, had personal interest in industrial development. On May 22, 1829, he imposed an outright ban on the entry of inexpensive cotton textiles. The aim was two-fold: first, it was to revive the handicraft industries, and secondly, it would regenerate agriculture and internal trade. This law was highly appreciated by the artisan circles, and nowhere more vigorously than in Puebla. General Guerrero had more interest in protecting Mexico's artisan industries from foreign competition than in improving their obsolescent techniques (4).

The level of commercial activity remained low till the construction of the railroads in the Diaz period. The Spanish colonial administration did not encourage external trade with other countries except with Spain. Even after the end of Spanish rule, there was little tendency for trade to increase. There was not, therefore, up to the end of nineteenth century, any considerable class of Mexican merchants had any significant trade; a sizeable portion of the small trade existed in the hands of foreigners. The mining operations also were not a financial success, because the continually disturbed internal conditions made operations difficult and the properties became insecure (5). So, the Spanish concentration was increased in mercantile ventures.

The history of regional disparity in Mexico is with the history of the development of industries there. The following table summarizes the lending operations of 'Banco de Avio' in its first full year of activity, which clearly depicts a picture of disparity in industrial

sector. In its first full year, the 'Banco de Avio' granted six loans and all but one of the six projects were located within fifty miles of Mexico City.

Table - 1
Banco de Avio Loans Granted Prior to November 1831

Date	Borrower	Type of Projects	Location	Location	Amount
Dec.7,1830	Vicente Caasarin	Saw Mill	DF	1	\$3,000
Dec.21,1830	D. Lazo de Vega	Silk Works	Celaya. Gto	9	\$5,200
Jan, 13,1831	Augustin Vallanta	Apiary	Xochimilco	6	\$3,000
Jan, 31, 1831	Pascual Sanchez	Apiary	Cuernavaca	5	\$5,000
Feb, 7, 1831	Tlalnepanlla In. Co.	Bas, Flex, Mulberries	Tlalnepanlla, Mex	6	\$3.300
May 27, 1831	Zacualpa de Amilpas	Iron Works	Chútala, Mex	6	\$12,000
Total					\$31,530

Source: Robert A. Potash (1993)

In 1837, an entrepreneur - Estavan de Antunano wrote the "Notes about the Industrial Regeneration in Mexico" in which he laid down his ideas for industrial promotion. Three years later, a group of private investors, headed by Alaman, founded the "Junta Directiva del Fomento a la Industria" with fifty branches all over the country intended to encourage the establishment of industrial units. These initiatives achieved no important results (6). In this time, though some industrialization was on the way, but it did not have any tendency to spread evenly throughout the country. As a result, the germ of disparity was being grown slowly. In 1837, Mexico had four cotton-spinning mills in operation, out of them, three were in Puebla and the fourth was one small-unsubsidized venture of Pedro Sainz de Baranda, the pioneer textile entrepreneur of Yucatan. The first three came into existence with the aid of capital supplied by the Banco de Avio (7). The southern province Yucatan was deprived of getting this help from the bank. Here started the North-South disparity.

In Puebla, there were 60 power looms in 1836, and it increased to 530 by 1843. In that same year, Mexico City had 385 power looms; and in the entire country total number stood at 1889. This means Puebla and Mexico City occupied almost 50 per cent of the total country's power looms industry. The geographical distribution of the new spinning factories constructed in the decade 1835-45 showed Puebla retained its traditional position of leadership with almost 38 per cent of the total operating spindles in 1845. The second place was held by Mexico. This is shown in the following table:

Table - 2
Location of Cotton-Spinning Mills in Operation in 1845

State	No. Of factories	Spindles in use	Percentage of all Spindles
Puebla	20	42,812	37.6
México	8	21,868	19.2
Veracruz	7	19,807	17.4
Jalisco	4	11,588	10.2
Durango	5	5,520	4.9
Querétaro	2	4,800	4.2
Sonora	1	2,198	1.9
Coahuila	2	1,960	1.7
Michoacán	1	1,668	1.5
Guanajuato	2	1,592	1.4
Total	52	113,813	100

Source: Robert A. Potash (1983)

From the above table, it is clear that the southern states like Yucatan, Quintana Roo, Campeche, Tabasco, Chiapas, Oaxaca and Guerrero did not have any cotton spinning mills in 1845. Moreover, in each state, the factories were located in or near the capital city. This means that intra-regional disparity is also a historical truth. In the above table, first four states, namely, Puebla, Mexico, Veracruz and Jalisco accounted for about 85 percent of the total number of spindles operating in 1845. Certainly, the availability of waterpower was the primary consideration in the creation of the Orizaba and Jalapa mills. Water sites played a significant role in the location of many other mills. Of the forty-seven in existence in 1843, thirty-three had been placed on streams, and depended on water as their principal source of power. But why the natural resources of the southern states could not be utilized - there is no explanation given by anybody either by the government or by any historian or economist.

In 1876, Porfirio Diaz began his first presidential term and immediately his government attempted to start the process of development based on the expansion of primary exports. In the period between 1876 -1910, that is almost within a period of 30 years preceding the Revolution of 1910, Mexico was on the path of sustained growth in per capita production as the result of domestic peace and of the absorption of the Mexican economy into the world economy. In the first sixty-five years of the 100-year period between the Revolt of 1810 and the Revolution of 1910 were characterized by economic stagnation, the final thirty-five years showed a period of slow but steady growth. In this period, textile industry journeyed from workshop to factory. The sustained growth of the later period was caused by the political stability of the country and the huge foreign investment. An industrial survey made during the Second World War found that '75 per cent of the looms in use in 1942 had been installed between 1898 and 1910 and for the other kind of machinery (textile), 85 to 88 per cent of the installations had occurred in the period 1898 - 1910'(8).

In the early Porfirian years Mexico's system of transport was so restricted that the country's textile manufacturers located their plants near the east coast and relied heavily on imported cotton for their production, though some was produced locally. But the expansion of the railway system to the north eventually led to an amazing increase in cotton production in Sonora and Nuevo Leon; by the end of the period Mexico's cotton production had doubled and self-sufficiency in cotton was virtually achieved. In the Porfirian period also, there was no attempt to develop the southern part of the country. Agglomeration economies had already become important in Mexico City by 1877. The large market of the capital permitted many of the factories located there. The introduction of electricity, which proved to be a more efficient and more readily accessible source of power, increased the advantage of location in the capital. The broadening of geographic markets through the expanding railroads network, for which Mexico city served as a primary hub, further enhanced the status of its manufacturing sector (9). By 1902, the Federal District had 35 industries, whereas in Jalisco there was 29, and 24 in Puebla.

Diaz administration welcomed foreign investment and gave the foreigners preferential treatment in Mexico. Capital from the United States and Britain developed the Mexican railroad system. Foreign funds were also invested in mining especially of silver, copper and lead. About 90 per cent of mining industry was foreign-owned. Mexico became the second copper-producing country in the world. The exploration of petroleum resources was begun entirely by foreign capital. The English, Americans, French and Spanish made large investments in public utilities, rubber, textiles and commercial enterprises. Sherwell (10) estimated the percentage of foreign ownership of the export industries in 1910 as follows:

Rubber and guayule -----	95 %
Coffee -----	67 %
Chicle -----	99 %
Cattle -----	20 %

In fact, the only considerable export industries owned by Mexicans was the production of henequen, cane sugar, cattle and hides (11). Most of the large cities of the north and center were associated with the development of mining for gold, silver, zinc, lead, coal and mercury; whereas there was iron in the northeast and oil near the coast of southern Tamaulipas. Most of the industrial metals were found around the northern parts of Mexico, although there were some large deposits on southern part towards Oaxaca in the Isthmus of Tehuantepec. Most of the precious metals were found in the central part of Mexico or in the states of Mexico, Jalisco, Guanajuato, Hidalgo, but there were some mines of this type in Chihuahua, Durango, Oaxaca, Sinaloa and Sonora. In the northern states, near the border of the United States, rich deposits of iron, copper, lead, zinc and coal were found (12). Mining expansion stimulated the rapid growth of the capital cities of the northern states, as production shifted from gold and silver to industrial minerals such as iron, coal, lead and copper. Unfortunately, oil reserves of Tamaulipas could not bring the developmental force in the southern provinces.

The colonial cities like Guanajato, Taxco, Pachuca, Saltillo, Zacatecas, San Luis Potosi and Durango were mining centers; Veracruz was the chief Gulf port. Up to the late nineteenth century, most manufacturing was directly tied to primary production. Independence stimulated other industries. Lucas Alaman, a cabinet minister in one of the first independent government, advocated industrialization as the means of achieving economic development (13). Towns such as Puebla, Queretaro, Guadalajara and Mexico

City benefited from the establishment of textile plants, and the port of Veracruz served as a point of entry for imports of cotton, wool and textile machinery from Europe. Monterrey was the forerunner of setting up modern industry. A lead foundry was established there in 1892 and a steel plant in 1901. Because of the link between the production of primary minerals and the development of industries to process metal and nonmetal minerals, heavy industry by 1910 was mainly concentrated in Monterrey. Foundries and foundry-associated industries were established in other mining centers between 1890 and 1910. Among these the lead and copper plants of Cananca (Sonora), Concepcion de Oro (Zacatecas), Torreon and Chihuahua were particularly important.

After the opening of new railroads, San Luis Potosi, Tampico, Monterrey and Torreon became a major center of regional growth. The development of railroad network itself was thus the source of new industrial and commercial activity and was a principal source of new employment in the urban economy. By 1910, San Luis Potosi had the largest engine repair shops and rail equipment plants in the country. The largest cities in 1900 were to retain their prominence thereafter. The cities that were among the country's twenty-five largest in both 1877 and 1900 and that had positive growth rates, all but two were among the 37 cities that in 1970 had more than 100,000 inhabitants. Mexico city and Guadalajara maintained their first and second position in 1877 as well as 1970. Except for Pachuca and Orizaba, all the cities that first achieved prominence between 1877 and 1900 were in northern states. The northern part and the valley of Mexico, historically, were far ahead than that of the southern part of the country.

After 1910 And Up To 1965

The tendency of the population is to become more urbanized and increasingly concentrated in large cities. The following table illustrates the increasing importance of Mexico City and the increasing primacy of the urban structure. The size distribution of the largest cities in 1900 was such that the index of primacy ranged from 4.14 (for two cities) to 0.44 (for twenty-five cities).

Table - 3
Index of Urban Primacy, 1900, 1920 and 1940

ITEM	1900	1920	1940
Population of Mexico	419,304	755,902	1,827,587
City (P ¹)			
P ¹ /P ²	4.14	5.12	6.65
P ¹ /P ² to P ⁵	1.31	1.64	2.31
P ¹ /P ² to P ¹⁰	0.78	0.87	1.38
P ¹ /P ² to P ²⁵	0.44	0.42	0.76

Source: Based on data from VI Censo General de la Poblacion 1940 and computed by Ian Scott.

Note: P = City. Superscript = number of cities

By 1940, these indexes had increased to 6.65 (for two cities) and 0.76 (for twenty-five cities), resulting in an increasingly large gap between Mexico City and other cities (14).

In the Diaz period, a number of large modern plants were established mainly in Orizaba in the states of Puebla. Within 1900 and 1910, the industrial consumption of raw cotton was doubled, and the number of spindles increased five-fold. With this, brewing, tanning and flour milling - all increased. Within the same time period, the index of the volume of manufacturing production increased by roughly 12 per cent. In 1910, the total number of workers employed in the only important manufacturing industry - textiles were estimated at 32,000 (15). In 1930s, the modern textile industry was developed, but most of gains were in extractive industries owned by foreigners and producing for exports. Due to change in the structure of the Mexican economy in 1920s and 1930s, the industrial development took place in the 1940s and 1950s. The transformation involved an increased importance for the capitalistic nonagricultural sector of the economy. An increased portion of the consumption needs of the rural labor force was satisfied by business firms specializing in manufacturing for sale rather than by household or hacienda.

Between 1921 and 1940, the agricultural labor force declined but this decline did not reflect in the increase in labor force in the industrial sector (16). If the national income data for the period 1929 and 1940 are examined, it will be seen that increase in the value of manufacturing from 11.9 per cent in 1929 to 25.2 per cent in 1945 was accomplished with a relatively small transfer of labor as indicated. The index of the volume of manufacturing rose, on the average, 5 per cent per year from 1922 to 1944. The combined index of iron, steel and cement production more than doubled during the period. But the absolute quantities involved were quite small, for example, pig iron production in 1940 was 92,000 metric tons. The quantitatively important increase of industrial output was unendurable consumer goods, such as sugar, beer, cotton, textile and gasoline.

A new era in the life of Mexico ushered in with the revolution of 1910. This left a chaotic situation whereby the production of all sectors dropped substantially. The economic ideology of the revolution did away with the traditional economic liberalism prevailing during Diaz regime. From the 1920s onwards, the government literally took over the responsibility of directing the national economic activities, giving a leading role to Mexicans themselves (17). In 1925, the Central Bank of Mexico was established, soon to be followed by the National Bank for Agricultural Credit, the National Commission for Roads and the National Commission for Irrigation. The first attempt to formulate a policy for industrial promotion was made in 1926.

Lazaro Cardenas was president for the period 1935 - 40. His industrial policy emphasized the encouragement of activities close to agriculture, for instance, the building up of the cooperative sugar mill of Zacatapec, to replace the plants destroyed during the revolution. In his time the value of manufacturing output rose from 2820 million pesos in 1935 to 4264 million by 1940. In the Six Year Plan of 1935, President Cardenas acknowledged that the process of growth required a strong industrial base. So, in 1939, a regulation of industrial promotion was approved.

Between 1940 and 1967, the economy expanded rapidly. Industrial production rose at an average annual rate of around 6.4 per cent. Gross Domestic Product grew at an annual rate of 6.1 per cent. Industrial employment as a share of the total, increased from 11 to 21 per cent from 1940 to 1967. The distribution of the population among the states in 1940-70 shows the continued domination of the Federal District, Jalisco and Veracruz, relative

increase in Baja Californias and Zacatecas. Population increased the most in the north and the least in the south. Differences in the distribution were greater in 1960-70 than in 1950-60. There is a positive correlation between industrial growth and population growth.

The enormous industrial growth of the valley of Mexico was observed since 1940. In this year, the valley of Mexico had 1.8 million inhabitants and 40 per cent of total Mexican industrial production and it became 5 million inhabitants and 55 per cent of the industrial production of the country in 1960. The group of northern states consisting of two Californias, Sonora, Chihuahua, Coahuila, Nuevo Leon and Tamaulipas were partially industrialized, and had 16 per cent of the population and 23 per cent of the national industrial output. Furthermore, industrial production in this group is concentrated in few cities, which are situated far apart, and consisted mainly of processing agricultural and mineral raw materials for exports. The rest of Mexico, with two-third of the population, possessed only 22 per cent of the industrial output. As a result of this imbalance, three states alone accounted for 58.9 per cent of the value of industrial production in 1960; and these were the DF, Estado de Mexico and Nuevo Leon. Other states, especially in the southern part had been victimized by regional disparity.

Arturo Lamadrid (18) finds a correlation between geographical distribution of income and the level of industrialization achieved. According to his findings, Federal District, Baja California and other seven northern states occupied a privileged position, with living standard higher than the national average by 35 to 100 per cent. On the other end of the scale, the states of Chiapas, Oaxaca, Guerrero, Tlaxcala, Hidalgo, Guanajuato, San Luis Potosi and Zacatecas had living standard that were less than 66 per cent of the national average. During 1959 -65, spatial distribution of federal government investments for the central region (19), which is regarded as industrially most developed region, was 51.7 per cent. In the same period, the North and Central regions absorbed almost 80 per cent of total public investment in industrial development. In case of private investment, this type of disparity was also there. The geographical distribution of Mexican industry caused strong regional disparity inhibiting development of economically depressed regions (20).

Between 1946 and 1954, the 'Law for the Promotion of Manufacturing Industries' was in operation (21). The purpose of this law was to promote national industry through the concession of fiscal exemption and to stimulate the establishment of new industrial activities, and the better development of these already in operation. This law was originally enacted in 1941; and it was amended in 1946 and in 1955. Industries covered by the law included basic metals, transport, chemical, mechanical, electrical metal and food products. The law granted total relief from excess profit, stamp, industrial and income taxes and others. The federal government granted identical exemptions throughout the country without reference to location, although, in practice, most of the exempt firms were located in the valley of Mexico and at least 65 per cent of the capital invested and 40 per cent of the employment affected by the law was in or around Mexico City. In 1960, nineteen of the thirty-two states had not received a single exemption; in 1965 the number had been reduced to fifteen. The Appendix-I shows that tax exemptions were mainly concentrated in six states only between 1959-64. Moreover, judging from the empirical evidence available, the laws did not have positive effects on decisions about industrial location. Some law was enacted in 1972 to give fiscal incentives to promote industrial decentralization and regional development. But some taxes, such as import duties on raw materials and capital goods, were already so low in early 1970s that a further reduction was not likely to affect private location decisions.

Finkelstien indicated some shortcomings of the 'Law for the Promotion of New and Necessary Industries' (22). According to him, it did not contain explicit provisions for the geographical location of plants and hence it could not be widely used as an instrument of regional development. From 167 plants, which benefited in the 1959-64 period, 119 plants were located in the already industrial areas of Mexico City, the State of Mexico and Nuevo Leon.

In 1940, ten states had a per capita GNP in excess of the national average. They were the DF, seven northern states, Colima and Quintana Roo. By 1960, Colima and Quintana Roo had fallen behind and only - the first eight states remained above the national average, and Sinaloa joined them. No other states came anywhere near the national average. The next highest was Campeche. These leading states contributed about 63 per cent of nation's GNP having 30 per cent of population. Alone the DF contributed 36.5 per cent of its GNP having only 13.9 per cent of the population. Ten states, namely, Oaxaca, Hidalgo, Tlaxcal, Michoacan, Guerrero, Chiapas, Tabasco, Queretaro, Zacatecas and Guanajuata had a per capita GNP less than half the national average of 3,800 pesos in 1960. Baja California Norte had twelve times of Oaxaca's output per person (23).

The coal industry in Mexico is concentrated principally in the Sabinas basin in the state of Coahuila, located about 100 kilometers of south of Eagle Pass - Piedras Negras, border line with the United States of America. The principal mining area of Mexico consists of eleven states, which form an area roughly 1600 x 250 miles. This area extends from northwest in Sonora to southeast in Oaxaca. The chief manufacturing industries included sugar mills, breweries, chemicals, paints, cigars and cigarettes, metals and textiles. Mexico contained more than 13,000 plants with investment of more than \$215 million. Workers number nearly a half million, and the value of the industrial output approached \$300 million. Such expansion had been apparent mainly in consumer goods, not as much in heavy industry. More than 35 per cent of the Mexican industrial production was found in the Federal District; and other important centers may be listed as follows (24):

Aguascalientes - railway machinery and equipment.

Guadalajara - iron and steel, textile, shoes, soap, bricks, tile, pottery and glassware.

León - shoes, clothing, textile.

Monterrey - iron and steel, glass, beer, textiles, furniture, matches, chemicals, enamelware, paper products, lamps.

Puebla - textiles, railway equipment, cement, tiles, ceramics.

San Luis Potosi - fiber products, leather, soap, flour, beer.

Saltillo - serapes, silver products, fibers, clothing.

Oil production reached a peak of 193 million barrels in 1921. The border states of Tamaulipas and Nuevo León are geographically a part of the great basin, which is known as Rio Grande Embayment.

The volume of investment represents a potent indicator of the degree of economic development in a state or a region. During the period of ten years from 1945 to 1955, the cumulative total new investment of all kinds was probably just short of 70 billion pesos, and half of this gone into industry. Per capita investment for the whole country was 1,370 pesos (base of 1950). The following table gives the per capita investment of different states:

Table - 4
Cumulative Industrial investment 1945 - 1955
(Pesos per capita)

<u>Top Ten States</u>		<u>Bottom Ten States</u>	
DF	4,260	Chiapas	41
Nuevo León	3,960	Nayarita	138
Tamaulipas	3,390	Guerrero	162
Baja California Norte	2,640	Oaxaca	164
Estado de México	2,220	Tabasco	167
Chihuahua	2,020	Quintana Roo	211
Campeche	2,000	Aguascalientes	216
Coahuila	1,580	Colima	233
Morelos	1,260	Michoacán	320
Baja California Sur	1,210	San Luis Potosí	322
Sonora *	1,190		

Source : Yates (1982)

* Sonora is the 11th state in this development rank

The highest per capita industrial investment occurred mainly in the most industrialized states - the seven northern states, the DF, Estado de Mexico, Campeche (the expansion of shrimp canning plants) and Morelos. The lowest per capita investment was recorded mainly in the least industrialized states, though it is perhaps surprising that Hidalgo, Queretaro and Tlaxcala were not in the lowest ten. The volume of investment in the richest was more than 20 times than in the poorest one. During this period, the seven northern states accounted for 24 per cent of the total new industrial investment of the nation while the DF and the state of Mexico - together accounted for as much as 40 per cent.

From the point of view of commercial investment, the massive investment was done in Baja California Norte that exceeded even that of the DF. This was because of the stimulating effect of tourist activity and the free zone. The high rank of Sonora was for its prosperous and expanding agriculture. The total picture can be had from the following table:

Table - 5
Cumulative Commercial Investment, 1946-55
(Pesos per Capita)

<u>Top Eight States</u>		<u>Bottom Eight States</u>	
Baja California Norte	3,200	Tlaxcala	44
DF	2,200	Hidalgo	53
Nuevo León	1,380	Estado de México	79
Sonora	1,080	Oaxaca	88
Baja California Sur	821	Michoacán	110
Tamaulipas	775	Zacatecas	113
Coahuila	707	Chiapas	117
Chihuahua	553	Guerrero	137

Source : Yates (1982)

Apart from these regular 'eight best' states no other had a per capita commercial investment in excess of the national average. It is most surprising to find that State of Mexico listed as third lowest state when it was on the way of rapid growth in the industrial development. Most of the factory workers of state of Mexico used to live in the DF and certainly spend the greater part of their earnings in the DF. So, although industry was expanded, but commerce could not get stimulated in the same state (25). On a per capita basis, the cumulative total of ten years' investment was 2,588 pesos as the average and for all other states; it is given in the following table:

Table - 6
Cumulative Total Investment, 1946-1955

Top Nine States		Bottom Nine States	
Baja California Norte	7,860	Chiapas	512
DF	7,020	Guerrero	538
Nuevo León	5,895	Oaxaca	857
Tamaulipas	5,585	Tlaxcala	907
Sonora	5,040	Tabasco	917
Baja California Sur	4,540	Zacatecas	935
Chihuahua	3,593	Querétaro	952
Campeche	3,433	Michoacán	998
Coahuila	3,280	Aguascalientes	1000

Source : Yates (1982)

Here also the picture does not change. The same states, which attracted the highest industrial and commercial investment, were also mostly the same states, which enjoyed the highest per capita infrastructure investment; though in case of infrastructure investment, some other trend is also available (detailed discussion is in the respective chapter). In the nine top states of the above table, infra-structure investment represented 33 per cent of the total, while in the nine lowest, as much as 52 per cent. Dale (26), through a time regression analysis, tried to show that private sector dominated the Mexican industrial development. So, naturally, private entrepreneurs' natural choice was the DF and its surroundings for establishing industries. This deepened the regional disparity in Mexico.

The capital-output ratio was more in more industrialized states. The arithmetic average of the eight highest investment states was 3.8 whereas for the lowest eight it was 2.2. The low figures of labor productivity as shown in Appendix - II, in industry and agriculture for Baja California Norte were partly explained by the enormous immigration into the state; the low ones for the Coahuila and Chihuahua were partly explained by the stagnation of mining and by the adverse effects on cattle raising of several consecutive years of severe water shortage. The rise in agricultural labor productivity in Chiapas is partly explained by coffee prices. By examining the growth in per capita GNP and general welfare in Appendix - II, it is clear that the position of the states is completely different. The poor states show a faster rate of growth both in overall labor productivity and in welfare standards (27).

The economic and cultural predominance of Mexico City, and the increasing degree of concentration there, were even more spectacular.

	1940	1955	1960
Federal District's share of national population	8.0 %	--	13.3%
Federal District's share of industrial output	37.8 %	48.1%	-----

Frank Miller (28) had shown that Hidalgo and the seven other least industrialized states accounted for only 5.6 per cent of the output in 1940, and this figure declined to a pathetic 3.3 per cent by 1955, although they had 24.7 per cent of the nation's population in that year. There were even more striking differences in industrial output per worker. In 1955, the figure for the Federal District was seventeen times higher than for Hidalgo. In case of credit granting by the Nacional Financiera, a wide range of disparity was observed. In one Mexico-US conference, Mr. Hermosillo (29), the then Assistant Director of Nacional Financiera, Mexico told that during 1948, the Nacional Financiera granted credits amounting to 375 million pesos and made direct or indirect investment in industrial securities totaling around 226 million pesos. The following table shows a geographical distribution of grants by the Nacional Financiera in 1948:

Table - 7
Grants by the Nacional Financiera

Zone	No. of Enterprises	Percentage of Resources
Total	172	100.00
North of the Country	41	37.1
Rest of the Country	131	62.9

Source: Hermosillo (1969)

It is clear that the Nacional Financiera's investment in the north of the country represented an important percentage. The following table gives a detailed picture of the 41 enterprises of the northern states.

Table-8
Grants to 41 Enterprises

LOCATION	NO. ENTERPRISES	OF TOTAL RESOURCES (thousand of pesos)	Percentage
Coahuila	4	92,703	41.7
Sinaloa	8	63,984	28.8
Tamaulipas	3	36,715	16.5
Sonora	5	7,103	3.2
Baja Californias	5	6,702	3.0
Chihuahua	3	6,292	2.8
Nuevo León	9	4,181	1.9
Durango	1	3,500	1.6
San Luis Potosí	3	1,094	0.5

Source: Same as Table -7

Of the total resources distributed by the Nacional Financiera to the north of the country, 87 per cent was directed to Coahuila, Tamaulipas and Sinaloa. This was primarily due to the development of the sugar industry and an iron and steel plant. To undertake expenditures abroad Nacional Financiera took the necessary steps to obtain credits. In this way, \$5,000,000.00 (five million dollars) was employed to finance the north's sugar industry. This amount was divided between Sanalona (Sinaloa) and Guayalejo (Tamaulipas). An additional \$8,000,000.00 (eight million dollars) were invested to finance the steel industry - Altos Hornos de Mexico - and \$1,000,000.00 (one million dollars) to establish meat canning plants in the same region of the country (30).

Yates (31) has shown the degree of industrialization of the various states of Mexico for the year 1955 by Industrial Value Added per capita and Value Added in Industry per industrial worker. This is shown in the following table:

Table - 9
Industrial Value Added per Capita (in pesos) indicated by V1 and Value Added in Industry per capita industrial worker (pesos) indicated by V2 in 1955

<u>Top Ten States</u>			<u>Bottom Ten States</u>		
	V1	V2		V1	V2
DF	3,420	37,800	Chiapas	45	2,160
Nuevo León	2,890	44,300	Tabasco	81	4,250
Chihuahua	1,280	25,700	Oaxaca	93	2,905
Coahuila	1,162	20,400	Guerrero	114	5,180
Tamaulipas	1,149	29,000	Nayarita	120	4,330
Baja California	1,030	32,000	Michoacán	149	5,070
Norte California					
Baja California Sur	960	17,600	Colima	179	5,100
Quintana Roo	933	33,300	Aguascalientes	197	3,740
México	904	29,100	Hidalgo	201	5,640
Sonora	825	19,100	Queretaro	261	7,830

Source: Same as Table-6

It is interesting to note that the same ten highest and lowest states were for the two categories of indicators, only their ranks changed. For the indicator V1, the average for the Republic was 960 pesos per capita. Ignoring Quintana Roo where industrial production was negligible, it will be noticed that the top states consist of two groups: (a) Distrito Federal and Mexico; and (b) the seven northern Border States. These were the only significantly industrialized states in the whole country. The bottom states, those least industrialized, consisted of four in the 'deep south', three mountain states of the pacific coast and three small, poor states of the Altiplano. From the point of view of labor force, the following were the most and least industrialized states in 1950:

Table - 10

Persons Occupied in Industry as Percentage of Total Labor Force in 1950

<u>Top Ten States</u>		<u>Bottom Ten States</u>	
DF	31.1	Tabasco	7.4
Nuevo León	23.5	Chiapas	7.7
Coahuila	21.0	Guerrero	7.9
Baja California Sur	19.6	Zacatecas	9.3
Aguascalientes	18.7	Quintana Roo	10.00
Campeche	18.0	Nayarit	10.00
Chihuahua	17.9	Morelos	10.00
Jalisco	16.6	Sinaloa	10.3
Baja California Norte	16.2	Michoacán	10.5
Sonora	16.0	México	11.0

Source: Same as Table -6

In 1950, the percentage for the whole Republic was 15.9 and only ten states shown in the above table were above the average. In the bottom states, industry played an insignificant role as an employer of labor. From the above, it is clear that industrialization took place in those states where the opportunities for productive employment are greater. In the northern states, the main industries were mining, base metals and industries for the processing of agricultural products, but industries in the DF and Estado de Mexico were the types of metal products and chemicals producing mainly final consumer goods. In 1940, the difference in per capita gross national product between the eight richest and ten poorest states was 4,500 pesos (at 1960), in 1960, this difference increased to 6,500 pesos. In 1950s and 60s also, intra-state disparity created problems of unequal distribution of income in industrial sector. As industrialization gathered momentum, the new activities tended to concentrate in a few districts or cities. Thus in two of the northern states, namely Nuevo León and Baja California Norte, more than two-thirds of the industrial units was located in one municipio; in one state two-thirds of the output was divided between two municipios while in the remaining states and in Mexico, it was shared between three municipios. The following Table-11 gives a clear picture of the regional distribution:

The productivity of the industrial workers gave a very astonishing result. The average of the two industrial zones being nearly 34,000 pesos (1955) compared with 4,360 pesos per worker in the eight least industrial states.

Between 1940 and 1955, the nation's industrial value added rose from 1.3 to 30.4 billion pesos. Of this increase of 28.1 billion pesos, the metropolitan area accounted for 53.1 per cent and northern states for 23.4 per cent. In the rest of the Republic only four states made in 1955, any significant contribution to industrial output; Veracruz (petroleum) 4.75 per cent of the total, Jalisco (Guadalajara) 3.44 per cent, Guanajuato (with the Salamaca Oil Refinery) 2.56 per cent and Puebla (textiles) 2.48 per cent. The eight least industrialized states with nearly one quarter of the country's population produced only 3.3 per cent of the industrial output.

Table - 11

Share of Different Regions in Population and Industrial Output of the Nation (per cent)

Regions	Total Population (Column 2&3)		Occupied Industry (Column 4)	in Value Added per Industrial Worker (Column 5)		Share in total value added (Column 6&7)
	1940	1960		1950	1955	
DF	9.0	13.9	26.8	37,800	37.0	48.1
DF & México State	14.8	19.4	31.1	36,700	40.1	52.5
Seven Northern States	13.6	16.1	17.3	29,100	24.3	23.2
Eight Least Industrialized States	23.1	24.7	16.4	4,360	5.6	3.3
Rest of the Republic	48.5	39.8	35.2	13,850	30.0	21.0
Total	100	100	100	21,500	100	100

Source: Same as Table -6

In the industrial census of 1955, there were 24 municipios outside the valle de Mexico that had an industrial output in excess of 250 million pesos (of 1955). This is shown in the following Table-12.

With the exception of Guadalajara, all these cities are in the north and almost all are largely concerned with export products. In the industrial census of 1960 - 61, the relative importance of Bajío towns, Tampico, Veracruz increased.

It is clear that the metropolitan zone, which includes DF and a part of state of Mexico and the seven northern states, became more improved than other parts of the country. But there is a wide difference between these two zones. Rather, it can be described by another type of regional disparity among the advanced regions. In 1960 also, the population of the metropolitan zone was nearly 50 per cent greater than that of the seven northern states combined, and the amount of GNP generated was more than 50 per cent greater. The metropolitan zone occupies only 7,000 km², whereas seven northern states comprised more than 865,000 km². The metropolitan zone is purely an industrial region and can be regarded as single economic urban complex; whereas the northern part consisted rather of small to medium sized semi-industrialized towns - widely separated from one another. In 1960, more than 37 per cent of the population of the metropolitan zone was composed of immigrants, where as only 14 per cent of the population in the northern states was composed of this category. The average income of the people of metropolitan zone was 85 - 90 per cent above the national average. Having 16 per cent of the total population, this

Table - 12
Industrial Value of Gross Output and Value Added in Chief Cities in 1955

City	Gross Output	Value added (millón pesos)
Monterrey	3,533	1,805
Mexicali	1,111	256
Guadalajara	959	503
Puebla	856	418
Ciudad Madero	842	202
San Nicolás (N.L.)	640	334
Matamoros	622	205
Torreón	614	212
Salamanca	602	367
Chihuahua	571	380
Sabinas	496	264
Toluca	427	186
San Luis Potosí	418	240
Mérida	403	195
Reynosa	402	205
Orizaba	355	214
Saltillo	335	157
Gómez Palacio	329	105
Veracruz	295	163
Parral (Chi)	291	198
Hermosillo	285	148
Fresnillo	278	183
Zacatecas	265	179
Santa Bárbara (Chi)	253	181

Source: Yates (1982)

zone had 30 per cent of the nation's purchasing power. The industrial production of the metropolitan zone consisted of mainly consumer goods whereas the northern states produced mainly raw materials or intermediate goods - wheat, cotton, mineral ores, iron and steel etc. The majority of the factories of the north had to compete in the metropolitan market with the factories of the metropolis.

In order to make a region fully industrialized, so many factors are required to be present there, like adequate supply of water, electricity and gas. But in 1960, there were so many provinces that lacked these facilities sufficiently. For example, Puebla did not have sufficient supply of water and electricity; Guadalajara had an electricity crisis in 1955; Saltillo did not obtain access to it until 1959, but Monterrey had the natural gas since long. Tijuana had to face drought for many years and simultaneously there was a tremendous growth of population; as a result, it had to import water. Another thing accentuated the crisis for many states - this was the different rate of prices of electricity and gas charged to different states. For example, the price of electricity per kw for medium-sized consumers

was quoted as 30 centavos in Ensenada, 17 in Guaymas, 17-18 Centavos in Chihuahua and 13-14 centavos in the DF. The price of the fuel oil per liter is given as 23 centavos in Ensenada and Chihuahua compared with 13 centavos in Guaymas and the DF. Part of Monterrey's industrial growth is attributed to the fact that the she had had natural gas since 1930, those twenty years before it was available in any other city.

Regarding transport links, all important railway lines and highways radiate outwards from Mexico City; no other location can offer similar advantages. Thus raw materials could be brought easily to the center from all parts of the country. Also, most of the important cities in the northern and central parts of the country had this advantage. But most parts of the south did not have this advantage. What really hindered the industrial development in the provinces was not the adequacy or otherwise of the network of communications but the quality of the services which the railway provided. Freight trains traveled very slowly; as a result sufficient time was wasted and often goods were damaged in transit. In Mexico, the distance between two cities is almost invariably longer by rail than by road. In many provincial towns, the opinion was expressed that not all the local raw materials which could be exploited had begun to be used, this being mainly due to insufficient geological investigation (32). This was certainly the view held in Baja California Sur, in several regions of the Sierra Madre Occidental and in the south. The government refused to undertake sufficient survey as they pretended to be lacking of sufficient fund, also they did not permit any private agency to undertake any survey as it was under the jurisdiction of the government. This hindered the regional development.

The industries, which were located in the DF, enjoyed substantial marketing advantage. If the factory was producing consumer goods, then not only is the bulk of the sale effected locally, but the supervision of the main distributing agents became a simple matter; they could be visited in half an hour and changes in sales procedures could be explained to them verbally. Similarly, the problems of distributors could be solved easily due to close proximity. But, all these operations were much more laborious and it involved a good amount of money for firms locating 700 or 1000 k.m. away from the central market. The marketing difficulties of provincial firms were made worse by the inefficiency of railway transport and insufficient air transport.

In most provincial cities, manufacturers were confronted with the poor quality and high cost of labor compared with that of the labor available in Mexico City. Most of the workers did not have any previous experience of factory routine or work. By contrast, in the metropolitan zone, the industrial labor force was over the half of a million, which is more than the total population of any provincial city except two. As a result, the industrialists had the option to choose the labor that he required. Moreover, there was a continual flow of skilled labor force to the metropolitan zone from various provinces. Manual workers migrated as the capital city could offer better employment (33). Trained engineers and technicians disliked taking jobs in small or remote towns. In the metropolitan zone, the average size of factory was larger, so they had the opportunity to impart in plant training to their employees, but in the provinces, most factories were too small to be able to adopt this method of training to any extend. Monterrey with its various schools has been providing various types of training for many years, which is undoubtedly one of the reasons for the efficiency of Monterrey's industries.

In Mexico, the quality of entrepreneurship differs in different regions; differences can be observed between different parts of the country in community attitudes, in the desire for economic growth and in manifestation of business ability. At one extreme, there were

the conservative, traditionalist districts where, perhaps, for historical reasons chief value is attached to maintaining the old patterns of society, the family, the church, the class structure, and there is no insistent desire for modern ways of life. At the other extreme, there were the dynamic communities such as Monterrey, the District Federal, and Guadalajara - which not only desired more material goods but also were interested in the ways and means of producing them. The natural choice of one enterprising person was the DF for setting up industry (34). In the provincial towns, though there were all the ingredients for setting up of an industry, but they lacked the persons with the quality of entrepreneurship.

In the early stages of industrialization in Mexico, 'manufacture' took the form of processing local raw materials for a local market. In the later stages of growth, more complicated processes and trains of processes became usual. Mexico's provincial industry was predominantly of the former type whereas the Valle de Mexico industry was of the latter. Provincial industry was primarily concerned with the processing of agricultural products and of mineral products. These were the dominant manufacturing activities in many industrial towns of the north. But industry in the Valle de Mexico did not have opportunity to use the local raw materials. It had to buy its materials from all parts of the country (35). The general political and social atmosphere of a state or of a city may exercise considerable influence on the rate of its industrial development. The majority of the entrepreneurs in the metropolitan zone held the view that the provinces had bad governments, that in many states and cities, corruptions were very high, that local authorities used to intervene arbitrarily in business affairs. Government's action was, to a greater extent, depended on the personality of the governor or the mayor.

Services cost money, and adequate services cost a lot of money. But, unfortunately, the states had very little fund and the municipios even less. In 1958, the DF had a fiscal income of 235 pesos per capita per annum (excluding large Federal grants), the next largest towns namely Monterrey and Guadalajara had about 50 pesos which, while small municipios had 5 pesos or even less. Spending for police, current operation and maintenance of public works, administration, president's office - a very little portion was left for improvement or for new public works. This hindered the constructing of local facilities, which were absolutely necessary for any further industrial development.

The supply of credit for the establishment and running of industries was much more easily obtainable in the metropolitan zone than it was in the provinces. Because, almost all the credit institutions had their headquarters in the DF. Since the prospective clients of these institutions had to be interviewed and their business investigated, it is very natural that those entrepreneurs got most of the credit that were located in and around the DF. It is true that, there were some financieras, who financed a particular type of industry, and in one or two cases such an industry located in some provincial city like Monterrey. But this did not meet up the needs of medium and small-scale industry of the provinces. Secondly, most of the entrepreneurs of the provincial cities were ignorant about the credit facilities that existed in the country and they did not know to proceed for the credit. There were some small-scale entrepreneurs who wanted financial aid, but who were quite unwilling to divulge the information, which any bank or credit agency required. This information included firm's profit and loss account and outstanding mortgages and other debts etc.

In the context of obtaining import permits and exemption from import duties, the provinces suffered from innumerable disadvantages. Each item had to be argued on its merits and the firm needed to show his case that had fulfilled the required conditions about the

essential nature of the product and its non-availability within Mexico. This process needed to be performed by the competent authority in Mexico City, which might take a few days or few weeks. In some cases, it took rather longer time - a month or more. For any firm situated in any provincial city, which is far away from the DF, it is really difficult to perform the job coming several times to the DF. Moreover, lobbying between the firms for obtaining import permit or other, is very important; and clearly the lobbyist whose home base is the DF has a substantial advantage and likely to win. There are also some tax matters that affect the industrial firms which can not be easily settled by correspondence with officials; rather it needs visits to the concerned office in the DF and which involved money and time for the industrialists situated in the provinces.

Moreover, for obtaining permits for building factories, for installing private generating plants, for drainage, for discharge of effluent into rivers, for building access roads, for constructing a railway spur - though not for all, permission had to be sought from the capital. Of the large firms located in the provinces, the majority maintains a permanent office in Mexico City to perform these types of tasks, but the small and medium-sized firms cannot afford such an expense. Not only the government agencies, but also other institutions adopted this same type of policy of centralism. When a bank or some government agency decided to establish a new office in some provincial city, the custom in many cases was to employ a Federal District architect and contractor to carry out the work, instead of making use of local firms. According to Yates (36), centralism in its more extreme forms has at least three undesirable consequences. First, it inevitably discriminates in favor of producers and consumers at the center. Secondly, it leads to inefficiency. Decisions affecting all kinds of small firms in all kinds of distant places are taken by Federal District officials who lack of practical knowledge of the firms or the localities concerned thereby there lies the possibility of taking wrong decision. Thirdly, it discourages private initiatives.

1965 Onwards

From 1965, onwards, the Ministry of Industry and Commerce organized the "round table" of industrial promotion for the purpose of encouraging industrial ventures outside the valley of Mexico and for decentralizing the industrial set up. But the majority of the industrial establishments were concentrated in three metropolitan zones: the Federal District, Guadalajara and Monterrey, especially between 1960 and 1980. The greatest concentration occurred in the metropolitan zones of Mexico City. Whereas, in 1950, this contained 20 per cent of all the country's industrial establishments, by 1960, this figure had risen to 29.9 per cent. In 1980, the country's capital city accounted for almost half national industrial production (37). Monterrey accounted for 10.8 per cent of gross industrial product and was growing at a rate of 5.8 per cent per year, whereas the growth rate of Guadalajara was 5.6 per cent. In 1980, the overall contribution made by these three zones to industrial production had risen to 67.8 per cent, and these three zones represented 56.2 per cent of the country's urban population. Since the end of the 1960's, production has been concentrated in large and technologically advanced undertakings. Whereas, Mexico City's share of industrial gross domestic product rose from 46 per cent to 46.8 per cent, the figures for the economically active population and the number of establishments fell from 45.9 per cent to 41.2 per cent and 29.9 per cent to 27.9 per cent respectively between 1960 and 1970. In 1985, 77 per cent of undertakings in the manufacturing sector were very small industrial

enterprises employing an average between two and four persons ; 12 per cent of the undertakings were small firms employing on average 10 workers, and only 11 per cent were large undertakings. Dale (38) indicated certain dualism in Mexican industrialization, which is nothing but the regional disparity. According to him, the first dualism was seen between the major urban centers (Mexico City and its immediate surroundings, Guadalajara and Monterrey) and the rest of the country. Most of the national industrial capacity was concentrated in these three metropolitan areas. Data from the 1975 industrial census show that they provided about two-thirds of total value added in the manufacturing sector.

The other dualism existed between an abundance of small and inefficient industrial establishments and a few large and dynamic firms that dominated the sector. In 1975 industrial census over 80 per cent of all industrial firms were classified as 'artisan' having less than five employees, yet they provided less than 3 per cent of total value-added. Small enterprises with between six and one hundred employees provided the remaining 20 per cent of the total value-added. On the other hand, the medium and large enterprises were only 2.6 per cent of the total number of manufacturing establishments but they contributed 77 per cent of the total value-added in industry. These concentrations in terms of size and had negative social effects like unemployment, urban congestion, etc. and had stymied the development of a more diversified national industrial plant.

Except in a few states, particularly in the northwest, shown in Appendix - III, average family income in rural areas was low. But there was a marked difference in 1970 between Baja California territory, in which average rural monthly income was 2,317 pesos per family, and Oaxaca, in which the average was only 376 pesos. Clearly, the market potentials of rural areas in the northwestern states exceeded those of the less developed but densely populated states of the south and center. There were also large differences within urban area shown in the Appendix - IV. Average monthly family incomes ranged from approximately 3000 pesos in the urban areas of Baja California, the DF, San Luis Potosi and Sinaloa, to 925 pesos in the Oaxaca. But the difference between the highest and the lowest urban income was smaller than the difference the highest and the lowest rural incomes (39). The Appendix - V explains the broad differences in income levels per family among six major regions and emphasizes the wealth of the DF. The northern zone was in the better position than that of the south. The Appendix - VI shows that the conjunction of relatively high average incomes and relatively equitable income distribution in the center, the northwest and the north encouraged the establishment of market oriented manufacturing activities in these areas. These differences in income potential, compounded by differences in accessibility were the principal reasons why some places experienced industrial growth and others did not.

Ternet (40) and Gwynne (41) gave data from Mexico where 500,000 - plus cities recorded virtually double the monthly family income level of towns with population between 10,000 and 150,000 inhabitants. This is only for the rapid industrialization in the big cities. This is shown in the following table:

This is not to deny that income distribution is considerably skewed in the large cities.

Table - 13
Size of City and Income Levels in Mexico in 1976

<u>Size of City</u> (Inhabitants)	<u>Monthly Family Income</u> (Pesos)
Less than 2,500 (rural)	740
2,501 – 10,000	1,000
10,001 --- 150,000	1,450
150,001 --- 500,000	1,900
500,000 plus	2,800

Source: Ternet and Wynne (1986)

The remarkable acceleration of industrial progress which Mexico achieved during World War II became possible not only because of the opportunities of the war but also because of economic innovations in Mexico before the war (42). In Mexico, 56 per cent of all new import-substituting industry was located in the major metropolitan area in the early 1960s (43). Monterrey in north-east Mexico had no local resources, but according to Kennelly (44), constituted a classic least-transport-cost location between a variety of regional and extra-regional resources and markets - iron ore from Durango, coke from Sabinas, gas from Texas, oil from Reynosa and Tampico, and markets divided between Monterrey and Mexico city. Balan (45) further stresses the importance that the US market has occasionally had in the growth of Monterrey's metallurgical industry.

In the south, the river basin projects had little impact in attracting manufacturing industry - indeed their share of Mexican manufacturing production actually declined in the 1960s (46). On the northern border, the border industrialization program attempted to attract assembly plants of United States companies to take advantage of the large labor-cost differential between Mexican and US workers. The wage rates in northern Mexico were between one third and one fifth those in the United States (47). As a result, and to some advantage for Mexico, labor-intensive industry was characteristic of the fourteen border towns that in 1971 contained 215 industrial plants. The dominance of repetitive assembly operations in the industrialization of the northern border towns produced an unbalanced labor market, with approximately 85 % of manufacturing workers being women and with male unemployment nearly doubling as a result (48). The Mexican border's economy was distinctly artificial, and linked strongly to the plants and firms of the U.S. and generating few local multipliers. Its long-term future was in the hands of international arrangements over which it had little influence (49).

Appendix - VII shows that the larger cities had larger plants in the more developed states, manufacturing plants in larger cities benefited more than others from internal economies of scale. Average plant size was higher in those states in which manufacturing employment and output grew most rapidly.

In industrial development of a region saving plays an important role. Myrdal (50) argues that, in the early states of economic development, the expanding possibilities for external economies in regions of high growth will raise profits and income levels that, in turn, will lead to higher rates of saving. The increased savings are then invested, further expanding the scope of external economies. Hirschman (51) supports the argument that saving as well as investment, tends to be higher in cities offering agglomeration economies. In 1970, the Federal district dominated the pattern of savings even more than in 1940, with

almost half of Mexico's savings deposits concentrated there. The appendix - VII shows the same trend.

The sectoral and geographical distribution of public credit was roughly similar to that of private credit: the DF having a near monopoly on public credit for industry. In 1972, the pattern was roughly similar, although the share of the Federal District in private industrial credit had by then declined slightly. This is shown in Appendix - VIII. The regional distribution of credits granted between 1953 and 1970 shows, however, that the relative importance of Jalisco, Mexico and Sinaloa increased in the period, and that the average size of credits in the Federal District and the state of Mexico remained relatively large. Between 1959 and 1970, the industrial sector received between 8 and 15 per cent of all direct public investment. About 80 per cent of this went to the hydrocarbons industry; and Tamaulipas and Veracruz together received some 60 per cent of all hydrocarbons investment. Steel investment, the next largest category was heavily concentrated in Coahuila. The geographic distribution of public investment in infrastructure, which directly influences the spatial structure of industrial growth, was closely related to the spatial pattern of urbanization, with the Federal District receiving the largest share of total outlays. Another aspect of direct public investment concerned with the development of industrial complexes, parks and cities. By late 1975, the industrial parks and cities programs had undertaken nine projects in Durango, Merida, Queretaro, Veracruz, Tepic, Villahermosa, Tijuana, Guaymas, and Mexicali. But, this industrial parks and cities programs did not appear to be a powerful instrument for decentralization, and it was argued that only the physical infra-structure was important to industrialists; only if one area is chosen by the industrialists because of its resource endowment or comparative advantages, an industrial park only may facilitate and accelerate the process (52).

Two important factors influenced the setting up of industries in Mexico in some selected zones. First, such factor was the decision making. Entrepreneurs or industrial decision-makers may vary in their willingness to take risks and in other ways, and differences between entrepreneurs, thus may have an important bearing on industrial development. In Mexico, such differences were between cities rather than between states or regions. Derossi (53) has shown that in Monterrey the effect of earlier industrial development had already established this city as a leading industrial center by 1940, and that its later growth was largely based on the continued exposition of its initial advantage relative to other cities and regions. Another factor is the availability of natural resources. In the earlier period of industrialization, natural resources were crucial. This can be illustrated by the experience of Chihuahua, Sonora, Tamaulipas, Morelos and Baja California, where raw material processing industries provided the main source of manufacturing development.

Yates (54) indicated some reasons for the concentration of industries in the DF:

Firstly, because of the environmental factors, unit costs of production were notably cheaper in the valley of Mexico than in the provinces.

Secondly, supplies of water and electricity were cheaper in the DF.

Thirdly, the DF had the best road and rail network in the country. Also the railway tariffs used to favor the transport of raw materials and discriminate against finished goods, so the industrialists used to choose locations close to their markets (DF) even if distant from their raw materials.

Fourthly, small entrepreneurs preferred to set up their units near their homes by tradition and by personal connections. But, the medium and large operators with economic

and social ambitions preferred to live in Mexico City and therefore set up their units in the valley of Mexico.

Fifthly, provincial industry mostly produces commodities into which large-scale production had not yet made inroads. As industrialization proceeded, mass production with its economies of scale invaded branch after branch of industry, making it hard for small provincial producers to stay in business.

Sixthly, labor in the provinces had no industrial experience, and there were virtually no training facilities except what the factors themselves managed to improvise. On the other hand, the DF had a large supply of fairly experienced labor. In the DF, the social security services were ample and well organized; there were also public housing projects. In the provinces, these facilities were much less developed.

Seventhly, the state governments had lost their potential revenue through their tax exemption concession to industry. Each state used to compete against its neighbors in offering bigger concessions. By this way, the states sacrificed their developmental efforts, but their offer had a negligible influence on the location decisions as the concessions were almost similar in nature and it represented a negligible item in a firm's costs.

Eighthly, the provinces suffered from lack of credit facilities as the majority of the financieras were located in Mexico city and the commercial banks delegated a rather limited lending power to their provincial branches and that few people in the provinces had the idea of the fund administered by the Nacional Financiera for helping small and medium sized industry.

Lastly, the centralized administration of permits and regulations for industry also discriminated against provincial producers. Each individual case had to be argued on its merits by personal attendance at the government office concerned. The industrialists of the DF could arrange to pay there frequent visits; the largest provincial firms used to maintain an office in DF mainly for this purpose; but the majority of provincial entrepreneurs did not have the sufficient money and time to make frequent trips to the capital.

Angel Bassols Batalla (55) tried to show the regional disparity of Mexico in some other way. He took into account the administrative political boundaries of the Mexican states to define the geo-economic regions; and in these geo-economic regions, he tried to show the distribution of industrial activities in 1970. He also had shown the Economically Active Population (EAP) in both extractive and transforming industrial sub sectors. He showed that the industrial activities concentrated mainly in those geo-economic regions where the largest cities of Mexico grew up rapidly, e.g. Mexico city, Puebla, Toluca and Queretaro in the Central Western region; Guadalajara in the Central Pacific region; Monterrey, Tampico, Nuevo Laredo, Reynosay, Matamores in the North Eastern region and Tijuana and Mexicali in the border of the North Western region. The amazing population growth is observed in these industrially developed cities.

Heavy private and public investment in these industrially developed states created demand for more manpower by attracting people from the rural areas where shortage of employment encouraged migrating. Expansion of Mexico City also influenced its neighboring municipios of the State of Mexico. Naucalpan and Tlalnepanilla registered high industrial expansion and a demographic growth of 10.3 per cent a year. From 1960 to 1970, these municipios increased by 13.8 per cent a year while other new incorporated municipios, such as Netzahual, Coyotl, La Paz and Tuttilan grew 14.3 per cent a year. The problem of Mexico due to the location of excess industry is just the products of its over-

population in a limited area. Over population decreases Gross Regional Product, which engenders regional disparities.

Maquiladora

The birth history of maquiladora is something peculiar. At the end of 1964, the United States ended temporary seasonal immigration of Mexican farm labor under the bracero program. As a result, Mexico suddenly found itself with some 200,000 unemployed braceros in the northern tier of border states, namely, Baja California, Sonora, Chihuahua, Coahuila, Nuevo Leon and Tamaulipas. To create employment in a lagging region faced with massive unemployment, the maquiladora program was conceived as a component of the government's Border Industrialization Program in 1965. In comparison with many other regional policies, which had failed to revitalize lagging regions, the 1965 initiatives set in motion an industrialization process that had grown steadily and by 1996 was responsible for some 750,000 industrial jobs in a country with perennial unemployment (56).

The maquiladora sector was responsible for some 16.9 per cent of Mexico's manufacturing labor force in 1993. Maquiladoras accounted for 39.2 per cent of Mexico's total merchandise export earnings and contributed 69.8 per cent of its net foreign exchange earnings from merchandise trade in 1995. Export earnings from maquiladoras are nearly four times larger than the value of Mexico's petroleum exports. In middle 1997, registered maquiladoras were authorized to sell up to 70 per cent of the value of the previous year's exports on the domestic market. Maquiladoras were inaugurated as a component of a broader regional development initiative borrowed from the Far East and tailored to the needs of a moribund periphery. By the early 1980s, maquiladoras were regarded as a 'permanent industry' and the base for development of the border region. By helping to redirect employment growth away from the industrial heartland of central Mexico, the maquiladora program has been instrumental in rapid population growth along the Mexico-US border.

The growth rate of maquiladora employment has been impressive in the maquiladora hearth along the northern border. Just three border cities (Juarez, Tijuana, and Matamoros) accounted for 44 per cent of all maquiladora employment in 1996. It is a case of intra-regional disparity in maquiladora industry. Maquiladora wages in the borderlands were some 25 per cent higher than in the interior. In 1995, the average daily wage in Tijuana was 34 new pesos compared with only 27 in the interior state of Durango. There are notable concentration of maquiladora employment in interior locations of northern tier states: Torreón, Coahuila, Gomez Palacio, Chihuahua and Hermosillo, Sonora. Smaller concentrations are found in interior cities such as Aguascalientes, Guadalajara, Mexico city and Merida. The maquiladora sector pays wages that are lower in real terms than non-maquiladora large firms in the interior of Mexico (57). As the maquiladora industry was concentrated mainly in the northern part of the country, so it could not drive out the problem of regional disparity, moreover it developed a few parts of the country.

The economic and political reforms which were implemented during the 1980s, created the conditions for Mexico's full integration into the world economy. Its accession into the GATT in 1986 and other elimination of trade barriers, the precipitous negotiation of the NAFTA, and the removal of other deterrents to foreign participation in the reshaping of Mexican society and its economy did not help to reduce the problem of regional

disparity. In industrial sector, the picture has not been changed. The north-south gap still exists also in the industrial sector. The Appendix - IX shows the value of production in the construction industry. It shows that in 1995, total value of production was 35374 million pesos, out of which the DF's contribution was 17,265 million pesos, that the DF contributed about half of the total. In 1998 and 1999, the picture did not change much. In 1998, DF's share in total was 41.4 percent and in 1999, it was 40.4 per cent. In 1999, the national average value of the construction industry except DF (58) was 1306.5 million pesos, and only 11 states are above the average level: these states are Baja California Norte, Campeche, Coahuila, Guanajuato, Jalisco, Mexico, Nuevo León, Sonora, Tamaulipas and Veracruz. Except Campeche, there is not a single state from the southern part of the country in the top group. In 1995, Campeche's contribution was as low as 212 million pesos. This suddenly jumped to 1470 million pesos in 1998; and in 1999 it reached to 1901 million pesos. This is a surprise improvement. The author did not get any reasonable cause behind this sudden increase. One explanation may be due to the presence of huge oil fields, this increase became possible; or some error may be there in the INEGI data. The situation of the southern and backward states could not be improved in spite of several programs taken after the globalization drive. In 1999, top nine states of 1950s got 31 per cent of total value of production in construction industry sector, on the other hand, bottom ten states of the same time got only 3 per cent of the total value. If with the top nine states become top ten including the DF, then their share stands at 71.6 per cent. Only the share of the DF is 40.4 per cent, which is far more than the total bottom ten states, even more than the top nine states.

The Appendix-X shows the personnel occupied in different branches of manufacturing industry for the year 1998. The national average of personnel occupied in manufacturing industry in the states is 131674 persons. Only twelve states are above or at par the national average, and all these twelve states are in the developed regions. Most of the states were in the 'top ten cub' of different decades since 1950s; and there is not a single one of these twelve states which was in the bottom ten states of 1950s. The share of the top ten states was 58.39 per cent, while the share of the bottom ten states in 1998 was 10.35 per cent which is even less than the DF's figure, which is 12.11 per cent. The share of only southern six states, namely, Yucatan, Quintana Roo, Campeche, Tabasco, Chiapas, Oaxaca is only 4.65 per cent. The picture does not change when we take up the case of construction industry. It is shown in Appendix-XI. In order to get the clear picture, it is better to exclude the DF's figure, as it is very high in comparison with all other states even with all developed states. The personnel occupied in the construction industry only in the DF were 32.25 per cent of the total. Excluding the DF, the national average of personnel occupied in 1998 was 6658. Only fourteen states were above the average figure. Top nine states excluding the DF of 1950s got 42.19 per cent share whereas bottom ten states' share was 20.63 per cent when it excluded DF's figure in total number and it became 13.98 per cent, if we include DF's figure into the total. Out of ten states of 1950s, Baja California Sur and Morelos did not do well in the industrial sector in 1998. Their position has been worse, whereas Jalisco and Veracruz improved a lot. But the southern states' performance is not up to the mark in the industrial sector. In 1993, the situation was same. The occupied personnel of the top ten states of 1950s had share of 49.21 per cent in 1993; on the other hand, the share of the bottom ten states was 21.06 per cent. Taking into account total personnel occupied in the industrial, commerce and service sector, the situation remains the

same. This is shown in the Appendix- XII. The share of the top ten states had 48.75 percent and bottom ten states had 22.71 per cent.

If we take into account the Gross Domestic Product (GDP) of manufacturing industry of various states in Mexico, it will be seen that the problem of disparity more deepens in recent years. Appendix-XIII shows this trend. In 1998, average GDP of manufacturing industry was 23,358,902.59 thousand pesos. Only eight states were above this figure and two states were near the national average. These eight states are Baja California Norte, Coahuila, Chihuahua, Distrito Federal, Jalisco, Estado de México, Nuevo León and Puebla. Out of these eight states, six states were in the 'Top Club'; but out of these eight states, no one was in the 'Bottom Ten Club'. Average GDP of the 'Bottom Club' was 5,481,421 thousand pesos, which is significantly less than the national average; and their share in the total was only 6 per cent. The share of the six southern states was only 3 per cent; whereas share of the seven northern states was 19 per cent. The picture of disparity is clear. Total units of manufacturing industry of the country give some significant result. This is shown in Appendix-XIV. In 1998, total number of manufacturing industrial units was 361579. The national average was 11299. There were ten states that were above the national average; among these states Michoacan, Guerrero and Oaxaca were present who were identified as industrially backward states, but the number of the manufacturing industrial units in these three states were sufficiently higher than the national average. Michoacan, Guerrero and Oaxaca had 20464, 14392 and 19003 units respectively. Another two backward states Chiapas and Yucatan had sufficiently big figures having 10029 units and 10239 units respectively. On the other hand, industrially advanced states like Baja California Norte had 5171 units, Coahuila 7189 units, Chihuahua 8749 units; Sonora had 6765 units - all having well below the national average. This signifies that states like Michoacan, Oaxaca, Guerrero, Chiapas, Yucatan had so many industrial units, but their contributions to the national total industrial products are insignificant as these units are very small and not viable from the point of view of the returns to scale. On the other hand, industrially advanced countries like Baja California Norte, Coahuila, Chihuahua, Sonora etc had comparatively less industrial units in number, but they contribute more and they are big and viable.

If we consider the economic units of different branches in different states, this type of peculiarity is observed here also. This is shown in Appendix-XV. In 1998, there were 3130714 economic units in the country. The national average was 97834. Nine states are above the average. Among them, Michoacan, Oaxaca and Puebla are there, and figures of the Chiapas, Guerrero and Yucatan are sufficiently high. But the states like Baja California Norte, Coahuila, Chihuahua, Sonora are not included in the above average group. This confirms the earlier results. If we take into account only construction industry, it gives other result. In 1998, there were 18604 construction industrial units, out of which the DF had 3027 units. Excluding DF's figure, the national average becomes 502. Total eleven states were above the national average. Among the above average states, only Chiapas and Tabasco of the backward states were there. These two states had many construction industries. But their contributions are not significant shown in Appendix-IX, as the contribution figures of both the states are well below the national average. All other states lying above the average level are from developed regions. The average of six southern states is 411.6 units, which is not too low than the national average. This does not prove that the disparity in the construction industry is less. In Appendix-IX, it is shown that except the exceptional figure of Campeche, the value of other southern states is not up to

the mark. It indicates that though the number of units is almost at par the national level in the southern states, but these are small units giving insufficient output with inefficient technology.

If we take into account the change in real income of the persons occupied in the construction industries, the impact of globalization will be distinct. This is shown in Appendix-XVI. In 1995, average real income of the persons occupied in construction industry was 13664 pesos (pesos at price of 1994). The employees of this sector used to get 21174 pesos, and the labors used to get 11325 pesos. In 1998, a sharp fall in real income has been observed. Average real income came down to 10733 pesos in this year, and the income of the employees came down to 16945 pesos, and of labors, it reduced to 8871 pesos. In 1999, it again reduced to 9850, 14975 and 8472 pesos respectively. It indicates that this increased the poverty and gaps between the rich and the poor. In 1995, average real income of seven northern states was 11541 pesos; it came down to 8777 pesos in 1999. During the same time, six southern states' figure came from 11145 pesos to 7937 pesos. Here it should be noted that the reduction in real income is more in southern part of the country than the northern part. From the point of view of the disparity, it is clear from the Appendix- XVI that in all the years wide disparity exists among the states.

Like inter-state disparity, intra-state disparity exists in Mexico also. I just like to mention the case of one state – Jalisco. The works of Carlos Galindo (59) clearly indicated this disparity in the state of Jalisco. In Jalisco, there are four political-economic regions, which are known as:

- (i) Altos de Jalisco
- (ii) Balsas Tepalkatepek
- (iii) Sierra Madre de Sur
- (iv) Norte de Jalisco

Among these regions, the most developed one is Altos de Jalisco, which consists of Coredor el Salto – Ocotlan la Barca. This is a corridor of almost all industries of the state Jalisco. Guadalajara is situated in this region. Guadalajara developed industrially from the very beginning of its inception. But on the other hand, the Norte de Jalisco is a very backward region in this state. In Balsas Tepalkatepek, there are some agro-based industries, but in Sierra Madre de Sur, industrial development is almost zero. Here only there is some agricultural activity. Jalisco is a classic example of intra-state disparity. In the zone, Sierra Madre de Sur, there is one tourist spot on the bank of Pacific Ocean, which is known as Puerta Vallarta. Due to tourism, this place has been developed and density of population is also high in this city. Otherwise, except Altos de Jalisco, other three regions' density of population is very low with their very low economic activity. The place of Jalisco in national industrial ranking is fourth – it is for Guadalajara and its surroundings, not for all the places of the state.

With a view to examining the regional disparity in Mexico, the tool of Principal Component Analysis has been used to rank the states/region. In this context, data have been used for two years – 1960 and 1998 in order to make a comparative study. The source of data of 1960 is from the work of Rosa Maria Dominguez (60); and the source of data of 1998 is the INEGI. Using 1960 data, Dominguez tried to show the level of industrial development. For this purpose, she divided total Mexico into 52 regions. Here for the sake of computational convenience as well as to show also the intra-regional disparity, I reduced the regions into thirty-six, using the same set of data of Dominguez.

The result of the Principal Component Analysis for the year 1960 is shown in Table- 14. For the year 1998, I used data state wise as available from the INEGI. State wise data and region-wise data do not differ much for getting the picture of regional disparity. Only region wise data give additional information on intra-state disparity. For 1960, three variables have been considered:

V_1 = Aggregate Value of Industrial Production

V_2 = Personnel Occupied in the Industry.

V_3 = Industrial Productivity

On the other hand, for 1998 five variables have been considered:

V^1 = Valor de la producción en la industria de la construcción (miles de pesos)

V^2 = Total Industria manufacturera

V^3 = Personal ocupado en la industria de la construcción

V^4 = Producto interno bruto de la industria manufacturera (miles de pesos precios corrientes)

V^5 = Personal ocupado por de la industria manufacturera

The result of the Principal Component Analysis for the year 1998 is shown in the following Table-15.

In 1960 analysis, the DF has not been considered, as it is very clear from the discussion that the DF got the first position in development indicator including industrial development. Had the data for the DF been considered, its rank would have been surely first.

From the two results, it is clear that most of the states, which were in the top development level in industrial activity, maintained their positions in 1998 also. Nuevo Leon, Chihuahua, Veracruz, Jalisco, Coahuila, Sonora, Baja California Norte and Aguascalientes are present in both the tables within first fifteen ranks. On the other hand, Campeche, Baja California Sur, Colima, Nayarit, Tabasco, Chiapas, Guerrero, Tlaxcala, Oaxaca, Morelos and Michoacan are present in both the tables within last fifteen ranks. This proves the hypothesis that regional disparity is a historical truth in Mexico and the way of globalization could not drive out the regional disparity from Mexico. Seven out of 'Top Ten States' indicated by Yates (61) in 1960 are present within the first ten ranks of 1998; similarly, seven out of 'Bottom Ten States' of Yates are present within the last ten ranks of 1998. Out of seven northern states, four are within the first thirteen ranks in 1998. Only one of the northern states is within the last ten ranks; whereas four out of six southern states are within the last ten ranks of 1998. There is not a single southern state within first nineteen ranks of 1998. In 1960 also, six out of seven northern states were within the first eleven ranks. Except Yucatan, no southern state is within the first twenty ranks of 1960. This proves the hypothesis that in spite of globalization program, the north-south gap has not been eliminated.

Table - 14
Result of Principal Component Analysis for the Industrial Sector in Mexico for the Year
1960

Eigenvalue 9.31E+13, Variance Prop. 0.999518, Cumulative Prop 0.999518

<u>Region</u>	<u>Indicator Value</u>	<u>Rank</u>	<u>No. Of Municipalities</u>
Nuevo León	0.151094	1	13
México-Hidalgo	0.131835	2	14
Aguas-Guanaco.	0.065275	3	20
Chihuahua	0.059217	4	18
Veracruz	0.048268	5	39
Jalisco	0.048068	6	23
Puebla-Tlaxcala	0.031037	7	9
Durango-Coahuila	0.030168	8	15
Sinaloa	0.027890	9	8
Sonora- Bcal.Nort.	0.025407	10	5
Coahuila	0.018765	11	13
México	0.016722	12	10
Zacatecas-SanLPot.	0.016303	13	15
Sinalo-Nay-Durg.	0.015822	14	11
Sonora	0.014246	15	16
Hidalgo-Tlaxcala	0.014154	16	11
Yucatán	0.014070	17	31
San Luis Potosí	0.012141	18	2
Morelos	0.011475	19	12
Tamaulipas	0.010300	20	12
Jalis-Mich-Colima	0.009989	21	9
Veracruz-Oaxaca	0.009309	22	4
Guerrero	0.005677	23	11
Campeche	0.003957	24	3
Michoacán	0.003521	25	10
Tlaxcala	0.002690	26	6
Baja California S	0.002574	27	3
Puebla	0.002405	28	2
Nayarita	0.002270	29	5
Michoacán-México	0.001741	30	10
Tamaulipas- N. León	0.001640	31	2
Chiapas	0.000735	32	5
Sonora-Chihuahua	0.000605	33	4
Durango	0.000596	34	6
Tabasco	0.000530	35	3
SLP-Nuevo León	0.000451	36	3

Source : Self Computed

Table -15

Result of the Principal Component Analysis for the Industrial Sector in Mexico for the Year 1998

Eigenvalue 1.22E+17, Variance Prop. 1.000000, Cumulative Prop 1.000000

States	Indicator	Rank
Distrito Federal	0.183816	1
Estado de México	0.154787	2
Nuevo León	0.083080	3
Jalisco	0.066710	4
Coahuila	0.055535	5
Puebla	0.046978	6
Chihuahua	0.045419	7
Veracruz	0.035578	8
Baja California Norte	0.033211	9
Guanajuato	0.028517	10
Querétaro	0.027704	11
Tamaulipas	0.026821	12
Sonora	0.024444	13
San Luis Potosí	0.020995	14
Hidalgo	0.017179	15
Aguascalientes	0.014417	16
Michoacán	0.014105	17
Morelos	0.013683	18
Durango	0.012799	19
Oaxaca	0.009495	20
Yucatán	0.008249	21
Sinaloa	0.007248	22
Tlaxcala	0.006809	23
Guerrero	0.004234	24
Chiapas	0.003651	25
Tabasco	0.002854	26
Nayarita	0.002465	27
Zacatecas	0.002004	28
Quintana Roo	0.001593	29
Colima	0.001263	30
Baja California Sur	0.000947	31
Campeche	0.000736	32

Source: Self-Computed

It should be noted that Estado de Mexico existing very near to the DF has gathered momentum in industrial activity. It has come up from 12th rank in 1960 to 2nd rank in 1998.

In case of Puebla, same thing happened. Puebla came up from 28th to 6th position. The influence of the DF is clear.

The picture of intra-state disparity can be assessed from 1960 result. When only Veracruz is considered, its rank is 5th in industrial development, but when the backward zone (62) of Veracruz with Oaxaca is considered, their rank comes down to 22nd. Similarly, when only Jalisco is considered, its rank is 6th, but when the backward zone of Jalisco with a part of Michoacan and Colima are considered, their rank comes down to 21st. When developed part of Hidalgo is attached with the developed part of Estado De Mexico, then its rank becomes 2nd, but when backward part of Hidalgo is attached with backward part of Tlaxcala, then rank becomes 16th. This is also true for a most developed state like Nuevo Leon. Alone, the rank of Nuevo Leon is 1st; but when the backward part of Neova Leon is attached with the backward part of San Luis Potosi, its rank comes down to the last one, that is 36th. This is also true for Sonora, Chihuahua, Tamaulipas and Puebla.

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CHAPTER – IV

DISPARITY IN THE INFRASTRUCTURE SECTOR

CHAPTER -IV

DISPARITY IN INFRASTRUCTURE DEVELOPMENT IN MEXICO

Infrastructure is composed of many different elements all of which share the characteristic of contributing to an increase in productivity or to an improvement in the standard of living and human welfare or more often both at once. Some elements of infrastructure, such as the provision of electric power or the construction of irrigation works contribute directly to raise productivity in industry and agriculture; other elements such as railways and roads contribute more indirectly. Some contribute directly to human welfare – for instance, school, hospital and social security programs; others more indirectly, such as police, law courts and the armed forces. In living standards, the Distrito Federal and the seven northern states occupied a privileged position, 35 to 100 per cent above the national average in 1960s. By contrast, in the same time, Chiapas, Oaxaca, Guerrero, Tlaxcala, Hidalgo, Guanajuato, San Luis Potosi and Zacatecas had living standards less than two-thirds of the national average (1). In all aspects of welfare- health, education, housing, minimum wages, social security, food consumption levels and possession of durables such as automobiles – the rich states surpass the poor ones.

The study of infrastructure is very important, because infrastructure affects the cost structure of an industry. In one study, Andrew Feltenstein and Jiming Ha (2) have shown in case of Mexico that infrastructure in communications and electricity is marginal cost reducing, but infrastructure in the transport sector is marginal cost- increasing. But they could not explain why electricity and communications generally reduce sectoral production costs but transport infrastructure tends to raise them. They apprehended that their assumption of full-capacity utilization might overestimate the use of transport infrastructure and thereby giving the wrong sign. But, whatever it may be, they proved it empirically that infrastructure has an impact on the cost-structure. They have shown that increase in electricity infrastructure reduces production costs in all sectors except basic metals, machinery and construction. Infrastructure in communications reduces production costs in all sectors except the basic metal sector, but to a lesser extent than infrastructure in electricity does. Their results are similar to those found by Jarque (3). But Jarque assumed a Cobb-Douglas production function with constant returns to scale. They have also shown through elasticity of capital demand with respect to infrastructure that labor and infrastructure are substitutes; and in the case of electricity and communications infrastructure, capital and infrastructure are complements.

The history of infrastructure development in Mexico is not very old. Mexico is a rugged and physically divided country. Four major mountain chains and seven river basins cut across the landscape. Its climates are as diverse as they are extreme. There are sweltering jungles, arid plains, snow-capped volcanic peaks, and the eternal springtime of the Central Mesa. These territorial and climatic divisions gave rise to an extraordinary degree of socio-cultural variety in prehispanic Mexico. This rugged landscape of the Gulf of Mexico had a fundamental influence on communications and urban development. Because of the topography of the interior, Mexico during most of the nineteenth century remained a country of trails and primitive roads. Between 1520 and 1876, the transport system was rudimentary, cart roads connecting the mining centers with the capital and the capital with the single major port of Veracruz. The main means of transport were Indian porters, pack animals, and two- wheeled carts until stagecoach service began in 1849, when

the first line was established between Mexico City and Puebla (4). This time only very high value of commodities, e.g. the precious metals, could stand the high transport costs (5). The principal roads in prerailroad Mexico were constructed along the mountain passes around the central tableland, and later on, most of the railroad lines followed these routes.

Road

In the 300 years between the Spanish conquest and Mexican independence almost nothing was done to establish a system of roads. At the moment of independence, the country possessed only three roads, which could be called highways, and even these were in a state of decay. In 1925, the government set up a 'Comision Nacional de Caminos' funded by the proceeds of an earmarked gasoline tax, and made it responsible for the construction and maintenance of the primary highway network (6). By 1920s, a road construction strategy emerged with the establishment of the National Road Commission. In 1928, only 700 kilometers of all weather roads, most of them in the vicinity of Mexico City, were in service, but by 1934, the road network increased to 4,260 kilometers, out of which 1,186 km were paved, 1,291 km were surface treated and 1,768 km were gravel. In case of road network also, like railways, there was a tendency to connect the port; as a result, interregional road network connected the main ports of the Pacific with the Gulf of Mexico through Mexico City. This port ward orientation of the construction of road deprived a vast area of Mexico of having road network for a long time. The road between Mexico City and Acapulco was completed in 1930 and with Veracruz in 1933; other port-connecting roads were Monterrey to Nuevo Laredo, Merida to Progreso. By 1940, the road network extended almost 10,000 kilometers; but this length connected thirty-three of the fifty largest cities with the national road network, and the northwest and southeast had far fewer roads than other areas.

The essential characteristics of the transport system from 1910 to 1940 remained unchanged and modes of transport on roads were not seriously developed till 1940. By this time, three main transport network zones were clearly distinguishable (7). First, there was a zone comprising the north central, northwest and central regions, in which there was a fairly comprehensive network of north-south and east-west routes, with a strong focus on Mexico City. Second, there were the northwest states of Baja California and Sonora, which remained isolated from the rest of the country by the Sierra Madre Occidental. Third, there was the southeast, in particular the Yucatan peninsula, which was also isolated until 1938, when the Yucatan railroad system was linked with the Mexico Central network. During the 1940s and 1950s, the largest portions of road investment were allocated to new intercity roads and to physical improvements.

Between 1950- 60, primary free roads were added to the system at the rate of nearly 1,000 km per year – from 11, 714 km to 21, 495 km. In the next five years, the yearly rate dropped to 740 km and had been about 525 km per annum. The secondary road network grew from about 4,200 km in 1940 to 29,000 km. In 1969, that is, a slightly faster pace than primary roads, but with lowers construction standards (8). What is most significant from the point of view of the regional disparity in infrastructure development was that till 1950s, there was no road from Mexico City to the southeast, nor were there major east-west connections in either northern or southern Mexico. The great gap in Mexico's road development until the 1950s was its tertiary/feeder and access roads. A quasi- autonomous organization, the 'Comite Nacional de Caminos Vecinales' was created in 1949 to assist in

the construction of feeder and access roads. The Federal Government met one-third of the cost of such roads, with the remainder being equally shared by the particular state government concerned and the local interested parties.

By the 1950s, there were more than 25,000 kilometers of all-weather roads in Mexico, about 15,000 kilometers of which were equipped with two-paved lanes. There were 23,000 kilometers of roads with some kind of surface treatment. From 1953 to 1958, the network expanded from 22,871 km to 32,024 km of which nearly 70 per cent was paved. The following table shows the density of road network by the states:

Table - 1
Density of Road Network by States in 1958
(km per 1000 km²)

High Density		Low Density	
Tlaxcala	108.4	Chihuahua	6.8
Morelos	107.7	Quintana Roo	8.4
Aguascalientes	59.6	Sonora	9.3
México	59.0	Baja California S	10.3
Hidalgo	58.5	Coahuila	11.0
Colima	50.3	Chiapas	12.3

(Km per 1000 inhabitants)

High Density		Low Density	
Baja California Sur	10.83	Puebla	0.60
Quintana Roo	9.00	Guanajuato	0.75
Campeche	4.33	Oaxaca	0.76
Sonora	2.54	Tabasco	0.78
Durango	2.24	México	0.78
Nayarit	2.04	Guerrero	0.79
Coahuila	1.87	Chiapas	0.81
Baja California Sur	1.85	Veracruz	0.85

Source : Yates (1960).

In 1958, the national average was 16.3 km of roads per thousand km² and 0.97 km per thousand inhabitants. The least favored states were both densely populated and poor.

In the period, 1934 - 38, Mexico had 19,353 kilometers of road, it increased to 68,467 kilometers of road in 1969 - an increase of almost 50,000 kilometers; but this increase was not evenly distributed through out the country and thereby proving the fact that regional disparity is a historical truth in Mexico. This is shown in Appendix - XVII. The road length may not indicate the level of development of a state. The DF having the minimum road length has the highest development potential. So, the percentage of unsurfaced road may be a good indicator of development and thereby regional disparity. In 1970, the northeast region had the minimum unsurfaced road having only 4.06 per cent. This region consists of developed states like Coahuila, Nuevo Leon, and Tamaulipas. On the other hand, maximum unsurfaced roads were in the southeast region; it had 13.7 per cent of unsurfaced road in 1970. This region consists of backward states like Chiapas,

Tabasco, Campeche, Yucatan, Quintana Roo. In 1934 – 38 periods, the picture was more or less similar. In this period, maximum unsurfaced road was in southern region with 80.4 per cent and minimum was in north central region having 35.05 per cent. The North- East region had 42.5 per cent unsurfaced road. This is shown in the following table:

Table-2
Percentage of Unsurfaced Road (region wise)

Regions	1934-38	1969
Southeast	80.4	13.7
Central	63.7	10.52
Southwest	78.01	10.85
Northeast	42.5	4.06
North central	35.05	7.67
Northwest	61.57	11.45

Source: Computed from the data of Yates (1960).

It is clear from the above table that the disparity that existed in the period 1934-38 was also in 1969. It will be more distinct if we present the situation of unsurfaced roads for the group of 'Well Developed States' and 'Least Developed States' from the point of view of industrial development. The following table shows this:

Table-3
Percentage of Unsurfaced Roads (State wise)

Well Developed States			Least Developed States		
States	1934-38	1969	States	1934-38	1969
DF	7.23	0	Chiapas	95.6	10.19
Nuevo León	24.83	7.59	Nayarita	63.15	4.90
Tamaulipas	51.71	2.16	Guerrero	64.53	19.12
BajaCalif. N	72.45	3.87	Oaxaca	99.71	26.31
Est. de México	78.84	12.87	Tabasco	97.16	11.55
Chihuahua	24.62	9.96	Quintana Roo	n.a.	29.02
Campeche	37.5	8.74	Aguascalientes	11.00	5.94
Coahuila	49.3	2.71	Colima	86.07	4.05
Morelos	24.34	2.84	Zacatecas	15.35	4.08
Baja C Sur	9.52	13.88	Michoacán	90.27	11.71
Sonora	57.47	5.02	San Luis Potosí	58.20	13.24

Source: Computed from the data of Yates (1960).

From the above table, it is clear that in the time period 1934-38, developed states had less unsurfaced road than the least developed states. Only two states of the developed states had more than 50 per cent of the unsurfaced road in this time, but they did not cross

80 per cent mark. On the other hand, eight states of the least developed group had more than 50 per cent of unsurfaced roads, out of which five states had more than 80 per cent mark. In 1969 also this type of disparity existed. In this year, only two states of the developed group had more than 10 per cent unsurfaced roads, but there were at least seven states in the least developed group who had more than 10 per cent unsurfaced roads of which two had more than 25 per cent unsurfaced roads.

The road density in the central region increased 34.2 kilometers per 1,000 square kilometers in 1930 to 100.6 kilometers per 1000 square kilometers in 1970, the latter figure being five times greater than that for the north-central and northwest regions which are shown in the following table:

Table -4
Road Density Index by Region

(Thousands of kilometers per thousand square kilometers)

Region	Area (Thousand of km)	1930	1940	1950	1960	1970
Northwest	385	4.5	9.2	9.4	19.3	21.3
North central	511	6.5	10.0	8.8	17.5	20.0
Northeast	292	9.9	12.2	12.1	21.5	27.3
Southwest	237	17.3	23.0	18.2	31.9	45.9
Central	128	34.2	48.4	38.1	61.6	100.6
Southeast	366	7.9	9.7	12.0	24.6	49.9

Source: Ian Scot (1982), Anuario Estadístico (1930) and the Ministry of Public Works.

During the 1960s the largest increase in road density was in the southeast, where it rose from 24.6 kilometers per 1,000 square kilometers in 1960 to 49.9 kilometers per 1,000 square kilometers. Ian Scott (9) indicated that accessibility to the Federal District, in travel versus physical distance, was found to be fair to excellent in most cases in 1970. The Federal District had low coefficients with cities north of it such as Queretaro, San Luis Potosi, Guanajuato, Pachuca and Leon and with Guadalajara (1.05) and with the cities of the northwest (an average coefficient of 1.10) and the north east (an average coefficient of 1.09 except in coastal areas). Accessibility between the Distrito Federal and the southeast was less good (1.19 to Veracruz and 1.15 to Merida), but was better than with the south west (Acapulco, 1.46, and Oaxaca 1.41).

From Appendix - XVIII, if we see the average number of vehicles per km of road, it will be clear that the southern states are lagging behind than that of northern states. Total number of vehicles per km of road in Baja California Norte-77, Coahuila - 15, Chihuahua-21, Durango-10, Sinaloa-14, Sonora - 17, Baja California Sur - 14; the average of seven northern states is 24. On the other hand, total number of vehicles per km of road in Yucatan - 9, Tabasco - 5, Quintana Roo - 2, Oaxaca - 3, Chiapas - 5, Campeche - 4; the average is 4.6. Except Yucatan, no other state in the south has the figure more than 5; but in the north, there is not a single state having figure less than 10. The average of 'Top Club' (excluding the Distrito Federal as it is exceptionally high) is 23.6; whereas the average of 'Bottom

Club' is only 7.2. The disparity is clear. In 1968, average number of vehicles in the seven northern states was 46329; whereas the average number of southern states was 9632 only.

The construction of toll facilities absorbed about one-third of Federal highway expenditure in the 1960s, when toll roads increased from 290 km to 1,036 km and the number of toll bridges rose ten-fold from 2 to 20. The first toll road was sections of the Mexico City – Acapulco tourism route and were built and operated in the early 1950s by a commercial company with state participation. The costs of the toll collection on highways are reasonable by international standards, ranging from as little as 3.1 per cent of toll revenues on the busy Mexico- Queretaro road to 12.8 per cent on the Cuernavaca-Amacuzac road (10).

In 1969, 45 per cent of the population lived in widely dispersed and isolated villages and farms without having good access to integrate them into the country's economic life. This was because the highway administration in Mexico was highly centralized, with SOP exercising power down to the level of feeder and access roads. The government considered it inequitable and economically undesirable to finance these types of new constructions when some regions lacked road communications.

Investment in infrastructure was most important during the Diaz Ordez and Echeverria administrations (1964 – 1976) and during the years of budgetary retrenchment of the De La Madrid presidency (1982 –1988). The construction of federal roads and housing, which made up a large share of this item, had been a major source of patronage and corruption in Mexico. During the oil boom years, when federal expenditure expanded to unprecedented levels, this item decreased in its significance not because infrastructure was not being constructed, but because it paled in comparison to the flow of fund channeled into industry and agriculture. This investment item is reduced during the Salinas administration (1988 – 1994) since most highway construction was done through privatized financial schemes. Although more highways were constructed than ever before during those years, the federal government constructed itself less highways than any of the previous administrations. Regional development, which entailed investment in local public works such as sewage systems, electricity or drinking water, was most prominent during the Salinas presidency (1988-94), consonant with his emphasis on his poverty alleviation program 'Solidaridad'. The same priority is observed in the social welfare investment during that presidential term, which included mostly the construction of health facilities and schools. There is no question that the Salinas administration channeled a disproportionate share of resources to poverty alleviation and regional projects, the real issue is whether those funds had the intended effects in reducing poverty, improving social welfare and removing regional disparity. But unfortunately, neither poverty was reduced, nor regional disparity was removed (11)

Mexico is among the World Bank's largest borrowers and transport is among the Bank's most important sector in Mexico. From 1982 to 1997, the Bank lent the country more than US \$ 2.7 billion for transport projects – about 14 per cent of total lending to Mexico in the same period – encompassing urban transport, railways, highways and ports. Until the early 1980s, with Bank assistance, Mexico built substantial new infrastructure. Thereafter, the only significant additions have been a privately built toll road network totaling some 6,500 kilometers. The World Bank reports pointed out that over 50 per cent of the federal road network was rated as being in poor condition in 1997 (12). The World Bank reports clearly indicated that Bank-financed highway projects contributed only marginally to decentralization and did not support state agencies, even though a sector

report had proposed a state highway project as early as 1987. Lending to enhance municipal constituents' institutional capacity to improve urban transport delivery was not successful (13). The only rural transport project in Chiapas failed in the face of increasing civil disturbances in the region.

There was also no advantage to the foreign investor in constructing roads over the very difficult terrain when there was little prospect for direct monetary returns, whatever the long run effects on general economic development. As a result, a vast area could not be developed with modern roads. Nijkamp and Reinstra (14) rightly pointed out that for private investors, investments in transport infrastructure have characteristics which make these investments different from competing investments such as immovable and capital goods in several ways. These are

- (i) the expectation of the economic life of infrastructure is very long compared to other investments. This may vary from 20 years to more than a century. The payback period of infrastructure investments is also long, concessions are often granted by the government for some 15 to 30 years. Other immovable and capital goods usually have a much shorter pay-back period; the average of capital goods is 8 to 9 years;
- (ii) during the construction, a large amount of capital is required. Often also high loans have to be attracted, which makes interest costs relatively high;
- (iii) the period before infrastructure construction actually begins can be very long, because of many legal decision-making procedures, resistance in society etc;
- (iv) the construction period is very long compared to other investments. This period may take 2 to 7 years. In this period, there are no revenues, while there are already interests and other costs;
- (v) once started, the investment is almost irreversible. If the construction is stopped this could imply destroying capital, because it is not possible to use the investment alternatively.

From the above-mentioned characteristics, it follows that in the beginning of a project, high financial capital amounts are needed, and the private investors will, surely, not invest in those projects where expected returns are very less, or rather it is not commercially viable one.

Ian Scott (15) had expressed that differences in transport conditions were clearly associated with different rates of urban growth, particularly with the growth of the three largest cities in Mexico. He also indicated that this proposition could further be supported by an analysis of the relative accessibility between large cities, which provides a direct measure of the relation between changes in relative accessibility and urban development between 1940 and 1970. Through an analysis of relative accessibility between twenty-five of the cities that dominated the urban system in both 1940 and 1970, Scott (16) showed that cities with the highest levels of accessibility in 1940 grew more rapidly than others in 1940-70. Thus, within an area in which spatial connections were greatly improved, the places that achieved the greatest relative as well as absolute improvements in accessibility were those with the greatest transport advantages in 1940. The analysis also shows that there was a close relation between relative accessibility and relative urban size and economic growth.

Disparities in regional development are evidenced by the road maps in Mexico. The southeast, the poorest part of the country, has few big roads, and those few inevitably lead to the capital. West and north of Mexico City the highways raise through the prosperous

industrial corridor of the states of Queretaro, Guanajuato and Jalisco, only to peter out, leaving some states in the mid-north of the country with nothing but secondary roads. In August, 2000, Ricardo Monreal, the governor of one of those states, Zacatecas, marched from there to Mexico City in protest at the federal government's failure to build a promised highway (17). As it happened, the government had just paid of its \$3 billion IMF loan ahead of time: 'Enough for 70 highways', complained Mr. Monreal as he tended his blisters.

Mexico's roads are an expression of its diversity. They range from the small, bumpy, crowded one-lane affairs of the backcountry to wide, clean, expensive and almost empty expressways that sweep along the major routes. Along its 10,000 km of Gulf and Pacific Ocean coastlines, Mexico has many ports of varying size and importance. The country's economic development since the 1910 revolution has not depended significantly on sea born international trade. Political power rested mainly with those from the dry central plateau and in land northern areas. Major efforts were made by land distribution and irrigation program in these areas to raise agriculture output and thus feed the country's rapidly growing population. These together with other projects of 'high political visibility' left limited resources for infrastructure development in and around the ports, many of which are located in physically and/or climatically difficult coastal plain areas where development costs are higher.

Rail

In the early phase of the development of the road network, there was a close relation between roads and railroads, and the configurations of the national road and railroad networks were similar. The major railroad lines, which by 1910 stretched north and southwest from Mexico City, were complimented after 1920 by the construction of new roads. The railway history of Mexico dates back to 1830s. In 1937, Mexico's first railway concession – to connect the Mexico City with Veracruz was granted, but three years later, when construction had still not begun, it was rescinded. Exactly, in 1854, the first railroad from Veracruz to Tijeria was constructed, which was subsequently extended up to Mexico City in 1873. Other concessions were only slightly more productive, and by 1860, after twenty-three years of efforts, Mexico possessed only fifteen miles of serviceable track.

The nineteenth century was Mexico's railway age. The railroad development between 1870 and 1910 influenced the subsequent development of Mexico. During the period, more than two-thirds of the total investment was meant for railroads, which ultimately facilitated massive export growth and providing a major cause of growth in some cities and of relative decline in others (18). From 1877 to 1892, more than 4,500 kilometers of track were laid. Between 1867 and 1873, the Advance Guard of American railroad promoters appeared in Mexico City to petition for concessions. Anti-Americanism and panic of 1873 prevented much further railroad construction in Mexico before 1880 (19). In the latter year, however, Diaz granted two important railroad concessions for lines between Mexico City and the Rio Grande – the Mexico Central to El Paso and the Mexican National to Laredo. Because of financial and engineering difficulties, the promoting companies did not complete these lines until 1884 and 1888 respectively. These two concessions opened the floodgates of American capital, and there after the Gonzalez administration granted 'railroad concession with subsidy to all who asked for these, without measure or prudence

... without order or method' (20). In June 1883, railway tract lying on the various sections had reached the following figures (21):

México to Cuautitlan and El Salto	83 km
Zacatecas to San Luis Potosí, Aguascalientes and Lagos	30.5 km
Matamoras to Monterrey	21 km
México to Morelia	375 km
Acambaro to Salvatierra (towards San Luis Potosí)	32 km
Laredo to Villa Garcia	333 km
Irolo to San Martin (Puebla line)	4 km
Manzanillo to Armeria (Pecific line)	45 km
Total	923.5 km

Between 1878 and 1881, several factors complicated the railroad questions in northern Mexico. In the first place, Porfirio Diaz became actively interested in the use of American capital and in September 1880 granted liberal concessions to the Mexican Central and Mexican National Railroad companies for lines from Mexico City to El Paso and Laredo respectively. Secondly, the state of Texas became the scene of a battle royal and then a truce between two of the greatest railroad magnets of the time Collis P. Huntington and Jay Gould (22). In 1882, the Mexican Central and Mexican National Railroads had pre-empted the best north-south routes to Mexico City, but the resources of northern Mexico and the west coast still offered a tempting goal. The Mexican International Company began construction at the American end of its line in 1883. By January 1884, the line had reached the mining center of Monclova, Coahuila and in 1888, it crossed the Mexican Central at Torreon, a newly built city on the east edge of Durango state (23). The company eventually extended its main line from Durango northwest to Tepehuanes to tap the lumber producing areas on the east slopes of the Sierra Madre Occidental, but the rough mountain prevented the railroad from reaching its original goal, the Pacific coast.

But the railroad expansion was not evenly spread in the country; rather it gave certain advantage to certain parts of the country. Mainly, the railroads were built to transport mineral and agricultural products outside the country. Most of the lines, therefore, connected mining areas with seaports to provide easy access to international markets or with inland ports on the US border to provide access to markets in the United States. The two mountain ranges that run the length of the country prevent easy access to the coast from the interior, and the railroad network thus concentrated on north-south rather than east-west connections. As interregional transport improvements encouraged the growth of large-scale manufacturing, specialized production in a limited number of cities began, and rate competition and freight volume economies became important agglomeration forces. These attracted new manufacturing establishments to favorably located cities and stimulated the expansion of existing plants, thereby diminishing the importance of less favorable locations not on the network. (24). David Pletcher (25) remarked that the railroad was to transport countless interior goods to foreign markets, rescue minerals from the monopoly of domestic smelters, and otherwise directly benefited six states and the Federal District. During the Porfiriato, the expansion of mining and the railway gave the country a

northward looking orientation and set the pattern of the communications network. Railroads were built from Mexico City to the mining areas and onward to the US border where the minerals were exported. The road network copied the railway network in geographical layout. But the southern part of Mexico presented a completely different picture. It is much more mountainous having few mines and communications were less adequate partly because the south and southeast were not 'on the way to anywhere'. Virtually, no industry developed apart from petroleum and a few mines.

In 1880s, seven promoters had undertaken to construct railways in Mexico, but only three of the seven ever saw their enterprises earn net profits. One William C Greenc, ended his life a bankrupt, and Alexander R Shepherd ' might well have died richer if they had used their talent at home' (26).

Poor communications greatly hampered Mexico's foreign and internal trade during much of the Diaz period. Pletcher David narrated the bad communications:

“ If the importer with his goods survived the seasonal storms approaching the badly protected harbor of Veracruz and the deadly yellow fever of the Gulf coast, he still had to ship his cargo inland on wretched roads and pay so many tariffs duties that even government officials lost track of them, often the duties amounted to more than the original value of goods”.

The price rise of 500 or 600 percent on goods shipped from the United States was not at all unusual. By and large, however, relative advantages and disadvantages conferred by accessibility to the railroad did not alter much after 1910.

Since 1920 to 1958, total length of railroads did not increase; it remained same to 23,300 km. The following table gives a picture of the railway track in Mexico in 1958.

Table - 5
Km Railway per 1000 km² in each state in 1958

Distrito Federal	229.0	Baja Cal. Sur	0.0
Tlaxcala	71.0	Quintana Roo	0.0
Morelos	65.5	Guerrero	1.6
México	38.1	Baja Cal. Norte	3.5
Hidalgo	36.3	Chiapas	7.0
Aguascalientes	33.6	Campeche	7.1
Guanajuato	29.5	Oaxaca	7.7

Source: Yates (1960).

The above table shows that majority of the lines radiating outwards from Mexico City, giving a high network density to the small neighboring states. It also shows the almost complete absence of railroad facilities in the Californias and in many part of the Deep South.

Between 1940 and 1970, the size of the railway system was reduced from 23,000 kilometers to 19,900 kilometers; but overall improvement was made in its operation. Steam locomotives were replaced by diesel powers; all the tracks were laid to a standard gauge, telecommunications systems were modernized, and the number of freight cars was

substantially increased. In 1960, almost 80 per cent of the railroad companies were converted into the National Railway of Mexico. Between 1940 and 1960, freight traffic increased on average of 3.3 per cent a year, but passenger traffic increased only 2.3 per cent a year. With the development of highways and commercial aviation, a decline in demand for rail freight and passenger services was observed after 1940. An Exim bank survey (27) reported in 1951 that, in all but one instance where an all-weather highway had been built parallel to a railroad after 1946, railroad freight traffic had either leveled off or diminished, the year the highway was put into service. During the five years from 1946 to 1950, railroad freight actively grew by only 15 per cent – a much lower rate of growth than in previous five-year period, when freight traffic had risen by 25 per cent. Being based on the interregional origin and destination data for 1970, Ian Scott (28) pointed out that railroad traffic was rather evenly distributed throughout the country and was not concentrated around and between the large metropolitan centers. In 1970, the entire system carried over 49 million tons of freight of which only 7.7 per cent (3.8 million freight tons) terminated in the Distrito Federal. Monterrey received 1.8 million tons and Guadalajara about 0.9 million tons, less than the 2 per cent of the national total. Most freight was originated in remote industrial towns or in major ports for the transshipment towards the Distrito Federal. Scott (29) has shown that ten of the major forty-nine cities in Mexico generated more than 77 per cent of the total freight in 1977, 2.9 million tons out of a total of 3.8 million tons. There was heavy traffic between medium-sized industrial cities such as Monclova, Ciudad Obregon, Tampico, Torreon and Toluca, some of which located close to metropolitan cities.

Substantial development took place on the Mexican railway system during the 1960s. While the length of the system increased only marginally to 19,900 route-km, freight traffic increased at an average rate of 5 per cent per annum to over 46 million tons in 1969. Passenger traffic increased more slowly at 1.4 per cent per annum. Steam locomotives were phased out completely in favor of diesel operations. There was only marginal increase in the labor force from 70,000 to 72,800. The major problem of the Mexican railways was undoubtedly the continuing deterioration of their financial situations; and it was due to inferior services in certain sectors of intercity transport, inadequate customer relations and insufficient emphasis on marketing on the demand side. Passenger fares were also, in absolute terms, exceptionally low. Analysis suggests that they do not pay for even one half of the marginal cost of providing the service. On a “fully allocated cost basis”, passenger train services accounted for over 80 per cent of the total operating deficit (30).

The distribution of railroads can be had from the reports of the Secretaria de Comunicaciones y Transporte (31) in 1970s. There were five divisions of railways in Mexico. These are:

- (i) Ferrocarriles Nacionales de México
- (ii) Ferrocarril de Pacifico.
- (iii) Ferrocarril Sonora-Baja California
- (iv) Ferrocarriles Unidos del Sureste
- (v) Ferrocarril Chihuahua Al Pacifico.

The Ferrocarriles Nacionales de México had 18,008.3 km long railroads which is 72.4 per cent of the total national railroads, and it transported 82.3 per cent of total goods and transport 16.6 millions of person which is about 75 per cent of total passenger transport

in railways. The Ferrocarril de Pacifico had 2,875.7 km of railroads, which is 11.6 per cent of total in Mexico. It transported 8.9 per cent of goods and 3.2 million of passengers. The Ferrocarril Sonora- Baja California had a small railroad of 705 km, which is only 2.8 per cent of total in Mexico. The Ferrocarriles Unidos del Sureste incorporated the Ferrocarriles Unidos de Yucatán in 1968, after this incorporation, its total length became 1,509.4 km. It is about 6.1 per cent of total Mexican railways. The Ferrocarril Chihuahua Al Pacifico had 1,764 km of railroads, which is 7.1 per cent of total Mexican railroads.

Appendix –XIX shows that the states like Coahuila, Chihuahua, Durango, Jalisco, Estado de Mexico, Sinaloa, San Luis Potosi, Sonora; Veracruz had the railway tract in 1976 more than one thousand kilometer mark. Of these states, most of the states are included in the developed category. The surface in square km and km per thousand inhabitants are also high for the developed states in comparison with least developed states.

Private operators currently run most of the lines of the national railway. Through a technical assistance project, the World Bank provided valuable assistance to the railway privatization program. Until privatized, overall operating efficiency was better than most railways in developing countries (32). This was the confession of World Bank report on the performance of railways in Mexico. The government completed its privatization of 36,000 kilometers of state-owned railroads in 1998 through the sale of 50-year operating concessions. The Northeast railroad, Mexico's primary freight carrier, was privatized early in 1997 for \$1.4 billion. Another significant section, the Northwest railroad, was privatized in June 1997 for \$400 million, and the South Eastern concession was privatized in 1998.

In 1996, the Mexican Government decided to privatize railway transportation in the country, operated until then by Ferrocarriles Nacionales de Mexico (FNM). In order to start the process, the National Railway System was divided in 3 portions: Northeast Railway, North Pacific Railway and Southeast Railway. The Northeast Railway considered as the top of the National Railway System was the first option during the privatization process commanded by the SCT (Secretaria de Comunicaciones y Transportes). With a 1.4 billion dollar offer for 80 per cent of the shares, TFM, Transportacion Ferroviaria Mexicana, is the first concessionary enterprise of the National Railway net, starting to operate June 24th 1997, as a result of the efforts of the two world class enterprises: Transportacion Maritime Mexicana and Kansas City Southern Industries.

Electricity

High consumption of electricity by one state is an indicator of expansion of industry. For this reason, industrialization and higher standard of living tend to go together. In 1957, the per capita average consumption in Mexico was 229-kilowatt hours. The position of the individual states is shown in table-6.

It is clear that per capita consumption of electricity was high in those states, which are mostly now also regarded as developed states; whereas low consumptions were in the traditionally least developed states. Here also a clear picture of disparity emerges between the north and south. The surprising presence of Hidalgo in the developed group can only be explained by consumption in the new Ciudad Sahagun (33).

Installed generating capacity of electricity gives rise to the establishment in the concerned states of important new industries to consume the power being generated.

Table-6
Per Capita Consumption of Electricity in Selected States in 1957 (kwt)

Chihuahua	603	Oaxaca	9
Distrito Federal	485	Chiapas	13
Estado de México	476	Zacatecas	13
Coahuila	354	Tabasco	16
Sonora	352	Nayarita	51
Durango	350	Guerrero	55
Baja C Nor y Sur	332	Colima	55
Nuevo León	285	San Luis Potosí	67
Hidalgo	292	Sinaloa	72
Tamaulipas	222	Tlaxcala	78

Source: Yates (1960).

Table-7
Installed Generating Capacity of Electricity in 1958

(K.W. per 1000 inhabitants)

Most		Least	
Mexico	334	Tlaxcala	3
Sonora	163	Chiapas	12
Puebla	149	Baja California Norte	13
Nuevo León	142	Tabasco	16
Durango	129	Hidalgo	16
Chihuahua	125	Querétaro	26
Baja California Sur	118	Nayarita	26
Michoacán	108		

(K.W. of electricity used in per 1000 km²)

Most		Least	
Distrito Federal	102,000	Quintana Roo	20
Estado de México	25,000	Baja California N	94
Puebla	8,450	Baja California S	108
Veracruz	3,230	Campeche	114
Michoacán	2,945	Chiapas	181
Morelos	2,920	Tlaxcala	258
Aguascalientes	2,450	Tabasco	270
Nuevo León	2,060	Guerrero	280

Source: Yates (1960)

Installed generating capacity may be related either to the population of a state or to its geographic size in square kilometers. The table-7 gives the picture of installed generating capacity in the different states:

In 1958, the national average was 80 kw capacities per 1000 inhabitants or 1310 kw per 1000 km².

Yates (34) pointed out that the states enjoying the largest amount of capacity were (a) the states surrounding the Federal District and their capacity had been constructed not primarily for themselves but to make provision for the capital, and (b) certain of the northern states which had high consumption requirements especially in the mining and base metal industries. The states of Mexico, Michoacan and Puebla had 40 per cent of the country's installed capacity and 80 per cent of total hydroelectric generation. the Federal District had 6 per cent, Veracruz 9 per cent. The five border states excluding Baja Californias had just over 20 per cent of the total. The concentration of the installed capacity adjacent to the metropolitan areas was indeed high and this area alone accounted for 40 per cent of the nation's electricity consumption. The states with least installed capacity were the poor underdeveloped states of the Deep South, the smaller and poorer states of the Altiplano and a few states like Bja California Norte. But the Baja California Norte was a big user of the electricity and used to import it from another state. The contrast is extreme between Tlaxcala with 3 kw capacities per inhabitant and Mexico with 334 kw; or Baja California Norte with 94 kw per 1000km² and Mexico with 25,000 kw.

Between 1940 and 1958, the nation's capacity rose from 680,000 kw to 2,560,000 kw. This increase of 1,880,000 kw was largely accounted for by nine states whose increase in capacity during the period was:

México	508,000 Kw
Puebla	160,800 Kw
Veracruz	156,300 Kw
Distrito Federal	110,000 Kw
Jalisco	106,000 Kw
Michoacán	100,500 Kw
Nuevo León	96,000 Kw
Sonora	89,600 Kw
Chihuahua	88,500 Kw

It is very clear that mainly new construction occurred in the metropolitan states, in Jalisco and in the north. Another important thing should be noted that new construction only expanded existing capacity, which was initiated in 1940. The Table-8 shows how the relative position of the regions changed during the period of tremendous development:

It is clear from the above table that within twenty-five years, remarkable development did not occur anywhere in any region. The share of Norte declined from 31.1 per cent to 23 per cent whereas Pacific Norte showed a marginal increase. The amount of investment involved in creating this capacity was proportional to the number of kilowatts installed. The Table-9 shows the investment figure:

Table- 8
Percentage Distribution by Region of Installed Generating Capacity: 1933 to 1958

	1933	1943	1950	1958
Norte	31.1	30.3	25.3	23.0
Golfo	8.9	12.4	9.4	10.6
Pacifica Norte	5.1	5.7	6.7	7.5
Pacifica Sur	1.0	1.4	1.7	4.0
Centro	54.0	50.3	56.9	54.9

Source: Yates (1960)

Table-9
Accumulated Investment in Electricity Generating Capacity in 1955 (pesos) per head of population.

	Most		Least
México	527	Tlaxcala	6.6
Puebla	480	Baja California Norte	12.6
Sonora	430	Oaxaca	22.7
Veracruz	318	Chiapas	27.5
Chihuahua	287	Guerrero	31.0

Source: Scot, Ian (1982)

In 1955, the national average per capita investment in plants was 173 pesos, but five states had an investment less than one-fifth of this figure shown in Table-9.

Social Indicators

Health

The inequalities can be seen clearly in the social indicators. The differences between the individual states speak for themselves. In 1988, data show that life expectancy at birth in states with a very high degree of marginalization is lower than in states with low degrees of marginalization: 61.4 years in Oaxaca Vs. 73.7 years in Nuevo Leon. In the same way, if one analyses mortality structure by state, sex and level of marginalization, it will be seen that age at death depends more on the social structure to which the person belongs than to other factors. Geographical concentration of economic activities has also affected the social security policy as priority is always given to metropolitan zones. The stratified allocation of funds lays down a line of exclusion, because the population with social security entitlements is concentrated in the metropolitan zones. Concentration patterns also govern the social security model, which is highly hierarchical and centralized from both the geographical and administrative points of view. According to Sara Gordon (35), this is to be shown in the availability of health services in Mexico. Firstly, is the place of residence, as the geographical distribution of services is very unequal, and secondly, is membership of one of the social security schemes which, since they are linked to formal employment

relations, discriminate against agricultural workers, the majority of the rural population, domestic workers, those in small business and those who work in the informal economy.

Mexico's welfare legislation had grown slowly but steadily throughout the century, starting with the adoption of social security in 1943. Even though access to its benefits has been unequal among various sectors of the population. The 'welfare state' in Mexico includes primarily the provision by the state agencies of benefits such as free education, health services or housing. It also covers some subsidy programs in transport and food and insuring minimum return like agricultural guarantee prices. The growth of the welfare state of Mexico through the 1950s and 1960s had been slow and benefited mainly the urban labor force and civil servants (36).

Within a country, regional differences in mortality rates indicate regional differences in health status, because as health services improve the mortality rate declines. In 1958, when Mexico's average death rate was 12.5 per thousand, the following was the situations of different states:

Table- 10
General Mortality Rate by states, per 1000 inhabitants in 1958

Lowest Rates		Highest Rates	
Quintana Roo	6.4	Esta. De México	17.4
Baja California Nor.	7.8	Hidalgo	16.8
Sinaloa	9.0	Oaxaca	16.7
Nuevo León	9.2	Puebla	16.5
Tamaulipas	9.4	Guanajuato	15.2
Distrito Federal	10.1	Querétaro	15.1
Baja Cal. Sur	10.2	Tlaxcala	15.1

Source: Yates (1960)

The group with low death rates is composed of the usual well-off states, except the Quintana Roo and Sinaloa replaced Chihuahua and Coahuila. Mexico and Puebla appeared among the poor states. Between 1940 and 1958, the country's overall death rate fell from 22.8 to 12.5. The progress of other states were as follows:

Table- 11
Death Rates in Selected States, 1940 and 1958 per 1000 inhabitants

	1940	1958		1940	1958
B. Cal.N	17.5	7.8	Guanajato	33.5	15.2
Dist. Fed	24.2	10.1	B. Cal. S.	12.8	10.2
Morelos	25.5	10.7	Nayarita	16.8	11.9
Michoacán	21.9	10.9	Tabasco	14.5	13.2
Coahuila	23.5	11.7	Chiapas	18.1	13.7
Zacatecas	23.5	11.7	Hidalgo	23.0	16.8

Source: Constructed from data of Yates (1960).

In 1977, the President announced the creation of the General Coordination for the Plan for Depressed Zones and Marginal Groups (COPLAMAR). But, this program could not be started due to paucity of funds till 1979. In order to start the first program, an agreement was signed by the COPLAMAR and the Mexican Social Security Institute (IMSS) to create a vast network of primary health care clinics and hospitals in rural areas under name of IMSS-COPLAMAR, and they operated, in 1980s, over 3000 clinics and 65 hospitals to serve the rural poor, throughout the countryside.

Table -12
Grade of Nutritional Marginalization for Rural Regions in 1979

Regions	Porcentaje de Cobertura Caloría	Porcentaje de Cobertura Proteica	Grado de Marginalización alimentaria
Oaxaca ¹	87	72	Muy alto
Zacatecas-SLP	90	77	Muy alto
Golfo-sur ²	90	77	alto
Sur de Chiapas	91	77	alto
Pacifico Centro	91	77	alto
Hidalgo-Mexic	91	79	alto
Huasteca - Sierra de Puebla	96	83	alto
Jalisco-Aguascal	92	81	alto
Bajío	97	85	alto
Península de Yucatán	101	91	medio
Península de Baja Cal.	106	88	medio
Puebla Sur-Tlax	110	90	medio
Veracruz Centr	111	92	Medio bajo
Tamaulipas	113	93	Medio bajo
Nuevo León-Coahuila	113	103	Medio bajo
Frontera Norte	110	110	bajo
Costal Sinaloa-Nayarita	119	108	bajo
Sonora-Norte-Sinaloa	124	105	bajo
Chihuahua-Durango	128	105	bajo

1. Comprende la mejor parte de este estado y porciones limítrofes de Guerrero y Puebla.

2. Porciones de Tabasco y Chiapas.

Source: Julio, Boltvinik: Satisfacción Desigual de las Necesidades Esenciales. UNAM. 2000.

In December 1988, the Salinas government launched a new program, which is known as the National Solidarity Program (PRONASOL) with IMSS-COPLAMAR. In its first year, PRONASOL invested a total of \$ 1.6 billion pesos, out of which 56 per cent was

for social development projects. 31 per cent for basic infrastructure projects and 13 per cent for productive projects. These funds were targeted to the rural and urban poor. In rural areas, they were used for the construction of rural food stores, housing improvements, milk distribution, health clinic and hospital construction, financial and technical assistance to coffee and lumber producers, potable water systems, credit, electricity and roads.

The PRONASOL was originally meant for infrastructure development, but the states that have most benefited from PRONASOL have not been the neediest, but those were PRI votes needed to be secured (37).

The health situation was severely affected by the economic situation of the country. In 1970, there were 1.4 hospital beds per 1,000 populations, while in 1993, there were half as many (0.7 beds per 1000 persons). This is one of the clear results of the reduction in public spending in this sector due to the process of globalization. In 1980, the health sector was allocated 0.4 per cent of GDP, a figure that declined to 0.3 per cent in 1990. According to Human Development Report (38), 26 per cent of the Mexican population lives in rural areas, but their living conditions are markedly worse than those living in urban areas. Only 60 per cent have access to health centers, 62 per cent to drinking water, and 17 per cent to sanitation services. A large part of the urban population, however, also has serious problems with the provision of basic services. Approximately, 20 per cent of the population lack access to drinking water and 30 per cent sanitation services. The Table-12 clearly shows that in 1979 all the backward states like Oaxaca, Zacatecas, San Luis Potosi, Guerrero, Tabasco, Chiapas, Hidalgo had very high grade of marginalization of nutrition. On the other hand, states in the northern regions, Sinaloa, Sonora, Chihuahua, Durango had low grade of marginalization. Even Veracruz, Tamaulipas, Nuevo Leon, Coahuila had medium-low grade of marginalization of nutrition.

Education

In educational sector, disparity was wide among the states. In 1950, the country's literacy rate for persons aged six years and over was 56 per cent. The following is the picture of all other states:

Table- 13
Literacy in 1950 as Percentage of Population aged six years and above

Highest Rates		Lowest Rates	
Baja C Norte	81	Guerrero	31
Distrito Federal	81	Chiapas	34
Nuevo León	73	Querétaro	35
Baja C Sur	77	Oaxaca	36
Tamaulipas	74	Hidalgo	40
Coahuila	73	Guanajuato	43
Chihuahua	72	Puebla	44
Sonora	72	Michoacán	45

Source: Constructed from data of Yates (1960).

In 1957, the number of primary school teachers per thousand children in age group of 6-14 was 12.8 for the whole of Mexico; the position of other states as follows:

Table – 14
Number of Primary Teachers per Thousand of Children Aged 6 – 14 inclusive in 1957

Baja C. Sur	28.0	Chiapas	7.6
Distrito Federal	20.2	Oaxaca	8.5
Quibтана Roo	19.4	Guanajuato	8.7
Campeche	19.1	Michoacán	9.0
Sonora	18.9	Guerrero	9.3
Colima	18.7	Querétaro	9.3
Yucatán	17.0	Zacatecas	9.3

Source: Yates (1960).

In the top club, only three regular members retained their position; on the other hand three southeastern states had been added. The bottom club shows its usual trend.

Enrollment in primary schools increased from less than 10 million in 1970 to 15 million in 1993 and from 1.4 million in 1972 to 4 million in 1993 in secondary schools. There was also a rapid increase in higher education, where between 1959 and 1993, the number of persons attending universities climbed from 62,000 to 1.2 million. Public spending on education also recorded a slight increase from 4.7 per cent of GDP in 1980 to 4.9 percent in 1990. Even so, according to the 1996 report of the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), the number of children beginning work at an earlier age also rose. In 1970, 6.2 per cent of children aged 10 to 14 were employed. The number almost doubled to 12.3 per cent in 1990 and remained high in 1995, at 11.1 percent.

The first two column of the Appendix-XX shows illiteracy rate of the adult people and from their regional discrepancy is very clear. The illiteracy rate of the Baja California Norte, Baja California Sur, Chihuahua, Coahuila, Distrito Federal, Nuevo Leon, Sonora, Tamaulipas, Estado de Mexico are very low; except Tamaulipas (6.1) and México (7.2), all these states had illiteracy rate less than 6 per cent. On the other hand, Chiapas, Guerrero and Oaxaca had illiteracy rate more than 20 per cent; and Nayarit, Tabasco, Michoacan, San Luis Potosi, Yucatan had more than 10 per cent illiteracy rate. Out of six southern states, Chiapas and Oaxaca had more than 20 per cent illiteracy rate and Yucatan, Campeche and Tabasco had more than 10 per cent. On the other hand, out of seven northern states, two Baja Californias, Sonora, Chihuahua, Coahuila and less than 6 per cent. All of them had less than 10 per cent. The female illiteracy rate has no exception with the total illiteracy rates.

Other Indicators

The developed states like the Distrito Federal, Nuevo Leon, Tamaulipas, Baja California Norte, Mexico, Chihuahua, Coahuila, Sonora had urban population more than 80 per cent, while backward states like Chiapas, Guerrero, Oaxaca, Tabasco, Zacatecas, San Luis

Potosi, had urban population less than 60 per cent; Nayarit and Michoacan had urban population 63 and 64.5 per cent respectively.

If three basic facilities, namely water connection to the houses, drainage system and electricity are examined, then also the picture of disparity will be vivid in Appendix-XX. In the developed states Distrito Federal, Nuevo Leon, Estado de Mexico, Chihuahua, Coahuila, Baja California Sur, Sonora had all more than 90 per cent water facility. But in the Backward states like Chiapas, Guerrero, Oaxaca, Tabasco had less than 70 per cent water facility; San Luis Potosi, Colima had less than 80 per cent and Nayarit, Quintana Roo, Zacatecas, Michoacan had less than 90 per cent water facility. National per centage of drainage facility 74.7 per cent. There are five backward states, viz. Chiapas, Guerrero, Oaxaca, Zacatecas and Michoacan had less than national average figure of drainage system, while only Tamaulipas of the developed states is under the national average. Regarding electricity, disparity was comparatively less in 1995. Only four backward states had less than 90 per cent figure, while only one state of the developed group had less than 90 per cent of the electricity facility.

The interregional distribution of the infrastructure also has contributed to the differences in the per capita income that they are observed among the regions. The above-mentioned variables explained the 18 percent of the dispersion between the Central zone and the North zone and the 32 percent of the gap of income between the Pacific zone and the South zone (39)

Yates (40) constructed one general level of index taking ten indicators, viz. general mortality, literacy, child-teacher ratio, dwelling with purified water, minimum hourly wages, social security coverage, sugar consumption, electricity consumption, gasoline consumption, automobile and truck numbers. He gave equal weight in each indicator. The following table shows Yates' index of general welfare:

Table - 15
Index Number of General Welfare
(National average = 100)

Baja Calif. Norte	204.4	Oaxaca	43.4
Distrito Federal	188.4	Chiapas	52.0
Sonora	156.4	Zacatecas	56.0
Baja Cal. Sur	147.7	Guerrero	57.7
Chihuahua	147.2	Tlaxcala	59.9
Nuevo León	143.3	Hidalgo	64.9
Coahuila	136.2	Guanajuato	65.2
Tamaulipas	135.6	San Luis Potosí	66.4
Morelos	108.3	Tabasco	70.3
		Querétaro	70.4

Source: Yates (1960).

Baja California Norte and Distrito Federal had higher standard of welfare than any other parts of the country. The differences among the next six states (all of the north) were very small. The bottom ten states are the usual ones except that San Luis Potosi substituted Michoacan. This index shows that the prosperous states had living standard two to three times better than the standards in the poor states.

Infrastructure Investment

During the 1945-1955 period, gross investment by public and semi-public agencies totaled 26,200 million pesos for infrastructure, according to Nacional Financiera estimates (41). The classification of investment by the public agencies for development of infrastructure during the same time interval is:

Recursos Hidráulicos	5,400 millón pesos
Comunicaciones	5,000 millón pesos
Ferrocarriles	4,500 millón pesos
Estado y Municipios	2,300 millón pesos
Total	17,200 millón pesos

From the point of view of population criteria, the following picture emerges of the above investment:

Table - 16
Cumulative Investment in Infrastructure (1946 -55) Inclusive
(Pesos per. Capita)

Baja Calif. Norte	3,160	Guerrero	239
Sonora	2,770	Estado de México	327
Baja Cal. Sur	2,510	Puebla	335
Quintana Roo	1,965	Chiapas	354
Sinaloa	1,890	Querétaro	367
Tamaulipas	1,420	Guanajuato	390
Campeche	1,155	Jalisco	394
Chihuahua	1,020	Tlaxcala	460

Source: Constructed from the data of Yates (1960).

In the above table, the highest figures occurred in those states where heavy irrigation investments were undertaken. These states were Baja California Norte, Sonora, Sinaloa, and Tamaulipas. Three members of the top group, namely Distrito Federal, Coahuila and Nuevo Leon are absent in this list, because the Distrito Federal spent more money on water supplied and drainage system but little (per capita) on railways, highway and irrigation. Coahuila and Nuevo Leon had some highway expenditure but relatively little on railways and irrigation. The low investment states are the usual ones. Jalisco appeared surprisingly in this group, because she spent little on irrigation. The Table-17 shows the physical spread of the infrastructure investment per square km.

Of the seven states with the highest infrastructure investment per square km, six are among the most densely populated states of the republic. Of the seven with the least investment per square km, five are among the most sparsely populated in the country while the remaining two are notoriously among the poorest and least developed of all the states.

Table- 17
Infrastructure Investment State wise
(Pesos per square km)

High Investment

States	Investment	Population (Persons per square km)
Distrito Federal	1,150,000	3,270.0
Morelos	36,500	76.8
Tlaxcala	32,600	86.5
México	21,200	88.0
Sinaloa	20,500	13.3
Hidalgo	19,300	47.0
Aguascalientes	19,200	43.0

Low Investment

States	Investment	Population (Persons per square km)
Quintana Roo	1,050	1.04
Baja Calif. Sur	2,100	1.15
Campeche	2,760	3.22
Guerrero	3,420	18.50
Chihuahua	3,520	5.02
Chiapas	4,320	16.30
Durango	4,680	6.10

Source: Constructed from the data of Yates (1960).

It is clear from the two tables, infrastructure investment depends on population far more than on square kilometers. It is high per square km where population is high and low per square km where population is low. Nevertheless, it is not high per capita in the densely populated states.

Yates (42) is of the opinion that the densely populated states happened to be those with poor agricultural resources and with little industrial development, and this was both a cause and consequence of low investment in infrastructure. The more industrialized states, at least those of the north, happened to be sparsely populated; they had high per capita investment in infrastructure partly because of their relative prosperity and partly because it costs more to provide infrastructure in sparsely populated areas.

During 1947 – 58 periods, total investment in large-scale irrigation works was 2550 million pesos. Out of this, 25 per cent went to Sonora, 20 per cent in Tamaulipas and nearly 16 per cent in Baja California Norte. A sum of 864 million pesos was utilized for the Papaloapan project and 516 million pesos for the Rio Fuerte. So, the majority of the investment in water projects occurred in certain northern states, especially Baja California, Sonora, Sinaloa and Tamaulipas. Other sizeable investments were made in Michoacan, the 'Valle de Mexico' and Popaloapan basin situated in Oaxaca, Veracruz and to a smaller extend Puebla. Since investment in irrigation and drainage chiefly benefited the farm

population, so Yates (43) had shown the regional distribution of the expenditure in per head of population engaged in agriculture. This is shown in the following table:

Table – 18
Cumulative Investment in Water Projects, 1947 – 58, expressed in terms of per head of agricultural labor force of 1950.

<i>Top States</i>		<i>Bottom States</i>	
Baja Calif. Norte	13,000	Yucatán	32
Sonora	8,250	Quintana Roo	36
Sinaloa	5,850	Campeche	40
Tamaulipas	5,020	Tlaxcala	52
Oaxaca	1,420	Coahuila	93
Baja Calif. Sur	1,390	San Luos Potosí	117
Nayarita	1,320	México	124
Veracruz	1,190	Querétaro	129
Michoacán	1,150	Guerrero	136

Source: Constructed from the data of Yates (1960)

From the above table, it is clear that how large was the share accruing to four northern states. During this period, the national average investment in water project was 1120 pesos per agricultural worker. In the southern states, investment was very meager amount, though they badly needed it.

The way in which federal budget funds are allocated to individual states has magnified regional inequalities since the criteria for the allocation of funds tended to make the original disparities even larger. The first criteria is population size, that is, the larger the population, the larger the budget; second, there is efficiency, which is based on each State's ability to collect taxes; and finally, the compensation criteria which targets entities that benefit less from the other two criteria. When funds are allocated, the first two criteria have greater weight, and together they account for just over 90 per cent. The efficiency criteria are certainly more weighted towards states with higher commercial and industrial activity and better-developed internal markets and against states in which primary activities predominate. The empirical evidence shows, first, that the shares of each state have varied through time according to presidential priorities. Second, the analysis of the data suggests that the overriding imperative for the federal government when allocating investment to the states was to maximize economic returns and reward. This signifies that resources concentrate in the richest states.

The raising of taxes by states and municipios may be regarded as an indicator of those local authorities that are contributing towards the improvement of the infrastructure. The Table-19 shows the highest and lowest levels of local taxation in 1957:

At that time, the national average for local taxes was 90 pesos per capita. In the above table, remaining northern states from the top group did not have tax revenue in excess of 100 pesos per capita. Coahuila, Nuevo Leon and Tamaulipas were all below this figure. At the bottom end, if the list of low tax states were extended to embrace all those with taxes of less than 50 pesos per person it would include Chiapas, Guerrero, Puebla, San Luis Potosi and Zacatecas. It is clear that in poor states, the taxes are inevitably low.

Table-19
State and Municipal Taxes per Capita in 1957

High Rates		Low Rates	
Chihuahua	322	Oaxaca	20.6
Baja California N	269	Michoacán	34.5
Baja California S	261	Guanajuato	36.0
Sonora	228	Querétaro	37.2
Distrito Federal	187	Hidalgo	38.8
Quintana Roo	167	Tlaxcala	38.8

Source: Constructed from the data of Yates (1960).

Recent Situation

Though some analysis of recent situation already has been made earlier, still in order to analyze more the recent situation of regional disparity in infrastructure sector, data have been used from INEGI source for the year 1998. In earlier part, it was shown that disparity existed among the states in Mexico and regional disparity is a historical fact in Mexico. In this part, I will try to show that in spite of globalization drive, disparity has not been eliminated, and it still exists. Comparison has been made between 1998 situation and 1960 data mainly based on the study conducted by Yates (44). According to Yates' analysis, group of 'Developed States' and 'Least Developed States' have been used in the following discussion.

In 1998, total road in Mexico was 318, 952 kilometers shown in Appendix-XXI. The northern seven states, viz. Baja California Norte, Sonora, Chihuahua, Coahuila, Durango, Sinaloa and Nuevo Leon had 30.91 per cent of total road and their average road length is 14088 kilometers. On the other hand, the southern six states, namely Yucatan, Quintana Roo, Campeche, Tabasco, Chiapas, Oaxaca had 19.35 per cent of total road and their average road length is 10,288 kilometers. Out of the total road, federal road was 47,946 kilometers. The northern states had 27 per cent of the total federal road: and average federal road in northern states was 1855 km; but the average figure of the southern states is 1584. In case of feeder road also, the northern states had the better position. The average road length of feeder road in the northern states was 2163 kilometers, whereas this was for the southern states were 1616 kilometers. But the gap is less in case of rural road, where average figure for the northern states are 6902, but for the southern states, it is 6372.5. The states nearer to the Distrito Federal are also in better position. The road length of Jalisco is sufficiently high; but the backward states like Colima, Nayarit could not improve their road conditions as well as road length.

Prior to 1988, there were 940 km of toll highways, built and operated entirely public entities. Globalization drive initiated in 1980s led Mexico to build to a sizeable section of toll highways. Mexico's plan to build an additional 5,300 km of toll highways during 1989-94 was the most ambitious program for expansion through private concessions undertaken in the first half of 1990s. The projected costs of this expansion were equivalent to \$5 billion; compared with the recent past, a threefold increase in the rate of highway investment (45). The highway concession program doubled the length of existing highways

from 4,500 km in 1989 to 9,900 km in 1994 and 53 concessions were granted for the construction of 5,348 km.

The program was not a success. A financial disaster was observed. Owing to design flaws, costs were higher both during construction of the original design and in the post-construction phase. Operating performance was inconsistent. Fares and traffic volume were merely rough estimates or were determined at discretion. Adjustments were based on each project's actual cost. In 1994, a number of projects were restructured due to such problems. In 1997, the federal government launched a program to transfer 23 of the 52 road concessions operated in the 1990-94 period. Under this program, the government assumed roughly \$ 4.8 billion in debt, and acquired approximately \$1.0 billion of the equity of consortiums operating the concessions (46). The privatization of road has also increased the fare of bus services, which are far beyond the capacity of the poor of this country. For example, if one person wants to travel by bus from Mexico City to Taxco, which is about 100 km and almost two-hour journey, he has to pay about US \$ 9. Whereas in India, another developing country, it only costs US \$ 1 for the same distance. Over and above, for long distance journey, the government does not operate any bus service. It causes also high tariff of the private bus.

The privatization drive has completed the decaying trend of railway system of Mexico. Now, the system of railways in Mexico is in a very peculiar condition. Two things happened side by side. First, after the globalization drive, massive privatization was done in this sector. Until privatized, overall operating efficiency was better than most railways in developing countries. The private operators were only interested in running their coaches in the commercially viable routes, which were mainly in the industrial city and tourist spots. As a result, railways in Mexico are not for the connections to interior places of the country and it was not made for the welfare of the public. Secondly, the persons who travel and who are financially well off to travel frequently in different places in Mexico for different reasons prefer bus services as they are of the opinion that the train services are worse than the bus services in Mexico. Railway takes much time than that of bus and it does not run in time. The people also think the security in bus service is more than that of the railway (47). As a result of that, lack of sufficient passengers, private operators are not operating passenger trains in the country except in one or two routes. Only the railway companies operate goods trains. Presently, Mexico City does not operate any passenger railway service. This signifies that for long distance service, people have to depend on the private bus operators only.

Electricity energy is another strategic economic sector that was opened up to private capital under the president ship of Salinas. A new set of regulations was established allowing groups of enterprises and industrial parks to supply their own electrical energy needs, with the stipulation that any excess electricity energy must be sold to the public electrical company, Comision Federal de Electricidad (CFE). With the signing up of the Free Trade Agreement, further commitment was made to open up electricity to outside capital; the agreement (48) states that private investment in the electrical industry in Mexico would be allowed for (i) production for self consumption, with any excess going to the CFE; (ii) production for industrial use, with the excess going to the CFE, (iii) and independent production for sale to the CFE. In December 1994 with the financial crisis, the then president Zedillo announced the Emergency Plan on 3 January 1995, where he called for again the privatization of electric generating sector. All these steps could not solve the crisis. In recent times, the government thinks to set up about 25 electric generating units

under private ownership. The privatization of electrical sector could neither reduce the regional disparity of electrical consumption nor it could spread the industry in the no-industry zone; because one private electricity producer does not give special concession for the industry set up in the backward region. It is shown in the following discussion that in spite of privatization drive, regional disparity in electrical sector still exists in the country.

In the existing setup of electricity sector wider disparity will be noticed among the states. This is shown in the Appendix- XXII. From the appendix, the following table has been constructed where sales value of electricity for the developed states and least developed states indicated by Yates has been shown:

Table- 20
Sales Value of Electricity (thousand of pesos) in 1998

Group of Developed States		Group of Least Developed States	
Baja California N	2941259	Chiapas	703133
Coahuila	2838735	Nayarita	330093
Chihuahua	2793277	Guerrero	976553
Distrito Federal	7236574	Oaxaca	772774
Estado de México	6420901	Tabasco	834216
Nuevo León	5315942	Quintana Roo	870762
Sonora	2961549	Aguascalientes	675845
Tamaulipas	2679664	Colima	424062
Morelos	803369	Zacatecas	624501
Baja California S	512581	Michoacán	2195784
		San Luis Potosí	1415077

Source: Computed from INEGI data

The average sales value of the group of developed states is 3450385.1 thousand pesos which is much higher than the national average of 1974787 thousand pesos. But the average sales value of the least developed states is much lower than the national average figure. The average sales value of the least developed states is 982280 thousand pesos. The developed states had 56.6 per cent of the total sales value whereas the least developed states had only 15.54 per cent of total sales value. The northern seven states had 30.41 per cent of total sales value, whereas six southern states only had 7.09 per cent of total sales value. The average sales value of the northern states is 2745971.5 thousand pesos which is much higher than the national average, but average sales of the six southern states was 747426.66 thousand pesos which is much lower than the national average.

From the Appendix-XXII, it is clear that a number of states are there who generate a sizeable amount of electricity but relative consumption is less in comparison with other developed states. For example, Colima produces 12525 gwh of thermoelectricity, but the consumption is relatively less. Similarly, Guerrero also produces thermoelectricity of 12693 gwh and 4176 gwh hydroelectricity, but its consumption is relatively less. Again, Distrito Federal's generating capacity is negligible, but its consumption is the highest. Another important fact is that the less developed states like Chiapas, Guerrero, Michoacan, Oaxaca, Sinaloa have more hydroelectric generating capacity.

Though postal services have been widely privatized and a sizeable section of people do not have any faith on the government postal service, still it can act as one indicator of the government motive to reduce the degree of regional disparity in service sector. Till now poor people cannot use the private postal service for its high tariff. Appendix-XXIII shows the postal services in the country in 1998. There are 35119 post offices in the country and the mean number is 1097. There are twelve states, which are above the average, and two states are almost at par the national average. Out of these fourteen states, six states from the northern part, and only one state from the southern part of the country. In Baja California Norte, one post office is for 679 persons, whereas in Chiapas one post office is for 5355 persons.

In Appendix- XXIV, disparity in the health sector is shown. The first column of the appendix shows the hospital beds per 10,000 inhabitants. The national average is 78.9 beds per 10,000 inhabitants. The following states have more than the national average:

Aguascalientes	86.4	Baja California S	149.5
Campeche	95.7	Coahuila	106.8
Colima	86.7	Distrito Federal	190.7
Durango	80.1	Jalisco	94.0
Nuevo León	98.0	Sonora	108.4
Tamaulipas	100.7	Yucatán	90.8

Out of seven northern states five states are in the above category. Sinaloa is almost at a par the national average. From the southern part, only Campeche and Yucatan are in the above category. Out of group of developed states, six states are in the above category: these are Nuevo Leon, Tamaulipas, Campeche, Coahuila, Baja California Sur, and Sonora. Out of least developed states, two states are in the above category, namely Aguascalientes and Colima. The second column of the appendix shows the chamber of the medical practitioner state wise; where national average is 50.4 offices per 10,000 inhabitants. Out of seven northern states, six states are above this average mark; whereas, out of six southern states, three are above the average figure. The third column shows medical practitioners per 10,000 inhabitants. Here the picture is more or less same. Only Yucatan has been added in the southern block performance. The number of nurses also shows the same trend.

Appendix- XXV shows the basic facilities of the human being. The first column of the appendix shows the housing facility in different states. The figure for the Distrito Federal and Estado de Mexico is very high; so in order to get the national average, these two figures have been excluded from the total. Excluding them, the national average stands at 502148. There are fifteen states above this figure. Out of seven northern states, six states are above the national average group. But there are only two states, namely, Chiapas and Oaxaca of the southern part are in the states of above average. Moreover, out of ten developed states of 1960, eight states including the Distrito Federal and Estado de Mexico are in the group of fifteen of above national average; whereas only four states of the bottom ten could manage to be with fifteen. The same type of disparity is observed in the drainage system, which is shown in the appendix. The national average is 78.2 per cent serviceable drainage; and sixteen states are above this mark. There are eight states of the top ten-group of 1960 are in these sixteen states; whereas five from the bottom ten group are present in the sixteen. Out of seven of the north, five states are in the sixteen, but from south only

Quintana Roo and Tabasco have drainage system above the average level. In consumption of electricity also, there are only two states of the southern part, which are above the national average of electricity consumption. But, out of seven states of the north, except Durango, all states are above the national average of electricity consumption. Out of top ten states, only one could not reach the national average, but six states of the bottom group are far from the national mark in electricity consumption.

In case of water facility also, this disparity is clear. Only Campeche, Chiapas, Guerrero, Hidalgo, Oaxaca, Puebla, San Luis Potosí, Veracruz, Yucatán and Zacatecas are below the national average of 88.1 per cent. Only one state, namely, Campeche of the top group is in this category, whereas five states from the bottom ten of 1960 are in this category. These are Chiapas, Guerrero, Oaxaca, Zacatecas and San Luis Potosí. There is not a single state from the northern part of the country in this below average group; but southern part of the country has four states in this below average category.

From Appendix – XXVI the student-teacher ratio has been found for each state. The national student-teacher ratio is 19.9. The following table shows for all the states:

Table – 21
Student- Teacher Ratio for each state in Mexico for the year 1998-99

States	Ratio	States	Ratio
Baja California N	19.9	Aguascalientes	19.5
Baja California S	20.2	Colima	19.4
Campeche	21.0	Chiapas	17.5
Coahuila	23.5	Chihuahua	17.9
Guanajuato	22.6	Distrito Federal	18.0
Jalisco	22.0	Durango	17.7
Estado de Mex	24.3	Guerrero	18.4
Morelos	23.7	Hidalgo	18.2
Nuevo León	20.8	Michoacán	18.2
Oaxaca	22.2	Nayarita	17.2
Puebla	22.7	San Luis Potosí	16.9
Querétaro	20.5	Sinaloa	19.0
Quintana Roo	20.9	Sonora	19.7
Tabasco	22.3	Tamaulipas	19.1
Tlaxcala	21.4	Veracruz	16.6
Yucatán	21.5	Zacatecas	17.2

Source: Computed from INEGI data

From the above table, it is clear that fifty per cent of the total states are below the national average. But the dispersion is very less among the states. The standard deviation is 2.18. in the case of student-teacher ratio, the situation of southern states is better than that of northern states. Except Chiapas, all states of the southern part are above the national average; but four states of the north are below the national average. Sonora and Sinaloa are almost at par the national average. Out of ten top states of 1960, four states are below the national average; but of these four; Sonora and Tamaulipas are almost at par the national average. Whereas eight states of the bottom ten club are below the national average.

Appendix- XXVII shows the volume of water storage in dams of main irrigation districts by region in 2000. It is clear that live storage capacity and stored volume of water for irrigation are more in the Northern regions than that of South and Central regions.

Principal Component Analysis

With a view to examining regional disparity in the infrastructure sector among the states, the method of Principal Component Analysis has been used. The data used here are from INEGI for the year 1998. In order to make this analysis, nine variables have been used. These are:

V¹= Longitud de la red nacional de carreteras (kilómetros)

V²= Oficinas de Correos

V³= Asegurados permanentes y eventuales en el IMSS

V⁴= Sistema nacional de salud - camas por cada 100000 habitantes

V⁵= Consultorios por cada 100000 habitantes

V⁶= Médicos por cada 100000 habitantes

V⁷= Viviendas particulares habitadas

V⁸= Producto interno bruto- electricidad, gas y agua (miles de pesos a precios de 1993)

V⁹= Producto interno bruto - transporte, almacenaje y comunicaciones (miles de pesos a precio de 1993).

The result of the analysis is shown in the Table-22. It is shown in the result of the Principal Component Analysis that there is not a single southern state in the first ten states, on the other hand, four states out of seven northern states are in the first ten, and Sonora is the 11th one; whereas five out of six states of the southern part are in the last eleven states of the above result. The Distrito Federal and Estado de Mexico retained their first and second position as usual. Eight out of top ten states of 1960 are in the first eleven. Eight states of the bottom ten are in the last fourteen states of the above result. This proves that the disparity that existed in 1960 still had existed in 1998.

Table – 22

Result of the Principal Component Analysis in Infrastructure sector

Eigenvalue 2.37E+15, Variance Prop. 0.935673, Cumulative Prop 0.935673

States	Indicator	Rank
Distrito Federal	0.101718	1
Estado de México	0.042536	2
Nuevo León	0.033929	3
Jalisco	0.026213	4
Veracruz	0.024464	5
Tamaulipas	0.020096	6
Baja California N	0.018773	7
Guanajuato	0.018564	8
Chihuahua	0.017636	9
Coahuila	0.016666	10
Sonora	0.015935	11
Chiapas	0.015645	12
Puebla	0.014095	13
Guerrero	0.012042	14
Michoacán	0.011538	15
Sinaloa	0.011249	16
Hidalgo	0.010048	17
Querétaro	0.008797	18
Colima	0.008475	19
San Luis Potosí	0.007768	20
Aguascalientes	0.006511	21
Yucatán	0.006287	22
Durango	0.005662	23
Tabasco	0.005540	24
Morelos	0.005399	25
Oaxaca	0.005253	26
Quintana Roo	0.004613	27
Baja California S	0.002923	28
Zacatecas	0.002917	29
Campeche	0.002447	30
Tlaxcala	0.002174	31
Nayarit	0.002051	32

Source: Computed from INEGI data

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CHAPTER – V

CONCLUSION

CHAPTER – V

CONCLUSIÓN

We wanted to prove three hypotheses in this study, which have been mentioned, in the introductory chapter; and these have been proved through our discussion. Regional disparity is a historical truth in Mexico. Both the nature and the government's regional development policies are responsible for the regional inequality. The poor old south – it is beautiful in nature, rich in culture, agreeable of climate, slow of pace, blessed with water and minerals and oil and gas, and fairly free of the low-rise-high-speed urban sprawl of the northern cities, but it does not have frontier with the United States. After the conquest, the Spanish also developed the north. The north was easier for the Spanish to colonize; they just moved in and cleaned up, whereas taking over the south required more mixing with the locals. Much of the wealth sucked out of New Spain came from the mining towns in the center-north of the country and hence much of the early development was in that region. In Mexico, a host of regional development programs were taken in the 1940s and later. These programs, no doubt, developed the region, but it has also increased the income inequality among the people of the region and a greater portion of the profit from the agricultural production was transferred to the industrial development in wealthier parts of the country. In 1960, in Tepalcatepec River Basin Program, the colder and higher parts of the basin, which supplied the water for the prosperity of the Tierra Caliente, had remained backward and undeveloped (1). The regional development programs in Mexico have systematically benefited the affluent and well-connected groups more than the people who have an original claim on the regions' productive resources.

A developmental gap between the northern part and southern part of the country still exists. Campeche, the only state of south is in the top ten developed states from the point of view of per capita national income. It is not the government, but the nature that gave prosperity to Campeche. Almost 75 per cent of the total oil field of the country exists in this state. Tourism also helps the southern part. It is also the gift of nature. Mexico remains a country of two nations: a relatively prosperous North and a poor South. The social and economic disparity possesses the latent ability to ignite domestic unrest and create political instability, as events in Chiapas proved in 1994 – 1995. In Chiapas, the Zapatista uprising of 1 January 1994 sent the unmistakable message to the world that PROCAMPO and other alleviatory programs would not be sufficient to offset the painful costs of neoliberal adjustment being born by the rural and indigenous poor. The uprising was timed to begin on the very day that NAFTA took effect; 'and the eyes of the Zapatistas, displaying a sentiment widely felt in rural Mexico, the reform of Article 27 demonstrated a betrayal of the Mexican Revolution that could not be forgiven' (2). Armed rebellion in Chiapas thus served as a wake-up call, reminding the world that Mexico's rural crisis was deep and real. During the 1958 – 70 periods, the industrial areas of Mexico City and Nuevo Leon received 30 per cent of the total public investment, while five other semi-industrial states got only 20 per cent and less than 40 per cent of public investment was available for the 25 states.

The globalization drive in Mexico could not reduce the intensity of regional disparity. Small and intermediate sized firms found themselves unable to compete and even many larger companies were forced to lay off sizeable portions of their labor force as part

of their desperate struggle to survive. Mexico's then president Jose Lopez Portillo rejected his nation's entry into the General Agreement on Trade and Tariff (GATT) in his time. The national industry of Mexico represented by the CANACINTRA and spokesmen for the textile industry claimed that Mexico's own industries would be irreparably harmed, if not eliminated, and that the country might face a serious recession if GATT entry were approved (3). When Mexico finally joined the GATT in 1987, this signaled the death knell for many of these small firms, which saw the few remaining protectionist measures eliminated. Small and medium sized firms had long been providers of goods and services to the public sector, and they suffered from the gap in government spending. While in 1980, public-sector revenues to small and medium-sized industries were valued at 473.6 million pesos, in 1991 this figure was only 282.6 millions. In the eighties, the forces of globalization led to an alternation in the strategies of Mexico's economic development. When Mexico ratified the NAFTA in 1994, the policy of national self-sufficiency was completely abandoned. It is important to note that economic distortions were already present at the time, that is, no more than 800 Mexican enterprises were exporting and the market concentration of the top five exporting firms accounted for 20 per cent of the export value. Meanwhile, unskilled Mexicans in dire poverty numbered approximately 40 millions (4). The structure of weakness and vulnerability of the Mexican economy became quite evident by 1995.

In order to show the regional disparity in different sectors the method of Principal Component Analysis has been used. The INEGI data for the year 1998 have been used for the analysis. In the respective sectors of industry and infrastructure, the result was shown. As the chapter of agriculture could not be made, so the result of the Analysis for the agricultural sector has been placed here. For making the analysis four variables have been taken which are as follows:

- V₁ = Valor de la producción agrícola (miles de pesos)
- V₂ = Superficie Cosechada por cultivos agrícolas (hectáreas)
- V₃ = Valor de la producción de carne (miles de pesos)
- V₄ = Producto interno bruto – Agropecuaria silvicultura y pesca (miles de pesos a precios de 1993)

Taking all sectors together, one principal component analysis has been made with a view to showing the disparity of overall development among the states. For making this, total eighteen variables are taken into consideration. These are as follows:

- V₁= Valor de la producción en la industria de la construcción.
- V₂= Total Industria manufacturera
- V₃= Personal ocupado en la industria de la construcción
- V₄= Producto interno bruto de la industria manufacturera (miles de pesos precios corrientes)
- V₅= Personal ocupado por de la industria manufacturera
- V₆= Valor de la producción agrícola (Miles de pesos)
- V₇= Superficie Cosechada por cultivos agrícolas (hectáreas)
- V₈= Valor de la Producción de carne. (miles de pesos)
- V₉= Longitud de la red nacional de carreteras. (kilómetros)
- V₁₀= Oficinas de Correos
- V₁₁= Asegurados permanentes y eventuales en el IMSS
- V₁₂= Sistema nacional de salud - camas por cada 100000 habitantes
- V₁₃= Consultorios por cada 100000 habitantes

V₁₄= Médicos por cada 100000 habitantes

V₁₅= Viviendas particulares habitadas

V₁₆= Producto interno bruto- electricidad, gas y agua (miles de pesos a precios de 1993)

V₁₇= Producto interno bruto - transporte, almacenaje y comunicaciones (miles de pesos a precios de 1993)

V₁₈= Producto interno bruto - Agropecuaria, selvicultura y (miles de pesos a precios de 1993)

Table - 1

Result of the Principal Component Analysis in Agricultural Sector

Eigenvalue 4.91E+15, Variance Prop. 0.985489, Cumulative Prop 0.985489

States	Indicator	Rank
Sinaloa	0.063537	1
Veracruz	0.059251	2
México	0.056672	3
Michoacán	0.052567	4
Jalisco	0.045896	5
Sonora	0.041993	6
Baja California Norte	0.034992	7
Oaxaca	0.033235	8
Guanajuato	0.032605	9
Chiapas	0.030831	10
Chihuahua	0.026843	11
Puebla	0.024988	12
Zacatecas	0.024659	13
Tamaulipas	0.023454	14
San Luis Potosí	0.016329	15
Nayarita	0.015378	16
Guerrero	0.015183	17
Colima	0.009177	18
Hidalgo	0.007997	19
Tabasco	0.007281	20
Coahuila	0.007276	21
Nuevo León	0.006917	22
Morelos	0.005565	23
Aguascalientes	0.004314	24
Tlaxcala	0.003616	25
Distrito Federal	0.003499	26
Campeche	0.003209	27
Durango	0.003151	28
Yucatán	0.003028	29
Baja California Sur	0.002508	30
Querétaro	0.002315	31
Quintana Roo	0.001433	32

Source: Computed from INEGI data

While making the exercise for the agricultural sector, only importance of agriculture in the states has been studied and accordingly variables have been chosen. For this cause, states like Michoacan, Oaxaca, Guerrero, Chiapas came in the upper echelon of ranking. The result of the principal component analysis for the agricultural sector is shown in the Table-1.

Table-2
Result of the Principal Component Analysis

Eigenvalue 3.37E+16, Variance Prop. 0.996272, Cumulative Prop 0.996272

States	Indicator	Rank
Distrito Federal	0.181629	1
México	0.152425	2
Nuevo León	0.081605	3
Jalisco	0.066765	4
Coahuila	0.054262	5
Puebla	0.046482	6
Chihuahua	0.045419	7
Veracruz	0.036409	8
Baja California Norte	0.033341	9
Guanajuato	0.029087	10
Tamaulipas	0.027194	11
Querétaro	0.027064	12
Sonora	0.025143	13
San Luis Potosí	0.020964	14
Hidalgo	0.016928	15
Michoacán	0.015491	16
Aguascalientes	0.014295	17
Morelos	0.013642	18
Durango	0.012759	19
Oaxaca	0.010248	20
Sinaloa	0.009148	21
Yucatán	0.008253	22
Tlaxcala	0.006748	23
Guerrero	0.004674	24
Chiapas	0.004370	25
Tabasco	0.003051	26
Nayarita	0.002895	27
Zacatecas	0.002713	28
Quintana Roo	0.001738	29
Colima	0.001527	30
Baja California Sur	0.001072	31
Campeche	0.000894	32

Source: Computed from INEGI data

For obvious reasons, Distrito Federal is in the low rank, but most of the least developed states are in the last seventeen ranks. Most of the developed states are also agriculturally developed. This is shown in the above table. States like Jalisco, Sonora, Veracruz, Baja California Norte, Guanajuato, Chihuahua, Puebla is within first twelve ranks. From this, disparity in the agricultural sector is clear.

This composite work gives an overall view of the development ranking of the states, which shows the disparity also among the states. This is shown in the Table-2: It is clear from above table, that the developed states indicated by Yates in 1960 are still in the upper echelon of ranking of states. States like Distrito Federal, Estado de México, Nuevo León, Jalisco, Coahuila, Puebla, Chihuahua, Baja California Norte, Guanajuato, Tamaulipas are within first eleven states. On the other hand, Colima, Quintana Roo, Zacatecas, Nayarit, Tabasco, Chiapas, Guerrero, Tlaxcala, Yucatán are in the last eleven states. Though Campeche has very high per capita income, but its industrial base, agricultural base and infrastructure facilities are not well developed, so its position came to the last one. But its service and commercial sector are well developed. Ian Scott (5) also made some index of development for four years 1940, 1950, 1960 and 1970, where he also had shown that developed states indicated in our analysis are in the first fifteen ranks throughout this long period. On the other hand, poor states like Oaxaca, Guerrero, Chiapas, Yucatan, Nayarit, Tlaxcala, Coloma, Quintana Roo, Tabasco are shown in our above table-II as well as in the works of Scot within last fifteen states. So, instead of comparing with Yates result for 1960, if we compare our results with Scot of 1940 through 1970, the same result comes that poor states remain poor and rich states retained their position for a long time. This proves three hypotheses at a time that regional disparity is a historical truth in Mexico, it was there and it is now also. Secondly, the gap between north and south still exists. Thirdly, the globalization drive could not reduce the regional disparity; rather it accentuated the gap between the rich and the poor.

Recommendations

Regional disparity cannot be eliminated over night. It takes a long process. The case of Mexico is not out of control. There lies the opportunity to reduce the intensity of regional disparity step by step. Like some in-built disadvantages, Mexico has some in-built advantages in comparison with so many developing countries. These are

(i) Though Mexico has some boundary problems in its northern frontier regarding illegal migration with the United States, but it does not have any boundary problem of that kind which exists in India or in Pakistan, so its defense expenditure is less than that of so many developing countries.

(ii) Unlike many developing countries, Mexico is self sufficient with petroleum products and a good amount of money comes from petroleum export. On the other hand, many developing countries' oil-pool deficit is huge caused by huge amount of petroleum imports.

(iii) The literacy rate of Mexico is very good in comparison with so many developing countries.

What Mexico requires is a good economic policy what it really lacked. In some ways, Mexico can be compared with China: the government wanted the country to

integrate into the global market economy without undergoing serious political changes implying a real democratization. Firstly, I strongly recommend democratic decentralization. Democratic decentralization is the process of developing the functions and resources of the state from the center to the elected representatives at the lower levels so as to facilitate greater direct participation by the citizens in governance (6). All that can optimally be done at the lowest level should be reserved to that level. Decentralization involves a number of changes in administrative structure, allocation of functions and powers, and controls of resources. I recommend for Mexico a **three-tier decentralization**. Now, below state level there is only one tier – Municipio or Delegacion. Especially below municipio, more two tiers need to be constructed. The elected representatives will run these two tiers also. The different tiers while functioning in ways complementary to each other should have functional, financial and administrative autonomy. The concept of democratic decentralization proposed here also requires a movement beyond representative democracy. Horizontal linkages have to be established effecting institutional changes, redeploying staff, generating an information base and training personnel. Here the concept of micro level planning is very important. In making this type of micro level planning, mass participation is not limited to elected representatives or voluntary agencies but includes ordinary people assembling in each colony and nonofficial experts and volunteers participating in the preparation of reports, formulating reports and drafting the plan. People's representatives at the national or state level cannot be the role models for Local Self-Government Institutions. The development administration at the grassroots level demands day-to-day involvement of the elected representatives. The ultimate aim of this type of democratic decentralization has to be to give opportunity for as much direct participation of people in daily governance as possible. To create job opportunities, emphasis has to be placed on the cottage and small-scale industries. Depending on the regions, type of industries may be setup.

Secondly, I recommend the renovation of railways as a major means of transport under the government ownership. This will minimize the production cost and will give wider opportunity to the poorer section of the people to travel at reduced tariff. Side by side private bus operator, a wide network of long distance bus service under the government ownership needs to be set up.

Thirdly, I recommend that the type of resource allocation needs to be reviewed to bring equality among the regions. In this context, the role of three-tier municipality is very important. Resources should be reached directly to the grass-root level tier for the developmental works and self-employment projects.

Fourthly, I recommend that for the construction of infrastructure, three-tier municipality will take the main role. Only then, infrastructure development will be equally distributed. Health services and electricity distribution may be directly tagged with the lower level municipalities.

Fifthly, as noted earlier, the central government has to give sufficient emphasis for the small-scale and cottage industries through three-tier municipalities.

Sixthly, the government has to impose some types of restrictions in order to protect the cottage and small-scale industries from the hands of multi-national companies. Some goods are to be earmarked for this sector, and these goods will not be imported at all.

Notes and References

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5. . For details See: Scot. Ian: Urban and Spatial Development in Mexico. World Bank Publications. Johns Hopkins University Press. London. 1982.PP-206-207 .
6. Democratic decentralization has been done to a greater extend in two states of India. This are West Bengal and Kerala. For details of the application of democratic decentralization, please see Isaac, Tomas T.M : Campaign for Democratic Decentralization in Kerala – An Assessment from the Perspective of Empowered Deliberate Democracy. Occasional Paper, Centre for Development Studies and Kerala State Planning Board. January, 2000.

APPENDIX – A

PIB per-cápita por Estado. Miles de pesos.

	1970	1975	1980	1985	1993	1994	1995	1996	1997	1998	1999
Total	9.98	11.89	14.98	14.05	13.12	13.32	12.19	12.51	13.05	13.35	13.35
Aguascalientes	7.91	9.65	11.79	11.56	14.17	14.84	13.97	14.84	15.66	16.17	16.43
Baja California	14.55	16.33	19.15	17.45	16.52	17.29	16.01	16.90	17.60	17.82	17.79
Baja California Sur	13.95	16.31	18.92	15.85	17.16	17.29	16.81	17.92	18.51	18.32	18.68
Campeche	8.40	9.69	11.33	8.59	23.33	23.45	22.06	22.49	22.09	21.95	21.34
Coahuila	12.02	14.84	17.10	16.20	16.03	16.21	15.86	16.65	18.11	18.85	19.94
Colima	8.61	11.96	13.61	14.44	13.56	13.95	13.12	13.96	14.00	14.23	14.11
Chilapas	4.95	6.23	13.02	9.28	5.74	5.75	5.54	5.46	6.23	6.40	6.65
Chihuahua	10.14	12.23	14.09	13.76	17.65	18.27	16.73	17.65	18.00	18.93	20.37
Distrito Federal	19.30	22.66	28.51	25.46	32.71	33.20	29.83	30.66	34.31	35.13	35.19
Durango	7.19	8.39	10.79	12.16	10.41	10.53	9.82	10.02	11.23	12.15	12.26
Guanajuato	7.14	8.49	9.69	9.52	9.04	9.06	8.50	8.65	9.32	9.79	9.94
Guerrero	5.18	6.61	7.91	7.65	7.62	7.51	6.83	6.66	7.34	7.40	7.33
Hidalgo	5.39	6.73	9.78	9.30	8.69	8.65	7.44	7.90	8.43	8.97	9.32
Jalisco	10.41	12.47	15.04	14.33	12.98	13.10	11.79	12.06	13.01	13.49	13.71
Estado de México	10.82	12.85	14.48	13.35	10.83	11.01	9.87	10.44	11.00	11.24	10.92
Michoacán	5.26	6.82	8.27	7.49	7.02	7.23	6.89	6.92	8.17	8.24	8.41
Morelos	8.44	9.81	11.43	11.57	13.32	11.24	11.72	11.91	11.50	11.76	11.49
Nayarit	7.58	8.74	10.60	10.64	8.52	8.43	7.40	7.42	8.05	8.53	8.33
Nuevo León	16.71	19.17	23.51	22.16	21.75	22.47	20.61	21.20	22.68	23.75	23.98
Oaxaca	3.53	4.67	5.94	6.86	5.84	5.87	5.46	5.41	5.92	6.07	6.02
Puebla	6.23	7.51	9.70	9.11	8.24	8.31	7.44	7.92	8.85	9.27	9.52
Querétaro	7.88	10.66	12.80	14.70	13.94	14.58	13.72	14.50	15.97	16.84	17.02
Quintana Roo	10.03	22.44	34.79	22.08	24.90	25.36	23.47	24.38	22.65	22.64	22.52
San Luis Potosí	5.85	6.76	8.70	9.44	9.51	9.90	8.57	8.88	9.75	10.06	10.05
Sinaloa	9.38	10.96	11.30	11.39	11.16	10.84	10.27	10.17	10.89	10.93	10.76
Sonora	13.89	14.63	16.18	16.06	15.78	16.50	15.73	15.96	15.67	16.43	16.14
Tabasco	7.27	12.67	37.40	22.30	9.04	9.00	8.71	8.51	8.86	6.74	8.54
Tamaulipas	10.52	12.17	15.34	13.86	13.43	14.13	13.00	13.48	13.91	14.66	15.47
Tlaxcala	4.56	6.79	8.22	10.20	6.98	7.08	6.65	7.03	7.65	7.71	7.79
Veracruz	8.15	8.93	10.80	10.18	7.99	8.18	7.77	7.67	8.33	8.44	8.43
Yucatán	7.19	10.32	10.68	9.58	10.55	10.93	10.04	10.30	10.25	10.60	11.06
Zacatecas	5.16	5.72	7.02	8.02	7.20	7.12	7.02	6.85	7.54	7.53	7.53

Source : Esquivel (1999)

APPENDIX – B
Ingreso per capita estatal, 1940-1995

(Pesos de 1995)

Estado	1940	1950	1960	1970	1980	1990	1995
Aguascalientes	10 384	6 234	8 714	16 078	21 022	20 787	21 013
Baja California	22 361	20 977	17 865	25 321	29 283	26 839	25 311
Baja California Sur	9 573	16 013	16 707	24 384	29 038	25 842	23 989
Campeche	3 758	4 929	5 925	10 274	12 166	51 123	35 806
Chiapas	2 934	4 138	5 280	7 015	16 200	8 637	8 341
Chihuahua	8 578	13 997	16 265	19 178	23 399	25 332	24 973
Coahuila	8 537	9 673	12 318	20 562	25 688	26 084	25 654
Colima	6 909	6 049	6 036	12 551	17 427	18 313	17 970
Distrito Federal	17 816	17 119	23 174	32 386	42 028	43 810	45 323
Durango	12 132	8 859	9 323	12 700	16 726	17 353	15 270
Guanajuato	4 359	5 686	8 209	11 635	13 864	13 607	12 494
Guerrero	2 181	3 629	4 991	6 497	8 727	9 084	10 258
Hidalgo	4 414	5 194	6 399	7 767	12 391	13 091	10 515
Jalisco	5 309	8 232	9 953	16 288	20 650	20 133	17 535
México	3 408	4 972	9 053	17 164	20 165	18 547	14 430
Michoacán	3 327	5 272	5 244	8 109	11 206	10 980	10 193
Morelos	6 936	8 962	10 499	13 892	16 513	17 701	15 682
Nayarit	4 836	7 515	7 621	10 880	13 354	12 757	10 515
Nuevo León	9 073	11 490	20 117	28 206	34 856	34 726	31 453
Oaxaca	1 892	4 538	4 140	5 230	7 730	8 465	8 404
Puebla	3 569	6 415	6 542	9 775	13 374	11 895	12 089
Querétaro	11 016	5 560	7 110	14 073	20 088	22 441	21 541
Quintana Roo	21 965	28 747	9 677	17 046	26 695	25 049	29 276
San Luis Potosí	4 372	7 533	6 440	9 721	12 691	15 436	13 757
Sinaloa	4 840	6 663	9 613	14 477	15 312	15 823	14 310
Sonora	6 399	10 345	12 134	22 662	23 181	24 784	23 298
Tabasco	2 459	3 857	6 494	9 367	42 361	16 055	12 422
Tamaulipas	7 508	8 536	8 383	17 128	21 937	19 983	19 895
Tlaxcala	3 605	4 178	4 357	6 245	9 882	10 339	9 628
Veracruz	5 203	10 143	11 404	12 240	14 252	13 796	11 911
Yucatán	7 990	8 428	10 067	11 665	15 239	13 979	13 426
Zacatecas	3 734	6 435	5 821	7 426	8 876	11 656	10 663
Nacional	6 244	8 498	10 924	16 149	21 035	19 894	18 417
Máximo	22 361	28 747	23 174	32 386	42 361	51 123	45 323
Mínimo	1 892	3 629	4 140	5 230	7 730	8 465	8 341
Media	7 231	8 760	9 559	14 311	19 260	19 514	18 042
Desviación estándar	5 123	5 385	4 633	6 649	8 771	9 560	8 616
Coefficiente de variación	0.709	0.615	0.485	0.465	0.455	0.490	0.478

Source: Esquivel (1999)

APPENDIX – C

Ingreso per capita Estatal, 1940-1970-1990

Estado	1940		1970		1990	
	\$	Rango	\$	Rango	\$	Rango
Baja California	22161	1	20221	5	25211	6
Quintana Roo	21983	2	17246	10	22271	7
Distrito Federal	17816	3	20336	1	40223	1
Durango	12132	4	12120	16	16270	5
Querétaro	12117	5	1273	14	21741	2
Aguascalientes	10014	6	7073	12	21013	11
Baja California Sur	9575	7	24531	4	23939	3
Nuevo León	9175	8	39173	2	31453	4
Chihuahua	8378	9	10112	7	24373	8
Coahuila	8327	10	10332	6	25634	9
Yucatán	7990	11	11665	15	17426	21
Tamaulipas	7503	12	17125	3	12291	10
Morales	6311	17	1597	13	15632	15
Colima	6309	14	125	17	17170	17
Sonora	5999	8	14912	4	20230	7
Jalisco	5500	6	11238	1	17525	14
Veracruz	5201	11	12340	18	11911	24
Sinaloa	4217	13	4177	13	14310	16
Nayarit	4203	19	10350	21	10519	27
Hidalgo	4214	21	7737	27	10315	17
San Luis Potosí	4172	21	3721	24	10757	19
Guajalajara	4013	21	11030	20	12404	21
Campeche	3701	15	11174	22	35416	1
Zacatecas	3724	21	7436	23	12823	23
Tlaxcala	3601	17	1045	31	9201	3
Puebla	3103	27	3773	23	12339	13
México	3123	21	17134	3	14401	17
Michoacán	3127	23	3109	24	11151	11
Chiapas	2111	23	315	29	8341	31
Tabasco	2159	13	3037	23	10431	22
Guerrero	21	31	6437	30	10233	20
Oaxaca	1532	32	3030	31	6474	
Nacional	5244		1113		1517	
Maximo	21131		21385		40173	
Minimo	1172		1230		6349	
Media	723		14311		18742	
Desv. Est	5103		6349		8318	
Coefficiente de Variación	0.719		1.453		0.478	

Fuente: Equipe (1991)

APPENDIX I

Law for the Promotion of New and Necessary Industries.
Investment and Employment by Industrial Activity: Geographical Distribution, 1959-64.
(Billions of current pesos)

	Total	Automotive	Basic metallic	Chemicals	Machinery and equipment	Electrical equipment	Metallurgical products	Food products	Other
Mexican Republic									
Investment	2 539.2	226.3	447.5	764.8	39.6	96.1	297.7	20.7	620.5
Workers	14 743	2 641	1 550	1 380	656	1 306	2 426	577	4 227
Number of plants	167	24	13	27	6	18	23	9	45
Federal District									
Investment	255.6	29.9	13.0	9.6	5.7	24.3	109.1	6.6	82.4
Workers	3 275	674	89	106	75	550	686	101	969
Number of plants	48	7	2	5	-	10	7	3	14
State of Mexico									
Investment	603.8	104.1	68.9	114.8	29.2	36.3	40.5	-	210.0
Workers	5 030	826	365	178	368	457	1 012	-	1 814
Number of plants	50	7	6	7	5	5	7	-	13
Veracruz									
Investment	432.5	-	212.5	226.3	-	-	13.7	-	-
Workers	646	-	174	392	-	-	80	-	-
Number of plants	5	-	1	2	-	-	2	-	-
Sonora									
Investment	167.6	-	-	164.6	-	-	-	-	3.0
Workers	249	-	-	114	-	-	-	-	135
Number of plants	3	-	-	2	-	-	-	-	1
Quintana Roo									
Investment	144.0	-	-	136.6	-	-	-	7.4	-
Workers	522	-	-	201	-	-	-	321	-
Number of plants	2	-	-	1	-	-	-	1	-
New León									
Investment	285.3	81.2	-	49.9	4.0	30.5	45.5	4.0	72.4
Workers	2 321	995	-	172	195	299	468	120	72
Number of plants	21	7	-	4	-	3	3	1	3
Texas									
Investment	620.4	13.1	153.1	87.0	1.7	-	88.9	2.7	252.7
Workers	2 700	131	902	302	18	-	160	35	1 217
Number of plants	38	3	3	9	1	-	4	4	14

Source: Secretaría de Industria y Comercio, "Industria de Labores 1959-64", Tables 25-30 and Annex 5.

Yates, P. Lamartina: Regional Development in México and the Decentralization of Industry. Report for the Department of Industrial Investigations in the Bank of Mexico, Mexico DF, December, 1960.

APPENDIX -III

*Average Monthly Income per Rural Family,
Classified by State and Income Bracket, 1969 to 1970
(pesos)*

State	Less than 400	401 to 500	501 to 750	751 to 1,000	1,001 to 2,000	More than 2,000	Average
Aguascalientes	283.8	464.6	643.0	873.3	1,338.2	-	519.4
Baja California	-	-	772.6	914.4	1,579.7	3,906.9	1,913.8
Baja California (Territory)	-	345.2	688.0	934.9	1,586.2	4,315.7	2,312.5
Campeche	313.6	466.3	634.4	862.7	1,412.9	3,997.5	773.8
Coahuila	301.9	455.6	627.5	876.0	1,376.1	2,847.1	1,025.3
Colima	326.3	477.3	642.0	879.7	1,413.9	3,241.0	1,042.4
Chiapas	225.5	476.8	636.4	904.2	1,376.4	-	574.3
Chihuahua	248.5	463.5	655.2	883.8	1,181.1	3,748.1	1,445.7
Durango	317.8	465.8	639.0	899.4	1,353.8	4,519.7	1,288.4
Federal District	-	-	-	-	-	-	-
Guanajuato	314.2	456.4	644.5	822.6	1,325.7	3,117.3	836.8
Guerrero	283.9	458.4	629.5	873.7	1,352.6	-	601.0
Hidalgo	265.4	439.2	617.6	862.5	1,199.8	2,929.1	779.0
Morelos	295.3	462.5	621.6	877.7	1,414.1	3,277.3	1,077.9
México	294.4	451.1	630.9	864.4	1,466.6	3,495.5	972.6
Michoacán	330.4	466.6	625.6	871.1	1,225.5	2,783.6	842.7
Moravia	277.3	450.5	646.6	893.9	1,549.5	2,771.9	923.1
Nayarit	371.4	487.5	619.5	895.4	1,439.8	2,775.6	1,140.5
Nuevo León	345.0	478.1	625.0	881.9	1,379.4	3,583.1	870.2
Oaxaca	265.4	447.6	622.3	851.3	1,357.5	-	376.0
Puebla	298.1	453.7	626.8	892.2	1,424.1	3,142.0	763.7
Quercáro	234.6	456.6	628.2	836.4	1,109.3	-	489.6
Quintana Roo	329.5	457.1	651.4	888.6	1,575.9	2,933.3	1,048.1
San Luis Potosí	334.2	457.9	650.5	863.8	1,331.1	3,063.8	741.5
Sinaloa	328.4	477.6	667.2	885.6	1,368.5	3,122.5	1,523.6
Sonora	-	-	645.3	894.5	1,582.6	3,057.0	1,762.7
Talisco	-	439.3	637.8	799.3	1,517.9	2,996.2	1,062.5
Tamaulipas	293.1	459.6	645.1	856.9	1,350.5	3,579.8	947.7
Tlaxcala	288.9	456.3	648.1	891.0	1,389.2	2,572.8	767.1
Veracruz	322.2	457.3	648.3	862.9	1,473.2	2,783.7	1,052.9
Yucatán	240.5	441.6	613.3	842.4	1,338.0	-	477.4
Zacatecas	366.0	494.3	641.5	888.0	1,381.6	3,148.1	978.6
Average	286.2	458.9	634.8	879.2	1,421.1	3,293.0	896.5

- Not applicable

Source: Family Income Survey, 1969-70 (1971)

Scott, Ian: Urban and Spatial Development in Mexico. A World Bank Publications. Johns Hopkins University Press. London, 1982.

APPENDIX -IV

*Average Monthly Income per Urban Family,
Classified by State and Income Bracket, 1969 to 1970
(Pesos)*

State	Less than 500	501 to 750	751 to 1,000	1,001 to 2,000	2,001 to 3,000	More than 3,001	Average
Aguascalientes	301.5	654.4	890.7	1,458.7	2,532.8	4,387.1	1,410.3
Baja California	-	571.4	875.6	1,541.7	2,614.9	5,619.7	3,293.5
Baja California (Territory)	430.0	636.1	904.4	1,536.8	2,424.8	5,876.8	2,530.9
Campeche	415.9	608.4	890.0	1,457.1	2,947.2	5,444.7	1,460.7
Coahuila	383.0	654.3	926.0	1,508.6	2,479.2	4,360.6	2,079.1
Colima	503.7	610.7	896.9	1,511.6	2,458.8	4,776.9	1,943.2
Chiapas	353.3	629.2	873.1	1,442.2	2,431.0	6,424.4	1,298.0
Chihuahua	381.3	650.3	912.0	1,465.8	2,576.8	4,942.3	2,221.1
Durango	455.6	669.1	893.6	1,490.7	2,512.1	7,090.1	2,222.5
Federal District	440.0	660.3	890.7	1,489.4	2,527.1	7,198.4	3,133.3
Guanajuato	386.0	652.2	876.8	1,496.7	2,506.2	5,380.0	2,285.7
Guerrero	386.9	638.6	887.5	1,436.1	2,420.8	5,560.0	1,290.2
Hidalgo	288.8	612.3	885.3	1,422.4	2,456.1	5,204.1	1,725.6
Jalisco	352.0	657.7	976.3	1,556.2	2,552.7	7,055.5	2,917.5
México	423.0	607.5	896.1	1,456.0	2,515.3	6,367.1	2,006.3
Michoacán	371.0	639.9	883.4	1,415.5	2,473.4	4,319.9	1,546.6
Morelos	391.0	667.2	876.4	1,436.8	2,528.9	5,451.1	1,269.4
Nayarit	333.2	605.1	871.2	1,425.1	2,666.7	3,843.3	1,364.4
Nuevo León	428.4	666.5	877.3	1,470.7	2,567.7	5,131.8	1,957.1
Oaxaca	313.3	650.4	853.9	1,395.7	2,543.8	4,204.2	1,525.4
Puebla	342.1	615.3	897.8	1,435.0	2,489.2	4,285.0	2,676.6
Querétaro	337.2	653.0	923.7	1,542.0	2,505.2	5,808.3	2,771.4
Quintana Roo	268.3	609.0	893.2	1,517.8	2,412.9	4,139.3	1,507.1
San Luis Potosí	363.2	616.1	858.1	1,479.4	2,591.1	6,800.3	3,221.1
Sinaloa	372.1	645.7	863.1	1,471.2	2,536.1	6,491.2	3,138.6
Sonora	-	671.1	908.6	1,541.5	2,464.3	4,995.5	2,289.7
Tlaxcala	342.5	651.3	892.6	1,468.5	2,526.0	5,508.7	1,354.4
Tlhuacalpan	350.6	632.7	877.2	1,422.8	2,363.6	4,313.3	1,811.6
Tlhuacalpan	371.8	641.2	897.8	1,471.6	2,409.8	4,192.1	1,926.1
Tlhuacalpan	345.6	679.7	893.6	1,537.2	2,526.7	4,964.6	2,122.4
Tlhuacalpan	348.9	639.0	884.6	1,489.1	2,329.1	4,099.4	1,256.1
Zacatecas	406.9	625.1	870.1	1,425.5	2,466.3	4,896.3	1,249.2
Zacatecas	323.1	678.6	833.1	1,488.3	2,522.1	6,151.1	2,741.3

Not applicable.

Source: Family Income Survey, 1969-70 (1971).

Scott: Urban and Spatial Development in Mexico. A World Bank Publications, Johns Hopkins University Press, London, 1982.

APPENDIX -V

Regional Differences in Income Distribution, 1969 to 1970

(percent)

Region	Percent family income relative to total income					Total	Monthly income per family (national average = 100)
	Lower 20 percent	30 percent below median	20 percent above median	15 percent below top	Top 5 percent		
Federal District	5.0	13.0	27.0	35.0	20.0	100.0	176
North Pacific Coast	6.0	15.0	29.0	29.0	20.0	100.0	128
Gulf of Mexico	4.5	16.5	31.0	30.0	18.0	100.0	83
North	6.0	16.5	29.5	30.0	18.0	100.0	99
Center	4.0	12.0	24.0	28.0	32.0	100.0	82
South Pacific Coast	3.0	13.5	27.5	27.0	29.0	100.0	70

Note: The data represent the percentages of regional income earned by a percentage of families of a relative level of income in a given region.

Source: *Family Income Survey, 1969-70 (1971)*, and World Bank estimates.

Scott, Ian: *Urban and Spatial Development in Mexico*. A World Bank Publications. Johns Hopkins University Press, London, 1982.

APPENDIX -VII

Per Capita Financial Savings, by State, 1940 and 1970
(thousands of current pesos)

<i>State</i>	<i>1940</i>	<i>1970</i>
Aguascalientes	359	100,497
Baja California	n.a.	938,267
Baja California (Territory)	n.a.	44,256
Campeche	105	48,278
Coahuila	691	379,138
Colima	165	73,979
Chiapas	294	149,034
Chihuahua	1,197	558,320
Durango	445	163,611
Federal District	2,520	2,497,492
Guanajuato	560	480,446
Guerrero	n.a.	168,659
Hidalgo	285	100,186
Jalisco	1,084	2,019,470
México	445	1,100,975
Michoacán	630	496,149
Morales	188	216,877
Nayarit	n.a.	130,221
Nuevo León	31	1,607,815
Oaxaca	192	1,08,632
Puebla	480	778,764
Querétaro	n.a.	171,939
Quintana Roo	n.a.	33,799
San Luis Potosí	323	311,673
Sinaloa	280	791,884
Sonora	375	1,181,110
Tabasco	n.a.	85,400
Tlaxcala	1,722	599,446
Tlaxcala	n.a.	23,763
Veracruz	1,161	576,219
Yucatán	711	122,833
Zacatecas	n.a.	113,995

n.a. Not available.

Source: Ministry of Finance, Banking Commission

Scott: *Urban and Spatial Development in Mexico*. A World Bank Publications. Johns Hopkins University Press, London, 1982.

APPENDIX -VIII

*Credit Outstanding from Private
and Public Credit Institutions, by State and by Sector, 1972*
(thousands of peso)

<i>State</i>	<i>Industry</i>	
	<i>Private</i>	<i>Public</i>
Aguascalientes	127,313	1,569
Baja California	718,006	13,720
Baja California (Territory)	19,543	5,110
Campeche	23,084	-
Coahuila	905,269	-
Colima	29,212	368
Chihuahua	97,623	4,698
Chihuahua	859,059	293
Durango	134,657	-
Federal District	59,386,288	18,091,357
Guamantla	419,666	9,594
Guerrero	95,547	-
Hidalgo	75,345	-
Jalisco	2,415,136	5,013
México	819,197	426
Michoacán	389,918	-
Morales	120,000	-
Nayarit	24,756	49
Nuevo León	5,700,357	-
Oaxaca	30,335	245
Puebla	836,880	4,360
Querétaro	84,839	-
Quintana Roo	8,663	1,991
San Luis Potosí	243,673	2,321
Sinaloa	151,357	22,584
Sonora	377,147	1,706
Tlaxcala	57,115	4,525
Tlaxcala	364,263	3,703
Tlaxcala	36,437	-
Veracruz	550,030	3,006
Yucatán	470,725	-
Zacatecas	33,431	296
Total	47,136,311	18,179,594

Source: Bank of Mexico

APPENDIX - IX

VALOR DE LA PRODUCCIÓN EN LA INDUSTRIA DE LA
CONSTRUCCION SEGUN ENTIDAD FEDERATIVA
1995-1999
(Millones de pesos)

ENTIDAD FEDERATIVA	1995	1998	1999 a/
Total	35 374	64 466	68 002
Aguascalientes	357	724	715
Baja California	1 023	1 705	1 505
Baja California Sur	113	129	170
Campeche	212	1 470	1 901
Coahuila	1 225	1 580	1 636
Colima	120	217	370
Chiapas	402	924	1 009
Chihuahua	726	1 760	2 213
Distrito Federal	17 265	26 696	27 500
Durango	187	538	526
Guanajuato	733	1 581	1 987
Guerrero	415	492	350
Hidalgo	199	299	373
Jalisco	1 679	3 923	4 252
México	1 360	2 333	2 008
Michoacán	400	555	685
Moroles	103	413	562
Nayarit	76	261	350
Nuevo León	3 603	7 081	7 584
Oaxaca	244	541	407
Puebla	505	1 298	1 276
Querétaro	228	585	814
Quintana Roo	92	340	270
San Luis Potosí	321	713	629
Sinaloa	350	649	737
Sonora	629	1 215	1 608
Tobasco	572	1 135	1 063
Tamaulipas	800	1 050	2 027
Tlaxcala	90	200	182
Veracruz	800	2 145	2 004
Yucatán	373	884	865
Zacatecas	98	225	425

NOTA: Debido al redondeo de las cifras, la suma de los parciales puede no coincidir con el total

a/ Datos a Noviembre de 1999

FUENTE: INEGI, Dirección General de Estadística, Dirección de Estadística de Corto Plazo. Encuesta Nacional de la Industria de la Construcción.

APPENDIX -X

PERSONAL OCUPADO POR PRINCIPALES RAMAS DE LA INDUSTRIA
MANUFACTURERA SEGUN ENTIDAD FEDERATIVA
1998

ENTIDAD FEDERATIVA	TOTAL	CONFEC- CION	EQUIPO ELEC- TRICO	EQUIPO ELEC- TRONICO	AUTO- MOTRIZ	PLASTICOS	PANIFI- CACION	IMPRESA Y EDITO- RIALES	FIBRAS Y BLANDAS	OTROS PRODUCTOS METALICOS	MUEBLES DE MADERA	LAS DEMÁS RAMAS
Total	4 213 568	453 414	294 452	225 905	190 763	166 884	156 647	143 858	142 940	136 391	134 401	2 167 891
Aguascalientes	70 703	21 528	941	525	9 370	1 072	1 569	1 519	4 085	1 484	1 425	59 818
Baja California	239 413	12 954	15 725	59 036	6 362	16 787	3 504	5 275	902	12 989	13 333	203 410
Baja California Sur	10 341	1 698	30	?	1	71	759	607	10	18	207	8 740
Campeche	9 068	771	1	9	4	35	896	701	82	51	425	6 913
Coahuila	185 893	34 358	30 856	6 364	13 113	2 395	2 634	4 161	3 861	5 610	3 461	166 166
Colima	8 830	267	43	11	31	16	524	494	0	59	498	7 255
Chiapas	32 827	1 750	45	8	94	165	2 227	1 456	209	107	3 415	25 413
Chihuahua	348 268	16 957	115 844	50 196	17 726	8 561	3 472	3 839	3 196	5 056	6 436	326 267
Distrito Federal	510 300	46 982	14 200	5 090	21 220	27 086	29 239	55 395	17 352	25 569	13 479	369 268
Durango	71 519	30 634	159	38	814	497	1 859	931	249	1 266	3 604	63 610
Guanajuato	235 949	22 551	3 928	13	6 980	6 267	6 271	4 288	2 507	2 394	2 783	217 628
Guerrero	38 945	4 535	21	4	38	68	2 584	1 423	1 840	107	1 979	31 012
Hidalgo	63 003	16 108	651	26	1 856	1 328	2 908	853	8 296	493	1 592	49 462
Jalisco	325 282	19 579	5 820	11 701	7 184	16 651	12 290	8 715	4 371	14 607	17 067	271 324
México	479 343	34 973	19 177	5 976	36 795	33 025	19 401	12 161	35 554	30 272	13 670	368 285
Michoacán	87 918	3 597	500	132	170	1 773	4 460	2 126	1 146	710	7 991	71 477
Morlos	42 530	3 817	124	302	2 845	1 449	2 218	952	2 385	580	947	35 448
Nayarit	12 432	475	11	4	51	10	964	571	1	33	552	10 311
Nuevo León	322 010	16 762	20 511	10 906	15 161	18 881	8 008	8 964	6 525	20 486	8 706	269 321
Oaxaca	54 314	4 430	16	52	193	568	4 384	1 249	960	139	3 255	43 327
Puebla	225 342	62 720	1 700	179	21 891	3 471	9 703	2 970	25 050	2 629	9 145	175 845
Querétaro	85 540	10 837	6 567	4 831	6 757	3 000	1 528	2 947	3 828	3 031	1 034	73 174
Quintana Roo	10 883	755	14	3	30	41	1 111	1 029	130	42	751	7 820
San Luis Potosí	74 563	4 410	2 724	400	4 184	1 753	3 397	1 834	1 184	1 588	2 980	60 580
Sinaloa	41 443	778	1 217	247	81	489	2 753	2 770	266	524	1 554	33 616
Sonora	130 720	17 199	14 485	26 164	4 250	5 535	4 107	3 250	759	1 518	2 481	118 608
Tabasco	20 235	730	14	17	23	105	2 341	1 312	9	79	1 403	15 091
Tamaulipas	182 507	13 612	23 712	33 940	11 797	10 306	2 871	4 746	1 004	2 955	1 759	169 172
Tlaxcala	57 255	13 451	3 016	284	1 202	1 906	2 924	426	9 110	135	606	44 054
Veracruz	139 112	10 376	781	50	486	1 514	9 900	3 900	856	545	5 258	118 653
Yucatán	68 777	20 724	165	104	65	2 004	4 428	2 310	3 287	848	1 814	56 092
Zacatecas	24 596	3 078	3 050	3	0	9	1 409	3 111	46	461	791	21 173

NOTA: Debido a que en algunas entidades se omitió el dato para guardar la confidencialidad, de acuerdo con el Artículo 38 de la Ley de Información Estadística y Geográfica, la suma de las partes puede no coincidir con el total.

FUENTE: INEGI. Censos Económicos, 1999. Enumeración Integral. Resultados Oportunos.

APPENDIX - XI

PERSONAL OCUPADO EN LA INDUSTRIA DE LA CONSTRUCCION SEGUN ENTIDAD FEDERATIVA 1996-1999

ENTIDAD FEDERATIVA	1995			1998		
	TOTAL	PERSONAL OCUPADO		TOTAL	PERSONAL OCUPADO	
		EMPLEADOS	OBREROS		EMPLEADOS	OBREROS
Total	281 254	80 036	214 822	304 863	70 084	234 599
Aguascalientes	5 051	1 076	4 015	3 986	1 104	2 884
Baja California	8 408	1 170	7 238	8 533	1 522	6 911
Baja California Sur	1 262	302	960	754	276	478
Campeche	2 039	625	1 344	5 172	1 104	4 068
Coahuila	12 910	1 904	11 006	10 255	1 512	8 743
Colima	1 313	358	915	1 379	376	1 004
Chiapas	4 617	1 193	3 424	6 570	2 065	4 505
Chihuahua	6 010	1 244	4 761	6 767	1 357	5 434
Distrito Federal	104 470	24 257	80 196	98 284	24 210	74 074
Durango	2 710	590	2 120	2 756	525	2 232
Guerrero	8 055	2 066	5 989	10 375	2 181	8 195
Guatemala	4 154	854	3 300	3 574	769	2 805
Hidalgo	2 543	423	2 120	2 054	515	1 539
Jalisco	15 401	3 454	10 947	20 765	3 779	16 986
México	13 276	4 324	9 411	15 187	3 342	11 744
Michoacán	4 458	1 173	3 285	4 083	960	3 124
Morales	1 532	545	987	2 301	704	1 597
Nayarit	1 158	323	835	1 653	513	1 140
Nuevo León	10 424	4 210	15 038	17 518	3 415	14 104
Oaxaca	3 447	57	2 980	3 526	544	2 982
Puebla	5 426	1 178	4 248	7 348	1 377	5 971
Quintana Roo	2 254	744	1 510	4 360	906	3 454
Quintana Roo	1 225	519	707	2 370	701	1 669
San Luis Potosí	3 647	959	2 688	4 570	857	3 713
Sinaloa	4 596	1 259	3 337	4 232	1 426	2 806
Sonora	7 056	1 713	5 343	6 123	1 879	4 244
Tlaxcala	7 472	1 877	5 595	8 867	3 185	5 682
Tamaulipas	9 417	1 756	7 661	13 293	2 548	10 745
Tlaxcala	1 003	258	745	913	202	711
Veracruz	9 587	3 050	6 537	6 022	2 470	3 552
Yucatán	4 436	1 528	2 908	7 208	1 242	5 966
Zacatecas	1 452	346	1 106	1 478	276	1 202

PERSONAL OCUPADO EN LA INDUSTRIA DE LA CONSTRUCCION SEGUN ENTIDAD FEDERATIVA 1995-1999

ENTIDAD FEDERATIVA	1995			1999		
	TOTAL	PERSONAL OCUPADO		TOTAL	PERSONAL OCUPADO	
		EMPLEADOS	OBREROS		EMPLEADOS	OBREROS
Total	203 100	62 148	141 052	231 061	21 690	209 371
Aguascalientes	3 247	1 057	2 190	3 412	1 012	2 400
Baja California	8 238	1 827	6 411	8 533	1 522	6 911
Baja California Sur	1 262	302	960	754	276	478
Campeche	2 039	625	1 344	5 172	1 104	4 068
Coahuila	12 910	1 904	11 006	10 255	1 512	8 743
Colima	1 313	358	915	1 379	376	1 004
Chiapas	4 617	1 193	3 424	6 570	2 065	4 505
Chihuahua	6 010	1 244	4 761	6 767	1 357	5 434
Distrito Federal	104 470	24 257	80 196	98 284	24 210	74 074
Durango	2 710	590	2 120	2 756	525	2 232
Guerrero	8 055	2 066	5 989	10 375	2 181	8 195
Guatemala	4 154	854	3 300	3 574	769	2 805
Hidalgo	2 543	423	2 120	2 054	515	1 539
Jalisco	15 401	3 454	10 947	20 765	3 779	16 986
México	13 276	4 324	9 411	15 187	3 342	11 744
Michoacán	4 458	1 173	3 285	4 083	960	3 124
Morales	1 532	545	987	2 301	704	1 597
Nayarit	1 158	323	835	1 653	513	1 140
Nuevo León	10 424	4 210	15 038	17 518	3 415	14 104
Oaxaca	3 447	57	2 980	3 526	544	2 982
Puebla	5 426	1 178	4 248	7 348	1 377	5 971
Quintana Roo	2 254	744	1 510	4 360	906	3 454
Quintana Roo	1 225	519	707	2 370	701	1 669
San Luis Potosí	3 647	959	2 688	4 570	857	3 713
Sinaloa	4 596	1 259	3 337	4 232	1 426	2 806
Sonora	7 056	1 713	5 343	6 123	1 879	4 244
Tlaxcala	7 472	1 877	5 595	8 867	3 185	5 682
Tamaulipas	9 417	1 756	7 661	13 293	2 548	10 745
Tlaxcala	1 003	258	745	913	202	711
Veracruz	9 587	3 050	6 537	6 022	2 470	3 552
Yucatán	4 436	1 528	2 908	7 208	1 242	5 966
Zacatecas	1 452	346	1 106	1 478	276	1 202

#/ Datos Noviembre de 1999

FUENTE: INEGI, Encuesta de Comercio, Construcción e Industrias de Manufacturas

**OCCUPIED PERSONNEL IN THE
INDUSTRIAL, COMMERCE AND
SERVICE SECTOR BY STATE,
1993 a/**

STATE	OCCUPIED PERSONNEL				
	INDUSTRY a/		COMMERCE AND SERVICE c/		TOTAL
	Absolute	%	Absolute	%	
United States of Mexico	3,654,952	26.0	10,424,589	74.0	14,079,541
Aguascalientes	49,588	30.7	111,921	69.3	161,509
Baja California	148,462	36.4	259,478	63.6	407,940
Baja California Sur	13,375	17.5	63,020	82.5	76,395
Campeche	18,783	19.2	78,961	80.8	97,744
Coahuila	53,384	12.2	240,464	87.8	273,848
Colima	239,374	42.8	320,247	57.2	559,621
Chiapas	146,473	55.1	270,916	64.9	417,389
Chihuahua	11,550	13.8	71,720	86.2	83,250
Federal District	561,154	20.1	2,227,021	79.9	2,788,175
Durango	58,937	26.8	161,092	73.2	220,029
Guanajuato	177,001	30.8	396,810	69.2	573,811
Guerrero	43,452	14.2	261,570	85.8	305,022
Hidalgo	66,844	28.8	165,093	71.2	231,937
Jalisco	238,599	25.6	691,715	74.4	930,314
México	460,424	34.4	878,664	65.6	1,339,088
Michoacán	78,301	13.9	337,057	81.1	415,358
Morelos	43,861	20.7	168,032	79.3	211,893
Nayarit	17,006	14.6	99,160	85.4	116,166
Nuevo Leon	263,707	34.3	504,905	65.7	768,612
Oaxaca	48,254	15.5	262,828	84.5	311,082
Puebla	173,526	30.4	469,321	69.6	642,847
Queretaro	65,515	33.6	129,557	66.4	195,072
Quintana Roo	30,192	7.8	129,065	92.2	159,257
San Luis Potosí	81,074	27.6	213,186	72.4	294,260
Sinaloa	46,771	14.4	277,861	85.6	324,632
Sonora	99,299	28.4	249,947	71.6	349,246
Tabasco	32,312	16.1	168,161	83.9	200,473
Tamaulipas	144,903	30.9	324,067	69.1	468,970
Tlaxcala	36,092	33.2	72,765	66.8	108,857
Veracruz	151,143	20.8	574,842	79.2	725,985
Yucatán	66,559	15.7	192,357	74.3	258,916
Zacatecas	24,083	16.5	121,786	83.5	145,869

a/ Includes producer and auxiliary units and rural and urban areas as well.

b/ Includes Mining and Oil Extraction, Manufacturing Industry, and Water and Electricity.

c/ Includes Commerce, Services, Financial Services, and Communications and Transportation.

SOURCE: INEGI, XIV Censo Industrial 1994.

XI Censo Comercial 1994.

XI Censo de Servicios 1994.

XI Censo de Servicios, Servicios Financieros 1994.

XII Censo de Transportes y Comunicaciones 1994.

APPENDIX XIII

PRODUCTO INTERNO BRUTO DE LA INDUSTRIA MANUFACTURERA
POR DIVISION DE ACTIVIDAD SEGUN ENTIDAD FEDERATIVA
1995-1999

(Millas de pesos a precios constantes)

ENTIDAD FEDERATIVA	TOTAL PRODUCTOS ALIMENTICIOS, BEBIDAS Y TABACOS	TEXTILES DE ALFOMBRAS Y CORTINAS	INDUSTRIA DE LA MADERA Y PRODUCTOS DE MADERA	PAPEL, PASTA DE PAPER Y PRODUCTOS DE PAPER	SUSTANCIAS QUIMICAS Y PRODUCTOS DE PAPER	INDUSTRIAS DE METALES Y EXCEP. DE FERRO Y ACERO	INDUSTRIAS METALICAS BASICAS	PRODUCTOS METALICOS MAQUINARIA Y EQUIPOS	OTRAS INDUSTRIAS MANUFACTURERAS
1995									
Total	748 310 853	180 073 393	50 814 873	19 188 671	10 039 137	110 384 177	48 248 102	40 089 791	238 711 313
Aguascalientes	11 271 259	2 744 362	2 201 692	295 006	103 478	201 050	281 358	6 862	4 031 817
Baja California	25 581 337	4 019 871	890 129	1 438 951	293 112	1 181 283	1 108 085	201 910	13 567 077
Baja California Sur	752 425	408 606	327 155	29 034	28 063	1 593	69 624	0 00	65 961
Campeche	579 032	302 049	10 133	35 330	31 065	5 351	24 318	0 00	53 611
Coahuila	13 592 232	5 197 812	2 272 758	134 506	124 081	2 051 421	1 270 355	9 286 782	12 808 524
Colima	5 134 468	5 119 975	41 143	52 321	26 322	157 770	122 398	0 00	14 183
Chiapas	1 271 803	2 135 031	52 194	130 822	54 322	291 698	83 313	0 00	81 585
Chihuahua	1 271 803	2 135 031	52 194	130 822	54 322	291 698	83 313	0 00	81 585
Distrito Federal	1 112 221	28 062 862	13 733 908	1 191 290	11 882 098	11 500 395	1 500 893	2 562 942	43 262 109
Durango	10 058 172	1 151 105	1 021 331	265 722	580 333	20 169	23 767	35 639	1 852 567
Guerrero	1 131 332	5 273 633	503 626	135 131	50 835	5 281 733	1 048 102	232 922	1 180 474
Guatemala	1 108 082	1 829 290	395 127	50 126	23 095	3 954	195 673	742	51 754
Hidalgo	15 171 886	1 258 255	1 392 280	191 113	1 19 879	1 882 010	1 354 822	101 208	4 121 213
Jalisco	57 111 873	34 354 326	1 182 711	1 050 803	62 065	6 371 869	1 401 432	1 058 352	10 059 310
México	1 093 82 814	11 082 500	9 071 580	1 007 506	5 171 486	21 293 535	2 728 369	6 455 416	43 282 136
Michoacán	11 059 162	2 086 030	145 505	580 280	25 496	1 057 643	525 550	3 223 575	472 133
Moravia	10 059 082	3 011 15 5	835 540	13 263	127 451	3 631 563	811 113	0 00	2 572 038
Nayarit	1 528 134	1 689 135	306 15	580 887	21 214	29 438	31 558	0 00	44 873
Nuevo Léon	11 206 190	11 206 190	1 192 801	955 183	2 184 889	2 527 165	10 648 525	5 626 457	23 374 449
Oaxaca	1 111 394	1 252 517	67 133	165 079	505 207	1 501 112	11 957	0 00	98 248
Puebla	16 272 955	6 265 037	5 034 112	1 895 238	394 488	2 781 809	1 132 202	1 729 566	17 536 251
Queretaro	21 643 220	5 406 204	737 194	112 527	1 459 955	4 494 221	804 426	81 224	8 020 616
Quintana Roo	1 216 294	248 562	29 253	162 501	25 339	6 675	165 629	0	45 666
San Luis Potosí	16 469 580	4 317 792	1 052 290	238 192	523 292	1 211 439	1 432 464	3 575 200	4 071 477
Sinaloa	5 669 229	4 222 892	1 07 520	26 836	158 122	120 273	223 993	0	424 203
Sonora	19 112 962	5 882 015	1 273 273	374 288	497 032	355 470	1 088 967	1 025 190	7 805 437
Tlaxcala	2 250 054	1 370 990	12 245	36 076	14 583	301 126	248 484	0	103 295
Tamaulipas	21 981 954	2 382 102	13 543	127 150	16 535	5 385 396	1 012 136	143 762	9 214 238
Tehuacan	1 139 852	1 186 956	802 313	25 161	101 484	1 181 243	262 422	154 720	830 101
Veracruz	27 803 555	12 335 801	541 729	145 178	1 084 293	8 665 572	3 387 685	659 923	9 950
Yucatán	6 131 223	1 417 582	1 031 563	156 156	181 661	205 802	174 751	59 074	358 979
Zacatecas	1 571 216	856 883	106 134	1 00 125	26 118	1 162	1 05 580	13 435	148 489

Nota: Datos agregados de las actividades de la industria manufacturera.

El total de la industria manufacturera es de 1 093 828 814 millones de pesos.

APPENDIX -XIV

UNIDADES ECONOMICAS POR PRINCIPALES RAMAS DE LA INDUSTRIA MANUFACTURERA SEGUN ENTIDAD FEDERATIVA 1998

ENTIDAD FEDERATIVA	TOTAL	CONFEC-CION	EQUIPO ELEC-TRICO	EQUIPO ELEC-TRONICO	AUTO-MOTRIZ	PLASTI-COS	PANIFI-CACION	IMPRESA Y EDITO-RIALES	FIBRAS BLANDAS	OTROS PRODUCTOS METALICOS	MUEBLES DE MADERA	LAS DEMAS RAMAS
Total	361 579	27 198	2 023	907	1 715	4 683	31 831	18 240	5 044	6 008	28 284	235 846
Aguascalientes	3 859	423	34	8	38	41	304	217	42	73	250	2 973
Baja California	5 171	369	102	158	35	134	602	444	21	143	378	3 583
Baja California Sur	1 380	44	5	0	0	10	156	94	0	6	83	1 041
Campeche	2 094	407	0	0	0	4	261	80	40	5	190	1 518
Coahuila	7 189	477	68	78	61	70	675	405	79	162	611	5 227
Colima	2 091	124	5	0	8	7	168	88	0	9	179	1 647
Chiapas	10 029	1 187	10	4	14	15	737	331	89	43	1 605	7 224
Chihuahua	8 749	405	191	81	39	65	827	534	27	191	884	6 318
Distrito Federal	33 441	2 564	405	180	314	1 209	2 684	4 901	373	1 352	1 680	22 391
Durango	4 720	340	9	0	12	27	359	195	10	50	469	3 637
Guanajuato	22 102	1 969	65	9	47	286	1 380	756	241	333	986	18 408
Guerrero	14 392	1 045	5	4	6	20	1 044	289	551	62	1 058	11 388
Hidalgo	7 253	654	20	4	39	41	889	271	71	64	547	5 400
Jalisco	29 792	1 647	15	62	183	654	1 608	1 338	150	743	2 516	23 438
México	37 475	2 603	234	55	305	811	4 104	1 622	446	1 073	2 109	28 122
Michoacán	20 465	732	29	11	40	84	1 419	448	37	81	2 780	15 690
Morelos	8 122	757	13	7	19	59	539	228	21	43	331	4 982
Nayarit	2 912	113	0	0	12	6	312	117	0	19	228	2 238
Nuevo León	13 251	819	223	84	178	429	805	1 162	58	568	963	9 897
Oaxaca	19 003	1 809	4	9	14	33	1 805	260	525	64	1 708	14 641
Puebla	30 358	2 722	58	18	95	146	2 465	712	641	220	1 478	24 942
Quintana Roo	4 105	202	38	14	44	62	339	282	22	92	239	3 221
Quintana Roo	2 359	290	6	0	0	11	252	168	11	13	268	1 849
San Luis Potosí	6 886	332	40	7	48	72	634	365	34	106	523	5 124
Sinaloa	5 764	250	30	10	11	38	404	306	13	43	530	4 458
Sonora	6 765	329	77	61	17	50	1 008	421	36	138	638	4 524
Tampico	4 470	496	6	0	5	14	361	242	0	22	717	3 128
Tamaulipas	7 400	497	74	53	43	78	682	548	18	72	605	5 475
Tlaxcala	5 767	685	12	4	10	26	813	127	237	20	280	4 290
Veracruz	21 539	1 736	41	15	64	89	2 804	770	24	108	2 612	15 141
Yucatán	10 232	1 440	18	7	8	84	937	277	1 268	55	480	7 234
Zacatecas	4 348	171	7	0	0	4	373	122	12	27	281	3 541

NOTA. Debido a que en algunas entidades se invierte el país para guardar la confidencialidad de acuerdo con el Artículo 38 de la Ley de Información Estadística y Geográfica la suma de los parciales puede no coincidir con el total.

FUENTE: INEGI. Censos Económicos 1999. Enumeración Integral. Resultados Corporales.

APPENDIX -XV

UNIDADES ECONÓMICAS POR SECTOR DE ACTIVIDAD
SEGUN ENTIDAD FEDERATIVA
1998

ENTIDAD FEDERATIVA	TOTAL	PESCA	MINERÍA	MANUFACTURAS	ELECTRICIDAD	CONSTRUCCIÓN	COMERCIO	TRANSPORTES Y COMUNICACIONES	SERVICIOS
Total	3 130 714	3 214	1 472	361 579	5 923	16 604	1 407 526	52 987	1 178 409
Aguascalientes	33 870	13	6	3 859	168	290	15 649	574	13 261
Baja California	67 669	47	11	5 171	67	525	29 104	1 162	31 562
Baja California Sur	16 397	140	18	1 360	55	189	7 246	431	6 938
Campeche	22 587	345	28	2 014	61	272	10 413	390	8 979
Coahuila	74 321	101	157	7 189	123	651	34 839	1 749	29 512
Colima	21 154	36	19	2 091	60	169	9 264	571	8 934
Chiapas	95 370	31	32	10 019	158	698	47 145	1 560	35 817
Chihuahua	88 810	74	79	8 749	131	731	40 844	1 614	36 582
Distrito Federal	379 069	10	63	33 441	431	3 027	188 428	5 072	149 197
Durango	41 859	16	51	4 720	123	277	19 478	1 144	16 087
Guanajuato	154 743	25	21	22 102	164	799	77 361	4 234	50 036
Guerrero	94 154	1	15	14 392	221	282	45 165	1 644	32 291
Hidalgo	62 163	10	52	7 753	123	253	30 265	1 757	22 320
Jalisco	227 995	72	59	29 792	281	1 200	108 744	4 640	83 207
México	360 350	15	80	37 476	845	813	169 690	5 932	125 539
Michoacán	137 245	19	13	20 665	215	441	66 420	2 846	46 806
Morelos	62 575	21	23	6 122	201	177	31 941	930	23 160
Nayarit	29 937	16	13	2 912	87	189	13 915	465	12 340
Nuevo León	121 336	58	86	13 251	162	1 449	55 302	2 440	48 588
Oaxaca	114 591	28	38	19 003	215	750	54 008	1 896	39 013
Puebla	171 909	17	82	30 358	353	581	79 824	3 914	56 780
Quintana Roo	41 162	7	19	4 195	46	382	19 282	1 939	15 292
Quintana Roo	29 711	14	6	2 359	78	246	14 056	762	12 190
San Luis Potosí	65 252	13	62	6 886	186	490	30 914	1 528	25 173
Sinaloa	66 584	399	32	5 764	140	426	29 849	1 648	28 266
Sonora	72 994	577	69	6 765	183	658	31 119	2 959	30 664
Tabasco	44 028	38	82	4 470	236	522	19 452	759	18 429
Tamaulipas	94 343	112	50	7 400	195	781	43 224	2 199	40 381
Tlaxcala	37 637	0	11	5 767	56	134	19 019	771	11 879
Veracruz	196 002	421	96	21 539	340	997	87 600	3 770	81 069
Yucatán	61 735	480	30	10 239	141	447	27 046	688	22 669
Zacatecas	42 755	5	25	4 346	77	155	20 760	939	16 448

FUENTE: INEGI Censo Económico, 1999. Enumeración Integral. Resultados Oportunos

APPENDIX- XVI

REMUNERACIONES REALES POR PERSONA OCUPADA EN LA INDUSTRIA DE LA CONSTRUCCION SEGUN ENTIDAD FEDERATIVA 1995-1999 (Pesos a precios de 1994)

ENTIDAD FEDERATIVA	1995			1998		
	TOTAL	EMPLEADOS	OBREPOS	TOTAL	EMPLEADOS	OBREPOS
Total	13 664	21 174	11 325	10 713	16 945	8 871
Aguascalientes	10 282	16 509	8 585	5 650	13 362	6 201
Baja California	2 437	23 755	11 173	2 351	18 815	10 328
Baja California Sur	10 556	14 395	9 320	10 746	11 718	10 367
Campeche	12 501	13 271	12 097	11 326	17 212	17 255
Coahuila	11 561	20 400	10 035	8 581	14 407	7 688
Colima	12 012	15 706	10 542	8 629	10 817	7 909
Chiapas	9 691	13 537	8 384	6 567	8 100	5 818
Chihuahua	12 205	19 258	10 264	10 515	14 635	9 373
Distrito Federal	16 338	27 227	13 072	13 410	24 096	9 858
Durango	8 917	16 960	7 057	7 219	9 325	6 522
Guatemala	11 540	17 054	5 558	8 161	11 381	7 153
Guerrero	12 300	19 045	10 556	8 571	14 718	6 833
Hidalgo	9 232	12 151	8 131	7 290	10 151	5 766
Jalisco	12 092	17 132	10 568	9 574	14 531	8 134
Nuevo Leon	18 691	20 521	13 116	11 096	15 825	7 476
Michoacan	11 123	14 622	9 810	8 245	9 150	6 116
Moravia	14 931	17 483	13 519	4 424	11 053	8 101
Nayarit	12 482	13 797	12 271	8 891	9 291	7 860
Queretaro	13 509	21 424	10 511	11 077	20 784	8 683
San Luis Potosi	9 360	12 210	8 111	11 111	8 312	6 109
Sinaloa	10 342	15 610	9 173	11 111	11 111	7 476
Sonora	13 625	15 440	12 134	8 741	11 018	7 422
Tamaulipas	13 524	16 101	11 031	11 410	9 311	6 861
Tlaxcala	5 860	14 137	8 128	8 514	11 421	7 506
Zacatecas	10 506	15 104	3 452	8 301	10 015	7 503
Zamoramo	12 377	17 845	11 511	10 196	13 650	8 116
Yucatan	12 092	16 411	10 512	9 210	11 228	8 136
Veracruz	11 532	17 023	10 401	10 632	14 407	10 232
Yucatan	11 515	15 440	11 283	6 413	10 100	5 432
Zacatecas	11 539	14 129	10 483	7 111	10 200	7 111
Zamoramo	9 056	12 134	8 306	8 101	9 818	7 111
Zacatecas	10 133	13 124	8 367	7 304	10 211	6 411

REMUNERACIONES REALES POR PERSONA OCUPADA EN LA INDUSTRIA DE LA CONSTRUCCION SEGUN ENTIDAD FEDERATIVA 1995-1999 (Pesos a precios de 1994)

ENTIDAD FEDERATIVA	1995			1998		
	TOTAL	EMPLEADOS	OBREPOS	TOTAL	EMPLEADOS	OBREPOS
Total	2 650	14 975	8 477	2 650	14 975	8 477
Aguascalientes	9 571	11 847	7 400	9 571	11 847	7 400
Baja California	11 024	16 005	9 500	11 024	16 005	9 500
Baja California Sur	5 712	10 574	6 676	5 712	10 574	6 676
Campeche	3 113	15 487	12 128	3 113	15 487	12 128
Chiapas	1 012	12 511	7 251	1 012	12 511	7 251
Colima	1 111	11 111	7 111	1 111	11 111	7 111
Chiapas	1 111	11 111	7 111	1 111	11 111	7 111
Chihuahua	1 111	11 111	7 111	1 111	11 111	7 111
Distrito Federal	1 111	11 111	7 111	1 111	11 111	7 111
Durango	1 111	11 111	7 111	1 111	11 111	7 111
Guatemala	1 111	11 111	7 111	1 111	11 111	7 111
Guerrero	1 111	11 111	7 111	1 111	11 111	7 111
Hidalgo	1 111	11 111	7 111	1 111	11 111	7 111
Jalisco	1 111	11 111	7 111	1 111	11 111	7 111
Moravia	1 111	11 111	7 111	1 111	11 111	7 111
Michoacan	1 111	11 111	7 111	1 111	11 111	7 111
Nayarit	1 111	11 111	7 111	1 111	11 111	7 111
Queretaro	1 111	11 111	7 111	1 111	11 111	7 111
San Luis Potosi	1 111	11 111	7 111	1 111	11 111	7 111
Sinaloa	1 111	11 111	7 111	1 111	11 111	7 111
Sonora	1 111	11 111	7 111	1 111	11 111	7 111
Tamaulipas	1 111	11 111	7 111	1 111	11 111	7 111
Tlaxcala	1 111	11 111	7 111	1 111	11 111	7 111
Veracruz	1 111	11 111	7 111	1 111	11 111	7 111
Yucatan	1 111	11 111	7 111	1 111	11 111	7 111
Zacatecas	1 111	11 111	7 111	1 111	11 111	7 111

1. Datos a precios de 1994

2. Fuente: INEGI. Encuesta Nacional de Estadística (Encuesta de Empleo y Salarios en la Industria de la Construcción)

APPENDIX - XVII

Conservation Classifications Report

to 1970

Region and State	1924-28			1940			1951			1960			1970	
	Total length	Surge	Dist	Total length	Surge	Dist	Total length	Surge	Dist	Total length	Surge	Dist	Total length	Surge
Northwest														
Baja California	164	127	374	634	287	251	832	852	0	1,222	1,201	21	1,366	1,311
Baja California (Territory)	127	114	12	260	135	134	757	413	334	1,567	1,338	1,223	1,422	1,311
Sonora	1,736	1,701	2,001	1,555	2,122	1,121	1,129	1,011	178	1,771	2,038	98	1,839	1,771
Sinaloa	219	26	201	775	321	454	902	851	51	1,171	1,593	331	2,531	1,771
Regional total	1,736	667	1,060	3,571	1,511	2,060	3,620	3,107	513	7,110	8,210	1,670	8,138	7,222
North-central														
Chihuahua	536	311	137	958	840	133	1,209	1,153	56	1,277	1,677	212	2,511	2,511
Durango	590	777	273	1,432	761	671	1,705	1,189	16	1,777	1,736	73	2,111	2,111
Zacatecas	1,426	1,217	219	1,532	1,203	329	584	577	12	1,111	1,111	15	2,531	2,570
San Luis Potosí	786	316	440	1,190	572	618	1,218	1,154	60	1,892	1,296	704	2,160	1,875
Aguascalientes	18	16	2	63	63	0	287	287	0	544	13	50	673	673
Regional total	3,326	3,160	1,160	5,175	3,532	1,736	4,998	4,350	148	6,709	6,385	604	10,777	9,451
North-east														
Coahuila	807	409	368	1,150	826	321	1,433	1,354	88	2,841	2,748	266	3,907	3,428
Nuevo León	912	690	228	1,091	767	307	818	814	14	1,748	1,676	112	2,482	2,298
Tamaulipas	1,168	566	601	1,333	903	429	1,193	1,027	170	1,960	1,616	314	2,556	2,556
Regional total	2,887	1,665	1,200	3,577	2,517	1,060	3,532	3,261	272	6,550	5,570	772	7,980	7,287
Southwest														
Baja California Sur	76	78	18	318	125	193	575	519	26	921	875	73	1,271	1,161
Yucatán	644	403	241	1,143	805	338	1,730	1,626	104	2,173	1,706	467	2,220	1,431
Colima	79	11	68	171	74	97	215	212	3	271	309	54	493	423
Michoacán	2,775	2,701	2,505	3,093	717	2,376	1,161	1,096	65	2,196	1,725	491	3,471	3,043
Guerrero	542	193	353	730	489	241	632	475	157	1,625	1,140	785	2,578	2,094
Regional total	4,122	3,060	3,215	5,455	2,210	3,245	4,333	3,928	405	6,818	5,748	1,620	10,900	9,717
Central														
Guammasat	401	51	350	717	608	409	741	622	117	1,135	1,155	280	2,527	2,143
Querétaro	523	30	445	579	226	353	230	221	9	177	101	26	1,006	940
Hidalgo	653	292	361	830	576	254	1,054	985	73	1,826	1,406	120	2,381	2,019
México	1,182	346	935	1,869	366	1,503	797	715	22	2,008	1,736	332	3,069	2,674
Federal District	501	287	22	371	310	24	63	63	6	50	50	0	51	51
Morales	304	136	74	431	157	73	512	476	16	595	541	54	843	819
Puebla	657	318	319	1,041	617	424	1,080	1,008	72	1,428	1,257	171	2,129	2,129
Tlaxcala	322	57	270	398	80	318	401	401	0	366	311	15	679	667
Regional total	4,378	1,585	2,723	6,199	2,840	3,359	4,852	4,491	391	7,305	6,851	1,030	12,865	11,529
Southeast														
Oaxaca	1,043	1	1,040	1,326	24	1,102	1,009	918	91	1,771	1,195	571	4,138	3,049
Chiapas	551	11	532	559	217	312	798	766	12	1,621	1,345	509	2,982	2,681
Veracruz	387	294	135	688	433	255	1,563	1,443	117	1,106	1,141	263	5,011	4,465
Tlaxcala	529	15	511	571	35	558	319	200	79	829	682	147	2,536	2,333
Campeche	11	15	9	32	34	28	110	92	18	537	671	166	1,189	1,156
Yucatán	165	95	20	482	367	119	353	324	28	1,175	936	77	1,678	1,471
Quintana Roo	80	13	64	28	25	0	112	82	53	349	319	130	813	813
Regional total	2,899	567	2,332	3,250	1,162	2,374	4,420	4,025	395	9,000	7,700	1,524	18,297	15,881
National total	19,185	7,840	11,305	27,833	13,699	13,814	25,286	23,162	2,121	45,089	37,621	7,595	68,447	61,393

n.a. Not available
 Source: Ministry of Ecology, P.E.C. Conservación y Explotación de Recursos, 1940 (1945),
 1951 (1952), 1960 (1961), 1970 (1972)

Scot. Ian 1982.

APPENDIX - XVIII

ROADS AND ROAD TRANSPORT

RELATIONS AMONG POPULATION, AREA, LENGTH OF HIGHWAYS, AND MOTOR VEHICLE REGISTRATION - 1968

Federation Unit	Population (1000)	Area (km ²)	Hwy Network (km)	Vehicles	1,000 Inhab/km of Road	Inhab/Vehicle	Vehicle/km of Road	km of Road Per km ²
National Total	47 267	1 967 183	67 995	1 495 132	69.5	31.6	2.2	0.015
Aguascalientes	309	5 589	617	10 491	50.1	29.4	17	0.110
Baja California	966	70 113	1 331	103 191	72.6	9.4	77	0.019
Baja California T.S.	103	73 677	809	11 606	12.7	8.9	14	0.011
Campeche	231	56 114	1 062	4 440	21.7	50.0	4	0.019
Coahuila	1 193	151 571	2 887	43 503	41.3	27.4	15	0.019
Colima	229	5 455	549	6 324	41.7	36.2	11	0.101
Chiapas	1 512	73 887	3 381	15 830	44.7	95.5	5	0.046
Chihuahua	1 751	247 087	2 705	58 120	64.7	30.1	21	0.011
Distrito Federal	7 115	1 499	52	527 851	136.8	13.4	10 151	-
Durango	939	119 648	2 038	20 650	46.1	45.5	10	0.017
Guanajuato	2 258	30 589	2 523	38 967	89.5	57.9	15	0.063
Guerrero	1 570	63 794	2 460	15 584	63.8	100.7	6	0.039
Hidalgo	1 249	20 937	2 450	19 942	51.0	62.6	8	0.117
Jalisco	3 240	80 137	3 061	85 098	105.8	38.1	28	0.038
Mexico	2 687	21 461	3 586	91 720	74.9	29.3	25	0.167
Michoacan	2 389	59 864	3 220	30 053	74.2	79.5	9	0.054
Morelos	571	4 941	779	15 542	73.3	36.7	20	0.158
Nayarit	553	27 621	1 219	9 524	45.4	58.1	8	0.044
Nuevo Leon	1 605	64 555	2 292	71 217	70.0	22.5	31	0.036
Oaxaca	2 119	95 364	4 020	13 713	52.7	153.3	3	0.042
Puebla	2 504	33 919	2 287	38 920	109.5	64.3	17	0.067
Queretaro	455	11 769	963	11 371	47.2	40.0	12	0.062
Quintana Roo	76	42 030	572	1 029	13.3	73.8	2	0.014
San Luis Potosi	1 395	62 848	2 121	21 056	65.8	66.2	10	0.034
Sinaloa	1 145	58 092	2 270	31 638	50.4	36.2	14	0.039
Sonora	1 192	184 934	3 316	55 596	35.9	21.4	17	0.018
Tabasco	667	24 661	1 586	7 652	41.6	87.2	5	0.064
Tamaulipas	1 432	79 829	3 735	43 930	38.3	32.6	12	0.047
Tlaxcala	443	3 914	724	7 089	61.2	62.5	10	0.185
Veracruz	3 517	12 815	5 429	59 234	86.8	59.4	11	0.075
Yucatan	1 796	43 379	1 721	15 125	46.2	52.6	9	0.040
Zacatecas	1 056	75 040	2 329	2 126	47.4	115.0	4	0.031

APPENDIX - XIX
VIAS CONSTRUIDAS EN LOS ESTADOS DE LA REPUBLICA
Y SU RELACION CON EL NUMERO DE HABITANTES
Y SU EXTENSION TERRITORIAL

De los números	ENTIDADES FEDERATIVAS	KMS DE VIA	NUM. DE HABITANTES	KMS. DE VIA POR CADA MIL HABITANTES	SUPERFICIE EN KMS. CUADRADOS	KMS DE VIA 1000 KMS. CUADRADOS DE TERRITORIO
1	Agascalientes.....	219.133	430 071	0.509	5 589	39.208
2	Baja California Norte.....	193.905	1 252 817	0.154	70 113	2.766
3	Baja California Sur.....	—	180 755	—	73 677	—
4	Campeche.....	390.999	336 578	1.161	51 833	7.543
5	Coahuila.....	2 194 921	1 333 845	1.645	151 571	14.481
6	Colima.....	185.453	317 879	0.583	5 455	33.997
7	Chiapas.....	541 294	1 932 206	0.280	73 887	7.327
8	Chihuahua.....	2 636.633	2 000 767	1.317	247 087	10 671
9	Distrito Federal.....	335 333	8 906 841	0.037	1 499	223.704
10	Durango.....	1 171.074	1 121 925	1.043	119 648	9.788
11	Guanajuato.....	987.112	2 811 046	0.351	30 589	32 270
12	Guanajuato.....	102.810	2 013 233	0.051	62 794	1.611
13	Hidalgo.....	637.741	1 468 640	0.432	20 987	30.387
14	Jalisco.....	1 063.529	4 157 357	0.255	80 137	13.271
15	México.....	1 052 284	6 245 385	0.168	21 461	49 033
16	Michoacán.....	934 335	2 804 814	0.333	59 864	15.608
17	Morelos.....	359.159	866 376	0.414	4 941	72 690
18	Nayarit.....	325.622	698 087	0.466	27 621	11 789
19	Nuevo León.....	984.669	2 343 578	0.420	64 555	15.233
20	Oaxaca.....	643.790	2 377 345	0.275	95 364	6 751
21	Puebla.....	971.928	3 054 130	0.318	33 919	28 654
22	Queretaro.....	268.140	617 059	0.434	11 769	22.784
23	Quintana Roo.....	—	130 891	—	50 350	—
24	San Luis Potosí.....	1 163 732	1 527 065	0.762	62 848	18.517
25	Sinaloa.....	1 170.957	1 714 053	0.683	58 092	20.157
26	Sonora.....	1 874.522	1 414 872	1.324	184 934	10 136
27	Tabasco.....	300 385	1 053 363	0.285	24 661	12.181
28	Tamaulipas.....	909 156	1 901 040	0.478	79 829	11 389
29	Tlaxcala.....	333.488	498 633	0.668	3 914	85.204
30	Veracruz.....	1 622 214	4 917 773	0.329	72 815	22.279
31	Yucatán.....	595 526	903 773	0.658	39 340	15.137
32	Zacatecas.....	782.471	1 096 993	0.713	75 040	10.427
33	SUMAS Y PROMEDIOS.....	24 959.481	62 329 189	0.400	1 967 183	12 684
34	AÑO DE 1971.....	24 508.026	52 451 948	0.467	1 967 183	12.455
35	AÑO DE 1972.....	24 699.995	54 273 296	0.455	1 967 183	12.556
36	AÑO DE 1973.....	24 670.256	56 161 054	0.439	1 967 183	12.541
37	AÑO DE 1974.....	24 864.044	58 117 709	0.427	1 967 183	12.639
38	AÑO DE 1975.....	24 911 831	60 145 253	0.414	1 967 183	12.664

Source: Secretaría De Comunicación Y Transporte, México, 1978

APPENDIX - XX

México: Estadísticas Descriptivas por Estado 1995

	Tasa de Analfabetismo Total			Hogares con Acceso a		
	Total (1)	Femenino (2)	Por cada 100 Habientes (3)	Agua (4)	Alcantarillado (4)	Electricidad (4)
Aguascalientes	7	6.5	76.2	98.1	44.26	97.36
Baja California	4.1	3.8	71.4	97.12	77.11	95.37
Baja California Sur	4.9	5.5	70.9	95.19	75.30	92.59
Belize	6.9	11.1	71.1	88.2	51.53	87.24
Bolivia	26.2	17.1	44.1	16.76	0.4	78.53
Brasil	1.1	0.5	1.1	92.15	1.01	92.21
Canadá	2.1	1.1	1.1	94.35	78.52	97.27
Chad	9.2	9.9	85.2	95.62	83.74	88.71
Chile	3.1	4.2	95.1	97.18	87.45	89.14
Colombia	5.1	4.4	1.0	88.18	68.68	81.78
Costa Rica	10.5	10.5	15.6	89.54	72.10	84.99
Cuba	21.5	19.1	54.7	68.66	59.29	87.91
Eslovenia	14.7	20.6	47.5	89.31	58.67	87.70
El Salvador	7.6	8.1	43.2	81.61	80.23	88.87
Estados Unidos	7.2	9	85.8	92.15	85.12	97.66
Francia	15.6	12.6	64.5	86.95	71.21	83.69
Guatemala	1.1	12.5	85.9	95.69	82.79	84.51
Haití	10.1	10.4	43.8	87.09	78.21	84.84
Honduras	1.9	4.4	91.6	84.33	85.83	87.82
India	24.2	24.1	41.5	68.22	44.62	86.09
Indonesia	16.1	16.1	68.5	78.59	53.59	87.72
Irlanda	1.1	1.9	1.1	10.89	43.67	92.16
Italia	9.8	12.2	1.1	89.10	79.36	92.41
Jamaica	13.2	15.2	57.8	75.55	57.82	83.17
Japón	1.1	0.2	88.6	85.16	88.20	85.20
Kenia	1.1	0.2	61.1	93.11	74.44	84.15
Letonia	1.1	13.1	1.1	87.76	81.31	81.35
Lituania	1.1	1.1	87.2	88.02	87.10	88.88
Malasia	4.6	13.4	1.9	85.35	75.92	87.51
Maldivas	16.1	19.8	81.4	84.67	61.97	83.82
México	11.9	17.6	80.1	85.82	51.73	84.29
Nicaragua	9.1	1.1	53.2	81.48	80.24	83.00
Nacional	10.1	12.8	7.5	85.6	74.7	83.2
Noruega	26.2	1.0	81.7	88.0	87.9	89.8
Paraguay	1.1	1.1	41.7	84.7	41.6	76.5
Perú	6.1	2.1	1.29	1.5	2.18	1.7
Polonia	7.1	11.1	1.26	87.2	13.45	4.88

1. Fuente: Encuesta Nacional de Demografía y Salud, INEGI, 1995. Tasa de alfabetismo total de 15 años y más de edad y alfabetismo femenino de 15 años y más de edad. 2. Fuente: Encuesta Nacional de Demografía y Salud, INEGI, 1995. Tasa de alfabetismo total de 15 años y más de edad y alfabetismo femenino de 15 años y más de edad. 3. Fuente: Encuesta Nacional de Demografía y Salud, INEGI, 1995. Porcentaje de la población que reside en localidades con 2500 o más habitantes. 4. Fuente: Encuesta Nacional de Demografía y Salud, INEGI, 1995. Porcentaje de los hogares con acceso a estos servicios.

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APPENDIX -- XXI

LONGITUD DE LA RED NACIONAL DE CARRETERAS POR CAPA DE RODAMIENTO
SEGUN ENTIDAD FEDERATIVA
1995-1998
(Kilómetros)

ENTIDAD FEDERATIVA	TOTAL	TRONCAL FEDERAL a/		ALIMENTADORAS b/			CAMINOS RURALES			BRE CHAS MEJO- RADAS			
		TOTAL	REVES- PAVIMEN- TADA	TOTAL	REVES- PAVIMEN- TADA	TOTAL	REVES- PAVIMEN- TADA	TOTAL	REVES- PAVIMEN- TADA				
				CERIA	TIDA	TADA c/	CERIA	TIDA	TADA				
1998													
Total	318 052	47 046	0	47 046	81 435	702	9 031	51 702	157 037	25 063	122 324	9 030	52 534
Aguascalientes	1 858	369	0	369	675	0	19	856	814	0	814	0	0
Baja California	11 106	1 701	0	1 701	1 138	0	77	1 061	4 411	582	3 829	0	3 856
Baja California Sur	6 271	1 199	0	1 199	1 726	680	682	354	1 089	0	592	57	2 257
Campeche	4 646	1 353	0	1 353	908	0	67	841	1 777	349	512	916	608
Coahuila	8 523	1 843	0	1 843	1 934	0	78	1 856	4 740	0	4 740	0	0
Colima	1 991	309	0	309	550	0	101	449	1 052	9	969	74	0
Chiapas	19 270	2 215	0	2 215	2 106	12	309	1 785	14 890	734	13 939	217	59
Chihuahua	12 394	2 485	0	2 485	2 522	0	62	2 460	7 387	1 037	6 350	0	0
Distrito Federal	149	149	0	149	0	0	0	0	0	0	0	0	0
Durango	10 324	2 201	0	2 201	877	0	145	732	6 030	0	5 776	254	1 216
Guatemala	10 215	1 243	0	1 243	2 037	0	0	2 037	4 874	0	4 874	313	2 111
Guerrero	12 258	2 166	0	2 166	2 057	0	125	1 932	6 858	965	4 831	1 061	1 177
Hidalgo	7 087	1 020	0	1 020	2 183	0	414	1 769	3 684	238	3 614	32	0
Jalisco	24 376	2 564	0	2 564	2 991	0	250	2 741	4 015	0	4 015	0	14 006
México	9 720	1 234	0	1 234	6 134	0	2 139	3 995	2 361	0	2 361	0	0
Michoacán	12 995	2 621	0	2 621	2 455	0	82	2 373	1 060	0	3 664	205	3 850
Morelos	2 042	434	0	434	1 162	0	77	1 085	446	0	446	0	0
Nayarit	5 945	982	0	982	860	0	154	706	1 691	35	1 586	70	2 412
Nuevo León	7 162	1 434	0	1 434	2 774	0	78	2 696	2 994	0	2 897	57	0
Oaxaca	16 003	2 992	0	2 992	1 243	0	78	1 165	8 140	0	8 140	0	3 620
Puebla	8 553	1 440	0	1 440	2 527	0	77	2 450	4 437	0	4 299	133	154
Querétaro	3 170	574	0	574	816	0	58	757	1 790	0	1 790	79	0
Quintana Roo	5 006	1 007	0	1 007	1 187	0	198	989	2 812	0	2 812	0	0
San Luis Potosí	10 715	1 656	0	1 656	1 335	0	77	1 258	7 721	204	7 379	141	0
Sinaloa	16 359	1 071	0	1 071	2 161	0	78	2 083	7 567	1 577	5 888	2	5 560
Sonora	32 860	2 253	0	2 253	3 738	0	239	3 499	15 721	15 221	0	0	11 648
Tobasco	7 761	558	0	558	2 191	0	77	2 116	5 010	1 844	3 166	0	0
Tamaulipas	12 213	2 208	0	2 208	2 301	0	727	1 574	1 704	68	7 508	128	0
Tlaxcala	2 373	574	0	574	694	0	34	660	1 105	0	1 105	0	0
Veracruz	16 780	3 125	0	3 125	4 343	0	2 094	2 249	9 312	0	6 793	2 519	0
Yucatán	9 014	1 382	0	1 382	2 064	0	78	1 986	5 598	2 119	147	3 332	0
Zacatecas	9 774	1 504	0	1 504	1 744	0	356	1 388	6 526	0	6 526	0	0

a/ Comprende carreteras troncales de cuota y libres

b/ Considerase como las carreteras estatales

c/ Comprende carreteras de dos, cuatro o más carriles

FUENTE Para 1995-98: SCT, Dirección General de Evaluación

Para 1997-98: SCT, Anuario Estadístico 1997 y 1998

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APPENDIX - XXII

VALOR DE LAS VENTAS Y VOLUMEN DE LA GENERACION BRUTA DE LA INDUSTRIA ELECTRICA POR TIPO DE GENERACION SEGUN ENTIDAD FEDERATIVA 1995-1998

ENTIDAD FEDERATIVA	VALOR (Miles de pesos)	TOTAL (Gwh)	HIDRO-ELEC-TRICA (Gwh)	GENERACION BRUTA TERMOELECTRICA (Gwh)						OTRAS ^{a/}	EOL-EEC-TRICA (Gwh)
				SUB TOTAL	VAPOR	COMBUS-TION INTERNA	TURBO-GAS	CICLO COMBI-NADO	GEO-TERMO-ELEG-TRICA		
1998											
Total	63 193 185	170 983	24 618	146 362	86 206	314	1 087	13 183	5 637	39 914	5
Aguascalientes	675 845	0	0	0	0	0	0	0	0	0	0
Baja California	2 941 259	6 898	0	6 898	2 041	0	12	0	4 845	0	0
Baja California Sur	512 581	1 100	0	1 100	686	311	103	0	0	0	0
Campeche	329 238	961	0	961	956	0	5	0	0	0	0
Coahuila	2 838 735	18 098	80	18 010	0	0	53	0	0	17 956	0
Colima	424 062	12 525	0	12 525	0	0	0	0	0	0	0
Chiapas	703 133	10 486	10 486	0	0	0	0	0	0	0	0
Chihuahua	2 793 277	6 094	101	5 992	4 437	0	61	1 495	0	0	0
Distrito Federal	7 236 574	43	0	43	0	0	43	0	0	0	0
Durango	798 785	3 544	0	3 544	2 244	0	48	1 252	0	0	0
Guanajuato	2 384 193	5 320	0	5 320	5 100	0	0	0	0	0	0
Guerrero	976 553	16 869	4 176	12 693	0	0	1	0	0	12 692	0
Hidalgo	1 195 540	14 737	1 140	13 597	10 252	0	0	3 344	0	0	0
Jalisco	3 968 810	495	495	0	0	0	0	0	0	0	0
México	6 420 901	5 539	128	5 412	5 347	0	65	0	0	0	0
Michoacán	2 195 784	2 452	1 997	455	0	0	0	0	455	0	0
Morelos	803 369	0	0	0	0	0	0	0	0	0	0
Nayarit	330 093	787	787	1	0	1	0	0	0	0	0
Nuevo León	5 315 942	5 800	0	5 800	3 158	0	59	2 583	0	0	0
Oaxaca	772 774	1 528	1 523	0	0	0	0	0	0	0	5
Puebla	2 273 962	1 692	1 335	356	0	0	0	0	356	0	0
Quintana Roo	1 177 481	1 199	0	1 199	0	0	87	1 112	0	0	0
Quintana Roo	870 762	382	0	382	0	1	381	0	0	0	0
San Luis Potosí	1 415 077	3 934	89	3 845	3 845	0	0	0	0	0	0
Sinaloa	1 572 254	6 447	1 349	5 098	5 090	0	8	0	0	0	0
Sonora	2 961 549	7 044	566	6 479	6 453	1	24	0	0	0	0
Tabasco	834 216	0	0	0	0	0	0	0	0	0	0
Tamaulipas	2 679 664	7 261	36	7 225	7 220	0	5	0	0	0	0
Tlaxcala	499 203	0	0	0	0	0	0	0	0	0	0
Veracruz	3 692 631	27 014	319	26 695	14 812	0	0	2 618	0	9 265	0
Yucatán	874 437	2 694	0	2 694	1 700	0	134	779	0	0	0
Zacatecas	624 501	0	0	0	0	0	0	0	0	0	0

a/ Incluye diésel, carbón, térmica y nuclear.

FUENTE: CFE, Estadísticas por Entidad Federativa, 1995, 1997 y 1998

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APPENDIX - XXIII

OFICINAS DE CORREOS SEGUN ENTIDAD FEDERATIVA
1998-1998

ENTIDAD FEDERATIVA	TOTAL	ADMINISTRACIONES	SUCURSALES	AGENCIAS	EXPENDIOS ^{a/}	OTRAS ^{b/}
1998						
Total	35 119	1 730	266	7 153	25 245	725
Aguascalientes	430	12	5	98	310	5
Baja California	1 389	40	18	105	1 205	21
Baja California Sur	583	19	5	62	480	17
Campeche	568	14	14	33	499	8
Coahuila	1 270	32	12	168	1 029	29
Coima	414	16	1	68	319	10
Chiapas	732	58	11	159	485	19
Chihuahua	1 488	49	17	382	1 015	25
Distrito Federal	4 256	126	0	428	3 584	118
Durango	1 079	47	8	356	644	24
Guanajuato	744	70	4	176	469	25
Guerrero	564	52	6	182	311	13
Hidalgo	1 457	38	0	167	1 234	18
Jalisco	1 530	148	21	524	800	37
México	1 819	154	2	251	1 383	29
Michoacán	1 571	100	6	506	947	10
Moroleón	321	37	0	35	206	43
Nayarit	831	30	4	223	564	10
Nuevo León	1 094	41	18	281	727	27
Oaxaca	1 797	110	38	791	835	23
Puebla	1 229	60	8	505	637	19
Queretaro	600	23	3	127	440	7
Quintana Roo	532	14	12	35	456	15
San Luis Potosí	956	42	4	148	753	9
Sinaloa	1 237	54	5	142	1 022	14
Sonora	863	62	7	67	703	24
Tlaxcala	612	28	4	32	538	10
Tamaulipas	939	27	10	152	734	16
Tlaxcala	268	13	6	98	141	10
Veracruz	2 240	141	3	512	1 531	53
Yucatán	701	26	3	150	499	23
Zacatecas	965	47	9	150	705	14

^{a/} Incluye expendios del pequeño comercio, de instituciones públicas y otros

^{b/} Incluye módulos de expendios automáticos de estampillas, correo móvil, oficinas de servicios directos, oficinas de cambio, centros de depósitos masivos, centros de atención al público y oficinas de Mespost

FUENTE: SEPOMEX - Dirección Comercial y de Servicios

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APPENDIX - XXIV

INDICADORES SELECCIONADOS DEL SISTEMA NACIONAL DE SALUD SEGUN ENTIDAD FEDERATIVA 1995-1998

ENTIDAD FEDERATIVA	CAMAS POR CADA 100 000 HABITANTES	CONSULTORIOS POR CADA 100 000 HABITANTES	MEDICOS POR CADA 100 000 HABITANTES	ODONTOLOGOS POR CADA 100 000 HABITANTES	ENFERMERAS POR CADA 100 000 HABITANTES	CONSULTAS GENERALES POR CADA 1 000 HABITANTES	OCUPACION HOSPITALARIA (Por cama)
1995							
Total	78.8	50.4	116.8	8.7	184.8	1 544.8	66.3
Aguascalientes	86.4	46.0	142.1	8.9	223.1	1 646.8	77.1
Baja California	67.4	38.3	112.5	8.0	177.8	1 262.5	74.1
Baja California Sur	149.5	91.3	230.2	16.0	343.6	2 428.1	47.4
Campeche	55.7	72.3	153.4	10.8	212.7	1 949.4	50.6
Coahuila	106.8	57.3	136.2	9.5	256.6	2 077.2	72.0
Colima	86.7	73.6	159.9	10.4	240.9	1 875.5	63.5
Chiapas	43.3	49.8	68.7	7.4	114.9	1 233.7	64.3
Chihuahua	74.0	44.4	100.6	5.8	177.3	1 546.7	59.3
Distrito Federal	190.7	87.1	270.4	19.7	465.2	1 837.5	67.6
Durango	80.1	57.3	127.1	7.7	198.1	1 567.2	76.1
Guatemala	52.8	31.7	78.8	5.1	120.1	1 202.3	70.5
Guerrero	52.4	54.4	53.8	6.4	136.6	1 448.3	53.7
Hidalgo	69.0	50.9	97.9	6.3	144.8	1 521.7	79.8
Jalisco	94.0	48.0	114.0	8.6	181.0	1 361.7	49.5
México	56.5	35.3	73.7	7.3	107.3	1 334.9	61.7
Michoacán	50.5	41.9	89.2	7.6	116.1	1 332.1	68.6
Moravia	52.7	43.7	107.1	8.4	173.6	1 450.8	60.3
Nayarit	72.8	62.9	130.8	9.7	203.8	2 060.2	64.3
Nuevo León	98.0	57.6	125.9	7.9	247.4	1 853.2	80.1
Oaxaca	48.3	48.3	86.1	6.2	115.8	1 752.3	66.0
Puebla	56.8	40.8	78.5	8.8	120.9	1 147.1	62.8
Quintana Roo	57.7	44.3	112.1	8.1	168.1	1 427.6	64.6
Quintana Roo	54.5	56.6	118.2	8.2	178.0	1 676.0	72.6
San Luis Potosí	45.0	40.7	81.6	7.6	130.0	1 446.3	78.8
Sinaloa	76.9	50.7	111.8	7.8	193.5	2 043.7	75.3
Sonora	108.4	58.4	135.2	7.4	230.0	1 771.9	66.0
Tabasco	73.8	64.2	151.8	15.7	201.1	1 655.3	66.9
Tamaulipas	100.7	54.1	129.6	7.0	210.8	1 574.5	65.7
Tlaxcala	52.1	44.0	92.4	7.9	135.9	1 358.1	63.1
Veracruz	63.6	45.2	99.8	6.2	140.1	1 502.4	64.8
Yucatán	50.8	46.8	128.7	8.6	201.5	2 428.1	75.2
Zacatecas	45.5	48.5	94.2	6.7	134.4	1 556.3	77.3

NOTA: Los indicadores de salud están calculados con base en la población legal y/o potencial, confirmada a su vez por la población de alta y baja población censada en el momento.
FUENTE: Grupo Interinstitucional de Información en Salud, Banco de Información Estadística, Recursos y Servicios, 1995, 1997 y 1998.

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APPENDIX - XXV

VIVIENDAS PARTICULARES HABITADAS POR DISPONIBILIDAD DE DRENAJE, ENERGIA ELECTRICA Y AGUA ENTUBADA SEGUN ENTIDAD FEDERATIVA 1990-1997

ENTIDAD FEDERATIVA	VIVIENDAS PARTICULARES HABITADAS	DRENAJE (Por ciento)			ENERGIA ELECTRICA (Por ciento)			AGUA ENTUBADA (Por ciento)		
		DISPONE	NO DISPONE	NO ES PECIFICADO	DISPONE	NO DISPONE	NO ES PECIFICADO	DISPONE	NO DISPONE	NO ES PECIFICADO
1997										
Total	20 766 891	78.2	21.8	0.1	94.5	5.4	0.1	88.1	11.8	0.1
Aguascalientes	191 528	95.0	5.0	0.0	97.7	2.3	0.0	97.6	2.2	0.0
Baja California	540 759	79.7	20.1	0.2	96.9	2.9	0.2	92.6	7.3	0.1
Baja California Sur	93 942	76.2	23.8	0.0	96.3	3.7	0.0	94.3	5.7	0.0
Campeche	146 835	69.3	30.7	0.0	91.1	8.9	0.0	83.2	16.8	0.0
Coahuila	517 840	76.9	23.1	0.0	98.0	1.9	0.1	95.5	4.4	0.1
Colima	123 858	94.9	4.7	0.3	97.2	2.8	0.0	95.8	4.2	0.0
Chiapas	741 689	63.7	36.2	0.1	85.7	14.0	0.3	64.7	35.3	0.0
Chihuahua	709 268	83.9	16.1	0.0	94.4	5.4	0.1	94.0	6.0	0.0
Distrito Federal	2 095 708	99.4	0.6	0.0	99.8	0.2	0.0	99.2	0.8	0.0
Durango	319 253	70.9	28.9	0.2	93.6	6.3	0.2	94.2	5.8	0.0
Guanajuato	919 160	78.7	21.2	0.1	94.3	5.7	0.0	91.2	8.8	0.0
Guerrero	641 305	58.1	41.8	0.1	91.8	8.1	0.1	67.4	32.5	0.0
Hidalgo	460 490	59.9	40.0	0.1	87.8	12.0	0.2	81.8	18.1	0.1
Jalisco	1 332 984	52.6	47.3	0.1	96.1	3.8	0.1	94.7	5.3	0.0
México	2 603 356	86.4	13.4	0.2	96.9	3.1	0.1	94.3	5.5	0.1
Michoacán	834 285	73.4	26.6	0.1	95.7	4.3	0.0	90.5	9.4	0.1
Morales	347 523	88.1	11.8	0.1	98.8	1.2	0.0	93.2	6.8	0.0
Nayarit	211 480	86.7	13.2	0.1	95.7	4.2	0.2	92.4	7.6	0.1
Nuevo León	858 236	52.1	47.9	0.0	98.3	1.6	0.1	96.5	3.5	0.0
Oaxaca	650 597	44.8	55.1	0.1	87.3	12.6	0.1	72.0	27.9	0.1
Puebla	568 537	63.5	36.5	0.0	94.1	5.9	0.0	78.2	21.7	0.1
Querétaro	277 321	72.0	27.9	0.2	93.0	6.9	0.1	90.2	9.7	0.1
Quintana Roo	185 825	82.8	17.1	0.1	95.9	4.1	0.0	93.6	6.3	0.0
San Luis Potosí	473 977	60.9	39.0	0.0	83.7	16.3	0.0	81.4	18.6	0.0
Sinaloa	551 755	70.3	29.6	0.1	96.4	3.5	0.0	85.3	14.5	0.2
Sonora	506 500	75.0	25.0	0.1	97.5	2.5	0.0	96.1	3.9	0.0
Tabasco	381 765	89.5	10.5	0.1	92.3	7.7	0.1	75.2	24.7	0.1
Tamaulipas	652 102	68.7	31.3	0.1	91.0	8.9	0.0	90.3	9.7	0.0
Tlaxcala	185 491	81.7	18.3	0.0	97.4	2.5	0.0	95.7	4.3	0.1
Veracruz	1 556 530	71.4	28.5	0.0	86.9	13.0	0.0	73.2	26.8	0.0
Yucatán	350 665	55.9	44.0	0.1	95.2	4.8	0.0	87.2	12.8	0.0
Zacatecas	296 714	66.3	33.7	0.1	94.2	5.8	0.0	85.8	14.2	0.0

a) El total de viviendas particulares habitadas excluye los refugios, debido a que no se captaron características en esta clase de vivienda, además de 136 641 viviendas sin información de "paredes", los cuales su clasificación en el rubro no especificado de la variable "tipo de vivienda particular".

b) El total de viviendas habitadas excluye los refugios, debido a que no se captaron características en esta clase de vivienda, así como 28 624 viviendas sin información de "paredes".

FUENTE: Para 1990: INEGI, XI Censo General de Población y Vivienda, 1990: Resumen General.

Para 1995: INEGI, Censo de Población y Vivienda, 1995: Resultados Definitivos.

Para 1997: INEGI, Encuesta Nacional de la Dinámica Demográfica, 1997: Metodología, Tabulados.

APPENDIX – XXVI

ALUMNOS, PERSONAL DOCENTE Y ESCUELAS EN PREESCOLAR
AL INICIO DE CURSOS SEGUN ENTIDAD FEDERATIVA
1995/96-1998/99

ENTIDAD FEDERATIVA	1998-99				
	TOTAL	ALUMNOS		PERSONAL DOCENTE	ESCUELAS
		HOMBRES	MUJERES		
Total	3 360 518	1 693 471	1 667 047	168 555	68 997
Aguascalientes	35 215	17 511	17 704	1 800	537
Baja California	68 179	34 677	33 502	3 415	866
Baja California Sur	16 101	8 164	7 937	797	278
Campeche	28 840	14 475	14 361	1 368	556
Coahuila	81 736	41 295	40 441	3 476	1 265
Colima	20 039	10 534	9 805	1 041	332
Chiapas	175 354	88 198	87 156	10 013	5 507
Chihuahua	92 472	46 632	45 840	5 158	1 754
Distrito Federal	288 651	146 858	142 793	16 051	3 075
Durango	48 740	24 897	24 843	2 806	1 366
Guanajuato	203 576	101 587	101 585	8 590	3 877
Guerrero	140 083	69 913	70 170	7 577	3 261
Hidalgo	80 368	40 821	39 547	4 362	2 778
Jalisco	218 061	109 994	109 067	9 858	3 342
México	311 682	157 253	154 439	12 775	4 857
Michoacán	129 262	64 768	64 493	7 075	3 456
Morales	47 333	23 927	23 406	1 453	873
Nayarit	33 628	17 037	16 591	1 945	938
Nuevo León	112 974	57 537	57 437	5 425	1 838
Oaxaca	135 134	67 394	67 789	6 895	3 011
Puebla	199 737	100 068	99 660	8 384	3 776
Quintana Roo	57 358	28 883	28 475	2 751	1 077
Quintana Roo	31 029	15 701	15 315	1 384	591
San Luis Potosí	101 585	49 187	49 192	5 331	2 771
Sinaloa	60 451	30 521	30 428	3 129	2 271
Sonora	65 650	32 272	31 418	3 113	1 374
Tlaxcala	87 585	43 532	43 683	3 525	1 511
Tlaxcala	81 291	41 336	39 555	4 254	1 884
Tlaxcala	31 875	16 195	16 211	1 768	871
Veracruz	121 992	62 744	62 038	6 111	2 764
Veracruz	63 842	30 720	30 322	2 911	1 440
Zacatecas	15 690	7 853	7 837	7 231	1 501

FUENTE: INEGI, Encuesta Nacional de la Educación en el Nivel Preescolar, 1998-99. Datos por entidad.

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VOLUME OF WATER STORAGE IN DAMS OF MAIN IRRIGATION DISTRICTS BY REGION
(Millions of cubic meters)

Region and irrigation districts	October, 2000		% of live storage capacity a/		
	Live storage capacity	Stored volume	October, 1999	September, 2000	October, 2000
Total	48,915.5	19,544.5	45.5	32.0	40.0
Northwest region	22,788.2	9,528.3	43.2	29.8	41.8
Culiacán, Sin.	5,197.7	1,555.2	37.4	27.7	29.9
Guasave, Sin.	1,766.3	892.7	46.0	35.3	50.5
Río Fuerte, Sin.	5,219.4	2,205.2	37.6	31.8	42.3
Río Yaqui, Son.	5,856.1	2,071.8	42.5	28.0	35.4
Other irrigation districts	4,748.7	2,803.4	55.5	31.9	59.0
North central region	9,825.4	2,724.0	40.0	22.8	27.7
Bajo Río Conchos, Chih.	313.5	174.0	72.2	45.6	55.5
Ciudad Delicias, Chih.	2,773.6	684.3	41.4	24.0	24.7
Reg. Lagunera, Coah. y Dgo.	2,778.0	720.3	32.0	22.3	25.9
Don Martín, Coah y Dgo.	1,374.0	278.6	40.3	16.4	20.3
Other irrigation districts	2,586.3	866.8	43.0	30.1	33.5
Northeast region	8,779.4	2,124.9	31.4	18.1	24.2
Bajo Río Bravo, Tamps.	3,006.4	669.0	32.7	19.8	22.3
Bajo Río Sn. Juan, Tamps.	924.0	158.5	16.8	8.1	17.2
Río Soto la Marina, Tamps.	3,833.0	530.3	19.3	7.9	13.8
Other irrigation districts	1,016.0	767.1	86.9	61.0	75.5
Central region	5,817.5	3,468.0	69.4	57.2	59.6
Pabellón, Ags.	348.9	35.6	7.1	10.9	10.2
Alto Río Lerma, Gto.	1,209.4	802.7	86.2	53.1	66.4
Tomatlan, Jal.	411.7	411.7	100.0	100.0	100.0
Gral. Lázaro Cárdenas, Mich.	662.0	617.5	93.6	90.0	93.3
Valsequillo, Pue.	281.7	235.7	100.0	75.3	83.7
Other irrigation districts	2,903.8	1,364.8	57.1	47.7	47.0
South region	1,705.0	1,699.3	99.9	100.0	99.7
Ríos Amuco y Cutzamala, Gro.	295.5	294.2	99.8	100.0	99.6
Tepeacoacuilco, Gro.	152.4	148.6	100.0	99.7	97.5
Tehuantepec, Oax.	927.4	927.4	100.0	100.0	100.0
Other irrigation districts	329.7	329.1	99.8	100.0	99.8

NOTE: Because new revisions conducted by Comisión Nacional del Agua, since this issue data for useful storage were modified.

% Percent.

a/ With regard to useful capacity.

SOURCE: Secretaría de Agricultura, Ganadería y Desarrollo Rural, Centro de Estadística Agraria y Pesquera.

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