THE COLONIAS PROLETARIAS OF MEXICO CITY
Low Income Settlements at the Urban Fringe

by

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This thesis is concerned with nearly two million people who live on almost half of the land that is Mexico City today. It is an analysis of the Colonias Proletarias, the fringe settlements where these people live, and their relation to the metropolitan area. As most in Latin America, Mexico's capital city is also the center of the nation's urban population and economic wealth. This centralization has had strong bases since colonial times. Analysis of the last four decades and projections of future trends indicate an even stronger concentration occurring in the twentieth century. This comparatively wealthy urban area, however, has a greatly differentiated spatial distribution of population.

The analysis presented might be the beginning of a modest model for describing present and possibly predicting future peripheral Colonias Proletarias in Mexico City. Although the model does not conform to the pattern in industrialized countries, no attempt was made to compare the relation between the findings in the analysis to other countries nor, for that matter, to other cities in Mexico. The generalizations developed concern the location and well-being of the low-income population, once confined to the geographically-limited central-city districts, but now settling around the fringes at very low densities: their housing is among the most spacious by indices of gross density, type of dwelling, and floor area; their housing also seems to be among the lowest-priced units for both renters and owners. These advantages, however, are heavily outweighed in measuring publicly-supplied services and facilities. Tentative hypotheses based on several indices indicate that there is an association between age and location of development on the one hand, and population and settlement attributes on the other. Rigorous tests based on existing raw and proposed data are needed to correlate pattern attributes.

The proportion of urban land and population in the Colonias has been increasing at explosive rates: while almost non-existent in 1930, they are projected to reach 40 per cent of the land and population by 1970. An analysis of public actions in housing and urban development indicates almost no systematic attempt at the development of the Colonias Proletarias nor the metropolitan area of which they form an increasingly important part. Government ad hoc actions for the most part have been concentrated on middle-income public housing projects. The thesis concludes with an outline of recommendations for long-range policies and short-range programs for the development of Colonias Proletarias, as well as for metropolitan-wide study and planning.

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CHAPTER I

MEXICO CITY AND MEXICO
Introduction

This introductory chapter will describe the metropolitan context in which the Colonias Proletarias have developed. First we present a description of the physical setting of Mexico City; and define what is meant by Mexico City, Federal District, Valley of Mexico, and the Metropolitan Area. The second part of this chapter presents an analysis of the centralization of the Mexican population in the capital city; it also describes how this has been influenced by historical precedent and by more recent natural increases of the population in addition to internal migration. The third part of the chapter presents an economic analysis to gauge the capital city's role in national economic development since 1940. The last section briefly describes general problems in urban development, and more specifically the problem of uncontrolled urban development.
1.1 Physical Setting and Definitions

Mexico City loosely refers to the metropolitan area of the Mexican capital that is located in the southern section of the great Valley of Mexico. Strictly speaking, however, Mexico City, or Ciudad de Mexico, refers to the old municipal district, which now makes up only the core of the metropolitan area. As in most great metropolitan areas of the world, the city has spilled over both into adjacent rural areas and smaller towns.

Surrounding the Ciudad de Mexico are two municipalities to the north and ten to the south, which with the old municipal district form the political limits of the Federal District. Generally triangular in shape, the Federal District has at its base the state of Morelos, and is surrounded by the State of Mexico on both northeast and northwest sides. The contiguous urban area of the capital, however, is limited more to the municipalities in the Federal District near the apex of the triangle, and the adjacent municipalities in the State of Mexico. Plan No. II-A shows most of the general structure of the urban area and its finger extensions across the northern border into the State of Mexico.

These extensions into the neighboring political entities are actually a relatively new phenomenon. Plan No. II-B shows the contiguous metropolitan areas superimposed for the years 1525, 1900, 1930, and 1960. It was not until the late 1950's that the municipalities in the State of Mexico
began to be considered part of the contiguous metropolitan area. Plan No. II-F shows how this recent peripheral growth extends into three eastern and three western municipalities outside the Federal District, of which only four have any significant growth within them. These are the municipalities of Naucalpan and Tlalnepantla to the northwest, and Ecatepec to the northwest, as well as Chimalhuacan to the west.

The city's growth to some extent has been limited by the topography surrounding it: to the southeast and south, the creeks and hills; to the northeast, the drying beds of Lake Texcoco; and in a few instances, hills within or at the edge of the 1960 urban area. There were also a few rivers that originally went through the city, emptying on Lake Texcoco and on Lake Xochimilco farther to the south of the city. Churubusco River, for instance, close to the center of the urban area, was submerged in the early 1960's.

The hills to the southeast in Coyoacan and Obregon have generally been developed for high-cost residential districts. The few exceptions to this seem to be leftover plots in creeks or other less desirable areas, where lower-income and in some cases illegally-built settlements are found.

The drying beds of Lake Texcoco, on the other hand, have been used almost entirely for low-cost subdivisions. Since the land is flooded at times during the year, the sale value of land is not expensive. Some of the land, however, has been used in the past by clandestine developers. Some of the other land in the State of Mexico has been used for new industrial plants.
The main highways that link Mexico City to the immediate hinterland and to the remainder of the country are also shown in Plan No. II-A. These are the northern highways leading to Tampico and Laredo and to the United States; the eastern highways leading to Veracruz on the Gulf of Mexico, to Puebla nearby, and the Guatemalan border; and the southwestern highways leading to Toluca, the capital of the State of Mexico, and Cuernavaca in the state of Morelos.

Railroads also follow a similar pattern since their building in the early part of the century. A highway map as well as a railroad map show the importance of the capital city by serving as the hub of both these networks. 2

The following parts of this chapter will analyze how this central role has been delineated in the past for Mexico City's population; and their political, cultural, economic, and even religious activities.
The Urban Population Center

Data on the urban population of the world are not available with reasonable accuracy before 1800. Of the approximately 900 million persons in the world in 1800, 1.7 per cent lived in cities of 100,000 and over, 2.4 per cent in cities of 20,000 and over, and 3 per cent in urban places of 5,000 or more inhabitants.

The growth of world population since then has been accompanied with rapid growth of urban population since at least the beginning of the 19th century. From 1800 to 1850 world population increased by two and one-half times. Population of cities over 5,000 increased by twenty-six times, cities over 20,000 by over twenty-three times, and cities of 100,000 or over by more than twenty times.

Before 1850 no society could be described as predominantly urbanized, and by 1900 only one -- Great Britain -- could be so regarded. Today, only 65 years later, all industrial nations are highly urbanized, and in the world as a whole the process of urbanization is accelerating rapidly... the rate of change in the decade of 1950 to 1960 was twice that of the preceding 50 years.

If the pace of increase that was obtained between 1950 and 1960 were to remain the same, by 1990 the fraction of the world's population living in cities of 100,000 or larger would be more than half. Using another index of urbanization -- the proportion of the world's population living in urban places of all sizes -- we found that by 1960 the figure had already reached 33 per cent.

The process of change from a population with 10 per cent of its members in cities of 100,000 or larger to one in which 30
per cent lived in such cities took about 79 years in England and Wales, 66 in the United States, 48 in Germany, 36 in Japan, and 26 in Australia. Mexico's population growth has been increasing with at least equal magnitudes. The population in 1900 was doubled by 1950 and almost tripled by 1962.6 Urban population is accelerating with more dramatic magnitudes: the population of cities over 2,500 made up only 33 per cent of Mexico's population in 1930, 40 per cent of the population in 1940, and 50 per cent of the population by 1960. Over 70 per cent of Mexico's population will be in places of 2,500 by the year 2000.7

The population of Mexico City has grown at even faster rates than urban population, from one and one-half million in 1930, to two and one-half million in 1940, to over three and one-half million in 1950, to almost six million in 1960. It is projected to have close to fourteen million by the decade of 19901 (See Plan II-B) This rapid growth of the capital means that the proportion of Mexicans living in the capital is increasing. This proportion was 9.9 per cent in 1930, 11.3 per cent in 1940, 14 per cent in 1950. Finally in 1960, Mexico City's population formed 16.6 per cent of the total! It is estimated that by 1990 the proportion of Mexicans living in their capital will be anywhere from 18.2 (medium projection) to 20.9 (high estimate) per cent.8

As we have seen, the rates of growth for the metropolitan area of Mexico City have been much higher than those of all Mexico, or urban Mexico; and also higher than Latin America's growth rates for the same periods. (See Table II-3) The trends for Mexico City, however, are not
extraordinary in comparison to other Latin American capitals. For the periods 1950 and 1960, Buenos Aires' population increased from 29.7 per cent to 33.4 per cent of the country's population. Santiago increased from 21 to 24.9 per cent in the same decade; Montevideo from 38.8 to 40.7 per cent of the population; Havana from 19.6 to 23.5 per cent; Asuncion from 15.7 to 17.6 per cent. Mexico City followed all these. (See Table I-1) Only two Latin American capitals, Brasilia and Guayaquil, have the seat of government outside the largest city. Guayaquil is slowly surpassing historic Quito. Brasilia has only recently been created as the seat of government; however, Sao Paulo's dramatic growth surpassed the former capital's, Rio de Janeiro.

This population centralization not only implies a large city in proportion to the country supporting it, but also the fact that there are no other cities of comparable size. The rank-size rule measures centralization by dividing the population of the largest city by that of the third largest plus one-sixth of the fourth largest. Rank size "balance" shows a quotient close to one; larger quotients indicate capital cities which are larger relative to the next largest cities. This quotient was largest for Peru, Paraguay, Argentina, Cuba, and Mexico, in that order. Mexico's rank size quotient was 4.3 in 1940 (using Mexico City's population divided by that of Guadalajara, Monterrey and one-sixth of Puebla); it was 4.83 in 1950; by 1960 this quotient had reached 7.6!10 Using Mark Jefferson's rule for rank size, 11 that is, the capital being twice that of the second city, we find Mexico City again scoring even higher, with its population
being fourteen times that of Guadalajara in 1960! It is clear from this that Mexico's capital more than qualifies for this definition of primate city.

Centralization is also partly explained by the historic role that the capital city has played in Latin America during colonial administration, and further explained by migration trends and increased birth over death ratios in urban areas, as well as the concomitant processes of economic development and industrialization.

Mexico City was first the capital of the Aztec empire; then it was designated as capital of a vice-royalty -- as were Lima, Bogota, and Buenos Aires. Quito, Santiago (Chile), Panama, and Guatemala were heads of captaincies-general or presidencies. In addition to its civil roles, Mexico as well as many of these capitals was an archbishopric among other centers of religious administration. This political and religious centralization of administration, however, continued as strong after the end of the Spanish rule. The colonial period's capitals were transformed into the economic, administrative, and cultural capitals. As we will see in section 2 of this chapter, economic centralization has been a concomitant process for Mexico City as well as for other capitals.\[12\]

However, the effective contribution of Mexico's more recent urban population growth and concentration has been the trends in birth and death rates, both of which have changed by advanced medical techniques that have been relatively inexpensive and easy to apply. In Mexico as well as in most Latin American countries during the last few years, there has
been this increasing improvement in the general hygiene of the population.

There has been a marked drop in the average mortality. The Latin American region as a whole, however, is far from being able to attain levels corresponding to those of industrialized countries. (Table 1-4)

Mexico ranks at about the mean for Latin America in the following indices: death rate per 1,000 inhabitants, life expectancy at birth, and physicians per 1,000 population. It ranks below the Latin American mean for hospital beds per 1,000 population. In looking at the mortality rate for a longer time period, we find the drastic improvement within the last three decades. Between 1922 and 1935 the mortality rate was over 25 per 1,000 inhabitants; it went down to 18.0 between 1945 and 1949; then to 15.5 between 1950 and 1955; and finally to 12.6 between 1955 and 1960. (Table I-5)

Almost equally significant in contributing to population growth has been the rise in the birth rate. For Mexico between 1920 and 1960, the birth rates rose from 32.6 to 46.0 per thousand inhabitants. During the thirty years prior to 1960, mortality rate decline has contributed seven times the proportion that the increase in birth rates has for the same period.

In 1960 the population growth for Mexico at 3.1 per cent annual rate compares to 4 per cent for Costa Rica and Venezuela. However, Mexico is still among the highest in Latin America, together with Brazil and Colombia. Latin America's population growth rate for this period was 2.8 per cent.
A third factor contributing to the population growth of Mexico City, in addition to population increases and traditional centralization, has been internal migration. From one point of view, migration trends can be explained by economic factors. Within nineteenth-century economic theory, internal migration results from geographical differences in the productivity of labor. These differences are always reflected in wage differences in this simple model. If one can imagine each region within Mexico having a particular demand for specialized workers, the flow of laborers responding to a regional wage (and to productivity) differentials indicates a welfare for the economy as a whole. In the next section we will see how this economic centralization has occurred concomitant with the migration centralization in Mexico City.

Two sorts of pressures, labeled "push-and-pull" hypotheses, have been put forth as explanations of the causes of migration from rural settings to urban ones: the relative disadvantage in real terms of the rural population (rural poverty), pushes the agricultural population off the land. Agricultural productivity and price policies, among other things, have been suggested as contributing to the "push." The result in this theory is the same whatever the cause: low incomes pushing the farmers out of their rural pursuits into the city. These concepts can also be extended into the realm of interurban migration, or migration from small towns to larger towns, for instance.

The second type of pressure on migrants is labeled the "pull" of more attractive urban opportunities; these can be defined quite broadly: economic, educational, marital, etc. However, surveys in Mexico
and other Latin American countries have pointed out that the principal motive for migration has been the economic pull.\textsuperscript{15} It is doubtful, though, if these studies can in themselves be generalized for the whole of the migration pattern into Mexico City. There the proportion of village-born residents of the different districts seems to be quite different. Part 6 of Chapter II will analyze in more detail the composition of such migrants in different sub-metropolitan areas.
1.3 Economic Background

Mexico’s national economic growth after 1940 has been characterized as the highest and steadiest, together with that of Venezuela and Brazil, among the Latin American countries. The product of these three countries has increased on the aggregate at 6.3 per cent. Up to 1955, Mexico’s annual rate of growth was estimated at 6.5 per cent and a real income of 6.3 for the years 1950 to 1955. These rates declined on the second half of the 1950’s to 4.5 per cent for the product and 3.6 per cent for the income. As we saw in the previous part of this chapter, the national population growth for the decade 1950 to 1960 jumped from 2.7 to 3.1, so that real per capita income increased at only .05 per cent. This low rate is due to greatly increased population and compares very unfavorably with that of 3.0 per capita income experienced in the first ten years of the post-war period.

As we will see in Part 6 of the next chapter, increased specialization of labor, moving away from agricultural employment, typifies the changing structure of employment for Mexico and the general distribution of the economically active population.

All these processes seem to be related; that is, the distribution of economically active to the general accelerated population growth, the growth of the urban population in particular, and lastly, national economic development. How this growth has been regionally distributed in the country is the purpose of the following discussion.
So far we have seen that population centralization in Mexico City has had a strong historical tradition. This centralization has been recently proceeding at rapid rates, much more rapid than in other cities in Mexico, but not unlike that occurring in other Latin American capitals. We have also seen that this centralization will continue to increase in the near future. And as in other Latin American countries, the major portion of these increases will be due to natural population increases in the nation as a whole as well as in the capital city, declining death rate, and the extension of the normal life span, especially in urban areas, and internal migration patterns that seem to be motivated by the regional structure of the economy.

Although there are some studies that evaluate the regional structure of the Mexican economy, very little progress seems to have been made in formulating and testing a general explanation for the occurrence of uneven spatial distribution of national income. Comparative studies of regional inequality among Latin American or any other countries, as it relates to the process of economic development, seem also scarce. The causation of as well as the tools for changing this regional inequality, and to show that economic and in particular industrial centralization has been by far most crucial in reinforcing the traditional cultural, administrative, and political central role of Mexico City.

Although Mexico's development has had one of the steadiest and highest growth rates compared to Latin America as a whole, this growth has been irregularly distributed among the regions of the country. Mexico
City itself has contributed the greatest growth in industry and commerce, besides carrying the greater proportion of the fiscal burden, as compared to almost any other region in the country, except perhaps the northern states close to the United States border. Table 1-6 shows how the Federal District plus the State of Mexico compare to the remainder of the country in terms of regional population, per cent in industry, value added per industrial worker, and participation in total value added by regions.

Perhaps one of the best indicators of industrialization is the net added industrial product divided by the population of the region. For 1955 we find that the net average added industrial production for the country was $960 per capita. This national value was one-third that achieved in the Federal District, where it was M$3,400. There were by this same measure eight states that fell below M$200. In terms of absolute pesos, between 1940 and 1955, the total industrial value added in Mexico increased from M$1,300 million to M$30,400 million. Of the increase, the metropolitan area's share was around M$15,500 million, or 53.1 per cent of the total! The northern border states contributed 23.4 per cent, and the rest of the country 23.5 per cent.

High industrial production may mean high proportions of labor in industry or high productivity per laborer, or both. We find again that the proportion of the Federal District's labor force in industry is 33.1 per cent, while that for the whole country is only 15.9. There were seven states whose proportion of industrial labor was below 10.0 per cent. We find, however,
that the increment of growth for the Federal District between 1930 and 1950 was not as high as some of the less industrialized states or entities, but it represented 48 per cent of the total.

Although exact figures are not available for labor productivity, we find again that the Federal District ranks high at M$37,800, compared to the average industrial productivity per laborer for the country at M$21,500. Nine out of the 39 states had their averages at less than M$6,000. In comparing figures of industrial productivity per laborer and industrial production, Lamartine Yates found that practically the same rank order exists among the different regions. This is equivalent to saying that the Federal District and the border states of the north offer more opportunities for high industrial productivity.

The industrial composition of the Federal District and the State of Mexico together is principally in metals and petrochemicals, located near its largest market, the metropolitan area, since they produce final consumption goods. On the whole, however, industrial production is concentrated in a few districts within one city within a state.

From this comparison, one can conclude that a dollar invested in a metropolitan area industry laborer contributes much more to the national product than a similar investment and occupation in other areas of the country.

Agricultural production, on the other hand, measured by per cent of labor force in that sector, is insignificant for the Federal
District. In 1950, 60 per cent of the national labor force was in agriculture, while only 5 per cent in the Federal District followed that occupation. This proportion diminished to 2.6 per cent in 1960. \(^{21}\) The next highest state had an agricultural proportion of 41 per cent. \(^{22}\)

When we look at the service sector, we find that it is one of the fastest growing in the Mexican economy. In 1930 it was one-sixth of the labor force, in 1940 it was one-quarter, and in 1960 it was over one-third. \(^{23}\) When we look at the proportion of labor force for the Federal District in services, we find that in 1950 it formed 60 per cent of the total. The next highest state was only 40 per cent. The Federal District has the high concentration of federal government employees and the respective auxiliary services. This high service industry proportion is also supported by the manufacturing sector. For the country as a whole there is a correlation between industrial employment and service employment. In terms of production of the service industries, the 1955 Commercial Census which covers only part of this faction showed that for the country as a whole the per capita income from commerce was M$835. The Federal District's proportion was three and one-third times the national average. Only the northern border states were reported to have a higher figure -- four times the national average. The next highest state had only twice the national commercial per capita average. The northern states' commercial activity is for the most part produced by tourism, but the same is true for Mexico City. In addition, the latter is also the commercial capital of the country.
We have then seen that of the most important sectors of the national economy (industry, agriculture, services, and commerce), three were concentrated in the metropolitan area of Mexico City.

In terms of GNP per capita, Table 1-7 presents in summary form the major regional changes from 1940 to 1960. We can see from this that the gaps between these four highest states or entities has diminished between 1940 and 1960, although the northern states register the only negative GNP per capita increase, while the Federal District (not the entire metropolitan area) counts still a high absolute proportion but low relative increase. Without a doubt, the metropolitan area advantages of scale are offered nowhere in the country.

Aspects of infrastructure for which there are sufficient data are either available in units per 1,000 inhabitants (which is meaningful) or in units per 1,000 square kilometers (which is not so meaningful, given the small area of the Federal District by comparison to the other states). The data are available for the following measures: electrical generation per capita, investment in electrical generation per capita, irrigation and hydraulic works investment per capita, and highway mileage per capita. In none of these measurements is the Federal District found among the upper ten nor the lower ten of the thirty-nine federal entities. The investment in infrastructure has lagged in the Federal District proportional to GNP per capita generated in the city.

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One other measure as an index of infrastructure is local taxes and their application to the betterment of different infrastructure items. We find that although the Federal District is fifth in the nation in municipal and state taxes per capita (M$190), it is only half of the high district (M$320) but nine times that of the low district (M$21). The national average for local taxes collected was that of M$90 per capita for 1957. From a longer time perspective, municipal taxes on the average have increased from M$12 in 1940 to M$90 per capita.\textsuperscript{25} For this period the Federal District increment of municipal taxes per capita also did not increase as did seven other entities.

When we analyze Federal Government expenditures for the 1965 fiscal year,\textsuperscript{26} we find the following: For the Federal Government's direct expenditures, almost 58 per cent of the total income (M$17,800 million) came from the Federal District, but only 25 per cent (M$4,420 million) was spent in the Federal District. Sources of income for the direct federal budget include 46.0 per cent from income tax, 14.4 per cent from commercial and industrial taxes, among others.

If, however, we take the expenditures for the whole of the public sector,\textsuperscript{27} that is, including expenditures of all governments in all the states and territories, we again find that the Federal District's contribution is over 47 per cent of the total M$37,009 million. At the same time only 24 per cent was spent in the Federal District in that year.
Investment per capita in this same period in the Federal District, however, was M$3,270. The next two lowest were the adjacent State of Mexico, whose per capita investment figure was M$88; and the adjacent state of Tlaxcala, whose per capita investment was M$86.5. This compares with the lowest state, Quintana Roo, with only M$1.04.28 If the proportions of investment in infrastructure are taken by areal density or square kilometers, the disparity between the Federal District and the next lowest state (Mexico) is over 3,100 per cent. This proportion, however, is not as significant, considering the small area of the Federal District compared to the rest of the states. The investment in the states of Mexico and Tlaxcala adjacent to the Federal District are very high also in terms of pesos per square kilometer. In general there is an association in all the states between investment and population rather than land area.

The cumulative industrial investment increment in Mexico between 1945 and 1955 was equal to M$35,200 million. Expressed in 1950 pesos, the average per capita cumulative industrial investment was M$1,370 for Mexico as a whole. The Federal District was a high first with M$4,260, Mexico fifth highest with M$2,220, and Chiapas low with M$41. As expected, this high investment per capita occurred only for the Federal District and other more industrialized entities.29 A significant fact is that the majority of investment in this period (1945-1955) took place in those already-industrialized entities of 1945. Of the total new investment in this period, the State of Mexico and the Federal District captured 24 per cent, more than the proportion of the seven northern border states together.
Commercial investment again gives a prominent position to the Federal District and the northern urban border states. These are not such complete data since they are based on commercial censuses, and give the figures of M$1,760 million in 1945 and M$15,900 million in 1955, an increase of M$14,156, or M$559 per capita increase. Baja California had the highest figure of M$3,200, followed by the Federal District with M$2,200. The four lowest states for the period were under M$100 per capita. 30

Total investment (that is, commercial, industrial, and infrastructure cumulative investment) for the period 1945-1955 was M$2,588 per capita for the national average. Baja California had the highest proportion of M$7,860, followed by the Federal District with M$7,020. There were nine states under M$1,000. 31

In general, it can be said that concentration of investment is reflected in the increasing concentrations of shares of industrial value added to the same region. Investment is more productive in areas with a developed infrastructure than in areas which lack comparable facilities. The present locational pattern of investment in infrastructure is tending to further increase the concentration of industry in the capital.

Mexico City, then plays the central role in the development of the Mexican economy, and to a lesser degree a few scattered cities to the northwest near the United States border. Compared to other states, the contiguous urban area of Mexico City has shown highest industrial value added per capita, highest proportions of industrial labor, highest productivity per
laborer, highest concentrations of service and commercial activities, and similar position in almost any other of the economic indices.

In achieving these high levels of economic growth within the Mexican economy, much governmental infrastructure and welfare activities have been distributed in the capital city, but not in proportion to its contribution. In looking at the 1965 fiscal peso, we found that although the Federal District contributed 60 per cent of the total public expenditures, only 24 per cent of it was spent in the Federal District.

Future projections for the Mexican economy place the Federal District's role in a stronger position than it is in now. With its special urban development problems in water supply and soil conditions, this implicit emphasis of federal policy has been questioned. However, few solutions to distribute the urban and economic development more equitably have been suggested.
1.4 Urban Development

The capital city metropolis, then, without a doubt has become the dominant focus for the Mexican nation. It is the focus of the urban population growth, of its administration, of its cultural life, and of its wealth. What is likely for its future? Will its central role be reinforced in the future, or will there be an explicit policy for decentralization? There seems to be now some explicit concern for this imbalanced regional structure of the country. Lamartine Yates' study for the Bank of Mexico is one example of such a concern.\textsuperscript{32} Yates' implicit conclusions about the regional structure are that something must be done to regionally redistribute the wealth and the industry, and its benefits for the population. Two things come to mind in this concern, however. One is that if Mexico's product hopes to continue as high in the future, it can only hope to do so with its high productivity rates per investment in the capital city. By almost any measure that was outlined in the third part of this chapter, investment in the capital city brings more returns than the same investment in almost any other part of the country except the scattered smaller cities of the north. Would it be possible to control such a decentralized policy? Even if feasible, a radical population and investment decentralization policy would seem to lower Mexico's product.

Decentralization policies could be developed, explored, and tested for the development of the metropolitan pattern, but whether these policies would conform with reality in the next decades is questionable.

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Other decentralization policies, like those of the New Towns in Britain, have not served as a control for the growth of London. Most new towns in the United States in the past have been in fact only new suburbs.\textsuperscript{33}

Such countries, though, are industrialized countries, and are not baffled by problems of the peripheral lower-class "uncontrolled" development. There are some experiences in Mexico also with the creation of new industrial centers. These, however, have been created with the intention of causing new industrial development and not with an explicit policy of controlling growth. The benefits and costs of such analysis are complex, and no conclusions have been reached either in Mexico or in developed countries.

The second recent and explicit concern with the concentration of population and wealth in the capital has been expressed by the Hydrological Commission of the Valley of Mexico.\textsuperscript{34} Their concern has been, not with the national distribution, but with the centralization of the population and industry within the Valley of Mexico itself. While the delegated concern for the Hydrological Commission has been to oversee the water resources for the Valley, it has studied the development of the metropolitan area as a part of the larger Valley of Mexico in order to be able to project future water and other resource needs for the city. The Hydrological Commission has also become concerned with projecting growth alternatives for each district and municipality in the region. The projections for the Valley that have been compiled include in addition district and municipality proportions of the economically active population, and
per cent of economically active in non-agricultural activities. Essentially the
the future metropolitan pattern that the Commission describes is one of great
population growth rates in the State of Mexico municipalities adjacent to the
Federal District, and of some central municipalities in the Federal District.

The trends projected by the Commission for the next four decades indicate a pattern of highly modern employed sector in the core of the metropolitan area, but in terms of total population a sector growing very slowly. They also project a smaller but increasingly modern industrial and service-oriented sector in what was in 1950 the fringes of the city. And finally, they predict for the very peripheral municipalities a fast movement towards the modern economic sectors, but with still a great proportion of the population primarily engaged in agriculture.

These peripheral districts, which are projected to have the highest growth rates in the future, are the low-middle and low-income suburbs which the main body of this thesis analyzes. The particular growth rates for these fringe municipalities are presented in detail in Part 2 of Chapter II for the four decades of the census, 1930 to 1960. It is enough to point out here that the trends in the past two decades indicate the core districts of the city growing at an annual rate of 2.02, while the newer more peripheral district where the great Colonia Proletaria formations are occurring have grown an average of 46 per cent per annum!
Reported experiences with the control of this new kind of urban pattern in developing countries seem to be sporadic and sketchy. Theory to guide -- or at least describe -- the development of the total urban pattern in developing countries is also hazy. No directed control of their growth has been attempted with any lasting effect. In order to be able to develop theories (and their corresponding policies) for guiding the growth of urban areas and peripheral Colonia Proletaria type growth, more must be known about the nature of cities in developing countries and of their peripheral settlements. Who are the successful families in making not only the geographic but also the cultural and economic transition to these peripheral areas? Where do the fringe settlers come from? Why do they choose to improve their physical and social environment in some areas of the city and not in others? How does this transition vary from country to country? Does it vary according to the wealth of the country? What happens to the peripheral population when the proportion of the agriculturally employed becomes minor and the majority of the population enters into a monetary economy? Do the migrants tend to stay after they come to the periphery?

These are only a few of the unanswered questions that have baffled both policy makers and theoreticians in dealing with both peripheral settlements and cities in highly urbanizing societies. William Alonso has described the alternative residential pattern for the poor in developing countries as either of two choices. 35 One choice is limited by a fixed geographic area, performing the same functions for successive waves of migrants, as has been
the case with central slums in the United States. The second choice available to them is the "ring, which moves outward with the passage of time," leaving behind a collection of more "urbanized" settlements of improved physical and social surroundings.

These two poles of description are useful, and in the next chapter we will see if population and housing characteristics in the Colonias Proletarias and the core tenements housing the poor and the migrant in Mexico City conform to these two kinds of patterns. We will also see what mixture between the two is there; and lastly, what the proportion and the composition of each kind of settlement through the years has been.

Since these settlements are seemingly becoming the more important residential element in the city, it is also difficult to see what the other activity patterns (e.g., commercial and industrial) in the city will be, and how these will relate to the residential pattern. If it is very hard to predict the pattern of residential land with a lack of knowledge about the peripheral settlements in developing countries, it is even more difficult to predict the pattern of, say, industrial and commercial facilities.

In the absence of a very strong and costly government policy, industrial location would tend to compete for land in the immediate periphery, compete with these low income settlements. This would happen to a lesser extent with upper and middle classes, especially less so with the former because of their relative proportions. Alonso concludes in his preliminary
description of the urban peripheral pattern in developing countries that he has
"not tried to describe them" in a formal model, because it seems to him that we
first need an explanatory or discursive state. After some period of discussion, per-
haps we can begin to develop formal, precise and provable or disprovable models
that can be operational..."37 for the description and the planning of these
fringe settlements and the cities of developing countries.

To this end the major portion of this
thesis is dedicated in the following chapter. We will begin to see in more detail
what the Colonias Proletarias are like, what kinds there are, how they are changing
with time, how they relate to their urban neighbors, and finally what their pros-
pects for the future are in the country's development. In the final chapter we will
in addition enter into preliminary discussion about the prospects of planned
development for Mexico City; and if an urban decentralization policy should be
considered; and further, if a national decentralization policy should be outlined.
Yet more important within these is what desirable role the Colonias Proletarias
are to play and how this can be guided.
Summary

Located in the central Valley of Mexico, Mexico City is the center of Mexico's urban population and focus of its industrial wealth. The benefits of inexpensive and easily distributed health improvements, increased birth rates and decreased mortality rates have brought about a large natural increase of the population for the whole country. In addition to this natural increase, population shifts from rural areas and small towns toward it has contributed to Mexico City's growth, which has been much more explosive than that of any other metropolis in the country.

However, in comparing this growth with other countries of Latin America, we found that Mexico City's proportional size and growth is not extraordinary. The proportion of national population living in Latin American capital cities is greater for a third of the countries that it is for Mexico.

Coupled with the population centralization, we found an even greater proportional concentration of national wealth in Mexico City. We discovered that it has shown the highest industrial value added per capita, highest proportions of industrial labor, highest productivity per laborer, highest concentration of service and commercial activities, and similar proportions in almost any other economic index. Future projections for the Mexican economy place the capital city's role in stronger position than it is in now.
In the last part of the chapter, we saw beginning indications of government concern for this concentration in the central region of the country, and within the region, a centralization in the metropolitan area. To this end, studies of future growth for the metropolitan area have been made, and these place the greatest growth for the poorer and peripheral (and now almost entirely rural) districts. Because of the lack of even elementary knowledge about the nature of these peripheral settlements, there is little basis for adequate planning or of even loosely predicting the future of these and other land uses within the metropolitan area. The major portion of this thesis in the following chapters attempts to analyze in detail the social, physical, and economic profile of the Colonias Proletarias.
CHAPTER II

THE COLONIAS PROLETARIAS
Introduction

This chapter presents a description of the Colonias Proletarias of Mexico City. The chapter is divided into six parts. The first part defines the Colonias Proletarias and describes them in general terms. The second part describes the origin of the Colonias: how they got started in the past and today. The third part compares the expansion of land consisting of Colonias Proletarias during the last three decades and their relative size compared to the urban area of Mexico City. It also describes the absolute and relative population growth in these peripheral communities for the same period. The fourth part is a description of quantitative and qualitative housing conditions in the Colonias Proletarias and outlying districts. The fifth part is a description of the availability of community facilities and services. The sixth and final part describes the main characteristics of the people that live in these settlements.
In parts three to five, the analysis and description is presented in two parallel ways. One method of description is based on the official definition of Colonia Proletaria, a bounded community that in plan can have "a circle drawn around it." This method uses sample survey data of varying reliability. The second and parallel method of analysis is based on census tract boundaries that coincide with the Colonia Proletaria concentrations. The census data used is that for the decades 1930 to 1960, with alternative projections to 1970 and 1990. Throughout these sections, a description of the "life style" in the Colonnias Proletarias is also included. These are based primarily on anthropological and sociological studies presented in journals and periodicals.
II.1 Defining the Colonia Proletaria

Colonias Proletarias is the legal name given by Mexicans to the relatively new kind of low-income communities at the urban periphery. A sign displaying the name of such a community is often placed proudly at the entrance. Street maps also label these districts within the city.

Tugurios, on the other hand, is the popular name that refers to all kinds of low-income communities, especially those in decay. A tugurio can be equated to a high density centrally located tenement. Oscar Lewis has described a typical tugurio as a vencindad in his The Children of Sanchez. Plan No. II-D shows the vecindades or tenements located in the CENTER of the city, wrapping around the north and east sides of the historic core of Mexico City.

Scattered on the FRINGE of the urban area, but not contiguous to the core’s tenements, are located the Colonias Proletarias. These also form a horseshoe in the north and east, with a few exceptions to the south and west. The next part in the chapter relates the growth and age of these communities to their location within the city and to other factors.

Even though the Colonias Proletarias do have legal and administrative definitions, it is difficult to find an operational
one. In a 1952 study, the Banco Nacional Hipotecario Urbano y de Obras Publicas (B.N.H.) defined the Colonias Proletarias as

paracaidista communities that represent a unique phenomenon of Mexico and other countries, which, for political reasons, involve the granting to migrant groups of land in the vacant areas of the city... These are permanent type houses of rudimentary construction with almost no participation of architects, engineers, or other specialists, and are generally unfinished. They are financed by the owners and have the further peculiarity of lacking almost entirely all of the most elemental urban services as paved streets, sewage disposal, electricity, and individual water intakes.⁴

It is clear by further definitions in the study, that other kinds of communities, i.e., the center city tenements (tugurios or vecindades), decaying zones (latant tenements), and temporary shacks (jacales), do not compare with Colonias Proletarias, the latter being the "better" type of settlements for the poor of Mexico City. That is, they are better aside from the "peculiarity" of lacking essential urban services and facilities. In this chapter we will see how these settlements in fact are or are not better off than the rest of the city, or better off than other low-income districts. Several indices based both on sample surveys and the census will be used.

The legal name of the Colonias Proletarias differentiates these communities from other new subdivisions in that the obligations to "urbanize" land, or supply services to it (streets, water, and electricity, for instance), has been transferred from the private subdivider to the public authorities.⁵ But this legal definition is also not quite operational. Some of these Colonias are not incorporated into the official count. This is because it sometimes takes 15 years...
between the time of initial proceedings for clearing the developer of the responsibility of providing services to the subdivision and the time that the authorities actually start installing them. In other words, it may take a Colonia Proletaria 15 years to achieve legal status and therefore be entitled to municipal facilities.

In addition to the "legal" Colonias Proletarias which were previously illegally subdivided land and are now recognized, the National Housing Agency (Instituto Nacional de la Vivienda, or I.N.V.) includes other settlements that "are improvised with waste or second-hand material in vacant lands not acquired by 'legal means' from its original owners. This dwelling [habitacion proletaria] is constructed with masonry foundations and walls of clay or other masonry materials." This is then a description of housing-type and a process of construction which characterizes the Colonias Proletarias at the periphery of the city. This process of construction takes place only at a rate equivalent to the energies and resources of the owners. The construction is relatively unfinished, and technically inferior to that in the core of the city.

Another characteristic of the Colonias Proletarias is their location at the urban fringe where land costs are low. In many cases these Colonias are not tied in functionally to the city's circulation system or other basic services. The Colonias tend to be far away from employment places, although some have industries within them. They tend to lack recreational
and other community facilities, but exceptions can be found to this and other
characteristics, as we will see in the following sections of this chapter. In fact,
some communities exhibit a hybrid mix of tenements and new unfinished housing;
they are partially serviced and neither centrally nor peripherally located.

One other kind of definition should be noted. In Mexico, as in most other countries (developed or developing), middle
or upper class values biasedly define low-income communities. In many cases
the Colonias are not seen as an alternative for housing the poor and the migrant,
but merely as "semi-desertic, absolutely tree-less dust bowls" or "lost cities
of parasitic misery where promiscuity, vagrancy, prostitution, vices and the
worst crimes flourish."
II.2 Origin of the Colonias Proletarias

The Colonias Proletarias were not officially designated so until late 1949, but many existed a decade and even two before that time. The 1952 B.N.H. study cited the initiation of Colonia Proletaria developments taking place since 1940 or 1942 at the earliest. However, Colonia Agricola Oriental, near the international airport on the eastern part of the city, existed since 1922. (Plan No. II-J) The formation of these settlements has varied. Early ones originated by quick invasion of individuals, families, and even large groups of families; thus the name of paracaidistas, or parachutists. There are dramatic accounts of these invasions which describe the worries of men, women, and children moving in overnight, hopefully into government land, absentee landlord lots, or even the creeks of the city's west fringe or the flats of drying lake Texcoco on the north fringe. (Plan No. II-A)

In carrying out the invasion of this land, the first thing that was done was to divide the land into smaller lots, prior to the inscription of the families who were to divide it... 'What bad luck... during the first day in our moving here, there was a great storm. There was no electric light nor neon lights... My husband arrived at three in the afternoon in a rented truck that would take our belongings. My daughter and I rolled the mattress, then we began to fetch the kitchen utensils. Meanwhile, my husband and the driver started to dismantle the walls and roof of our shack. At around six in the afternoon we were on our way to the Colonia. Almost immediately we began to lift two walls and the roof.'
Each family proceeded immediately to construct a dwelling. They utilized all kinds of materials in order to assure themselves a right with their presence. For example, 46 per cent of the families of this Colonia obtained a lot by occupying it. 14

If such an invasion took place on government land, it was likely that they would not be evicted. But if they took place on private lands, sometimes arrangements could be made by the owners for rent or sale of their invaded land. What proportion of the Colonias Proletarias of Mexico City originated in this manner is not known.

More recently, however, the settlement of Colonias seems to occur not by invasion but by quasi-legal subdividers. In a few cases it has occurred by a fully legal means. It is difficult to establish whether a subdivision is "legal," not only because of unclear record keeping and enforcement, but also because there are different stages of "legal satisfaction" which a developer has to fulfill in order to remain within the law. The problems of land subdivision are complex but intimately involved with the development of Colonias Proletarias. One of the obvious requirements that developers have to fulfill in order to remain within the law is to actually hold title to the land they urbanize. Another requirement is that of installing services before the sale of land.

In the first instance, a developer may not even own the land. However, when the future residents "purchase" or "rent" their lot, they do not know this. In this case, many residents continue payments
for many years until the "owner" disappears or his enterprise is discovered. In Cuadrante San Francisco, near the National University in the southern fringe of Mexico City (Plan No. II-J), a Colonia Proletaria was developed in this clandestine way around 1946.

The initiative was that of an engineer who at that time charged fifty cents rent per lot. . . The rents increased to one peso, then to two, until they reached fifteen pesos per month. That was in 1958. Since then, no rent has been paid because the people say that the lots do not belong to the engineer, but rather to the Church of San Francisco. 14a

In the second instance, the subdivider may actually hold title to the land. But because he cannot finance the installation of utilities, streets, and leave adequate sites for community facilities as churches, schools, and public markets, he sells his lots without properly recording the titles of the new owners. It seems that most of the new Colonias Proletarias are being developed in this manner. 15 The settlers rent or buy from the developer, hoping that the land will belong to them in the future.

The contracts that the developers and future owners sign in many cases display the "urbanization" clause very prominently; the promise to install services within a specified period of time. The developers also advertise in the streets and newspapers in order to sell their unsubdivided land. In many cases they have sought prospective clients where they are being displaced by urban renewal projects in the center of the city. A recent example of displacement has been with the project of submerging the Churubusco River.16

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Finally, the third kind of low-income development is one where the private subdivider has title to the land and installs the services according to regulations. This kind of complete development has occurred only in middle and high income private and public developments. The latter also tend to be upper-middle and lower-middle income developments, as we will see in Chapter III, where the role of the public sector in housing and urban development will be discussed. There is one exception, at least, where the developer has been able to secure mortgage financing for very low-income housing. However, this is almost non-existent.

In the first two cases where the settlements are not provided with urban services, the developments tend to be the same whether or not the owner does actually have legal possession or not. The variations in type of development seem to arise because of other conditions such as topography, location (distance from center of city, and whether within or outside the Federal District), how long they have been recognized, age of settlement, existence of an organization or even the availability of cheap construction materials.17

One factor which seems to be crucial in the development and quality of the Colonias Proletarias is their recognition by the Federal District as such. The occupants are not eligible to receive public services and community facilities until they have clear title to the land and the subdivision is properly recorded by the developer. For instance, electricity would not be sold by the power company to illegal subdivisions in an agreement with the Federal District.18
The procedure for recognizing a settlement as a "Colonia Proletaria" has been somewhat as follows:

If it was possible to locate the subdivider and deal with him, the District belatedly required him to dedicate land and make the usual payments for markets and schools; the subdivider was further required to give titles of sale purchase to the occupants. The Federal District would then inscribe the titles in the Public Register of Property, and would recognize an official improvement association for the area. More often the Federal District expropriated the property from the original subdivider and sold it gradually to the people living there then. After the completion of these proceedings -- which would take anywhere from 5 to 15 years -- the occupants, assured of continued legal occupancy, would respond with a burst of building activity that would improve the houses strikingly at the same time that the government began to install services. 19

Most of the 5,000 residents in Cuadrante San Francisco, described above, believe that drainage and water are the most crucial problems in their Colonia, but are worried also about placing in order the titles of ownership precisely to receive these services. 20

One of these Colonias Proletarias in transition is described by Oscar Lewis in his Five Families:

The El Dorado Colony on the northeast limits of Mexico City near the airport was a new development, only five years old, built on the salty, dried-up bed of Lake Texcoco. It was a 'proletarian' colony, with most of the homes privately owned, though some of them only shacks. So far there was only one unpaved road and no streets, and the development lacked water, drainage and electricity. An unfinished chapel and two small stores served the neighborhood... A bus line with old and dilapidated buses connected the colony with the nearby Villa de Guadalupe and with more central locations in the city. 22... There was no school in El Dorado. The water department sent out each truck with just enough water for an exact number of families. 23

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There are several colorful and descriptive accounts as this one for recent Colonias Proletarias. However, as in most developing countries with highly explosive growth at the urban periphery, little account has been kept of the original invasions, or of a single Colonia as it progressed through the years. It goes without saying that comparative studies are also non-existent between countries. The following sections of this chapter begin the discursive state that could be followed for future comparative studies among countries.
II.3 Location and Growth of the Colonias Proletarias

At the metropolitan scale two factors greatly differentiate the Colonias Proletarias from other types of low-income developments: location and growth rates. This section will describe how the Colonias Proletarias have expanded in both area and population relative to the metropolitan area.

There is no doubt by almost any measure that the Colonias Proletarias from an increasing proportion of all new urban growth of the Mexican capital. For instance, for 1965 this proportion is estimated to be 40 per cent of the metropolitan area's growth.24 Officially designated Colonias Proletarias have grown outside the 1930 urban periphery. (Plan No. II-C) The gradual growth and improvement of Colonias Proletarias does not permit accurate estimates of starting points. It is possible to find most Colonias Proletarias developing continuously during the last three decades and going on until today.

Some estimates of age, however, have pinned down these starting points: 28 of the settlements began prior to 1930, 81 in the decade 1930-1940, 147 in the decade 1940-1950, and over 150 in the decade 1950-1960.25 Another source estimates the number of Colonias increasing from 280 to over 400 in seven years.26
These numbers in themselves are not very meaningful in describing growth, as would be estimates of territorial expansion or of population increases, since the population in a single Colonia can vary from a few thousand to several tens of thousands. Similarly the area of a single Colonia can vary from a few hectares to several hundred.27

There is another problem encountered in defining a Colonia Proletaria as a unit. If new growth occurs adjacent to an existing Colonia, it may be given the same name and thus be considered an extension of the first. On the other hand, if this adjacent growth happens to adopt a different name, it is counted as a separate entity.

There are two other more accurate alternatives for describing the location and estimating the growth of the Colonias Proletarias. These methods are much more satisfactory than counting individual Colonias, although not entirely precise. They form the body of this chapter.

The first measure of growth is based on official designation of the Colonias Proletarias. Given an official identification of such settlements for the decades 1940 to 1970, what are the absolute and relative rates of territorial growth?

It is estimated that in 1940, the Colonias formed about 21 per cent of the contiguous land area of Mexico City. By 1950 this proportion had increased to 24 per cent, and to 35 per cent by 1960. Based on the
previous five years' trends as a very conservative estimate for future projections, by 1970 the Colonias Proletarias would constitute from 40 to 50 per cent of the total urban area. (Table II-1)

The absolute rates of territorial increase are equally striking: in the decade from 1950 to 1960, the Colonias increased from 16,300 to 68,000 acres, or at a 42 per cent annual rate, while Mexico City's urban area in the same period increased from 60,000 to 116,000 acres, or equal to an average annual rate of increase of only 19 per cent. (Table II.1B)

This territorial growth of the settlements is almost entirely confined to the areas outside the central city. Where exceptions are found, they are to fill in gaps skipped over; examples are found in the southern sections of Mexico City. (Plan No. II-C)

This measure of territorial growth, based on official designation, again has several definitional problems.28 The major ones are (a) At what time should the settlement be dated as originating, when in fact it takes several decades for a Colonia to build up? (b) What should be the proportion of permanent housing over temporary shacks (or occupied lots) to qualify as a Colonia Proletaria? (c) And last, is the official designation of a settlement accurate and reliable, or is it similar to most developing countries in the recent past where a great many settlements are not even known to exist or just ignored?29

Part of question (a), the origin of settlements, has been dealt with in defining the Colonias Proletarias in this chapter; given the
gradual and extended period of settlement building, short range estimates of growth tend to be the most distorted. However, a thirty-year period has been presented in the analysis following; although the danger exists of being inaccurate at both ends of the period: in the 1930's because of lack of existing records, and in the 1970's because of inaccurate prediction methods. Population measures defined by census areas do overcome some of these difficulties. Even with all these definitional problems in mind, the proportion of 40 to 50 per cent of the total urban area in Colonias Proletarias does not seem unreasonable when compared to other cities in Latin America.  

The second question, (b), is really that of housing quality. This can be overcome by considering the area's increase of dwelling units as qualitatively defined by the census.

The third question, that of official designation, can also be overcome. It has been estimated by the Federal District Office that "15 per cent of the District's population still lives in 'unrecognized' Colonias Proletarias, or in similar areas lacking services." This estimate does not take into account those developing outside the administrative boundaries of the Federal District in the State of Mexico: to the northeast and northwest of the city. In the following discussion these municipalities have been incorporated into the estimates.

Population growth is probably a more reliable measure of growth than territorial expansion, unless we would have
periodic aerial photographs. The measure of population growth is also presented in Table II-1 for comparable years. By 1952, the Colonias were estimated to have 14.2 per cent of the urban population of the Federal District. By 1955, the proportion had increased to 20 per cent, and by 1960 to 40 per cent! In absolute amounts the Colonia Proletaria population was estimated for 1952 at 420,000. This amount increased to 750,000 five years later, and to 1.5 million five years after that. The average annual rate of increase for the 1950 to 1960 decade was 36.7 per cent for the Colonias as a whole, while the capital city's urban population increased by an annual rate of 16.7 per cent. By comparison, the valley of Mexico increased at an annual rate of 4.8 per cent, and the country as a whole at 3.0 per cent. Very conservative estimates place the Colonia Proletaria population from 40 to 50 per cent of the total population of Mexico City by 1970.

We will see in section five of this chapter how migration patterns, mortality rates, and fertility ratios affect these growth trends in the Colonias.

In the first measure of growth we have seen that by taking the boundaries of the Colonias Proletarias as given, the absolute and relative increases of population and land both are sizable in comparison to that of Mexico City as a whole. The main problem with this first approach is that the survey from which the proportions are taken may not be reliably accurate; the latest surveys are probably the most accurate. The B.N.H. 1952 survey estimates were based on a sample of 9 Colonias out of 200. The income distribution data, for
instance, was based on a sample size of sixty-two families. The I.N.V. 1957 estimates were based on a sample of over 50 Colonias, all of them to the north-east. In addition to these surveys, there are accurate case studies for individual Colonias. These will be presented in the fourth and fifth parts of the chapter.

We now turn to the second method of description of Colonias Proletarias growth at the metropolitan scale. This approach is based on census data for the same decades as with the first method of estimation.

We found the first method gave a meaningful description of the Colonias Proletarias per se. That is, we did not include areas not considered Colonias Proletarias in the description. Survey data, though, is probably not a precise measure. On the other hand, census data when used brings out the reverse; that is, the data is very precise but not as meaningful in describing the Colonias Proletarias because the census districts do not necessarily follow the boundaries of Colonia Proletaria districts. There are, however, other definitional problems that vary from decade to decade. For example, the active labor force in 1950 included age 12 and up, while the 1960 census included age 8 and up.

The following discussion will be kept parallel by both methods of analysis because of the value that each kind of data offers. Census data gives a comprehensive account of many population and settlement characteristics: dwelling unit sizes, conditions and facilities of dwelling units, employment and occupational distributions, birth places, family sizes,
mobility, and many other attributes which may be associated. Thus, the use of decade census data can lead to generalizations concerning the development of these peripheral communities as contrasted to other districts. Together with plans of the city, census material can be extended to show spatial distribution of variables, especially the concept of density of these variables.

There seems to be a reasonable enough coincidence between the boundaries of officially designated Colonias and census districts in the northeastern part of the city, where the highest concentration of Colonias Proletarias is found. We find it to a lesser extent in the southwestern section of Mexico City, where the newer upper and middle income suburbs have developed. (Plan No. II-C)

In matching census definitions to Colonia Proletaria boundaries for the decades 1930 to 1960, the districts were aggregated in the following manner (illustrated in Plans No. II-F and II-G):

a) the core, as all districts within "Ciudad de Mexico" as defined by the census, except for Districts I and XII;

b) the Colonias Proletarias ring, as Districts I and XII in "Ciudad de Mexico," plus one eastern and two northern municipalities within Federal District;

c) the seven remaining contiguous and partially urban municipalities, three in the Federal District and four in the State of Mexico.

These groupings were made a priori, that is, before looking at the census data, but after deciding where the Colonia Proletaria concentrations were found from sample surveys. This is emphasized because only in this manner can the validity (or deviation) of the two sets of data be tested against one another.
The last grouping, (c), will not be aggregated as a single sub-metropolitan area as will be the Core and the Colonias Proletarias ring. These seven peripheral municipalities are the areas of newest growth (since 1960) and therefore have no sample data to test against; probably some are extensions of the present Colonias Proletarias, some are extensions of middle and upper class residential districts, and some are both. As pointed out above, they are partially urban districts. Chimalhuacan, for instance, on the eastern side of the city, did not have any of Mexico City's urban area extend into it until the late 1950's. In fact, census data does not record any "urban" population before 1960 for that district. In 1960, only 63 per cent of the population was considered urban in Chimalhuacan. (Plan II-E) This is typical for the outlying seven districts, some of which only have the edge of the urban area beginning to extend into the district, while the greater portion of the same district remains rural (a great majority of the population is engaged in agriculture). The difficulty arises in that census data are not broken down by urban-rural categories for such characteristics as housing conditions, population profiles, or place of birth. This presents no difficulty in the core, nor in the Colonias ring, because these districts are for the most part 100 per cent urban. (See Table 11.11, column one for urban proportions)

What this means is that because the core and the Colonias Ring are totally urban districts, the detailed census data is appropriate for describing them; on the other hand, the outlying seven census districts are not. Therefore, the detailed data describes both urban and rural population.
Because it is likely that rural dwellings, for instance, will not have sanitary facilities, the outlying districts show an increasingly low housing standard, more equal to the rural mean. This distorts any comparative evaluations for these districts. This distortion, however, varies within these seven remaining districts, according to how much of the population is considered "urban."

As the data in the following sections of this chapter is presented, we will also keep in mind that of the seven, Coyoacan and Obregon are not Colonia Proletaria Municipalities, that Naucalpan has a mixture of both (it has Ciudad Satelite within it, but is a predominantly middle-class suburb), and that Tlalnepantla, Ecatepec, Chimalhuacan, and Ixtapalapa tend to have more Colonia Proletaria development than any other kind. (See Plan No. II-E, where Colonias Proletarias are superimposed on census district definitions.) For this reason, the seven districts will be aggregated into four of Colonia Proletaria type and three of non-Colonia Proletaria type.

There is one further difficulty in matching aggregated census districts to Colonia Proletaria boundaries in (a) and (b) above.

We find exceptions to the aggregated areas in districts II, IX, and III. Because both districts II and IX have small Colonias within them, they are considered within the core aggregation. This only will tend to distort the data for the earlier decades when these districts "filled up"; similarly with district III. In addition, some scattered Colonias Proletarias on the fringe of districts X and XII were not included; these are not the major concentrations, however.
In almost any tract within the aggregated Colonias Ring (especially those to the south), settlements other than Colonia Proletaria type are likely to be included. These difficulties, however, could not be overcome, since the census data was not available to the author in disaggregated or smaller-than-district form. The southern districts within the Colonias Ring will therefore be considered less representative of conditions in these settlements.

The detail and quality of the census data does give, however, a comprehensive account of the trends in this sub-metropolitan area. It gives account of overall trends and changes, quality of housing, and population characteristics.

We first want to examine aggregate relative population expansion for the contiguous metropolitan area and, as in the first method of analysis, see how this compares to the districts where the majority of the Colonias Proletarias are concentrated.

The urban population of the metropolitan area\(^\text{34}\) has grown from over one million in 1930 to close to five million in 1960, the average annual rate for the first decade 1930-1940 being 4.60. For the second decade the rate was 7.55; for the last decade of 1950 to 1960, the rate was 6.44 per annum.

The Federal District’s total population, including rural, approximates these same rates, but the Valley of Mexico’s\(^\text{35}\)
rates seem to be much lower: for the same periods, the rates were 3.18, 5.03, and 4.80, showing a slowing down in the last decade. This slowing down rate is dramatically pronounced in the central city, where the rates for the same period are 3.58, 4.54, and 2.02. In absolute numbers the central city's population was .8 million in 1930, 1 million in 1940, 1.5 million in 1950, and only 1.8 million in 1960. These figures are similar to those taken from sample surveys in the central city. For instance, the tenement or tugurio population rose from 365,450 in 1950 to only 383,813 in 1960, or at a rate of .48 per cent per annum, at the time when the metropolitan expansion was still one of the highest in the country.

If we look at the disaggregated rates of growth, we find that already in the 1930-1940 decade all but two of the urban municipalities outside the central city have higher growth rates than any within the central city. Azcapotzalco in the Colonia Ring to the northwest and Obregon to the southwest have the highest growth rates. The Colonia Ring grows at an annual rate of 9.92, the highest in the urban area. In the State of Mexico, municipalities still play a minor role except for Tlalnepantla, also to the northwest, which has a higher growth rate than the metropolitan area as a whole. (Plan No. II-B)

For the following decade -- 1940 to 1950 -- the highest decade of metropolitan growth, all districts of the Colonia Ring grew at twice or four times the rate of the core area. Villa Madero to the northeast grew at the highest rate of 39.3 per cent per annum, or five times the rate of the metropolitan area's annual growth! In this same period, Ixtapalapa to the southeast grew
at the highest rates for the seven districts at 27.60 per annum! By this second decade, the northern municipalities in the State of Mexico begin to show high rates of urban population growth; this is concentrated along the highways leading north to the cities of Queretaro and Laredo. (Plan No. II-B) Tlalnepancla to the northwest has increased its growth rate to 3 per cent, and Ecatepec along the Laredo Highway has increased its growth rate to 17 per cent per annum. In this decade central city districts are at their highest growth rates: 4.5 per cent per annum, but just less than half of the metropolitan area's growth rate.

The most dramatic population changes occur in the decade of 1950 to 1960, especially in the outlying districts of the State of Mexico, which are not generally included in the official definition of metropolitan population and obviously not included in the Federal District's population. Naucalpan in the State of Mexico grows at an average annual rate of 138 per cent, due for the most part to the development of "Ciudad Satelite." The outer districts grow at a rate of not less than 25 per cent per annum at the same period when the metropolitan area grows at a rate of 7 per cent per annum, and the core area of the city at a rate of 2 per cent!

The aggregated figures for the three sub-metropolitan areas as defined above are summarized from Table II-3 as follows:

<table>
<thead>
<tr>
<th></th>
<th>1930-1940</th>
<th>1940-1950</th>
<th>1950-1960</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Districts</td>
<td>3.6</td>
<td>4.5</td>
<td>2.0</td>
</tr>
<tr>
<td>Colonias Proletarias</td>
<td>9.9</td>
<td>14.3</td>
<td>10.2</td>
</tr>
<tr>
<td>Outer Municipalities</td>
<td>7.0</td>
<td>19.4</td>
<td>25.4</td>
</tr>
</tbody>
</table>
This summation of the growth pattern of the city, dividing it in terms of three sub-metropolitan areas of "homogeneous" growth, serves as a basis for analyzing particular characteristics of the population in such areas. We will see how these aggregated census data conform to the pattern described earlier as the first method of estimation which relied on official designation of Colonias Proletarias. Both methods of estimation will be carried parallel for the following sections of this chapter: how the particular characteristics of Colonias Proletarias compare to the districts where they are concentrated, and how they compare to other districts which are different in location, socio-economic, or physical characteristics.
II.4 Housing in the Colonias Proletarias

So far an analysis of the growth of Colonias Proletarias has been presented, both in absolute and relative terms for population and land. The time span that has been covered has been that since the 1930's to the 1960's, the time when great peripheral extensions of these communities sprang up.

The Colonias Proletarias, however, are not the only new elements in the Mexican capital. Eighty-one per cent of all housing in 1965 was under thirty years old. In Chapter I we discussed the establishment of a great number of industries in the Valley of Mexico adjacent to or within the Federal District's borders; this has been an important factor in the city's development, and has reinforced the traditional concentration of most governmental and private administration along with the corresponding services. Also in Chapter I the primacy of the capital was discussed: by the end of 1964 there was only one city with a population over one million -- Guadalajara. Only three cities followed with a population of over 300,000.

Because the urban distribution of population within the country has given Mexico City the strong primate role, a great proportion of the urban housing is also located in the metropolis. Of this housing stock, between 40 and 50 per cent of it is found in the Colonias Proletarias in 1965.
This part of Chapter II presents again, from a comparative point of view, what the housing conditions are like in the urban fringe.

In trying to analyze the housing conditions in the Colonias Proletarias, one is likely to encounter more problems than in assessing population growth or territorial expansion. The many complex and qualitative attributes of housing can be theoretically isolated and measured. The problem, however, exists in trying to merge different survey and census data when each utilizes a different concept of quality. The definitional problems will be discussed in each sub-part.

Housing can be analyzed in a purely quantitative manner. One can consider the number of dwelling units that a community should have, based on the number of families, and see if the housing stock does satisfy this need; similarly one can predict future housing needs by projecting population trends. This point of view has several definitional problems, though. First, it is not possible to estimate this kind of deficit exactly in sample surveys; and census housing data unfortunately are not available by income groupings. Second, the concept of family is difficult to define precisely in the Mexican context. What exactly constitutes a family when the socio-cultural and psychological characteristics of "families" include free unions, relatively high incidence of abandonment of both mother and children, and a predominance of the nuclear or extended family?
The main consideration which complicates a quantitative analysis, as mentioned above, is the income distribution of the families and its relation to the availability of housing at their rent-paying or purchasing capacities. A surplus of housing for upper income groups, it goes without saying, can do nothing to alleviate the immediate shortage of housing for the lower-income groups, especially if the income gaps are great as they are in Mexico. Nevertheless, it is possible to sample within a district and find the housing available for a given income level and its quality, and compare it to housing needs—given some agreed-upon standards. Similarly, it would be possible to estimate future demand for housing, given population and migration projections.

Even though there are internationally accepted methodologies and standards for estimating housing deficits and quality, different surveys disagree with each other and with census definitions. As pointed out, the housing deficit often quoted in Mexico consists of the difference between the number of families and the number of dwellings. It assigns one dwelling to each family without considering the normal span of a dwelling and how it is altered through deterioration and destruction.

In addition to the physical condition of dwellings, criteria for determining the habitability vary from survey to survey. As in the first part of this chapter, we will use the two different methods of analysis and description: the one based on sample surveys and the other on census data for comparable periods and areas. Since the
concepts measured sometimes overlap and in other instances are only covered by one of the two methods, one would expect disagreement. In analyzing housing characteristics in this section, both methods will be carried out simultaneously. Census data, however, is only aggregated for 1960; changes of definitions between decade data do not permit comparison in time.

In Tables II-9 and II-10, we find in summary form the housing conditions of the Colonias Proletarias from official sample surveys, private small surveys, and the 1950 and 1960 census. The disagreement of these sources is due in part to the variations in sample size and sampling methods. Part of it is due to different sampling periods, covering the years from 1952 to 1965. In the small case studies, the figures diverge, since they do not represent aggregate conditions. Variations are also due to differences in the original concept being quantified and the assumed boundary of the metropolitan area. The latter deviation has been footnoted where found.45 (See Table II-9)

In housing the poor of Mexico City, the Colonias Proletarias contrast much to the center city’s tugurios. One measure of contrast is offered by crowding indices confirmed by the outward appearance of these two kinds of housing.

Sample surveys place the mean dwelling unit size in the Colonias Proletarias at around two and one-half rooms.46 On the other hand, the mean size of the tenements in the core of the city is only one and three-quarters rooms. According to these surveys, the Colonias Proletarias are
among the more spacious housing for Mexico City. Twenty-two per cent of the city's dwelling units occupy less than 20 square meters, or an area about 15 by 17 feet. This means that 83 per cent of the dwelling units in the city are not capable of housing more than four members at minimum space standards. (See Table II-4) The mean size family in Mexico City is about 5.5 members. Census data, however, does not record area of dwellings. By contrast, an upper-income residential district averages eight rooms per dwelling unit.

Other comparative measures of crowding are population per area, building coverage, and persons per room. Surveys in the Colonias Proletarias place the average density at 98 persons per hectare; on the other hand, the tugurios density was three times this amount. Floor area ratios (F.A.R.'s) are not available for these areas, but it is possible to very roughly estimate these. In the center city tugurio, with an average building coverage of 85 per cent and a height of three floors, the F.A.R. is equal to 2.55. Similarly, in the Colonias Proletarias, with one-story construction almost exclusively and building coverage around 30 per cent, the comparable F.A.R. is equal to 0.3, or eight times less. This great difference in F.A.R. makes it possible to have a private yard for outdoor household activities in the Colonias. This does not take into account the large proportion of lots that are left empty and serve as open space. This has the obvious advantages of ventilation and lighting and its consequences on the health of its inhabitants.
Another factor in density is that most housing in the Colonias Proletarias is of single family type, as it is also in the highest income areas of the city. Of Mexico City's 37 per cent single family housing, the majority is found in the periphery. According to the 1962 Social Security Institute Survey, the lowest and highest income levels of Mexico City share the bulk of single family housing.\(^4\)

The 1952 B.N.H. survey estimated the Colonias having a mean of 2.7 persons per room, although individual case studies place the figure much higher. An extreme example is the Colonia Proletaria in "Cuadrante San Francisco" near the National University: 43 per cent of its units have only one room; that is, one room for sleeping, cooking, and doing all other household activities.\(^5\) A survey of "La Villa" in the northeastern section of the city estimated this settlement to have 23 per cent of its housing with only one bedroom, when the mean family size was 6.5 in 1962.\(^6\)

These scattered indices and sample surveys indicate, with some exceptions, that the Colonias Proletarias are much less crowded than old tenements, and even less crowded than the city's average, although the aggregated census figures for the same districts do not entirely support such conclusions in 1960.\(^7\)

Table II-5 points out that both the Colonias and the seven outer districts have a greater proportion of one and two bedroom dwellings than does the core. If this data were available by income, it would be
possible to determine how many of the one and two bedroom dwellings are apartments of middle and upper income in the center of the city and how many are one room dwellings as in the core's tenements.

If to the data in this table were added the average number of occupants per room, aggregated in the same manner, we find no confirmation of the sample surveys' indices. (See Table II-8). Again, variations in concept analyzed can be at the root of the differences. Certainly in the two-bedroom category of Table II-5 a difference of one or two per cent is probably not significant; however, in the one-bedroom-only category, a difference of 11 per cent between the core and the Colonias ring is inexplicable, since rather the reverse is confirmed by sample surveys.

The census measure of crowding, presented in Table II-8, summarizes census data by the number of persons per dwelling unit room. This data contradicts the crowding trends measured by survey data. For any size dwelling unit, the number of persons per bedroom is much less in the core districts than it is in the peripheral Colonias Proletarias. Although an individual difference of, say, 0.12 per cent may not be significant between the core and the Colonias ring, the trend is clear for all sizes of dwelling units.

What this index measures is the number of persons per bedroom in a dwelling unit. As we will see in the sixth part of this chapter, the families in the Colonias districts are much larger than the core districts' families. This crowding index may measure, then, only the larger number of children for each bedroom.

-70-
Another trend that is also clear is that the larger the dwelling unit, the less crowded it is on the average. This generalization holds for the Colonia districts but not for Obregon and Coyoacan. These two upper and middle income districts perhaps house a few Colonias Proletarias and these are the smaller ones, while the larger dwelling units probably house the main portion of the middle class or upper class population. The more bedrooms a dwelling unit has in these two districts, the less crowded it is -- the reverse trend of that found in the remainder of the city.

The last column in Table II-8 shows the mean number of persons per bedroom. It is interesting to see that among the Colonia Proletaria districts, the more northern districts are more crowded than the central or southern districts are. District XII to the south has on the average 1.78 persons, while Azcapotzalco to the north has 3.30 within the Colonias ring. Similarly, for the four Colonia-type districts, the northern Ecatepec district's mean persons per newer bedroom is 6.50. Ixtapalapa to the south is only 2.90. Not only do the districts get less crowded as the dwelling unit gets larger, but also as the district is farther north.

Perhaps more meaningful comparisons could have been made if the census had reported in addition the one-room dwelling unit; that is, one room for all the household activities which seem to typify the tugurios and vecindades.
Table II-8B summarizes the survey data comparable to the census data for crowding. Although the definition of one room in the survey means one-room dwelling unit, it can be seen that around 60 per cent of the dwelling units have four or more persons per room. Similar figures for the tugurios are shown in the same table.

To use another measure, we take district population and divide it by the district’s urbanized land area. Doing this, we find that in 1960 in the core, only four districts have higher densities than the highest Colonia Proletaria district. For the remaining seven districts the density is, as expected, much lower than that of either the Colonias ring of the core; these seven districts are only partially urbanized, that is, land has been developed and not all lots have been occupied. The very lowest densities are found in the newest low-income peripheral districts of Tlalnepantla, Naucalpan, Ecatepec, and Chimalhuacan. Ecatepec to the northeast, for instance, had a gross urban density of 5.6 persons per acre, while district III in the core had a gross density of 132 persons per acre. The mean density for the urban area was 42.5 per developed acre. Table II-7 following this section presents these figures in summary form.

In this sub-part, we will analyze the availability of sanitary facilities and services as a measure of contrast between the different kinds of settlements or districts within Mexico City.
According to the 1962 survey by I.M.S.S., in the metropolitan area 20 per cent of the total housing stock lacked water altogether, 26 per cent had the service in the building or on the property but not in the dwelling unit, and 54 per cent of the dwelling units counted with water service within the dwelling unit. The survey pointed out that the majority of those dwelling units lacking water service were in Colonias Proletarias located on the periphery of the urban area. The 1961 I.N.V. survey in the Federal District estimated, however, that only 9.4 per cent lacked water altogether, and that 61.8 had it within the dwelling unit.

In comparing these survey data to the aggregated census data for 1960, we find the proportions found in Table 11-6. These data indicate that the Colonias ring is not so bad off as compared to the better three districts on the outer edge. However, the outer four districts similar to the Colonias Proletaria development show a much greater contrast. Three of these four districts, it must be remembered, are in the State of Mexico. We see that 36 per cent of the dwelling units in these four peripheral districts have no water at all, compared to 10 per cent for the Colonias ring and 7 per cent for the core.

Similarly, for bathroom facilities, the 1957 I.N.V. survey of Colonias Proletarias placed the proportion of dwellings without running water bathrooms at 74 per cent! Two case studies, one in "La Villa" and another in "Cuadrante San Francisco," placed the proportion at 29 per cent and
97 per cent respectively. For the metropolitan area, the I.M.S.S. study estimated in 1962 that 50 per cent of the dwellings had no bathroom at all.\textsuperscript{57}

These survey data diverge from aggregated census data which show that in the core only 17 per cent of the dwelling units had no bathrooms with running water. The proportion was 35 per cent for the Colonias ring (compared to 74 per cent in the 1957 I.N.V. survey), and 87 per cent for the outer districts. The proportion was only 12.5 per cent for Coyoacan and 25 per cent for Villa Obregon, the two middle and upper income districts.\textsuperscript{58}

It must be remembered that the proportions for these outer districts include rural population, since the data is not broken down for "urban only" in the housing characteristics. Nevertheless, the general trends are: the farther out from the core of the city, the less likely to have bathrooms with running water, except for middle and upper income districts.

As far as the facilities of sewage and drainage, the 1962 I.M.S.S. study reported that 40 per cent of all the dwellings in the metropolitan area lacked such facilities. However, the 1962 I.N.V. study reported the proportion for the Federal District as 26 per cent lacking the facilities. Individual case studies of Colonias place the proportions from 40 per cent to almost 100 per cent lacking sewage and drainage facilities. The 1958 Colonias survey placed the figure above 40 per cent. (Table II-10 presents the data in summary form, and Plan II-1 in graphic form.)
Census data also records the lack of drainage and sewage utilities in a dwelling unit. For the core districts, the proportion was 66 per cent; for the Colonias districts, the proportion was 36 per cent (40 per cent in the 1958 Colonias survey); for the four peripheral low-income districts it was 68 per cent; for the two upper-income peripheral districts it was only 23 per cent; for Naucalpan it was 90 per cent. The last figure is probably due to the large percentage of rural population that the district has: 35 per cent in 1960.

We see then that the older Colonias ring is better serviced than the new extensions of Colonias, especially those in the State of Mexico: Tlalnepantla, Ecatepec, and Chimalhuacan. We also see that the upper-income peripheral districts are better serviced by almost twice the proportion. What is not so understandable is the core of the city lacking sewage facilities by a higher proportion than the Colonias ring. This can only be explained perhaps by the high proportion of dwellings in the central districts which have common facilities, as in a vecindad that Oscar Lewis describes in The Children of Sanchez.

The 1962 I.M.S.S. survey further found that the low-income peripheral communities had the highest concentration of outdoor kitchens and kitchens as a part of one-room dwelling units (15 per cent for the metropolitan area).

The same survey also found that of the 8 per cent of the metropolitan area dwelling units made with disposable material, most were found in the peripheral communities; although in a scattered pattern, they were
probably interspersed throughout the Colonias Proletarias as these began their slow process of consolidation. 59

Two more factors of comparison between the Colonias Proletarias and the rest of the city are that of age and tenure. In Plans No. II-B and II-D, we can see that most of the developments in Mexico City are relatively young -- that the majority of the spread for the metropolitan area took place after 1930. In fact, we find that only one-fifth of the housing units were built before 1935, and the majority of these are found in the dense core of the city and in a few scattered southern sections. Almost 40 per cent of the dwelling units were built between 1953 and 1965. 60 And yet, of those built during this period, 7 per cent are of temporary materials; the proportion is 10 per cent built of temporary materials between 1959 and 1962.

This is a manifestation of the poor quality of the construction of the 'barriadas' of the periphery, where citizens build their homes with second hand materials, or with rudimentary techniques that impede them to realize good construction. The incidence of this phenomenon is found in the northeastern sections of the city. 61

In Chapter IV we will see that this offers opportunities for public action that have not yet been explored, that of initiating simple building training centers to aid the peripheral dwellers in their already enthusiastic self-help initiative.

Concerning tenure, the 1952 B.N.H. survey estimated that in the Colonias Proletarias, 77 per cent of the dwelling units were owner-occupied; 62 the 1958 I.N.V. survey in the Colonias estimated the proportion at 53 per cent ownership. The difference might not be due to different
sampling periods, but to a change in sampling procedures and the sample space. The first survey only sampled in four Colonias for tenure data, while the second sampled in most of the northeastern Colonias at that time.\textsuperscript{63} For the metropolitan area, the I.M.S.S. 1962 survey estimated that 30 per cent were owner-occupied, 59 per cent were rented, and 11 per cent were neither.

Census data for the core indicates that only 13 per cent of the units are owner-occupied; for the Colonias ring, the proportion is 21 per cent. For the four low-income peripheral districts, the proportion is 41 per cent; and for the three middle and upper income districts, the proportion is 33 per cent owner-occupied.\textsuperscript{64} The trend in home ownership for the majority of the lower income population in Mexico City seems to be a function of newness of district and its distance from the center; the farther out, the newer the district and the more likely is the person to own. This generalization, however, does not hold for the upper income districts.

For the Colonias ring, the highest percentage of owner-occupied units were found in Ixtacalo to the southeast (30 per cent) and Villa Madero to the northeast (31 per cent), both newer developments. Similarly, for the Colonia Proletaria type development of the outer districts, the newer ones have higher percentages of home ownership. In Chimalhuacan, one of the last to develop, the proportion was 62 per cent home ownership.\textsuperscript{65}

One other district to the south, Coyoacan, rated high in proportion of owner-occupied units at 39 per cent. Although there
are some Colonias Proletarias in this municipality, this factor alone does not explain the lower-than-expected proportion, if income is directly related to ownership. The investigation of the relationship of housing owners and income is a complex one, and it is not the purpose of this thesis to deal with that aspect of the problem, especially since the data on income distribution is not only scarce but also unreliable. A possible explanation for only 39 per cent ownership in Coyaocan could be that housing, among the durable goods consumed by the upper income person, is not as important proportionally as it would be for a lower income person. It is also not as high priority as an investment security for a lower income person. It is also possible that physical mobility for the professional class is easier as compared to the lower income class, that therefore might influence the trend towards rental units. In the fifth section of this chapter, the relation between tenure and income will be explored further.

In terms of tenure and age, the pattern of the Colonias Proletarias conforms to the simple model of rented and old in the center, in contrast to new and owned in the periphery. This is especially so for the four newest districts on the periphery. (Table II-11)
II.5 Community Facilities and Services in the Colonias

Part 4 of this chapter compared housing in the Colonias Proletarias by the two methods of description and analysis based on the census and sample surveys. In general, census data was broken down in similar categories so that size of dwelling unit or density of persons per room could be compared from both data sources. In this part of the chapter such comparative analysis begins to break down; population census data does not record most of the community facilities that surveys of the Colonias have quantified.

The data available from surveys is also somewhat sketchy. In addition to the services (e.g., water, sewage) described under the housing part of this chapter, the data from surveys unevenly covers the following concepts: open space, streets, medical services, location of hospitals and clinics, churches, schools, and markets.

Mexico City ranks very high in these areas of community services as compared to other cities or to the country as a whole. The country's infant mortality has drastically declined, and health care has been improved during the last three decades, for instance. In the area of community health facilities, in particular the number of hospitals and clinics or the number of doctors and nurses, the Federal District has received a disproportionate share compared to other regions. For instance, of the 1130 hospitals and clinics in Mexico, almost 20 per cent (or 216 hospitals) were found in the Federal
District in 1956. At this time, 12 per cent of the national population was located in the capital.

Even more astounding is the proportion of hospital beds as available in proportion to the population. Again in 1956, the Federal District counted 3.9 hospital beds per 1,000 population; the country as a whole counted 1.5 beds per 1,000. The next highest entity or state counted only 2.9, while the lowest state had a proportion of only .3 hospital beds per 1,000 population. In absolute numbers, 16,000 of the 47,000 beds were found in the Federal District.

Similarly with the number of doctors or nurses: 6,000 of the 14,000 doctors were found in the Federal District and almost 6,000 of the 12,000 nurses! The proportion of doctors per 1,000 population was 14.5 in the Federal District, only 8.6 for the next highest state, .9 for the lowest state, and 4.4 for the country as a whole. That is, the proportion of doctors was over three times as high in the Federal District as in the country as a whole. The proportion of nurses to beds, although not the highest, was one of the highest at 3.6 nurses per 10 beds. In the lowest state, the proportion was only .9; for the country as a whole, the proportion was 2.6 nurses per 10 beds.66 (See Table II-12)

These indices have pointed out that relative to the remainder of the country, health care is much more available in the Federal District than it is elsewhere. However, the Coloniales Proletarias in the Federal District are isolated, since we find that of the 216 hospitals and clinics in 1956,
only 17 clinics and one hospital were found in these districts; most of these were found in the older and more centrally located Colonias. These figures, however, tell nothing of the quality, capacity, and actual use of the facilities; the data only point out that just 8 per cent of the facilities were available in the Colonias Proletarias, which at that time housed 25 per cent of the population.

It is also likely that these clinics are not the best equipped or staffed. But if accessibility were easy, the problem would not be so compounded. In fact, we will see in another part of this chapter that lack of transportation and communication services are another crucial factor of differentiation. This makes it difficult for a dweller in the periphery to commute to the center for whatever purpose. Specialized hospitals and general clinics have to be centrally located within the city to be accessible for a large population. Health clinics are a growing element in preventive services that might hold educational classes or have day care, and should be located so that they are easily accessible to the clients in the respective neighborhoods.

In addition to physical accessibility to health centers and to hospitals, there is the further problem of qualifying for the services. Social Security services covering members and their families in 1958 amounted to only 2.6 million people for the country, or about 8 per cent of the whole population. For Mexico City the proportion was 23 per cent, because the high ratio of Social Security hospitals for members do not cover the irregularly
employed and the small self-employed person. Some of the newer clinics have been located in some of the housing projects as in San Juan de Aragon, but are inaccessible to non-residents of the project. In the next part of this chapter we will see that the employment profile does not permit a great majority of the residents to qualify for such health benefits as those of Social Security.

The availability of educational facilities and services is also difficult to assess by districts in Mexico City. On the other hand, the problem encountered in measuring educational levels or literacy rates is that the measurements measure a process that occurred at a time and place other than the time and place where the measurements are being employed.

In terms of the number of school buildings, in 1958 there were 54 schools within the Colonias Proletarias. At that time the population of the Colonias was approximately 1.2 million. The 54 schools were, however, not evenly distributed within the Colonias. Plan No. II-H shows that in 1958 some of the Colonias to the northeast and close to the center had many schools within them; those to the south, west, and extreme northeast had none.

The complexities of public education policies will not be discussed here. It is enough to point out that in Mexico City there is a variety of public, private, and semi-public religious schools that are non-community based. That is, many children commute by bus throughout the city to reach a particular kind of school. Since physical accessibility is especially limited in the peripheral Colonias, it is necessary, however, that school buildings be located within a Colonia itself.
The rural prefabricated school system has proven successful in bringing at minimum cost high education standards to the most remote areas of the country.\textsuperscript{71} A similar program could be easily developed for the more "remote" areas of Mexico City. The rural school building averages M$20,000, which includes a dwelling for the teacher and one large classroom. The program expects that the municipality supplies the labor, or the community constructs it as a self-help project. This and other possibilities will be explored in Chapter IV.

In the first chapter we found that the Federal District as a whole has benefited in educational services as compared to the rest of the country. But the Colonias Proletarias, especially the more peripheral ones, have been less privileged. While 60 per cent of the Federal District's population in 1960 had completed five or more years of schooling, only 38 per cent of the entire Mexican population had achieved this level. The proportion for the District is almost equal to the urban population of the country. (See Table 11-13) The 1952 B.N.H. survey found "a very limited amount of schools, at most one in every Colonia. The students have to walk hundreds of yards in order to get to school."\textsuperscript{72} The I.N.V. 1957 survey carried out the work in more detail and with a larger sample size for the Colonias Proletarias. The proportion found in this last survey having this education or more in the Colonias was under 10 per cent. (Table 11-14) That is, the Colonias Proletarias' educational level was less than that of the total Mexican population, even though it was part of the capital city having higher educational opportunities than the rest of the country.
The last part of this chapter, which presents population characteristics, will discuss in more detail differences in district literacy rates.

The distribution of market places and churches in the Colonias Proletarias is shown in Plan No. II-H for 1957. For these two kinds of community facilities, we also have little basis of comparison to the rest of the city or country nor to census data, which does not record this.

The availability of markets is, then, even more difficult to assess than schools. Markets have become even more "footloose" than schools with a new federal program which distributes basic food products in large trucks throughout the city. CEIMSA and ANDSA have been created recently to maintain controls of production, storage and distribution of food products considered essential. The aim of this program was to stabilize prices and the supply of such items as corn, beans, wheat, rice, and eggs. The program, which operates for the most part in the Federal District area, distributes these basic items in CEIMSA trucks or moving markets.

A 1957 family income and expenditure survey pointed out, however, that prices vary throughout the metropolitan area, but these are not necessarily related to wealth of district but perhaps more to relative location. For instance, of the food items shown in Table II-15, most of the high priced items were sold in the medium high income District XII not centrally located. Most of the
lower prices were found in District I more centrally located. The higher income districts had prices at about the mean; these districts varied from central to almost peripheral, the more expensive the retail store price.\textsuperscript{76} Equally important to assess would have been the prices of construction materials sold on a piece-by-piece basis as a function of distance from established centers of trade within the city; this information, however, was not available. Such information would be crucial for the establishment of a materials-credit program, for instance, to aid the dwellers in the fringe districts so that they would not have to pay exorbitant prices for these items used in the slow process of house construction. This subject will be further discussed in the fourth chapter.

A typical situation for a peripheral market is described by Oscar Lewis, who pictures the one for "Colonia El Dorado" as carrying only "a limited stock -- bread, soft drinks, fruits, vegetables, candles, kerosene for stoves, and not much more."\textsuperscript{77} A bus ride to the central market from such a peripheral market would take up a half hour of riding and 15 minutes of waiting each way. This is a very difficult position for those sectors of the population whose main portion of income is devoted to such basic items as food and dress.\textsuperscript{78}

Such lack of adequate -- if any -- community facilities throughout the Colonias Proletarias and similar new peripheral districts has only been described in brief for a few of these activities (e.g., markets, schools, churches, and health care centers). The situation seems to be
typical for the majority of the settlements which lack other such community needs including parks and playgrounds, recreation areas, commercial centers; even the paving, lighting, cleaning of streets, or provision of police facilities. These are particularly deficient in the new Colonia Proletaria type of developments in the State of Mexico.

In many cases, this lack of planning for community facilities and services stems from the land developer's evasion of the Federal District's regulations requiring him to at least dedicate land for such community facilities. In other cases these facilities are missing even though there may be sites for them because the District may not legally recognize the subdivision, and therefore does not extend its services. For the subdivider, the problem is further complicated because he cannot get bank credit for land purchases nor for the installments of utilities; he also has high rates of client default. Part 4 of Chapter III will review the problems connected with such subdivision procedures.

In the end, however, it is the major portion of low-income families at the periphery who live in such conditions day by day. Living on the fringe, though, is the one way in which such a family can own its home. In the next part we are going to see what kinds of families are the ones that make up the peripheral Colonias Proletarias of Mexico City, and how they differ from the rest of the population in the metropolitan area of the Mexican capital.
II.6 Population Composition of the Colonias Proletarias

The third part of this chapter presented a comparative analysis of Colonia Proletaria growth. It focused on the absolute and relative growth of the Colonias in terms of their territorial expansion and their population increases, and what this has meant to the growth of Mexico City. These ratios give an idea of the magnitude of their development, and why there is now a growing and explicit concern by the public bodies about them. Part 4 isolated housing characteristics in the Colonias and particularly focused on the spatial distribution of these attributes in the urban area; the fifth part did the same for community facilities and services. Equally important for the formulation of public policy is the analysis of the population characteristics: it follows, then, that some attention must also be given to the relationship between population change and living conditions in the Colonias.

This part of Chapter II is divided into three sub-parts. The first sub-part will describe general population characteristics as age, distribution, literacy rates, and birthplace of the population; it will compare the data for the Colonias Proletarias with that for the tugurios and the rest of the urban area. The second sub-part will be concerned with gross employment and with the structure of employment. It will also discuss income distribution of the different districts and sub-metropolitan areas. The last sub-part will describe briefly some of the relationships that exist between population characteristics, income, tenure,
and housing characteristics. Where possible methods of both estimation and
description will be continued: one based on the decade census and the other
based on sample statistics.

Because of the sketchy nature of some
of the statistics available, and the unknown sample sizes used therein, no attempt
was made in testing for nor measuring of the association between the different
attributes in the aggregated districts. As in other parts of this chapter, comparisons
made will be based only on the observed differences of proportions and, judging
accordingly, whether the differences seem significant only on an intuitive basis
and whether there is a general trend in a direction with time or place.

The Mexican population as a whole is a
very young one. During the last three decades with the decline of infant mortality,
the youngest age groups have considerably increased in proportion. The male-
female distribution itself shows no particular discrepancies, except for middle-aged
men (30 to 40 years), who show a larger proportion than women. In addition, the
proportions of women 55 or over are slightly greater than men the same ages.79

The age distribution in the metropolitan
area reflects the young ages of the nation -- : 30 per cent of the population was
under 10 years of age, and 50 per cent was under 20 years of age. But when the
distribution is broken down into sub-metropolitan areas and further into districts,
we find considerable discrepancies between one area and another (Table II-18)
This is especially so in the very young age groups (under 10) and the older age
groups (over 40). The histogram for the same data (Table II-18C) represents the
relative age distribution as per cent of the sub-metropolitan areas' population. We can see that the Colonias Proletarias ring and the four outer districts of Colonia Proletaria type development both have much higher proportions than the core districts or the metropolitan area as a whole. And, conversely, the core districts and the three middle-upper income districts on the periphery seem to have lower proportions of the under 10 age group than does the Colonia type district.

This high proportion of under 10 cannot be explained by infant mortality rates being lower in the outskirts. Even though mortality ratios are not available by districts, the last part of this chapter showed that clinics and medical facilities are generally less available on the fringes of the metropolitan area. It is also not explained by less crowded housing conditions, since crowding (persons per room) in the Colonias Proletarias was not necessarily lower than in the core districts as a whole (from Tables II-4 and II-8). It seems, then, that the high proportion of under 10 years of age is just due to higher fertility ratios in the lower-income outskirts of the city. To bear this hypothesis out, however, more careful comparison would have to be made with disaggregated, poorer, centrally-located districts.

For the age interval 20 to 29, the more centrally located Colonias districts and the core districts both have higher proportions than the outer Colonia-type districts and non-Colonia type districts. For all the older age intervals (40 and over), all districts outside the core have lower proportions than the core for the corresponding age intervals. In some cases the
difference in proportion is significantly greater, as between Naucalpan, Tlalnepantla and Chimalhuacan in the State of Mexico, and the core districts.

Naucalpan's proportions in the intervals 40 to 49 and 50 to 59, for instance, are about 4.5 per cent. For the core districts the proportions are 8.8 and 6.5 for the same two age intervals.

The Colonia Proletaria districts seem to have more young children and less old people than other districts within the city. This generalization is further supported by sample surveys in 1957, which show that the proportion under 20 years of age was 58 per cent for the Colonias Proletarias and 50 per cent for the core's tenements. (See Table II-19)

Another differentiating factor of population characteristics is place of birth. While the census does not record place of birth by census district (they are meaningless to the sampled population as a geographical area), it does record state of birth. Table II-20 shows that at least half of the residents in the Federal District and the four adjacent State of Mexico municipalities were born where they are living. (Half of the population is 19 years of age or under) For the municipalities of Naucalpan, Chimalhuacan, Ecatepec, and Tlalnepantla in the State of Mexico, the proportion of the population born outside the municipalities was 47 per cent. For the Federal District it was 65 per cent for males.

Interesting changes of place of residence are also shown by sex categories in the same table. For the Federal District, a greater proportion of the population moving to the capital are women, except
those coming from the State of Mexico. That is, there are more women coming into the Federal District from more distant places.

Independent migration studies show that since 1940, the proportion of the Mexican population born in one state and living in another has increased. For instance, between 1940 and 1950 there was an increase of 58.8 per cent in this migrant population. The greatest amount of change of residence, however, occurs between contiguous states. For the Federal District these proportions are much larger: nearly two-thirds of all major migration streams have occurred from central states to the Federal District.80

There are no studies of small-scale or intra-metropolitan migration in Mexico. Table II-20, however, does point to a crude index of such migration. As has been mentioned, almost a fifth of those living in the municipalities in the State of Mexico were born in the Federal District, so that there is a general trend in moving from the central peripheral districts. Other indices, such as differential population growth rates, were discussed in the third part of this chapter.

The two 1957 studies by I.N.V. of the Colonias Proletarias and the tenement districts show that there were many more heads of household born outside the Federal District and living in the Colonias Proletarias than were living in the tenement districts. Over 70 per cent of the male heads of household in the Colonias were born outside the Federal District. The proportion was slightly less for the woman in the household. For the tugurios, the proportion born outside the Federal District was about 58 per cent. (Table II-21)
Some theories describe migration patterns in developing countries as initiating with a move from a rural area to a small town, then from a small town to a larger town, and so on progressively until the large city is reached. This simple model of step-by-step migration might be an adequate description of the earlier moves from rural areas to large urban centers. One factor that might explain why this pattern is changing is communication. Once a link is formed by the first movers from rural areas to urban centers of progressively larger size, the followers do not necessarily have to follow in the same steps, but may make the big move directly from small rural village to large urban center.

This added dimension in explaining migration has been preliminarily tested in a case study of villagers from Tilaltongo who moved to Mexico City. The findings may not be general to the entire migration pattern, however. After the first mover arrived in Mexico City and was able to establish himself permanently, he found employment for twenty-one other migrants from Tilaltongo with his firm. Of the thirty-one subsequent families that made a move from Tilaltongo, twenty-seven had made the direct move to the same Colonia Proletaria on the eastern outskirts of Mexico City without going through a small village. This was possible by the strong communication channels they had with their village.

In 1957 Oscar Lewis also found in studying all the out-migrants from Tilaltongo that of the 74 families, 41 made the move to Mexico City directly. The rest went to other towns and cities. Of those who moved to Mexico City, half moved directly to the tenement districts (vecindades),
a quarter moved to Colonias, and a quarter moved to apartment districts. The latter was the choice of the higher income persons. Interestingly enough, Lewis was careful to point out that moving to the Colonias and owning a house there is not a signal for determining social class, since the houses varied from makeshift wood shacks to upper middle income houses.  

Some explanations for this rural-urban migration have been presented in Chapter I. The surveys of 1957 by I.N.V. also show that two-thirds of the migrants to the Colonias Proletarias made the move for economic reasons, 15 per cent made the move for political or cultural reasons, and only 8 per cent made the move for unknown reasons. The proportions were quite different for the tugurios, however. Only a third were reported to have moved for economic reasons, and almost two-thirds did not know the reason for moving. (Table II-22) Both Lewis and Butterworth have found in their case studies that economic and educational motivations were primary in justifying moves. 

Before presenting the economic profiles of the population, one more factor in the analysis of the population characteristics will be discussed in this sub-part: educational profiles, or more specifically, literacy rates. The level of education has already been discussed to some extent in the last part of the chapter as a way of assessing the availability of educational facilities in the Colonias Proletarias. Some of the pitfalls in doing this were mentioned; among them was that of measuring the effects of a process that took place elsewhere than the place where it was being measured. That is, the lack of
education in the adult population of a Colonia Proletaria may be due more to the lack of opportunities in the state where they were born than in the present place of residence.

Whatever the reason for the lack of education, the sample surveys have indicated that while 60 per cent of the Federal District's population had more than five years of education, the proportion with similar education in the Colonias Proletarias was only 6 per cent. (Tables II-13 and II-14) This educational level approaches the rural population level.

The second method of analysis, which permits a more accurate estimation by census districts over a period of time, is presented in Table II-23. This method analyzes only one limited dimension of education in the metropolitan: the reported literacy rates by districts over the last 40 years.

While some of the particular variations in literacy rates are probably not significant since the interpretation of literacy may vary, the overall trends are clear. During the last sixty years, the literacy rate in the Mexican population has increased from 24 per cent in 1900, to 34 per cent in 1930, to finally 63 per cent in 1960. Mexico City has fared well in this improvement. Already in 1930 the literacy proportion for the population was over 67 per cent (over the 1960 national rate), and by 1960 it had risen to over 82 per cent.

The Colonias Proletarias, however, have not benefited proportionately from such improved educational levels, compared to
the core districts. The difference in proportion of literate population has been maintained at about 6 per cent over the four decades. That is, the core districts' literate proportion has remained 6 per cent above the Colonias districts over the past 40 years.

The newer, more peripheral districts such as Ecatepec show lower literacy rates than the core and the Colonias ring both. The middle and upper income peripheral settlements also show lower proportions, but higher than the lower-income peripheral settlements. From this it could be concluded that location and income both are important determinants in the proportion of literacy rates of the population.

More careful analysis of disaggregated core districts could reveal this even more so, since the core is also not composed of entirely similar districts. This dissimilarity is especially so in income distribution, to be discussed in the following part of this chapter.

Data on income distribution will be discussed in the third sub-part following. Three indices more generally used to analyze changes in the economic profile of a population are proportions of economically active, per cent of non-agricultural participation and personal or family income distribution data is the most difficult to find and to rely upon.

We have already reviewed three factors that are generally analyzed as acting in conjunction to bring about radical changes in the distribution of the economically active population. One is of a general
nature: the structure of economic development. The other two are the accele-
rated growth of the population in general, and that of the large urban centers in
particular. These were briefly reviewed in the introductory chapter and in
Chapter II. Concomitant with these population changes, as the process of economic
development begins to take place, the structure of employment also changes.
These changes tend to be increases in industrial processing and in service compon-
ents of labor in accordance with the population movements and the development
of technology.

On the whole, the structure of economically
active in Mexico -- as in other developing countries -- is affected by the already-
described rapid decline in infant mortality and extension of the life span, and
increased fertility rates. It is also influenced by migration trends to the capital city.

In Chapter I we estimated that the economi-
cally active population in Latin America increased at a rate of 1.8 per cent during
the period of 1936-1940, but from 1945 on, the rate rose to 2.4 per cent and
quickened further to 2.8 per cent in the late 1950's.84 For Latin America, the
proportion of economically active was 39 per cent in 1960. For Mexico, the propor-
tion of economically active has had a slow and unsteady growth to 32.5 per cent in
1960 from 31.1 per cent in 1930. (See bottom of Table II-24)

The proportions for some of the sub-
metropolitan areas show greater increases, however. The core districts, for instance,
changed their proportion of economically active from 33.5 per cent in 1930 to over
40 per cent in 1960. The Colonias Proletarias districts, on the other hand, have had
a decline in the proportion during the last four decades. Similarly for the four newer peripheral districts: the proportion has increased and declined intermittently. The outstanding statistic is that shown for the three middle and upper class districts of Coyoacan, Obregon, and Naucalpan, whose proportion has remained under 23 per cent. That is, the proportion of the population who work in these districts has been much lower than for any other districts in the metropolitan area.

It is difficult to say whether this data is evidence enough for significant changes one way or another, except for general trends. What seems to be significant is that differences in the age structure of the districts are related to differences in labor force participation of the population. A comparison of Tables 11-18 and 11-24 shows that the districts with less population in non-working class ages also have more proportions of economically active. This results in a greater number of persons dependent on the proportion of working age. For instance, the Colonias districts and the four lower-income peripheral districts have higher proportions of population under 10 years of age; these districts also have less of the population economically active as compared to the core districts. So for the peripheral districts, a greater number of persons are dependent on the working age population.

To further dissect the economic profile of the Colonias population, one can simply divide it into two broad categories: the agricultural sector and the non-agricultural sector of the active population. The distribution of the non-agricultural sector can be further examined according to
whether this employment is the production of basic items and services or the production of trade and governmental or other services.

For Latin America as a whole, the economically active agricultural population was 56 per cent of the total in 1945, and is estimated to have declined to 47 per cent in 1960. In terms of gross national products, the agricultural sector seems to be declining in proportion. For Mexico the proportion of productivity in agriculture declined relative to other sectors from almost 23 per cent to 19 per cent in the ten years between 1950 and 1960, even though productivity per capita increased.

The proportions of non-agricultural labor force for the metropolitan area are summarized in Table 11-25 for the decades 1940 to 1960. As expected, the core districts have maintained the highest non-agricultural proportions; they also show a slight increase of .4 per cent. In the Colonia ring, the proportions are not as high as the core's, but have remained well above those in the newer fringe districts of Naucalpan, Ecatepec, and Chimalhuacan.

As discussed earlier, the districts with lowest non-agricultural employment are the districts which were not incorporated into the contiguous urban area until after 1950. Naucalpan, for instance, whose non-agricultural proportion in 1940 was still below 40 per cent, was also not part of the extended metropolitan area at the time, and the same holds for the other districts in the State of Mexico. Chimalhuacan's proportion remained under 54 per cent non-agricultural labor force when the metropolitan area's proportion was
92 per cent. The Chimalhuacan urban development did not take place until the last decade. (Plan No. II-B)

The two exceptions of the seven peripheral districts are, as before, the two higher income districts of Coyoacan and Obregon, whose non-agricultural employment has remained just under the metropolitan area's mean proportion for all the decades.

If the structure of employment of the population is further dissected by activities of non-agricultural employment, significant changes occur for the Mexico City region. Table II-26 summarizes the changes in employment for the 1950 to 1960 decade by economic sectors. The general trend in employment for the whole region is accelerated for the Federal District: large increases of employment proportions in the industrial and commercial sectors, and heavy declines in the agricultural employment.

The structure of employment within the metropolitan region indicates that the farther out from the center of the city, the higher the proportion in agriculture; we also find that the farther out from the center of the city, the more likely is a district to have lower proportion in services, except for the higher income districts such as Coyoacan. As far as the industrial component in employment goes, one would be tempted to say also that the farther out and to the north, the higher the proportions of industrial employment.

(Table II-27) In fact, it is to the northeast where most of the new industrial complexes are settling, as in the State of Mexico. Chapter I showed that of all new industrial development in the capital city, almost all has occurred in the municipalities adjacent to the Federal District in the State of Mexico.
We now turn to the last sub-part, that analyzes the characteristics of the population in the Colonias Proletarias and compares them to the remainder of the urban population.

Average per capita income has been the main usual indicator for measuring the level of economic and social welfare of a community. However, it does not represent more than an approximation of the actual situation. Of all three of the economic indices used in this part of Chapter II, income distribution is the most difficult to rely upon. The Economic Commission for Latin America has noted that there is an almost complete lack of information concerning the distribution of personal income in Latin American countries. This is shown by the fact that of the twenty countries of the region, only five report such data. In all these countries, the collection of such data is at an experimental private stage, and they cannot therefore be considered official estimates for individual countries. only in the case of Chile and Mexico has a sufficiently rigorous method been employed, with more abundant information.

Despite the lack of adequate data on income distribution, the Economic Commission further notes that extremely unequal distribution such as that which prevails in certain Latin American countries represents a serious obstacle to development itself. It should also be added that this fact prevents the formation of the climate of social integration which is essential if development is to be a continuing process.

Whereas in Latin America a third of all income is concentrated in the hands of 5 per cent of the population, in the industrialized countries of western Europe and in the United States the social sectors in the top income brackets representing the same proportion of the total population, receive a much lower proportion of all income (22 or 20 per cent, respectively).
Like other Latin American countries, Mexico’s regional development has been characterized by relatively few rich urban areas and very low subsistence economy rural areas. The gross national product per capita of Mexico in 1960 was M$3,800 pesos. For the northern states near the United States border, the regional product per capita was M$11,900. This highest level was followed by the Federal District with an average per capita product of M$9,950. By comparison, the lowest state per capita product (Oaxaca) was M$1,022, or one-eighth of the Federal District. 91

Similarly, for family monthly income data, we find the Federal District with M$1,282; M$1,189 in the northern states; M$447 in the south; and a national average of M$693. That is, the Federal District’s mean family income was almost double the national average, and almost three times higher than the lowest state mean. 92 Although there have been regional studies made, little progress has actually taken place in rechanneling for less regional inequality. 93

How is this uneven regional distribution of family income reflected in the capital city? Tables II-28 and II-29 present the only data available on mean family income by districts and tenure. Unfortunately the Mexican census does not report income distribution by districts as it does other population characteristics. The Department of Statistics, however, did conduct a reliable study in 1956. 94 Although it is not altogether satisfactory for the analysis of this section because of different district aggregations, it gives an idea of the pattern of income distribution within the core districts. In generalized form,
the pattern conforms to higher mean family income the farther southwest a district is, and lower mean family income the farther northeast a district is. Unfortunately the data is grouped for all municipalities outside the central districts; in addition, data is not available for the State of Mexico municipalities. We see from Table II-28, however, that among the Colonia Proletaria districts there can be found the lowest mean family income (M$730) and one of the highest mean family incomes (M$1,420), both. The tugurios Districts III, V, and VI show the second lowest mean family monthly income (M$960).

The two surveys conducted by I.N.V. in 1957 referred to earlier fortunately use the same intervals in their income distribution scale. Table II-29 and Histogram II-29A present the data for both surveys and divide the population by tenure. It can be seen readily that the distribution of renter's incomes in both tugurios and Colonias Proletarias is skewed towards the lower incomes. The distribution for the tugurio renter, however, is itself more skewed towards higher incomes than is the Colonias renter. The distribution of owners in the tugurios is, as a percentage of all dwelling units, very small; however, those who own tend to be at the mean level of the Federal District population (M$1,300). For the tugurio renters, the mode is that of medium-high incomes with a second mode at the lowest income interval. For the squatter also, the distribution is concentrated at the lower income intervals.

Table II-32 shows that the Federal District's lower income levels were more likely to own than to rent. From the tugurio and Colonia figures we can see that location within the metropolitan area seems to be
a more significant relationship to ownership than is income. The low ownership figure for central city merely reflects the typical situation in the tenement or tugurio area where a great portion of the units are old subdivided residences inherited by the present owners who have moved out to the upper and middle income suburbs.

Another factor which has been associated with tenure is labor mobility. It goes without saying that rural labor mobility is more limited, and that the greater the income the more rural labor becomes mobile. Table II-32 confirms this position. The proposition may be equally stated for the urban dwellers, that as their income increases, their proportion of owners decreases. To further this concept, it can be said that the larger the income, the greater their possibilities of different employment and activities and the less they are dependent on location. Changes of jobs for the highly mobile laborer do not permit him to invest in such property. This last proposition may not hold as much, in that savings for the upper lower classes have traditionally been channeled into housing, especially if these are savings involved in owning a house, or building a shack in a new Colonia.

The income distribution trends seem to be clear in relation to tenure. The Colonias Proletarias permit a large proportion of the low income population to own a dwelling unit; that is, more than a third of all Colonia Proletaria owners have an income of under M$500 (39 per cent of the mean Federal District family income). It is also clear that for the low-income renters, it is easier to live in a Colonia Proletaria than in a center city tenement.
We now turn to the last comparative analysis in this chapter, which explores the relation of income, proportion of it spent on housing, and location in the metropolitan area.

It is clear that for the lowest strata the majority of the family income is spent on the essential items. A 1956 estimate in Mexico showed that for the lower class (clase popular) the proportion of income spent on food, housing, and clothing was over 72 per cent; for the middle class this proportion was 66 per cent; for the high-income class the proportion was only 54 per cent of the income. These percentages do not consider quality differentials, but it is obvious that the lower the income stratum, the less housing becomes a status symbol or a luxury item, and the more likely that it will barely meet the most minimal standards.

In the first part of this chapter we saw that there is not necessarily a direct association between quality of housing and income, without considering at least a third intervening variable -- that of location within the metropolitan area. If we look, however, at the relation between income and rent paid on housing within a particular location, we might control out for the third variable, location. Income and housing characteristics within the Colonias Proletarias and the tugurios are presented in Table 11-29.

If we go back to the lower class urban Mexican population, we find that the proportion spent in housing increases a bit as income rises. For instance, for the lower classes, the proportion is 6.1 per cent of income spent on housing; for the middle classes, the proportion rises to 10.1; and
for the upper classes, the proportion is 12.5 per cent. In analyzing the proportion spent on housing by census districts, we find that in the Colonia Proletaria Districts I and XII, the greater portion of the population spends less than 10 per cent on housing. Similarly, for the tenement districts the generalization seems to also be true. Of the families that spend between 20 and 30 per cent of their income on housing, almost one-sixth of the population of the higher income districts spends this much. (The two Colonia districts above are more centrally located than the upper income districts.) Of those families that spend between 30 and 50 per cent of their income on housing, again, the wealthiest districts have a greater number of families in this category. (Table II-30)

The sample surveys in the Colonias and the tenements as presented in Table II-31 and Histogram II-31A confirm the district data. That is, a greater proportion of those families living in the Colonias Proletarias spend less on rent. For instance, over 50 per cent of the Colonias families spend under M$50 a month on rent. The proportion of families spending this little on rent in the tugurios is under 40 per cent. For the Federal District as a whole, only one-quarter of the families pay under M$50 rent. By comparison, those families who pay between M$100 and M$400 in the Colonias are only 10 per cent of the population, in the tenements they are 45 per cent, and in the Federal District 42 per cent. The Colonias Proletarias, it seems, not only makes it possible for many low income families to own a house, but it also makes it cheaper for those who rent.
Summary

Chapter II has been the main focus of Colonia Proletaria analysis in this thesis. The following chapter will follow with an analysis of present public policies in the Colonias and the metropolitan area.

First we will summarize the analysis for Chapter II.

The Colonias Proletarias are of relatively recent development in Mexico City's long past. Dramatic invasions characterized the first adventurous Colonia dwellers. Close historical accounts, however, are neither available for a single Colonia nor for a comparison between the different types, except for a few sketchy and relatively recent accounts. The Colonias Proletarias are essentially the low-income suburbs typically found in the fringes of the larger cities of Latin America and other developing countries.

The analysis, however, concludes with the following generalizations that could begin to form the body of a modest theory about the nature of peripheral urban growth in Mexico. How these generalizations vary according to the state of economic development in a nation, or how they relate to the educational and social development of a country, is a question that can serve as a basis for a larger cross-cultural and comparative study of the problem. In effect, the results found for the development of the fringe settlements may only hold for Mexico City's form in the present time.

The urban conditions in the Colonias have been slowly changing as further development leaves them behind and as they are
replaced by newer fringe developments. With their official recognition, they have begun to improve and develop into more stable lower and middle-lower income communities that have begun to form part of the urban fabric. We say "begun" only because a great portion of the fringe Colonias still lack full recognition, a step crucial before they are "allowed" to have the most essential urban services and facilities: schools, hospitals, water, electricity, transportation, and even police facilities in some cases.

The Colonias Proletarias are then the second alternative open to the lower classes in addition to the traditional centrally-located tenement districts. In comparing these two kinds of choices of life style, we found great differences between them. These are reviewed in brief by the following:

For Mexico City, this low-income suburban population has grown from less than a half million (or one-sixth of the urban population), to two million people (or over one-third of the urban population). The proportion of urban land that the dwellers now form is even more staggering: conservative estimates place the proportion reaching half of the urban land by 1970. These statistics are dramatized more by their particular rates of growth: twice the metropolitan growth rate in 1960 for the older Colonias; six times for the newer Colonias!

Mexico City's dwelling units are almost 40 per cent single family. The majority of these are found in the Colonias Proletarias. These seem also to have the lowest gross density per acre. Naucalpan, for instance, has the lowest gross density of 5.6 persons per urbanized acre; this compares with core's densest tenement district with a ratio of 132 persons per acre.
Definitions of crowding by room and bedroom vary widely, however. The Colonias do not seem to have less persons per bedroom as would normally be supposed. Two independent surveys carried out with the same methodology found the contrary: that the tugurio mean dwelling unit size was much lower than the city's mean size, while that of the Colonias Proletarias was higher than the mean size. Colonias dwellings are more spacious. Comparisons between sizes of rooms as measure of crowding are not available.

The reverse trends are found in measuring publicly provided services and facilities. The farther the location from the center of the city, the more likely will the tenant be worse off in having water, sewage, and drainage facilities. For instance, in the older Colonias districts only 10 per cent of the dwellings had no water service; the newer Colonia districts had a proportion of over 36 per cent lacking the service! Similar trends were found for bathrooms without running water. The proportion was three-quarters in the Colonias as compared to less than half in the metropolitan area. District proportions were even more pronounced for this statistic; however, these included rural populations for the peripheral districts.

The Colonias Proletarias permit a greater proportion of the families to be owners. Both data sources indicate that the owner-occupied proportion dwelling units are twice the proportion in the fringe than it is in the core. The patterns seem to be associated with ages of development: rented and old in the center; new and owned in the fringe.
In comparing national infrastructure investments, the most tentative comparisons made between the districts were those of community facilities. Census data does not record these. However, neighborhood surveys indicate again that the distance from center and age of development are the crucial factors in determining the number of existing schools, hospitals and clinics, markets, transportation facilities, and other such urban infrastructure items. Low local taxes may contribute to this.

However, educational levels were used as partial indices for availability of schools. It was found that the pattern conformed to other indices; namely, that in 1960 the older Colonias ring had still lower education than the mean national educational level although located in the country's educational center. The lowest literacy rates for the metropolitan area in all four decades were found in the most peripheral districts for that decade.

No data were available to the author for the distribution of commercial facilities, recreational grounds and buildings, lighting, or even police and other such community services. The generalization that most of these facilities are in the center should be further tested. A tentative hypothesis, based on trends for other facilities, would indicate the spatial distribution described for other services.

Several population indices were used; in all cases there seems to be a significant difference between the core and fringe districts as aggregated. This was confirmed in survey data, although no statistical tests were employed to measure significance of the differences. The following points will summarize population characteristics.
The age distribution in the Colonias Proletarias and the districts they are located in indicate that as a whole they have a much younger population. Families are larger. This larger number of children is reflected in the larger proportions of children under 10. Similarly, there are fewer middle-aged men than the population at large, and certainly less aged population (or 50 and over age groups). The higher proportion of children under 10 probably contributes to the higher proportion of uneducated.

A greater number of people in the fringe born districts have been/outside the Federal District. This is especially true for the heads of household in the Colonias, as compared to tugurios or other districts. No data were available for place of birth by age groups to see if -- as would be presumed -- the younger the population, the more likely it was to be born in the metropolitan area. Of the heads of household interviewed, almost three-quarters of them were born outside the Federal District. The proportion was 58 per cent for the tenement districts. The Colonias then seem to be absorbing greater proportions of outsiders than the tugurios. Few of the inter-urban and intra-urban migration studies indicate that the traditional step patterns from village to town, from town to city, and from city to metropolis seem to be omitted once the communication links are established. More careful testing of this generalization would have to be made, however, before fully accepting it.

The Colonias Proletarias have smaller proportions of economically active population. While the core districts and the whole country have had this proportion rise in the last decades, for the Colonias
it seems to have slightly declined. This is confirmed by the age distribution of the population: they have less in the younger, economically active ages of 20 to 29.

The structure of the economically active population responds also to the general location in the metropolitan area and the age of the district: the higher proportions of agricultural employment found, the farther out from the center and the newer the districts. The pattern has changed as the peripheral settlements become intermediate in location, and these are in time replaced by the newer settlements beyond them at the new periphery. How significant the decline in these proportions is was not tested. The trends expressed, however, clearly indicate the marginal position of the population in the peripheral districts in participating in a modern monetary economy, as compared to their other urban neighbors. To what extent this isolation is caused, as with other factors, by lack of connection and communication, and to what extent this is more in the "nature" of the population, is difficult to generalize from the data. Further surveys are needed to test the significance of isolation on structure of employment in these districts. As with rural isolation, urban isolation will probably contribute to the type of population profile.

If we look further at the structure of the non-agricultural economically active, we find that the core's higher proportions have been increasing slightly through the four decades. The Colonia ring has had higher increases in non-agricultural employment, but its proportions still remain lower than the urban mean; the newest peripheral Colonia districts, however, have increased their urban employment sector considerably since 1930, when they were primarily agricultural and obviously not part of the metropolitan area. Their proportions remain relatively low.
Income distribution indices are at best sketchy. However, income data also conform to pre-conceived notions about its distribution in the metropolitan area: the peripheral districts also do not seem to have benefited any more than their rural population in receiving better shares of family income in the metropolitan area. The Federal District in the same measured periods, however, had the highest per capita incomes in the nation. The peripheral district's incomes were at about the rural mean. It also became clear that the core districts, as well as the Colonia districts, are anything but homogeneous in income distribution. Aggregating income distribution by sub-metropolitan areas blurs some of the small scale variations in clustering the core's income patterns.

Income distribution in the Colonias Proletarias was skewed very differently from the income distribution in the tugurios. When the population of each of these areas was segregated by renter and owner categories, the trends became even more clear. The Colonias' renter distribution is more negatively skewed towards the lower income intervals than is the tugurios' distribution.

For the Colonia owners, a very large proportion of its residents' incomes were skewed again towards the lower intervals. Colonia owners have incomes as low as the lowest state mean-family income. The Colonias also allow greater proportions of its low-income population to pay less rent than those in the core districts of the city.

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For the lower classes in Mexico, the rent, food, and clothing items take up the greatest share of the expenses. The lower income families in the urban area who live in Colonias can, therefore, afford more expenditures in non-housing vital items, such as medicine, food, and clothing. Transportation costs, although not analyzed, would probably be higher. If the poor in the Colonias were forced to rent in the core, their food and clothing budget allowances would be greatly reduced. Small cost studies for basic items in the Federal District indicate that there is little variation in retail prices.
CHAPTER III

GOVERNMENT ACTION
Chapter II analyzed the Colonia Proletaria development at the fringes of Mexico City and the magnitudes of its growth. It described the settlements themselves and drew the profile of its residents. Where data permitted, a comparative analysis was made between the Colonias Proletarias and other communities within Mexico City.

As we saw in Chapters I and II, this relatively recent growth of the Colonias Proletarias has occurred parallel to, and is partially the result of, the recent changes in the economic structure and industrialization, of the age composition and population shifts, and of the advances of technology and medicine; thus a new metropolitan structure has been brought about.

What are the tools that government is presently using in order to help guide this new metropolitan pattern? In general, the government policies, programs, and projects that have been developed in
Mexico as well as in other countries to try to cope with these new urban development patterns have had a slow, unsteady start. For the most part government response in the past has been project-oriented and decided on an ad hoc basis. These projects have been very costly in proportion to other high-priority items in the public budget. Their impact, however, on Colonia Proletaria development in the past has been very small. There are some indications of innovation in tools to deal with the problems of new urban development patterns.

In the following four parts, this chapter will analyze the past role of public policies and programs in the area of urban development and try to assess its impact on the Colonias Proletarias.

The first part of this chapter will briefly describe the legislative history and brief operations of the Federal District in urban planning, covering such responsibilities as the provision of services and facilities in the Colonias Proletarias. The third part of the chapter will analyze the brief history of the major Federal Government building programs and assess their impact on the urban pattern. The fourth part will review a few government programs developed after 1962 to improve the financing for private low-income developments. It will also discuss a pilot study proposed by the national housing agency, which attempts to deal with the development of the Colonias Proletarias.
III.1 Urban Planning

Even though planning legislation for Mexican cities dates back to 1928, it was not until 1933 that the "First Planning and Zoning Law for the Federal District and the Territories of Baja California" was passed and approved. A second "Planning and Zoning Law for the Federal District" passed in 1936 modified the first law.

The Federal District's formal planning structure centers around a representative council, the Planning Commission, which is charged with reviewing general development policies for the city. To achieve this end, the Commission is authorized to conduct studies on urban problems, to fix land-use zones, to advise on the preservation of historic sites or buildings, to examine the costs of certain proposed urban projects and, at least in theory, for supervising the execution of public works and upon request of the D.D.F./Departamento del Distrito Federal/, to approve or to reject such proposals.1

The Planning Commission is formed by a representative from the Federal District's Council, from national offices, professional associations, and from private enterprise. The Planning Commission, however, has become almost entirely inactive; the initiative has been taken by the city's mayor. (and other national agencies described in Part 2).

The 1933 law also set up a more specialized body, the Mixed Planning Commission, with specific planning controls, administrative powers, and functions. For instance, it is supposed to be responsible for arranging the financing of individual D.D.F. projects and for supervising the
execution of public works undertaken by the D.D.F. or its executive committees, ad hoc bodies created to plan for or execute specific D.D.F. projects.

The law of 1936 is supposedly still in force. It provides for the drafting of master plans "consisting of graphic documents presenting all the aspects, studies, projects and programs for planning and development of the Federal District and the Territories of Baja California."²

The Mixed Planning Commission, however, became only one of many departments within the D.D.F. For instance, the Public Works Division of the D.D.F. is charged with major planning and building responsibilities for urban development. It has been responsible for the expansion of public works in the Federal District, among them extension of streets, provision of services to fringe areas, and the building of markets and municipal buildings. It also has a housing building program and has recently started circumferential freeways.

These delegated functions originate from several offices of the Public Works Division of the D.D.F. Public Works is divided into three main sub-offices: Construction and Maintenance, Planning and Programming, and Auxiliary Services.

The Planning and Programming sub-office is responsible for arranging implementation priorities for approved projects and for acquiring needed land. Within it is the Office of the Master Plan.

Ostensibly, most planning functions are discharged by the Master Plan Office (Oficina del Plan Regulador) within Planning and Programming. However, The Master Plan
Office's principal functions are limited to establishing zoning rules and designing the D.D.F.'s street layout. Street plans must await final adoption, which may require five years or more, by the Planning Branch (Oficina de Planificacion), a parallel branch of the same sub-office.3

The Master Plan Office is also concerned with density regulations for the Federal District.

The Office of the Master Plan does not deal with the Colonias Proletarias, although in a general way it is related to it. For instance, it deals with zoning, "decadent residential" areas, and other use as parks, theatres, etc. In the area of transportation, the Office of the Master Plan is supposed to map existing street systems as well as public transportation routes and also to prepare a longer-range 20-year road plan, which also does not seem to exist. It is supposed to record all public facilities belonging to the Federal District. It is supposed to develop year-to-year capital improvement programs for the needed offices, markets, schools, and parks. Only the most urgently needed seem to be included. Electricity and water supply are supposed to be marked by them for future extensions. Land purchasing is taken care of by the usual 15 per cent of legally sub-divided land that is supposed to be left for clinics, markets, and schools. When land has not been set aside but is needed, it looks around to see what is available; if there isn't, some is purchased. A policy of land reservation and acquisition now is recognized as advisable but considered beyond local financial resources.

The Office of the Master Plan is also supposed to deal with the urban renewal of existing slums and otherwise inconvenient
land uses. The Nonaolco Tlaltelolco Development was to be planned by them; however, the main sponsors have been national agencies.

A recently established Office of Housing Programs within the master plan office is responsible for relocation and building of housing projects in some of the peripheral areas where Colonias Proletarias are found. This office does not, however, amount to any housing policy for Colonias Proletarias and has had little relation to other phases of urban development. In 1963, however, it built 38,000 low-cost homes with over 1,000 hectares in area.4

The Construction and Maintenance sub-office, second in Public Works, has five sections which are concerned with planning in the Federal District. These are said to maintain minimum contacts with the Master Plan Office. The five sections are: Buildings and Monuments Section, concerned with government buildings, including markets, schools, and monuments (its decisions are independent of other planning bodies); the Suburban Works Section, which services suburban zones by paving streets and installing sewage and drainage systems, among other facilities (its decisions are also independent of other planning bodies); the Pavements Section, which maintains and builds streets within the city itself (it establishes its own priorities for its projects); and the Transportation Section, which is charged with studying new transportation systems of the District (it has contact with the Master Plan Office but not with other aspects of metropolitan planning).5

The third kind of activity within Public Works, Auxiliary Services, also seems to have little contact with the Master Plan
Office. Its services include the Popular Housing Section (Oficina de Vivienda Popular) which urbanizes these areas and once assigned land for the District's housing program.

In addition to Public Works, the D.D.F. has the Division of Colonias Proletarias and the Divisions of Water and Sanitation, Transit, and Hydraulic Works. The Colonias Proletarias Division is delegated the function of supervising the administrative matters in the fringe settlements but operates independently of Public Works and its sub-offices. The Colonias Proletarias has in the past assessed the growth of Colonias Proletarias. In addition, they have clarified the difference between the definition of a Colonia Proletaria and *habitacion proletaria* in general. This division, however, is very small in comparison to Public Works and its sections, within the D.D.F. As the name implies, Hydraulic Works and Sanitation is charged with the distribution of water and sewage facilities in the district, and Transit with traffic control and the provision of public transit.

Outside of all the above mentioned Public Works offices within the D.D.F. and the Planning Commission, the more specialized Mixed Planning Commission and the Executive Committees, all are supposed to help coordinate and oversee metropolitan development. All of them are, in fact, independently responsible and produce only specific public plans without a coordinated program.

Some notion of the consequences of this fragmented planning system may be inferred from a survey of the District's principal service needs, which was completed by the Office of the
Master Plan around 1960, but never circulated. This study painstakingly catalogued deficiencies in water supply, sanitation, streets, power, and municipal buildings in each of the Federal District's twelve delegations. It also established rough priorities for satisfying needs. The Office of the Master Plan, however, was powerless to compel action based on its survey since each of the problems involved was the responsibility of some other Federal District office or branch.

In summary, although legislation has been broad, planning in the Federal District is largely based on short-range, ad hoc plans which are fragmented into various offices within the Department of the Federal District. Their functions in many cases overlap, but their coordination seems to be minimal. The main concern of these agencies has been with the public expenditures within the District limits, but not with coordination between these and coordination with areas outside the District. Their planning has been for the most part in the physical planning of avenues, monuments, and utilities. There is some indication, however, as will be seen in the next section of this chapter, that they are going into the field of low-cost housing. Nevertheless, the emphasis is on uncoordinated physical improvement, with little consultation with agencies (national or local) for other physical, social, or economic development. Lastly, although there is an office of "suburban affairs" and an office of Colonia Proletarias, their direct involvement with this increasingly large proportion of the metropolitan area seems to be the least. The major action in the metropolitan area has been done by national agencies. These are analyzed in the following part of this chapter.
There are four agencies at the national level which form the greater proportion of urban development and housing accomplishments in the metropolitan area. These will be analyzed in this part of Chapter II, in addition to the local department of the Federal District's Housing Office. The latter one will be analyzed in the last sub-part.

The four main national agencies are: the National Housing Agency, the Mexican Institute of Social Security, the Social Security Institute for State Employees, and the National Mortgage Bank for Urban Development and Public Works. All these carry programs in other parts of the country, although their major activity has been concentrated in Mexico City. For instance, during 1963, of the public sector's investment, 7 per cent went to housing; a quarter of this amount was concentrated in the Federal District.

Because these national agencies do not seem to coordinate their developments in Mexico City nor with the local agencies described in the last part, the National Housing Agency (Instituto Nacional de la Vivienda, or I.N.V.) was created in 1954 to coordinate national housing projects. I.N.V. initially tried to coordinate projects and produce comprehensive housing plans for the areas where it functions. I.N.V.'s efforts, however, have been slowed down because of lack of funds. It depends upon annual appropriations for its operations from the federal government, the Federal District, and the other states.
Because of its coordinating function, I.N.V., as expected, has been slowed down by "political interferences," despite its responsibility to coordinate all federal housing projects. The agencies (discussed in the following sub-parts) have representation on the council which formulates I.N.V. policy. The pressure for housing in the city seems to be so great that all efforts to alleviate this by the established agencies and without I.N.V. supervision is welcomed. These agencies are also too well established in the housing area to submit to the direction of the recently created I.N.V.

In total amounts, I.N.V. built only 3,200 units from its founding in 1954 to 1958, and another 6,930 units between 1958 and 1964 -- a total of only 10,091 units in ten years. Despite these severe limitations, I.N.V.'s limited budget has forced it to build and sell dwelling units at very low-income levels ranging from M$15,000 to M$25,000 per unit, considerably below other agencies' figures. Although I.N.V. does not build solely in Colonias Proletarias nor Mexico City, it has proven the capability of producing truly low-cost housing in the metropolitan area. One of its largest developments at the periphery, where land costs are low, is the Adolfo Lopez Mateos development in Naucalpan.

I.N.V. has in addition completed a national housing survey in 1962 which covered rural as well as other areas in the country that are normally not covered by other agencies. In 1957 it conducted a survey in the Colonias Proletarias which is still the most complete study of the settlements. Similarly with the special survey of the tugurio district in the
In a study it has summarized the national problem of low-cost housing.\textsuperscript{14} I.N.V. has proposed the only solutions directed specifically to the Colonias Proletarias of Mexico City: a pilot project for three Colonias Proletarias in the northeast of the city (Plan No. II-J) including replacement, rehabilitation, and some new construction. The proposal has not, however, gone beyond that stage. It will be discussed in the last part of this chapter.

The Social Security Institute, I.M.S.S.,\textsuperscript{14b} was created in 1943. It wasn’t until ten years later that it began to get involved in housing, urban services, and community facilities. Among the public agencies concerned with development of communities and housing, I.M.S.S. has probably provided the most complete array of high-quality services and facilities within their projects.

The best known housing project of I.M.S.S. is "Independencia" to the southeast of the city, "which has a beautiful central plaza with a stage for outdoor music or theatrical performances, workshops for instruction in arts and crafts, classes in sewing and home economics, meeting rooms for local groups, abundant recreation areas and equipment, a nursery and primary school, and a modern shopping center."\textsuperscript{15} This concentration of facilities is contrasted to a typical neighboring Colonia Proletaria as described in Chapter II which lacks even the most basic services as water. However, the community as well as the housing facilities, like those in Independencia, are open only to I.M.S.S. covered citizens.
I.M.S.S. has contributed to the housing stock by building a total of 9,467 dwelling units at a cost of M$490,252,000 between 1953 (ten years after its founding) and 1962. This amount for the period was equal to 4.9 per cent of the investments of the public sector. These units averaged in cost M$52,200. I.M.S.S. only rents its units, though. The rates are fixed at 7 per cent of the agency's capital investment to be able to amortize it in a specified period of time.

I.M.S.S. has also undertaken a survey of housing conditions in eleven Mexican cities. When published, it is to be the most complete survey made of the main urban housing conditions. In Mexico City alone, 27,400 interviews were held, stratified into 112 sections. The initial data emerging from this survey point to a direct association between economic, social, and physical attributes of housing in the different Colonia Proletaria and other settlements. Full details, however, are still not available even though the survey was made in 1962.

I.M.S.S. contribution in the field of housing and urban development has then been largely confined to the building of middle and low-middle income projects similar to those of other major governmental agencies, although lately it has been experimenting with selling completely serviced and subdivided land tracts, initiating with a program of 1,000. This program is only now taking shape but seems to be a step forward in subdivision of land in the periphery.
I.S.S.S.T.E. is the social security agency for national government employees. Like I.M.S.S. described above, I.S.S.S.T.E. builds developments for rental only; but they are exclusively for the benefit of government employees. I.S.S.S.T.E.'s decisions as to where to build its developments, like those of I.M.S.S., are based principally on land costs and transportation facilities. The effect of the Master Plan Office extends only to density and zoning requirements, and not to location or other determinants. I.S.S.S.T.E., in addition, is experimenting with low-cost condominiums and with a program that encourages private home construction by issuing mortgage loans to government workers. Fifty-seven per cent of its 25,000 credits were given in the Federal District. Aside from this, I.S.S.S.T.E.'s policies have been largely in the construction of middle class projects in Mexico City, where the bulk of federal employees are found.

The National Mortgage Bank for Urban Development and Public Works, B.N.H., was created in 1936 in order to develop public works such as sewage, drainage, and water facility installation, street paving, building markets, jails, etc., by making loans available to the municipality. In 1947 it absorbed the activities of a housing development bank created three years earlier. It initiated itself into the field of housing at the time by making housing credits available principally to organized labor groups.

In most cases the B.N.H. keeps title until all payments on it have been made. Housing units in "Unidad Insurgentes," for
instance, range from M$29,000 to M$63,000. It's investments for housing in the Federal District and Naucaplan, Mexico, average M$32,900 per dwelling unit. This figure does not include the main B.N.H. sponsored project, "Nonoalco Tlaltelolco," now being completed in the center of the city. With this, B.N.H. has become the most important contributor to the public housing stock, although its policies have been both for selling and renting almost entirely to middle classes. B.N.H.'s reasons for concentrating on middle-income families is that it believes its other urban development responsibilities prevent it from subsidizing low-cost housing. Even if subsidies could be otherwise eliminated, middle-income homes earn a larger return on the bank's investment.

B.N.H. was the pioneer in low-income housing surveys when in 1952 it completed a study of housing in Mexico City. It also was the first to initiate a study in the Colonias Proletarias. B.N.H.'s traditional descriptive names of housing types have remained for the future surveys: tugurios, jacales, Colonias Proletarias, decaying zones, old residential and new residential areas. This 1952 study still forms the basis for many comparative estimates of today's situation of the Colonias Proletarias, however small and doubtful its initial findings were in 1952.

These three agencies form the bulk of federal programs in the capital city.
One last agency that is principally concerned with housing and secondarily with urban development in Mexico City is the Housing Office of the Federal District, or D.D.F., which has been experimenting in low-cost housing for the city. Between 1952 and 1958 its housing office built only 1,800 units. But the average cost for these was a very low figure of M$6,000. D.D.F. has also had to handle relocatees from the new belt highway that is being constructed near the core of the city.

By 1964, D.D.F. had built around 13,000 units at an average cost of M$47,000. These units represent 11.8 per cent of the public sector's housing contribution. San Juan de Aragon, a new peripheral planned settlement by the D.D.F., was started in 1964 with 1,800 units varying between M$4,000 and M$8,000. This development includes all community facilities. Meyehualco was also erected. These 3,000 homes were intended for D.D.F. Sanitation Department workers and other economically-marginal families. Although this project has not received much mention for its low costs, it has been unduly criticized for its "aesthetic dullness" and "conscious collectivization."²⁸

What has been the impact of all these projects? Nationally these agencies have built in the aggregate a total of 124,000 fully organized dwelling units from 1925 to 1964, in most cases units completely serviced.²⁹ The national demographic annual rate of increase is around 200,000. These are proportionately small but expensive contributions by the public sector in
the area of housing and urban development. This is not to imply that these efforts
should be abandoned, but it does point to the reality that the ad hoc project
construction approach has only led to a very small contribution and that it is not
likely to be the only way to solving the problem in the new lower income settle-
ments. It also points to the non-low income levels which have benefited from such
programs. Except for the D.D.F. and the I.N.V. low cost housing developments
(which together form less than one-fifth of the public sector's share in housing),
all the federal agencies' programs have been largely for the benefit of the middle
class.

In 1960 41 per cent of the Federal District's families were earning M$1,000 per month and could not afford rents over M$100. Seventy-five per cent of the Colonias Proletarias dwellers were not paying rents over this in 1958 and had a median income of M$740 per month. Yet only 21 per cent of the government housing was available at these rents. Similarly, another 27 per cent of the families were earning from M$1,000 to M$2,000 and could pay up to M$200 per month. The proportion in this rent level for the Colonias Proletarias was under one-tenth. However, 34 per cent of the government housing was available at this level. Of the upper income brackets, that is, above M$2,000 who could afford reasonable private housing, 46 per cent of the public housing was priced for this range with rents of M$200 and above. Only 31 per cent of the districts population had incomes above this level, while only 5.48 per cent of the Colonias Proletarias dwellers were paying this rent in 1958.
Because the volume of this construction is small, it is argued that public housing project construction has also not made middle-income groups vacate housing, thus making it available for lower income groups.
III.4 New Approaches in Urban Development Programs

In view of the past experiences in project construction, alternative approaches have been developed to improve the financing of low-cost developments for lower-income families. The programs described in this part are being continuously revised as they are tested in the area.

The Bank of Mexico has initiated a series of financial reforms for "social interest housing," defined by them as urban housing of not more than M$80,000. Banks are eligible to borrow under these conditions, but the loans are not applicable for the purchase of urbanized land nor for the subdivision thereof. This last qualification seems to be a serious drawback if it is to help finance the majority of new Colonia Proletaria type developments on the periphery; for we will see later in the chapter that even though land is available at lower costs on the periphery, it is there where the developer has problems in acquiring land and borrowing for the installation of services.

In order to mobilize the internal financial resources of Mexico, the Bank created two trusts, called F.O.V.I. and F.O.G.A., respectively. F.O.V.I. was created in 1962 to administer funds set aside by the Mexican government and the Interamerican Development Bank to increase bank investments in social interest housing. The three kinds of banks that were authorized to lend for such housing are also required to allocate 30 per cent of their funds for this purpose, and 50 per cent of their increases in deposits after June 1963.
F.O.V.I. funds are to be made available as credits to Mexican banks for individual purchases of houses. Using data on minimum requirements for a medium-sized family and its financing capacity, the Bank set a maximum limit of M$3,000 pesos (US$240) monthly income to qualify for its loans. Anyone having a monthly income of over M$3,000 was considered able to reach the existing credit mechanisms that would allow the purchase of a suitable dwelling. The Bank also estimated that families having an income below M$750 pesos (US$80) had to meet their housing requirements by the construction of low-rent buildings. "The Mexican banking system has enough resources to grant credits to those wishing to build houses to rent to the aforementioned low-income group." Amendments were then made to the legislation along with the required administrative provisions so that credit institutions were to include in their operations a large number of new families. Instead of paying rent, the families in this income group would purchase their own dwellings, and generate new savings through their payments made with resources "intended for less urgent expenditures." In addition, credit institutions, which were not allowed to channel resources into housing, were now permitted to do so under favorable conditions. The Bank assumed that in Mexico, the group having an income between M$750 and M$3,000 per month would have the capacity to save by way of amortization of real estate if offered the opportunity to do so, even though their saving potential was low. According to the Bank, this income group represents approximately 46 per cent of the working urban population, and was the group that was incorporated into the program.

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The income levels set by the Bank, however, did not include a great portion of the lowest income residents of the Colonias Proletarias nor the tugurios, (See Table II-29), even though its loans were at a lower interest rate of 3 or 4 per cent less and also at longer terms. An additional problem is that bank practice has screened very carefully its applicants so that only families with excellent credit risk are accepted. Thus, the vast majority of the population living in the Colonias Proletarias are not eligible for the mortgage loans.

In addition to the individual loans that the new F.O.V.I. administers through the small banks, it has supported the construction of a large number of high density suburban communities. By 1965 it had stimulated in the capital city alone 4,700 dwelling units. One of the major projects, "Loma Hermose," was composed of 76 buildings of four to six stories in height with a total of 1,600 apartments for approximately 9,000 people. The other major project that F.O.V.I. has stimulated is the "Presidente Kennedy," with 94 buildings and a total of 3,100 dwelling units. Both of these are located in the peripheral districts. However, F.O.V.I.'s efforts still do not reach the lowest income population in the Colonias or tugurios.

F.O.V.I. establishes the proportion of income spent on housing at 25 per cent. We saw, however, in the last part of Chapter II that half of the families in the income range of less than M$1,000 do not pay more than 10 per cent on housing. The proportion of families with incomes under M$2,200 in Districts VII and X, for instance, that spend less than 10 per cent
of their income for housing is still 60 per cent of the population.\textsuperscript{39} F.O.V.I.'s projects, then, even if they are not for the benefit of the upper classes as have been other housing projects in the past, are also not for the lowest classes.

F.O.G.A., the second new financial institution the Bank created, supports additional incentives for banks to finance homes under \( M$55,000 \) (the upper limit set for F.O.V.I. loans). F.O.G.A.'s subsidies compensate the banks that handle the low interest loans for reduced service charges on \( M$55,000 \) homes and guarantees the amortization and interest payments, which removes obstacles that have made banks reluctant to finance \( M$55,000 \) homes. F.O.G.A. also provides banks with an option of operating without F.O.V.I. credit if they choose to do so, and thus in the Mexico City area avoid the \( M$55,000 \) limitation. F.O.V.I. credit is, in addition, conditioned upon the compliance of F.O.V.I.'s urban development goals and narrower criteria defining acceptable housing plans. If banks prefer to develop their own criteria for resolving such issues, F.O.G.A.'s guarantees will facilitate greater diversity in mortgage practice.\textsuperscript{40}

These new financial mechanisms, with all their shortcomings, might increase the housing supply considerably in Mexico City. In order to have much effect on the urban lower classes, however, it will be necessary to operate at much lower income limits than have been established so that the developer of truly low income housing in the Colonia Proletarias will be aided.
The Colonia Proletaria developer himself is faced with the problem of financing the purchase of land and its urbanization, for which up to now he cannot acquire funds. During the 1950's there was a Federal District program which did operate in the Colonias Proletarias and included subsidies for the development of residential land for future Colonia Proletaria residents. The program, however, no longer seems to operate.  

In spite of a 1962 Bank of Mexico ruling concerning the financing of urbanization for low-cost subdivisions, few banks still regard unurbanized land as adequate collateral for loans to be used to urbanize the developments. The developers then are confronted with the problem of having to finance urbanization as well as acquisition through personal loans or their own capital. What happens in the case of the low-income community developer is that he uses his own funds only minimally by selling semi-urbanized tracts in a piece-meal fashion. And thus the peripheral communities remain for the most part only "half finished" for lack of funds for development.

One of the cheapest developments on the northeast outskirts of the city still seems beyond the range for most Colonia Proletaria families. "Colonia Aurora" sells semi-urbanized, unimproved lots along with "guarantees of urbanization." Aurora's lots are sold on a seven and a half year installment contract with only 3 to 4 per cent down payment. Lot prices, which include interest, average about M$18,000, with monthly payments amounting to about M$200. Because the developer's only source of revenue is the sales on his lots, he carries out the installation of services block by block.
The older sections have well developed street patterns, though few streets are adequately paved. Water from a central tank is piped into the older section and trucked to new areas. Pumping stations have been installed throughout the project to drain the land, a service required during the rainy season because of poor natural drainage. Sewer lines have been laid underground in the older section, but the sewage is transported through open canals in about three-quarters of the development. A few electric lines have been provided by the electric company. In the older section users have been connected officially to the outlets, but most residents steal electricity by means of wire taps, a practice of which both the developer and the electric company are aware.42

It is obvious that this financing method lengthens considerably the process of installing services in the peripheral districts. "Several years have already passed since Aurora's urbanization was begun and several more will be required to complete this stage."

The new financial mechanisms have yet to reach Aurora developers -- or even other lower-income developers.

One more avenue in the realm of new public programs will be explored briefly in this chapter: a pilot study by I.N.V. which proposed a rehabilitation of several Colonias Proletarias.44 "Colonia Gertrudis Sanchez" in the municipality of G.A.Madero in the northern-most section of the Federal District was selected because it was considered to typify the problems of the Colonias in general.

The I.N.V. proposal is essentially one of rehabilitation and selective clearance. The actual state of the Colonia was
surveyed in 1957, and the data presented the following diagnosis: 1,600 dwelling units that needed a rehabilitation program; 1,350 shacks that had to be eradicated and substituted with new housing; 560 families living in crowded conditions; 68 empty lots; 32 dwelling units in good condition. This totaled 1,900 new dwelling units. I.N.V. proposed to acquire 16 blocks in the vicinity of the shack concentrations.

Of the 1,600 dwelling units to be improved, about 290 needed kitchens and bathrooms; 400 needed in addition a bedroom; another 480 needed two more bedrooms; another 160 needed three additional bedrooms; and 280 units needed four more bedrooms. The program proposed an improvement scheme based on low-interest loans, technical assistance from the Institute, and a program of self- and mutual-help for the rehabilitation of the dwellings. Sixty-eight new dwellings are proposed on the empty lots; the density will be raised from 318 to 391 persons per hectare.

The financing is to be supported by the residents of the Colonia. A study was made of the financial capabilities of the residents for a period of twenty years at interests between 7 and 8 per cent per annum. It was estimated that for the rehabilitation scheme, over 1,060 of the 1,600 dwelling units were capable of supporting such a scheme, assuming anywhere from 10 to 15 per cent of the income was spent on housing. The estimated self-financed capital was estimated at 62 per cent of the total needed. In order to implement the remainder of the program, the Institute proposed an effective self-help project for the remainder of the families that, with the technical aid of the
Institute and self-help in the construction, would cut costs by about 30 per cent. The monthly rent paid by the residents would be approximately M$7.10 over a twenty-year period for financing basic urbanization costs. In addition, the I.N.V. proposed new zoning changes in the neighborhood and a few improvements of avenues and parks.

How viable the plan was, was not explored in the field. It is also not known how far the proposal went nor how the residents would have responded. This kind of approach, it seems, was aiming in the right direction, since it acknowledged the limited public resources available and also recognized the latent and manifest initiative that the residents of the Colonia had.
Summary

The following chapter will explore the possible rehabilitation and planning of the Colonias. First, however, we shall summarize the analysis of the effects of past public policies and programs that have dealt with the urban development of Mexico City in general, and the growth of the Colonias Proletarias in particular.

Of the Federal Government budgets from 1959 to 1963, almost 24 per cent of the "social development" sector went into public housing. In 1963, this proportion was 7 per cent of the total public investment. In the six years from 1958 to 1964, this investment has represented about $380 million, or 67,000 dwelling units at an average cost of M$71,000. The major portion of these units were built by I.S.S.T.E. (13.4 per cent), I.N.V. (10 per cent), the Department of the Federal District (almost 20 per cent), and B.N.H. (18 per cent). All of the above agencies, with the exception of D.F.D. and I.N.V., have been built for middle and upper middle classes.

There has been little coordination between any of these agencies or with the Federal District in selecting location, determining size or kind of facilities provided in projects or peripheral development. The official role of coordinator that has been vested in I.N.V. in the field of housing has been almost entirely put aside. The lack of funds does not permit I.N.V. to assume a leadership role, but it has forced I.N.V. to bring down its housing costs.
to truly low-income levels. I.N.V. has also taken the lead in conducting surveys of the Colonias in Mexico City and has been one of the few who have proposed any kind of rehabilitation and self-help program for the Colonias.

Finally, the planning functions which have been delegated to the Federal District to "coordinate the orderly development of the Federal capital" have been broken down into uncoordinated sub-departmental functions, each operating on its own. The process of recognizing the Colonias Proletarias in order to extend to them the minimum of urban services is still very lengthy and complicated, so that the majority of these communities still lack the essential services.

In no case has a coordinated plan been proposed for the handling of human, economic, physical, and social development of the Colonias Proletarias or the metropolitan area; planning has consisted for the most part of ad hoc decisions about the location of projects. Except for the Commission of Hydraulic Works, which plans the future use of resources of the Valley of Mexico, and the I.M.S.S., which studied the metropolitan area in 1962, no agency has looked beyond the present administrative limits to implement or to propose policies and plans that affect the metropolitan area as a whole. In the past this might have not been as important, since the metropolitan fringes did not go beyond the Federal District limits. However, most new development that is taking place as we saw in Chapter 11, will be locating on the fringes beyond the Federal District boundaries. Now seems to be the time when the unit of study should be the metropolitan area as a whole. In the next chapter, the possibilities of using present administrative structures for metropolitan planning will be explored.
CHAPTER IV

RECOMMENDATIONS
Introduction

The objectives of Colonia Proletaria planning.

The explosive and uncontrolled growth of the Colonias Proletarias could in the future bring serious economic costs and social tensions in the absence of effective urban development and housing instruments. The residents of the Colonias Proletarias have already demonstrated great capacity and initiative to improve their social and physical environment. The Colonias Proletarias, in fact, have been the only feasible solution to large-scale, low-income settlements in Mexico City.

The general goal for policies regarding the Colonias Proletarias will be to guide this initiative so that in the future the fringe developments can more easily be incorporated into the mainstream of urban life,
into the physical and social structure of the urban community. Only in this way will the serious problems facing them be brought under control. Particular objectives of Colonia Proletaria planning would include refining the existing information and proposing new data gathering, linking the Colonias into the physical system of the city, improving education, health, and other necessary facilities; facilitating the improvement of housing conditions; initiating innovations in the construction and community organization activities; facilitating future land planning and institutional development, especially across municipal boundaries.

It is essential that the Colonias Proletarias be recognized, both in a legal and real sense, as the only alternative open to the urban poor outside the dense tenement districts. Fortunately the tugurios have become less important in terms of the proportion of land they cover in the metropolitan area and the population they house. Unlike the earlier states of population shifts, the tugurios of the future will probably diminish their importance in performing the function of reception areas to successive waves of migrants. If, as expected, future waves of migrants, and especially the large natural increases in population continue to be the major contributor to Mexico City's growth, this reception function will certainly be taken over by the Colonias Proletarias.

A Tugurio Rehabilitation Plan would include, however, among the measures for improving such areas, a drastic lowering of densities and the installing of dwelling services, especially water closets, where only communal ones are available. Some of this kind of rehabili-
tation may be similar to the very oldest Colonia Proletaria districts (for instance, District XII); and policies for dealing with such rehabilitation could be developed in conjunction for both types of districts. It is not, however, the purpose of this chapter to propose policies or programs for tugurios; from the beginning they have been considered not only a different kind of problem for urban analysis but also for the proposing of public policies and programs.

Some of the following recommendations are concerned with broad-range land planning for the future development of the Colonias Proletarias and the metropolitan area. Some of the proposals are concerned more with additional collection of data and the development of pilot projects in order to formulate the settlement’s planning. Other recommendations are concerned with the problems of housing and construction, emphasizing among other things technical innovations and the more traditional self-help solutions. Some of the recommendations extend rehabilitation schemes for the present Colonias and the corresponding human or social development of institutions and facilities.

The first part of this chapter, then, will be concerned with policy and program proposals directed primarily at Colonia Proletaria development. The second part of the chapter will look at proposals in a metropolitan-wide context.
This part of the chapter proposes programs other than those already discussed in Chapter II; that is, those outside the middle-
class housing projects which have been the emphasis of past urban development programs in Mexico City. It also leaves out the newer financial programs which have not been able to reach the Colonia Proletaria levels. And finally, it does not focus on specific institutional reform, although Part 2 of the chapter discusses general reform at the metropolitan level for that scale planning.1

A Comprehensive Colonias Proletarias Plan is proposed. The main functions of the plan will include gathering existing information, proposing future data collection and projecting future requirements; physical planning; human social development planning; proposing a housing plan and prototypes construction; and coordinating the planning of the Colonias Proletarias with other urban and metropolitan planning. These functions will serve as a main intelligence mechanism for the planning of Colonias Proletarias.

Gathering existing information.

The objective of this phase in a Colonia Proletaria plan is to further refine the analysis presented in Chapters II and III of this thesis.
There are already many governmental agencies that are concerned with the development of the Colonias Proletarias in one way or another. We say in the second part of Chapter III that within the Federal District alone there were a dozen agencies and sub-agencies that in some major way affect the future of Colonias Proletarias. These and other governmental (and in some cases private) institutions, therefore, have already various types of information collected which concern the settlements. The further collection and classification of this information is important in the development of a Colonia Proletaria Plan. This information consists for the most part in small scale physical and social assets and problems.

Much of this data formed the basis for the analysis of Chapter II: decade census, sample surveys, case studies, and descriptive reporting. Additional data, however, was available but not accessible. Some of this data was available in summarized or aggregated form. Among the unaccessible data for Chapter II was the 1963 I.M.S.S. study of housing in the metropolitan area. Most of the discussion from it was available to the author only in summary form. Accessibility to this data is necessary for more precise analysis. In the I.M.S.S. study the city was divided into over 100 "homogeneous" strata. The census data covering the same area was not available in less than district form to the author.

The refinement of the I.M.S.S. study not only was found in scale of areal definitions, but also in its possibility for testing
of association or measuring correlation. Among the many attributes reported in
the summary, income distribution, tenure, employment, and the availability of
facilities (precisely defined), for instance, should be tested for small-scale change
in the Colonias Proletarias. Some of these attributes have been reported elsewhere,
but only in an isolated manner. That is, when the basic income distribution data
from the 1957 income survey was used, it was not possible to know whether these
data could be placed beside the findings, say, of the 1960 census, to see if in fact
distance and direction from center is associated (or correlated) to tenure.
Accessibility to the I.M.S.S. raw data in disaggregated form is necessary for a
complete analysis of the Colonias Proletarias.

The aggregations of any data depend on the
use the data is put to. In no case were the aggregations used in this thesis found
precisely in the same form elsewhere. The census' traditional limits of Ciudad de
Mexico (the 12 central districts), for instance, do not accurately represent the
reality of the metropolitan pattern; neither does, for that matter, the administrative
division between the Federal District and the State of Mexico. The disaggregated
census data should also be had in order to form a solid base for Colonias Proletarias
Plan. Both the I.M.S.S. and the census raw data should be reasonably accessible.

In addition to these sources, there are others
of more secondary importance that would aid in further analysis but would not be as
essential. Among these are the disaggregated 1957 income distribution data, the
raw data from the various housing surveys, case study data from social science and
other university theses, newspaper historical accounts, analyses and studies from professional journals, and finally, isolated reports or comparative studies from the international agencies.

One last kind of existing information that is essential to the formulation of Colonia Proletaria development -- and that would be difficult to pin down -- is data on the various programs and plans of the individual agencies. The last section of this part will discuss these in more detail. They include primarily plans and projects by the Department of the Federal District's (D.D.F.'s) functioning Public Works Division; and its corresponding sections of Construction, Suburban Works, Transportation, Housing, etc. In addition, other offices outside the D.D.F.'s Public Works should be included: the almost inactive Planning and Mixed Commissions, and the other fragmented offices within the Federal District. It goes without saying that the corresponding departments of the State of Mexico also have plans and projects that affect the future of the fringe settlements. The most important of these are the zoning policies of the border districts of Ecatepec and Tlalnepantla, where a major portion of new industrial plants are locating and where also the likely future of Colonia Proletaria development might occur.

These specific projects of plans by the governmental agencies, the I.M.S.S. stratified sample, and the smaller-than-census-district data are, then, the most pertinent for a complete information basis. Following these, the other data becomes secondary, but useful. Collecting
will depend on the resources and time necessary for its acquisition. Of all the primary sources, by far the most difficult to acquire and integrate will be the fragmented projects and plans by the various local and national offices, because of their ad hoc nature. (The second part of the chapter, will discuss in preliminary form the context in which these ad hoc plans might be coordinated in the development of metropolitan-wide planning in Mexico City.)

Gathering additional information.

There are still other gaps which should be filled for the adequate preparation of a Colonia Proletaria Plan. These gaps in some cases are relatively easy to fill; in others, sketchy but useful insights might be gained by small surveys. As in the collecting of existing information, some will be more crucial and therefore higher on the priority list than others. Among such information to be gathered is the following: the assessment of land ownership, quality, and costs in areas susceptible to or desirable for future Colonias Proletarias; keeping close count of future growth; surveying small-scale population shifts; studying detailed employment characteristics along with availability of transportation (to and from different kinds of work places and residential areas); surveying the precise extensions of legal and quasi-legal utilities; more accurate counting of present community facilities and the distribution of neighborhood stores and commercial areas; analyzing the economic feasibility of self-financing of utilities by the existing but unserviced Colonias; discovering the existence of viable
community organizations; surveying the retail pricing of construction materials, foodstuffs, and clothing; computing the nature of recreational activities and the existence of such facilities; and evaluating existing projects for physical and social development in the Colonias.

What is the relative accessibility and priority for collection?

Among the most important data to be collected is an assessment of lands surrounding the present fringes of the metropolitan area, especially those to the northwest, northeast, and (to some extent) southeast which would be susceptible to future fringe Colonia growth; in other words, Naucalpan, Tlalnepantla, Ecatepec, Texcoco, and Chimalhuacan in the State of Mexico; and G. A. Madero, Ixtacalco, and Ixtapalapa in the Federal District (Plans No. II-E and II-F).

A survey must be made of all main governmental, institutional, and ejido lands surrounding the present peripheral extensions, and beyond them where growth is likely to occur in the future as estimated by the projections in the Plan. The Plan will study, with the aid of the Hydrological Commission, the feasibility of putting to use lands near the beds of Lake Texcoco that are not susceptible to flooding and those which, with minor capital investments, might be protected from such disasters. (Plan II-B shows the original shores of the lake.) This data may not need much new research, since there are already many studies concerning this problem. 8
Future developments in the fringes of the city, legal or not, ought also to be surveyed. One easy method is aerial photographic surveys -- perhaps this is beyond the resources needed for it, though. The I.M.S.S. study cited previously has already done extensive work in this area since at least 1962. This study's aerial survey could be used as a starting point. Whether it is possible to continue to make periodic aerial surveys will be determined by their costs in Mexico. Their use, however, would certainly not be limited to Colonias Proletaria planning, but could encompass hydrological or topographical surveys needed for highways and water extensions or even just basic metropolitan planning. An alternative to this would be periodic on-site surveys of the fringe developments by an observer who would record state of development, changes from last observation, place, and extent of development. This function could be also shared by other agencies concerned with various aspects of metropolitan planning.

It is of first priority, too, that a basic land-use and circulation system survey be made in the peripheral settlements. The areas where information seems to be most needed are the following: neighborhood stores, markets, and commercial areas; basic educational and health facilities; bus, transit, and automobile systems; large and small industrial and recreational areas. This survey, as the others, would not only cover the Colonias Proletarias in the Federal District, but also those in the State of Mexico. The 1958 existing I.N.V. Colonias survey did not include bus routes, industrial areas or recreational facilities in the State of Mexico. These colonias are of most recent development, and also have the
largest data gap. In addition, the land use survey would concentrate on an accurate count of present community-wide use buildings, including the small neighborhood stores, recreational places, schools and health facilities. It would also assess the need for additional facilities and estimate the priority of satisfaction. Again, the study of these elements would be a major portion of a metropolitan study and would be financed accordingly. (This will be further discussed infra, with other contents of the Plan.)

Surveying the existing situation, more careful count will be made of the extension of publicly provided water, sewage, telephone, and electrical services in the Colonias. The D. D. F.'s Department of Sanitation would be included in such a survey. Plan No. II.1 presented in a generalized manner the extent of the lack of facilities in the Colonias; however, as in other areas of existing information, a large question mark exists for the State of Mexico Colonias Proletarias. The survey would also include the existence of truck-hauled water service, for instance, and illegally tapped electrical service. The availability of the latter, although well known, has not been analyzed systematically.

In conjunction with these land use studies, transportation and origin and destination study will be made to measure distance, time, and cost involved for the economically active in the different Colonias Proletarias -- and how other non-employment trips are made. As part of the same study, an employment and income profile, including type of employment, its
residence, and length of work will be made. This study would be done by sample, and carried out by the Secretaria de Economica's Departamento de Muestreo which has in the past done other reliable surveys for the country. The Secretaria de Recursos Hidraulicos has also studied the structure of the labor force by census districts and has projected future population and employment accordingly. This agency, too, should be included in this phase. This study, although not of first priority, would certainly have to be made in the Colonias to prevent the traditional isolation from the urban movement network. This would, in addition, have use in future transportation and land planning at the metropolitan level.

Of secondary but useful importance would be data on the existence of viable indigenous community organizations. This would be necessary prior to the development of mutual-aid projects, or community participated projects in the Colonias.

In addition, an economic feasibility study is needed for self-financed rehabilitation projects, to see if in fact the majority of the residents of a Colonia Proletaria like Gertrudis Sanchez can self-finance the installation of utilities and the completion of housing improvement schemes, as I.N.V. supposed.

Also of secondary priority is the question of metropolitan shifts. Questions have already been raised in Part 6 of Chapter II concerning the dynamics of such shifts. Most of the data used in that part of the chapter differentiated only between place of birth and place of residence, and
no intermediate moves. The scale of "place" was limited to State's boundaries and the Federal District. To be born inside or outside the Federal District line is too precise a distinction to draw for a person living at such edge, even for a Mexico City illiterate adult. Rather, physically and socially defined districts should serve as a basis for determining boundaries of population movements, lengths of stay, and reasons for moving to and from a Colonia. It would also be helpful to know if these shifts are due to employment opportunities and skills, and how they relate to family size and origin. This type of study not only would develop an early descriptive model, but could be developed as a predictive one for the formulation of policies and programs.

There are other kinds of specific information that have to be gathered. This kind of data gathering will be intimately involved with particular program proposals and their corresponding modifications. For instance, for a later proposal, data would have to be gathered concerning retail prices and availability of construction materials in the Colonias Proletarias.

The Colonias Plan should explore a further information mechanism: the systematic evaluation of present and past plans and programs dealing with Colonias Proletarias. Although Chapter III has presented a general analysis of these activities, particular programs and projects, however, have to be evaluated for their intended and unintended effects: have they conformed to expectations? Up to now, newspapers and to a lesser extent professional journals have performed this function on a less-than-formal basis. Systematic evaluation should be part of every project and program in the Colonias.
All these questions by surveys or studies should be answered; nevertheless they will in themselves perhaps not provide entirely useful answers for some workable programs. Field testing of projects will be proposed as part of the Plan in order to learn, among other things, the capabilities and desires of the population for whom a self-help program is intended. It should measure their reception of the constructed project, since they may not be able to place themselves into it when asking them in a survey.

Pilot projects further serve to test the organizational abilities of the present institutional structures. They partially serve as a training ground for the technicians who will be concerned with the Colonias problems at larger scale. They should be used not only for the testing of physical housing designs, but also to test ideas and hypotheses about the applicability of solutions to particular social situations.

Projection of trends and requirements.

The Colonias Proletarias Plan will in addition to the collection and refinement of data, project these trends for the future. Among the primary projections will be the population expected and the land which will house the facilities and the population. A projection of future land requirements will not only be based on present land utilization in the Colonias but on pre-determined yet flexible space standards. Among these the Plan will include residential areas, the circulation system, open space, and other major land uses including future possible industrial sites that might employ some of the lower-income population.
Each major land use will be studied, so that in industrial land uses, for instance, special consideration will be given to the availability of land for such use, that it will not be in direct competition with possible Colonia Proletaria residential land. The planning of both these and other competing uses jointly is more likely to avoid the direct competition for the same land on the periphery.

There are some projections existing already, such as those by the Secretaria de Recursos Hidraulicos (by census districts and municipalities) in addition to some agricultural and non-agricultural employment projections. These projections will be supplemented by land requirements for the different activities and corresponding physical facilities. These will further form the basis for projecting the capital improvements needed in the fringe developments over five or ten year periods, and the corresponding responsibility of their allocation by the different responsible departments. The refinement of these projections (and their alternatives) will modify the program proposals and details of the contents of the Plan listed following.

The Colonias Proletarias Plan, in addition to information gathering and projection of future trends, will have several principal components that will form the core of the proposals. These main functions will consist of the following: land acquisition and reserve; extension of utilities, transportation, and community facilities; commercial employment, and a variety
of smaller programs consisting of: legal recognition and title clearance, small
development loan fund, housing and construction, financial, and various pilot or
test proposals.

Land acquisition and reserve.

The Plan will contain a program for the acquisition of land for future Colonia Proletaria developments based on the projected trends for the peripheral extensions, based on projected land needs and the land-availability survey (supra). It will also quantify the capital requirements for future developments, which will be staged to prepare for the growths projected.

The plan shall create a land-bank mechanism with which the Metropolitan Plan will raise funds. The purpose of this bank will be to acquire lands and reserve them as seems necessary for future development. It shall propose the means by which such land-bank mechanism shall operate and by whom its policies will be directed, and in what priority order the lands will be acquired.

Extension of utilities and facilities.

The Colonias Proletarias Plan shall contain a program for the extension of sanitary facilities in present Colonias without them, and in future extensions of them: water, sewage, electricity, and communications.

In 1960, we found that 36 per cent of the dwellings in the newer Colonias lacked water; similar trends were found for water closets and sewage facilities. Similarly, the Plan shall include a program for the provision of community facilities, based
on the existing needs and on the projections for future requirements. The present array of community services provided by the federal agencies in public housing (I.M.S.S. housing, for instance) should be more equitably distributed. A program for combined urban facilities could be developed, so that those provided in housing projects would not be concentrated in the center, but would surround the project, or even disperse, so that more users would have access to them. Both the Community Facilities and Utilities Plans shall also establish priorities for staged development. These priorities would include the following approximate stages, varying in time according to location, income, and need of a Colonia Proletaria.

In the first stage: trucked-in water, electricity, principal semi-surfaced streets, secondary non-surfaced streets, temporary exterior toilet facilities, temporary clinic, market, and school building, bus service, telephones.

In the second stage: common water taps (say, one or two every block), semi-surfaced secondary streets, outside sewage facilities, street lighting, permanent community center with clinic and primary school, some landscaping.

In the third stage: private water facilities; principal streets permanently surfaced; permanent market and school building, technical, or other training specialized center; permanent sewage facilities; private telephones.

In the fourth stage: permanent clinics or hospitals, markets, churches, child day-care centers, commercial center, and sidewalks.
The plan will establish these utility and facility priorities depending on the stage of development of a Colonia Proletaria. It will also establish priorities among the other non-residential oriented land uses. These should include employment centers, recreational facilities, police and fire stations, for instance.

The utilities plan will be related to a program for speeding the recognition of the unrecognized Colonias Proletarias, since the plan will propose the easement of land title clearance before installing the services for the lowest-income settlements. However, this should receive especial consideration, as it may open the door for future uncontrolled development, especially if it is found that the threat of not having to install all services prior to call encourages wild speculation. The Plan will then take into consideration the differences in municipal requirements between the Federal District and the State of Mexico, and coordinate the legislation in order to minimize discrepancies among the northern Colonias Proletarias.

Transportation.

The Plan shall outline a transportation system for the already existing, poorly serviced Colonias Proletarias; and for the adequate extension of such system for future settlements. Future employment, commercial, and other central facilities will be taken into account for establishing the accessibility of the Colonias. The Colonias Proletarias Transportation Plan shall be incorporated into the Metropolitan Transportation Plan; however, the former
will be more concerned with the details within the Colonias: walking distances, short trip costs, places for bus stops, and local land uses. A small scale sample of origin-and-destination could form part of the data background for the plan. The Transportation Plan will also be developed in conjunction with the Land-Use Plan, which together will determine the major future form of the Colonias Proletarias. This consideration in conjunction with the Land-Use Plan will be especially close for the State of Mexico Colonias, where light and heavy industrial sites are being developed.

Title clearance.

The Plan shall program the speeding of formal recognition of yet-unrecognized Colonias Proletarias, so that the installation of services be permitted. A simple method shall be devised in order to speed the recording and transferring of land titles.

Small credit facilities for urbanization.

The Plan shall propose a small loan mechanism for small developers who need to finance the early stages of utility installation. Permission shall also be granted for the sale of partially urbanized land. The lack of credit for urbanization of land is particularly acute in the older Colonias Proletarias, which still lack the services. Installment arrangements could be worked out so that the partially serviced land would be available to the lowest income levels, and according to how the incomes rise, or how in a future time the Colonia is able to finance the remaining facilities. Developers have traditionally preferred to
build only for middle and upper-income families who could make sufficiently large down payments to qualify for bank fees and interest. These large down payments would be used by the developer to finance the urbanization in a piecemeal fashion. The lack of credit to urbanize (or even partially urbanize) new land has been seen as one of the major obstacles to the development of low-cost communities. This has posed most problems for the Colonia dwellers who have been forced to live in the unserviced areas for years. A survey of the economic feasibility of self-financing, as proposed earlier, would determine what proportion of families could in fact be able to have the resources to finance such developments. The credit facilities program should not only cover the installation of utilities, but also site acquisition and construction. The 1950's program of the D.D.F. already experimented in the financing of Colonia Proletaria residential urbanized tracts. However, the proportions of this subsidy for the future proportions of Colonia Proletaria developments would be way beyond the financial scope of the Plan. I.M.S.S. has also proposed the installment sales of land to its members as a means of financing the acquisition of land on their behalf. We saw in Chapter III that these income ranges were much above Colonia Proletaria levels; however, a financing mechanism by which small-scale developers could finance the installation of services and other urbanization costs is necessary in addition to the sale of semi-urbanized lots.

Housing and construction.

The Colonias Proletarias in their large growth has shown the capability to provide the initial steps in coping with the low-income
housing problem of Mexico City. Except for the very marginal street sleepers and
rag pickers, the Colonias Proletarias have provided most of the needed housing
for the low income. As we saw in the analysis of Chapter II, the provision of
utilities, sanitary services, in addition to crowding and rudimentary construction,
were considered the major housing problems for the Colonia residents.

Although the residents have resorted to tapping electrical lines and in some cases water lines, the problem of utility provision is really beyond their control. Similarly with the provision and improvement of transportation. Both of these problems have to be dealt with on a large scale and have to be part of a metropolitan plan.

The general goal for the Housing Plan will be to make a substantial improvement of the housing stock in the Colonias Proletarias, and to facilitate the construction of dwellings so that the residents or the developers are aided in the construction of low-cost dwellings.

The Housing Plan must consider the following: the low incomes of the Colonia Proletaria population; the large and expanding size of the family; the opportunity that a Colonia Proletaria presently offers for low-density, low-rent, and in large measure, owned housing; the limited public resources available to finance full-urbanized and completed dwellings; the gradual capital investment that low-income families make on their dwellings; the high costs of building materials in the periphery; the lower proportions of economically active; and the lack of technical skills of the population.
The particular objectives of the Housing Plan will be: to reinforce the present low-cost, home-ownership pattern; to encourage institutions and developers in low-cost construction and research in building; to allow for future horizontal and vertical expansion of dwelling units and thus allow for the gradual building of dwelling units; to allow for installations of sanitary utilities and facilities at an unspecified future date; to allow for a variety of technical and administrative solutions; to encourage experimentation in dwelling construction; to train the unskilled and to create new jobs; to facilitate the distribution and lower the prices of material for construction; and to allow for the completion and rehabilitation of present housing.

The Housing Plan will propose construction systems that allow the gradual finishing and building of rooms and the gradual installation of bathroom facilities and other utilities. As with the provision of community facilities, the Housing Plan shall propose a staging program for this gradual housing completion. The duration of each stage will depend on the individual family's resources, determined by the stability of employment, their energies, and expansion needs.

As we saw in the analysis of Chapter I, over three-quarters of the Colonias dwellings lacked water closets; this compared to one-half for the metropolitan area. The housing plan shall have a program for financing the addition of such sanitary facilities in Colonias which have already the publicly installed water and sewage systems.
Indices of crowding per room were also high in the Colonias Proletarias. This is partially the result of the large numbers of children, contributing to larger number of members per family. The Housing Plan should have a program for facilitating the expansion of dwelling units to lower existing room densities and to provide for family expansion. This expansion should be possible for rooms and utilities on the ground floor, where lower gross residential densities permit; and the addition of a second story where higher densities exist in the older Colonias (as in District XII, for instance). New housing systems proposed should be designed with the possibility of these future additions in mind.

Because of the structural complications involved in adding a second story to an existing dwelling and because of the skills of the Colonias population, the Housing Plan will make available technical help from the various housing agencies. Such technical help would consist of measurements, material saving, plumbing, carpentry, and house planning.

The Housing Plan will also develop a construction manual to aid the Colonias dwellers who build on their own. The construction manual should be developed taking into consideration simplicity of construction, low skill requirements, the use of indigenous materials, and the possibility of a variety of solutions. The manual itself will be simple to read. For the illiterate population, visual directions will give complete instruction.

The Housing Plan should also develop small training centers for the development of construction skills in the population.
It should be located preferably in the shopping districts, the community center if there is one, or in another centrally located place. The training center will not only have formal and informal instruction for individuals who wish to build on their own, but also for small contractors or would-be contractors who would build more than one home. This program will seek the advice and cooperation from the construction unions and the technical training institutes existing in Mexico City.

The nature of present growth in the Colonia follows the pattern of a simple one-room shack built from waste materials which is slowly converted into a permanent dwelling. This process may take a generation for a family, depending on its resources. The Housing Plan will develop a program for the construction of temporary emergency shelter, which will be converted with a minimum of waste to a more permanent dwelling. The program will be tested by initial pilot projects.¹³

A permanent roof or a core house (infra.) may also serve as such temporarily unfinished house, which would utilize cardboard, leftover wood, aluminum sheets, or even paper or thin plastic cloth walls, in the initial months or years of a family's home building. There is already a basic structural system that is being utilized for rural school construction. A similar system for providing only essential structure and roof, to be finished by the owner himself or with his neighbors, should be explored with pilot studies.

Among such pilot studies, it shall propose and develop projects in partially completed housing, or so-called core housing, and/or
roof construction. The core-house assumes that the family, with little additional help, can move into the core and finish the house in the future. Different varieties of such housing would be constructed, from those providing the bare minimum roof and columns, to those providing installed utilities and bathroom-kitchen facilities. Such a house would also be designed with future expansions in mind, using local skills and materials. The credit programs that the Plan would develop (infra) would be applicable to core housing, in addition to the materials and labor needed for its completion in the future. Similarly, the construction manual will be developed for the completion of such.

The construction of this kind of housing could be based on prefabrication of basic parts, or with simpler techniques using community construction. Prefabrication has already proven its economic feasibility in Mexico, for the construction of rural schoolteachers' homes. The partial prefabrication of essential structural elements and utility components has been done in a factory that has been in operation for several years in Mexico City. The parts have all been designed so that they can be carried by one person. It utilizes metal columns and beams and completed plastic bathroom-kitchen components. Its electrical connections are all pre-made so that they can be installed through the columns. Wall and roof infills are designed on the site, depending on the availability of local materials and the level of construction skills of the people. A similar scheme could be transferred for the peripheral settlements, modifying the design to allow minimum requirements, and equal flexibility in construction, size, and design.
As part of the same program, the Plan will also propose more efficient construction materials distribution in the Colonias Proletarias, and a program for extending credit for the purchase of the construction materials. It will initially experiment with wholesale of selected construction materials in the newer Colonias Proletarias. Such a program for reduced prices and efficient distribution would be patterned after the government-sponsored food distribution program of DEIMSA described in Chapter II. Distribution of construction materials would take into consideration the construction manual design and the present use of materials in the Colonias Proletarias. The small loans would be available for the purchase of such materials.

A program will be developed to aid would-be or present builders. These would receive as payment a house for every three that they constructed. Such a program would finance the lot and the dwelling's materials, assuming that these and the labor would each form one-third the cost of a dwelling unit. This would expand the housing supply in the Colonias for those families who would want a finished house, if not interested in building themselves. The builder would choose to receive either cash payment for his labor or a house for every three that he built. This house he could use, lease, or sell.

This program would also be designed to facilitate the construction of homes for those families who have capital of their own to invest. The program could have the individual apply alone, for instance, or in groups of, say, ten who plan to build on the same site. An individual then
would show that he has the capability of financing a third of the cost. He would then get a private sponsor (employer, church, etc.) who would sponsor another third, and the remaining third would be advanced by the housing program at the usual rate of interest. Such interest would be deferred for later years, after the time when the private sponsor would be repaid. This program could establish maximum limits for "third" loans and for total cost of dwellings.

In addition to lending to builders, the Plan will also develop a program for loans to owners of small lots who want to build their own houses and need credit. The program will supply necessary plans and technical assistance, in addition to small loans for the materials and/or construction of the dwelling. The small credit program will also be available for plumbing, kitchen, or bathroom fixtures, construction materials, or labor. A pilot project would be set up to initiate such small credits. Similarly, a small developer will be eligible for small loans for the construction of dwelling units.

The Plan will propose also research needed for the development of efficient, inexpensive, easy-to-build housing, using experiences from pilot projects. Such research could be done by the National University, the Polytechnic Institute, selected construction industries, and the existing housing agencies themselves. Especially crucial is research in the following areas: development of new building materials; development of pre-fabricated plumbing, wiring, doors, and other components which require more specialized skills, simple methods of instruction in the building trades industry, and modular coordination for material efficiency.
Rehabilitation of older Colonias and possibly the less dense tugurios would in general benefit from these innovations: addition of bathroom and kitchen facilities; or just installation of plumbing, addition of rooms, and loans for home improvements. However, the Housing Plan should also propose a rehabilitation program for the older Colonias. This program will select a Colonia Proletaria (or several). An analysis will be made of the economic capabilities of the families and their particular needs. A staged program will be developed to aid these families in housing improvements, using a combination of the above schemes (technical aid, addition of utility components, etc.).

Coordinating Colonia Proletaria Plan and metropolitan planning.

So far in this part we have presented a series of policies, programs, and specific recommendations for the development of the Colonias Proletarias' transportation, community facilities, utilities, and housing. Many of these should be considered preliminary proposals to be tested by experimental projects as well as thorough study and discussion. There are, however, other basic questions that have to be answered concerning the development of such a Colonia Proletaria Plan which we have not dealt with explicitly. By whom is this plan going to be implemented? Where are the resources coming from? And, if these two questions are answered, what priorities will be established for the above programs and policies?
Concerning the first question, the implementation of a Colonia Proletaria Plan, we have again only preliminary answers. The existing planning structure in Mexico City will have to be modified radically in order to prevent future fragmented Colonia Proletaria planning. The Colonias Proletarias Plan will have to be incorporated into a general metropolitan development plan. Both will be implemented by a metropolitan planning mechanism, discussed in the following part.

Some of the specific proposals require new resources; others would not. The resources presently spent on middle class housing projects already represented in 1963 one-quarter of the social development sector of the public investment budget. A shift in the orientation of the spending of such resources is necessary in order to have a greater portion of the urban poor benefit from the fruits of such public investments. Some of the projects will need additional government support, and others will be self-financed. Among the Plan contents, described above, first priority will be given to future land planning for the Colonias and to short range programs to facilitate the installation of sanitary facilities.
IV.2 The Development of Mexico City

On first sight, it might seem beyond the scope of this thesis to include among the proposals the development of the Mexican capital city. The Colonias Proletarias are, however, becoming one of the major users of Mexico City's 290 square miles. A proposal for the development of the Colonias that does not recognize the development of the metropolitan area as the most meaningful unit of study might fail to fully integrate the fringe settlements into the urban fabric.

The city's transportation and communication system, the employment and commercial centers, metropolitan parks, businesses, and other urban institutions and places, all interconnect the Colonias Proletarias physically and functionally to the metropolitan area. Lack of this recognition would reinforce the pattern of relative isolation from the rest of the city. This thesis has in the first three chapters attempted an analysis to show how different the Colonias Proletarias have been from other types of development. It has also shown, however, how they are related to the metropolitan area's economic, social, and physical entity. To ignore this fact, as has been done in the recent past, may have serious social and economic costs to the development of the entire capital city.

Similarly, a proposal for the development of the Colonias Proletarias that does not recognize the recent extensions of the urban
area from the Federal District to adjacent municipalities in the State of Mexico -- and to some rural areas in the southern part of the Federal District -- will exclude over 20 per cent of the present Colonia Proletaria type population on the fringe, and most of the future Colonia Proletaria growth.\textsuperscript{16}

Except for Ixtapalapa in the southeast, all of the expansion of lower-income suburbs in the recent past was, and in the future is likely to occur, in the State of Mexico. It is necessary, then, that the overall planning entity be the entire metropolitan area, not defined by political city limits.

The disposition to think of a metropolitan area as the meaningful unit for planning is a comparatively recent phenomenon even in industrialized countries. Only 30 or 40 years ago, the politically circumscribed city -- not the metropolitan area -- was a sufficient unit of analysis even for New York or London. Although the edges of the urban area of these cities sometimes crossed over beyond the city limits, this seldom happened. Today, however, most large metropolitan areas extend their fringes beyond the central city boundaries and begin to embrace other smaller towns and villages. With New York it is Newark; with Los Angeles it is Santa Ana. In Mexico longer-range projections include Puebla and Toluca as part of the industrial center within Mexico City. But already we find the once-independent towns of Tlalpan and Iztapalapa engulfed by the Mexico City urban area.

There are also some indications that this pattern is being recognized by some public authorities in Mexico. Two such indications are the already mentioned I.M.S.S. metropolitan study, and the Hydro-
logical Commission's study of the Central Valley Region. Both of these agencies have recognized the metropolitan area beyond the Federal District limits; however, urban development problems are, on the whole (as we saw in Chapter III), disjointed ad hoc projects by many sub-agencies.

It is with these considerations in mind that this part of the chapter outlines proposals for the development of metropolitan planning.

A comprehensive metropolitan-wide study is proposed.

This plan is to complement the I.M.S.S. metropolitan housing study of 1962. Both of these will serve as a basis for future development policies, programs, and projects.

The survey will include the following:

- recent past population growth trends and more distant future projections;
- recent past economic development of the area, its role in the national framework, and its future prospects;
- the existing physical plant of the urban area both in terms of land uses and circulation system, and their future expansion needs;
- the community facility and utility conditions;
- present government, institution, or other large land and property holdings in the city and region;
- the present and projected water, sewage, and power needs of the population;
- the existing social conditions in the Colonia Proletarias, tugurios, and decaying residential areas;
- present and future educational and other institutional or human development needs of the population;
- institutional and manpower resources for the
development of a metropolitan plan; and the present and future urban development costs for the Federal District, the State of Mexico, and the Federal Government combined; finally, present and future urban development resources in local and national taxes and revenues, plus a collection of all past studies concerning any aspect or physical part of the metropolitan area and region.

The general goal of metropolitan planning would be the coordination of the different policies affecting the growth of Mexico City's area and proposing alternative developments. It would also be concerned with the general development of the city in the country's economic structure.

The more specific objectives for metropolitan planning would be to develop specific coordinated programs for the metropolitan area. The programs would be expressed as contents of a general Metropolitan Development Plan.

The Metropolitan Development Plan will contain the following:

- a synthesis of the data gathered; a projection for future land area and population growth for the metropolitan area; a series of alternative test proposals for long-range development of the region, involving alternative patterns of space and activities allocation; a plan for the economic development of the metropolitan area, to be incorporated into, or developed in conjunction with; the national development plans; a plan for setting aside or acquiring land (developed by a land-bank mechanism, described in Part 1, supra); a plan for the development of the physical plant of the city and region including
the land uses and circulation system's modifications and proposed future allocations;
a plan for sanitary utilities which will include water resource, sewerage, and power
plans; a plan for the development of institutions and facilities (educational ones
in particular); a plan for the development of specific sub-areas in the city, to
include the Colonias Proletarias, the tugurios, and the commercial center and
sub-centers of the city; a plan for the development of highways, public transit,
and communications; and finally, a financial plan for quantifying future resources
needed for such development.

So far, the outline presented above concerns elements of a study needed for the planning of the Mexico City metropolitan area. The outline above also includes basic concerns that a metropolitan planning body would further elaborate for proposing future patterns of development for the city. There are also some basic questions, however, that have to be answered. These concern the implementation of and the resources needed for such planning. Another question concerns the planning body that is going to implement the Plan. And a third question has to do with the Plan's priorities and how they should be established for the study and for the implementation of the Plan.

As discussed earlier, there are three agencies\footnote{17} that since 1960 have been looking at Mexico City's urban development problems beyond the municipal limits and have completed competent studies of one or another of the metropolitan area's problems (in one case including the immediate hinterland): the Hydrological Commission of the Valley of Mexico,\footnote{18} the I.M.S.S.,\footnote{19} and the
bank of Mexico's Department of Industrial Research.  

In the case of the Hydrological Commission's study, water resources and needs was the major binding problem between the different municipalities in the Mexico City region. In the case of I.M.S.S., it was the housing problem (done similarly for 11 other cities in Mexico). And in the case of the Bank of Mexico's study, the focus was the national distribution of industry. The last study, however, was concerned with the overcentralization of industry in the center region, and not the distribution thereof within the metropolitan area. These studies, then, especially the Hydrological Commission's study, indicate a growing government concern. They in themselves, though, do not form a planning mechanism for the metropolitan region, nor do they cover the broad range problems outlined above for study and planning in Mexico City's metropolitan area.

Other crucial metropolitan-wide problems not covered by these bodies include industrial location, the land problem, unstable sub-soil conditions, extension of utilities and community facilities, and the satisfaction of the city's housing needs.

The institutional structure described in Chapter III should be modified so that, for instance, the Mixed Planning Commission or the Planning Commission above it could be a coordinating and a functioning body. The legislative and fiscal changes that would have to be made for such modifications are beyond the scope of this thesis, however. It can only be pointed out that I.M.V.'s original purpose was that of coordination of housing programs in
the country. Since its creation, both lack of funds and personnel, in addition to lack of administrative control over the already existing housing bodies, did not allow its coordinating function to materialize. A modified and strengthened Planning Commission and Master Plan Office for the metropolitan area in order to function would first of all have to include representatives from the D.D.F.1's offices, from the State of Mexico's comparable departments, and from the national and regional agencies that affect (or not study) the metropolitan area. The Planning Commission would also need radical reforms in its administrative functions and powers. And finally, it would need the resources for carrying out the necessary studies and plans.
Summary

This chapter outlined two main recommendations. The first concerned the development of the Colonias Proletarias; the second concerned metropolitan planning.

A Colonia Proletaria Plan was proposed in order to prevent future uncontrolled growth of the settlements, enable them to enter the mainstream of urban life, and incorporate into the structure of the urban community.

The particular objectives outlined for such a plan include refining existing information and further gathering of critical data in order to project future growth. These data would form a strong basis for projecting future land needs and their corresponding facilities, and estimating future capital requirements.

The Plan outlines long-range measures for reserving land for future peripheral extensions. It establishes priorities for gradual installation of services and facilities for future fringe settlements and to those presently lacking them, with variations according to location and age of development and the income levels of the population.

The recommendations also outline land-use, transportation, title clearance, credit, housing, and construction sub-plans. Among these, housing recommendations are outlined in greater detail to improve the housing stock and to guide the already impressive initiative of Colonia Proletaria residents in their gradual home building.
Among the housing proposals, the chapter includes: the development of emergency temporary dwellings, programs for facilitating the expansion of rooms, and the addition of utilities and sanitary components; it includes a program for improving the quality and cost of construction by aiding the families with construction manuals, informal technical advice, and formal training; it recommends proven programs for the construction of partial housing; it also proposes research and experimentation with pilot projects in partial structural prefabrication components, among other technical solutions; it recommends the wholesale distribution of building parts and materials; and finally it outlines proposals for loans to the small builder, developer and home owner, to facilitate their individual and collective contribution to the housing stock in the Colonias Proletarias.

Lastly, the first part recommends the necessary incorporation of the Colonia Proletaria Plan into the development of a Metropolitan Plan primarily to fulfill the main goal of the former, but also because the Colonias Proletarias land area and population is nearly half that of Mexico City.

The second part of the chapter outlined recommendations for coordinated, metropolitan-wide planning to minimize the present ad hoc project planning done by the several fragmented local and national government agencies. It would require reform in the present institutional structure and the creation of a Metropolitan Plan. A Plan for the development of Mexico City is to have as a base for projecting both future population growth and land expansion a study of past trends, and the present physical, social, and economic
assets and problems. The Metropolitan Plan's major components include those outlined for the Colonias Proletarias, except for the careful consideration in the latter of the role of the national capital in Mexico's future.
FOOTNOTES
Chapter I

1. This growth pattern will be described in more detail in the second part of Chapter II.


10. This quotient includes the population of the metropolitan area as defined in Table II.2 and therefore might not be a meaningful comparison to the 1950 quotient.


14. Bruce H. Herrick, Urban Migration and Economic Development in Chile, M.I.T. Press, Cambridge, 1965, p. 11; also Kingsley Davis, Scientific American, op. cit., p. 45. This section is based primarily on the theoretical background provided by Herrick and Davis.

15. For Chile, Ibid., p. 15; for Mexico, Douglas S. Butterworth, "A Study of the Urbanization Process Among Mixtec Migrants From Tilaltongo in Mexico City," America Indigena, Vol. XXII, July, 1962, pp. 257-274; see also part 6, Ch. II, infra. This particular study traced the pattern from Tilaltongo to the Colonias in northeastern Mexico City.


17. Ibid., from Table III.


20. This discussion is partially based on a paper written by the author on the contribution of Mexico City in national economic development, for course 4.85, Dept. City Planning, Massachusetts Institute of Technology, April, 1966.


22. Yates, op. cit., Table 7.

23. VIII Censo, op. cit. (Resumen General), Table 22. (1940 Census cannot be used because of changes in definition of concept.)

24. An exception is for the period 1940-58, where the State of Mexico and the Federal District consumed the first and fourth highest proportions of the increase in electrical capacity.
25. Ibid., Table 16-b; Table 20; Table 22; Table 23.


27. Ibid., pp. 10-11.

28. Ibid., Table 27.

29. Ibid., Table 24.

30. Ibid., Table 40.

31. Ibid., Tables 35, 31, 32, and 36 respectively.

32. Lamartine Yates, op. cit.


34. Secretaria de Recursos Hidraulicos, CHCVM, op. cit.


36. Ibid.

37. Ibid.
Chapter II

1. Decree of 30th of December 1949, in Instituto Nacional de la Vivienda, La Vivienda Popular, Mexico 1958, see appendix therein.

2. Instead of using approximate and sometimes misleading translations as "working class districts," "proletarian districts," or "parachutist colonies," the Mexican name will be retained in this thesis.


6. Omitted.

7. I.N.V., La Vivienda Popular, op. cit.


9. 50 Anos, op. cit., p. 127.


14. Ibid., p. 29

14a. Ibid.


17. These factors will be discussed in the following three parts of this chapter.

18. Frieden, Search, op. cit., p. 9

19. Ibid.


24. See Table II.1. Some of the older and more dense "hybrid" Colonias in District XII were built before 1935.


27. The hectare is the metric surface measure equal to 2.47 acres or 10,000 square meters.

28. These are detailed in the footnotes of Table II.1.


30. Ibid., Ch. 2; Caracas, 35 per cent; Maracaibo, 50 per cent; Santiago, 25 per cent, etc.

31. For a discussion see distinction made in I.N.V., Colonias, op. cit., p. 11 for "habitacion proletaria" and "colonia proletaria," the former being more precise.
32. 50 Anos, Vol. 2, p. 4.

33. I.N.V., Colonias, Plan No. 5.

34. As defined in Table II-3, Note 8.

35. Valley of Mexico is used here as defined by the Comision Hidraulica de la Cuenca del Valle De Mexico of the Secretaria de Recursos Hidraulicos: Note 4, Table II-3.


37. Tlalpan not considered contiguous in that decade.

38. A middle-class "satellite city," among others, along the peripheral highway.


42. The VIII Censo General de la Poblacion (1960) (hereafter referred to as VIII Censo) for instance, estimated the Federal District to have 901,700 families and 902,100 dwelling units. That is, there were 400 dwelling units in excess. Without any further qualifications we could conclude that there is no housing deficit. Even without considering quality and state of repair, most of these vacant units are found in apartment houses, whose prices cannot be paid by the peripheral settlement dwellers.

43. See for instance, Oscar Lewis, Children of Sanchez, op. cit.

44. For comparison of different sources, see Correo Economico, op. cit., p. 56. Part of the disagreement is due to the discrepancy in area surveyed. Only one of the five sources listed therein covers the entire metropolitan area.

45. Table II-9 represents the largest sample survey made in Mexico City concerning housing conditions. It was made by the Mexican Institute
of Social Security in 1962; the results have not been officially published. These preliminary figures are taken from *Correo Economico*, op. cit.


47. *Correo Economico*, op. cit., p. 60.

48. See footnote 27, supra.

49. *Correo Economico*, op. cit., p. 60.


52. From the VIII Censo, op. cit., as summarized in Table 11.8.

53. Figures taken from Ruben Olmedo Jasso, "Estudio No. III" in Secretaria de Recursos Hidraulicos, op. cit., Chart III-49. These data are summarized in Table 11.6. Recent figures for other metropolitan areas, for example, place Toronto at 17 persons per developed acre, Chicago at 13 per acre, Los Angeles County at 14 per acre. These figures may not be fully comparable due to differences in definition; they do, however, indicate the very high density of Mexico City as a whole.


56. VIII Censo, Tables 29 & 30, op. cit. Figures rounded to nearest 100. Total number of dwelling units does not equal individual quantities in Census; where this was found, the sum of individual quantities was used as total.


58. From VIII Censo, op. cit., Table 30, Part 4.

60. Ibid., p. 63.

61. Ibid.


63. I.N.V., Colonias, op. cit., see for instance Plan No. 15 therein. This survey comprised most of the Colonias Proletarias to the northeast.

64. The last two figures are for urban population in the same districts.

65. All proportions derived from VII Censo, op. cit., Table 29, Part One.

66. From the 1956 Census of Hospitals.


68. See Table 11-1.

69. Yates, op. cit., Table 35, p. 94.

70. I.N.V., Colonias, Plan 14.

71. See for instance Plan Nacional Para el Mejoramiento y la Expansion de la Educacion Primaria en Mexico, No. 6, by the Comite Administrador del Programa Federal de Construccion de Escuelas, 1963.


74. There is, however, a Census of Buildings that has been done in the past, but was not reviewed for the purpose of this chapter; it was assumed the I.N.V. survey was an accurate assessment of these.

75. Compania Exportadora e Importadora Mexicana, S.A., and Almacenes Nacionales de Deposito, S.A., respectively.

76. Secretaria de Economia, Direccion General de Estadistica, Departamento de Muestreo, Ingresos y Egresos de la Poblacion de Mexico (Oct. 1956), 1958, pp. 61-63.

77. Children of Sanchez, op. cit., Ch. 5.
78. For the "Clase Popular" (e.g., Lower Class), the proportion of income spent on food is 53.3 per cent, and on clothing, 12.6 per cent; in 50 Anos, op. cit., p. 62.


80. The topic of migration was discussed in the fourth part of Chapter I. See, for instance, Nathan Whetten and Robert Burnight, "Internal Migration in Mexico," Journal of the Interamerican Statistical Institute, March 1958, pp. 65-77.

81. This was the case of migrants coming into Santiago, Chile, in a 1946 study. For instance, 65 per cent of the migrants coming into Santiago had lived in towns of more than 5,000 before coming to the capital city. See Bruce Herrick, Urban Migration, op. cit., p. 52.


83. Approximated from figures in 50 Anos, Vol. II, Chart 13, p. 22; see in Table II-23, infra.


85. This factor of comparison is more evident on an international scale when, for instance, in Latin America, the active age group from 15 to 64 years forms 55 per cent of the population; but in industrialized countries such as England or the U. S., the proportion is anywhere from 60 to 65 per cent (United Nations, ibid.).

86. United Nations, ibid.


89. Ibid., p. 50.

90. Ibid., p. 53.

91. See Paul Lamartine Yates, El Desarrollo Regional de Mexico, op. cit.

92. Ifigenia M. de Navarrete, La Distribucion del Ingreso y el Desarrollo Economico de Mexico, Escuela Nacional de Economia, Mexico, D.F., 1960, Table #6, p. 72.


94. See source of Table II-28.

95. See source of Table II-29.


98. Ibid.
Chapter III


3. Ibid., p. 6.


6. Ibid., p. 7.

7. Oldman, et al., op. cit., page 7 of first draft of Chapter V.


15. Frieden, Search, op. cit.

16. Correo Economico, op. cit., p. 34.

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18. Oldman, et al., op. cit., Chapter IV.

19. Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado.


22. "Compraventa notaria con reserva de dominio."


27. Ibid.

28. Correo Economico, op. cit., p. 36.

29. Ibid., p. 27.


31. Oldman, op. cit., Chapter V.

32. Programa Financiero, op. cit., p. 135. The northern cities near the U.S. border, where rent and income structure is higher, are an exception to this.

33. FOVI, or Fondo de Operacion y Descuento Bancario a la Vivienda; FOGA, or Fideicomiso de Garantia y Apoyo a los Creditos Para Vivienda. (See Programa Financiero, ibid., p. 140, or Correo Economico, op. cit., pp. 20 and 41.)
34. Frieden, Search, op. cit., p. 27.
36. Ibid., p. 27.
38. Frieden, Search, op. cit., p. 29.
39. See Table II-30, infra.
40. A great portion of this discussion is based on Oldman et al., op. cit., Chapters III and V.
41. Ibid., Chapter III, p. 28.
42. Ibid., Chapter III, p. 30. The comments were based on an interview with the developer and the author's personal observation of the Aurora subdivision, August 1964 and February 1965.
43. Ibid.
44. This discussion is based primarily on the proposals as presented in I.N.V., Colonias, op. cit., pp. 16-24.
45. Ibid., p. 19.
46. Correo Economico, op. cit., p. 38. For a discussion of the allocation of funds for the housing sector in the 1965 fiscal peso, see the main section of Correo Economico, supra, p. 4.
47. Ibid., p. 27.
Chapter IV.


2. In *Correo Económico*, op.cit.

3. I.N.V. surveys cited in Spanish Bibliography, infra.

4. Many others are only available at the National University in Mexico City.

5. See *Mañana*, op.cit. and other periodical libraries.

6. Among them associations of Economists, Geographers, Historians and Architects.


11. Oldman, op.cit.

12 See LaJous Martinez, Thesis at the Faculty of Political and Social Science, National University, Mexico, D.F., 1965.


14. Ibid.


17. I.M.S.S., the Comisión Hidrologica, and the Bank of Mexico respectively.

18-20 Omitted.
PLANS
PLAN No. II-C

COLONIAS PROLETARIAS

Z Zocalo
A Alameda Park
Insurgentes Avenue
Colonias Proletarias prior to 1930
C Colonias Proletarias 1930-1957

I, II, III 1930 Urban Growth
... 1962 Urban Growth
PLAN No. II-D

Ecatepec

Tlalnepantla

malhuacan:

Ixtapalapa

Azcapotzalco

G.A.

Madero

CORE DISTRICTS

Azcapotzalco

G.A.

Madero

Coyoacan

Obregon

Ixtacalco

Ixtapalapa

Chimalhuacan

A Alameda Park

Z Zocalo

X Tugurios or Vecindades

COLONIAS PROLETARIAS AND TUGURIOS

North
<table>
<thead>
<tr>
<th>TABLE No. II-E</th>
</tr>
</thead>
</table>

| Aggregated Core Districts II-XI |

* Urban Growth in Colonias Ring and Four Peripheral Districts

- **C**: Colonias Ring
- **F**: Four Peripheral Districts
- **T**: Three Peripheral Districts

1962 Urban Growth in Colonias Ring and Four Peripheral Districts

**COLONIAS PROLETARIAS AND CENSUS DISTRICTS**

- North
PLAN No. II-H (a)

A  Alameda Park
Z  Zocalo
H  Hospital
c  Clinics
m  Markets

MARKETS & CLINICS
Lacking Water, Sewage and Electricity.

III Water & Sewage only.

All utilities in.

Not known.

PLANNING No. II-1

UTILITIES

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DISCLAIMER

Page has been ommitted due to a pagination error by the author.
TABLES
TABLE 1.1
PER CENT NATIONAL POPULATION IN LATIN AMERICAN CAPITAL CITIES, 1950-1960

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Montevideo, Uruguay</td>
<td>38.8</td>
<td>40.7</td>
</tr>
<tr>
<td>Santiago, Chile</td>
<td>21.0</td>
<td>24.9</td>
</tr>
<tr>
<td>Havana, Cuba</td>
<td>19.6</td>
<td>23.5</td>
</tr>
<tr>
<td>Asuncion, Paraguay</td>
<td>15.7</td>
<td>17.6</td>
</tr>
<tr>
<td>Caracas, Venezuela</td>
<td>14.0</td>
<td>17.1</td>
</tr>
<tr>
<td>Lima-Callao, Peru</td>
<td>12.6</td>
<td>17.3</td>
</tr>
<tr>
<td>Mexico, Mexico</td>
<td>11.2</td>
<td>13.3</td>
</tr>
<tr>
<td>La Paz, Bolivia</td>
<td>10.6</td>
<td>12.2</td>
</tr>
<tr>
<td>Guayaquil, Ecuador</td>
<td>8.1</td>
<td>10.4</td>
</tr>
<tr>
<td>Bogota, Colombia</td>
<td>5.3</td>
<td>7.2</td>
</tr>
</tbody>
</table>

### TABLE 1.2

**RANK SIZE QUOTIENTS FOR SOME LATIN AMERICAN CAPITAL CITIES, 1960**

<table>
<thead>
<tr>
<th>Country</th>
<th>Date</th>
<th>Quotient</th>
<th>Country</th>
<th>Date</th>
<th>Quotient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peru</td>
<td>1961</td>
<td>7.1</td>
<td>Cuba</td>
<td>1953</td>
<td>3.7</td>
</tr>
<tr>
<td>Paraguay</td>
<td>1950</td>
<td>5.3</td>
<td>Chile</td>
<td>1952</td>
<td>3.3</td>
</tr>
<tr>
<td>Argentina</td>
<td>1947</td>
<td>4.8</td>
<td>Venezuela</td>
<td>1961</td>
<td>1.7</td>
</tr>
<tr>
<td>Mexico</td>
<td>1950</td>
<td>4.83</td>
<td>Bolivia</td>
<td>1960</td>
<td>1.6</td>
</tr>
<tr>
<td>Mexico</td>
<td>1960</td>
<td>7.6</td>
<td>Ecuador</td>
<td>1950</td>
<td>0.96</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Colombia</td>
<td>1951</td>
<td>0.83</td>
</tr>
</tbody>
</table>

TABLE 1.3

ABSOLUTE AND RELATIVE RATES OF GROWTH FOR MEXICO CITY, 1930-1990

<table>
<thead>
<tr>
<th>Year</th>
<th>Absolute Population</th>
<th>Relative Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930</td>
<td>1.6 million</td>
<td>9.8 per cent</td>
</tr>
<tr>
<td>1940</td>
<td>2.3 million</td>
<td>11.3 per cent</td>
</tr>
<tr>
<td>1950</td>
<td>3.6 million</td>
<td>14.0 per cent</td>
</tr>
<tr>
<td>1960</td>
<td>5.8 million</td>
<td>16.6 per cent</td>
</tr>
<tr>
<td>1990</td>
<td>13.5 million</td>
<td>19.0 per cent</td>
</tr>
</tbody>
</table>

SOURCE: Secretaria de Recursos Hidraulicos, Comision Hidrologica de la Cuenca del Valle de Mexico, El Desarrollo Economico del Valle de Mexico y la Zona Metropolitana de la Ciudad de Mexico, July 1964, Charts III-7 and III-16.
## TABLE 1-4

### INDICATORS OF HEALTH IN SELECTED COUNTRIES IN RECENT YEARS

<table>
<thead>
<tr>
<th>Country</th>
<th>Death Rate per 1,000 Inhabitants</th>
<th>Life Expectancy at Birth</th>
<th>Number of Physicians per 1,000</th>
<th>Hospital Beds per 1,000 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>9.4</td>
<td>69.5</td>
<td>13.4</td>
<td>9.1</td>
</tr>
<tr>
<td>Denmark</td>
<td>9.1</td>
<td>71.2</td>
<td>12.8</td>
<td>8.3</td>
</tr>
<tr>
<td>Italy</td>
<td>9.6</td>
<td>67.9</td>
<td>15.2</td>
<td>8.3</td>
</tr>
<tr>
<td>Spain</td>
<td>9.4</td>
<td>61.1</td>
<td>16.9</td>
<td>4.0</td>
</tr>
<tr>
<td>Latin America</td>
<td>13-15</td>
<td>52-56</td>
<td>5.5</td>
<td>3.1</td>
</tr>
<tr>
<td>Mexico (Federal District)</td>
<td>13-16</td>
<td>51-55</td>
<td>5.8</td>
<td>1.4</td>
</tr>
<tr>
<td>Argentina</td>
<td>8-9</td>
<td>64-65</td>
<td>13.0</td>
<td>6.4</td>
</tr>
<tr>
<td>Chile</td>
<td>12-13</td>
<td>53-56</td>
<td>6.2</td>
<td>5.0</td>
</tr>
<tr>
<td>Honduras</td>
<td>15-20</td>
<td>45-50</td>
<td>2.1</td>
<td>2.2</td>
</tr>
</tbody>
</table>

TABLE 1-5

MORTALITY AND BIRTH RATES FOR MEXICO, 1922-1959

<table>
<thead>
<tr>
<th>Period</th>
<th>Number of Births per 1,000</th>
<th>Number of Deaths per 1,000</th>
<th>Population Growth Rateb</th>
</tr>
</thead>
<tbody>
<tr>
<td>1922-29</td>
<td>32.6</td>
<td>25.4</td>
<td></td>
</tr>
<tr>
<td>1930-34</td>
<td>44.6</td>
<td>25.6</td>
<td>1.6</td>
</tr>
<tr>
<td>1935-39</td>
<td>43.5</td>
<td>23.3</td>
<td></td>
</tr>
<tr>
<td>1940-44</td>
<td>44.6</td>
<td>22.2</td>
<td></td>
</tr>
<tr>
<td>1945-49</td>
<td>45.0</td>
<td>18.0</td>
<td>2.7</td>
</tr>
<tr>
<td>1950-54</td>
<td>45.1</td>
<td>15.5</td>
<td>2.9</td>
</tr>
<tr>
<td>1955-59</td>
<td>46.0</td>
<td>12.6</td>
<td>3.1</td>
</tr>
</tbody>
</table>

SOURCES: Julio Duran Ochoa, "La Explosion Demografica" in Mexico: 50 Anos de Revolucion, Vol. 2, pp. 7-8; (b) p. 4.
TABLE 1-6
SOME ECONOMIC INDICATORS FOR MEXICO BY REGIONS: 1940, 1960

<table>
<thead>
<tr>
<th></th>
<th>Total Population</th>
<th>Percent in Industry</th>
<th>Value Added per Industrial Worker</th>
<th>Participation in Total Value Added</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1940</td>
<td>1960</td>
<td>1950</td>
<td>1955</td>
</tr>
<tr>
<td>Federal District</td>
<td>9.0</td>
<td>13.9</td>
<td>26.8</td>
<td>37,800</td>
</tr>
<tr>
<td>F.D. and the State of Mexico</td>
<td>14.8</td>
<td>19.4</td>
<td>31.1</td>
<td>36,700</td>
</tr>
<tr>
<td>Northern States</td>
<td>13.6</td>
<td>16.1</td>
<td>17.3</td>
<td>29,100</td>
</tr>
<tr>
<td>Eight Least Industrialized</td>
<td>23.1</td>
<td>16.1</td>
<td>16.4</td>
<td>4,360</td>
</tr>
<tr>
<td>Rest of Mexico</td>
<td>48.5</td>
<td>39.8</td>
<td>35.2</td>
<td>13,850</td>
</tr>
<tr>
<td>TOTALS</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>21,000</td>
</tr>
</tbody>
</table>

SOURCE: Paul Lamartine Yates, El Desarrollo Regional de Mexico, Banco de Mexico, Departamento de Investigaciones Industriales, Mexico, D.F., abril de 1962, (Table 6).
TABLE 1-7

MAJOR CHANGES IN GROSS REGIONAL PRODUCT PER CAPITA: 1940-1960

<table>
<thead>
<tr>
<th></th>
<th>In 1960 Pesos</th>
<th>1940</th>
<th>1960</th>
<th>Per cent Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baja California Norte</td>
<td></td>
<td>12,800</td>
<td>11,900</td>
<td>-7</td>
</tr>
<tr>
<td>Federal District</td>
<td></td>
<td>7,850</td>
<td>9,950</td>
<td>27</td>
</tr>
<tr>
<td>Third Highest State</td>
<td></td>
<td>3,400</td>
<td>7,070</td>
<td>106</td>
</tr>
<tr>
<td>Fourth Highest State</td>
<td></td>
<td>2,940</td>
<td>6,360</td>
<td>116</td>
</tr>
<tr>
<td>Lowest State</td>
<td></td>
<td>384</td>
<td>1,022</td>
<td>163</td>
</tr>
<tr>
<td>MEXICO</td>
<td></td>
<td>1,900</td>
<td>3,800</td>
<td></td>
</tr>
</tbody>
</table>

TABLE II-1

GROWTH OF THE COLONIAS PROLETARIAS FROM 1930 TO 1970: LAND AREA AND POPULATION AS PER CENT OF CONTIGUOUS METROPOLITAN AREA

<table>
<thead>
<tr>
<th>Year</th>
<th>Land Area in Hectares</th>
<th>Per Cent of Total Urban Land Area in Colonias</th>
<th>Per Cent of Urban Population in Colonias</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930</td>
<td>1,700he (a) = 8,600he (b)</td>
<td>(20.0)</td>
<td>1,230,000 (b)</td>
</tr>
<tr>
<td>1940</td>
<td>4,500he (a) = (21,750he)</td>
<td>(21.0)</td>
<td>1,760,000 (b)</td>
</tr>
<tr>
<td>1950</td>
<td>6,600he (a) = 24,000he (d)</td>
<td>(24.0)</td>
<td>2,950,000 (b) = 14.0</td>
</tr>
<tr>
<td>1955</td>
<td>7,700he (a) = (27,600he)</td>
<td>30.0 (c)</td>
<td>3,750,000 (h) = (20.0)</td>
</tr>
<tr>
<td>1960</td>
<td>16,300he (i) = 47,000he (e)</td>
<td>(35.0)</td>
<td>4,945,000 (e) = (30.6)</td>
</tr>
<tr>
<td>1970</td>
<td>24,000he (o) = 63,600he (m)</td>
<td>(40.0)</td>
<td>(3,110,000) = 40.0 (k)</td>
</tr>
</tbody>
</table>

SOURCES: See following page

? = data not available
() = approximated or derived from equation
SOURCES for Table II-1

(a) I.N.V., Colonias, Chart No. 27, 1958.

(b) Departamento del Distrito Federal, Oficina del Plano Regulador, Maps. In assuming the total Federal District population and not the urban population, the difference is balanced up to 1950 because it does not include the contiguous urban area into the State of Mexico.

(c) I.N.V., Colonias, p. 9.

(d) Interpolated from D.D.F. map for 1953.

(e) Secretaria de Recursos Hidraulicos, Comision Hidrologica de la Cuenca del Valle de Mexico, Map III-49, in El Desarrollo Economico del Valle de Mexico y la Zona Metropolitana de la Ciudad de Mexico, 1964; figure is for contiguous urban area of the city in the Federal District and the State of Mexico.

(f) Banco Hipotecario Urbano y de Obras Publicas, Estudios, No. 6, 1952.

(g) Calculated at an increase of 20,000 per year for the 1950-1955 years according to I.N.V., La Vivienda Popular, 1958, p. 42; figure of 420,000 given in Bernard J. Frieden, "A Search for Housing Policy in Mexico City," Town Planning Review, Vol. XXXV, No. 2 (July, 1965).

(h) Interpolated for urban population from (e) above, Chart III-31.


(j) Assuming the same rate of increase for 1950-1955 at 43 per cent of all new growth.

(k) Assuming the rate of increase cited in (i) above, 1961.

(l) Lowest alternative projected estimate of metropolitan area population cited in (e) above, Table III-29.

(m) Calculated on the basis of the 1960 contiguous urban area as 31.7 per cent of the Metropolitan Zone of Mexico City, and assuming same proportion for 1970.

(n) From (e) above, Table III-21 and III-22, middle range population and urban area projections.

(o) Assuming an increase from 43 to 50 per cent in one decade as a very low estimate.
NOTES for Table II-1

(a) Core: Districts in "Ciudad de Mexico" as defined by the Census, except for Districts I and XII.

(b) These districts include only urban population as defined in Census, if significantly smaller.

(c) This only includes urban population growth. With rural, the rates would be slightly higher, especially for 1950-1960.

(d) From Secretaria de Recursos Hidraulicos, op. cit., Chart III-23.

(e) This projection is equal to the middle range alternative.


(h) Rates for Totals in Table II-2. See note 5, Table II-2; these figures do not agree with Luis Unikel Spector's in (d) supra because of different definitions of "urban area." His rates for the urban area are 3.68, 5.75 and 5.16 respectively for 1930-40, 1940-50, and 1950-60.

(i) From (d) supra, Chart III-7.

TABLE 11-1B

GROWTH OF THE COLONIAS PROLETARIAS FROM 1930 TO 1970: AREA AND POPULATION AS PER CENT OF TOTAL METROPOLITAN NEW GROWTH

<table>
<thead>
<tr>
<th>Years</th>
<th>Land</th>
<th>Colonias Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930-1940</td>
<td>21.0</td>
<td></td>
</tr>
<tr>
<td>1950-1955*</td>
<td>36.0</td>
<td></td>
</tr>
<tr>
<td>1955-1960</td>
<td>43.0</td>
<td>62.5</td>
</tr>
<tr>
<td>1960-1970</td>
<td>50.0</td>
<td>(75.0)</td>
</tr>
</tbody>
</table>

SOURCE: Derived from Table 11-1, supra.

*For the metropolitan area the annual rate of growth 1950-1960 was 19 per cent.
TABLE 11-2

POPULATION IN THOUSANDS BY DISTRICTS AND BY MUNICIPALITIES 1930-1960

<table>
<thead>
<tr>
<th></th>
<th>1930</th>
<th>1940</th>
<th>1950</th>
<th>1960</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORE OF CITY (a)</td>
<td>882.0</td>
<td>1,174.0</td>
<td>1,710.0</td>
<td>2,054.6</td>
</tr>
<tr>
<td>COLONIAS RING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District I</td>
<td>147.0</td>
<td>205.4</td>
<td>360.0</td>
<td>510.2</td>
</tr>
<tr>
<td>District XII</td>
<td>?</td>
<td>70.0</td>
<td>164.8</td>
<td>267.3</td>
</tr>
<tr>
<td>Axcapotzalco</td>
<td>40.1</td>
<td>63.0</td>
<td>187.9</td>
<td>370.7</td>
</tr>
<tr>
<td>Villa Madero</td>
<td>?</td>
<td>41.6</td>
<td>204.8</td>
<td>579.2</td>
</tr>
<tr>
<td>Ixtacalco</td>
<td>9.3</td>
<td>11.2</td>
<td>33.9</td>
<td>198.9</td>
</tr>
<tr>
<td>SUB-TOTAL Colonias</td>
<td>196.4</td>
<td>391.2</td>
<td>951.4</td>
<td>1,926.3</td>
</tr>
<tr>
<td>SEVEN DISTRICTS (b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ixtapalapa</td>
<td>12.3</td>
<td>12.7</td>
<td>47.7</td>
<td>220.2</td>
</tr>
<tr>
<td>Chimalhuacan, Mexico</td>
<td>--- (c)</td>
<td>--- (c)</td>
<td>--- (c)</td>
<td>49.1</td>
</tr>
<tr>
<td>Ecatepec, Mexico</td>
<td>--- (c)</td>
<td>2.6</td>
<td>7.1</td>
<td>25.4</td>
</tr>
<tr>
<td>Tlalnepantla, Mexico</td>
<td>3.2</td>
<td>4.4</td>
<td>10.3</td>
<td>70.5</td>
</tr>
<tr>
<td>SUB-TOTAL Four Districts</td>
<td>15.5</td>
<td>19.7</td>
<td>65.1</td>
<td>365.2</td>
</tr>
<tr>
<td>Coyoacan</td>
<td>16.4</td>
<td>23.7</td>
<td>55.4</td>
<td>169.8</td>
</tr>
<tr>
<td>Villa Obregon</td>
<td>9.9</td>
<td>27.8</td>
<td>84.8</td>
<td>148.0</td>
</tr>
<tr>
<td>Naucalpan, Mexico</td>
<td>--- (c)</td>
<td>--- (c)</td>
<td>3.8</td>
<td>56.4</td>
</tr>
<tr>
<td>SUB-TOTAL Three Districts</td>
<td>26.3</td>
<td>51.5</td>
<td>144.0</td>
<td>374.2</td>
</tr>
<tr>
<td>SUB-TOTAL Seven Districts</td>
<td>41.8</td>
<td>71.2</td>
<td>209.2</td>
<td>739.4</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,120.2</td>
<td>1,636.4</td>
<td>2,870.8</td>
<td>4,720.3</td>
</tr>
<tr>
<td>OTHERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tlalpan (d)</td>
<td>0.2</td>
<td>10.4</td>
<td>20.7</td>
<td>52.2</td>
</tr>
<tr>
<td>Texcoco, Mexico (d)</td>
<td>4.2</td>
<td>5.4</td>
<td>7.4</td>
<td>11.2</td>
</tr>
<tr>
<td>Zaragoza, Mexico (d)</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>3.0</td>
</tr>
<tr>
<td>Magdalena Contreras (d)</td>
<td>6.1</td>
<td>7.8</td>
<td>16.1</td>
<td>23.6</td>
</tr>
<tr>
<td>SUB-TOTAL Others</td>
<td>18.5</td>
<td>33.6</td>
<td>44.2</td>
<td>90.0</td>
</tr>
<tr>
<td>GRAND TOTAL</td>
<td>1,138.7</td>
<td>1,700.0</td>
<td>2,915.0</td>
<td>4,772.5</td>
</tr>
<tr>
<td>MEXICO</td>
<td>16,553.0</td>
<td>19,654.0</td>
<td>25,791.0</td>
<td>34,923.0</td>
</tr>
</tbody>
</table>

SOURCES and NOTES: See following page.
SOURCES and NOTES for Table II-2

SOURCE: Derived from VIII Censo General de la Poblacion, Volume 1 (Estado de Mexico), and Volume 3 (Distrito Federal), Tables 1, Dirección General de Estadística, Mexico D.F., 1960 (published 1965 and 1966 respectively). All figures are rounded to nearest 100th.

(a) Equal to "Ciudad de Mexico" except for districts II and XII, as defined by the Censo for those years. (See Plan No. II-E, supra.)

(b) Only urban population is taken for all periods in these districts (peripheral) unless difference is negligible.

(c) Dashes indicate no urban population reported for that period according to the census definition.

(e) These totals do not approximate any aggregated official figures which tend to include rural population, in addition to urban population that is not contiguous to the city in the southern municipalities of the Federal District, nor the contiguous urban municipalities in the State of Mexico.

(d) These were not included in the percentage figures in Table II-3 (infra.) because of their negligible amount, or in the case of Tlalpan, because it was a separate city outside the metropolitan area before 1960.

(f) This sub-total is separated from others in the Seven Districts because they are assumed to be composed mostly of upper-middle income population. Naucalpan has in addition some lower-income population, placing it in the border of being considered a Colonia district. See discussion, Ch. II, Part 3.
TABLE II-3  
PERCENT ANNUAL GROWTH OF THE POPULATION BY DISTRICTS AND MUNICIPALITIES: 1930 - 1960

<table>
<thead>
<tr>
<th></th>
<th>1930-40</th>
<th>1940-50</th>
<th>1950-60</th>
<th>1960-70</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE DISTRICTS</strong>&lt;sup&gt;(a)&lt;/sup&gt;</td>
<td>3.58</td>
<td>4.54</td>
<td>2.02</td>
<td></td>
</tr>
<tr>
<td><strong>COLONIAS RING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District I</td>
<td>3.97</td>
<td>7.53</td>
<td>4.18</td>
<td></td>
</tr>
<tr>
<td>District XII</td>
<td>13.54</td>
<td>6.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Azcapotzalco</td>
<td>5.71</td>
<td>19.80</td>
<td>9.95</td>
<td></td>
</tr>
<tr>
<td>G.A. Madero</td>
<td>39.30</td>
<td>18.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ixtacalco</td>
<td>2.40</td>
<td>20.30</td>
<td>48.60</td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL Colonias</strong></td>
<td>9.92&lt;sup&gt;(k)&lt;/sup&gt;</td>
<td>14.30</td>
<td>10.24</td>
<td></td>
</tr>
<tr>
<td><strong>SEVEN DISTRICTS</strong>&lt;sup&gt;(b)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ixtpalapa</td>
<td>3.26</td>
<td>27.60</td>
<td>36.20</td>
<td></td>
</tr>
<tr>
<td>Chimalhuacan, M.</td>
<td>17.30</td>
<td>25.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecatepec, M.</td>
<td>13.40</td>
<td>58.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tlalnepantla, M.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL Four Districts</strong></td>
<td>2.71</td>
<td>23.10</td>
<td>46.00</td>
<td></td>
</tr>
<tr>
<td>Coyoacan</td>
<td>4.45</td>
<td>6.95</td>
<td>24.80</td>
<td></td>
</tr>
<tr>
<td>Villa Obregon</td>
<td>5.53</td>
<td>20.30</td>
<td>7.45</td>
<td></td>
</tr>
<tr>
<td>Naucalpan, M.</td>
<td>138.30</td>
<td>17.75</td>
<td>16.00</td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL Three Districts</strong></td>
<td>9.60</td>
<td>17.75</td>
<td>16.00</td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL Seven Districts</strong></td>
<td>7.04</td>
<td>19.40</td>
<td>25.40</td>
<td></td>
</tr>
<tr>
<td><strong>TOTALS:</strong></td>
<td>4.60</td>
<td>7.56</td>
<td>6.44</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1930-40</th>
<th>1940-50</th>
<th>1950-60</th>
<th>1960-70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metropolitan Area&lt;sup&gt;(h)&lt;/sup&gt;</td>
<td>4.60</td>
<td>7.55</td>
<td>6.44</td>
<td></td>
</tr>
<tr>
<td>Federal District</td>
<td>4.30</td>
<td>7.25</td>
<td>5.97</td>
<td></td>
</tr>
<tr>
<td>Valley of Mexico&lt;sup&gt;(d)&lt;/sup&gt;</td>
<td>3.18</td>
<td>5.03</td>
<td>4.80</td>
<td>4.02</td>
</tr>
<tr>
<td>Valley, Except for F.D.</td>
<td>1.54</td>
<td>1.84</td>
<td>2.58</td>
<td></td>
</tr>
<tr>
<td>MEXICO&lt;sup&gt;(g)&lt;/sup&gt;</td>
<td>1.70</td>
<td>2.80</td>
<td>3.00</td>
<td>2.70&lt;sup&gt;(i)&lt;/sup&gt;</td>
</tr>
<tr>
<td>LATIN AMERICA&lt;sup&gt;(f)&lt;/sup&gt;</td>
<td>2.23</td>
<td>2.97</td>
<td>3.25</td>
<td>3.20</td>
</tr>
</tbody>
</table>

SOURCE: Approximate rates derived from Table II-2, supra.
TABLE II-4

PROPORTION OF DWELLING UNITS IN METROPOLITAN AREA
BY FLOOR AREA: 1952

<table>
<thead>
<tr>
<th>Per Cent Housing</th>
<th>Floor Area: Square Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>20 or less</td>
</tr>
<tr>
<td>18</td>
<td>20 to 30</td>
</tr>
<tr>
<td>21</td>
<td>30 to 45</td>
</tr>
<tr>
<td>14</td>
<td>45 to 60</td>
</tr>
<tr>
<td>13</td>
<td>60 to 85</td>
</tr>
<tr>
<td>11</td>
<td>85 or more</td>
</tr>
</tbody>
</table>

SOURCE: Banco Nacional Hipotecario Urbano y de Obras Publicas, Estudios, No. 6, p. 191.

TABLE II-5

NUMBER OF ROOMS PER DWELLING UNIT BY SUB-METROPOLITAN AREAS: 1960

<table>
<thead>
<tr>
<th></th>
<th>Core</th>
<th>Colonias</th>
<th>7 Districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cent one room only</td>
<td>37</td>
<td>48</td>
<td>49</td>
</tr>
<tr>
<td>Per cent two rooms only</td>
<td>22</td>
<td>24</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>(59)</td>
<td>(72)</td>
<td>(72)</td>
</tr>
</tbody>
</table>

SOURCE: VIII Censo, op. cit., Vols. 1 and 3, 1960, Table 30
TABLE II-6

PER CENT DWELLINGS AND LOTS WITH WATER SERVICE
BY SUB-METROPOLITAN AREAS: 1960

<table>
<thead>
<tr>
<th></th>
<th>Core</th>
<th>Colonias</th>
<th>Four</th>
<th>Three</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water piped into dwelling unit</td>
<td>65.7</td>
<td>41.8</td>
<td>22.4</td>
<td>36.4</td>
</tr>
<tr>
<td>Water piped into building</td>
<td>27.3</td>
<td>48.4</td>
<td>41.7</td>
<td>47.2</td>
</tr>
<tr>
<td>but not into dwelling unit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Sub-Total)</td>
<td>(93.0)</td>
<td>(90.2)</td>
<td>(64.1)</td>
<td>(84.0)</td>
</tr>
<tr>
<td>No water in dwelling unit or building</td>
<td>7.0</td>
<td>9.8</td>
<td>35.9</td>
<td>16.4</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>No water closet</td>
<td>17.2</td>
<td>35.0</td>
<td>87.0</td>
<td></td>
</tr>
</tbody>
</table>

SOURCE: Derived from VIII Censo, op. cit., Table 29. (For the aggregated peripheral areas of four and three districts, the data is only for urban population of the same.)
<table>
<thead>
<tr>
<th></th>
<th>Population in Thousands *</th>
<th>Urban Area in Hectares</th>
<th>Density in Persons per Hectare</th>
<th>Density in Persons Per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE DISTRICTS</strong>&lt;sup&gt;(a)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>COLONIAS RING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District I&lt;sup&gt;(c)&lt;/sup&gt;</td>
<td>2054.6</td>
<td>10,161.5</td>
<td>201.0</td>
<td>85.0</td>
</tr>
<tr>
<td>District XII&lt;sup&gt;(b)&lt;/sup&gt;</td>
<td>510.2</td>
<td>2,225.6</td>
<td>229.2</td>
<td></td>
</tr>
<tr>
<td>Azcapotzalco&lt;sup&gt;(b)&lt;/sup&gt;</td>
<td>267.3</td>
<td>1,224.1</td>
<td>218.4</td>
<td></td>
</tr>
<tr>
<td>G. A. Madero&lt;sup&gt;(b)&lt;/sup&gt;</td>
<td>370.7</td>
<td>3,477.8</td>
<td>106.6</td>
<td></td>
</tr>
<tr>
<td>Ixtacalco&lt;sup&gt;(b)&lt;/sup&gt;</td>
<td>570.0</td>
<td>5,154.9</td>
<td>110.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>198.9</td>
<td>2,087.2</td>
<td>95.3</td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL Colonias</strong></td>
<td>1,917.1</td>
<td>14,169.6</td>
<td>135.5</td>
<td>55.0</td>
</tr>
<tr>
<td><strong>SEVEN DISTRICTS</strong>&lt;sup&gt;(d)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ixtapalapa</td>
<td>238.5</td>
<td>3,502.5</td>
<td>68.1</td>
<td></td>
</tr>
<tr>
<td>Chimalhuacan, M.</td>
<td>61.7</td>
<td>2,198.3</td>
<td>28.1</td>
<td></td>
</tr>
<tr>
<td>Ecatepec, M.</td>
<td>35.4</td>
<td>2,558.9</td>
<td>13.8</td>
<td></td>
</tr>
<tr>
<td>Tlalnepantla, M.</td>
<td>92.8</td>
<td>2,210.6</td>
<td>42.0</td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL Four Districts</strong></td>
<td>428.4</td>
<td>10,470.3</td>
<td>41.0</td>
<td>16.6</td>
</tr>
<tr>
<td>Coyoacan&lt;sup&gt;(c)&lt;/sup&gt;</td>
<td>169.8</td>
<td>3,569.1</td>
<td>47.6</td>
<td></td>
</tr>
<tr>
<td>Obregon</td>
<td>210.5</td>
<td>2,917.1</td>
<td>72.2</td>
<td></td>
</tr>
<tr>
<td>Naucalpan, M.</td>
<td>75.3</td>
<td>3,307.3</td>
<td>22.8</td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL Three Districts</strong></td>
<td>455.6</td>
<td>9,793.5</td>
<td>46.6</td>
<td>18.8</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Seven Districts</strong></td>
<td>884.0</td>
<td>20,263.8</td>
<td>43.5</td>
<td>17.6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>4,855.7</td>
<td>44,594.9</td>
<td>109.0</td>
<td>44.2</td>
</tr>
<tr>
<td><strong>OTHERS</strong>&lt;sup&gt;(d)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tlalpan</td>
<td>50.1</td>
<td>1,588.2</td>
<td>31.6</td>
<td></td>
</tr>
<tr>
<td>Texcoco, M.&lt;sup&gt;(e)&lt;/sup&gt;</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Zaragoza, M.&lt;sup&gt;(e)&lt;/sup&gt;</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Magdalena Contreras</td>
<td>38.7</td>
<td>889.2</td>
<td>43.5</td>
<td></td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong>&lt;sup&gt;(f)&lt;/sup&gt;</td>
<td>4,944.5</td>
<td>47,072.3</td>
<td>105.0</td>
<td>42.6</td>
</tr>
</tbody>
</table>

*Sums do not add; numbers rounded to nearest 100th.
SOURCES and Notes for Table II-7


NOTES: The data for gross urban population do not coincide with Census data used for Tables II-1 to II-3. For two districts within the core, the figures are very different, probably because of a misprint. For the total urban population, however, the figures also diverge since Olmedo Jasso includes the municipality of Magdalena Contreras, but does not include the municipalities of Texcoco or Zaragoza. These are minor, however, in proportion to other districts.

(a) Core of city is defined as before, to include all districts in "Ciudad de Mexico" except for I and XII.

(b) Include total land and population within the urban area.

(c) Includes all population and only part of the land area.

(d) Includes only part of the population and land area both.

(e) These districts are not considered as having contiguous urban growth within them; however, they are included in Tables II-1 to II-3 supra.

(f) These data do not coincide with others herein, probably because different concepts of what is urban contiguous area are employed.
### TABLE II-8

**OCCUPANTS PER ROOM(e) BY SIZE OF DWELLING UNIT IN DISTRICTS AND MUNICIPALITIES: 1960**

<table>
<thead>
<tr>
<th>Districts</th>
<th>1Rm-DU</th>
<th>2Rm-DU</th>
<th>3Rm-DU</th>
<th>4Rm-DU</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE DISTRICTS</strong>(a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.44</td>
<td>2.56</td>
<td>1.68</td>
<td>1.13</td>
<td>2.71</td>
</tr>
<tr>
<td><strong>COLONIAS RING</strong>(b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District I</td>
<td>4.80</td>
<td>2.72</td>
<td>1.94</td>
<td>1.19</td>
<td>2.76</td>
</tr>
<tr>
<td>District XII</td>
<td>4.55</td>
<td>2.48</td>
<td>1.71</td>
<td>1.37</td>
<td>1.78</td>
</tr>
<tr>
<td>Azcapotzalco</td>
<td>6.39</td>
<td>3.15</td>
<td>2.53</td>
<td>2.03</td>
<td>3.00</td>
</tr>
<tr>
<td>G. A. Madero</td>
<td>5.05</td>
<td>2.91</td>
<td>1.95</td>
<td>2.12</td>
<td>2.77</td>
</tr>
<tr>
<td>Ixtacalco</td>
<td>5.09</td>
<td>2.88</td>
<td>2.13</td>
<td>1.34</td>
<td>2.98</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Colonias</strong></td>
<td>4.58</td>
<td>2.84</td>
<td>2.03</td>
<td>1.47</td>
<td>2.68</td>
</tr>
<tr>
<td><strong>SEVEN DISTRICTS</strong>(c)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ixtapalapa</td>
<td>6.15</td>
<td>2.93</td>
<td>3.07</td>
<td>1.28</td>
<td>2.90</td>
</tr>
<tr>
<td>Chimalhuacan, M.</td>
<td>5.60</td>
<td>3.08</td>
<td>2.20</td>
<td>1.53</td>
<td>3.42</td>
</tr>
<tr>
<td>Ecatepec, M.</td>
<td>17.10(d)</td>
<td>2.78</td>
<td>2.10</td>
<td>1.41</td>
<td>6.50(d)</td>
</tr>
<tr>
<td>Tlalnepantla, M.</td>
<td>6.60</td>
<td>2.78</td>
<td>2.08</td>
<td>1.44</td>
<td>3.40</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Four Districts</strong></td>
<td>6.59</td>
<td>2.94</td>
<td>2.13</td>
<td>1.32</td>
<td>4.14</td>
</tr>
<tr>
<td>Coyoacan</td>
<td>3.73</td>
<td>2.85</td>
<td>1.55</td>
<td>1.12</td>
<td>1.83</td>
</tr>
<tr>
<td>Obregon</td>
<td>6.00(d)</td>
<td>2.88</td>
<td>1.00</td>
<td>1.16</td>
<td>2.69</td>
</tr>
<tr>
<td>Naucalpan, M.</td>
<td>5.12</td>
<td>3.00</td>
<td>2.14</td>
<td>1.46</td>
<td>3.43</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Three Districts</strong></td>
<td>5.00</td>
<td>2.87</td>
<td>1.98</td>
<td>2.62</td>
<td>2.36</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Seven Districts</strong></td>
<td>5.75</td>
<td>2.90</td>
<td>2.04</td>
<td>1.21</td>
<td>4.22</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>4.82</td>
<td>2.63</td>
<td>1.85</td>
<td>1.22</td>
<td>3.38</td>
</tr>
</tbody>
</table>

**SOURCE:** Derived from ViII Censo, op. cit., Vols. 1 and 3; Table 29, 1960. (Population figures rounded to nearest 100.)

**NOTES on next page.**
NOTES for Table 11-8

(a) The districts equal to "Ciudad de Mexico," except for Districts I and XII, include all population.

(b) Includes all population or 100 per cent urban.

(c) Includes only urban population for these peripheral districts. See Table II-11 infra for urban population percentages.

(d) These figures seem quite high, especially the Ecatepec population per one-room dwelling unit, and might be explained as an error in census computation.

(e) Definition of room in census = bedroom in other surveys (that is, in addition to bathroom, kitchen, or living room).

TABLE II-8B

OCCUPANTS PER ROOM IN COLONIAS PROLETARIAS AND TUGURIOS: 1957

<table>
<thead>
<tr>
<th>Rooms</th>
<th>One</th>
<th>Two or Three</th>
<th>Four or Five</th>
<th>Five or More</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonias Proletarias</td>
<td>2.81</td>
<td>35.95</td>
<td>39.33</td>
<td>21.91</td>
</tr>
</tbody>
</table>

TABLE II-9
SUMMARY OF HOUSING CONDITIONS BY SUB-METROPOLITAN AREAS: 1960

<table>
<thead>
<tr>
<th></th>
<th>Colonias</th>
<th></th>
<th>Seven</th>
<th></th>
<th>IMSS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core(a)</td>
<td>Ring(b)</td>
<td>Four(c)</td>
<td>Three(d)</td>
<td></td>
</tr>
<tr>
<td>% total number DU's</td>
<td>46.2</td>
<td>40.2</td>
<td>06.6</td>
<td>07.0</td>
<td>100.0</td>
</tr>
<tr>
<td>% ownership</td>
<td>12.6</td>
<td>20.8</td>
<td>42.2(g)</td>
<td>32.2(g)</td>
<td>17.1</td>
</tr>
<tr>
<td>DU less than 45m^2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>62.0</td>
</tr>
<tr>
<td>% 1-Rm DU's</td>
<td>37.0</td>
<td>48.3</td>
<td>50.2</td>
<td>48.0</td>
<td>9.0</td>
</tr>
<tr>
<td>% 2-Rm DU's</td>
<td>21.5</td>
<td>24.1</td>
<td>26.4</td>
<td>20.7</td>
<td>21.0</td>
</tr>
<tr>
<td>% 3-Rm DU's</td>
<td>13.9</td>
<td>9.8</td>
<td>11.7</td>
<td>10.0</td>
<td>14.0</td>
</tr>
<tr>
<td>% 4+Rm DU's</td>
<td>27.6</td>
<td>17.8</td>
<td>11.7</td>
<td>21.3</td>
<td>56.0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>No water service</td>
<td>7.0</td>
<td>9.8</td>
<td>35.9</td>
<td>16.4</td>
<td>20.0</td>
</tr>
<tr>
<td>No water closet</td>
<td>17.2</td>
<td>35.0</td>
<td>87.0(f)</td>
<td></td>
<td>50.0</td>
</tr>
<tr>
<td>No gas or electricity</td>
<td>15.1</td>
<td>24.8</td>
<td>29.4(f)</td>
<td></td>
<td>14.3(e)</td>
</tr>
<tr>
<td>Rooms with no ventilation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.0</td>
</tr>
<tr>
<td>Ruinous walls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>27.0</td>
</tr>
<tr>
<td>Land not legalized</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.0</td>
</tr>
</tbody>
</table>

SOURCES: For columns one to four, derived from VIII Censo op. cit., Vols. 1 and 3, Tables 29 and 30, 1960; column five, from Instituto Mexicano del Seguro Social, Investigacion de la Vivienda en 11 Ciudades del Pais, 1962, as presented in summary form in Correo Economico, Supplement No. 8, January 3, 1965, No. 28 and 29, Year II, pp. 58-63.
NOTES: See following page.
NOTES for Table 11-9

a) Core city includes all districts in "Ciudad de Mexico" except I and XII.

b) Colonias Ring includes Districts I and XII, Atzcapotzalco, Madero, and Ixtacalco.

c) Includes Iztapalapa, Tlalnepantla (Mexico), Ecatepec (Mexico), and Chimalhuacan (Mexico).

d) Includes Coyoacan, Villa Obregon, and Naucalpan (Mexico).

e) Independent sample survey by Correo Economico, supra.

f) Includes (c) and (d) above.

g) Includes only urban dwelling units for the districts.

h) Instituto Mexicano del Seguro Social, see sources supra.
TABLE II-10

SUMMARY OF HOUSING CONDITIONS IN COLONIAS PROLETARIAS BY SURVEYS TO 1962

<table>
<thead>
<tr>
<th></th>
<th>1952 BNHUOP(a)</th>
<th>1957 INV(b)</th>
<th>1962 &quot;Villa&quot;(c)</th>
<th>1960 &quot;Ciudad&quot;(d)</th>
<th>1965 &quot;Manana&quot;(e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 45m²</td>
<td></td>
<td></td>
<td>120,000 DU</td>
<td>9,200 DU</td>
<td>5,000 DU</td>
</tr>
<tr>
<td>Average D.U. size</td>
<td>64.38m²</td>
<td>60.0m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One room only</td>
<td></td>
<td></td>
<td>30.0%</td>
<td></td>
<td>43%</td>
</tr>
<tr>
<td>One bedroom only</td>
<td></td>
<td></td>
<td>45%</td>
<td></td>
<td>23%</td>
</tr>
<tr>
<td>Persons per bedroom</td>
<td>30.0%</td>
<td>25-50%</td>
<td>50%</td>
<td>50%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Building coverage</td>
<td></td>
<td></td>
<td></td>
<td>25-50%</td>
<td>35%</td>
</tr>
<tr>
<td>Population/hectare</td>
<td>98</td>
<td>98</td>
<td></td>
<td>98</td>
<td>76.8%</td>
</tr>
<tr>
<td>Persons/house</td>
<td>7.30</td>
<td></td>
<td></td>
<td>7.30</td>
<td>53.36%</td>
</tr>
<tr>
<td>Persons/room</td>
<td>2.70</td>
<td></td>
<td></td>
<td>2.70</td>
<td>31%</td>
</tr>
<tr>
<td>Water needed</td>
<td>all(g)</td>
<td>40.11%</td>
<td>45%</td>
<td>40.11%</td>
<td>35%</td>
</tr>
<tr>
<td>Drainage needed</td>
<td>all(g)</td>
<td>40.14%</td>
<td>45%</td>
<td>40.14%</td>
<td>100%</td>
</tr>
<tr>
<td>Electricity needed</td>
<td>all(g)</td>
<td>18.41%</td>
<td>8%</td>
<td>18.41%</td>
<td>40%(i) 17%</td>
</tr>
<tr>
<td>No bathroom with water</td>
<td>73.56%</td>
<td></td>
<td>29%</td>
<td>73.56%</td>
<td>97%</td>
</tr>
<tr>
<td>Persons per bath</td>
<td>298(h)</td>
<td></td>
<td>298(h)</td>
<td>298(h)</td>
<td></td>
</tr>
<tr>
<td>Kitchen needed</td>
<td></td>
<td></td>
<td></td>
<td>32.59%</td>
<td></td>
</tr>
<tr>
<td>Plastered and painted</td>
<td>05.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per cent ownership</td>
<td>76.8%</td>
<td></td>
<td>53.36%</td>
<td>53.36%</td>
<td>31%</td>
</tr>
<tr>
<td>Members/family</td>
<td>5.3</td>
<td></td>
<td>6.5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOURCES and NOTES: See following page.
NOTES for Table II-10

a) B.N.H., op. cit.

b) Colonias and La Vivienda Popular, 1958. Figures include only housing with deficiencies in Colonias Proletarias.

c) Instituto Nacional de la Vivienda survey conducted in August 1962 in the northern part of the city.

d) Investigation by Architect David Cymet and Guillermo Ortiz Flores, quoted in Ciudad, Urbanismo, Planificacion y Vivienda, 16 December 1960, No. 26, p. 7.

e) A survey of a Colonia Proletaria to the south of the city, near the National University by Rebeca Mendoza Navarro, in Manana, January 16, 1965, No. 1116, pp. 29-33.

f) Comparative figures for Tugurios, or center city tenements in (b) above and Mexico: 50 Anos, Vol. 2, Mexico 1961.

g) It seems no quantitative survey made, but "the basic services of water, sewage, and drainage are found as an exception in a few Colonias, in the majority none is existing, and only in a few are they being installed." (p. 188)

h) For W.C., the figure is 8.4. Although there are no W.C. with running water, 10 per cent have septic tanks, 40 per cent have outdoor latrines, 50 per cent use empty lots. (p. 190)

i) Figure is for public lighting.

j) Brick materials.
TABLE II-11

NUMBER OF DWELLING UNITS -- PER CENT URBAN, PER CENT OWNER-OCCUPIED, AND PERSONS PER DWELLING UNIT -- BY DISTRICTS: 1960

<table>
<thead>
<tr>
<th></th>
<th>No. DU</th>
<th>Per cent Urban DU</th>
<th>Per cent Owned</th>
<th>Persons Per DU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE DISTRICTS</strong>&lt;sup&gt;(a)&lt;/sup&gt;</td>
<td>400,500</td>
<td>100</td>
<td>12.6</td>
<td>5.2</td>
</tr>
<tr>
<td><strong>COLONIAS RING</strong>&lt;sup&gt;(b)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District I</td>
<td>95,800</td>
<td>100</td>
<td>14.9</td>
<td>5.3</td>
</tr>
<tr>
<td>District XII</td>
<td>51,200</td>
<td>100</td>
<td>21.4</td>
<td>5.2</td>
</tr>
<tr>
<td>Azcapotzalco</td>
<td>54,900</td>
<td>80</td>
<td>31.2</td>
<td>6.7</td>
</tr>
<tr>
<td>G. A. Madero</td>
<td>103,400</td>
<td>94</td>
<td>31.1</td>
<td>5.6</td>
</tr>
<tr>
<td>Ixtacalco</td>
<td>35,500</td>
<td>96</td>
<td>30.3</td>
<td>5.6</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Colonias</strong></td>
<td>340,800</td>
<td>100</td>
<td>20.8</td>
<td>5.7</td>
</tr>
<tr>
<td><strong>SEVEN DISTRICTS</strong>&lt;sup&gt;(c)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ixtapalapa</td>
<td>35,800</td>
<td>82</td>
<td>43.3</td>
<td>6.2</td>
</tr>
<tr>
<td>Chimalhuacan, M.</td>
<td>8,100</td>
<td>63</td>
<td>62.2</td>
<td>6.1</td>
</tr>
<tr>
<td>Ecatepec, M.</td>
<td>2,100</td>
<td>29</td>
<td>39.8</td>
<td>11.7</td>
</tr>
<tr>
<td>Tlalnepantla, M.</td>
<td>11,000</td>
<td>62</td>
<td>25.2</td>
<td>6.4</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Four Districts</strong></td>
<td>57,100</td>
<td>70</td>
<td>42.2</td>
<td>6.4</td>
</tr>
<tr>
<td>Coyoacan</td>
<td>29,300</td>
<td>89</td>
<td>38.7</td>
<td>5.1</td>
</tr>
<tr>
<td>Obregen</td>
<td>29,800</td>
<td>77</td>
<td>29.1</td>
<td>6.1</td>
</tr>
<tr>
<td>Naucalpan, M.</td>
<td>10,100</td>
<td>70</td>
<td>28.6</td>
<td>5.6</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Three Districts</strong></td>
<td>69,200</td>
<td>79</td>
<td>32.3</td>
<td>5.6</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Seven Districts</strong></td>
<td>126,300</td>
<td>72</td>
<td>37.5</td>
<td>5.9</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>867,600</td>
<td>95</td>
<td>17.1</td>
<td></td>
</tr>
</tbody>
</table>

**SOURCE:** Derived from VIII Censo op. cit., Vols. 1 and 3; Table 29, 1960. (Figures rounded to nearest 100).

**NOTES:** See following page.
NOTES for Table II-11

a) Core districts equal to "Ciudad de Mexico" except for Districts I and XII; includes all population.

b) Includes all population. Assumed 100 per cent urban for all Colonias districts.

c) Includes urban population only for columns, since for the seven districts, the proportion urban is only 75 per cent of total population.

d) Persons per dwelling unit is aggregated column for detailed data presented in Table II-11b infra.
## TABLE II-12
DISTRIBUTION OF HEALTH SERVICES AND FACILITIES BY REGION: 1956

<table>
<thead>
<tr>
<th></th>
<th>Hospitals &amp; Clinics</th>
<th>Beds per 1,000 Pop.</th>
<th>Doctors per 1,000</th>
<th>Nurses per 10 Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal District</td>
<td>216</td>
<td>3.9</td>
<td>14.5</td>
<td>3.6</td>
</tr>
<tr>
<td>(Next) Highest State</td>
<td>110</td>
<td>2.9</td>
<td>8.6</td>
<td>(4.4)</td>
</tr>
<tr>
<td>Lowest State</td>
<td>1</td>
<td>.3</td>
<td>.9</td>
<td>.9</td>
</tr>
<tr>
<td>MEXICO</td>
<td>1,132</td>
<td>1.5</td>
<td>4.4</td>
<td>2.6</td>
</tr>
</tbody>
</table>

**SOURCE:** From the 1956 Census of Hospitals as presented in *Mexico, 50 Anos*, op. cit., Vol. II, pp. 425.

## TABLE II-13
NUMBER SCHOOL YEARS COMPLETED AS PER CENT OF POPULATION, SELECTED BY REGIONS: 1960

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>1-2</th>
<th>3-4</th>
<th>5-9</th>
<th>10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal District</td>
<td>11.8</td>
<td>13.8</td>
<td>17.6</td>
<td>43.8</td>
<td>13.0</td>
</tr>
<tr>
<td>Urban Mexico</td>
<td>9.3</td>
<td>10.8</td>
<td>19.2</td>
<td>50.5</td>
<td>10.2</td>
</tr>
<tr>
<td>MEXICO</td>
<td>18.8</td>
<td>20.5</td>
<td>23.0</td>
<td>32.0</td>
<td>5.7</td>
</tr>
</tbody>
</table>

TABLE II-14

TYPE OF EDUCATION COMPLETED IN COLONIAS PROLETARIAS AND FEDERAL DISTRICT AS PER CENT OF TOTAL POPULATION: 1957-1960

<table>
<thead>
<tr>
<th></th>
<th>Colonias Proletarias(^d)</th>
<th>Federal District(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
</tr>
<tr>
<td>No Education</td>
<td>7.21</td>
<td>18.42</td>
</tr>
<tr>
<td>Read Only</td>
<td>3.88</td>
<td>4.04</td>
</tr>
<tr>
<td>Read and Write</td>
<td>52.87</td>
<td>47.33</td>
</tr>
<tr>
<td>Primary Education</td>
<td>30.13</td>
<td>27.95</td>
</tr>
<tr>
<td>Secondary Education</td>
<td>4.25</td>
<td>.97</td>
</tr>
<tr>
<td>Preparatory School</td>
<td>.74</td>
<td>.32</td>
</tr>
<tr>
<td>Professional Studies</td>
<td>.92</td>
<td>.97</td>
</tr>
</tbody>
</table>

\(^a\) Includes grades 1-6, \(^b\) grades 7-13.  
\(^c\) Includes grades 1-6, \(^d\) grades 7-13.

## TABLE II-15

**MEAN RETAIL-STORE PRICES FOR BASIC FOOD ITEMS BY MUNICIPALITIES AND SELECTED DISTRICTS: 1956**

<table>
<thead>
<tr>
<th></th>
<th>High Income M$2200</th>
<th>Med. High M$1420</th>
<th>Med. Low M$1020</th>
<th>Low Income M$730</th>
</tr>
</thead>
<tbody>
<tr>
<td>VII, X, VIII</td>
<td></td>
<td>XII</td>
<td>Municipal</td>
<td>I</td>
</tr>
<tr>
<td>Rice</td>
<td>2.62/kg</td>
<td>2.39/kg</td>
<td>2.73/kg</td>
<td>2.59/kg</td>
</tr>
<tr>
<td>Sugar</td>
<td>1.32/kg</td>
<td>1.31/kg</td>
<td>1.31/kg</td>
<td>1.30/kg</td>
</tr>
<tr>
<td>Coffee</td>
<td>8.20/kg</td>
<td>13.38/kg</td>
<td>13.25/kg</td>
<td>7.90/kg</td>
</tr>
<tr>
<td>Beef</td>
<td>8.49/kg</td>
<td>8.88/kg</td>
<td>7.97/kg</td>
<td>7.49/kg</td>
</tr>
<tr>
<td>Beans</td>
<td>1.79/kg</td>
<td>2.39/kg</td>
<td>1.91/kg</td>
<td>1.79/kg</td>
</tr>
<tr>
<td>One egg</td>
<td>.59 ea</td>
<td>.60 ea</td>
<td>.61 ea</td>
<td>... ea</td>
</tr>
<tr>
<td>Nixtamal</td>
<td>.87/kg</td>
<td>.96/kg</td>
<td>.93/kg</td>
<td>.94/kg</td>
</tr>
<tr>
<td>Salt</td>
<td>.75/kg</td>
<td>.39/kg</td>
<td>.35/kg</td>
<td>.35/kg</td>
</tr>
<tr>
<td>Tortillas</td>
<td>.75/kg</td>
<td>.75/kg</td>
<td>.75/kg</td>
<td>.75/kg</td>
</tr>
</tbody>
</table>

**SOURCE:** Secretaría de Economía, Dirección General de Estadística, Departamento de Muestreo, Ingresos y Egresos de la Población de México (Oct. 1956), 1958, Charts pp. 61-63, 51.

**NOTE:** Data not available for disaggregated municipalities; sampling carried only within Federal District limits.
### TABLE II-16
POPULATION IN THOUSANDS BY SUB-METROPOLITAN AREAS: 1930-1960

<table>
<thead>
<tr>
<th></th>
<th>1930</th>
<th>1940</th>
<th>1950</th>
<th>1960</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Districts</td>
<td>882</td>
<td>1,173</td>
<td>1,710</td>
<td>2,054</td>
</tr>
<tr>
<td>Colonias Ring</td>
<td>196</td>
<td>391</td>
<td>951</td>
<td>1,926</td>
</tr>
<tr>
<td>Seven Districts</td>
<td>42</td>
<td>71</td>
<td>209</td>
<td>739</td>
</tr>
<tr>
<td>TOTALS</td>
<td>1,120</td>
<td>1,636</td>
<td>2,871</td>
<td>4,720</td>
</tr>
<tr>
<td>MEXICO</td>
<td>16,553</td>
<td>19,654</td>
<td>25,791</td>
<td>34,923</td>
</tr>
</tbody>
</table>

**SOURCE:** Abstract from Table II-2, supra.

### TABLE II-17
MEAN ANNUAL RATE OF GROWTH BY SUB-METROPOLITAN AREAS: 1930-1960

<table>
<thead>
<tr>
<th></th>
<th>1930-40</th>
<th>1940-50</th>
<th>1950-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Districts</td>
<td>3.58</td>
<td>4.54</td>
<td>2.02</td>
</tr>
<tr>
<td>Colonias Ring</td>
<td>9.92</td>
<td>14.30</td>
<td>10.24</td>
</tr>
<tr>
<td>Seven Districts</td>
<td>7.04</td>
<td>19.40</td>
<td>16.00</td>
</tr>
<tr>
<td>TOTALS</td>
<td>4.60</td>
<td>7.56</td>
<td>6.44</td>
</tr>
<tr>
<td>MEXICO</td>
<td>1.70</td>
<td>2.80</td>
<td>3.00</td>
</tr>
</tbody>
</table>

**SOURCE:** Abstract from Table II-3, supra.
## TABLE 11-18 (Part A)

PERCENT POPULATION BY AGE GROUPS, DISTRICTS AND MUNICIPALITIES: 1960

<table>
<thead>
<tr>
<th>Districts</th>
<th>Population in Thousands</th>
<th>0-9</th>
<th>10-19</th>
<th>20-29</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE DISTRICTS</strong>&lt;sup&gt;(d)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,054.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>COLONIAS RING</strong>&lt;sup&gt;(d)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District I</td>
<td>510.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District XII</td>
<td>267.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Azcapotzalco</td>
<td>370.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G.A. Madero</td>
<td>579.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ixtacalco</td>
<td>198.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL Colonias</strong></td>
<td>1,926.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SEVEN DISTRICTS</strong>&lt;sup&gt;(e)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ixtapalapa</td>
<td>220,3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chimalhuacan, M.</td>
<td>49.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecatepec, M.</td>
<td>25.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tlalnepantla, M.</td>
<td>70.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL Four Districts</strong></td>
<td>365.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coyoacan</td>
<td>148.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obregon</td>
<td>182.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Naucalpan, M.</td>
<td>56.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL Three Districts</strong></td>
<td>386.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL Seven Districts</strong></td>
<td>751.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td>4,732.8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Derived from VIII Censo, op.cit., Vols. 1, 3, and Resumen General, Table 7, Parts 1 and 2, 1960.

**Notes:** See following two pages.
TABLE II-18 (Part B)


<table>
<thead>
<tr>
<th>Age Groups:</th>
<th>30-9</th>
<th>40-9</th>
<th>50-9</th>
<th>60-9</th>
<th>70+</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORE DISTRICTS&lt;sup&gt;(g)&lt;/sup&gt;</td>
<td>12.5</td>
<td>8.8</td>
<td>6.5</td>
<td>3.7</td>
<td>2.3</td>
</tr>
<tr>
<td>COLONIAS RING&lt;sup&gt;(g)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District I</td>
<td>12.5</td>
<td>7.8</td>
<td>5.4</td>
<td>2.8</td>
<td>2.3</td>
</tr>
<tr>
<td>District XII</td>
<td>13.1</td>
<td>8.3</td>
<td>6.0</td>
<td>3.4</td>
<td>2.5</td>
</tr>
<tr>
<td>Azcapotzalco</td>
<td>12.5</td>
<td>7.4</td>
<td>5.0</td>
<td>2.6</td>
<td>1.7</td>
</tr>
<tr>
<td>G.A. Madero</td>
<td>12.3</td>
<td>7.3</td>
<td>4.6</td>
<td>2.4</td>
<td>2.0</td>
</tr>
<tr>
<td>Ixtacalco</td>
<td>12.7</td>
<td>6.8</td>
<td>4.3</td>
<td>2.2</td>
<td>1.4</td>
</tr>
<tr>
<td>SUB-TOTAL Colonias</td>
<td>12.6</td>
<td>7.6</td>
<td>5.1</td>
<td>2.7</td>
<td>1.3</td>
</tr>
<tr>
<td>SEVEN DISTRICTS&lt;sup&gt;(g)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ixtacalco</td>
<td>12.7</td>
<td>7.5</td>
<td>4.9</td>
<td>2.6</td>
<td>1.9</td>
</tr>
<tr>
<td>Chimalhuacan, M.</td>
<td>13.1</td>
<td>6.7</td>
<td>4.2</td>
<td>2.5</td>
<td>1.9</td>
</tr>
<tr>
<td>Ecatepec, M.</td>
<td>12.4</td>
<td>6.5</td>
<td>4.2</td>
<td>2.4</td>
<td>1.1</td>
</tr>
<tr>
<td>Tlalnepantla, M.</td>
<td>12.9</td>
<td>6.9</td>
<td>3.5</td>
<td>2.0</td>
<td>3.3</td>
</tr>
<tr>
<td>SUB-TOTAL Four Districts</td>
<td>12.8</td>
<td>7.2</td>
<td>4.4</td>
<td>2.5</td>
<td>1.7</td>
</tr>
<tr>
<td>Coyoacan</td>
<td>13.0</td>
<td>7.9</td>
<td>5.2</td>
<td>2.8</td>
<td>2.5</td>
</tr>
<tr>
<td>Obregon</td>
<td>12.6</td>
<td>7.1</td>
<td>5.0</td>
<td>2.7</td>
<td>2.1</td>
</tr>
<tr>
<td>Naucalpan, M.</td>
<td>12.8</td>
<td>4.8</td>
<td>4.3</td>
<td>2.2</td>
<td>2.1</td>
</tr>
<tr>
<td>SUB-TOTAL Three Districts</td>
<td>12.8</td>
<td>7.1</td>
<td>5.0</td>
<td>2.7</td>
<td>2.5</td>
</tr>
<tr>
<td>SUB-TOTAL Seven Districts</td>
<td>12.7</td>
<td>7.2</td>
<td>4.7</td>
<td>3.2</td>
<td>1.4</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>12.6</td>
<td>8.0</td>
<td>5.7</td>
<td>3.1</td>
<td>4.3</td>
</tr>
</tbody>
</table>

NOTES: See following page.
NOTES For Table II-18

(a) Table in two parts, histogram infra.

(b) Population averages do not conform to Table II-7 which used a different source than the VIII Censo.

(c) Census reports ages as follows: under one year, 1-4, 5-9, and so on until the ages of 85 plus in this same category, the "not indicated" ages.

(d) Same identification as Table II-11 supra.

(e) Includes urban population only.

(f) This column is not significant in that it includes the category of all ages not reported in addition to those over 70 years or over. It was also adjusted in the computation so that the sums added to 100 percent, not possible otherwise because of rounding of figures.

(g) See Notes (d) and (e) supra.
### Table 11-19

**Percent Population by Age Groups in Colonias Proletarias and Tugurios: 1957**

<table>
<thead>
<tr>
<th></th>
<th>1957 Survey</th>
<th></th>
<th>1960 Census</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-20</td>
<td>20-65</td>
<td>0-20</td>
<td>20-65</td>
</tr>
<tr>
<td>Colonias Proletarias</td>
<td>57.7</td>
<td>41.4</td>
<td>53.7</td>
<td>45.0</td>
</tr>
<tr>
<td>Tugurios</td>
<td>50.1</td>
<td>47.5</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Urban Area</td>
<td>----</td>
<td>----</td>
<td>49.1</td>
<td>46.6</td>
</tr>
</tbody>
</table>

**Sources:** 1. N.V., Colonias, op.cit., p.31 (not numbered); 1. N.V., Herradura de Tugurios, op.cit., p.55 (not numbered); and Table 11-18, supra.

**Notes:** Sample size for Colonias Proletarias consisted of approximately 162,200 and for tugurios: 381,500. Sums do not equal 100 per cent since proportions do not include persons aged 65 or over, and persons whose age was not known.

### Table 11-20

**Birthplace of the Population by States and Districts: 1960.**

<table>
<thead>
<tr>
<th></th>
<th>Federal District:</th>
<th>State of Mexico:</th>
<th>Other Adjacent States:</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males:</td>
<td>Females:</td>
<td>Males:</td>
<td>Females:</td>
</tr>
<tr>
<td>Federal District</td>
<td>65.5</td>
<td>57.0</td>
<td>6.2</td>
<td>5.7</td>
</tr>
<tr>
<td>Four State of Mexico Districts:</td>
<td>19.4</td>
<td>19.4</td>
<td>46.7</td>
<td>47.2</td>
</tr>
</tbody>
</table>

**Source:** Derived from VIII Censo, op.cit., Vols. 1, 3, and Resumen General, 1960, Table 10.

**Notes:** "Other adjacent States" include Guanajuato, Guerrero, Veracruz, Hidalgo, Michoacan, Puebla and Tlaxcala; of these only Veracruz is not adjacent to the F.D., or the State of Mexico, but it is adjacent to Puebla and Hidalgo. "Other" equals 100 per cent minus columns one to three.
### TABLE 11-21

**BIRTHPLACE OF HEADS OF HOUSEHOLD IN COLONIAS PROLETARIAS AND TUGURIOS: 1957**

<table>
<thead>
<tr>
<th></th>
<th>Federal District:</th>
<th>Outside</th>
<th>Don't Know:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COLONIAS PROLETARIAS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male head of household (jefe)</td>
<td>27.45</td>
<td>71.76</td>
<td>0.79</td>
</tr>
<tr>
<td>Female head of household (mujer)</td>
<td>30.92</td>
<td>67.15</td>
<td>1.93</td>
</tr>
<tr>
<td><strong>TUGURIOS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male head of household</td>
<td>42.00</td>
<td>58.00</td>
<td>----</td>
</tr>
<tr>
<td>Female head of household</td>
<td>42.14</td>
<td>57.86</td>
<td>----</td>
</tr>
</tbody>
</table>

**SOURCES:** I.N.V., Colonias, op. cit., Chart on page 35 (not numbered); and I.N.V., Herradura de Tugurios, op. cit., Chart on page 51 (not numbered).

**NOTE:** Figures presented are for "zone A" in Colonias Proletarias and "zone C" in Tugurios since the mean proportions are not reported; these zones are assumed to be more typical than the other zones investigated.

### TABLE 11-22

**REASONS FOR MOVING FROM OUTSIDE THE FEDERAL DISTRICT TO A COLONIA PROLETARIA OR TUGURIO: 1957.**

<table>
<thead>
<tr>
<th></th>
<th>Political</th>
<th>Economic:</th>
<th>Cultural:</th>
<th>Other:</th>
<th>Don't Cultural:</th>
<th>Don't Other:</th>
<th>Don't Know:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonias Proletarias (all zones)</td>
<td>66.67</td>
<td>13.89</td>
<td>11.11</td>
<td>8.33</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tugurios</td>
<td>33.33</td>
<td>1.94</td>
<td>5.79</td>
<td></td>
<td>58.94</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOURCES:** Same as Table 11-21, supra.

**NOTES:** The figures for Colonias Proletarias presented are for "zone B" which are the more typical values; the figures for Tugurios are those of "zone C"; both are assumed to be close to mean for all zones sampled.
<table>
<thead>
<tr>
<th></th>
<th>1930</th>
<th>1940</th>
<th>1950</th>
<th>1960-</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE DISTRICTS</strong>(a)</td>
<td>70.2</td>
<td>77.6</td>
<td>85.0</td>
<td>87.0</td>
</tr>
<tr>
<td><strong>COLONIAS RING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District I</td>
<td>66.8</td>
<td>(b)</td>
<td>72.6</td>
<td>81.1</td>
</tr>
<tr>
<td>District XII</td>
<td></td>
<td></td>
<td>79.4</td>
<td>84.5</td>
</tr>
<tr>
<td>Azcapotzalco</td>
<td>58.1</td>
<td>66.8</td>
<td>77.8</td>
<td>81.1</td>
</tr>
<tr>
<td>G. A. Madero</td>
<td></td>
<td></td>
<td>66.2</td>
<td>76.1</td>
</tr>
<tr>
<td>Ixtacalco</td>
<td>54.0</td>
<td>57.9</td>
<td>72.4</td>
<td>77.6</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Colonias</strong></td>
<td>64.5</td>
<td>71.7</td>
<td>79.5</td>
<td>81.8</td>
</tr>
<tr>
<td><strong>SEVEN DISTRICTS</strong>(e)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ixtapalapa**(d)**</td>
<td>44.1</td>
<td>49.4</td>
<td>72.9</td>
<td>79.4</td>
</tr>
<tr>
<td>Chimalhuacan**(d)**</td>
<td>36.0</td>
<td>48.7</td>
<td>70.0</td>
<td>73.7</td>
</tr>
<tr>
<td>Ecatepec, M**(d)**</td>
<td>47.2</td>
<td>64.4</td>
<td>73.7</td>
<td>55.6</td>
</tr>
<tr>
<td>Tlalnepantla, M**(d)**</td>
<td>40.1</td>
<td>56.1</td>
<td>66.9</td>
<td>74.0</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Four Districts</strong></td>
<td>42.7</td>
<td>53.7</td>
<td>71.5</td>
<td>74.7</td>
</tr>
<tr>
<td>Coyoacan</td>
<td>62.2</td>
<td>65.7</td>
<td>76.8</td>
<td>81.3</td>
</tr>
<tr>
<td>Obregon</td>
<td>57.4</td>
<td>62.2</td>
<td>73.0</td>
<td>78.2</td>
</tr>
<tr>
<td>Naucalpan, M**(d)**</td>
<td>29.9</td>
<td>37.9</td>
<td>52.7</td>
<td>66.0</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Three Districts</strong></td>
<td>45.2</td>
<td>59.6</td>
<td>73.1</td>
<td>77.2</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Seven Districts</strong></td>
<td>49.4</td>
<td>57.1</td>
<td>72.5</td>
<td>76.5</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td>67.2</td>
<td>74.6</td>
<td>81.8</td>
<td>82.6</td>
</tr>
<tr>
<td><strong>MEXICO</strong></td>
<td>33.5</td>
<td>42.0</td>
<td>56.8</td>
<td>62.4</td>
</tr>
</tbody>
</table>

**SOURCES:** Derived from the VIII Censo, op. cit., Vols. 1, 3, and Resumen General, Tables 1, 1960.

**NOTES:** The rates were derived by dividing the literate population by the literate plus the illiterate populations, and not by the total population since they are not equal.
NOTES for Table II-23 (Contd.)

(a) Equal to "Ciudad de Mexico" except for Districts I and XII.

(b) No population reported in Table I of the VIII Censo, supra, for the 1930 decade.

(c) Figure does not at all conform to expected pattern. If the illiterate figure is altered from 13,861 to 3,861, the proportion becomes 80.0 per cent.

(d) Not contiguous to urban area until after 1950.

(e) Includes all population, data not available by "urban" and "rural" classes.
TABLE II-24

PER CENT ECONOMICALLY ACTIVE POPULATION BY COLONIAS DISTRICTS AND SUB-METROPOLITAN AREAS: 1930-1960\(^e\)

<table>
<thead>
<tr>
<th></th>
<th>1930</th>
<th>1940</th>
<th>1950</th>
<th>1960</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORE DISTRICTS(^{(a)})</td>
<td>33.5</td>
<td>36.3</td>
<td>38.3</td>
<td>40.2</td>
</tr>
<tr>
<td>COLONIAS RING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District I</td>
<td>37.5</td>
<td>33.2</td>
<td>34.1</td>
<td>33.2</td>
</tr>
<tr>
<td>District XII</td>
<td>...(^{(b)})</td>
<td>30.7</td>
<td>35.1</td>
<td>38.3</td>
</tr>
<tr>
<td>Atzcapotzalco</td>
<td>28.4</td>
<td>30.7</td>
<td>32.5</td>
<td>33.8</td>
</tr>
<tr>
<td>G.A., Madero</td>
<td>...(^{(b)})</td>
<td>31.0</td>
<td>32.3</td>
<td>32.3</td>
</tr>
<tr>
<td>Ixtacalco</td>
<td>30.8</td>
<td>32.0</td>
<td>32.3</td>
<td>32.4</td>
</tr>
<tr>
<td>SUB-TOTAL Colonias</td>
<td>35.3</td>
<td>34.2</td>
<td>33.6</td>
<td>33.8</td>
</tr>
<tr>
<td>FOUR DISTRICTS(^{(c)})</td>
<td>31.4</td>
<td>29.8</td>
<td>32.1</td>
<td>30.6</td>
</tr>
<tr>
<td>THREE DISTRICTS(^{(c)})</td>
<td>12.5(^{(d)})</td>
<td>22.8</td>
<td>21.1</td>
<td>21.9</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>33.9</td>
<td>34.7</td>
<td>35.3</td>
<td>34.5</td>
</tr>
<tr>
<td>MEXICO</td>
<td>31.1</td>
<td>29.8</td>
<td>32.4</td>
<td>32.5</td>
</tr>
</tbody>
</table>

**SOURCES:** Derived from VIII Censo, op. cit., Vols. 1 and 3, and Resumen General, op. cit. (for national data), Table I, 1960.

\(a\) Equal to "Ciudad de Mexico," except for Districts I and XII.
\(b\) Data not reported for this decade in this municipality.
\(c\) Includes urban and rural population; economically active data not available for "urban only" category.
\(d\) This figure is low but this is the precise proportion reported.
\(e\) In 1960, the economically active population had as its lower limit 8 years; prior to this the lower limit was 12 years. This, however, is not evident in the data between 1950 and 1960 as would be expected; e.g., for some districts the proportion declined, rather than rose.
<table>
<thead>
<tr>
<th></th>
<th>1940</th>
<th>1950</th>
<th>1960</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE DISTRICTS</strong>&lt;sup&gt;(a)&lt;/sup&gt;</td>
<td>98.9</td>
<td>98.9</td>
<td>99.3</td>
</tr>
<tr>
<td><strong>COLONIAS RING</strong>&lt;sup&gt;(b)&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District I&lt;sup&gt;(c)&lt;/sup&gt;</td>
<td>98.9</td>
<td>98.9</td>
<td>99.3</td>
</tr>
<tr>
<td>District XII&lt;sup&gt;(c)&lt;/sup&gt;</td>
<td>98.9</td>
<td>98.9</td>
<td>99.3</td>
</tr>
<tr>
<td>Atzcapotzalco</td>
<td>89.7</td>
<td>95.5</td>
<td>97.6</td>
</tr>
<tr>
<td>G.A. Madero</td>
<td>86.3</td>
<td>95.5</td>
<td>98.9</td>
</tr>
<tr>
<td>Ixtacalco</td>
<td>65.5</td>
<td>87.1</td>
<td>96.7</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Colonias</strong></td>
<td>94.9</td>
<td>97.2</td>
<td>98.5</td>
</tr>
<tr>
<td><strong>SEVEN DISTRICTS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ixtapalapa</td>
<td>45.0</td>
<td>77.7</td>
<td>94.1</td>
</tr>
<tr>
<td>Chimalhuacan, Mexico</td>
<td>27.9</td>
<td>53.4</td>
<td>85.0</td>
</tr>
<tr>
<td>Ecatepec, Mexico</td>
<td>37.8</td>
<td>63.0</td>
<td>86.1</td>
</tr>
<tr>
<td>Tlalnepantla, Mexico</td>
<td>48.0</td>
<td>67.6</td>
<td>77.5</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Four Districts</strong></td>
<td>41.8</td>
<td>71.6</td>
<td>88.2</td>
</tr>
<tr>
<td>Coyoacan</td>
<td>81.3</td>
<td>88.3</td>
<td>96.2</td>
</tr>
<tr>
<td>Obregon</td>
<td>86.8</td>
<td>91.9</td>
<td>96.9</td>
</tr>
<tr>
<td>Naucalpan, Mexico</td>
<td>39.8</td>
<td>67.5</td>
<td>84.0</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Three Districts</strong></td>
<td>76.8</td>
<td>87.0</td>
<td>94.1</td>
</tr>
<tr>
<td><strong>SUB-TOTAL Seven Districts</strong></td>
<td>63.0</td>
<td>80.7</td>
<td>91.4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>84.5</td>
<td>91.8</td>
<td>97.5</td>
</tr>
</tbody>
</table>

**SOURCES:** Luis Unikel Spector, "Ensayo para la Delimitacion de la Zona Metropolitana Ciudad de Mexico (ZMCM) en 1940, 1950 y 1960" in Secretaria de Recursos Hidraulicos, El Desarrollo Economico del Valle de Mexico y la Zona Metropolitana Ciudad de Mexico, Mexico D.F., July 1964, Tables II-17 and II-19.

<sup>a</sup> Includes all districts within "Ciudad de Mexico"

<sup>b</sup> Totals for Colonias approximated for Districts I and XII.

<sup>c</sup> These assumed to be the same as the core's mean proportion; figures not available for central city in disaggregated form in Secretaria de Recursos Hidraulicos.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>4.6</td>
<td>62.6</td>
<td>12.6</td>
</tr>
<tr>
<td>Industry</td>
<td>33.2</td>
<td>16.8</td>
<td>30.8</td>
</tr>
<tr>
<td>Commerce</td>
<td>17.1</td>
<td>6.3</td>
<td>15.7</td>
</tr>
<tr>
<td>Transport</td>
<td>5.5</td>
<td>1.9</td>
<td>4.9</td>
</tr>
<tr>
<td>Services</td>
<td>30.3</td>
<td>6.7</td>
<td>27.2</td>
</tr>
<tr>
<td>Not specified</td>
<td>9.3</td>
<td>5.7</td>
<td>8.8</td>
</tr>
</tbody>
</table>

TABLE II-27
PER CENT ECONOMICALLY ACTIVE POPULATION BY ECONOMIC SECTORS AND BY SELECTED DISTRICTS: 1960

<table>
<thead>
<tr>
<th></th>
<th>Agriculture</th>
<th>Transforming Industries</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Core) District III</td>
<td>.06</td>
<td>32.0</td>
<td>31.6</td>
</tr>
<tr>
<td>(Colonia) District I</td>
<td>.07</td>
<td>39.7</td>
<td>23.6</td>
</tr>
<tr>
<td>(Colonia) Azcapotzalco</td>
<td>.24</td>
<td>40.6</td>
<td>23.1</td>
</tr>
<tr>
<td>Coyoacan</td>
<td>3.80</td>
<td>25.0</td>
<td>40.8</td>
</tr>
<tr>
<td>Four State of Mexico</td>
<td>18.00</td>
<td>40.0</td>
<td>12.4</td>
</tr>
<tr>
<td>Municipalities</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TABLE II-28

**MEAN FAMILY INCOME DISTRIBUTION BY DISTRICTS AND AGGREGATED MUNICIPALITIES: 1956**

<table>
<thead>
<tr>
<th>Orders in Descending Income</th>
<th>Thousands of Families</th>
<th>Mean Pesos Income</th>
<th>Mean Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>I and IX</td>
<td>159.9</td>
<td>730</td>
<td>515</td>
</tr>
<tr>
<td>III, V, and VI</td>
<td>120.7</td>
<td>960</td>
<td>680</td>
</tr>
<tr>
<td>II and IV</td>
<td>79.2</td>
<td>1,016</td>
<td>750</td>
</tr>
<tr>
<td>XII</td>
<td>43.6</td>
<td>1,420</td>
<td>970</td>
</tr>
<tr>
<td>VII, VIII, X, and XI</td>
<td>187.6</td>
<td>2,200</td>
<td>1,500</td>
</tr>
<tr>
<td>MUNICIPALITIES</td>
<td>186.5</td>
<td>1,020</td>
<td>630</td>
</tr>
<tr>
<td>FEDERAL DISTRICT</td>
<td>4,855.7</td>
<td>1,282</td>
<td>...</td>
</tr>
</tbody>
</table>

**SOURCE:** Secretaría de Economía: *Ingresos, op. cit.* (1956), published 1958, Table on p. 53.

**NOTE:** Districts are aggregated as presented; it is assumed that those aggregated have similar incomes. Data not available to author in disaggregated form for the other Federal District municipalities, nor for the State of Mexico's four adjacent districts. (Mean family income in Colonia = M$737, and in the tugurios = M$852.)
### TABLE II-29

FAMILY INCOME DISTRIBUTION IN COLONIAS PROLETARIAS AND TUGURIOS

BY TENURE: 1960

<table>
<thead>
<tr>
<th>Income</th>
<th>Colonias Proletarias</th>
<th>Tugurios</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rent</td>
<td>Own</td>
<td>Squat</td>
<td>Rent</td>
</tr>
<tr>
<td></td>
<td>46.3</td>
<td>51.5</td>
<td>2.2</td>
<td>91.1</td>
</tr>
<tr>
<td>1 to 360</td>
<td>32.4</td>
<td>18.7</td>
<td>37.4</td>
<td>19.8</td>
</tr>
<tr>
<td>361 to 500</td>
<td>25.1</td>
<td>18.3</td>
<td>12.6</td>
<td>16.3</td>
</tr>
<tr>
<td>501 to 700</td>
<td>17.7</td>
<td>13.4</td>
<td>37.4</td>
<td>15.1</td>
</tr>
<tr>
<td>701 to 1000</td>
<td>13.4</td>
<td>24.8</td>
<td>12.6</td>
<td>24.2</td>
</tr>
<tr>
<td>1001 to 1500</td>
<td>6.5</td>
<td>13.7</td>
<td>...</td>
<td>14.5</td>
</tr>
<tr>
<td>1501 to 2000</td>
<td>1.1</td>
<td>7.1</td>
<td>...</td>
<td>5.1</td>
</tr>
<tr>
<td>2001 to 3000</td>
<td>2.2</td>
<td>3.2</td>
<td>...</td>
<td>4.1</td>
</tr>
<tr>
<td>3001 or more</td>
<td>1.6</td>
<td>0.5</td>
<td>...</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Total Population in Thousands

<table>
<thead>
<tr>
<th>Colonias Proletarias</th>
<th>Tugurios</th>
</tr>
</thead>
<tbody>
<tr>
<td>440.0</td>
<td>346.4</td>
</tr>
<tr>
<td>496.5</td>
<td>34.5</td>
</tr>
<tr>
<td>20.5</td>
<td></td>
</tr>
</tbody>
</table>

**SOURCE:** Raul Cacho A., "La Vivienda," in Mexico, 50 Anos, op. cit., Vol. II, Chapter XXIII, Table 4, p. 145. (Column sums do not add to 100 per cent because of rounding.)
HISTOGRAM II-29-A

INCOME INTERVALS IN PESOS

2000-3000

1500-2000

1000-1500

700-1000

500-700

360-500

1-360

Squatters
Owners

Renters

Renters

Owners

COLONIAS

TUGURIOS

-250-
TABLE II-30

PER CENT OF FAMILIES BY PROPORTION OF INCOME SPENT ON HOUSING AND BY DISTRICTS AND AGGREGATED MUNICIPALITIES: 1956

<table>
<thead>
<tr>
<th>Per Cent Income on Housing</th>
<th>0 to 10</th>
<th>11 to 20</th>
<th>21 to 30</th>
<th>31 to 50</th>
<th>Over 50</th>
<th>TOTAL (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORE DISTRICTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I and IX</td>
<td>58.6</td>
<td>32.2</td>
<td>8.5</td>
<td>1.6</td>
<td>...</td>
<td>100.0</td>
</tr>
<tr>
<td>III, V, and VI</td>
<td>57.3</td>
<td>31.0</td>
<td>6.8</td>
<td>2.9</td>
<td>1.9</td>
<td>100.0</td>
</tr>
<tr>
<td>II and IV</td>
<td>45.3</td>
<td>35.9</td>
<td>17.2</td>
<td>1.6</td>
<td>...</td>
<td>100.0</td>
</tr>
<tr>
<td>XII</td>
<td>54.6</td>
<td>31.8</td>
<td>9.1</td>
<td>4.5</td>
<td>...</td>
<td>100.0</td>
</tr>
<tr>
<td>VII, VIII, X, and XI</td>
<td>46.5</td>
<td>32.8</td>
<td>17.9</td>
<td>7.7</td>
<td>...</td>
<td>100.0</td>
</tr>
<tr>
<td>MUNICIPALITIES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100.00</td>
</tr>
<tr>
<td>FEDERAL DISTRICT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100.0</td>
</tr>
</tbody>
</table>

SOURCE: Derived from Secretaría de Economía, Ingresos y Egresos, op. cit., Tables p. 59. (Totals do not add because of rounding.)
### TABLE II-3I

RENT PAID FOR HOUSING IN COLONIAS PROLETARIAS, TUGURIOS, FEDERAL DISTRICT, AND URBAN MEXICO: 1957, 1960

<table>
<thead>
<tr>
<th>Rent in Mexican Pesos</th>
<th>Colonias Proletarias</th>
<th>Tugurios</th>
<th>Federal District</th>
<th>Urban Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 50</td>
<td>52.6</td>
<td>39.2</td>
<td>24.7</td>
<td>29.4</td>
</tr>
<tr>
<td>51 to 100</td>
<td>21.0</td>
<td>22.0</td>
<td>17.6</td>
<td>23.6</td>
</tr>
<tr>
<td>101 to 200</td>
<td>9.3</td>
<td>20.8</td>
<td>20.3</td>
<td>28.4</td>
</tr>
<tr>
<td>201 to 400</td>
<td>1.0</td>
<td>11.9</td>
<td>21.4</td>
<td>12.7</td>
</tr>
<tr>
<td>401 and over</td>
<td>.5</td>
<td>.5</td>
<td>15.8</td>
<td>5.9</td>
</tr>
<tr>
<td>Squatters</td>
<td>4.4</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Don't know</td>
<td>11.2</td>
<td>5.7</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

| 100.0                 | 100.1                | 99.8     | 100.0           |

**SOURCES:** I.N.V., Colonias op. cit., Table on p. 41 (unnumbered); I.N.V., Herradura de Tugurios, op. cit. Table on p. 65 (unnumbered); I.N.V., Investigacion Nacional op. cit., Table 3, p. 240, and Table 3, p. 212.

**NOTES:** A Mexican Peso is approximately US$.08, or a US$ is equal to M$12.50. The proportion reported paying under M$50 in the 1962 I.M.S.S. study was 13 per cent rather than 24.7 as presented above for the Federal District; the proportion of paying from M$50 to 150 was 36 per cent. (In Correo Economico, No. 28-9, Year II, January 3, 1965, p. 61.)
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