LOW-INCOME HOUSING SYSTEM IN MEXICO CITY

by

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This thesis examines lower-income housing in metropolitan Mexico during the lifetime of the present population. It reveals the current breakdown of a relatively satisfactory housing system for low and very low-income people, composed mainly of low-rental inner-city tenements, and low-cost, peri-urban, owner-built dwellings. This dual system developed during the first half of the century, before the consequences of high building standards, rent controls, and land speculation were fully apparent.

Through in-depth case histories of carefully selected households, the thesis shows how this Mexican version of a common housing system matched the needs and priorities of low-income people undergoing the process of rapid urbanization in a primate city. Special attention is given to the full and effective use of locally available and plentiful human and material resources, and to the major contributions made to society and the economy by the "marginal" activities of the "informal" housing sector.

The current deterioration of this highly supportive housing system is shown to be one of the important causes of the decline of low-income living standards in the metropolitan area, and represents high costs for society as a whole. Dysfunctions of the present low-income housing system are analyzed. Their main causes are identified in the unavailability of land, technology, finance, and services needed for low-income housing.

The thesis also shows how public actions and/or the lack of them have contributed to the deepening crisis through the inhibition of investment in low-cost housing, both rental and owner-occupied. A major reorientation
of public policy is called for, in which the current priorities for housing projects, infrastructure provision, and the control of resources — especially land — are reversed.

Finally, the thesis provides a conceptual and a methodological basis for the improved understanding of housing in urban development, which must underlie any effective political programme.

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INTRODUCTION

Objectives and Definitions:

The principal objective of the dissertation is to provide an improved understanding of the way in which the low-income housing system functions, which would enable better informed and more appropriate ways of public intervention.

Housing in this study is understood as a process in which households are housing themselves or are being housed by others. It is not seen as merely the stock of dwellings. This process, or activity, involves numerous sectors of the economy, interest groups, and individuals that control necessary resources and make decisions about their use. Housing problems are seen as dysfunctions of the process when it frustrates, rather than supports, such common family objectives as socio-economic mobility and especially raising and educating of children, or when it adversely affects the local and national economy.

The low-income population is defined as that population not able to afford unsubsidized dwellings of minimum standard required by building codes. Consequently, the low-income housing system should be defined as the part of the general urban system that is serving the housing needs of the low-income population. However, the system which was studied is broader than this. It also includes the housing of families that can afford free market contractor-built dwellings and choose the incremental owner-builder process, the most typical low-income route to home ownership.

I have also studied public housing, which primarily serves the mid-
dle-income population (it was officially intended for the poor, which would have justified the subsidies). In other words, this thesis examines housing accessible to, or intended for, the low-income population, even though it might be sometimes used by families of other income levels.

**Choice of Mexico City:**

Mexico City was selected as a focus for the study for a number of reasons. In many ways, the country is in the "mid-way" situation, which increases the probability that the findings would be useful for many other contexts.

It has a capitalist "free market" economy, but also a number of socialist institutions. Its model of development follows the "crash modernization" path common to almost all developing countries but it has had, in the 1930's and especially in recent years, some policies which support the traditional sectors of the economy. It has a fairly pluralistic society, with a number of democratic institutions, but also a practically one-party system, which it has had for the last fifty years. In terms of aggregate wealth, it is not a rich country, but also not a very poor one. It is one of the richest "developing" nations (with the exception of the temporary "bonanzas" of the main oil exporting nations).

At the same time, Mexico represents the extreme, or most developed, level of some typical "developing country" characteristics. It is the largest among these nations, with a very rapid population growth (3.5 percent or more per year), which makes the pressure of migration to the primate city particularly critical. It has the most skewed income distribution of the continent.
And finally, but very importantly, Mexico City is one of the largest (12 million people), most developed, and complete cases of a low-income nation metropolis. My studies in other developing countries have supported the initial hypothesis that the diversity and complexity of the Mexico City low-income housing system, and the rate of its growth and change, cover a very large proportion of the situation in the metropolitan areas in the other developing countries. The same seems to apply to the forms of government interventions and their results.

Low-income housing and government interventions in places as different in economic system, culture, and simple geographic location as Ismailia in Egypt and Sao Paulo in Brazil, show remarkable similarities to past and present Mexico City. 4

Basic Findings with Respect to Mexico City:

Basic findings with respect to Mexico City can be summarized as follows: The present housing system of the low-income population is exploiting the poor and retarding the development of the country. Poverty, exploitation, and imbalances are the characteristics of the present development model of the country, and the deficits and dysfunctions of the housing system may be seen as manifestations and symptoms of these characteristics. At the same time, however, the functioning of the low-income housing system is strengthening and accentuating these characteristics of the general development model: It is contributing to a worse distribution of wealth and opportunities, to more imbalanced economic development, to more chaotic and costly spatial development, and even to an increase in the external dependency of the country. In the metropolitan area of Mex-
In New York City, there is a great shortage of low-cost housing. The supply of housing types for which the demand is highest was dramatically reduced during the last two decades.

Housing presently in use demonstrates great mismatches with the needs and priorities of its users. This applies especially to the majority of rental and ownership housing in the areas whose improvement is delayed by tenure insecurity and the lack of services. Difficult and expensive access to employment, tenure insecurities, the excessive cost of housing, itself, or the prohibition of commercial and productive activities in dwellings and localities, are only a few of the barriers with which the housing system is worsening the existing poverty.

Public sector interventions are worsening the existing shortages and mismatches of the low-income housing system. Counterproductive forms of intervention or the lack of them when they are most needed are suppressing the supply and blocking the pent-up demands. They result in the very reduced and unequal access to basic supply resources, especially land, but also credits, building materials and tools, and in the lack of services. They reduce the supply of low-cost rental housing as well as reduce the possibilities of incrementally constructed owner-builder housing, the two types which are in highest demand. Direct construction by the public sector is very costly, and causes the poor more problems than it solves. Slum eradication programs often destroy the only housing that the poor can still afford at the locations in which they need to live.

Role of Theoretical Concepts:

Such policies and forms of public intervention are an integral part
of the national model of socio-economic development and usually reflect the interests and class biases of the economically most powerful sectors of the population. The counterproductive policies for low-income housing cannot be blamed on a "lack of understanding," nor is "new understanding" a sufficient condition for the improvement of policies.

At the same time, however, the ideological and intellectual justification of the present policies and the techniques by which they are implemented are based on the present explanation of the nature of low-income housing and on definitions of its problems; in other words, on the theoretical concepts. These concepts are reinforcing current policies and helping to generate support for them among many people without vested interests, but also without the understanding of low-income housing.

For example, the construction of public housing projects is a response to the interests of the building industry, the building material industry, the banking community, urban and peri-urban landowners, and finally, of the government, which wants to satisfy these interests and also have some visible "achievements" in serving the poor. The eradication of centrally located low-income housing (slum clearance) to accommodate more profitable uses of land by the modern sectors of the economy as a response to the same interests.

The justification of these policies is based on such concepts as economic and social "marginality," "minimum standards," "housing deficit," "housing as a public good," "economies of scale," and others. The concept of "marginality" is used in at least two ways. It is used to link the "marginal" (= substandard) housing with "marginal" (= useless, socially inappropriate, often criminal) activities of the families. Making
this link permits the argument that social ills and malfunctions will be solved by moving people to a "better" environment. In the last couple of years, I have heard this argument for eradication policies in Mexico City, Rio de Janeiro, and Panama City. The most recent, and most extreme, example was given by Mr. Ragurmaiah, India's Minister of Housing, who was asked at the Habitat Forum in Vancouver about the forced removal of 32,000 people from the low-income Janatha Colony in Bombay (by 1,200 policemen) as recently as May 16, 1976. His reply was: "The people in Janatha are a bunch of criminals and the place stinks."

The concept of marginality is also used to justify the neglect of housing built by low-income families themselves, or by local "marginal" or "informal" construction industry. This is in accordance with the general disregard for the importance of all the resources low-income families can, and do, contribute to their housing, of the employment provided by the small local construction firms, and by other activities of the "informal" sector. This leaves the construction by large companies, the resources controlled by banks and government, and the modern sector jobs as the only ones worth counting.

Concepts of "minimum standards" and of "housing deficit" serve the same purpose by dismissing all the housing of lower physical quality, whether or not it is improving. What is counted is the housing that satisfies the criteria of being complete and up to the standards at the time of survey. Public housing and all commercial housing satisfy this requirement. Most of the new incrementally improving owner-builder housing does not (they will, after a number of years, if the lack of urban services, tenure insecurity, etc., do not delay their improvement).
Making the whole analysis within the modern sector only, and dismissing the effect of the "informal" sector construction on the economy, permits the argument of the multiplier effects of project construction.

Dismissing the "informal" sector, local construction and other economic activities, also permits not to count the damage done to it by the project construction and the loss of employment, of demand for construction materials, and of property taxes. "Economies of scale" can also be claimed much more easily when the alternatives are not considered and social costs and diseconomies not counted.

Main Practical and Theoretical Contributions of the Theses:

The most important contribution of the theses are practical and policy-oriented, presenting a new model of analysis and understanding of low-income housing in the metropolitan area that challenges the concepts on which current policies are based. The policy implications of a new model are also discussed. This model of the low-income housing system and the analysis of its historic evaluation is also the main theoretical and methodological contribution of the work.

The low-income housing system can be subdivided into analytical components that permit evaluation of its performance. Various housing submarkets provide different types of housing and serve the needs of different population groups. Different housing areas have a variety of mixes of these submarkets. Families move between submarkets and areas in relation to their housing priorities. Due to these flows of intra-city migration, any change of conditions in any submarket at any location has repercussions on the entire housing system.
Other factors that connect housing submarkets into one system are the markets of basic housing resources, the networks of infrastructure, and the urban service systems. Dysfunctions of the basic resource markets of land and credit, and of the construction industry (building materials, tools, labor, etc.) are the principal causes of shortages and mismatches that occur in the housing submarkets. Infrastructure networks and urban services are also, to a high degree, determined by the basic resource markets.

At the same time, the availability of different types of housing depends highly on these networks and services. They form, therefore, an intermediate level of analysis between housing submarkets and basic resource markets. Dysfunctions on each of these levels have to be addressed by any comprehensive housing policy.

In order to be able to identify and assess the present dysfunctions of the low-income housing system, foresee future housing needs, and develop the policies that are capable of addressing both, it is essential to know user needs, priorities, and resources, and the resulting housing demands.

In this part of the analysis, one should differentiate between specific housing demands, immensely variable and unpredictable, as are the particular situations of each family, and the principal types of housing demand.

These, I suggest, are predictable, as a function of present incomes, of other resources that families can use for housing, of future socio-economic mobility expectations, of the present housing situations of the families, and of their knowledge of the existing housing supply. This
hypothesis requires, however, much more research.

The systemic approach described distinguishes my study from the earlier work in the field that has had, in most cases, much narrower focus, such as "squatter areas," or shanty towns, and consequently, could not give a complete picture of the low-income housing system and its changes over time.

In short, the major specific theoretical contributions can be summarized as follows:

- An analysis of the supply side of the low-income housing market, in terms of sets of housing goods and services, demand profiles, housing submarkets, and subsystems.
- A definition of housing areas versus housing "packages" (or "sets"), and an hypothesis of their evolution.
- A model of the sequence of growth and change of the system, both in terms of spatial distribution in the metropolitan area and of the mix of supply packages and subsystems at a given location.
- An analysis of the system's mismatches, in terms of the deficit of specific packages, the dysfunctions of sets in use, and the costs of these mismatches.
- An analysis of the causal function of the basic resource markets, and the service provision systems for the mismatches between the supply and demand of housing sets.
- An analysis of housing priorities and resources among the different groups of low-income population and an hypothesis of the predictability of the general types of housing demand.
In addition, the research gives a new insight into areas such as the intra-city migration of urban poor, and the relation of housing attributes to the socio-economic mobility of families.

Contrary to still common professional opinion, this thesis suggests that improved housing conditions do not invite added migration (although the way in which the programs are carried out may do so) and points out the potential of out-migration to the smaller centers and to the hinterland.

In terms of policy conclusions, the study presents evidence for the support and guidance of the traditional housing supply system and against the policies for its suppression and substitution. It emphasizes the need for the central planning of access to basic resources and of infrastructure provision, and for local control of direct housing construction.

Public intervention is essential, but not on the level of direct construction; in this case, localized, decentralized action is more efficient and assures a better match with people's needs, priorities, and resources. The function of public intervention is to assure that local suppliers have access to necessary resources, and that the volumes and diversity of supply result in low cost for the users and in a positive impact on general income distribution. The other essential function of the public sector is the planning and implementation of supralocal infrastructure and services, and the guiding of general growth patterns in the metropolitan area.

General Relevance of the Methodology:

The conclusions and implications from the study have direct applica-
tion to Mexico City. Similarities of housing systems make this study useful in other contexts as well, at least as a working hypothesis for housing policy research (it has already been used in this way in Ismailia and Sao Paulo). An important value of the study lies, also, in the development of methods of the monitoring and analysis of low-income housing systems. The data collecting was not a continuous process.* As the research was not supported by any grant, the field work was conducted as part of various smaller consulting assignments for Mexican and international institutions. Some of the interviews were done by students in my low-income housing seminars in Mexican universities. The monitoring methods are described in Appendices A, B, C, and D. Maximum effort was given to assure reliability of data. My observations on research for development planning in Mexico seem to suggest that my constraints were probably an unintended simulation of the constraints faced in general by any policy-oriented research in that context: time and resource limitations, unavailability of statistical data, and especially, lack of continuity of research and the policy institutions and programs, and the non-sequential characteristics of the implementation decision processes. This is another reason for which the methods, especially the ones developed for the study of the demand side of the low-income housing system, may be an important tool for policy-oriented housing studies in similar contexts. I have already tested it successfully in Ismailia.

Data Base:

The Study methodology relies heavily on the collection of data from

*The thesis research was done in the years 1972-1975. I have specified my data requirements in detail in the Thesis Proposal in 1972, before beginning my field work.
the field through family interviews, locality studies, in-depth case studies and the monitoring of the mass media. One of the reasons for this is the lack of published and other secondary information. Little published material exists on user priorities or, indeed, about the demand side of the housing system, in general.

Data required on the supply side of the system is concerned principally with housing options available to the user. Census data and previous reports provide some of the information needed, but here again, the majority of the information used in the analysis of the housing sub-markets is derived from the field work, mainly from in-depth case studies.

The more important reason for the heavy reliance on primary information is the very nature of the data necessary to analyze such factors as matches and mismatches between user priorities and the existing housing supply, or the function of housing in the socio-economic mobility of the families.

To understand these relationships, one needs substantial qualitative data about households, the combinations of their needs and priorities, their situations, their changes over time, the impact of the changes of basic resource markets and service provision systems on the housing options open to households, the consequences of these on their economies, the impact of specific government housing policies on the lives of low-income families, etc. This kind of information was only possible through direct fieldwork. The major source of data were the in-depth case studies of the families, which permitted an holistic analysis of the low-income housing system in its smallest scale representation (the
family being a micro-representation of the macro-system).
To Pachuca

To Puebla

STATE OF MEXICO

Limits of the Metropolitan area according to Unikel (1971)

Urbanized portion of Metropolitan Area

Limits of the D.F.

Limits of "Mexico City"

Limits of municipalities

Limits of "delegaciones."

To Cuernavaca

*Area traditionally referred to as Mexico City, as different from other parts of D.F. and of Metropolitan Area.

Source: Unikel, L. (1971)

Fig. 1. Limits and components of metropolitan area of Mexico City
Fig. 2. Principal growth rings of Mexico City metropolitan area 1900-1970.
I

THE SETTING
1. Project Framework

1.1. Basic Theoretical Concepts

Until the sixties the use of the word housing was limited in the literature to the meaning of a physical dwelling—house, apartment or shanty, or the stock of dwellings. Consequently, the term of housing system was exclusively associated with a specific method of producing housing units from predesigned construction components assembled according to a set of rules. The components were usually industrially produced, and their assembly rules consisted a system.

The housing problem was thus defined as a deficit of housing units of a certain minimum standard, usually arbitrarily determined. Housing studies were centered around the measurement and analysis of this deficit, and the search for ways of increasing the production of complete houses. Thus, housing systems' studies looked for new, mainly industrial, production methods of building or evaluated the existing ones.

Such an approach to housing, only as an object, a product, a commodity in the market, or grammatically as a noun, is still more common than the alternative approach to housing, as a verb describing a process through which people are housing themselves or are being housed by others.

This process involves numerous participants operating within various markets and legal frameworks, pursuing different goals, developing an array of activities and producing a broad range of outcomes. Physical shelters are merely one of these outcomes.

According to this approach, all of these comprise a housing system, which has to be studied and understood in order to enable planning inter-
vention. This approach was formulated by John F.C. Turner in 1966 and finds its very clear explanation in Chapter 7, *Housing as a Verb*, in Turner and Fitcher (1972), pp. 151 and 159, from which the following statements are taken:

The verb "to house" describes the process or activity of housing. . . in simple general terms. . . description of housing as action must include the actors, their activities and their achievements. This process, which is really simultaneous and not linear. . . takes place in a context. The context will be altered, to some extent, by the actors' actions; that is to say, by their achievements, which became part of the context.

A very similar approach is represented by N.J. Habraken: "... a dwelling is not a thing that can be designed or made. . . A dwelling is an act. If one wants to be concerned with housing, one should make this act possible. Thus, one must study the housing process from one's own specialized field, promote it and direct it." Habraken (1970), pp. 2 and 3.

With this approach, the housing problem will be defined differently, depending on the participant, or the group of participants, in the process in whose problems we are interested. It will always be defined as the problem of mismatch of the specific needs of given participants to the system's performance. For the users, the dwellers themselves, there would be a problem if for any reason their housing solution serves as a barrier and not as a vehicle to reach their higher priority life goals; for the commercial sector, it would most commonly mean the loss of profits, for the government, loss of tax revenues, potential political unrest, image costs, etc.

This second approach, developed principally by Turner, is the
theoretical departure point of this study.

As a main analytic category, the "housing set" is being used — a specific combination of housing goods and services, that are exchanged in the market, or built by families themselves. Housing sets of one type, e.g., rooms in low-cost tenements, form the supply side of a given housing submarket.

The main dimensions of the housing set are: control, security and transferability of tenure, accessibility to specific places and to the kin and friendship networks, physical characteristics of the shelter and of its environment (including quality and adaptability of structures and spaces, urban services, natural environment), volume and form of necessary initial investments, current costs of use and maintenance, and the possibility of realizing equity in the case of transfer.

Housing sets, housing submarkets and subsystems describe a series of geographically independent situations. In exceptional cases, one submarket can cover a continuous area and comprise 100 percent of the housing stock in a given location; in most cases, however, any area or locality will offer a variety of housing sets which will be exchanged in a variety of housing submarkets.

Colonia proletaria, for example, will not be considered a submarket or a subsystem, but a type of housing area; there, ownership of a plot with potential for the incremental construction of a house is the main set of housing goods and services that the colonia offers in the early stages of its development. Conversely, the vecindades (low-cost tenements) are not an area, but the main housing set used in the old dense, central areas of the city.
An analysis of the housing system by housing submarkets permits the identification of some of the system's dysfunctions. Housing submarkets accessible to the low-income population are, however, determined mainly by supply constraints and not by demand requirements. In order to learn the demand structure, it is necessary to differentiate between the effective demands, those demonstrated within the present supply constraints, and the pent-up demands. Pent-up demands are those that cannot become effective because of shortages or other supply limitations.

In keeping with Turner, household priorities and resources were initially assumed the main determinants of housing demand. Location, tenure and shelter were also assumed the principal housing priorities, and opportunity, security and identity the principal "vital" priorities. In the process of research, it was found necessary to redefine the priorities of location and identity.

It was also found that priorities and resources do not explain housing demand. The way in which families use resources is another very important factor. Budget strategies, or "styles" of household economy, have to be known in order to understand how families allocate resources among their basic priorities. The housing expenditure strategies of families have to be known in order to explain and predict the general types of housing demand. Whether the demand will be pent-up or effective will depend on the supply constraints.

An analysis of present housing submarkets and the identification of pent-up demands permits the definition of basic dysfunctions of the low-income housing system. These will be of two kinds: scarcity (deficit), or virtual nonexistence, of some housing sets, and mismatches of
the sets in use with the needs and priorities of the users.

The causes of these dysfunctions cannot be explained, however, through an analysis of the submarkets of housing sets. The basic causes, as already mentioned, lie in the imbalances of the present socio-economic model of the country's development. The present functioning of the basic resource markets of land and finance, and of the markets, the construction industry (materials, tools, skills, etc.), and the provision of services are integral parts of this development model. No housing and services can be provided without these basic resources. The availability of many housing packages is also contingent on the existence of primary urban services. An analysis of the basic resource markets and the service delivery systems is therefore a necessary step before discussing policy alternatives.

1.2. Summary of the Method of Research

As already stated, the objective of this study was to gain an understanding of the way in which the low-income housing system functions in the metropolitan area. This requires a definition and understanding of the system's basic components, its functions and interrelations. Such a task has to include an analysis of the context of the socio-economic development model and the metropolitan system, of which the housing system is a part.

The way in which the specific types of housing supply function for the users and society, as a whole, must be identified, analyzed and evaluated. Relationships between these housing types, such as their substitutability, sequence of use and the flow of resources and people between
them must also be known.

An identification of user needs, priorities, resources and the ways they are used is necessary in order to understand the demand pattern. Next, the main demand profiles should be defined and compared with the ranges of supply available. This enables us to find the principal mismatches between demand and supply.

Following the theoretical concepts just outlined, the subsequent step will be an analysis of the basic resource markets and service provision systems that determine the supply and functioning of different housing types.

An analysis of such a system, identification of its dysfunction and its causes requires primarily qualitative information. Once a system's components are defined and the basic relationships understood, the quantitative dimension becomes more important. This applies to both principal scales of analysis: the metropolitan and the family level.

Introductory information, especially on national and metropolitan levels, and the statistical data, in general, was to be collected from secondary sources -- publications, previous studies, etc. In fact, however, very little data is available on low-income housing systems in Mexico. Statistics are very poor in general. Moreover, virtually no information exists on inner-city shanty towns, peripheral squatter settlements, illegal subdivisions, economies of families relocated to new housing projects or living in rent controlled tenements, characteristics of the whole informal housing industry sector, etc.

The basic data, especially on the family level, was to be gotten
from the field.

Initially, the study was to have developed parallel, on two scales: metropolitan and family (and locality), with continual feedback between them. Information collected at the metropolitan level would facilitate an understanding of the system at the family scale; similarly, the results of family analyses would modify an understanding of the dynamics at the metropolitan scale. In practice, however, the scarcity of relevant metropolitan level data made this feedback very limited, and increased the importance of local field work.

Field work consisted of three principal steps. Census information and other metropolitan level data, mainly maps and plans, were used to select localities and families (see Appendix A for more detail) for field surveys. Field survey was the next step. It included family interviews and locality surveys.

The single most important sources of information were the in-depth case studies of families selected from the survey sample.

Key aspects of demand analysis, such as knowledge of the user's motivations, needs, priorities, resources and willingness to contribute them, and especially the patterns (combinations) of these family characteristics, etc., can only be addressed on the basis of the case study type data. The same applies to the aspects of supply analysis, such as the discrimination between different housing sets, evaluation of their basic or substitution function, and the analysis of mismatches between supply and demand. For that purpose, the in-depth family case study has been chosen for the analysis as a smallest scale representation of the large system (metropolitan low-income housing system).
The methodological assumption is that such a case includes the basic variables of a general metropolitan system and that its small scale permits an holistic analysis not possible for the entire metropolitan area. The case study method provides more reliable information than the shorter surveys, since data can be verified through longer contact with the family. It is also particularly well suited for the incremental research process with limited resources. Even a single case gives certain approximation of the understanding of the system it is a part of; additional cases improve this understanding.

In contrast, the survey methods produce data that is explanatory only after the whole sample has been processed and correlations analyzed. Furthermore, data gathered in surveys can be interpreted only in view of the implied causal model of the system. Case studies permit development of such a model. Survey data, if accessible before the case studies, also enables a more representative selection of cases.

The case studies should represent the main variants of the low-income housing and household histories in the studied area and all effort was made to assure such representativeness. During the research in Mexico and in other places it was found, however, that even completely non-typical cases are only a little less useful than the carefully selected typical ones; that is, even if family and housing histories may be particular, the general housing system they illustrate is the same. With a sufficient number of analyzed cases the proportional representation of existing housing categories is therefore less essential than in statistical analysis. The case studies of families were paralleled by the case histories of selected localities.
Two other important sources of information were interviews with public agency officials and other key individuals on the housing supply side, and the monitoring of the daily press. These are the main sources of data on the metropolitan level and more important than the ample bibliographic material, whose usefulness I have found rather limited. Appendix A, "Method," includes more information about data sources, the process of field work, accounting and analysis methods, etc.

1.3. National Context

In 1972, Mexico had 52 million inhabitants, whose average income was 744 US $ per year. Among the developing countries, it was therefore a relatively large and rich nation.

Population:

With its present average population growth rate of 3.4-3.5 percent per year, it is the most rapidly growing large country in the world. The combination of the large size and the rapid growth rate of the population results in particularly strong migration pressure on the largest cities. The growth rate steadily increased from 1.70 percent in the 1920's to 3.35 percent in the 1960's. This compares with a 2.9 percent average for Latin America, 1.8 percent for the world, 0.9 percent for Poland, 0.3 percent for Britain, and even negative growth in Hungary. This extremely rapid growth is caused by highly improved health and hygienic conditions, especially in water provision, and the consequent dramatic decrease of the death rate, especially among newborn babies.

The birth rate has even decreased some 12 percent since 1930. In the same time, however, the death rates decreased over 60 percent.
related phenomena, life expectancy is also increasing, from 36.9 years in 1930 to 61.9 years in 1970, and if present trends continue, it should reach 69.4 years in the year 2000. (It was 41.5 in 1940; 49.7 in 1950; 58.9 in 1960.)

As a result, the proportion of the population under 15 years old has increased from 40.9 percent in 1930 to 46.2 percent in 1970, and the proportion of population over 65 years old, from 2.9 percent in 1930 to 3.7 percent in 1970, increasing the dependency ratio from 0.78 to 1.00.9

The total population of the country grew from 13.5 million at the beginning of the century to 58 million in 1974. It is expected to reach about 72 million by 1980. According to various projections, it should reach between 122 to 152 million by the year 2000.

Economic Development:
Since the post-revolutionary period of the 1930's, Mexico has had almost four decades of sustained and increasingly diversified economic growth. During the decades of the 1950's and 1960's, the average annual rate of growth of its gross national product was 6.2 percent, and of gross value of manufactural production, 10 percent.10

Because of the rapid population growth, the per capita GNP rose less, only 2.8 percent. The distribution of development and of its fruits in the form of an improved standard of living and increased consumption is very uneven and even worsening. This applies to the distribution between income groups, between urban and rural areas and between regions. During the Lazaro Cardenas administration (1934-1940), numerous government actions were undertaken to reduce these disparities. The large agricultural reform program promised by the revolution two decades
earlier, was initiated. Public investments were re-allocated into the improvement of social services and infrastructure in both depressed and more developed regions of the country. During that period, Mexico managed to achieve relatively rapid growth with improved distribution.

The economic growth in the 1940's, 1950's, and 1960's was an achievement based on another model. The main strategy was to increase capital formation in the private sector. The public sector investments were concentrated on infrastructure development that would support the growth of modern industries that were concentrated in the main urban centers.

The profitability of the private sector was also indirectly subsidized by very low tax ratios and the adoption of low prices for utilities and resources provided by the public sector, like: railroad freight charges, electric power, water, and fuels. The road network was also expanded to meet the needs of the modern sector industrial development, emphasizing that roads between major urban centers be brought to the high international standard, at the expense of any improvement of the local rural road network. This strategy made rapid aggregate growth possible, but its distribution was worsened. The poor remained poor, particularly in the rural areas. They are increasingly more poor in relation to the groups who have benefited from the economic growth.

This model of "crash modernization" economic growth\textsuperscript{11} has produced similar results all over Latin America.

During the decade of the 1960's, annual industrial production grew by 5.6 percent per year, while annual industrial employment grew by 2.3 percent. At the same time, annual natural population growth was 2.8
percent and annual rural to urban migration was 4.8 percent. According to a United Nations survey of 1969,\textsuperscript{12} in order to assimilate the new labor force within this model of development, it will be necessary to maintain the industrial production growth of 19 percent per annum, and in order to start offsetting the present deficit of jobs -- 25 percent. During the decade of its most rapid growth in the 1960's, when the gross product of manufacturing industries grew 10 percent per year, its labor force increased only 5.1 percent per annum.

Official unemployment numbers in Mexico are relatively low, as they do not distinguish between different degrees of regularity of employment\textsuperscript{13} and the levels of income. The proportion of the economically active population earning less than the official minimum salary was around 60 percent in 1971 in the Federal District (DDF information) and 81 percent in the State of Mexico (Governor's Annual Address). The population with irregular jobs and very low income (not previously defined) is sometimes referred to as the "underemployed." The national estimates in Mexico are of around 40 percent of "underemployed".\textsuperscript{7}

**Income Distribution:**

According to Ifigenia Navarrete,\textsuperscript{10} the distribution of family incomes by deciles between 1950 and 1963\textsuperscript{14} indicates a consistent loss of participation for the lower income groups: from 2.7 percent to 1.96 percent for the lowest 10 percent, 9.9 percent to 7.39 percent for the lower 50 percent. The participation of higher income groups was correspondingly increasing. A comparison of real incomes (in pesos of 1958) shows that the second decile (approximately subsistence level income, where 85 per-
cent to 90 percent of income has to be spent on food and fuel alone) has had a decrease of incomes during the 1958-63 period of rapid economic growth of the country. Future projections indicate that a further deterioration of income distribution is most likely.

Based on these trends, Navarrete constructs three hypotheses of the situation in 1980, that indicates that with no change in the trends, the accumulated participation of incomes of the lowest 20 percent will drop from 6.1 percent in 1950, and 4.2 percent in 1963, to 2.21 percent in 1980; with some measures that would favor the low-income population, it would rise to 4.32 percent (slight improvement over 1963 level), and only with almost 300 percent increase of real income of 1963, would it return to the 1950 proportion of participation.

The World Bank survey data for 1969 shows 4.0 percent participation for the lowest 20 percent, a drop from 4.2 in 1963, indicating a midway tendency between Navarrete's most pessimistic and no-change hypothesis.

The general measure of concentration of income in the form of Gini coefficient seems to indicate, however, that the tendencies are even more pessimistic than Navarrete expected in her most pessimistic projection.

The Gini coefficient for Mexico has been changing from 0.5 in 1950, to 0.53 in 1958, to 0.55 in 1963, and 0.58 in 1969. Projections of Navarrete in 1963 for 1980 were: pessimistic, 0.59; midway, 0.52; and optimistic, 0.49. Already, the 1963 level of Gini coefficient for Mexico was one of the worst on the continent.

Inter-regional and Rural-urban Differentials:

Regional distribution of development is very uneven. In summary,
one can propose the division of the country into three major areas:

(1) The Mexico City agglomeration, with neighboring poles under its influence (Toluca, Puebla, Cuernavaca), with dynamic growth, based predominantly on the modern sector but with large "backward" areas.

(2) Similar characteristics of the "frontier states" in the north, however, with higher internal differences between its most developed and "backward" zones.

(3) The remaining parts of the country have a few dynamic centers such as Guadalajara in Jalisco and Acapulco in Guerrero. On the whole, however, its development is very slow, the rate of investment is low, and the levels of material consumption and opportunities to increase it are much lower than in the first two areas. The same applies to health care, educational opportunities, etc.

The industrial census of 1965 indicates that the Federal District, together with the State of Mexico, had 48.1 percent of the total industrial employment of the country, 49.5 percent of invested capital, 57.1 percent of industrial wages and salaries. (This area is inhabited by only 18 percent of the nation's total population.)

In 1973, only the Federal District was inhabited by 18 percent of the national population. It was taking in 50 percent of all the investment in the country and 60 percent of all the financing. Its population had much higher incomes than in the rest of the country.

During the 1960's and 1970's, a number of development programs have been initiated in less developed regions, but at the same time, the trend of the most rapid development of the already most affluent areas seems to continue.
To have a more complete picture of the existing disparities, we have to add the general rural-urban differentials. In 1965, the average person employed in agriculture had an income of only 13.4 percent of that of the average employee of services, and 21.3 percent of that of the average worker.

Similar is the distribution of access to social security benefits. In 1960, only 12 percent (900,000 out of 7.7 million) of those eligible were peasants (while they formed 50 percent of the national population), and those were almost exclusively workers of the large sugar cane plantations and farmers in irrigated areas, both the most affluent groups of the agricultural labor force.

**Urbanization:**

Described differentials influence the pattern of migration and urbanization.

During the period 1900-1970, the urban population of Mexico increased from 3.9 to 28.3 million (of total population increase of 13.6 to 50.2 million). During the same period, rural population almost doubled. Its rate of growth (average 1 percent per year for 1960 to 1970) was far below that of the urban population, except for one period: 1930-1940 (the majority of which was covered by the Lazaro Cardenas administration, which conducted a major agrarian reform and directed investments into the improvement of services and infrastructure in rural areas).

The largest urban areas are the ones growing fastest. The population of the 37 largest (over 100,000 inhabitants) municipalities of 1970 was 40 percent of the 50.2 million of the total population. It was only
19 percent of the 1930 total of 17 million. Compared with the urban population only, their participation grew from 58 to 68 percent.

In 1930, Mexico City had about 33 percent of the urban population of the country, and 45 percent in 1970. In relation to the total national population, it grew from 2.5 percent in 1900 to 6 percent in 1930 and 18 percent in 1970. This present level of concentration is contrasted by rural dispersion. In 1970, 28 percent of the population (14 million) lived in localities of below 1,000 inhabitants. 8.5 million, or 17 percent, lived in localities smaller than 500 inhabitants, with no public services, and practically no non-agricultural employment opportunities.

Rural to urban migration was the principal cause of the most rapid urban growth of the 1940's, but its importance decreased in the 1950's.

In the 37 largest cities, R. Cuca found a continuation of this trend in the 1960's. Natural growth rates in those cities were below the national average but the difference was rapidly decreasing.

The growth of the three major metropolitan areas of the country (Mexico City, Monterrey and Guadalajara) was following a similar trend until 1960. During 1960, however, the majority of accounts suggest that the new increase of the contribution of migration to the growth of Mexico City, migration coming, however, predominantly from the smaller cities and towns, and not directly from rural areas. According to Luis Unikel, of Colegio de Mexico, migration contributed 68.9 percent of the total growth of the urban area of Mexico City in 1940-1950, only 38.3 percent in 1950-1960, and 43.2 percent in 1960 to 1970.
Housing:

Comparative statistics of housing quality on the national level are limited to the physical aspects only. In this respect, however, Mexico has a place far behind the number of countries with lower GNP and per capita incomes, but with usually better income distribution.\(^\text{27}\)

In addition, there is an increase in housing density. A comparison of the census data of 1950, 1960 and 1970 indicates that the growth of occupancy per dwelling rose from 4.9 persons to 5.45 and 5.85, respectively.

A number of studies have attempted to estimate the housing needs and housing demand on a national level (all of them within the "deficit of good housing units" approach). The most complete work was done in 1969 by J. Puente Leyva, and his data was used by the platform of the ruling PRI party for the last presidential elections in 1971. His estimate of housing needs (which he calls a deficit) was of over 4 million units, which he divided between a "quantitative deficit" of around 2,150 thousand and a "qualitative deficit" of about 1 million 900,000 units.

His quantitative deficit figures are based on density levels and qualitative on structural and spatial quality -- both in comparison with assumed normal, or appropriate, minimum standards (2 persons per room in urban areas and 3 per room in rural areas for qualitative deficit, and roofs, walls and floor in stable, not ruined ("no ruinoso") condition).

In order to eliminate this deficit and maintain the minimum standard of housing, Puente Leyva proposes a program for the gradual increase of housing construction with the objective of attaining this goal by 1980.\(^\text{28}\)
He divides construction needs into three categories:

(1) Construction to absorb present deficit: 4,021 thousand units between 1970 and 1980;

(2) Construction for the replacement of units becoming obsolete (depreciation: 3,998 thousand units between 1970 and 1980);


This amounts to 12,269,000 dwellings to be built between 1970 and 1980.

Simplifying the calculation and taking simple averages, this means the need to build per year over 400,000 to absorb deficit, 425,000 for new population (825,000 in total) and almost 400,000 for replacement (1,200,000 in total). The present construction rates are summarized in footnote 28.

Based on construction industry statistics, the public and private sectors were building jointly 46,900 units per year between 1964 and 1970 (12,500 public, 34,400 private) and 146,000 during the period 1971-1974 (82,000 public and 64,000 private) after the initiation of the numerous housing programs that have largely increased government investment in this field. 29

Construction by the "irregular sector", or "others," was calculated, from the difference in number of dwellings reported by the census, by P. Conolly. 25 This totaled 130,000 dwellings per year during 1964-1970 and 149,000 between 1971-1974. (See footnote 28)

In sum, construction by formal sectors covers some 11 percent of calculated need. The informal sector is building more, despite the lack
of a support system enjoyed by formal sectors.
2. **Mexico City and the Development of its Low-Income Housing System**

2.1. **Mexico City**

2.1.1. **Main stages of growth and their causes**

The entire history of the growth of Mexico City can be divided into two basic stages: moderate growth until the end of the nineteenth century and explosive growth since the beginning of the twentieth. The more exact turning point was the beginning of the Mexican Revolution in 1910.

The Mexican Revolution was particularly violent in the rural areas and small towns, and the physical hazards of living in the rural hinterland resulted in a sudden exodus to the large cities.

The effect of revolution and counter-revolution continued until the end of the 1920s. Rapid industrialization, centralizing in character, also became an important urban pull factor and continues to be so until today. The construction of numerous middle and upper class residential areas, initiated in the mid-twenties, and the consequent demand for cheap construction labor also attracted additional migration.

Since the mid-forties, the improvement of health and reduced mortality has accelerated demographic growth. This contributes directly to the natural growth of the city's population, and together with the absence of any rural modernization policies, exacerbates the rural unemployment and increases the push to the cities.

The image of Mexico City as the main center of job opportunities and education, distributed by the increasingly accessible media and education, also acts as a powerful pull factor. Migration to Mexico City
was also stimulated by an action of the U.S. authorities to reduce the emigration of braceros to the United States since the 1960s.

2.1.2. Pace and form of growth

The resulting pace of urban growth is indicated in Table 1.

TABLE 1.
POPULATION AND AREA GROWTH OF MEXICO CITY - 1524-1970

<table>
<thead>
<tr>
<th>Year</th>
<th>Area in square kilometers</th>
<th>Increase of area since the former period (in square kilometers)</th>
<th>Population in thousands</th>
<th>Increase of population since the former period (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1524</td>
<td>2.7</td>
<td></td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>1700</td>
<td>6.6</td>
<td>3.9</td>
<td>105</td>
<td>75</td>
</tr>
<tr>
<td>1800</td>
<td>10.8</td>
<td>4.2</td>
<td>137</td>
<td>32</td>
</tr>
<tr>
<td>1900</td>
<td>27.1</td>
<td>16.3</td>
<td>345</td>
<td>208</td>
</tr>
<tr>
<td>1920</td>
<td>46.4</td>
<td>19.3</td>
<td>662</td>
<td>317</td>
</tr>
<tr>
<td>1930</td>
<td>86.1</td>
<td>39.7</td>
<td>1049</td>
<td>383</td>
</tr>
<tr>
<td>1940</td>
<td>117.5</td>
<td>31.4</td>
<td>1560</td>
<td>411</td>
</tr>
<tr>
<td>1950</td>
<td>240.6</td>
<td>123.1</td>
<td>2872</td>
<td>1412</td>
</tr>
<tr>
<td>1960</td>
<td>536.6</td>
<td>296.0</td>
<td>4910</td>
<td>2028</td>
</tr>
<tr>
<td>1970</td>
<td>682.6</td>
<td>146.0</td>
<td>8567</td>
<td>3657</td>
</tr>
</tbody>
</table>

From the plan of Cortes until 1900, the city grew at a slow pace by small-scale additions of new construction on the periphery and by some intensification of land use in the center. It had its distinct low-income sections, located mainly to the east and north of the center (Zocalo).

Between 1900 and 1930, the city's population and area tripled in size, with an average annual population growth of 3.8 percent. The earlier pattern of concentric growth around the center began to change to a star form of radial corridors. The majority of the low-income population
Fig. 3. Built-up area of Mexico City in 1930. Indicated: major streets and roads, main commercial area, border line with the State of Mexico, and low-income housing areas.
at this time was located on the edge of the city, to the north and east of the center. In this period, also, the first large high-income residential developments were initiated in the form of isolated nuclei, which substantially increased the land prices between its location (Lomas de Chapultepec) and the city.

Between 1930 and 1950 the size of the urban area tripled again and the population grew almost at the same rate. The average annual population growth during this period was 5.0 percent, 3.9 percent in the 1930s, 5.9 percent in the 1940s, and 6.3 percent in 1950. Growth was still confined to the Federal District and extended both along the corridors following the main peripheral streets and roads towards the nearby small towns and by filling in the open spaces between the radial corridors. (Compare Figure 3 and Figure 4) The low-income population was still predominantly located in the east and north. With the growth of the city, the division of the low-income housing system into central and peripheral areas became apparent. From the beginning of the 1930s, the first colonias proletarias (low-income localities, the result of subdivision or invasion; also called colonias populares), including fraccionamientos populares (low-income subdivisions) began to appear. Their growth accelerated strongly in the 1940s -- again largely in the east and the north, which coincided with the location of new industry. There also appeared in the forties ciudades perdidas (shanty towns of very small rental plots on which families build their shacks) as a result of the inadequate supply of vecindades (low-cost tenements).

In the two decades prior to 1970, the city again tripled both its
size and population (representing an overall increase of twenty-four times since 1900 and an 800 percent increase since 1930), and spilled over the Federal District boundary, entering the State of Mexico, where today (1973), over one-third of the total urban area of the metropolis is located.

The annual population growth during this period averaged 5.3 percent; it was 5.4 percent in the sixties. The Federal District's population grew at a rate of 3.7 percent per year and that of the sections within the State of Mexico grew at 22 percent per year. (See Table 2 on page 63 for a detailed breakdown)

Urban growth continued to move outwards along the radial corridors, absorbing the isolated nuclei of high- and middle-income subdivisions in the State of Mexico, such as Ciudad Satelite, Arboledas, etc. This process produced dramatic land price increases in the intermediate and surrounding areas enjoying improved accessibility and proximity to services. While throughout this period new low-income housing developed all around the periphery, the eastern and northern sections of the city retained the majority of the low-income population.

As was the case in the high-income areas, the low-income subdivisions were predominantly located in the State of Mexico, due to the prohibition of new subdivisions within the Federal District in the mid 1950s under the "regente" (mayor), Uruchurtu. The single largest addition to the low-income housing system was Ciudad Netzahualcoyotl, which had, with the neighboring colonias, a population of almost one million people. The major growth corridors, all located in the State of Mexico
Fig. 4. Built-up area of Mexico City in 1950. Indicated: major streets and roads, main commercial areas, and border line with the State of Mexico, and low-income housing areas.
Fig. 5. Built-up area of Mexico City in 1973. Indicated: major streets and roads, main commercial areas, and border line with the state of Mexico.
Fig. 6. Very low, low, and moderate-income housing areas in Mexico City in 1973.
TABLE 2.

METROPOLITAN MEXICO CITY — POPULATION GROWTH SINCE 1950 AND FORECAST UNTIL 2000

<table>
<thead>
<tr>
<th>Year</th>
<th>Metropolitan Area</th>
<th>Federal District Part of Metropolitan Area</th>
<th>State of Mexico Part of Metropolitan Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pop. in mlls.</td>
<td>Annual % growth</td>
<td>% of nat. pop.</td>
</tr>
<tr>
<td>1950</td>
<td>2.9</td>
<td>5.2</td>
<td>11.2</td>
</tr>
<tr>
<td>1960</td>
<td>4.9</td>
<td>5.4</td>
<td>14.2</td>
</tr>
<tr>
<td>1970</td>
<td>8.5</td>
<td>4.5</td>
<td>17.8</td>
</tr>
<tr>
<td>1975</td>
<td>10.7</td>
<td>4.5</td>
<td>18.7</td>
</tr>
<tr>
<td>1980</td>
<td>13.3</td>
<td>4.5</td>
<td>19.9</td>
</tr>
<tr>
<td>1990</td>
<td>19.4</td>
<td>3.7</td>
<td>21.0</td>
</tr>
<tr>
<td>2000</td>
<td>27.1</td>
<td>3.4</td>
<td>21.1</td>
</tr>
</tbody>
</table>
during this period were: of Ecatepec, towards the north; of Netzahualcoyotl, towards the east; of Naucalpan, Tlanepantla, and Atizapan, towards the northwest. Less important were the following corridors within the Federal District: of Ixtapalapa and Tulyehualco, towards the east and southeast; of Tlalpan and Xochimilco, towards the south; of Pedregal - Contreras - Padierna, towards the southwest; of Bosques de Las Lomas - Tecamachalco - Herradura, towards the west (partly within the State of Mexico).

The low-income peripheral areas in the Federal District contained a much higher proportion of squatters than in the State of Mexico, due to the prohibition of legal subdivisions. During the period 1950-1970, with a total city area growth of approximately 300 percent, a growth of industries of approximately 500 percent, public green areas expanded by only 200 percent (thereby being reduced from 4 to 3 percent of the total urban area).

The low-income housing, which according to census data covered approximately 40 percent of the city in 1950, increased to approximately 65 percent in 1970. Middle-class housing, which occupied 25 percent of the city in 1950, now covers only 12 percent, while the proportion of upper-income residential areas was relatively reduced from 17 to 8 percent.

2.1.3. The present situation and problems of further growth

The Federal District (DF) alone (there is still little aggregate data about the metropolitan area available) has an area of 1,499 square kilometers. It has 18 percent of the national population, receives 50
percent of all annual investments and 60 percent of the financing in the country. In 1970, its population of 6.8 million consumed daily: 2 million kilowatts of electric power, 8,000 cubic meters of gasoline, and 1,890 tons of gas. The consumption of water was 33 cubic meters per second.

Even if present growth forecasts predict 27 to 30 million people in metropolitan Mexico City by the end of the century (14 million of them in the DF) and the DF Master Plan Office calculates the territorial capacity limits of the Federal District to be only approximately 22 million people, there are other important natural resource limitations upon further growth.

The shortage of drinking water and clean air is rapidly increasing, and overstepping these thresholds becomes increasingly costly. Thirteen million inhabitants within the metropolitan area in 1960 will require 60 cubic meters of water per second. To provide the additional 25 cubic meters (present production is 35 cubic meters) the federal government organized a two-stage program, initiated in 1971. The first stage, up to 1975, will use the wells located within a radius of 15 to 70 kilometers from the city center and will give an additional 15.5 cubic meters. The cost of construction will be 180 million dollars (2,250 million pesos, 50 percent of which is derived from a World Bank loan). The second stage of the program will add, up to 1980, another 11.3 cubic meters per second (no data on costs). The new wells are also lowering the ground water table and changing the surrounding agricultural areas into a dusty desert. The demand for water for 1980 will be satisfied, but the lack of rivers and the high altitude of the city makes the provision of it for
further growth increasingly costly.

Mexico City did not suffer unduly from air pollution prior to 1968, but since that date it has increased very rapidly and in the summer of 1973, surpassed the Los Angeles smog level. Important factors that aggravate the situation are the mountain ring surrounding the city and its high elevation, so that winds are prevented from removing the polluted air.

Sixty percent of the smog is produced by nearly 1 million automobiles and buses, which send 5,850 tons of pollutant into the atmosphere daily; 35 percent is produced by the more than 30,000 factories of various sizes and types; and 5 percent is produced by the dust from eroded land (such as the old lake bed of Texcoco). There are about 400 new cars registered every day in the metropolitan area and gigantic investments in a new superhighway inner-ring, compared with rather small subway (metro) extension projects. This demonstrates a stronger emphasis on individual rather than on public transportation. Anti-pollution standards for industries do exist, but their enforcement is difficult and only 12.5 percent comply with them. The pollution provokes an alarming level of respiratory diseases in great sections of the population. The highest levels of air pollution are in the center, north and east of the city, where the majority of the low-income population is located. The Ciudad Netzahualcoyotl area on the east suffers relatively low pollution from internal combustion and industry, but very high pollution from the dust of the dry, salty lake bed (over 50 percent of children's deaths and 25 percent of those of adults in this area are the result of bronchopneu-
monia and allied diseases, which are directly caused by air pollution. 39

Another important ecological problem is the sinking of the entire central city. It has changed the sewage system from gravity-based permanent to "provisional," run by electric pumps. A new deep sewage system is under construction.

Nevertheless, the Mexico City metropolitan area population is continuing to grow. Estimates of the population increase rate in the metropolitan area vary, depending on where the limits of the metropolitan area are defined. All current estimates known to me are over 450,000 people per year, and the highest (PRI pre-election information materials on Mexico City in 1976) cite "near to 1 million."

The unemployment in the Federal District and the surrounding State of Mexico is rapidly growing. In the State of Mexico the population doubled in ten years from 1.9 million in 1960 to 3.8 million in 1970. Its labor force also doubled, from 595,000 to 1,273,000. Unemployment, however, has increased twice as quickly. In 1960, 14 percent of the labor force was unemployed; in 1970, 28 percent was unemployed. 40 In the Federal District during the last ten years, unemployment increased 154 percent, while the economically active population increased 21 percent. 41 The absolute numbers are still not very high, around 8 percent of the economically active population, but they include only those registered as unemployed with the government agency. More complete numbers are not available, but the relative increase of this "official unemployment" is also indicative.

At the same time, the official data of housing conditions are
equally alarming. According to the government commission preparing new building codes (reglamento de construccion) in 1973, 875,000 housing units in the DF (70 percent of the total of 1,250,000) were classified as uninhabitable and unsafe ("se encuentran en condiciones de inhabilidad y carecen de ciertos aspectos de seguridad"). One should definitely question the criteria of such an evaluation, as the standards are, for the majority of the low-income population, not the most important aspect of a housing solution (compared with cost, location, or form of tenure). However, concerning physical condition only, the data do serve as a useful indicator. According to the same source, about 60 percent of the DF population -- 4 million of the inhabitants of the proletarian areas of the DF -- lack municipal services. The percentages of the population lacking services are comparable, or higher, in the peripheral areas within the State of Mexico, like Naucalpan, Tlalnepantla, Atizapan, Texcoco or Ecatepec.

The growth of the city also increases the commuting distances to work. In the large areas of the low-income urbanization of the 1960s, such as Ecatepec, Netzahualcoyotl, or Champaña, a four-hour-a-day journey to work is not uncommon. Calzada Ignacio Zaragoza is the only large street connection for over a million low-income people located on the eastern corridor of the city. Also, deficient are the connections between the north and northeast areas and the center, which in this instance affects also higher-income populations. This situation will, however, be improved by a series of new arteries, at present under construction, which will connect the northern residential areas with the DF.
2.2. Development of the Low-Income Housing System

2.2.1. Low-income situations and paths in the pre-metropolitan period

In the period of 1935 to 1955, Mexico City grew from 1.5 to 4 million. By the end of this period, over 50 percent of the urban area was covered by low-income housing and the percentage of the population which was low-income was similar.

The majority of the new population were migrants coming from rural areas and smaller cities, and they lived predominantly in two types of housing (supply sets) that had been initiated in the earlier periods of slow immigration (see Fig. 7a): rooms or low-cost apartments in center city tenements (one- or two-storey courtyard structures with a large number of small apartments or rooms, usually with communal facilities. They were either built for profit or were subdivided townhouses vacated by the well-to-do families who had moved to the suburbs.), and plots in peripheral low-income subdivisions. The large majority of the low-income families migrating to the city during this period took up residence in the cheap central city tenements. They were usually young, with expectations of socio-economic mobility in the city. The more successful ones quickly learned urban skills and slowly acquired better jobs, accumulating savings. This almost invariably coincided with the process of family growth.

The most common next move of these families was to the low-income subdivisions on the periphery. A percentage of them, however, decided to remain in the center and to move to the better quality tenements when it became possible. The group that remained in the center were
migrants who usually had experienced less socio-economic mobility. None- theless, they changed their tenements, looking for the "best deal."

The third main group of the low-income population was comprised of people who were born in the city center tenements (many being the children of parents who had come to the city and did not experience upward mobility, as noted above), but who were, themselves, often experiencing high upward mobility.

There were practically no families that began their urban experience in the peripheral low-income subdivisions, colonias populares, as almost all of the migrants moved directly to the center, the peripheral colonias populares being a relatively new phenomenon.

Exceptions to the above itineraries were some persons who had relatives or friends in the city and whose residence was their first urban location, or persons who came to agreed-upon jobs and did not need access to the diversified market of low-skill employment. House servants and night guards were typical examples of this category. The percentage of these is increasing with the growth of the city, increase of its low-income population and a certain dispersion of the low-skill job market.

2.2.2. Basic low-income housing system

As the majority of migrants moved to the inner-city tenements, this one of the two basic submarkets (of the general low-income housing system) experienced a dramatic growth, and the population rose to 1.0 million people, or over 30 percent of the city's population at the beginning of the 1950s.
Fig. 7a.
Diagrammatic section of Mexico City, indicating the predominant residential itineraries in the pre-metropolitan period, 1935-1955.

Fig. 7b.
Diagrammatic section of metropolitan Mexico City as it appears today, indicating the predominant itineraries of the low-income families.
Fig. 8 (a) and (b), and Fig. 9 (a) and (b)

Explanatory notes:

1. The residential itinerary indicates the sequence of family residences in respect to their position in the city.

Legend:

- **PR** = Province
- **C** = Center
- **I** = Intermediate ring
- **P** = Periphery

Example:

```
P
  C
PR
```

means that the family has arrived from the province (PR) to the center of the city (C). Its next residential move was from the center to the periphery (P).

2. Socio-economic mobility is defined in terms of the achievement of higher occupational status (along the scale: unskilled, semi-skilled, skilled, professional-managerial), and the increase of real income (real value of income in constant prices, multiplied by the coefficient of the employment stability).

Legend:

- **→** Downwardly mobile
- **→** Non-mobile
- **→** Upwardly mobile

3. **Source:**

Sample of 207 interviews in 16 localities conducted in the summer of 1972, modified (in cases marked by * on the base of three samples of the total twenty-one localities studied in 1973 and 1974).
Fig. 8. Approximate proportional distribution of the users of the low-income housing system by type of geographic trajectory and by socio-economic mobility. (See explanatory notes on page 72)
Approximate proportional distribution of the users of the low-income housing system by occupational status and socio-economic mobility. (See explanatory notes 2 and 3 on page 72)
By 1940, the large zona tugurial or herradura de tugurias had been established, due to the expansion of the existing low-income sections of the city to the east and north of the historic center. A large proportion of the new low-cost tenements, popularly called vecindades, was built in those zones to meet the rapidly growing demand.

The growth of the peripheral low-income subdivisions was even more dramatic. The first colonia proletaria (Colonia Agricola Oriental) had existed near the airport since 1922, but this type of settlement did not exceed, before 1930, 25-30 small clusters of population, representing approximately 30,000 people in total (3 percent of the city population). By 1940, the colonias proletarias (or populares) had grown to 100,000 people, in 1950 to 400,000, and in 1955 to 750,000.

The system as described above worked reasonably well for the low-income population (the users) and for the other sectors of the society. The cheap, lower quality vecindades served well both the newly-arrived migrants, called by Turner "bridgeheaders," and the economically non-mobile lower strata of the low-income population.

For the bridgeheaders, who initially did not have urban skills, the vecindades offered easy access to the diversified unskilled employment opportunities of the city center. The individual saved on money and time of traveling to work, and could take advantage of all the local informal information networks about existing opportunities. The wife and children could also earn some money by washing clothing, cleaning shops, or apartments, or as street vendors. The costs of subsistence, food or clothing, were also lower in the city center markets. Rent
was the most convenient type of tenure, as the family did not need to have savings to invest in the property and needed to be able to easily change their residence, if the new job, or sometimes new family conditions, required it. The physical conditions of the shelter were primitive by the developed countries' present standards, but far better (more square meters per capita, less persons per wc and between, better maintained structures, etc. -- see section II.1.1., vecindades, for more detail) than the high majority of the present city center low-income accommodations. The current costs (rent and utilities) were proportional to the value of the services and relatively low, which, for a family making its first steps in the city (looking for opportunity), was far more important than the standard for shelter.

Those characteristics of the cheap vecindades also met the demand of the non-mobile population of this subsystem, and the possibility of finding a better quality apartment, often within the same vecindad, provided for the demand of upwardly mobile families who preferred to remain in the center of the city.

Until the mid-forties, the profitability of building new tenements (vecindades) assured an adequate supply, which together with still relatively slow immigration rates, kept them not overcrowded and at a reasonable price level for renters. The construction of new vecindades had positive multiplier effects in the construction and related industries. The well functioning subsystem was helping the upward mobility of the poor and facilitating their transition from odd job occupiers using urban services into regular income tax payers. Taxes paid by the
owners of the vecindades were paying the costs of urban services provided and increasing the city tax base.

Peripheral colonias proletarias (or populares), more recently also called fraccionamientos populares (popular subdivisions), were successfully satisfying the needs of the second group of low-income population, whom John Turner called "consolidators." Possessing some savings, they could best improve their security through tenure by becoming owners of their lots and houses. In the case of a loss of job, the owned lot, even with the most primitive shack, is much better than the rented house or apartment, which one can lose because of the default of payments. Ownership also provided the possibility of incremental construction and the investment of free or underemployed time in construction or improvement of the house, and the development of family equity. Incremental construction is the only form congruent with a family financial capacity that is limited by small and irregular earnings. It allows the possibility of growth and change with changes in the family composition (consolidators had usually larger families). The current costs of housing in the periphery were usually lower than in the center, limited only to service payments and maintenance. This was, however, offset by the higher subsistence and transportation-to-work costs. The investment costs were relatively high, especially during the period of payments for land, but the incremental character of construction permitted the distribution of the cost of the house over a long term. Prices of land were still not inflated, and the user who controlled the construction process saved up to 50 percent, as compared with construction industry
prices. In general, the quality of shelter which was initially poor, improved gradually at a pace permitted by the family’s financial possi-
bilities. The access to the city center was worse than from the vecin-
dades, but it was also less important, once the main income contribu-
tors had learned urban trades. In the 1930s, 1940s, and 1950s, dis-
tances were also smaller and the majority of the new industrial loca-
tions were relatively near the peripheral low-income housing areas.

The construction of these new settlements produced a new demand for construction materials and other branches of the construction in-
dustry, and subsequently, for a large range of house furnishing and ap-
pliances. It also permitted the conversion of the families into pro-
erty taxpayers, broadening the tax base of the city.

2.2.3. **Low-income situations and paths in the centralized metropolitan period**

Between 1955 and 1974, the population of the Mexico City metro-
politan area grew from 4 to over 9 million. The low-income population rose to represent 70 percent of the population of the city and its housing covered 63 to 70 percent of the city’s area. The majority of the new population are migrants from the rural areas and the smaller cities who live in one or another of the large number of housing sets (types). The number of geographic itineraries that people follow tends to become highly diversified (see Figure 7). There was also a notice-
able decrease of socio-economic upward mobility (see Figure 8).

The itinerary province -- vecindades in the center low-income sub-
division in the periphery -- the most common in the earlier period, is now reduced to an insignificantly small percentage of the population. The single most common itineraries are: a direct move from the province to the periphery; the same move via the intermediate ring; and the continued residence in the center (often with changes between the different vecindades). The new type of moves are those between the different localities at the periphery and moves from the periphery to the center, many of which are being made by people who already lived in the center and left for the periphery. One should also add to this list the most recent type of center-to-periphery itinerary -- a result of the removal of populations of the inner-city shanty towns (ciudades perdidas) and of some vecindades, to the government-built large housing projects in peripheral locations. The move from the center city tenements to the peripheral colonias was still common at the end of the 1950s and during the early 1960s. These families usually had some savings for investment in housing and were contributing to the gradual consolidation of the newly urbanized areas. In the 1960s, however, an increasing number of the new inhabitants of the colonias were coming directly from the province, without resources to invest in housing. The majority of them did not experience upward socio-economic mobility and they usually lacked any urban skills. Many of the families, not being able to afford the purchase of land, the price of which was ever-increasing, decided to squat, or to buy into the illegal subdivisions of the communal ejido areas. Some of them rent either the land or rooms in the subdivisions or squatter areas. Rental housing becomes more common in some older peripheral colo-
nias, which now constitute part of the intermediate ring, representing up to 60 percent of colonia population in colonias like Obrera, Gertrudis Sanchez and Sector Popular.45

My survey indicates that some 70 percent of the rental population of the intermediate ring are renting rooms, apartments, or houses from particular families. The remaining approximately 30 percent are living in the new, illegal vecindades. The population coming to these areas from the province then moves to the periphery, increasingly often to the illegal subdivisions or squatter areas. The majority of them are not upwardly mobile. The newer the squatter area or illegal subdivision, the shorter the average time of the urban experience of the families before moving there, and the higher the percentage of the population which arrives directly from the province.

An interesting detail of the itineraries of the last two groups (province-periphery and province-intermediate ring-periphery) is the intention of moving to the city center, which is, however, frustrated by the insufficient supply of low-cost accommodation there.

2.2.4. The breakdown of the basic system, compensatory submarkets

Explosive immigration since 1950 and rapid natural population growth increased dramatically the demand for both inexpensive rental and owner-builder plots. Government responses to this rapid population growth were all counterproductive. New building codes of the 1940s have prohibited the construction of vecindades -- the rents in old ones started to rise quickly.
The consequent move was rent freeze. This gave a strong incentive for the present tenants to continue to stay put and delay the move to the periphery. These permanent tenants were able to develop substantial savings or spend more on other things. However, this has reduced even more the supply of tenement rooms available on the market. Low-rent vecindades were also poorly maintained. Rents were often too low to pay for the repairs. More important, however, was the lack of land market controls. Its price went up so quickly that land with a rent-controlled vecindad is now valued less than vacant lots. About the only way to evict the tenants, who are protected by law, is through the collapse of the house. The other government response was urban renewal. These projects have eradicated large vecindad areas, giving practically no accommodation for their original dwellers (2-3 percent in Nonoalco, under 1 percent in Candelaria, etc.). Consequently, the number of vecindades was shrinking, while the demand for them rapidly grew.

The situation in the peripheral subdivisions is not much better. In the absence of any land market controls and a lack of appropriate taxation, land prices soared, taking from year to year a larger proportion of the savings of the new owner-builders, and leaving less for construction materials and labor. Zoning and subdivision standards excluded the poor from better areas even more than the prices. Building codes required costly plans and complicated permit procedures. They were also completely inappropriate for incremental construction, requiring the completion of the unit before occupation, and separate plans and permits for every change and addition. Increases in prices and periodic shortages of
building materials were also hitting the poor strongest, as they were always last in the line, and with the least elastic budgets. The delay in installation of utilities and services was responsible for poor sanitary conditions, higher living costs, and discomforts.

In sum, neither basic submarket was now serving the needs of the lower-income populations. Low-income families were suffering dysfunctions and diseconomies, if they had one of these housing types (except for the subsidized dwellers of the rent-controlled vecindades), or they could not get it, due to the scarcities and resulting inflated prices.

To compensate for the scarcity of those two basic options, households looked for other solutions and squatting was the only feasible answer for the poorest. There are two very distinct types of squatters: the ones with rental-type demand and those with property-type demand.

The first group ("infill squatters") built small enclaves of shacks in the inner-ring of the city, close to the railroad lines, under the bridges, near public buildings, on public or other vacant plots. It was their "second best choice," being unable to pay the market price for the vecindades, or to get into the rent-controlled ones. We can find, also, some of them in the periphery, near their work places. "Pepenedores" -- rag pickers -- living off and in city garbage dumps are such a case. In the periphery, there are also many squatters with a clear need for centrally located housing, who, unable to pay the rents of find the place to squat near the center, have to move out to the fringe. Far from any employment opportunities, they remain among the poorest of the poor.

The second group are the would-be owner-builders, unable to pay
present land prices, invading the land on the periphery. They choose the locations where their chance of future tenure legalization is the best. Their main costs were in the insecurity of tenure, with a danger of losing all the investment in their dwelling if the settlement were eradicated. Illegal subdivisions of the community-owned "ejido" land, the most informal kind of commercial land supply, were less risky. The peasants, who had the exclusive, but not alienable, right of use were subdividing and selling the farmland that legally belonged to the nation. As a rule, the buyers finally (in 5 to 15 years) got formal titles. In both cases, however, the squatter and farmer ejido areas, families were suffering from a lack of basic utilities and services until the time when land titles became legalized.

Successful invasions and ejido subdivisions were possible only on the land not usable for higher-income groups, due to its particularly difficult environmental conditions, poor accessibility, and so forth. The lack of tenure security, especially in the squatter areas, discouraged families' investment in dwellings. On the other hand, however, the fact that the whole process was outside the law facilitated incremental construction; building codes were not enforced in the areas that officially were non-existent.

The informal commercial response to the lack of a rental supply is the rent of a room, apartment, or house by families in the older colonias. However, construction costs, complicated permits, and the lack of credits have also reduced the rate of new construction for rent. Demand is the highest for single rooms and small, inexpensive apartments — the closest
substitutions for vecindad dwellings. Their scarcity is the greatest, and the rents relatively the highest.

Illegal land subdivisions, by the true owners of land, but not complying with regulations, were the commercial response to the unviability of the open market. The land bought in this way was relatively safest, but the prices were also highest.

The response of the commercial sector to the prohibition of constructing new vecindades was the growth of the so-called "ciudades perdidas" — the shanty towns on the usually small vacant plots, often invisible from the streets, located in the center of the typical city block. There, the owners would rent very small plots on which to build shacks. The price of such a plot, say 10-20 square meters, was well above the rent for a dwelling in the rent-controlled vecindad, and approximate to the economic rent for a vecindad room. The profits of owners were very high (up to a 100 percent interest on the capital value of land every year), but even so, the users were at least close to jobs and cheap markets. They overpaid the value of their housing, but the absolute amount they paid was still lower than any other housing, except squatting.

Illegal vecindades are built in the periphery, as the building codes are not so strictly enforced there. Being far from the center, they do not provide good access to work for most users. However, they easily find renters because of the scarcity of rental units, in general.

Finally, there is direct construction offered by government institutions, resulting mostly in the British or Swedish types of housing
projects -- islands in the sea of incrementally-built low-income housing. The quality of dwellings provided by these projects is negligible, in comparison with what people, themselves, build. Besides, the beneficiaries of the projects can be divided into two broad categories. The majority are families who should not be subsidized, as they may well afford to pay the commercial prices, or at least, build incrementally without any subsidy. Smaller groups are households, for whom even the subsidized price is over their financial possibilities if they are to nourish themselves properly, educate children, etc. Those families very often do not have stable jobs and the mortgage sale system is completely inappropriate for their economy. This group of families is present only in the newer projects and these, all except one, are far from their job markets in the center or intermediate ring of the city.

In addition, project construction produced an inflation of the prices of surrounding land, and periodic shortages of building materials with consequent price increases. The poor had to pay the cost. Forced savings for projects have also affected the informal market of construction credits that many poor have used.

3. Spatial Pattern of the Low-income Housing System

Analysis of the evolution of the spatial pattern of the low-income housing system demonstrates how the housing supply was adjusting to the changing needs of the users. This adaptability is now greatly limited by the breakdown of the housing system described in the preceding section.

In present-day metropolitan Mexico City, the low-income area of the
periphery of 1920-1930, the horseshoe around the historic city center, is almost exclusively covered by vecindades and low-cost rental apartments. Those two types of housing are also the only supply available there for new households. Initiated as predominantly owner-occupied and owner-built low-cost family housing, this area went through the stages of gradual densification and increasing proportion of rental units.

In the outer periphery, 30 more kilometers from the center, almost all low-income housing consists of owner-built and owner occupied dwellings in the process of construction, on land of varying degrees of tenure legality and security. There are practically no renters.

Between those two extremes, we can see a range of development stages; in many cases, the completion of the initial family dwelling was followed by the construction of additional rooms for rental. Next, some families built secondary houses for rent, or rented their own initial temporary dwelling, after having moved to the permanent one built next to it.

The following stage may take two forms:

If the area was located near the concentration of the low-skill employment opportunities, the first vecindades were built. Then, with time, the proportion of vecindades was increased at the expense of owner-occupied housing and of the other forms of rental.

If, however, it is next to a middle-income residential district, with good transportation and attractive environmental quality, the construction of apartments for rent was more likely. Very often, such areas were also subject to a rapid improvement of all the housing stock, but
mostly by the middle-class buying land around the time of tenure legali-
zation and not by the original settlers.

This housing system adjusted rapidly to the city's growth, its social and economic change, and to the subsequent changes in housing de-
mand. The diversity of specific housing sets (location, tenure, physi-
cal quality, cost, etc.) was unlimited, as thousands of suppliers, at thousands of locations, with an endless variety of housing types are not uniformized by any central program. What was supplied could be also easily altered: an unbuilt, unserviced plot could be serviced and/or built upon, a room could be converted into part of an apartment, an apartment could be subdivided into rooms, and so on. Rent, lease, or sale and the terms of each were also flexible. Also, families building for themselves, and later, for rental could adjust the type and pace of construction to their changing needs and possibilities.

This basic or "natural" low-income housing system resulted, in spatial terms, in a sequence of rings, or partial rings, with different and changing mixes of housing types (sets).

The discussion over intra-urban distribution and the typologies of low-income housing areas has its own history, linked closely with the discussion of migrant reception areas and of the intra-city migration patterns.

It starts with the concept of the uniform peripheral slum, located "outside the city," an idea prevalent until the '60s, but even now shared by some researchers and many policy makers. The center-periphery model, distinguishing two basic functional types of low-income housing
areas was developed by Turner in the '60s on the basis of his studies in Lima, Peru. Its generalization, identifying three types of areas in the larger cities -- center, intermediate ring, and periphery -- is proposed by Turner and Brown.

This three-zonal model proved to be a useful gross approximation for describing the patterns of intra-city migration on the basis of the questionnaire data from our DDF study, and of my UNAM and UIA studies. However, it is important to remember that each month, or even day, the limits of each of those three rings will be changing outwards, while yesterday's periphery is becoming today's inner-ring, and in some cases, even the central core of tomorrow.

To account for those changes, Ward, in his study of squatter settlements, uses the term past-periphery when he refers to the earlier periods of some of the present intermediate ring colonias.

In this study there will be reference to both the center-periphery and center-intermediate ring-periphery models, but always in relation to the specific moment in time.

For the purpose of describing the low-income housing areas and their changes over time, a slightly different and more complex typology of areas is suggested, dividing the low-income housing area of the city into a sequence of concentric rings, depending on their age and the corresponding level of development, based on the family interviews and the case study data. The innermost rings cover only a sector of the city, while further to the periphery, with the increasing percentage of low-income housing, the rings are more complete.
This proposal is based on the observation that the limits of the center, intermediate ring, and periphery are not only changing constantly, but also almost impossible to determine clearly in any moment. I would suggest, on the basis of data analysis, that we are dealing with a continuum of low-income housing areas going through the common development process, reflected in the common sequence of housing types (housing sets) in use, and of the ones available for new entries. 53

The complete sequence goes from an area offering de facto possession of land with no security to one offering predominantly rooms in the low-cost tenements. Field data permits the hypothesis of the following sequence of the housing solution types and their combinations (sets) offered by the area:

**Common Time Sequence of "Housing Sets" Offered**

(The order within each stage indicates the proportional importance of each housing type [set].)

1. Possession of land -- no security, no legal title
2. Possession of land, de facto security -- no legal title
3. Ownership of land
4. Ownership of land, ownership of land with house, room rental with family
5. Room rental with family, rental of land with house, ownership of land and house

(It is also possible to buy land with a house, or even land alone, in the later stages, but it constitutes only a very small percentage of
housing solutions offered in these areas.)

6. Room rental with family, rental of land with house, rental of apartments

7. Room rental with family, rental of land with house, rental of apartments, rental of room in the low-cost tenement

(In areas adjacent to the lower-skill job concentrations, low-cost tenements may appear before apartments.)

8. Low-cost tenements, rental of land with house, rental of room with family, rental of apartment

9. Low-cost tenements, rental of apartments

This observed sequence is suggested only for the continuous low-income housing areas that have developed as such. It does not apply to some parts of the historic core of the city which have become low-cost rental areas as a result of the downward filtering of once high-income residential districts. It also does not include the government projects, and small enclaves of rental shanty towns and "infill squatter areas" that will be discussed separately.

We can see a similar sequence, only with different proportions, in the distribution of sets presently in use. The spectrum will also be started by the de facto possessors only and continue through the increased intensity of rental to the other extreme, of the area constituted predominantly by low-cost tenements. The difference will be mainly in timing and in the higher proportion of ownership solutions.

For example, when the area is offering primarily the rental of
rooms with families (#5 on the above list), the predominant set presently in use will be ownership housing. Similarly, when (as in #7, above) the area is offering all kinds of rental, including the first low-cost tenements, the predominant housing solution type in use will be, most likely, room rental, and the house ownership next after it. 54

Not all areas, of course, will ever go through the whole sequence. Legal land subdivisions will never go through stage 1 and 2. At the same time, some squatter settlements or clandestine subdivisions with insecure tenure may never get beyond the second, or even the first stage, when some form of tenure security is not granted. In fact, some were eradicated at those early stages. Normally, a clandestine subdivision would start development at stage 2, and an invasion area at stage 1.

For the sake of simplicity, three less common housing supply sets will not be discussed:

- "arrimados," living with family without payment, about which it is not possible to generalize in terms of the supply of this solution for new entries, but which constitute 5 to 15 percent of the solutions in use in stages 4 and 5, and less in stages 2, 3 and 6.

- "ciudadores," watching after a piece of land, protecting it from squatters in exchange for the free use of land for housing — mostly in stages 1 to 4 on both lists.

- rental of land only (of a standard plot, as any ownership plot in the colonia) in order to build a temporary shelter, and for possible rent-purchasing in the future — a very limited number
of cases in stages 3 to 5.

The typology of the low-income housing areas also does not include, naturally, the types of low-cost housing solutions available only outside these areas, like those of live-in servants in middle- and high-income sections of the city, or of night-guards in the industrial areas (veladores).

In terms of geographic distribution, at each point in time, the more peripheral the area, the more owners; the more central the area, the more renters. The first ring around the historic center of the city, the periphery of the '20s, has passed through all the stages of the sequence, while the new clandestine subdivisions and squatter areas of the outer periphery are only in the first two stages.

Distance from the center is roughly correlated with the age of the area, with the partial exception of some areas within and located adjacent to the old suburban towns and villages, and close to the major access routes of the city, served by public transportation.

The other major factors influencing the pace of development (consolidation), besides age and related distance, are:

- proximity to other employment opportunities like neighboring industrial areas or higher-income residential areas
- present legal status and the history of land tenure legality (discussed earlier)
- environmental constraints (soil conditions, flooding, etc.)

In the period 1972-1975, during which my data was collected, the low-income housing areas could be grouped into six zones: the historic
The core of the city (center) and five concentric rings.55

- Center (including the historic core of the city, built primarily before the end of the XIX century)
- I ring -- periphery of the 1920s
- II ring -- periphery of the '30s and '40s
- III ring -- periphery of the '40s and '50s
- IV ring -- periphery of the '50s and '60s
- V ring -- periphery of the '60s and '70s

The sixth ring of the outer periphery of the 1970s and 1980s is initiating now outside the urban perimeter. Each of these zones includes a distinct mix of housing sets (in use, and in supply for new entries), of population, and consequently, of subsystems.56 Most developed or consolidated is the first ring (not counting the center, as it is a filtered-down high-income area), and least developed is the fifth and near the sixth ring. (See list and map of localities studied in Appendix B)

Over this system of concentric rings there are superimposed nodes of metropolitan subcenters, usually old, suburban towns and villages with a higher level of development than the rest of the ring. Already present in the second ring (Tacubaya), they are increasing in importance and relative autonomy from the main center as one moves outwards; in the peripheral IV, and especially V, ring they create their own concentric ring system (Naucalpan, Tlanepantla).

The other exceptions are the areas with a retarded consolidation process, primarily because of the insecurity of tenure. They are mainly
located in the third to fifth ring. The increasing diseconomies of owner-
builder construction (speculative land prices, lack of credit, too ex-
pensive building materials, etc.) are resulting in the recent increase 
of these areas.

4. Migration and the Functional Types of Low-income Housing Areas

Migration was the most important component of the growth of the 
Mexico City population. However, recently its importance has been de-
creasing in relation to natural growth (see page 51). The absolute 
number of migrants is, however, growing.

The findings presented in this chapter are based on twenty-three 
in-depth family case studies, and on a sample of 207 families in 16 lo-
calities (the first series of a total interview sample of 511).

4.1. Migration Motives

The single most important finding about migration motives is prob-
ably none of the mailies in the case studies, nor of the sample of inter-
views, decided to migrate motivated by the expectation of improving its 
housing conditions. In fact, in all the cases (of the case study sam-
ple) except one, the housing left behind in the place of origin was of 
better physical and environmental quality, and with a much higher level 
of security of tenure, than the first urban housing. It was also better 
than all the next residences for at least the first ten years of life in 
Mexico City. This finding is contrary to the numerous policy assumptions 
that improved housing conditions will invite migration. The factors that 
did cause migration were basically in two broad categories: economic
motives and family or other personal motives.

Economic motives were (classically): the pull of the city and the push from the hinterland, plus motives for selecting Mexico City. Family reasons also included the need to leave the locality of origin, and reasons for coming to Mexico City. In all the families studied, expectations of a higher socio-economic mobility were the main cause of migration. This applies also to the reasons for past migration of the parents of urban dwellers (children of migrants) from whom this information was available. Two specific expectations were: better-paid work and improved educational opportunities (principally for children).

None of the families studied expressed an attraction to the colorfulness and diversity of the urban environment and life, or other entertainment aspects, that were mentioned by various scholars who have studied the Rio Favelados ("movimiento urbano").

Mexico City was selected as a destination because of the conviction that it does offer better opportunities than any other city in the country. This conviction is the result of de facto, a much larger number of jobs in Mexico City than in any other area of the country, but probably even more, judging from case studies, it is the consequence of the image distributed by the mass media and by school education.

Another important, but secondary, reason for selecting Mexico City was the presence of relatives or friends there, with whom migrants were able to live as arrimados (see section II.2.1.)-- long-time guests without payment -- before finding a job and an independent residence. In only two cases out of twenty-three in-depth case studies (or twenty-
seven, if we include the two-generational case histories), the pull factor had an important family, personal component — getting married in Mexico City. Even in those cases, however, the expectations of mobility opportunities were more important.

The "push factors," if understood in the most general terms, as the relative lack of opportunities in the region of origin, were present in all cases. On the other hand, however, only six families had specific reasons to leave their place of origin. These were family -- or community problems with economic consequences or (in one case) caused by economic factors.57

The other recent studies58 support the hypothesis that the principal migration motives were economic, primarily the search for better paid work.

4.2. Outmigration Potential

An analysis of the possibility of outmigration from Mexico City to the places of origin or to other regions of the Republic indicated a potential higher than was initially expected on the basis of other studies. In the early stages of urbanization, in which we now find some African countries, the migrants with clear intentions to return to the place of origin and investing there their earnings from the city, are in the majority. (See Patel; Racki and Racki; Nairobi study) There is, in fact, in those countries an important flow of return migration. With time, however, when the urbanization process progresses, it diminishes substantially, and is expected to finally lose its importance completely.

The data of my study suggests that even in Mexico, which is over 50 percent urbanized, and with a post-metropolitan (changing into conurbation)
capital region, return migration, or out-migration in general, is an important factor, which may have useful policy implications.

As one would expect, the family case studies and the family interviews have shown that migrants come to the city with two possible motivations: to establish themselves there permanently, or only to earn some money that will improve their life in the rural area.

The second group divides into two very distinct types. In the first, entire families, usually young and nuclear, come to the city hoping to "make it" there, and then to return to the village of origin, after a number of years. They, most commonly, do not plan to return to agriculture, but hope to establish some service business or local shop. Case #7, the newsboy's family, presumably living in the rental shanty town La Marranera, planned it from the very beginning, but the probability of his doing it decreases with time as the family income remains low. The family of case #19, of Ezequiel Z., experienced the most rapid income mobility in the sample of case studies. At the time of the last interviews, they were the freeholders of the house with utilities on the only asphalted street in the colonia, San Rafael Chamapa. The father had a permanent, well paid supervising job in the factory in the metropolitan subcenter 6 km away, to which he used to commute by a taxi shared with three neighbors, and the mother ran a small clothing store at home. Their next step was to sell out and return to the village of origin to buy a house, land and open a store there. As with the other observations, I do not have the statistical data to discuss the frequency of such cases. Some indication may be found in the results of interviews done by my UNAM students in the colonia Olivar del Conde (legalized clandestine subdivision), where two families
out of twenty are planning to save enough in order to return to the vil-

age of origin. One of them said explicitly that they would like to be
able to open some business there. The other was not so specific. Both
envision the road towards it through the improvement of their presently
owned house and the subsequent sale, in which they hope to cash in on
their "sweat-equity." Most families in this group are, however, less
successful than Ezequiel and never get to the point of saving enough to
go back, or achieve the goal after such a long time that, in the meantime,
new urban roots have become stronger and they decide to stay.

A different type is represented by the family of Seledonio (case
#17) in San Rafael Chamapa. This initial behavior was identical to that
of braceros in the United States. (In fact, as mentioned earlier, the
limitation of bracero migration to the U.S. has spurred the migration to
Mexico City.) Seledonio came to the city alone, and he never intended to
stay and bring the family; he also did not lease for any permanent accom-
modation, satisfied in the low-cost tenement close to work. All the sav-
ings he invested in new cows, improvement of the rural house, etc. His
new prosperity, however, resulted in the envy of other families in the
village and produced frictions that have forced him to leave for good.

Among the families who decided from the beginning to stay in the
city as well as in the group of "long-term planners" oriented towards a
return to the country, I have found a number of temporary returns after an
initially unsuccessful start in the city. In the twenty-five in-depth case
studies, four cases were found of a temporary return to the country by the
family or some of its members as a result of some setback in their urban
life (cases #5, 7, 18, 22).
Maybe the most important finding in policy terms is that a number of families, 15 to 25 percent of those interviewed in the peripheral colonias, old and new, like Gertrudis Sanchez (3 out of 12), Metzahualcoyotl (4 out of 18), Ecatepec (4 out of 20), etc., express the wish to return to the hinterland (not always necessarily to the place of origin) if they would have economic opportunities better there than in the present situation. Ten to 15 percent of the families of the ciudades perdidas of La Marranera and San Pedro Xalpa expressed a similar wish. They are motivated by economic opportunities far less than expected, and also (especially in Netzahualcoyotl) by very bad environmental conditions (dust in winter and mud in summer, little sunshine, no vegetation, etc.)

A number of families, of all strata, from the very poor to those with a moderate income, actually own houses and land in the country. They are often rented and provide additional income. (Case #6 and case #14 of my in-depth case studies sample are such examples.) Also, a number of family interviews report such a situation. However, I did not find any indication of a correlation between the property in the hinterland and desire to return there.

These observations, together with information about migration motives (1.4.1), suggest the possibility of reducing migration and guiding it to other centers, under the conditions that the opportunities offered by those other centers will be better than those in the capital city.

On the other hand, the majority of migrants have friends or relatives in the city and they are their main information source about the existing opportunities. Consequently, any intent to direct the migration to new centers requires not only the creation of opportunities there, but
also, information about them that could compete with all the private and mass media information about Mexico City.

4.3. Reception Areas and Their Change Over Time

Migrant reception areas are probably one of the most studied and discussed aspects of the low-income housing systems. In most of the studies, an analysis of the location of these areas does not discriminate between different kinds of migrants. In order to understand the pattern of reception areas, it is necessary to distinguish between two types of migrants: those who do not have any relatives or friends in the city, and those who do have such contacts and can count on accommodation and help in finding employment. The first ones are always looking for low-cost rental accommodations near to the concentrations of the low-skill employment opportunities and low-cost markets. The second go to live with their friends and relatives.

In Mexico City until the mid 1950s, the historical center of the city and the immediately adjacent low-income housing areas played the role of the main migrant reception area. Two factors explain this: first, it was practically the only concentration of low-skill jobs and inexpensive markets in the city. Secondly, here, the majority of the city's low-income population lived. Consequently, both types of migrants, the footloose ones and ones with contacts, were aiming at the same area.

The few migrants who arrived to other parts of the city always came to friends or relatives and usually had local employment arranged before the arrival. With the growth of the city, and the rapid increase of its low-income population, the number of migrants with contacts was growing.
Since the 1950s, I observed two principal changes of the reception areas, related to the two types of migrants. The first residences of migrants, who have friends or relatives in the city, are becoming more dispersed. This dispersion closely follows the new distribution of the resident low-income population. This change seems to be (except for the newest settlements, where the relatives, not established yet themselves, cannot offer much help) simply a consequence of the city's growth and the rapid increase of the low-income population in the periphery (initially as a result of the intra-urban migration from the center towards the periphery). The reception areas of migrants without contacts in the city are divided into two groups: localities within the intermediate ring of the city, very near to the old traditional reception areas in the center; and the new metropolitan subcenters in the periphery. Some, but very few, footloose migrants also began to arrive at the more dispersed locations in the periphery.

These changes seem to be caused by two major factors. The most important is a shortage of low-cost rental accommodations in and near the city center. The shortage is also growing in the subcenters. The second factor is the development of some low-skill employment opportunities in the new subcenters and even some older, more consolidated low-income areas.

As the proportion of new urban families is increasing, problems of their start or the "take off" of their socio-economic trajectory are growing more important. My observation was that their situation is very similar to that of migrants with contacts. The housing of new urban couples is, usually, with or near the residences of their parents or other relatives.
There is no existing information about the proportion of migrants with and without contacts in Mexico City. Of the twenty-three migrant families in thirty case studies, thirteen arrived directly at the housing of their relatives or friends (their urban contacts). In the sample of sixteen localities studied in 1972 (207 families, 16 of which were of urban origin), more than half arrived at their urban contacts. In both cases, the frequency of migrants going to their contacts is growing with time and the proportion of footloose migrants is decreasing. 60

Among my family interviews, I have complete data on the migrant reception areas only in the initial sample of interviews conducted in the summer of 1972 (207 families in 16 localities). The distribution of these families in relation to data of migration, and the distance of the place of the first residence from the city center is summarized in Table 4, (a) and (b). Dividing the city into only three rings that cover 0-3 km, 3-9 km, and 9-18 km from the center, we can clearly see the outward movement of the reception areas toward the periphery through the intermediate ring.

Division into six rings permits us to see the continuity of the reception areas, their relative outward movement, and their subsequent division into central and peripheral. According to my hypothesis, already mentioned, this change was caused by the growing proportion of migrants with contacts in the periphery, the decreasing supply of cheap rental housing in the center, and the growth of the metropolitan subcenters. Taking into consideration all the new families, both migrants and urbanites, we are getting a much more uniform distribution of first residences, in agreement with the hypothesis that the initial housing location of new urban
families is more dispersed, following the present distribution of the low-income population. Table 3 (a) and (b) summarizes these findings and Fig. 10 indicates the actual distribution.

These general hypotheses of the change of the reception areas are confirmed by more detailed analysis — locality by locality — which indicates that the old center and the "herradura de tugurios" (horseshoe of slums) were the main reception areas until the early 1950s, and lost this function thereafter.

Out of twelve migrant families interviewed in the "Primer Cuadro" historic center, eleven arrived from the province directly to the "Primer Cuadro," or other localities in the center, an average of thirty-four years ago. Data of the COPEVI studies in Tomatlan and Candelaria of the old "herradura de tugurios" indicates its important reception function until twenty years ago, and then its gradual reduction until today. Of the ten migrants interviewed in my sample of colonia Guerrero (also in the "herradura") five entered the city through the central areas (including colonia Guerrero, itself), four of them between 1920 and 1950, and one in 1970. Five others arrived initially in the old colonies of the present intermediate ring between 1950 and 1958. In Colonia Obrera, in the periphery of the 1930s (present intermediate ring), the average time of the residence of the present owners interviewed was twenty-four years, and almost all entered the city through the central areas. Next, they moved to their present residences.

Interviews in the colonias proletarias of the periphery of the 1960s and 1970s show a clear regularity of times and locations of arrival to the city by its present residents. Among the eighteen migrants inter-
### Distance from the city center

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**TABLE 3.**

DISTRIBUTION OF THE FIRST RESIDENCES BY DISTANCE FROM THE CITY CENTER AND YEAR OF ARRIVAL (MIGRANTS AND NON-MIGRANTS)
### TABLE 4.

**DISTRIBUTION OF MIGRANTS IN THE RECEPTION AREAS BY DISTANCE FROM THE CITY CENTER AND YEAR OF ARRIVAL**

<table>
<thead>
<tr>
<th>Distance from the city center</th>
<th>18Km</th>
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<tr>
<td>(b)</td>
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<td></td>
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<tr>
<td>21Km</td>
<td></td>
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<tr>
<td>1910</td>
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<td>O</td>
</tr>
<tr>
<td>1920</td>
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<td>1940</td>
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<tr>
<td>1980</td>
<td>O</td>
<td>O</td>
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</tbody>
</table>
Fig. 10. Distribution of first residences in Mexico City by year and distance from the center (migrants and non-migrants).
viewed in Netzahualcoyotl, five entered the city through the tenements of
the center -- all before 1956. Twelve entered through the old colonias of
the periphery of 1930 to the 1950s -- all after 1956.

In three other colonias in the periphery the following proportions of
entry were found:

- to the center, five before 1955; to the intermediate ring, four
  between 1953 and 1960; to the periphery, three after 1965.
- to the center, four before 1957; to the intermediate ring, five
  between 1957 and 1960; to the periphery, six after 1960.
- to the center, one in 1950; to the intermediate ring, sixteen be-
  tween 1949 and 1970; to the periphery, three after 1969.

There is very incomplete data about some colonias of the full sample
of thirty-seven, which makes this kind of calculation impossible. However,
in almost all, the families who entered the city through the old center
did it before 1955/56, and those who arrived to the present intermediate
ring or periphery did it later. I have found only two colonias that
partially contradicted this hypothesis. Also, in these colonias the res-
pondents who arrived through the central areas of the city did it before
1955/56. At the same time, however, I have found families with more than
thirty years of urban experience who entered the city through the peri-
phery. A more detailed study of those cases, including one in-depth family
case study, has indicated that they arrived at the present metropolitan
subcenters (at that time suburban cities), in most cases, Tlalpan and
Xochimilco.

Almost all migrants without contacts had rental housing at first.
In the earlier period, those were tenements (vecindades) and in some cases
also the rental of shanties or a piece of land on which to build one's own shanty (ciudades perdidas).

The vecindades are still the principal reception type of housing for migrants without contacts. The second in importance are rental rooms in family houses in the older colonias. As in the past, the "ciudades perdidas" receive a small proportion of migrants. Other housing types that a small proportion of migrants use as their first urban residence are: the rental of apartments and houses in the older colonias, and squatting. The majority of migrants with contacts stay at first with their families in the older colonias. The rest of them can be found in rental rooms in family houses, or renting houses in the older colonias, and also in vecindades, but in a much smaller proportion than migrants without contacts.

In sections II.1 to II.4, we shall discuss in detail the way in which each of these housing types (sets) function.

The impact of the first urban residence's location on the socio-economic mobility of the household shall be discussed in sections IV.1.2. and IV.1.3., together with the other aspects of location and their consequences. The interview data did not indicate strong locational differences between the families with different socio-economic mobility. 63

4.4. Other Functional Areas: Permanent Settlement Areas, Intermediate Residence Areas, Survival Areas

Besides the reception areas, where the newly arrived families initiate their urban history, other types of areas which perform a function in the other common situations of a family's life can be defined: permanent settlement areas, intermediate areas and survival areas. "Permanent settlement areas" are those where the families intend to stay for good to
establish a permanent residence. "Intermediate areas" are those where the families stay while saving towards a move to their permanent residences. They arrive to the intermediate areas from the reception areas. "Survival areas" are yet another functional type, distinct from the types already described. They are defined as the areas where families are merely surviving. They do not make any effort nor have any possibility to establish permanent settlement. It is not an intermediate residence, either, as they do not plan, nor have any possibility of moving elsewhere.

Many localities of the present day city perform one of these functions primarily. There are, however, ones that are intermediate areas for some families and reception areas for other families (some localities of the present intermediate ring were the periphery of the 1940s and 1950s). Their function also changes with time (the localities just mentioned were permanent settlement areas in the 1940s and 1950s), as does the supply of housing types they offer (described in section I.3 - Spatial Pattern of the Low-income Housing System.

4.4.1. Permanent settlement areas

The permanent settlement areas of low-income families have been the colonias proletarias, the low-cost subdivisions and squatter areas in the periphery. They will be discussed in detail with the ownership submarkets in sections II.3.1. and II.3.2.

Recently, since the end of the 1950s, the central areas of the city are increasingly becoming the permanent settlement areas. This seems to be, however, rather than a distortion of the system, the result of counter-incentives against the move to the periphery and of incentives to stay put
in the center (rent control) — not a characteristic of the basic system.

A small proportion of the permanent population of the center prefer to live there, not because of artificial incentives, or because of the lack of resources to move out. They usually live in apartments or the better vecindades. A very small proportion of the lower-income population find their permanent settlement in the subsidized projects built by the government housing agencies.

4.4.2. Intermediate residence areas

The intermediate areas were not very important when the city was small and had a sufficient supply of low-cost rental accommodations in the center.

Families who found a good match between their necessities and their first housing in the reception area, and found stable employment, do not generally pass through the intermediate housing — they migrate directly from the reception area to the permanent settlement area. They do it after developing sufficient savings, enabling the purchase of a plot of land and the initiation of house construction. With the present disincentives against the move to the periphery, some of these families will decide to stay in the center. They will not move to the intermediate area, either.

In Mexico City presently, the majority of families pass through the intermediate residences. The proportion of families with intermediate residences grew with the worsening of the supply of reception housing types that would match the necessities and payment capacity of the low-income population. Intermediate housing is almost always rental. The
most frequent housing types are rental rooms in family houses; next, rental apartments and houses; and sometimes, but seldom, tenements (vecindades).

The most important intermediate areas are the colonias proletarias (low-income subdivisions) in the periphery of the 1930s and 1940s -- now the intermediate ring. No intermediate area less than ten years old was found.

The functioning of intermediate housing is very important, both for migrants and for the families of urban origin, influencing their possibility of savings and the subsequent investment in their own permanent housing. At the same time, the most common type of intermediate housing, rental rooms in the individual houses, belong to the most expensive, in relation to the value of the services received, types of low-income housing.

4.4.3. Survival areas

"Survival areas" and their housing types are less continuous and more difficult to define. Some reception areas and also some intermediate areas have concentrations of population with downward mobility and without expectations. A part of the population (a minor part) of the most ruinous tenements with frozen rents and of some shanty towns have such characteristics. In some of the squatter areas, some proportion of families can be found in that situation. Some very low-income families with no, or negative, socio-economic mobility can also be found as guards (ciudadores) of vacant plots in some low-income subdivisions.

Because of their extremely low incomes, the economy of these families
is most sensitive to any sudden changes. Their survival, and the potential of improving the situation in the future, depends on access to job opportunities or to subsistence agriculture.

As I shall point out later, present government policies are precisely taking away both these possibilities.
II

SUBMARKETS OF THE PRESENT LOW INCOME HOUSING SYSTEM
1. **Rental Submarkets**

There is very little known about rental housing in the developing countries and Mexico is no exception. Being primarily reception and intermediate housing (see sec. I.4.4.) rental sets serve populations with shorter urban experience, younger, and poorer than those served by the property sets. Because of the users' high priority for proximity to employment, rental housing is more concentrated around the employment centers. As offered in the later stages of development of a given low income locality, and as a result of its densification, rental housing is located primarily in denser and older areas.

In short, the proportion of rental supply in a given locality will increase with:

- age of the locality;
- time since the legalization of land tenure in the locality;
- proximity to the centers of low skill employment opportunities and cheap markets
- volume and diversity of employment opportunities in the locality and proximity of any employment in general;
- quality of public transportation

Prices of rent increase in relation to the quality of the shelter and the proximity to employment centers.

A room in the casa de vecindad (low cost tenement) used to be the most common low cost rental housing type (set) until recently. A rental
room, apartment and house existed as an option when (before 1945) the new vecindades were still under construction. However, since the prohibition of constructing new vecindades the importance of rental rooms, apartments, and houses is increasing. Their supply was smaller than that of vecindades in the 1940's and '50's and has surpassed it in the '70s.

The other principle type of low income rental housing are the so-called ciudades perdidas or rental shanty towns.

1.1. Low Cost Tenements - Vecindades.

1.1.1. Definition, Number, and Location:

The vecindad is one of the most numerous, and certainly, the best known type of low income housing in Mexico City (see case studies 1-6, Appendix D). It is the Mexican version of the same kind of tenement that is called conventillo in Argentina and Chile, meson in El Salvador or inquilinato in Columbia. Unlike other types of low income housing, the vecindades have been little studied in the past - by architects and anthropologists. A typical vecindad consists of 3 to 200, or more, rooms or small apartments grouped in one or two stories around an open patio. Some of the apartments may have their own sanitary installations, but the majority share communal utilities located at one of the ends of the patio, or corridor. This semi-private open space gives the pedestrian access into the street. The largest vecindades may have two, or more patios with access from various streets. Towards the periphery the vecindades are small and often with the owner living on the premises. The continuous areas of the old vecindades are located in and around the historical center of the city. In these areas we can find the largest vecindades and the most concentrated ownership.
Street in the historic center of the city. Many of the houses in these streets are the old mansions converted into low cost tenements (vecindades). Vecindad of the families of case studies # 5 and 6 is one of these.

Typical street in the first ring around the old center (periphery of 1930s). Most of the houses in this street are vecindades.
Photograph 3

Patio of a typical vecindad (Tepito, central part of the city).

Photograph 4

Corridor in a typical vecindad (Tepito, central part of the city).
Population density in these areas is over 800 persons per hectare. The COPEVI study in the Tepito section of the central, largest vecindad area, calculated 1763 persons per hectare, with one-, two- or, maximum, three-story structures. A large proportion of the vecindades in these areas is under rent control. They were built mostly in the 1920's and 1930's, some even in the XIX century, as a real-estate investment or, sometimes, as a gradual expansion of the original single family house. Some vecindades in the historical center are the old upper class mansions converted into tenements during the 1930's when the original owners moved out to the new garden suburbs. Vecindades outside the center were all built expressly for rental, almost all illegally. They are not under rent control.

There is no precise data about the number of vecindades, neither at present, nor in the past. Based on my calculations, and on the earlier studies, my hypothesis of the present distribution of vecindades is as follows:

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<td>5</td>
<td>IV, 50s</td>
<td>100,000</td>
</tr>
<tr>
<td>6</td>
<td>V 60s</td>
<td>50,000</td>
</tr>
</tbody>
</table>

**TOTAL 1,100,000 ÷ 1,200,000**

The majority of the vecindades in Ring II were built before the 1940's. However, some are more recent such as those in Colonia Obrera. 60-80% of
the vecindades in Rings III, IV and V are probably located in the metropolitan subcenters, like Ixtapalapa in the Ring III, Tlalpan in Ring IV and Tlanepantla in Ring V. These subcenters usually also have some older vecindades, built before the absorption of these localities into the metropolitan area.

1.1.2. Vecindades of the Central Areas of the City
(Historic Center and the periphery of the 1920's and 1930's)

Legal Restrictions and Tenure:

The construction of new vecindades became prohibited in Mexico in the 1940's by a series of modifications in the building codes. In 1942, the Law of Rent-freeze covered all rental units priced less than 25 peso a month (which is equal to 300 peso, or US$24, in 1975). This included all the vecindades as well as some of the better apartments. Amendments to the law which were passed in 1948 further extended its coverage.

A dwelling becomes free from rent-control when the original renters leave, but if these give the occupancy rights illegally to the new occupants, without the change of the original rent contract, the frozen rent continues.

In a majority of the cases, this requires an illegal "Key Money" payment which was approximately 1,000 peso in the beginning of the 1960's, 3,000 peso toward the end of the 60's, and up to 15,000 peso, or the equivalent of an annual income of a worker with the official minimum salary, in 1973. (Minimum salary or more is earned only by upper 30-40% of the labor force.)
It is difficult to establish the exact proportion of dwellings with frozen rent. As defreezing is a selective process, occurring when individual families move out, the majority of tenement houses have only some dwellings under control. Trying to make up on the uncontrolled dwellings what they lose on the rent-frozen ones, owners rent them very expensively. This results in differences of up to 2000% that can often be found for the rent of a comparable dwelling in the same tenement. In my sample, over 50% of the dwellings in the vecindades of the center and first ring had frozen rent. 68 Outside the center, and within the rings of the periphery of the 1920's and 1930's, the proportion of vecindades with rent frozen dwellings is very small. Outside the limits of the city of the 1940's, the vecindades, almost all built illegally, do not have frozen rents. Information about them is very scarce. They will be discussed separately later in this chapter.

Physical Quality

The physical quality of the vecindades varies greatly in relation to the initial quality, subsequent maintenance, and the density of use.

Deterioration is worst in the vecindades with a high proportion of rent-frozen dwellings, where maintenance is poorest. All the cases of a collapsing structure occurred in the vecindades with many rent-controlled dwellings.

As to the space - of the 41 households interviewed in the vecindades of Tepito and Peralvillo, 32 had 1 or 2 rooms (including the kitchen) and 9 had 3 rooms (also including the kitchen). The number of persons per room was 3 if the kitchen is counted as a room, and near 6 if it is not.
The average roofed area per person was 2.5 to 3.5 sq. m. The COPEVI study of the same area, conducted in 1972, found similar averages - 2.5 -3.5 sq. m. per capita.

My in depth case studies give detailed information about 8 vecindad families. (2 of them in converted mansions of the historic center, 5 in the Tepito area, and one in the section of Colonia Guerrero, that was eradicated in order to give space for the housing project Nonoaloco). The averages of area per person were similar to the ones in the family surveys, around 3 sq. m., but the spread was wider: 1.5 to 10.0 sq. m. Comparison of those averages to the findings of a BNHUOP study of 1952 show the marked increase of densities. The BNHUOP study calculated the average per capita roofed area in the vecindades of Tepito to be 8.49 sq. m.

In the whole sample of the vecindades studied by them in 13 localities (in the old Herradura de tugurios and in the Tacubaya area) the average area per person was 7.08 sq. m. All the vecindades of the center, of the old herradura, and of the neighboring areas, are connected to the complete urban infrastructure. The shared sanitary utilities per dwelling in the vecindades of 13 localities studied by BNHUOP in 1952, were the following: 0.17 of a bathroom; 0.42 of a WC or latrine; 0.54 of a laundry tub and basin. I do not have present day data on utilities in the vecindades, except about the ones of the in-depth case studies, that share similar averages. It is probably safe to assume that no sanitary facilities have been built in the old vecindades, and the only possible change may be the break-down of some of them as a result of poor or no maintenance. While interviewing vecindad families I noted very few hygiene problems, except in a few completely rent frozen tenements, that were falling to pieces because of the lack of maintenance.
Costs to the Users:

Monthly rents for the frozen rent dwellings of my sample vary typically between 15 and 200 pesos a month (1 and 16 US dollars approximately). For ones without rent control they are between 250 and 1250 pesos a month (20 to 100 US dollars).

The average rent of the vecindades in 1952 (in 13 localities studied by BNHUOP, all dwellings with frozen rent) was 31.3 pesos, equivalent to 120 pesos in 1975 (around 9.5 US dollars).

The average rent in my 1973 data, in the same area is approximately 250-350 pesos (20-24 US dollars). However, it divides very sharply between the frozen rent dwellings with an average of 50 pesos a month (4 US dollars) and the free market price of an average 450-500 pesos (36-40 US dollars). The necessary initial investment to get into the rent-controlled vecindad, the illegal "key-money" payment in the vecindades studied in 1972-75 was between 5000 and 15,000 pesos (400-1,240 US dollars).

The majority of the free market vecindades did not require "key money." However, in some of them in the center, such payments were up to 3,000 pesos (240 US dollars, or 2 1/2 times the average monthly worker wages).

User Characteristics:

In 1952 the population of the vecindades had incomes about 25% lower than the families living in the colonias proletarias in the periphery.70

The studies of INV71 in 1958 and of IMSS indicate a gradual change towards the reverse proportion.

At present, within our sample, families in the same central areas of vecindades (of the center, and the adjacent rings), have average incomes
higher than the families in the peripheral colonias. Also within the central areas of the city, incomes of the vecindad renters vary considerably. In the oldest sections, presently with the smallest proportion of transient population, and the largest average residence periods, the incomes are highest. They have also the highest proportion of frozen rents, and, consequently, the lowest housing costs.

However in the vecindades of the central areas there is a minority group of the population with very low incomes. According to the COPEVI study in 1972 in the vecindades of Tomatlan and Candelaria, 12% and 7% respectively of the family heads had incomes of less than 500 pesos a month (40 US dollars, or 40% of the official minimum salary, or 150% of the subsistence income\(^72\) if we consider an average family of 5 and only one income contributor), and 32% and 27% less than 1000 pesos per month.

Another important factor is the regularity of employment, its dependence on the central location of housing, and the related, large number of income contributors.

The proportion of the population with irregular employment seems to be decreasing. Past studies (BNHUOP 1947, and 1952) place the entire population of vecindades in this category. The study of INV in 1958 is an exception with its conclusion that only 6% of the population of these areas does not have permanent employment. Different definitions must be the reason for this.

In our sample, among the families interviewed, in the old vecindades of the Tepito and Peralvillo area in the central part of the city, over 20% had an irregular income. The majority of these families lived in the area for over 15 years. An analysis of their past histories has shown
that 15 years ago 40% of them had irregular incomes. 73

Among 6 families of the in depth case studies in the vecindades of the old Center and Tepito, now only one family has an irregular income and unstable job. 15 years ago, 3 of these families were in such a situation.

The importance of a continued residence in the area in order to maintain the present employment, seems to have reduced a little, but continues high.

The COPEVI interviews in Tomatlan and Candelaria in 1972 indicate that 32% and 46% of the family heads were shopkeepers or shopvendors in their own localities or in the neighboring market centers of La Merced and Lagunilla. 15 and 12% respectively had commercial establishments in their homes.

According to our sample of interviews in the vecindades of Tepito, between 45 and 50% of the family heads worked less than 15 minutes from their dwelling and over 10% had shops or workshops in their vecindades.

Also important for the family economy are the secondary contributors to income. In our sample between 45 and 50% of the families depended on income of the secondary contributors.

The majority of the population in the central area vecindades have positive expectations of socio-economic mobility. Also the higher the present income and social status, the higher the future expectations.

The actual socio-economic mobility in the vecindades is also higher than in the other housing types. The old historic center of the city, where all the interviewed families lived in vecindades, was the only locality in our sample with a majority of the interviewed undergoing upwards
socio-economic status mobility (income mobility was more common). As we shall see this coincided with the highest proportion of frozen rents and the longest period of continued residence.

The average family composition in the vecindades has changed in the past 30 years. In the 1940's and 50's these were small and young families, who after having more children, and having developed some savings, moved next to the owner builder plots on the periphery. Now the proportion of the large extensive families is much higher, especially in the localities with a large proportion of frozen rents, and longest average residence times in the same residence. In the historic old center vecindades of our sample, the average residence time was 34 years, and counting 2 generations - 40 years.

Among the 41 families interviewed in the vecindades of Tepito and Peralville, 34 were living there for over 30 years; in 17 cases this is already a second generation. 74

In Tomatlan, according to the COPEVI study, 63% of the families lived in the same locality, in most cases in the same vecindad, for over 10 years, and 37% for over 25 years.

In the same locality, however, 18% of the families lived for only 3 years, or less, in their vecindades, which indicates a rather high rate of change.

We do not know, however, if they have come from other parts of the city, or were new migrants.
Match of the central area vecindades with the needs and priorities of the users (user costs and benefits).

As discussed earlier, until the 1950's the characteristics of the vecindades basically matched the needs and priorities of its users. Being in the city center or close to it, the vecindades provided very good access to employment opportunities and cheap markets. Rents were low; matching the low incomes of the users. The relatively low physical quality of the dwellings was in agreement with the household's lower priority for standard as compared with low price and good access. A rental form of tenure was appropriate for families for whom, in the majority, the vecindad was their reception housing, from which they intended to move to the permanent homes they would build in the periphery.

At present I have found very strong mismatches resulting in very high costs to the majority of users as well as to the other sectors of the society. The mismatches differ between the free market vecindades and those under rent control. Vecindades without rent control are occupied by the same kind of families that have occupied vecindades in the past -- with lower income, shorter urban experience, with a strong priority for centrally located low cost rental housing. Physical quality is relatively less important. The main mismatch from which they are suffering is the high cost of rents.

The vecindades with rent control are occupied by families with a larger urban experience, smaller priority for central location and relatively higher incomes. Users are benefitted by the low rent and very good access to the center which they do not need very much, and have an unsatisfied priority for ownership and better standards of the dwelling. These matches and mismatches are presented graphically in
figs. 11, 12, and 13 that compare the vecindades in 1935 and 1955 to the two present-day types.

Such "wind-mill" diagrams permit a quick synthesis of the combination of the principal user needs, of the supply characteristics, and of the imbalances between the two. The arms of the "wind-mills" are scaled. The scale used in these and in the following "wind-mill" diagrams has three levels, high, medium and low (from highest to lowest) in relation to:

Income: 5-8 times subsistence⁷²(and more); 3-5 times subsistence; and 0-3 times subsistence per capita (subsistence income for an adult person is assumed to be 60 pesos per month, i.e., for the first half of 1973; the present value will be higher as a result of price changes since the end of June, 1973).

Tenure: freehold; de facto ownership without legal title or rent with long term secure contract; rent with short term contract or without a formal contract.

Shelter: modern standard shelter with all services; permanent structure with incomplete services and the possibility of progressive improvement; minimum quality shelter giving the basic physical protection.

Access: walking distance from the center of the diversified low skill employment opportunities and the central (cheap) food (and other subsistence product) markets; 30-45 minutes by public transport from the center, defined as above; 90 and more minutes from the center by public transport.

Price: includes current monthly costs and monthly mortgage or land payments; high - 350 and more pesos; medium - 100-200 pesos; low - 0-50 pesos (in pesos of June, 1973).

The following section analyzes in further detail the matches and mismatches of the vecindades with user needs.

Access:

The access to the center of the city is still one of the important priorities of the renters in the old vecindades of the central area. In
Fig. 11
Low-income users.

Fig. 12
Match between demand and supply of the central city vecindades with free-market rents (not under rent control) in 1973. Low-income users.

Fig. 13
Match between the demand and supply of the central city vecindades with frozen rents (under rent control) in 1973. Users with moderate-incomes (upper strata of low-income sector up to the middle-class). For scale used in diagrams see page 127.
Tepito and Peralville 25 of 41 interviewed families mentioned a good access to the city center as one of the advantages of the present residence (17 specifically mentioned proximity to work, school, market, etc., and 8 mentioned general proximity to the center). Only 8 families, however, gave access to the center as their main housing priority. For the remaining it is a secondary priority.

However, the proportion of families working locally in the central area is higher: approximately 40% in my Tepito sample and 32% and 46% in the COPEVI studies of Candelaria and Tomatlan respectively. 75

On the other hand, 30% of the interviewed travel to work longer than 45 minutes (one way), and 60% use public transportation to get to their jobs - very different from the situation before 1955, when the large majority walked to their nearby jobs in their own or neighboring locality.

Among the 6 families of the sample of the in-depth case studies, who presently live in the vecindades, 2 need to live in the center in order to be able to maintain their present jobs. These are also the 2 poorest families of this group of 6, and one of them is living in a vecindad dwelling without frozen rent, paying the highest rent of this group.

The remaining 4 families, who all have frozen rents would and prefer to live outside the center, in order to be closer to their permanent jobs, that are in the periphery, among other reasons. They are not going to move, however, as long as they can enjoy frozen rents.

Also in the larger sample of family interviews I noticed that families with lower incomes had a higher priority for present central location, and more frequently had more costly uncontrolled rent dwellings,
while families with a low priority for this location enjoyed both higher incomes and cheaper rent frozen dwellings (see costs further in this section).

Tenure:

As could be expected, all those enjoying frozen rents want to continue indefinitely in that situation. I have noted, however, a large proportion of families with a clear preference for being owners of individual homes in the periphery, who are delaying the move in order to take advantage of frozen rents as long as possible. One important benefit of frozen rents is precisely the opportunity of saving for one's own plot and home on the periphery. In my sample of 41 families in Tepito and Peralville, 17 mentioned property as their main priority (10 of them mentioned better physical quality of dwelling together with property and 7 placing property before the physical quality).

Of the 6 case study families, 3 intended to move to the periphery to become property owners, one of them even to the middle income area.

The fourth family also preferred property, but in the center in the form of condominium apartment.

All are prevented from investment by the existence of frozen rents. They are also discouraged by land speculation in the periphery and other increasing costs of the owner-builder process (that I shall discuss later in II.3.). The COPEVI studies in the vecindades of Tomatlan and Candelaria found that about 50% of those who would prefer to live in the periphery do it mainly because of the priority to own the dwelling and plot, while the other 50% primarily because they want better physical and environmental conditions.
Interviews in Candelaria also included questions about the "ideal" form of tenure preferred by the vecindad renters (irrespective of their economic possibilities). Only 2.6% wanted to rent; the rest preferred to own individual homes.

The other important finding of this study on the tenure needs and priorities is that 27% of the frozen rent vecindad dwellers in Candelaria have chosen this housing mainly because of this tenure form, for 14% it was a secondary reason.

My data as well as the COPEVI information indicate that some 6 to 10% of the users of the vecindades with free market rents are actively looking for another, cheaper, vecindad accommodation.

Physical quality:
Approximately half of the families interviewed in the vecindades, mainly with longer urban residence, higher incomes, and enjoying frozen rents, have expressed the priority to live in their own house of a higher standard than their present residence. The majority of them also have resources to do it. Among the case study families, 4 out of 6 have a strong priority and sufficient resources for a better housing standard. Of 41 families interviewed in Tepito and Peralvillo, 17 had a top priority for a better physical and environmental quality of housing, 10 of them together with property, and 7 together with minimizing the current housing cost.

Considering the very small interest expressed for condominium type apartments, this can be interpreted as a priority for low cost subdivisions and better quality vecindades.
The low physical quality of the vecindades was one of the disadvantages most frequently mentioned by the users.\textsuperscript{76}

Costs:
In my sample of case studies, the richest of the 6 families living in vecindades paid the smallest rent for its rent controlled dwelling in absolute terms (28 pesos, or US $2.20 per month) and in proportion to income (0.30\% for the rent only and below 1\% including all the utilities).

If the rent controls were terminated, they plan to move to the upper middle income residential area, but as long as they can, they will continue to stay in the present dwelling. The head of the family is a dental technician, and his wife is a hairdresser. It is an extensive family of 3 adult generations, plus children (case #1).

Another 4 families with frozen rent dwellings pay between 0\% and 4\% of their income for rent.

The incomes and rents paid by 41 families interviewed in Tepito and Peralvillo show a very interesting regularity.\textsuperscript{78} The higher incomes coincided completely with lower rents and, of course, with a much lower proportion of income in rents.

The COPEVI studies in Candelaria and Tomatlan indicate similar tendencies.\textsuperscript{79} Also in Tomatlan COPEVI found one family living in a frozen rent vecindad, while renting out the modern standard house that they own in the subsidized government project, San Juan de Aragon.

Another important aspect of costs is the key money payment -- an investment necessary to get into a vecindad dwelling with frozen rents, and, recently, even with free market rent. As I mentioned earlier, these payments reach at present up to 15,000 pesos for a rent-controlled
dwelling and up to 3,000 for a free market one. This corresponds to a 1 year average minimum salary (or 3 year subsistence level income per family of 4), and 2 1/2 monthly minimum salaries, respectively.

Only some free market vecindades require key money payments, but all frozen rent ones do. This places them completely beyond the reach of the new low income population. Present residents, most of whom moved in before the present shortages, did not have to pay key money. Those who moved in the mid-nineteensixties paid only 20% of the present level (the key money payments grow with the increase of the shortage from zero in 1955, to about 1500 peso in 1960 about 3000 in 1965 and 15,000 in 1973).

Key money is the only form of equity that vecindad dwellers can receive from their housing, and this "equity" may easily disappear if the rents are decontrolled.

It is interesting to compare this with families of my sample in the peripheral low cost subdivisions, that had (within the case study sample) an income half of that of the vecindad dwellers, but equity in the plots and owner-built houses of 30-80,000 pesos.

Besides the relation of cost to income, the relation between the cost and the value of services received is an important indicator of the monetary costs and benefits to the users. This indicates overpayments in the free market vecindades and underpayment in the rent controlled ones. It is difficult to establish the precise "value of services." I have used 2 approximations: cost in the period of unsuppressed supply updated by the general inflation coefficient, and the costs of the present construction of new, illegal vecindades, under the assumption of about 20% of annual profit. According to these calculations, the vecindad
dwelling consisting of one room and a small kitchen, with communal sanitary facilities should cost, in 1973, about 120 to 180 pesos a month. The actual free market rent is about 400 and frozen rent about 40.

Lack of maintenance is always justified by insufficient rents. In fact, however, in many cases it is rather a deliberate effort to gradually demolish the dwelling, force the renters out and be able to dispose of the plot, that is meanwhile rapidly increasing in value. The increasingly concentrated ownerships of the property of the very poor quality vecindades, discussed later in this chapter, seems to prove the point of the potential high profitability of this kind of real estate.

The prospects for further business as tenements are poor, however. It's public image is negative, as the vecindades have been often used in political demagogy as a symbol of a "degrading," "subhuman" and "exploitive" housing solution (in order to build projects with much worse effects for the distribution of wealth and for the living conditions of the poor).

Main costs and benefits of other sectors:

The monetary costs and benefits for the vecindad owners are the inversion of the user costs and benefits.

I do not have sufficient data to make their calculation. The main losses are in rents below the maintenance cost level, the consequent distuction of property because of the lack of maintenance and the opportunity costs of not being able to change the land use to a more profitable one (in the rent frozen vecindades). This last factor has produced
a number of conflicts between the renters and the owners intending to force them to move. On the other hand however, the owners do not lease on the outset. As in the majority of vecindades, dwellings with frozen rent coexist with those of the free market, and the owners pass their losses from the first onto the second, raising the free market rents. As a result, free market renters subsidize those with frozen rents and the owners do not lose.

For the construction industry, the present situation (the prohibition of constructing new vecindades and the lack of maintenance of existing ones) has 3 opportunity costs of loss of demand for its services:

-- families benefitted by frozen rent do not build or buy their own homes;

-- new vecindades cannot be built despite the strong pent-up demand (expressed even in high key money payments);

-- lack of maintenance and improvement construction

For the public sector, the low tax revenues from the vecindad areas that are fully supplied with utility infrastructure and services mean losses on current service maintenance costs.

In non-monetary factors, the important public sector costs are in the public image and public welfare categories. Welfare and image reasons were behind the original prohibition of vecindad construction. As I have shown earlier in this section, the physical quality (especially overcrowding) of the vecindades have substantially worsened since that time. I shall also show that the substitutions for lack of the vecindades in the form of ciudades perdidas are much worse in both, welfare and image, terms.
Summing up, in the general social costs category, the system of the vecindades of the central areas has a very negative income distribution effect. The only exceptions are the small groups of low income families that live in rent frozen vecindades. The direct distributional cost is in the decapitalization of families living in the free market vecindades. An even more important cost is in the lack of access to the center from which many families suffer who need this type of location and housing but cannot afford the high key money costs nor free-market rents.

This has a very negative impact on their opportunity for socio-economic mobility. Prohibition of vecindad construction, the only economically feasible type of housing in many central areas, is also contributing to the poor use of land and a lack of urban services in those areas, and creates the need or rather the justification for the construction of costly and socially questionable subsidized projects on the periphery.

1.1.3. Vecindades Outside the Central Areas of the City.

Other types of vecindades are numerically less important. There are also no previous studies about them.

On the base of my data I have distinguished 3 groups of them, taking location as a principle variable:

-- Vecindades of the present "intermediate ring" in the colonias proletarias (low cost subdivisions, or legalized squatter areas), of the periphery of the 1930's, 1940's, and sometimes of the 1960's (if good public transportation is available.)
Vecindades in the peripheral metropolitan subcenters. These can be divided into two types: the old ones, built before the absorption of a given city or village into the metropolitan area, and the newer ones. Vecindades in the new low income subdivisions in the periphery. All of these vecindades were built illegally, except a few old ones in the metropolitan subcenters. None of them are under rent-control.

Vecindades of the intermediate ring.
Vecindades of the colonias of the periphery of the 1930's and 1940's, now the intermediate ring around the central areas of the city, are the response to the growing unsatisfied demand for low cost rental in the center. They are also an expression of the territorial growth of the center through the intensification of land use and the increase of densities in the neighboring areas.

These areas, as for example, Colonia Obrera, Lorenzo Boturini or Gertrudis Sanchez, have good access to the employment centers and are good locations for high density low cost rental housing of the vecindad type. As a result of prohibition of constructing vecindades, the supply is very limited and rents are high: 350 pesos a month for one room and 400 to 500 for 2 small rooms.

This is still however some 10 to 20% below the similar quality of housing in the center. In the colonias of the periphery of the 1950's, like Portales, the rents are, again 10-20% less. No key money is required. The physical quality is usually better than in the frozen-rent vecindades in the center, because of better maintenance. The structure and design
are usually similar. Sanitary facilities, urban infrastructure and services, are usually worse. A smaller proportion of dwellings have their own sanitary services and more families share communal ones. The vecindades are smaller, usually between 3 and 15 dwellings. According to my interviews, the population of vecindades of the intermediate ring have lower income averages than in the center. The income levels are, however, more homogeneous. The average incomes of the vecindad population decrease gradually towards the periphery.

I do not have enough data about income stability to hypothesize any conclusions.

The length of dwellers' urban experience is shorter than in the frozen rent vecindades in the center and similar to that of free market vecindades of the central areas. The average time of residence in the vecindades studied was around 4 to 6 years.

Community life is much less developed than in the city center vecindades. This is, probably, caused by two factors: the smaller size of the vecindades, and the transitory or receptional character of this residence for most families.

Families are young and almost always nuclear.

A large proportion are migrants. Second in number are the families who have lived for a short time in the same area or in the center as arrimados (not paying guests with family or friends) or renting more expensive housing.

The main mismatch between these vecindades and user priorities is their high cost. As a result of this, many families may never save enough to move to their own plots in the periphery, which is their most common objective.
High access priority is satisfied. Standards are low and housing does not provide any equity, but those are relatively lower priority needs for these families. Tenure is secure as long as rents are paid regularly and transfer is easy—moving, if necessary, to follow the new job location can be done at short notice.

The owners of the vecindades of the intermediate ring have generally very good profits.

In the case of a vecindad I studied in Colonia Obrera, the net annual income of the owner, after the payment of all utilities, taxes, and maintenance, is as high as 50% of his investment cost adjusted to the present value of the peso. It is possible that the secure income half and even up to 5 times smaller, especially if it is adjustable against devaluation (as free market rental is), would be attractive for investment, and increase the available supply. That would produce housing much more cheaply for the users. This is, however, not possible as long as the present building codes are enforced.

**Vecindades of the metropolitan subcenters**

These vecindades are located in, or near, the subcenters in the periphery of the metropolitan area, and give its users good access to jobs in the subcenters or in nearby industrial areas. Tenure is free-market rent.

The physical quality is similar to that of the vecindades in the intermediate ring, or worse. Sometimes it is very bad.

The vecindades are small, in majority they have 3 to 8 or 10 dwellings. The rents are lowest of all the kinds of the free market vecindades: between 80 and 300 pesos a month, average 150.
Their supply is diminishing, but the shortage is not yet critical; consequently, there are no key money payments.

The majority of the population consists of recent migrants, for whom this is their first or sometimes second residence. Their family incomes are around one minimum salary -- the same or lower than the incomes of the population of the vecindades of the intermediate ring.

The families studied had non-qualified or semi-qualified occupations, around 50% of them had irregular incomes, and they were working in, or around, the subcenter.

Despite the low incomes, the majority was experiencing upward socio-economic mobility and had positive future expectations. In housing terms, they were aspiring to the ownership of a plot and a house they were expecting to build gradually.

Compared with the other types of vecindades, those in the peripheral subcenters maintain probably the best match with the needs and priorities of the users.

All the families studied worked near their housing. Some changed from one subcenter to the other, following the relocation of their employment places (for example from Iztapalapa to Naucalpan) without major problems with finding a vecindad at the new location.

A large proportion of the users of the vecindades of the metropolitan subcenter of Naucalpan bought land in the illegal ejido subdivisions during the 1960's and in the beginning of the 1970's, in this way following a typical trajectory from the center to the periphery (described in the section I.2.2.2) in the reduced scale.
The possibility of buying peripheral land at accessible prices maintained the reception and transitory function of the vecindades. My data from Naucalpan is, however, from 1973. Since that time, the legalization of tenure in the form of property in the existing illegal subdivisions and the opening of the new legal subdivisions have strongly increased the prices of plots up to the limits beyond the reach of many potential owner-builders. Probably this has resulted in the extension of the average residence time in the vecindades, which has reduced the supply available for new users. At the same time, the immigration to Naucalpan increased, causing a larger demand for the low cost vecindades. If a more efficient enforcement of building codes that would stop the construction of new vecindades were added to these factors, we would have in Naucalpan a situation very similar to the one presently in the main metropolitan center: the supply of vecindades far below the demand, rents very high and high rates of overcrowding.

Vecindades in new peripheral low-cost subdivisions

There are no studies of the vecindades in the peripheral colonias. I have studied only two such vecindades and my generalizations about them will be even more hypothetical than in the other cases.

It seems that their population is usually in one of 2 situations: families between their initial "reception housing" in the center and the purchase of their own plot, or recent migrants with contacts in the same colonia. Those interviewed worked mostly in the nearest metropolitan sub-center, but I met a few cases of commuting as far as the center of the city, and these had most irregular incomes. They had urban trades on the semiskilled level, but, in the majority, no complete income stability.
The level of incomes was up to the minimum salary, similar to that of renters in the vecindades in the subcenters.

Families were young and nuclear with the average urban experience of 6 years. They did not have much upward mobility but maintained positive expectations.

Rent levels are determined by the free market and were higher than in the cheapest vecindades in the subcenters. They were 180-250 pesos a month, which amounted to 20% of the incomes of the users, which were of 2-2.5 times the subsistence level per capita.

No "key money" was required because of the relatively small demand and no shortages. Transfers are easy for the same reason. Security of tenure was as in any other free market rental.

In both cases studied, the physical quality of the vecindades was the best of all types: more space, better environmental conditions, good quality of the new construction.

Both were, of course, built illegally.

A vecindad studied by me in greater detail in one of the colonias of the municipality of Naucalpan had two-room dwellings (rooms and a kitchen) with total area of 24 square m., of recent (1973) brick and concrete construction with modern, collective, sanitary facilities. The rent of 250 pesos a month gave the owner between 25 and 30% net interest per year over his investment (including the cost of land that was purchased illegally, and the cost of its subsequent legalization).

Assuming 15 to 19% interest which is still very good, especially considering that rents may be adjusted with inflation, the rents were approximately 150 pesos a month.
Photographs 5 and 6. Illegally-built illegal vecindad in the peripheral colonia in the municipality of Naucalpan.
1.1.4 Note About the Owners of Vecindades.

The submarket of vecindades, even functioning well (with prices on a reasonable level, but still sufficient to assure good maintenance and invite new construction in response to new demand) would still have some negative effects on income distribution. Especially large vecindades mean the concentration of profits.

During the field work I have found it very difficult to get any information about the owners of vecindades. Users either did not know them, or did not want to give such information. In a few cases when I was able to get data about the owners of the vecindades in the center, they were always absentee owners, living in the best residential areas of the city, like Colonia Polanco.

In general, owners had more than one vecindad.

Already in 1952, according to the data collected by a BNHUOP study of 181 vecindades studied in 13 localities, 162 belonged to absentee landlords and only 19 were owner-occupied.

In that number of the 114 vecindades of the old central area, only 3 were owner occupied, and of 85 in the 3 oldest and largest vecindad areas studied - none. At the same time, in the 67 newer vecindades located outside the main center, in and around the subcenter of Tacubaya, 16 were owner-occupied. My 1974 data from Guadalajara (second largest city in Mexico, with many characteristics similar to those of Mexico City in the 1950's) shows a similarity of more absentee landlords in the more centrally located vecindades.

It has also been shown that practically all vecindades outside the old center were owner occupied.
In Mexico City, the majority of vecindades outside the old central areas is also owner-occupied.

I attribute this primarily to the low security of such illegal investment for the absentee property owner. Consequently, larger investors are not interested, and the vecindades are built by families who live within the property, often as a gradual extension of the family house.

The smallest of such vecindades (of, say 2 or 3 rental rooms, apartments, or houses) or the rental of the room with the family, the type analyzed in the following section, have much better distributional effects.

As a consequence of the high owner/renter ratio, they are not, however, a solution for the dense central areas where over 90% of the demand is for the low cost rental.

1.2 Rental of Rooms, Apartments, and Houses in low income Localities
(Colonias proletarias or colonias populares)

Antecedents, number, and location

This group of housing sets is numerically probably as large as the vecindades. They have not been studied, however, and no data (except average rent levels) is available. As a result, in designing the study I have underestimated their importance and they are underrepresented in the sample (as I mentioned in the method section, the geographic random distribution is biased against renters). My data on the present situation, and the information on the past functioning of this type of rental (mainly from the past histories of owner builders who used to rent rooms before) is still sufficient for a general description and evaluation. With the
exception of rental apartments that are mostly in the center, examples of these types of housing are relatively dispersed in the colonias proletarias around the city. New illegal subdivisions have very little rental supply. After land tenure legalization, and following a stronger investment by the owners, rental rooms start to appear. Later rental houses are built, and finally, in the more consolidated colonias, vecindades and apartments. In the past, rental housing in the colonias, more decentralized and with worse access to the center than the central area vecindades, was also cheaper than the vecindades. In 1952, an average rental dwelling in the colonia cost 27.55 pesos a month, as compared with 31.31 (which equals approximately 108 and 120 pesos, or 9 and 10 dollars, in 1975) for a vecindad dwelling in the central area. At the same time, the incomes of renters in the colonias were higher than in the vecindades, 445 compared with 340 peso a month. Consequently, renters in the colonia proletaria were spending 6.4% of their income in rent, against 9.3% in the vecindades. For a majority of the users, rental housing in the colonias was an intermediate stage between the vecindades and the purchase of land upon which to build one's own house. The relatively low prices of rental rooms permitted a substantial margin of savings and facilitated this next move. Families living as renters in the colonias had incomes not only higher than the vecindad renters but also had more regular employment. Consequently, a direct access to the center of low skill employment opportunities was less important for them. Other group of residents of this type of rental were the recent migrants with contacts in the same colonia and/or with local employment. In total, according to BNHUOP data, in 1957, some 37% of the population of the colonias were
renters. They were mostly renting rooms, a few houses, and very few apartments, or rooms in vecindades.

At present, the proportion of rental rooms, houses, and apartments in the colonias vary from 0% in the new squatter areas and the new illegal subdivisions, to 70% and more in the eldest, most central colonias. According to my rough estimate, some 2 to 2.5 million people live in those types of housing (380 to 450,000 families). Based on the proportion in the different colonias of my sample, on the locality descriptions, and on census data, I have calculated the population of rental rooms to be approximately 1.4 to 1.6 million people (around 300,000 families), the population of rented houses - 0.5 million people (80-100,000 families), and the population of the low cost apartments - 150-170,000 (30,000 families). The number of dwellings of these types was growing gradually, and it increased more rapidly after the prohibition of constructing vecindades and the introduction of the frozen rents. Rental rooms and houses are most frequent in the colonias of the periphery of the 1940's to 1960's. Rental apartments are more centrally located mainly in the periphery of the 1930's and in the older center. The small proportion of them that I have found in the periphery was always in the metropolitan subcenters or in the colonias located near them (like Isidro Fabela near Tlalpan).

The average access to the center from housing of these types is worse than from the vecindades, but much better than from the average ownership housing. A high degree of dispersion of these sets within the city permits, potentially at least, a good match with the various access necessities of different families.
Tenure:
Rooms, houses and apartments in the colonias are usually rented without contract, and the users do not have a high security of tenure in the strictly legal sense. The "de facto" security is, however, quite high as long as the renter can afford to pay on time. Lack of the contract also makes moving at short notice easier.

Physical Quality:
The physical quality of these sets vary a lot within the colonias, and even within each colonia. The quality of the structure and utilities was about the average for a given locality or better. Rooms and houses were usually smaller than those occupied by owners.

As with rental housing in general, most rooms, houses and apartments in the colonias could not be changed to be better adapted to the user needs. Users also tended to minimize the improvement and maintenance investments.

However, a few cases of rental housing, particularly well matched with user priorities, and with secure tenure, were found, where the families made substantial improvements in the dwellings and even contributed to locality improvements.

Cost to the Users:
The principle problem of these sets was their very cost to the users - a result of the general shortage of low cost rental housing.

Compared with the quality of service, comparable to that of the room in the vecindad, rental rooms were much more expensive - an average 350-400 pesos a month in 1973.
The least expensive rooms in my sample (except the ones rented to friends or relatives) were approximately 250 pesos a month. The most expensive was 500. Price varied with location and physical quality. Rental houses in the colonias proletarias in 1972 were rented for 300 to 1200 pesos a month (an average 600 pesos), and apartments for 200 to 1250 (an average 800). Big variations reflect mainly differences in physical quality, and especially, the availability of services.

I had in my sample one case of a family renting a plot in a colonia proletaria in the periphery. The rent was 200 pesos a month.

Rental housing in the colonias do not require any key money or any other initial investment.

**User Characteristics:**

Users of the rental rooms, houses and apartments in the colonias had average incomes around 50% of the home-owners in the same area. Renters had also much lower income stability than owners, and their incomes depended to a higher degree on the secondary contributors. The families were younger, smaller, and with a shorter average residence time than the owners.

The average time of a renter's urban experience is also becoming shorter. The principal reason is probably the increase of direct arrivals from the province without first passing through the vecindades of the center - increasing the reception function of these sets.

Income levels and stability vary also between the different groups of renters. Those, for whom this is their first urban residence, and who usually have priority for the vecindades in central areas, have lower and more irregular incomes. They are also the most rapidly growing group. Families, for whom rental rooms, houses, or apartments are an inter-
mediate residence, after their initial (mostly in the more centrally located vecindad, or as an "arrimado" - non-paying guest with family), and before the intended move to their own plots in the periphery, usually have incomes higher than the new arrivals, and always more regular.

The third group are the new families, migrants or not, for whom this is their first independent housing, who have chosen the area because of its proximity to relatives and friends, or to the job. They also tend to have incomes that are more stable and higher than those of the group with a frustrated priority for the city center vecindades.

The typical housing aspiration of all those renters is the ownership of plot and house. Because of the lack of an appropriate supply for legal purchase, they become principle squatters or buyers in the illegal subdivisions.

Costs and benefits; match with user needs and priorities:

As I have mentioned earlier, while discussing the vecindades, rental of rooms by the families has a potential for a far better income distributional effect than the vecindades.

The addition of a room, rooms, even a whole apartment or house for rent is well within the possibilities of most homeowners and especially owner builders in the low income colonias. It has been used by the poor throughout the world as a way to invest small savings and extra earnings, and underemployed time, towards securing a permanent income, especially for retirement in old age.

As the construction of additional rental rooms, or units, follows the pace of each family's possibilities that vary immensely in timing and volume, it is assuring an approximately constant flow of demand for local labor (only local labor can satisfy the needs of incremental small scale
construction) and for construction materials, furnishings, etc. In other words it extends in time the benefits of the initial incremental construction (see II.3.4) in both local employment generation and the demand for goods and services provided by the construction material and related industries. For local government, this immediately results in at least three types of tax benefits: increased property tax base, tax receipts from rental income, and taxes on the sales of materials, furnishings, etc. 84

It is also important to note that the increased density of the colonia assures a stronger patronage of services and use of utilities, and therefore makes the improvement of their quality economically feasible.

At the same time, increased density is more uniformly distributed around the colonia, than in the case of concentrations of tenements, (as the renters have higher access needs, houses with rental rooms are also concentrated around the local center, public transport stops, etc, but to the lesser degree) which permits more uniform access to local services, which can be slightly more dispersed too.

While discussing the cost and benefits of room rental solutions initially, I said that they have a "potential of a better income distributional effect" and not that they just have such an effect. The reason for this formulation is in the present inflated level of prices especially of rental rooms. In relation to family income, rents increased from 6.4% in 1952 to 20 and 30% in 1973, reducing the user's saving capacity and in some cases, cutting into the basic budget for food and clothing.

The high cost of rent is the most important mismatch suffered by the users. The other is the too long distance to employment and markets. It is an especially important problem for families recently arrived to the
city who have chosen to rent in the colonias proletarias because of the unavailability of vecindades in the central areas of the city. The physical quality of the dwellings and the type of tenure match the priorities of most of the users. Figure 14 presents these matches and mismatches in a graphic form.

Fig. 14
Match between demand requirements and supply characteristics of rental housing in the colonias proletarias. (For explanation of scale used in diagrams see page 127).

1.3. **Roof rooms (cuartos de azotea).**

Another type of rental housing, less numerous, are the servant quarters on the roofs of apartment houses. They are usually approximately 6 to 10 sq. m. in area, and have collective sanitary utilities often at the user ratio of the worst vecindades. Included even in the subsidized "social interest housing," they are called officially "ironing rooms" (cuartos de planchado), to circumvent the building code that does not allow the residential use of these rooms. The majority of these rooms are occupied by house-servants of the families who owned the apartments to which the rooms belong.
The rest, some 10-20,000, according to my estimate, are rented to individuals or families of low incomes for 150 to 400 pesos a month.

The total number of users are estimated approximate 50,000 in 1972.

Often, part of the payment is through the service of washing or ironing for the owners of the room. My data is too scarce, however, to discuss this set in further detail.

1.4 Ciudades Perdidas

Definitions and variations:

The term Ciudad Perdida is used in the mass media, and in everyday street language, to describe the relatively small enclaves of shacks of a usually very poor quality, built mostly of scrap material. These groupings of dwellings, some 100-200 on the average, but sometimes as few as 20 or as many as 500, are generally lost from view, due to their size and location, or are at least much less visible than the peripheral low income subdivisions. (They are located on the yards of the "healthy, often fully serviced city block, or on the vacant lots often surrounded by some wall or other buildings.) This gave rise to the name of "lost cities."

Up until the '50s they were usually called jacaless (local word describing the primitive, usually rural type dwelling).

Both names reflect purely morphological concepts, and do not permit any functional differentiations. The problem, however, is not only semantic, as policies are based on such definitions. And a present action of eradicating the ciudades perdidas is an example of such policy. In the variety of its unprecise applications, the term "ciudad perdida" and earlier "zonas de jacaless" was used to describe such distinct housing
solution types as:

1. shanty towns of rental mini-plots (sometimes as small as 8-12 sq. meters) on which the renter erects his own shack, or rents a shack built by the owner.

2. small groups of shacks built by possessor-builders, with all the intentions of consolidation, but not improving the structure because of unsecure tenure;

3. not ownership oriented squatter enclaves (of "zero rent renters," or "survivors"), often immediately adjacent to the tracks within the railroad right of way, under the bridges, even virtually on the sidewalk of the street, etc. - "better off" counterparts of Calcutta street sleepers;

4. small groups of shacks located on the flat roofs of one family homes - a special version of family rental - that give an impression of continuity when the homes are next to each other, but these are usually individual arrangements.

5. small groups of owner-built houses of poor physical standards, with no building permits but with fully legal land titles, sometimes belonging to a group of families comprising a very broadly understood extended family;

6. Camps of pependores - garbage pickers - living on the undeveloped garbage dumps;

7. Some peripheral low-income colonies, legal and illegal subdivisions or the invasion (colonias proletarias, and colonias paracaidistas) of owner- or possessor-builders, in the early stages of progressive development.
The use of the term ciudad perdida to describe the first 3 housing sets listed above is also generally accepted by researchers, government policy makers, the media and colloquial language.

At the same time, each of the first 4 types is still sometimes called a squatter settlement (colonia paracaidista), and sometimes even (but very seldom) colonia proletaria.

I would suggest that all these 7 groups of housing solution types are so distinct that treating them as one category makes an understanding of dynamics of the system impossible and may lead to basic policy errors if the same policies, overlooking these differences, are applied to them.

In this study, the term ciudad perdida is limited to the first housing set only, which is functionally the cheapest and lowest standard version of the low cost tenement - probably the type closest to the vecindades. The second and third group, which is at present the main object of the government eradication action, represent a special type of squatter settlement which will be called an infill squatter settlement if its origin was invasion, or an illegal subdivision if this is the way in which the settlement got initiated. In strictly legal terms, the infill squatter settlements of both groups are in the same position, the quality of the structures may be also identical, the cost the same. Location is similar in relation to other land uses. The latter group (#3): the infill squatter enclaves, occupied by families with no hope of consolidating at this location, are usually located in open conflict with other land uses. Their location and often also topography precludes any possibility of improvement and consolidation. They usually even do not have names nor a settlement fabric; they are rather individual shacks
inplanted between railroad tracks and the wall of adjacent industrial building, under the bridge, or next to a street light post on the sidewalk. The land they occupy is usually publicly owned. The inhabitants are not organized. They are still not numerous.

The infill squatters of the former group (#2) - infill squatters consolidate - live in identifiable settlements, which even if very small, have their names, some internal pathways, and clear grouping. The inhabitants are usually organized, and fighting with the city authorities to get ownership titles for the land. The land they occupy may be either public or privately owned at present. In the latter case, expropriation is necessary to satisfy such demands (in legal terms). They are often located in the midst of middle and even higher income areas, with high land values, which provides the authorities with both "esthetic" and economic arguments for eradication.

Their dwellings, still very primitive, are sometimes built of permanent materials.

The groups of roof shacks are something between the rental of a room or apartment with the family, and a fragmented (one family) cd. perdida type of solution. The rent for the roof space, on which the dweller erects his shack, and sometimes even keeps his hen and chicken, is very low. It is often free because of a kin relationship with the house owner. They are usually in the more dense areas, close to work places (a similarity to most cd. perdas).

The 5th category, the small groups of owner-built shacks on land with undisputed title are mostly found in the inner and other peripheral, denser areas, or subcenters, almost always within or next to the old
pueblo (village), that now became part of the metropolitan area; Naucalpan, Coyoacan, Tlalpan, or even small Sta. Ursula Xitla are examples of such pueblos or cities.

The dwellers will be the original inhabitants from the pre-metropolitan period, and their families.

Another housing solution type, called sometimes ciudad perdida, - sometimes squatter area, are small in number, and with very special characteristics - they are the colonias of the so-called pepenedores (garbage pickers) who work and live on the municipal dump, living virtually on and off garbage (6th category). The fact that they live at the workplace, being tolerated by the indirect employer - the dump administration - might suggest classifying them as a very special version of the employer-provided housing, like watchmen (veladores) in the industrial areas and live-in servants in higher and middle income residential areas, etc; but they are probably too different to be treated in the same category.

Even if located on the periphery and in many cases, initiated in an extra-legal way, and in a few cases by an invasion, they are too different to be classified as a variant of colonias paracaidistas - ownership oriented squatter settlements. Their only objective is shelter next to work, with no intentions, nor potential, of consolidation and conversion into the standard possessor-builder low income subdivision.

Their built-in lack of consolidation potential and intentions, and the type of shelter (the most temporary possible) makes them similar to the not property-oriented infill squatters. On the other hand, they are completely different because of the extremely close job-to-housing relationship, strong organization, and clear settlement fabric and identity.
The 7th group I will not discuss as it clearly represents only a stage of the development of the supply set to be discussed later (in II.3).

Some of the mentioned housing sets (supply sets) are merely variants of the ones to be discussed later in this chapter, others are definitely qualitatively different. Limits of the thesis do not permit the detailed analysis of all of them and I will concentrate myself on the first rental shantytown group, that has the strongest independent characteristics, is largest in number, and for which, for methodological clarity, I exclusively reserve the name of ciudades perdidas.

General description, location and numbers of ciudades perdidas:

These shanty towns of rental lots and shacks are always well located in relation to the lower skill employment opportunities and usually also to the less expensive food markets. We can find them predominantly within the inner ring, right outside the old Herradura de Tugurios (horseshoe of slums) 3 to 5 km. from the historic center of the city; or in the inner periphery, some 10 km. from the city center, but immediately adjacent to the important metropolitan subcenters that offer similar job and subsistence shopping opportunities.

Often the ciudades perdidas also have their own productive activities, involving a high proportion of their inhabitants (preparing food sold on the street stands nearby, crafts, repair jobs, etc). They also give their inhabitants an important access to the networks of information and mutual help within the settlement.

As this housing type has never been studied separately, it is difficult to cite any aggregate number of its inhabitants. I am estimating that the present number of inhabitants in the ciudades perdidas
(rental shanty towns, type no. 1 in the preceding list) is between 100,000 and 150,000 (in 20-30,000 families).

They are probably decreasing as a result of the eradication action by government agencies. 88

Photographs 7 to 10 are taken in a typical ciudad perdida in the intermediate ring of the present city (periphery of the 1940's) - La Marranera - where families of case studies # 7 and 8 live at the present (appendix D).

My sample covered two types of ciudades perdidas, the old ones with a more central location (Buenos Aires and La Marranera), and the newer, peripheral ones, located near the metropolitan subcenters (San Pedro Xalpa and Santiago Ahuizotla). Buenos Aires is 30-35 years old, located only 3 km from the center and La Marranera is 20-25 years old, 5 km from the center.

Neither have services, except electricity and shared latrines, and there are very few structures built from permanent materials. They have a very high land use intensity and population density, and very poor, polluted and dirty environment. The surrounding houses in the streets have all the services.

Access to the center is very good, and also to the other parts of the city because of the primarily radial form of the public transportation network.

Two peripheral ciudades perdidas that I have studied, both around 15-20 years old, are located on the limit between the Federal District and the State of Mexico, between the industrial areas of San Bartolo Naucalpan and Azcapotzalco, and near the high income residential areas of
Photograph 7  The narrow pedestrian passageway behind the lightpost is the entrance into the ciudad perdida located in the middle of the block. (La Marranera, intermediate ring)

Photograph 8  Typical internal street of the ciudad perdida (La Marranera)
Photograph 9  Typical houses of the ciudad perdida. (La Marranera)

Photograph 10  Local employment: putting scallions into bunches before selling them in the market. (La Marranera)
Echegaray, Florida and Cd. Satelite. Those ciudades perdidas are less dense than the older, more central, ones. Environmental conditions are also better. In other physical aspects there are no major differences.

**Tenure:**

The subject of rent is usually not a room, but a small piece of land on which the renter constructs a shack.

Tenure security is as in the illegal vecindades. There are no contracts, but tenure is "de facto" secure as long as rent is paid on time.

The only significant source of tenure insecurity is the present eradication action by the government.

It is also increasing the shortage of the ciudades perdidas, and may result in an increase of already existing key money payments. Because of the growing shortage, transfers between the ciudades perdidas are increasingly difficult.

**Physical quality:**

In terms of physical quality the ciudades perdidas belong to the worst of the housing types studied. This applies to the overcrowding of dwellings, utilities, sanitary conditions, and structural quality.

The only exceptions are the rooms of permanent construction, but without utilities built for rent by the owners (for example, in Cd. perdida La Marranera). Those form, however, only a small minority of the housing in the settlement.

One important advantage in terms of the physical environment is the full flexibility with which renters can use their small plot (considering,
of course, its rental character and degree of tenure security, and the intended permanence period). As the whole settlement is illegal, no building codes are applied. Consequently, users can and do all possible types of construction and modifications to adjust the dwelling to family needs and to special uses like the breeding of domestic animals, shop, workshop, etc.

Costs to the Users:

The absolute monthly cost is the lowest of all the types of rental housing that give the proximity to low skill employment centers (except to the vecindades with frozen rents that are beyond the reach of low income families because of the high key money costs).

In 1972, the rents paid were between 20 and 300 pesos (average 130-150) a month or 1.2% to 25% of income (average around 10%) - much less than other free market rental sets.

A comparison of this cost with the value of services is, however, much less favorable. The same average payments could be made for a vecindad room, still leaving a reasonable profit for the owner, for a much better shelter quality for the user.

User characteristics:

The two types of ciudades perdidas differ also in some of the characteristics of the users. Their time of urban experience is a function of the age of the settlement. In Buenos Aires, half of the population was born in the Federal District, and the rest had an average 34 years of urban experience. In La Marranera, the average urban experience was 20 years, in San Pedro Xalpa and Santiago Ahuizotla - 15 years.
Per capita incomes in the ciudades perdidas of the center were almost double of those in the periphery: an average 4.3 times subsis-tence (with minimum of 1.2) in the center, against 2.3 average (with minimum 0.5) in the periphery. The differences between the total family incomes were smaller (but still some 30%) because of the larger families in the more peripheral ciudades perdidas.

The regularity of employment is low in all the ciudades perdidas studied. Of the 15 families interviewed in La Marranera, 8 had irregular employment and incomes, 3 of 8 in Buenos Aires and 8 of 15 in San Pedro Xalpa and Santiago Ahuizotla.

Another important characteristic was a high number of secondary income contributors (wives, children, etc.).

Among priorities, proximity to employment and the centers were important for the inhabitants of the 4 ciudades perdidas. All those interviewed in La Marranera, and all, except one, in Buenos Aires, gave this proximity as a principle advantage of their present situation. Proximity to the subcenters, and to other peripheral employment concentrations, was most important for families in the peripheral ciudades perdidas.

Cost minimization was more important for the inhabitants of the central ciudades perdidas (despite their relatively higher incomes), than of the peripheral ones.

The important differences were in tenure priority. In the center only 1 of 8 Buenos Aires families, and 6 of 15 in La Marranera, had a strong priority for ownership (priority no. 1 for 4 and no. 2 for 2). In the periphery, it was an important priority for 14 of 15 families (no. 1 for 10, and no. 2 for 4). The most common combination of
priorities in the center was cost minimization and proximity to the center. The most common combination in the periphery was ownership and cost minimization. It should be also added that the families studied in the ciudades perdidas of the center tended, in general, to minimize their housing expenditure, having other principle expenditure priorities. It is possible that a strong priority for ownership (of plot and self-built house) in the peripheral ciudades perdidas studied was caused by a still elastic supply of land in the area of Naucalpan near to them.

In all the ciudades perdidas, the lack of sanitary utilities was considered by users as the principal disadvantage. In the center, the lack of space both roofed, private, and open-semiprivate was an important problem. Conversely, in the periphery, more space and privacy was mentioned by dwellers as an important advantage.

**Costs and benefits, match with user needs and priorities**

The main dysfunction of the ciudades perdidas I have found is the very high cost of rent in relation to the value of services received. As a result, these small, unserviced, plots give their owners up to 100% interest over the property value, in rental income every year. In this way ciudad perdida functions as a channel of decapitalization of the poor. On the other hand, however, rents in the ciudades perdidas represent on the average, a smaller proportion of incomes than in the free market vecindades, rental rooms, houses and apartments. In fact, the ciudades perdidas are the only really low cost rental, with an appropriate location in relation to the job concentrations and markets still available in the city. (They are usually a little further from jobs and markets than the vecindades, which I have indicated as a small cost on
They also have an important advantage of a wide range of standards and prices to fit different incomes and priorities. Standards range from 8 sq. m. of a "mini-plot" to the two room house built of brick, with electricity and gas, but no private sanitary facilities.

Corresponding prices vary from 20 to 360 pesos a month in Buenos Aires (average 148), from 25 to 250 in La Marranera (average 122), and from 80 to 225 in the peripheral ciudades perdidas (average 110). This permits the accommodation of families with incomes ranging from 1.8 times subsistence to 6.6 times subsistence in Buenos Aires and from 1.5 to 7.0 in La Marranera. Form of tenure - rental - also matches with the priorities of the users.

Fig. 15 presents these basic matches and mismatches.

**Match between the user demand and the characteristics of supply in the cd. perdidas** (for explanation of scale used in diagrams see page 127).
The costs of the existence of ciudades perdidas for the government can be listed at least in 3 categories: the general welfare of users, consequent "image costs" for the government, and lost tax revenues. Those have to be seen, however, as the consequences of prohibiting the construction of new vecindades. The present eradication of the ciudades perdidas is another move in the same direction. It is "solving" the perceived problems of image costs, freeing land for more lucrative development, and at the same time, creating new real welfare problems, by depriving the residents from the only housing that they can afford. I shall return to this point discussing the policy options in chapter V.6.

In the private commercial sector, the owners of the plots are the only ones who gain from the ciudades perdidas. For the construction industry, for example, the majority of the population of ciudades perdidas represent an opportunity cost of foregone profits from the construction of unbuilt vecindades and rental rooms.

2. Submarkets of use without rent

This group of housing sets (or types) serves basically the same demand as a rental set: for use only, without possibilities nor intentions of ownership of the present residence. In other words, the users of these sets could be called "zero rent renters," - a variant of rental housing. In most cases, user needs, for example, for access to employment centers, are very similar to those of renters. However the benefit of not having to pay rent increases their tolerance for other mismatches. For example, they may live further from work but still remain satisfied with their present housing.
The numbers of users are much smaller than in rental or property sets.

2.1. **Arrimados**

Being arrimado, - a situation of living with family or friends without payment - is an important solution among the poor. No earlier housing studies have discussed "arrimados," and the following discussion is based only on my own data.

Families or individuals living with relatives or friends without payment were found in the colonías proletarias of all ages and legality status.

The colonias of the fourth ring, the inner part of the periphery, usually some 10-15 years old, tend to have the highest percentage of arrimados. "Host families" are usually owner-builders. Houses are of all possible sizes and quality, ranging from shacks built from discarded materials to modern standard dwellings. A small proportion of arrimados were also found with families who were renting houses, or even tenement units.

In almost all the low income subdivisions and peripheral squatter areas (colonias proletarias and colonias paracaidistas) some arrimados were found. (in 23 out of 25 localities of that type studied). Their proportion was varied, in some localities reaching 10 and even 15%. 89

They also had the shortest urban experience. Interesting insights into the arrimado situation gave us the interviews in Colonia Olivar del Conde (the legalized squatter area on the west of the city) where I found 3 arrimados in the sample of 25 families. Two of them were in the
process of buying land, initiating construction of their own houses in the more outlying, and therefore cheaper, colonias.

More information about the characteristics of the arrimado solution and the arrimados themselves came out of the case studies.

Out of 25 families covered by the in-depth case studies in 1973, 13 have been arrimados at some time in their urban history. Presently they have all possible types of housing solutions.

Most of the stays were short, from a few weeks to a couple of years at most, usually right after the arrival to the city or at the other, later, important take off point to the subsequent independent housing solution.

Arrimados lived usually close to their jobs, usually short-time or irregular ones that they often found with the help of their hosts. The case studies, and family interviews from which this data could be gotten, indicate that arrimados have usually positive expectations and aspire towards ownership solutions; they are also much younger than the average family interviewed in a given locality. The very possibility of saving housing expenses as arrimados makes the subsequent positive mobility much easier. Of the 13 (out of 25 total) families in the case study sample who were at some time arrimados, only one has subsequently experienced downward socio-economic mobility, 3 strongly upward, 1 static or low, but not very low, level, and 8 slowly upward.

In my sample of 25 in depth family case studies, there was one family living as arrimado. It has also significant past arrimado experience.
Case #22 is a young nuclear family of Rafael, Maria Luisa and their six children.

Both parents are barely literate. Rafael's trade is car painting. He has learned it, advancing gradually from helper to independent painter, with the help of contacts of the relatives with whom he was staying after coming to the city.

After getting married, the young couple stayed first with the wife's parents and next with Rafael's uncle.

Not having a housing expenditure, they were able to provide adequate nutrition to the children and themselves.

When income from car painting increased, the family moved to an independent dwelling in the vecindad. Primary reasons for the move were the search for privacy and independence, and the will to maintain good relations with the family whose kindness they did not want to overuse. A series of unusually wet seasons made the average drying time of each car much longer. Painting in the open air was often becoming impossible.

Rafael's income decreased so much that he was not able to continue paying for the vecindad room, and at the same time feed his family and himself.

The family not only survived that crisis, but its situation improved and they look with optimism to the future. This was possible thanks to help from Rafael's comadre. She permitted him to build a shack in her back yard, as well as use the sanitary facilities of her house. In fact, she even invited him to move into her house, but he declined this offer to avoid damaging the
relationship through a prolonged stay. The shack in the yard does not interfere with the life of the comadre's family, as would living inside the house. He also values privacy of his own family very much.

The comadre herself is a pepenedora, or rag-picker, in the city's largest municipal dump, adjacent to the neighborhood. She gave Rafael access to the dump, and taught him the trade of pepenedor, by which he is able to supplement his now very low and irregular car painting income. He can walk to the dump (no transportation expenditures). Rafael built the shack in one day from the waste materials he found on the dump. It did not cost him anything.

The family income is very low, around 950 pesos a month (1973), but the parents and children are well nourished and all children of school-age are getting an education. The family also started to save towards the down payment of their own lot or house.\footnote{91}

They are optimistic about the future for themselves and their children.

Their house, in the sense of physical shelter, is the poorest of all in our sample. But being free, close to work, close to services, and secure, it is providing an important support for the present life of the family and for its future mobility.

Examples from other cases are equally convincing that the arrimado solution is very important and positive for the migrants and other "starters" of the urban socio-economic mobility process. How many of them are now in Mexico City, and what is the potential supply of this
solution for new entry? I do not know and it is probably not possible to get the answer. My present estimate of approximately 200,000 persons living as arrimados in Mexico City is based on an extrapolation of the proportion of arrimados within our family interview sample, on the proportion of arrimados among the new entries into the system observed in the interviews and case studies, and on the yearly rate of immigration and of the Mexico City based entries.

It is even more difficult to predict possible changes in the number of arrimados.

Family histories suggest that the proportion of migrants using the arrimado solution is increasing. This could be expected since the number of ex-migrants in the urban population is growing, each new migrant has a better chance of finding someone in the city that she, or he knows.

At the same time, however, the contribution of migration to population growth is generally decreasing and amounts now to some 30% of the total yearly population growth of the city.

It is also important to remember that many arrimados are not migrants - young couples living with parents of one of them, etc.

This provides a very important security system for the poor, facilitates their mobility, does not decapitalize, but, on the contrary enables them to save toward an independent start. Since it is, in fact, a mutual help system of the low income population, it does not represent any costs to the society at large.
2.2 **Cuidadores**

Another group which is small in number, never studied or described, but representing a distinct housing solution are the so called cuidadores, or resident watchmen of the absentee owner lots against the squatters.

It provides free housing for the low or even lowest strata of the low income population. Cuidadores are most common in the new semilegal peripheral subdivisions, and in the illegal subdivisions and invasion areas of some level of consolidation and security.

In my sample of 600 family interviews, the largest proportion of cuidadores was in Ecatepec (Col. Nueva Aragon and Col. Piel Roja) - new colonies in the Vth ring outer periphery - 4 out of 20 families, and in Cd. Olivas del Conde - newly legalized squatter area in the inner periphery, IVth ring - 4 out of 25 families.

In my sample of 25 in-depth family case studies, 2 were cuidadores at some point in time during their lives. One of them (case #24) occupied 14 different recent sites, one after the other, over a 41 year period.

They have even built a collapsible shack to move it easily from place to place.

On a somewhat higher level, a third family (case #6) followed a similar pattern serving as concierge for 4 apartment houses over a 7 year period.

The history of the family of case #24, just mentioned, demonstrates the function of the cuidador solution in the life of the very low income family without, or with very slow, upward income mobility.

Having no relatives, and therefore no chance for free housing of the arrimado type, Sixto, Teresa and their 8 children were able
to survive with their extremely low income thanks to the possibility of having free housing in the cuidador position.

For most of the 41-year period of being cuidadores they were spending some 80 to 95% of their income on food and fuel, part of the time they were also raising some chicken and pigs. They were eating modestly, but they were not undernourished, which would have been the case if they had had to pay for the house. (In fact they are undernourished now that they live in a government subsidized housing project and are spending over 60% of their income for housing and utilities — see section II.4., page 214 and pp. 795 and 801 in Appendix D for more detail.)

Their lots were usually located in the places permitting some additional income from the wife's work. She was working in a tortilla factory (tortillas are Mexican thin corn pancakes), as a washwoman, and in the last location, selling home-made refreshments with her daughter to the visitors of the swimming place located nearby. The meat of the animals they were raising on the lot was used for the sandwiches they were selling.

As in most cases, their problem was poverty, underemployment, and not housing. It is important, however, that in this reality, the housing solution was supportive, and made it easier, and not more difficult, to survive.

The other type of cuidador is represented by case #26, the first one in the new series conducted in 1974-75 to complement the original 1973 sample of 25.

Unlike the survivor family of case #24, Mr. Jorge Sanchez, of Colonia Nueva Aragon in the peripheral municipality of Ecatepec, uses
the cuidador solution as a deliberate form of saving towards the purchase of a lot and the initiation of the incremental construction of his own house.

The family arrived in Mexico City only 3 years ago. Initially they shared one vecindad unit with friends, contributing half of the rent, or 200 pesos a month of the 1400 pesos of their irregular income. They had no saving margin at that time. After 3 months of life in the vecindad, both friends got an offer from their employer, a general contractor for whom they irregularly worked as masons, to each move to a different lot he owned in the peripheral subdivisions, to live there for free and protect the lots against squatters. They took this opportunity. Since the move, some three years ago, the Sanchez family has saved some 50 to 150 pesos a month. They were also able to buy a number of furnishings. The family expectation and budget are oriented towards purchasing their own lot, and towards the home they plan to build by themselves, possibly with the help of friends.

Their savings in September 1974 were about 4500 pesos (360 US$ of 1974) and they were hoping to be able to make a move by the end of 1975.

This of course would not be possible if they had to pay for their housing.

The cost/benefit accounts for the users in the two described cases are very favorable. The housing solution does not add to the family's exploitation on the labor or consumer goods market; on the contrary, it supports the family.
Within their limited resources their needs and priorities are well matched.

The family interviews did not give the depth of information the case studies did, and it is impossible to make sure judgments on the supply/demand match/mismatch. As far as I could judge, they indicate a rather good match.

At the same time, however, there are the real costs of the cuidadores subsystem to the society, which we can see even in the same case #26: both lots, that the two friends are watching, Jorge Sanchez in Col. Nueva Aragon, and Ernesto in Netzahuelcoyotl, belong to the same general contractor, who bought them and is keeping them as an investment. This is a very typical model of the cuidador situation.

The guarded lots are kept out of development, usually, in the at least partially serviced areas, and usually for speculative purposes. The low density of the peripheral subdivisions with a high percent of unbuilt plots increases the cost for the provision of services. The sold, but unbuilt plots, are not available for the new families who want to buy in order to build. They have to buy even further away, with worse access and less services. However, their settlements increase the value of plots in the closer in subdivisions, kept by speculators and guarded by the cuidadores.

A taxation policy that would encourage construction on vacant lots in the already urbanized areas is necessary to control land prices, assure more tax revenues and lower the cost of services for the city. It would also, however, eliminate a large portion of the cuidador subsystem. Any
such policy, has, consequently to be complemented by the provision of an alternative for the "cuidadores."

2.3. **Employer provided housing**

Another small but important submarket is the housing of servants, night guards in industrial areas, and other employer-provided housing.

The largest by number is the situation of servants: maids, cooks, gardeners, chauffeurs and other houseworkers employed by the upper and middle class.

In the high and middle class one-family-house residential areas, the quality of these residences is generally the same or better than of the rented rooms with a family in the colonias populares.

The situation is worse however, in the multifamily housing, especially in the so-called "social interest housing." On the rooftops they have servant quarters and laundry facilities. Servant quarters are given usually the official name of ironing rooms ("cuarto de planchado") - they are all concrete including the floor, no or one very small window, a very small 6 x 8 or 9 foot room with no cooking nor sanitary facilities.

These are occupied by servants but also often rented out to the poor by the middle class owners or renters for additional income (see II.1.3). They are often called in street language "rooftop slums:" "turgurios de las azoteas."

Second in importance among the employer-provided housing is the night guard (velador) position - usually in factories, warehouses, garages, etc. In our sample of 25 case studies, 3 heads of the family are or have been veladores living alone or with the family in the employer-
provided room usually at the gate of the guarded establishment.

In the squatter areas of Santa Ursula and Santo Domingo, 2 out of 15 families of our random sample in each of them have come to those areas from a previous "velador" solution.

Both servant and velador employment plus housing solutions are most frequent for new arrivals who do have some foothold in the city. These are some of the peripheral "bridgehead" solutions. The velador job is often the first step of career mobility within the firm by the family head himself or by his sons. The next step is usually inventory controller, truck driver, or machine operator.

Migrants need contacts in the city, usually in the periphery to find such a job at arrival, but introduction is not essential for acceptance. The servant jobs and consequently live-in housing provide less mobility potential, and are virtually impossible to get without an introduction - especially in other than apartment housing.

The third kind of employer provided housing is in the semi-skilled, or even skilled, jobs where part of the earnings are given in the form of housing. Case #15 of our sample of in-depth case studies is an example of such a situation. The family has a rent free apartment in the servant quarters of the house of the owner of the street paving enterprise for which the family head was working.

Within the 600 family interviews we had also a barber's assistant living in the barber's house, a waiter living in the room next to the restaurant, etc. Those solutions however, were never in the case of new arrivals.
The special variant of housing at the job are the so-called "pepenedores," garbage pickers, I have already discussed in chapter II.4.1.4.

Theoretically, in the employer-provided category should also be the company housing of private business and the employee housing of government agencies and enterprises (like, for example, PEMEX housing). However, by definition these serve only the population earning at least a minimum salary, and consequently are beyond our interests.

3. Ownership submarkets

3.1. Definitions and Variations

With the exception of a very limited supply of project housing built by the government, and one or two commercial projects (both accessible anyway only to the upper strata of the low-income population), the purchase of a plot and the incremental construction of a house in a colonia popular (a low-income locality) represents the only way in which lower income population can achieve ownership of their dwellings.

Those colonias are generally created in the periphery, on the unserviced and poorly communicated land. I have identified three principal and three less frequent types of colonias populares.

The first one is the colonias paracaidistas (squatter areas, literally "parachutist districts)), which results from the invasion of public or private land. This term is also used, with similar arbitrariness as the term ciudad perdida, already discussed, to describe all kinds of low-income settlements in the earlier stages of incremental construction and/or with unclear land tenure titles.
The second and probably most numerous type are the fraccionamientos populares (popular subdivisions). These are subdivisions, without services, of large tracts of land in the periphery by commercial subdivisions, that can be individual, or, more often corporations with limited responsibility (Sociedades Anonimas).

One can distinguish two sub-groups of the fraccionamientos populares: in the first one, sale is legally supported by a property title, and in the other, which is more frequent, without any legal contract, the only proof of property are the receipts of down payment and the subsequent monthly installments.

In both cases the subdivider is obliged, in the conditions of sale, to install all the urban services required by the subdivision regulations. This is practically never done. These violations of existing codes constitute additional aspects of the illegality of the fraccionamientos populares, besides the legal complications because of the lack of proper titles.

The third principle type of colonia is the result of the illegal sales of the ejido or communero lands. This land belongs to the nation. Its possessors have an unlimited right to use it for agricultural purposes but not to sell or to change the land's use.

In these transactions the only proof is the receipts, but even these are not always present. Nobody intends, nor expects installation of services.

Three less frequent types include: those from the completely fraudulent sales by individuals without any rights to the land they are selling; those from the illegal subdivisions of private small farms in peripheral
Photographs 11 and 12

Typical new squatter area - 3 years old. (San Nicolas de Padierna) Principal shopping street and a side street.
Photographs 13 and 14

Typical new squatter area - 3 years old. (San Nicolas de Padierna)
Typical dwellings.
Photographs 15 and 16

Illegal "ejido" subdivision (San Rafael Chamapa) 9 years after settlement. General views.
Photograph 17
Illegal "ejido" subdivision (San Rafael Chamapa) 9 years after settlement. Typical street.

Photograph 18
Typical dwelling under expansion in the same subdivision.
villages under the pressure of urbanization; and finally, those from the completely legal subdivisions for the low income population with full property titles and minimal but complete urbanization.

This last kind of supply does not exist in Mexico City but still does in the smaller cities like Guadalajara or Morelia.

I shall return to the different types of colonias while discussing the land market in chapter IV.2.2.

The land tenure situation is, probably, the main variable differentiating between the different ownership sets.

The second basic variable is the stage of development of the dwelling and area. In this dimension there is a spectrum from an undeveloped plot in an unurbanized subdivision, to a completely constructed and serviced house, possibly even with extra rooms for rental.

The legality of tenure and the stage of development correlate closely with each other, and both, usually, with the age of settlement.

3.2. History, Numbers and Locations.

The rapid growth of the colonias proletarias has been continuing since the 1940s, but the first areas already existed in the 1920s. The first known colonia, Agricola Oriental, has existed in the northeast of the city, near the airport since 1922. As early as 1930, 28 settlements were started, 81 were added in the decade of the 1930s, 147 in the 1940s, and 150 in the 1960s.

According to Harth Deneke's estimates, during the 1950s the colonias increased from 16,300 to 68,000 acres or 42%, as compared with the increase of the Mexico City urban area from 60,000 to 116,000 acres, or 19%.
According to the estimate of C. Batallon, during the 1960s the peripheral colonies gained 2.4 mln. inhabitants, 750,000 of whom arrived from the central parts of the city. The proportion of the city covered by those colonias of owner-builder housing increased from 21% in 1930 to over 60% in 1973. They are inhabited by approximately 400-500,000 families or about 60-65% of the metropolitan population. Until the 1960s, most of the colonias were located in the northeastern sector of the city. Its predominance is continuing, but since the 1960s, new colonias have grown up all around the urban periphery. Of the principle types mentioned, the fraccionamientos populares were most common in the 1950s and 1960s, and the ejido subdivisions, in the end of the early 1960s and early 1970. Squatter invasions were never a principal type, but their number has increased since the 1950s.

The most explosive growth has occurred in the four municipalities of the State of Mexico just outside the northern and eastern limits of the Federal District: Netzahualcoyotl, Naucalpan, Ecatepec, and Tlanepantla.

The population of Netzahualcoyotl increased from 65,000 in 1960 to 680,000 in 1970 and near 1,300,000 in 1975, Naucalpan grew from 85,000 in 1960 to 382,000 in 1970 and 450,000 in 1972. Two others grew at a similar pace (around 450% during the decade of the '60s).

The growth of the new colonias in the Federal District was slower in recent decades because of the prohibition of subdivisions enacted in the late 1950s. At the same time, precisely because of the lack of subdivisions, squatter invasions were much more frequent in the Federal District than in the State of Mexico part of the metropolitan area.
The low income colonias are usually located on the land of no utility for other uses by the more affluent sectors of population.

The fraccionamientos populares are located not only far away from the centers, but also usually on land with very poor environmental conditions, unhealthy, and costly to urbanize. The just mentioned Netzahualcoyotl and Ecatepec, on the semi-dried bottom of the old lake Texcoco, are best examples. Squatter invasions occur usually where the settlers expect eradication least likely, and this is often on the land that is practically un-urbanizable.

The only exception are the very large invasions which sometimes occur on better land. Even these, however, choose places that do not compete with other land uses, mostly because of their remote locations. The ejido subdivisions are also located far away, but the quality of the land, and the environmental conditions are better than in the two former types.

3.3 Tenure and Regularizations:

The tenure security of the possessors of plots varies with the type of colonia from very low in the squatter area to relatively high in the popular subdivision with property titles.

The level of security changes, however, with the "regularization" of the colonia, a process that, sooner or later, occurs in most of the cases. Regularization of the colonia means the legalization of land tenure and a government commitment to initiate the introduction of urban services. During the Echeveria administration (1971-1976) the regularization procedures were rapidly increased.
The procedures of regularizations, and their implications for the users, depend on the initial form of property.

We can distinguish two basic situations related to the main types of colonias just discussed.

First, in the fraccionamientos populares the government agency conducting the regularization gives the land titles and introduces services in response to the pressures exercised by the population, usually in the form of stoppages (strikes) of monthly installments of land payments to the subdivider.\(^9^7\)

The principal beneficiary of this government intervention turns out to be the subdivider. He is assured the continuation of the land payments from the users and relieved from his contractual obligation to install the services. The users have to make advance payment for the installation of services to the government agency. This represents for them, at least, the second and often the third payment for the same infrastructure.\(^9^8\)

The second form of regularization procedures are found in squatter areas (results of invasions) and in the illegal subdivisions of the ejido areas.

In these cases, the expropriation of land and the payment of appropriate compensation to the original owner or to the ejidatarios is necessary. The cost of the compensation plus the administrative costs of the agency doing regularization are paid by the users as a part of the price for the "purchase of the plot." In the case of the ejido subdivision, this is already a second purchase of the same plot as they have already bought it once, illegally, from the ejidatarios. The costs of urbanization (installation of services, etc.) may be included in the price of the plot, or be charged separately as a compulsory contribution.
3.4. **Owner-builder housing**

**Physical Characteristics and the Owner-builder Construction Process**

In all the colonias populares studied, the main mode of construction was the incremental owner builder process. Quality of the structures varied immensely between the colonias (as a function of tenure security, age, and the urban services available), and within them (as a function of the resources and priorities of families).

My in-depth case studies included 12 owner-builders, 7 of whom have some form of land title. Five of them were in regularized ejido subdivision (San Rafael Chamapa cases 17 to 21), one in a legalized fraccionamiento popular (Tlacoligia, case 15, a double owner-builder has built 2 residences), and one in a non-legalized ejido subdivision (Magdalena Atlazolpan, case 9). The remaining 5 should be rather called possessor-builder as 4 of them were squatters (cases 11 to 14) and one built on rented land which he was purchasing by installments at the time of the interviews (after 15 years of renting).

In all these cases, the owner was acting as his own general contractor, and the families themselves contributed a substantial proportion of physical labor. The specific proportion of family labor varied strongly between families, and also between different periods for the same family.

The later was related to the employment situation of the family members (underemployed time was used for construction and extra incomes were used for the purchase of materials and contracting labor) and to the type of work. Reinforced concrete jobs, especially slabs and roofs, were usually done by contracted labor. The same applies to most of the
plumbing, and to some electric installation jobs. Contracted labor was always from the same or the neighboring colonia.

The traditional concept of the owner-builder, or of self-help housing, existing in the literature, emphasizes one's own labor as the main source of savings. My case studies, as well as the information on the owner-builders from the large interview sample, suggest a broader concept of the owner-builder as his own general contractor as more appropriate. There were two main reasons:

- "Pure" owner-builders, doing everything with their own hands, are very rare indeed, while owner-builders understood as their own general contractors are very frequent.
- One's own labor was not the main source of savings. Managerial skills, the use of discarded or underutilized materials etc., were more important. 99

In all the cases studied, dwellings were built by stages during a period of one to 15 years. Case studies 15 to 21 (see Appendix D) indicate the stages of the incremental construction process. The time and volume of construction was a function of the economic possibilities of the families and their expenditure priorities, both changing over time.

None of the 12 owner-builders among the 25 family case studies, had an official construction permit required by building codes, and at the time of interviews, the construction of all but one was still not legalized by the submission of required plans and the "post factum" permits.

The majority of possessor-builders studied, all those with "de facto" tenure security, built at least 2 brick rooms with a cement floor as a
first stage of the house. Roofs were usually light and temporary, built of asbestos-cement panels. The addition of more rooms, and the replacement of the temporary roof with a warmer concrete slab (first over the bedroom) were the most typical next steps. The addition of a separate room to serve as kitchen, and, finally, the bathroom, were frequently the next stages. The initial construction period lasts usually up to 1 year. Of the 7 owner-builders studied only one took more than half a year to complete the first stage. For the lengthy initial period, the owner-builder colonies studied lacked public services. The physical quality of housing was, however, much better than in the rental dwellings from which the families had moved to the colonias. This is indicated by a comparison of the amount of private space that families held.

Out of the 7 owner-builders studied, 5 who previously lived in a vecindad presently have an average per capita private total space of 26.4\(m^2\), and 5.5\(m^2\) of private roofed space, after an average of 8 years of construction. This represents a 12 times increase counting entire private space, and a 2.5 times increase counting only the roofed space, despite the substantial increase of family size during the period of construction.

The sixth family, who came from the servant quarters in an upper income villa (single family house) followed the same pattern. They now have 14\(m^2\) of roofed space per capita, as compared with 8\(m^2\) per capita of private space (all under the roof) in the former residence.

The only exception was the family living in the non-legalized ejido subdivision scheduled for eradication by the city government. They already lost 25% of their plot, with no compensation, when the government agency widened their street to give better access to a nearby housing project.
Photographs 19 and 20

Magdalena Atlazolpan - locality delayed in improvement by tenure insecurity and lack of services (20 years after settlement). Street with the water seller's cart and one of the houses.
Photograph 21

Magdalena Atlazolpan. View from the locality towards the public housing project of Ixtacalco, whose extensions threaten the locality with demolition.
With the birth of each of their six children, the per capita space was decreasing, while the family was kept from any investment in a house threatened with demolition. It is now only $2.5m^2$, as compared with $12m^2$ in the earlier rental dwelling. The total private space per capita is also now smaller than in other cases: $15m^2$. This typical case of a locality delayed in improvement by tenure insecurity and lack of services is presented in photographs #19, 20, and 21.

The housing of this family is also typical for most of the possessor-builders in the newer, or continuously insecure, squatter areas. Cases 13 and 14 in the new squatter area of San Nicolas de Padierna illustrate this very well. The families have $2.65m^2$ and $2.0m^2$ per capita of roofed space, respectively. They were built initially of cardboard and corrugated iron panels on a tree-branch frame, and were subsequently replaced by local field stones and sun-dried adobe bricks made on the plot. The floors were of dirt. The open space is large, but its limits do not have any legal security. One of the families has electric connection. There are no other urban services.

Case number 12, a family living in the much older squatter are of Santo Domingo does not have legal security either. The much higher "de facto" security led them to build over 24 years one of the two most substantial houses of the entire sample.

Construction materials were usually purchased from the local distributors, or cheaper, directly from the trucks coming from outside the area (from producers or large distributors). This was not the case in the new squatter areas lacking any supply of construction materials. In all the cases studied their transportation costs to the plot takes a
very high proportion of the payment. As I mentioned in the former section, services are usually installed by the specialized government agencies and paid for by the users.

The increase of land values is also a consequence of the improved quality of services in the area, and its more complete integration in the city by the metropolitan service networks. As already mentioned, installation of services has to be preceded by land tenure legalization.

Many students of the owner-builder areas have noticed a rapid improvement of the colonias after tenure legalization and the installation of service mains. They attribute it to the increased security of an investment into the homes and locality, and to the possibility of connecting bathrooms, kitchens, etc. to the new sewer and water lines. I have noticed, however, that those who make the largest investments in this post-legalization period are not always the original squatters. In fact, there have been a number of cases of families who bought the land from the original squatters immediately after legalization.

There are two reasons for the sale of land by the original squatters: the simple pressure of the market (the prices offered by the buyers, although very low for them, seemed attractive to the squatters), and the lack of money to pay the costs of legalization and the compulsory contribution for service installation costs.


The 7 owner-builders studied financed their houses without the use of any formal credit. Four of them used, however, informal loans from their employers, of up to 3000 pesos.

Most families also used loans from family and relatives. Three out
of seven bought the land in larger plots, together with friends and relatives, and subsequently subdivided it by themselves. This permitted them to get much lower unit prices.

Among the 6 owner-builders that presently have legal land tenure, they paid an average price of 22.50 pesos for 1 sq. m. of land. Out of this, the average illegal payment to the seller was 12 pesos for a 2000 sq. m. plot (in pesos of 1970) of unurbanized land.

It is interesting that increasing the "de facto" security with an increase of the settlement size, contributes to the increase of prices. In San Rafael Chamapa, for example, during the first 3 months of colonization, the price of 1 sq. m. increased from 4 to 7 pesos, becoming 35 pesos in 4 years. All this happened despite the complete lack of tenure legality, lack of services, and a still ample supply of unsold land in the subdivision.

The cost of legalization conducted in 1971 averaged 10.50 pesos per 1 sq. m. Two years later, unserviced plots in the nearby legal subdivision were sold at 250 pesos per sq. m. This new land was also less accessible and more difficult to urbanize because of steep slopes.

The average current housing cost for the 7 owner-builders in 1973 was 252 pesos per month (calculated in pesos of 1970), including an average 90 pesos per month for transportation, and the payments for water.

Water payments vary substantially. Four out of 7 families were paying an average of 70 pesos a month for water purchased from the distributing trucks. Two families have a water connection to their homes. They have individual use meters and pay around 20 pesos a month (using much more water). One family does not pay, using water from the public hydrant in the street.
In annual terms, the average current housing cost was 3024 pesos with transportation, or 1844 without transportation.

Adding the investment in the land, house, and all the improvements over an average 8 years of residence, the total annual housing cost to the average of 7 owner builders of the sample was 4622 pesos (in constant pesos of 1970). This was between 5% and 32% of the family income (average 16%).

During the periods of intensive construction, up to 40% of the income was invested in housing and land improvements.

Out of 7 families, 2 came from rent-free housing (received as part of the wage: one as a night watchman, and one in servant quarters). The remaining 5, who came from the vecindades, then had the average annual (current) housing costs of 2403 pesos. (They were living in the least expensive vecindades of the peripheral subcenters.) This is substantially less than their costs as owner builders. However, it is important to note that the prorated cost covered all the investment done to date (I have amortized all investment over the first 8 years). In three cases, the current cost also includes a continued payment of regularization (three families with the highest costs). Once these investment payments are made, housing and utility costs decrease to 5 to 8% of the income.

This can be further reduced by income from renting rooms, or apartments in the later stages of incremental construction.

The transportation costs to work remain high, unless local employment centers are developed. The other important costs are the prices of basic foods.

The main economic advantage of owner builder construction is the equity developed. For the 6 owner builders with secure land titles, it
varies from 20 to 80,000 pesos, as compared with an initial investment of 5,700 to 18,360 pesos. This is from 272% to 790% of the initial investment (an average 400%) - far beyond the level of the inflation rate.

Part of this achievement should be attributed to the increase in land values. This is specially true for the earliest settlers (cases 17 and 20), that have the highest equity investment ratios. However, the owner-builder construction of the house itself produced 40 to 60% savings compared with the commercial value of the finished structure.

User Characteristics – Owner-builder Profile

Ownership housing has a higher proportion of extensive and aggregate families than rental. It has also a lower proportion of incomplete families.

Extensive and aggregate families are more frequent in the squatter areas, and in the illegal ejido subdivisions.

All families, including the nuclear ones, are much larger, have more children, than in rental housing. Felipe Ortega,* in the detailed survey of Colonia San Rafael Chamapa, found 20% of the families with 5 to 7 members, 67% of the families with 8 to 12 members and 13% with 13 to 15 members. The average age of the family head at the time of the move was around 35-40 years. The time of the urban experience (for migrants) was about 10-15 years. This is recently becoming shorter in squatter areas, but remains the same in the other subdivisions.

Population in the two types vary in employment characteristics. Squatter areas have the highest proportion (up to 50 and 80%) of the

* See footnote 101 for reference.
population with irregular employment and with low-paid service jobs.

On the other extreme, the "legal" with titles, but unserviced) low cost subdivisions have a majority of population with fairly stable incomes. In the COPEVI sample of Netzahualcoyotl, for example, 25% of the family heads were factory workers and another 25% had other forms of permanent employment in the modern sector. The remaining were mostly self-employed in construction, commerce, etc.

In Ecatepec the proportion of those with permanent modern sector employment was higher. Factory workers constituted 58% of the sample, "workshop" workers 7%, chauffeurs and other "semi-blue collar" 15%, and commerce employees 7%. This was reflected in incomes. In Netzahualcoyotl, 46% of families had incomes below 1600 pesos a month, and 36%, between 1600 and 2000.

In Ecatepec only 4.4% earned below 1600, while 73% between 1600 and 2000. My data in the table on page 534, Appendix B, shows a similar distribution.

In general owners in the older colonies have higher incomes. Ecatepec, being newer than Netzahualcoyotl, is an exception. This is probably caused by the much higher prices of the plots in Ecatepec than in Netzahualcoyotl. Most of the interviewed owners showed upwards income mobility, but usually no, or very little change in the type of employment. In terms of past socio-economic mobility the owner families interviewed in the colonias were mostly a relative "success story" - they are former renters who managed to achieve their housing goal: freehold property. The ones who were less successful, never saved enough to buy a plot and begin to build a house. They are still renters in the vecindades or with families in the older colonias. Some of the owner-builders in the squatter areas are an
exception of this rule. Those are families with city center location priorities who find themselves in the periphery, since they were not able to pay high rents and only free squatter housing was within their means.

**Match with user needs and priorities. Costs and benefits.**

As mentioned earlier, there is a variety of housing sets in property categories ranging from an urbanized plot without property title to the modern complete freehold house.

The following summary of the main matches and mismatches for users covers only the most numerous sets. I have taken the form of land tenure as the main variable, assuming that in all cases the houses are built in the incremental way. Primary users with priorities for their own plot and house in the periphery—typical owner-builders—are considered. Only in the squatter areas was an analysis made of the match of housing with the needs of the family that has a priority for low cost rental housing in the center.

During the pre-metropolitan period of 1935 to 1955, owner-builder housing was adequately meeting the needs and priorities of the users. Relatively inexpensive land was still available and this was a decisive factor keeping user costs down. The smaller size of the city and the lower land prices permitted the low income families to get land with good access to work places and markets. Land tenure in the subdivisions was secure, and the settlements and dwellings were undergoing a progressive improvement. This match of demand with supply is presented in Fig. 16.
Fig. 16
Match of demand with supply for "consolidators" in the fraccionamientos populares (low-cost subdivisions) 1935-1955.
(For explanation of scale used in diagrams see page 127.)

In the recent popular subdivisions (fraccionamientos populares) with legal land titles, the price of land is far too high for the large majority of low income families. They are located very far out and the access, for those who use this set, is worse than what the families need. Also the physical quality is much below their priorities. This is due to poor environmental conditions, difficult terrain, the delay of installing urban services, and also to the depletion, by excessive land payments, of the family's capacity of investment into housing improvements.

The only point of match with user priorities is the security of tenure. Even this one becomes questionable, however, when, with the loss of income stability the family cannot continue to pay high land payment installments (that are often distributed for up to 10 years). Fig. 17 presents this situation.
Owner-builders in the illegal ejido subdivisions also had three negative accounts, but their overall match of housing with needs seemed better in general. The price of the land was relatively low, especially for the early settlers who bought the land directly from the ejidatarios. For the families with incomes similar to, or below, those of the users in the legal subdivisions, this was an important advantage, permitting them to invest more in housing construction.

Insecurity of tenure, especially in the initial period, and the lack of services delayed physical improvement. However, with time, in almost all cases, the users got titles and services were installed. These mismatches were therefore eliminated while the advantage of the low land price remained. The environmental and soil conditions of the illegal ejido subdivisions were usually better than those in the subdivisions with legal titles.

The problem of access to the center are similar for the legal subdivisions. (See Fig. 18).
Fig. 18

Match between demand requirements and supply characteristics. Squatters with owner-builder priorities in the colonias paracaidistas in the periphery. (For scale used in diagram see page 127)
Fig. 19

Match between demand requirements and supply characteristics. Squatters with priorities for city center location in the colonias paracaidistas in the periphery. (For scale used in diagram see page 127)

In the squatter areas, family incomes are usually the lowest among all the kinds of owner-builders. The price of land is also the lowest, especially for the original squatters (invaders). The investment in housing is reduced by the lack of resources, the insecurity of tenure and the lack of service mains. Tenure insecurity is the single most important mismatch. Access is, similarly for the other "consolidators" in the peripheral colonias, not as good as it should be, but it is not a principal problem. (see Fig. 18).

An extremely strong mismatch, often decisive for the possibilities of socio-economic mobility, was found between access needs and priorities for many of the poorest squatters in the periphery. For survival they
need access to the low skill jobs and low cost markets in the central areas. At a distant location, they spend too much for transportation. There are also very few earning opportunities for the secondary income contributors in and near the squatter area. The cost of their housing is appropriately low in relation to income and the low physical quality, although uncomfortable, is in agreement with their low priority. Environmental conditions are even better than in the preferred rental housing in the center.

Their tenure is very insecure, but they have a potential of becoming owners if they are able to pay the legalization and service costs. However, they do not have a priority to become owners. (see Fig. 19)

Summing up the priorities of owner builders, all of them (except the involuntary owner-builders, that have rental city center priority but live in the colonias paracaidistas) have the strongest priority for ownership. As long as they do not achieve it, all other housing needs are secondary. Once they have secure tenure, the improvement of the house, and next of the locality, follow.

Similar conclusions are reached by W. Cornelius in his study of the political demand-making by the urban poor in Mexico. Security of tenure was the subject matter of 65 percent of citizen-initiated contacts with government officials, among migrants of this sample.

The owner-builder construction process has multiple positive macro-social and macroeconomic consequences. It has a very positive impact on the distribution of wealth by accelerating the capitalization of the poor. By the incremental housing construction process, low income families can invest many resources that cannot be used for other things (such as under-employed time, managerial skills, construction skills, discarded materials,
Incremental construction provides local employment in the low income housing areas (only individual craftsmen and small local construction companies can do small jobs corresponding to the family's investment possibilities). It does not invite migration, however. (Housing projects provide less employment, especially to construction craftsmen in the low income colonias, but they do induce migration from the hinterland.)

Besides providing employment for construction workers, the owner-builder process also produces a large demand for the products and services of the construction industry in general: all kinds of building materials, tools, installations, furnishings, etc.

The demand of owner builders has the very important advantage of stability and continuity. It is relatively evenly distributed over time, in contrast to the peaks and "death periods" of the big projects of subsidized housing that are related to the political cycles of the country.

The most obvious benefit of the owner-builder production of dwellings is the large volume of housing provided both for users, and later, for renters.

It does not require any out of pocket costs for the society as a whole, and no form of subsidy. 105

A very important consequence to the city is the fact that owner-builders become property tax bearers, broadening the tax base of the city. They change from a "liability" (non-paying users of municipal services) into "assets."

The benefits of the owner-builder construction process are gradually being reduced at present.
The high cost of land, by taking a disproportionate amount of money that families can spend on housing, is leaving less for investment in the shelter itself. Reduction of demand for construction industry goods and services, and the general decrease of investment and consumption is a consequence. Taking the private commercial sector as a whole, only the subdividers and groups related to them benefit from the land speculation. The rest of the private commercial sector loses from it.

For the city government, it reduces their tax base in two ways. Delayed construction means no, or lower, property values for tax assessments. Many families never move to build their own homes, discouraged by high land prices and other diseconomies.

In both cases we have a loss of the potential tax base.

The other obstacle faced by the owner builders, producing similar kinds of impacts, are the complicated and expensive construction permits. In this case, however, the damage is smaller than that of speculative land prices, as most of the families decide to build without permits.

The "parallel" land markets, that substitute for the lack of a "legal" land supply at reasonable prices, benefit the users, if they manage to get their tenures legalized.

However, they bear other costs. Land illegally subdivided or invaded is usually difficult and costly to urbanize because of steep slopes, subsoil water conditions, etc. It is also located far from the transport network. Bringing services is therefore more costly than in many other areas that may stay vacant for a long time but cannot be used for low income housing (because of a high future return potential for large real estate investors that are holding it back).
Often, on the metropolitan scale, this land is also inappropriate for housing because of its relation to other land uses, or its destination for some specific supralocal functions best housed at this location, etc. However, it becomes invaded or illegally subdivided as a response to the demand of the poor for whom the legal options are closed.

4. Public Sector Housing, Rental and Ownership

Antecedents

The public sector's reactions to the symptoms of housing market distortions in Mexico are similar to that in most countries, and except for the utility programs mentioned above, they have been equally unsuccessful. Even those utility programs leave much to be desired, principally because of the lack of funds, and the consequently slow pace of action.

Utilities are installed by the local branches of the Ministry of Public Works (SOP), together with the respective municipalities in the State of Mexico and delegaciones in the Federal District. Inhabitants are charged the initial installation costs which they pay by installments, and later, the service charges as in any other residential area.

To save the costs of initial ground work for water and sewage installations, the government agencies organize inhabitants to dig the ditches.

"Operacion hormiga" in the municipality of Naucalpan, where colonia San Rafael Chamapa is located, is an example of such action. The interviewers first saw the community work there, then the ditches ready, and next, six months later, the same ditches half filled with dust - no
pipes were placed by the government agency. The reason was simple - lack of funds. However at the same time, costly complete projects were built by the low income housing agencies, mainly in the Federal District, to serve an insignificant percentage of the poor and usually not the most needy ones.

**Principal Low Income Housing Agencies and Main Kinds of Projects**

At present the single largest producer of housing in the whole Republic is INFONAVIT (Institute of the National Fund for Workers Housing) operating with a 5% tax over all the wages of non-government employees (paid by the employers), and producing housing at a cost substantially higher than the comparable quality dwellings built by the commercial sector.

Since it serves, by its status, only the population earning over the official minimum wage (81% of the State of Mexico population and 69% of this of the Federal District is below this level), and only those employed by the formalized commercial sector, it has little relevance to the low income population.

Some of the better off families of our sample do belong however to this group, but none of them is planning, or hoping to be able, to use its services. The allocations of INFONAVIT housing as credits is always by a lottery, and for the complete, modern units.

One who wins a lottery gets credit at a low 4% interest, and during the first 3 years 25,000 (8500 per year) out of the 3,100,000 derechohabientes (entitled) in the whole Republic, were lucky. (40,000 units were built, out of that 25,000 transferred to users -- the annual number of new units in use was 8500).
The declared INFONAVIT production goal was 100,000 units per year. According to the official statement by the Technical Director of INFONAVIT, one of the basic achievements of the institute is the fact that now "every worker can be the owner of his hope to have a house." Those who do not win the credit cannot get anything, even a 2000 peso loan to put the fence around the plot, as was the case for the factory watchman, one of the families studied in depth in Chamapa (case #17), who owns a self-built house with an official assessed value of 80,000 pesos. A lottery is also totally inappropriate for the long term planning of a family housing solution, and on the other hand, precludes the possibility of the winners using many non-monetary resources, listed in the Chapter III.2.5., that families are able and willing to contribute towards their housing.

The cost of INFONAVIT construction were never fully evaluated. A number of the informants indicated costs that were 30% to 80% higher than the average in the typical private commercial sector construction. A detailed study of the cost of the largest project (Iztacalco in Mexico City) has fully confirmed this.

The counterpart of INFONAVIT for the government employees is FOVISSTE (Housing Fund of the Social Security Institute of the Government Employees) and its financial base is analogous to the one of INFONAVIT, but the allocation system much more flexible. FOVISSTE loans are 6% (INFONAVIT 4%) but any government employee may apply for it without any lottery.

A third federal housing institution, FOVIMI (Housing Fund of the Military), serves the professional military personnel, and has a similar system.
However the importance of both of them for the housing of the poor is minimal, and none of the families studied uses the FOVISSTE services; one (among the richest of the sample) applied for the FOVIMI housing.

Government institutions that have the specific function of helping to solve the low income housing problem in Metropolitan Mexico City are:
- on the federal level - INDECO (National Institute for Rural Community Development and Popular Housing);
- in the State of Mexico - Instituto AURIS (Institute for Urban Action and Social Integration) and Fideicomiso Netzahualcoyotl (Trust Fund of Netzahualcoyotl);
- and in the Federal District - Dirección de Habitación Popular (Direction of Popular Housing) and FIDEURBE (Urban Trust Fund).

INDECO action in the capital region is centered on the construction of housing projects with standards and prices aimed towards the lower middle class.

Principle AURIS activity in housing is also aimed at the commercial middle class market, in which they are able to maintain competitive prices because the cost of land coming from government expropriation of the federal land of the ejido agricultural communes is far below the commercial level.

Profits from the sale of complete houses or the fully services lots in the AURIS Izcalli subdivisions are utilized, among others, in exhibitions (EXPO-AURIS) and festivals (CARPA) supposed to inform and serve the low income population.

The direct housing action for the poor by AURIS includes help with property regularization and the sale of construction materials in the so called Acción Casa (Action House). The last action, despite the zero
profit prices, does not develop very much because of the supply and selection of materials often inferior to the commercial competitors.

Fideicomiso Netzahualcoyotl coordinates the provision of urban services and other improvements of this largest (over 1 million inhabitants) low income municipality of the State of Mexico. The cost of its work is to be paid by the inhabitants through a special state tax of 110 pesos a month over 10 years. The residents are strongly protesting the high charges.

FIDEURBE was created at the end of 1972 as a trust fund for the urbanization and urban renewal of the low income areas in the Federal District. It has as its patrimony 11 million square miles of federal ejido disputed land, all of it built up, illegally sold or invaded years ago. With this questionable collateral, FIDEURBE has managed to borrow 3 million pesos from Banco de Obras Publicas SA (Bank of Public Works, Inc.) It has also received from the Secretaria de la Presidencia 50 million pesos for the redevelopment of the populous central barrio of Tepito (where the first four cases of my sample are living, and one, #23, used to live before being relocated to the peripheral project).

Of the announced and widely publicized FIDEURBE programs for a new city for 100,000 workers and their families in Padierna (a large peripheral squatter area where two of the cases of the sample, #13 and 14 live at present) the renewal of Tepito and the titling of Santo Domingo de los Reyes (another squatter area with a long history of unsuccessful government interventions; two of the families studied in depth, case 11 and 12, are living there now), none has been started, and none is likely to start. The only actions of FIDEURBE of any importance was
the titling of land in some less conflict-laden colonias and contributing to the dramatic inflation of land prices in Tepito by the announcement of redevelopment plans.

The last government institution involved in an attempt to resolve the housing problem of the poor is the Dirección de Habitación Popular del DDF in the Federal District, executive branch of the Federal District government, created expressly to give housing to those not served by other programs like INFONAVIT, FOVISSTE or FOVIMI.

Its stated functions are: to give housing to those affected by public works (like the presently built superhighway innerbelt); conduct the eradication of the infill squatter areas from federal or disputed land and of the ciudades perdidas in cooperation with the owners of the land - and give new housing to those whose housing is eradicated; give housing to the victims of natural disasters; and, finally, to all those who do not have permanent employment with the formal commercial sector, or government (los no asalariados). The only DHP (Dirección de Habitación Popular) activity in the housing field is the building, administering, and managing of complete housing projects.

In contrast with the ones built by the earlier administration, these serve more of the low income population.

The project of Nonoalco-Tlateloco, built in the 60s, housed initially, according to the estimates of social workers who made surveys of the area before the renewal, only 2 to 3% of those for whom it was intended, the original inhabitants of this once low income district. Now the percentage is even lower. Other subsidized housing projects from the same period, like San Juan Aragon, and to a lesser degree, Santa Fe and
Independencia, have also converted into middle class housing.

During its 3 years of existence, DHP has built 31,435 units in 9 projects (approximately 10,000 per year), divided between housing "de interes popular" with a 6% subsidized mortgage, and housing "de interes social" with a 9% subsidized mortgage (current commercial rates are 13 to 15%).

The first ones are houses priced up to 40,000 pesos, and the second ones, oriented rather to the lower middle class, between 40,000 and 110,000 pesos. The monthly installments are calculated on the assumption that every household can pay 25% of its income for installments only (not including services). The largest of the projects is Unidad Vicente Guerrero, with 8850 units (see photographs 16 and 17 and case studies 23-25). The majority of its population are low income families. However, about a quarter of the Unidad is inhabited by middle income government employees. The project, which is typical of those provided for similar socio-economic sectors in most low-income countries, consists of single-family dwelling units and apartment houses built to the minimum standards officially allowed. These "minimum standards" require a modern-standard permanent structure, providing at least two bedrooms in addition to a living room, a separate kitchen and bathroom with running water and water-borne sewerage; all rooms are equipped with electric light, and doors, windows and finishes are also to standards that would be acceptable in almost any urban-industrial country.

Each individual dwelling stands on its own plot, but, in contrast to the dwelling unit itself, these are very small (60 sq. m. including 36 under the roof), in comparison with the great majority of the progressive
development fraccionamientos populares described earlier where plots smaller than 120 sq. m. are very rare. As implied above, the project area is fully services, including paved roads, sidewalks, landscaping, parks, government offices, schools, etc.

No street vendors and family stores or workshops are allowed, also no animals or even pets, except birds in cages.

The first two families of the three studied in the project are virtually starving themselves, being forced to pay 45% to 60% of their low incomes for amortization (installments) and utilities, and, in addition to it, suffer from higher costs of travelling to work than in the previous residence. The amounts they pay would have been a smaller percentage of their earnings before the move - as in the squatter settlement, the family (who, in addition, did not pay anything for housing) had a much higher income because of the work opportunities for women and children, which do not exist in the project.

Both men have construction skills and one of them is working as a mason. Now, not only can he not use his skills to build his own house, but also has much less work, and hence income, than in the old residence, as the project is handed to residents finished to the last detail.

Both these families, for whom even this subsidized complete solution is far too expensive, are very likely to stop paying the installments and face the eviction.

If, however, public authorities would decide to subsidize these dwellings even more, so that the intended beneficiaries can stay on without starving themselves, the per capita costs would be so high that
Photograph 22
Unidad Vicente Guerrero. Periphery of the metropolitan area. Main artery (future peripheral superhighway of the city) in the project. In the foreground is a monument commemorating the opening of the project.

Photograph 23
Unidad Vicente Guerrero. Typical plaza in the project.
few such projects could be built. And, even then, it is most unlikely that any administration could prevent, over the longer period, illicit subletting, or even sales, by the original occupiers, to others prepared to pay the market value, which happened for example to the majority of the dwellings in the project of San Juan Aragon. It is more than likely that the difference between the subsidized rent and the market value of such properties would be in excess of the intended users' incomes so that the latter would be foolish to lose any opportunity to realize the difference and use the subsidy in cash form to an individually appropriate advantage. In fact, this is what happens in all cases where administrative policing is relaxed, whether by the difficulty of maintaining the overhead cost, by administrative discontinuities resulting from political changes, or from simple bribery. It is hard to believe that Vicente Guerrero will prove to be an exception - and if it does, so much the worse for the inhabitants, if not for society as a whole.

For the time being, at least, very rigid controls are being maintained in Vicente Guerrero, partly, no doubt, because of the publicity it has received. These controls prohibit any alterations to the units until 25 per cent of the mortgage has been paid off; very strict controls are maintained on even minor decorative changes and maintenance - which must either be approved by the project administrators or carried out by the publicly employed project maintenance staff - extremely costly and generally very inefficient procedures as public housing administrators in far wealthier countries know only too well.

These inhibitions of investment by the occupiers are not serious, and are even helpful for households with very low incomes who, it is
clear from the case studies, would be tempted to spend even more than they are already investing. But these restrictions, on top of the subsidized provision of housing services to those who, having moderate, or upper lower incomes could have provided these for themselves, merely exaggerate the losses involved in this type of housing supply.

The third case investigated in Vicente Guerrero is a household with an income three to four times that of the other two. The household head, a government employee, who also happens to be an active member of the ruling political party, receives a very handsome subsidy that he and his family do not need. If this household were not being taken care of by the government, it would probably be building its own dwelling in a fraccionamiento popular, where the family head even bought a plot before receiving the Vicente Guerrero subsidized bargain, and, if so, he would almost certainly be using his political clout to the advantage of the neighbors. Social resources are therefore being lost in three ways: the unnecessary subsidy is inhibiting a far more economic investment in progressive development, and the loss of a local political leader is further delaying local development.

Because of strict policing, and the pre-entry screening of all candidates, which was to assure that they have incomes at least four times higher than the housing costs that they are expected to pay, the default rate at Vicente Guerror is at present very low. The newest Mexico City projects like Los Picos de Ixtacalco, Ermita Zaragoza, or las Trancas, are - in terms of price and regulations - much more in tune with the needs of a low income population. The people resettled there from eradicated areas are given housing irrespectively of income and payment capacity.
At the same time, the very low price of DHP housing, if compared with commercial rates, results in growing pressures from all who want to be "given housing." The waiting lists for Ermita Zaragoza, Los Picos de Ixtacalco or Las Trancas have over 20 applicants for each house available, and recently the leaders of one of the squatter settlements burned it out, after removing the people and their goods, to force DHP to "give them housing" as disaster victims. These 400 families will soon get their mini-houses on 75 sq. m. lots in the fully urbanized DHP built subdivision.

Houses in Ermita, Los Picos and Las Trancas consist only of one room, kitchen, and sanitary facilities; the newest housing for the burned out squatters mentioned above consist only of one room and a bathroom without fixtures but with water, sewage and light connection. The rest is expected to be finished by the people themselves according to plans supplied and using government credits given in the form of building materials. Some of the most expensive houses have room for shops or workshops. In comparison with the earlier projects, these still rigid solutions seem much more flexible.

The adequacy with which the prepackaged solution can match the diverse needs of people is still somewhat questionable. Centralized construction inhibits the investment of many resources that people have and substitutes government subsidized credit for them. The imposed use rules and procedures have the same impact.

The more important question, however, is the practicability of serving the insignificantly small percentage of needy ones with a complete solution that they could build without government help, while there are
no funds for the improvement of utilities and services, that only government can do.

According to the official estimates, 875,000 dwelling units in the Federal District are in an uninhabitable state, the low income population grows at least 300,000 people a year, and according to a DHP estimate the "no asalariados" alone increase by 80,000 to 130,000 a year. The government eradication action of the last two years produced an immediate need of 9000 housing units for an eradicated population of 50757. Public works and disasters displaced another 4000 and 2000 families respectively.

When compared with those numbers, the 10,000 yearly production of DHP matches almost only the needs of those displaced by government action (including "slum eradication") and natural disasters, attending less than 5% of the new arrivals, or 1/2% of the government estimated present "deficit," depending what it chooses to do.

Four types of projects.

Match with user needs and priorities.

Costs and benefits.

In order to assess the public projects, I made case studies of their 4 basic types: rental and owner projects of the 1960s, ownership projects of the early 1970s, and the latest "minimum standard" ownership projects.

Principally, the characteristics of the project's population are examined (are they really low income, as officially intended?), and the match of housing with user needs and priorities is questioned.
Unidad Santa Fe of IMSS (Mexican Institute of Social Security) is a subsidized public housing project representative of the projects of this kind built in the '60s, and gives a strong evidence of the misuse of public funds to subsidize the middle income population.

The average per capita income in the randomly distributed sample of 15 families interviewed was 1010 pesos a month in 1973 spring pesos, or over 13 times the subsistence level. The median per capita income in this group was 1000 pesos a month. The poorest family of the sample had a per capita income of 460 pesos of 1973 (over 6 times subsistence income), and 13 out of 15, over 750 - over 10 times subsistence income. Besides, all had regular employment, free medical care, and other social security benefits.

Twelve of the interviewed families were renters and three owners. Ten were renting apartments and two, houses. The average rent paid for an apartment was 167 pesos a month (median 186, maximum 200, minimum 100), which was about 10% of the going market price. Including utilities, the average renter of the group interviewed paid 8% of its income for housing. A maximum of 15% was paid by the poorest family, and a minimum of 3.8% by the richest.

Two families renting houses paid 480 and 350 pesos a month, or 14% and 5% of their monthly income respectively for rent plus utilities. The cost of rent was around 14 to 16% of the going market rates of the time.

Having the security of the subsidy's continuation none of the renter families had the intention of moving out, of course. One, however, owned a few parcels of land in the Pacific resort cities of Acapulco and Zihuatenejo. The subsidy to the families buying their apartments or
houses seems to be lower. Purchasers of apartments paid 800–1000 pesos a month; one family buying a house paid 800 pesos a month. This was respectively 40% and 30% of the price for a similar situation on the private commercial market. Besides, the initial downpayments were very low. A more complete evaluation of the economy of ownership housing is not possible since I lack data about the full price of the units.

According to the responses, the families paying towards ownership seem to be spending 40 up to 52.5% of their income for housing (including utilities). There are, however, reasons to believe that reported incomes may be in these cases lower than real. For example, one of the families bought the apartment in 1971 for a 40,000 pesos mortgage takeover, and sold it in 1973, with profit, in order to move to an upper-middle income, Los Angeles style, suburb Ciudad Satelite. This was a nuclear family of 3 members and 2500 declared monthly income. Their housing payment in Santa Fe was 1250 pesos a month (1000 a mortgage repayment, and 250 utilities), or 50% of a declared income. There was no savings margin.

The second of two owners of apartments interviewed, is going through an exactly similar situation. His choice was the middle income Colonia Alamos, where his new one family house was under construction at the time of the interview.

As I mentioned, earlier renters are not moving out of their higher subsidized slots, but the answers to questions about the needs and satisfaction indicate some priorities common for the whole group. Asked about the ranking of the relative priorities for tenure (ownership), modern standard, proximity to center, and low cost, 3 owners list tenure first and standard second (and consequently 2 are moving to better
standard housing). Among the renters, 9 out of 12 have this combination. For 4 of them, tenure comes before standard, and for 5, the opposite is true. Two families list standard first, proximity to center second and tenure third. Only one family lists low cost as its first priority. In this case, the sequence of relative importance was: cost, standard, tenure.

At the same time, all families of the sample cite the low cost (a result of the subsidy) as the main reason for moving into the project. When asked, independently, about the main advantages of their housing, 11 out of 15 mention low cost.

Five out of fifteen would prefer, however, to live closer to work, all prefer ownership to rental, individual homes to apartment houses and all but one would like to have some private open space. Comparison of their incomes with commercial market prices indicates that all of them can afford that without any subsidy.

Thirteen out of 15 could buy, if they were to chose to do so, contractor- or developer-built complete one-family houses. The remaining 2 families could easily build in the incremental construction way. Similarly to the occupants of the rent-controlled vecindades, they will not take any action as long as they are allowed to pay their very low rents.

Unidad San Juan de Aragon, built by the DDF with FOVI with 6% mortgage financing, is another example of subsidized public housing of the '60s missing the target population, and subsidizing the middle class. In contrast to Unidad Santa Fe, it is all ownership housing.

In the summer of 1972, when we conducted the interviews, the average per capita income between 17 randomly selected families was 8.6 times subsistence (median was 8.4, maximum 17.3, and minimum 3.0). The families,
14 of which were owners, and 3 of which lived with relatives without payment ("arrimados"), indicate a very high degree of satisfaction; they are predominately upwardly mobile, and have expectations of further positive socio-economic mobility. Only one family of the sample had negative expectations.

The average housing cost (including mortgage repayment and all the utilities and services) was 400 pesos a month; the average house payment alone (mortgage plus taxes) was 248 pesos a month, 5 to 7 times less than the market price at that time. The present population of the project are primarily middle class families who bought the rights from the original lower and middle and even low income dwellers, and this process of upward filtering, further and further from the target population, is continuing. One of the families interviewed bought its house in 1967 at the cost of all the to-date payments by the previous owner plus 15,000 pesos (1200 US$ of 1967).

The similar "mortgage take-over" (we are talking about 250 pesos [20 US$] a month mortgage payment rate) in 1972 cost the other family 70,000 pesos, and more recently I was cited higher numbers, reaching over double the original price of the house.112

The average percentage of income in housing costs was 14%, median 13%, minimum (paid by the richest family) was 7%, and maximum (paid by the poorest) 55%. The last family offers a dramatic example of the mismatch between fixed mortgage payments and unstable employment. Having lost regular employment, but not wanting to lose the house because of mortgage default, the family kept up with the payments but was getting progressively more malnourished.
As mentioned earlier, the overall satisfaction is very high; there were virtually no disadvantages mentioned by the interviewed, and all prize low cost utilities, services, etc. Out of the 17 families, 12 had a top priority for tenure (ownership), 2 for good standard, 2 for cost minimization and 1 for proximity to the center.

Looking at the first and second priority together we see 16 out of 17 with tenure priority, Eight combine it with cost minimization, 6 of them putting tenure first; 7 with modern standard, 5 of them putting tenure first; and 1 with proximity to the center.

There is one family, the richest of the sample, without stronger tenure priority - they placed proximity to center first, and made standard second. They are also the only ones that judged the construction of their present housing as poor, but are only happy to continue staying there with their 200 peso (US$ 16) mortgage plus tax monthly payment and rapidly growing equity.

With a few exceptions, the match between the user's priorities and the supply is very good. Many families living in other parts of the city would like to move to Unidad Aragon too. However, the volume of payments reflects the cost to society of this subsidy, which goes mostly to the middle class. The level of incomes shows at the same time that all these families could house themselves as well or better if the project would not have existed. Most of them would have to pay, of course, more for it.

Unidad Vicente Guerrero belongs to the second generation of public housing projects. Unlike the case of Santa Fe of Nonoalco, it was a serious commitment to serve low and lower/moderate income population and not to subsidize the middle class.
It is mainly subsidized through low interest rates: 6% for popular housing and 9% for social interest housing (normal mortgage rates at that time were minimum - 13%). Monthly mortgage payments are about 30% to 50% of the comparable quality housing on the free market. The payment capacity of those admitted had to be approved.

Out of 15 families interviewed, 5 were born in the Federal District and 10 have an average 29 years of urban experience.

Income levels, housing costs, and the percentage of income spent on housing indicate that there are basically two groups of families - those who should not be subsidized because they could perfectly well afford to solve their housing problems on their own, and those who, even with subsidy, cannot afford the payments. The latter group continues the payments but at the expense of educating the children and even nutrition.

The first group of 8 families have an average income of 3750 pesos a month (ranging between 2500 to 7700), or 8 times subsistence per capita (ranging between 4 to 19). Their housing payments (mortgage, taxes, utilities) range between 9 and 18% of income with an average of 14%.

The second group of 5 families has an average income of 1120 pesos a month (ranging between 750 to 1500) or 2.7 times the subsistence income per capita (ranging between 1.3-3.5). They pay an average 38.3% of their incomes for housing (ranging between 27 and 65%). Somehow between these two groups are two families that earn 2000 pesos a month each and have respective per capita incomes of 2.3 and 2.6 times the subsistence level; they pay respectively 19 and 20.5% of their incomes for housing.
Analyzing the priorities, we will notice that, of the 15 families, 6 place the highest priority on proximity to work, 4 on tenure (ownership), 3 on cost minimization, and 2 on standards.

As far as the second priority, 6 choose tenure, 6 standard, 2 cost minimization, and 1 proximity to work.

When the same families judge their present housing solution, and list its principle advantages, nobody mentions that it is close to his job, 2 mention tenure security, 6 the "hope to become owners," 1 (one of the richest families) - low interest rate of mortgage, and 14 good standard (for which they did not have top priority): 9-modern utilities, 4-good quality of structure, and 1-good ventilation.

On the negative side, 11 families complain about lengthy transportation time and high cost to work, markets and other points, 9 families (a partial overlap between these two groups) are concerned especially about the long distance from household head's workplace.

Five persons complained about the lack of tenure security, being afraid that due to unstable and/or low incomes they may not be able to keep paying their monthly mortgage, and consequently lose their houses and apartments.

Although the relative priority of the families for standard was not very high, it is interesting to note that, out of the 15 families interviewed, 8 complained about having too little private space (both under the roof and open), and very limited expansion and change possibilities.

Unidad Picos de Ixtacalco, built in 1972/73 under the Echeverría administration by the Dirección de Habitación Popular represents a further
step than U. Vicente Guerrero towards effectively reaching the target population.

The project was intended for the families eradicated by urban renewal programs and these families are in the project. The rationale of the slum clearance programs themselves may, and should, be questioned, but the project did reach, at least in the early stage, at which the interviews were conducted (fall 1974), the target population. 114

The average per capita income of the sample was 5 times subsistence (median 4.8, minimum 3.1, and maximum 6.7), which is even slightly below the level in the areas from which the families were taken.

There was no screening of any kind, and no payment capability proof required, and even 6 months after being resettled, 12 out of 14 families did not get any down payment or mortgage bill nor did they get any information about the possible amount of the payment. They were only told that they will be able to buy the houses, paying them as rent in monthly installments.

Almost all families talk about their new houses as given to them by the DDF (Federal District Government)- "el DDF nos dio la casa." Even the moving was done by the DDF trucks. 115

The majority of the families (12) wants to stay in the Unidad and take advantage of the subsidized way to ownership. (3 of them, however, are afraid they may not be able to pay the mortgage and will have to go somewhere else.) Two families, however, the only two with irregular income, who are also the second and third poorest of the sample, are planning to move out as soon as billed, but do not mind using free housing in the meantime. They are both, independently, in the process of
buying lots in peripheral colonias, where they intend to build their own houses incrementally.

Two families who already got billed pay 320 and 450 pesos a month or 8 and 11.5\% of their respective incomes for housing (mortgage, taxes and utilities) - around 25 to 30\% of the market price for comparable quality.

The remaining 12 were only happy to live for free and hoped the situation will continue for as long as possible.

When asked about priorities all cite tenure (ownership). 11 as first priority, and 3 as a second.

Looking at the first and second priority together, we will notice that 7 families combine tenure with cost minimizing, and 7 with modern standards.

It is difficult to say what their priorities would be if they were not "given the houses in the Unidad by DDF." If my hypothesis of priorities formulated in Chapter is correct, their income and expectations suggest a similar pattern, unless they have some extra incentives like a rent-controlled unit in the vecindades or a subsidized rental, Santa Fe style. This would imply that the match of priorities and supply will be good; who should pay for it - the justification of subsidy - is, however, at least questionable.

The incomes of the interviewed families are, unlike in Santa Fe or San Juan de Aragon, all in the low/moderate group, but they are still in the upper 30\% of the city's population.

Four families had incomes over 4000, 11 over 2000 and all 14 over 1500 pesos, while the official minimum salary was 1250 and 60-70\% of
Fig. 20
Match between users' demand and housing supply characteristics in the subsidized public housing rental projects built between 1960-1970. Middle-income users. (For scale, see page 127)

Fig. 21
Match between users' demand and housing supply characteristics in the subsidised public housing ownership projects built between 1960-1970. Middle-income users. (For scale, see page 127)
the Mexico City working population was earning less than that. Their incomes are higher than in the average new peripheral low income subdivision, and they could afford, if they choose to do so, an unsubsidized way to ownership through incremental construction in one of those subdivisions.

The very fact that the poorest from the sample are doing it also proves this point.

In summary, in the older type of public housing projects, like Santa Fe and San Juan de Aragon, the principal category of users - the middle class - is being subsidized by the rest of the society.

In ownership housing of this kind, the match between user demand and supply is very good. The housing cost is much lower than what these families can afford to pay, and access to the central areas of the city is better than they need. (see Fig. 21) In the rental public housing from this period, the account is very similar. The only difference is the mismatch with tenure desired. Most of the families prefer ownership. (see Fig. 20)

In the more recent projects (that are of a more modest standard and are mainly located far away on the periphery) users still enjoy very low payments. Tenure, ownership, coincides with their priorities. The physical quality of the dwellings and access to the rest of the city is poorer than what they need, however, (see Fig. 22).

The account of the low income families living in recent projects is worse. Payments, even if subsidized, are too high for their budgets; access to the central parts of the city is much worse than needed by them. The tenure situation is ambiguous. If mortgage payments are made on time,
the family moves towards freehold ownership (in 20 years). If however, it defaults, they may lose their housing - tenure becomes very insecure. This means very strong mismatch for the poorest families.

Only the physical quality is rather good. However, the priority of families for it is low, especially if it means a complete structure and all fixtures but very little space. (see Fig. 23).

---

**Fig. 22**
Match between users' demand and housing supply characteristics in the subsidized public housing ownership projects built between 1970-1974. Middle-income users. (For scale, see page 127)
As we can see in the figures, most of the users of public housing have a positive match with the needs and priorities. Case studies of four projects give some estimate of the per unit level of subsidy enjoyed by the users – the cost to society as a whole.

At the time of the interviews, I could not get any data on the aggregate level of subsidy. Recently, however, (April 1975) the Mexican government has decided to stop the subsidy of one of the projects that was almost entirely inhabited by the middle class. In this project, Nonoalco-Tlatelolco, only 40.7% of the current costs of maintenance and services was paid by the users, and the rest, nearly 60%, was a government subsidy. In real numbers, in 1974, it cost over 34 million pesos (2.7 million dollars) for the 11,000 apartments of the project. This calculation does not include the capital costs of the project construction.
5. Submarkets Within the Reach of New Households - Monetary Costs for Users.

The monetary costs, both the current cost and the initial investment required, are among the principal determinants of the access of low income families to the different types of housing.

It is important to distinguish, however, between the housing currently in use and the supply open for new users.

The latter is much more difficult to quantify. At the same time, its characteristics are most important for the evaluation of the housing system. The number of sets, such as the vecindades in central areas, the public projects with subsidized rent, or the legalized and serviced low income subdivisions do exist as low cost housing sets in use. There is, however, no supply of them for new users at the affordable prices.

Housing costs for the users who entered the vecindades many years ago, or bought plots in illegal subdivisions and over the years got titles and services, are very low. The new household wishing to enter them now would have to pay a much higher price.

The rent in the rent-controlled vecindad can be afforded* even by a family with the mere survival income of 1 subsistence per capita, but only the families with the middle class incomes of 15 and more times subsistence will be able to pay the presently required "key money."

*To determine this, I do not use the standard proportion of income (usually 25%) recommended by most national and international agencies, but rather a sliding scale growing from 0, at below 1 subsistence per capita income, to 30% at over 10 times subsistence.
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- A family at a given level of income can afford to pay for the given type of housing (set of housing goods and services)

1. Refers only to vecindades in the periphery

2. Not including key money payments. Only families with per capita incomes 15 times subsistence and more can afford key money payments and move now into these vecindades

3. With incomes 15 and more per capita it is possible to buy the house in the private commercial market.

**Table 5.**
Housing sets within the reach of the population with incomes up to 15 times subsistence level (low and moderate incomes)
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Notes:
1. Includes the current costs of the dwelling and services, monthly proportion of owner builder investment (pro-rated over average of 7.5 years), and mortgage payments (for 25 years) in subsidised projects.
2. In the case of rent controlled vecindades and of the subsidised projects - illegal key money and mortgage take-over payments.
3. Does not include small proportion of rent controlled apartments.
4. 100-200 pesos payments refer to peripheral vecindades only.
5. No sufficient data as transfers of this housing are very infrequent among the low income population.
6. Majority of transfers include single payments in cash.

All the amounts are given in pesos of 1973.

"0" (Zero) means no payment; ND = no sufficient data.

TABLE 6. USER COST OF PRESENT HOUSING SETS OF LOW-INCOME HOUSING
Rent in the free-market vecindades in the central parts of the city and the immediately surrounding areas (inner ring) are within the reach of households with incomes of a minimum 6 times subsistence per capita (the upper strata of the low income population).

This is also the minimum income necessary in order to afford a plot in the presently legal, low income subdivision without services (after having paid the initial downpayment for land). Plots in the illegal ejido subdivisions were within the reach of families with per capita incomes from 3 times subsistence. Families with such income, which usually corresponded to one official minimum salary, have proven to be successful owner-builders in the illegal ejido subdivision (Table 5). However, it was never their first residence. They came from rental housing or arrimado situations with savings, or with savings and loans, of an average 2000 pesos necessary for the land downpayment (Table 6).

In summary, in the "use only" (rental and similar) types of housing there is no legal and secure housing available for the new low and very low income families.

Arrimado, cuidador, and employer provided housing is available only to those with previous contacts, and mostly (at least for arrimados) on limited time bases. Subsidized projects are very limited in number and have complex eligibility requirements which eliminate most of the low income population. Only the illegal vecindades and the lowest quality rental rooms on the far distant periphery, and the ciudades perdidas are left.
In fact, the ciudades perdidas, presently under intensive eradication, are the last rental housing supply that is still appropriately located in relation to jobs and inexpensive food markets, and can still be afforded by the low income population. The only remaining alternative will be the outright invasion of centrally located vacant plots with all its social, land use, and political consequences.

On the ownership side, the elimination of the submarkets of the illegal ejido subdivisions will leave the invasion of the peri-urban land as the only option for all low income, would-be owner-builders, as they are not able to pay the price of legal plots.

The subsidized ownership projects are similar to the rental ones, too few to be of any significance, and also too expensive for most of the poor.

The detailed account of the users' monetary costs for present housing sets is summarized in Table 6. Table 5 relates these costs to income levels indicating the housing sets within the reach of various incomes groups.

6. Types of Submarkets and User Control

The housing submarkets discussed in this section can be divided into two large groups in respect to tenure and the control they offer to users: those offering current domestic and dwelling use only, and those also offering, besides this use, the right of permanent occupancy, unlimited transfer and control over the construction, management and changes of structure and the forms of its use.

In the "free market" system presently in Mexico, the first category includes rental submarkets and those of use without rent, that offer similar service.
The second category present in Mexico is synonymous with ownership housing, or one aimed towards ownership (like illegal subdivisions and squatter colonias).

Ownership housing of the subsidized projects gives some equity benefits of property (reduced by the limitation of the right of transfer), and tenure security (for those who can afford regular mortgage repayments), but does not give the user the control that is necessary to adjust the housing to his residential and economic needs.

My discussion of the housing submarkets that offer use only (such as rental units) has covered the most frequent types one by one.

In the second group, (such as titled property and untitled, but de facto possessed housing), I have discussed them all, except project housing, under the heading of "ownership submarkets." I have decided to do it this way since all of them are, from the user point of view, variants and stages of the same continuous process of consolidation and incremental construction. At the same time, however, at each point in time and at each development stage, they are bought and sold. A squatter plot without services, a plot with legal title but without services, a serviced plot, such a plot with an incipient house, etc., are stages of a single process. However, each of them is part of a different housing submarket.

The other, similar, way of dividing housing submarkets would be between those that provide housing service - commercially and institutionally supplied - and those that give access to housing as a personal and local activity. In this case, rental submarkets and all (rental and ownership) subsidized projects will be in the first category, while all variants and stages of owner-builder housing will be in the second.
This division reflects a better distribution of control over the housing process, which in most of the ownership public housing projects is not much more than in rental housing. In the housing service submarkets this control is in the hands of the commercial and public sector. The users are the families who cannot afford or choose not to buy, build, manage or maintain their own housing. Consequently, they get less in terms of security, equity, the possibility to increase space, change and improve their housing, earn extra income from it, etc. The owner-builder who gets these and other extra benefits, has to assume a much larger degree of control over all stages of his housing process. (See Fig. 24)

For a more detailed example of the decision distribution in the owner-builder process, see also pp. 610 and 648 in Appendix D.

Fig. 24 Distribution of decisions in the housing process among users, commercial sector, and public sector. Comparison of projects, vecindades, squatter housing, and owner-builder housing in the legal subdivisions. Size of dots indicates degree of control (power of decision).
III

USER PRIORITIES AND RESOURCES:

PATTERNS OF HOUSING DEMAND
1. Introduction:

The findings presented in this chapter are primarily based on the analysis of twenty-five in-depth family case studies. This basic sample was complemented later by five more cases which completed the findings. Entire socio-economic and housing histories were analyzed, with specific emphasis on housing needs, priorities and resources. Material of the interview sample (511 interviews) was used to test generalizations about the patterns of priorities and economies. The interview sample was not used for basic analysis, as in over 60 percent of the interviews, the information on priorities was not complete and in all of them, was much below the quality of case study data that is necessary to understand family decision processes.

General characteristics of the population of the large sample are presented in Appendix B. The families of twenty-five in-depth case studies were selected to represent the most frequent patterns of socio-economic and housing histories. Consequently, their overall characteristics are similar to those of the sample of the family interviews. More information about the sample of case studies and a summary of the case study data is presented in the appendices B and D.

1.1. Variability of Specific Housing Demands

Even the relatively small universe of twenty-five in-depth case studies has shown a diversity of family socio-economic situations and histories. Analyzed families had up to seventeen residential moves
and in most cases, the situations of the families were different at each of those points. Also, while residing in the same place, family situations were changing and so did the match between their needs and priorities, and their housing.

In addition, families with similar socio-economic situations were very often satisfactorily served by very different housing sets. As family characteristics consist of many dimensions, so the housing sets, discussed in detail in Chapter II, are also multi-dimensional.

This results in an immense variability of specific combinations between the specific needs of families and specific housing sets, hence the practically infinite variability of specific housing demands. Case study data gives ample proof of that variability: for instance, the tar-paper shack erected by the car painter in his compadre's back-yard provided a highly satisfactory match with the household's priorities (case 22, Appendix D, page 783), even though the fruit seller's even poorer householders (case 12, Appendix D, page 724) were equally satisfied with the spacious and solidly built permanent house they managed to build for themselves over time.

In the above cases, both are evidently excellent uses of available opportunities and resources for the two households. This evidence is only clear, however, when the households' situations and their housing conditions are separated so that the very different relationships between their particular situations and conditions can be clearly seen. Unless it is understood and accepted that the values of parti-
cular housing services for particular people are functions of their highly variable relationships, there seems to be no way in which housing demands can be satisfactorily explained or anticipated.

In addition to the contrast between cases 12 and 22, just described (which have one of the best and one of the poorest quality houses, respectively, despite their similar incomes), there is a complementary contrast between cases 5 and 13, for instance. These two poorest of all the cases studied live at opposite poles of the geographic spectrum: the prostitute and her tubercular ex-laundress mother (who pimps for her teen-age daughter) live in the central city, appropriately, though hardly happily, the sunflower seed seller (who suffers from an ulcer) lives on the extreme periphery, and also appropriately, as he works the bus routes passing by the area, and the family prefers the semi-rural environment. Again, the two foremen, both with upper-lower incomes and both upwardly mobile, have quite different priorities for tenure: the young and ambitious Siemens factory foreman is far more interested in getting a house in a middle-class suburb than in ownership, while the other foreman is very content with his incomplete and unserviced house in a working-class fraccionamento popular -- mainly because he is the owner and feels entirely secure there. (cases 2 and 19, respectively) As these cases show, a high or top priority for any one of these basic functions of the dwelling can induce equally high levels of tolerance for unsatisfactory matches in other areas. Also, each alternative set of relative priorities pro-
vides a widely different range of tolerable options.

Not only do households with very similar socio-economic characteristics and situations often occupy very different kinds of dwellings with equal satisfaction (as in cases 12 and 22, cited above), but the same sets of housing services can be of quite different values for households with generally similar situations, owing to apparently minor variations on one side or the other. The blacksmith's (case 6) and the data compiler's household (case 4), for instance, have similar incomes, expectations, and family structures, and both occupy inner-city vecindad tenements. The former has a very much better balance between supply and demand than the latter, however, mainly because of the above-mentioned variation: the blacksmith's family has virtually no security of tenure in its uncontrolled rent dwelling, despite their urgent need for residential security at their particular time of life. The data compiler, on the other hand, has a substantial equity (through key money he can demand) which would assist them in a transfer, thus adding to the security they enjoy already from the occupation of a rent-controlled unit.

2. Priorities, Economies, and Resources of Households

2.1. Hypothesis on Predictability of Housing Demand

One of the central hypotheses of this study is that while specific housing demands are immensely variable, there are certain general demand patterns that are predictable. Those patterns, if known, will enable the more adequate planning of government intervention, especially in the
markets of basic resources and services, without which specific housing sets cannot be "assembled".

A study of the twenty-five case histories indicates that the characteristics that coincide most commonly and consistently with households' priorities and their economies (another element not anticipated in the basic model described above, but found to be essential in the analysis of any particular household's housing demand), are:

- socio-economic status according to the household's total net income, and;

- the household's expectations of proximate changes in that status.

Other characteristics that commonly coincide with major differences of housing priority and housing expenditures or budgets are:

- the household's geographic and cultural origins;

- its demographic and social composition (age and sex and the structure of local kinship relations), and;

- the household's residential itinerary and housing experience, together with their socio-economic and occupational trajectories.

The first two factors, total income and expectations, or the present direction of socio-economic movement, are used for the general characterization of the cases and the identification of the most significant clusters. The other three are used to explain individual variations from the hypothesized norms reflected by the clusters.

The finding that similar housing behavior of families coincides most strongly with similar total income and expectations, is in agree-
Fig. 25. The hypothesis of predictability of housing demand
ment with the economic concept of permanent income. The permanent, or lifetime, income hypothesis suggests that the economic behavior of individuals and households correlates best with their total lifetime income. 118

(The hypothesis of predictability of housing demand is summarized in Fig. 25.)

On the basis of this study, I am suggesting that there is a more direct correspondence of the household's basic socio-economic characteristics with the motives of its general economic behavior than with the motives of its housing behavior.

The general motives proposed are: general priorities (following Turner's concept of opportunity and security, but changing the third basic priority, which he has called identity), and the household budget strategies (or household economies, which distinguish between cost-minimizing, budget optimizing, and non-economic strategies).

Housing priorities (for tenure, physical quality, and different aspects of location, all within cost constraints) and housing expenditure strategies (minimizing, optimizing or maximizing of housing expenses versus other spendings) usually vary, together with general priorities and economies, as they are, to a large degree, also dependent variables of income and expectations.

Housing priorities and, even more, housing expense strategies are, however, also influenced by the present housing situations of the familiar and the expected supply of different types of housing sets. Nevertheless, even without knowledge of the present housing of families and
other options known to them, we can still predict their housing pri-
orities, though with less accuracy. However, when it comes to predic-
ting their demand for different housing sets, knowledge of their pre-
sent housing and other options is indispensable. At this point, infor-
mation is also needed about the kinds of resources that families would
have (monetary or not) to contribute to their housing. These would
enable us to find the most likely types, sets, of housing goods and
services families might choose. This, in turn, permits the forecasting
of aggregate demands for basic resources such as land, credits, construc-
tion materials, etc.

The specific housing solutions that are a function of the unique
characteristics of each household cannot be predicted, of course. This
hypothesis is summarized in Fig. 25, page 247.

2.2. General Needs and Priorities

One of the basic premises of this study is that all people share
a number of deep and common needs of the kind Abraham Maslow identified.
This study supports the proposition that priorities of life, for love
and identity, for excitement and creativity, and so on, vary according
to people's changing situations in life — and that these variations are
reflected in the nature of specific needs for the things which are vehi-
cles or means for the satisfaction of those variable vital needs. The
way in which a person or family is housed, for instance, is bound to af-
flect their security, identity and opportunities for creative activities
to some extent and often critically, especially under harsh climatic or
**1973 Socioeconomic Mobility Expectations**

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**SUBSISTENCE LEVEL (S)**

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0 = Opportunity (future security)

S = Security

Z = Other (non-economic priorities)

---

**Fig. 26. General priorities**

*For scale see Appendix B, page 540.*
social conditions. When housing services are being used to satisfy underlying needs for security, more than for identity, for example, the inalienability of tenure is likely to take precedence over the appearance and social status of the dwelling itself. Without this distinction between the general needs and priorities that underlie specific housing needs and priorities, it is difficult to see how housing demands, markets, or systems can be understood or anticipated.

For the interpretation and forecasting of housing demands, the critical basic or vital needs appear to be those for security, in the first place, and for a variety of 'non-economic' priorities, secondarily; anyway, for the low- and lowest-income sectors this is true. Two kinds of security are sought, however, and one of them, at least, by all but two of the twenty-five households (in 1973, but by all twenty-five in 1968). Most, sixteen of the eighteen security-seekers, are concerned with securing their present situations. The other two, however, are prepared to risk their present security in order to maximize their chances for securing a better situation in the future. The car painter's and the domestic servant's families (cases 22 and 14) have high expectations and very low incomes -- and therefore, not much to lose and plenty to gain by seeking and taking advantage of opportunities to move up and away from their present poverty. Five of the remaining eight households in the lowest-income category have a secondary priority for seeking and taking opportunities but, all having lower (and two, no) positive expectations, they are naturally more conservative and put the consolidation of their present security above future possibilities, in
which they have little faith. An emaciated bird in hand is still better than fatter ones on distant bushes. The third category is evidently and expectedly common at higher income levels but rare, or non-existent, anywhere near subsistence level. Of the cases studied, only those with relatively high expectations and higher incomes are primarily motivated by non-economic ambitions. The evidently secure Siemens factory foreman's family is focused on the attainment of a middle-income life style, as are the members of the dental technician's family. Six of the other nine with upper-lower incomes have a secondary priority for 'non-economic' ends, but again, having somewhat lower incomes or somewhat lower expectations, they are more conservative and put present security first.

The distribution of general priorities between twenty-five families in 1973 is presented in Fig. 26.

2.3. General Economics and Strategies

The present analysis has used an additional factor, as compared with Turner's model, a separation between priority needs and styles, or strategies, of household economy. Although the ways in which a household uses its material resources and budgets its financial expenditure is largely dependent on the deeper motives mentioned above, there does appear to be a substantial degree of variability. And, when considering specific housing priorities and expenditures, this distinction between general economies or 'budget strategies' and housing economies (or 'hous-
## 1973 Socioeconomic Mobility Expectations

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C = Cost minimizers  
B = Budget optimizers  
Z = Other (non-financial criteria)

Fig. 27. Budget strategies (household economies)

For scale see Appendix B, page 540.
ing expenditure strategies') seems to be helpful for the understanding and anticipation of housing behavior, especially as it is generally so important to separate financially quantifiable and non-quantifiable accounts.

Three general budget strategies occur in the cases studied: there are the 'cost minimizers' -- the two households with the lowest incomes and the most negative expectations (cases 5 and 13) -- who merely spend as little as they can on whatever they are forced to spend at all; the most common category is that of the 'budget optimizers' -- eighteen of the twenty-five cases -- who make deliberate trade-offs between expenditures in order to make the best of what they have, whether it is very little, indeed, as in case 12, or whether it is a substantial amount, as in case 15, where the household earns about four times as much as the former. The third group's household economies and general budget strategies are guided by other than financial or economic criteria -- not directly related to the general priorities identified above. The street vendor's household economy, for instance (case 8), is dominated and grossly distorted by the elder male's alcoholism. More constructively, perhaps, but equally 'irrationally' from a strictly financial point of view, the dental technician (case 1) and the Siemens factory foreman (case 2) spend their incomes to support their present styles of living rather than their expectations, which are high in both cases, or their security, which both seem to take for granted, both having relatively high and secure incomes. Somewhat surprising exceptions to the otherwise understandable distribution of these households' economies (Fig. 27) are cases 24 and
25 -- the very low-income households relocated in the project. The vio-
lent and involuntary distortion of these two households' economies (as
noted above, they were being forced to spend 55 and 35 percent of their
incomes on their rent and utilities), unfortunately coincident with the
gratification of their natural desires for improved housing, upset their
economic rationale -- even to the extent that the elder son of the poor-
est household had committed a large proportion of his earnings to buying
a record player. It is reasonable to assume that neither of these two
families would have adopted this 'non-financial' economic style if they
had been left to make their own decisions from an economically realistic
range of alternatives. Both are really inhibited 'budget optimizers.'

It will be seen from the comparison of Figs. 26 and 27 that
there is a high degree of coincidence between the households' general
priorities and their budget strategies or general economies. The differ-
ences are all due to the influence of their present housing situations,
as explained for cases 24 and 25. It should also be noted that cases 1
and 2, both having general economies in the other than financially guided
category, also enjoy the exceptional economies of rent-controlled vecin-
dades. The fifth partial exception, case 11 (with the secondary non-
economic priorities), is fortunate enough to have obtained a secure ten-
ancy in a squatter settlement and can, therefore, enjoy a substantial de-
gree of 'non-economic' use of the household budget. It should also be
noted that 'opportunity seekers' are also budget optimizers, and that
this frequently reflects very low or even negative priorities for expend-
diture on housing -- cases 14 and 22, both out-and-out opportunity seek-
ers, live in very poor dwellings and do not consider it to be a housing problem.

2.4. Housing Priorities and Housing Economies

While specific priorities and specific areas of expenditure and investment are particular cases of the general priorities and economies described above, for reasons already mentioned, there are often significant differences between similar factors. General socio-economic security and the security of housing tenure, for example, are obviously analogous and, in many cases, they are virtually identical. Where housing is not a household's primary vehicle for the achievement of its goals, as in the cases where the gratification of housing needs takes second place to present employment, or to future employment opportunities, it is likely that there will be major differences between general and specific priorities.

The general need for security, and the specific need for a secure tenure of dwelling are, in fact, highly coincident in the twenty-five cases. In two-thirds of the cases where security is the highest general priority, secure housing tenure is also a top priority (14 out of 21, as can be seen in Figs. 26 and 28). Similarly, the general priority for future security, or present opportunities as distinct from present security, is closely related to residential location. All of the eight cases in which opportunity figures as a significant priority, have a high or a very high priority for physical proximity to their peer and kinship groups. The other seven with high locational priorities have them for other reasons, not so obviously related to their general priorities.
### 1973 Socioeconomic Mobility Expectations

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**Legend:**
- **T** = Tenure
- **E** = Shelter
- **G** = Geographic location
- **F** = Socioeconomic location
- **S** = Subsistence income

**Fig. 28.** Housing priorities

*For scale see Appendix B, page 540.*
<table>
<thead>
<tr>
<th>TOTAL HOUSEHOLD INCOME</th>
<th>DOWN MOBILE</th>
<th>STABLE</th>
<th>UPPER MOBILE</th>
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<td>MODERATE INCOME</td>
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M = Minimizers  
P = Optimizers  
I = Maximizers

Fig. 29. Housing economies (expenditure strategies)

*For scale see Appendix B, page 540.
Four of the six households with other than economic general priorities have high locational priorities, but for a variety of reasons that preclude even the most tentative generalization. The rapidly upwardly mobile factory foreman (case 2) has a top housing priority for location near his peers, or those to whose society he aspires. The other family with non-financial general priorities, however, which also has location as a top housing priority, wish to stay where they are, in the center of the city.

As is to be expected, there is a coincidence between non-financial general priorities and priorities for high material dwelling standards. All eight households with primary or secondary non-financial general priorities have a primary or secondary priority for housing standards. The corollary is less strong, however; there are fifteen in all that express a significant priority for material standards and comfort -- only one of which is in the lowest income group and only one (the shoemaker) of the fifteen in the middle and upper-lower-income groups expressed no priority at all for improved housing conditions.

General economies or household budget strategies, and their housing expenditure and investment strategies or economies, are defined in even more closely related terms. There are still enough variations between the two sets, however, to require their separate analysis. Eighteen of the twenty 'general budget optimizers' are also housing budget optimizers (see Figs. 28 and 29), counting the two above-mentioned cases, whose economies have been grossly distorted by relocation into the housing project (and who would have been general budget optimizers under nor-
mal circumstances). The two general cost minimizers are, of course, housing expenditure minimizers by definition. Five of the eight variations from the general coincidence of general and housing economies (excepting the latter two) are households that minimize their housing expenditures as a part of their optimization strategy. All of them do so for sensible reasons: the two with very low incomes (cases 4 and 6) owe the latter partly to the savings they make by living in very poor dwellings. The fifth (case 3, the shoemakers) accepts its relatively poor housing as its location is essential for their economy, but, understandably, they spend as little as they can on it, as they have little security of tenure. Only two of the twenty-five cases were housing cost maximizers at the time of the interviews, and those are the families transferred to the project dwellings with costs far above their real budgetary limits. At earlier stages, however, a substantial number of the households have been housing budget maximizers — five of the nine that have built their own homes — during the first phase of investment in building land or construction.

2.5. Housing Resources

Monetary savings and allocations from current income are not the only resources used. Also, the very important question of how money is used depends very much on the availability and use of complementary resources.

The case material contains an impressive number of examples of users' resources applied with great imagination, ingenuity, and initiative. They can be grouped as follows:
1. Financial resources:
   - accumulated household savings;
   - percentage of current income from regular jobs and ad hoc earnings from additional activities;
   - gifts and loans from relatives;
   - wage advances and loans from employers;
   - commercial and public loans (including rent-purchase of building plots);
   - commercial, bank, or public mortgage credit for complete dwellings.

2. Other material resources:
   - free land (through inheritance, membership of an ejido community, or squatting;
   - useable materials on-site;
   - waste or discarded materials obtained from employers or elsewhere;
   - free utility services (e.g., public water taps or pirated electricity);
   - garden produce and livestock (releasing financial resources).

3. Local human resources:
   - spare-time for labor and management;
   - construction skills;
   - management skills;
   - cooperative organization (between extended family networks or neighbors);
local associations and institutions.

4. Supra-local societal and institutional resources:
   - national or regional political organizations and representatives;
   - charities and other private institutions or organizations;
   - public housing agencies (providing programmed services and projects);
   - other specialized agencies (providing specific services, such as land transfers and entitlement).

Another category of factors which can be regarded as resources, greatly influencing the use of the above:

5. Facilitators:
   - information and the networks through which it is obtained;
   - imagination and the capacity to anticipate change;
   - initiative or enterprise;
   - determination and sustained effort;
   - tolerance for sacrifices demanded by courses chosen;
   - incremental or progressive development and change, allowing for the maximum use of resources through the consequent flexibility and adaptability of the process.

3. Patterns of Housing Demand

The clear clustering of the cases at the different periods analyzed (1973, 1968 and at the different dates of arrival at the households' present locations) indicates a general pattern of demand. The identification
and interpretation of the pattern that emerges from the present study is complex, as the preceding analysis shows, but it is clear if the steps are followed in a logical sequence. Hopefully, further studies and the accumulation of a more substantial body of empirical information will lead to the simplification of the method and a clearer image of the process. It must be borne in mind that the present interpretation is no more than a working hypothesis, however plausible it may seem.

3.1. Pattern of General Priorities

Fig. 30 shows the distribution of housing priorities among the cases, according to the nine areas defined by the broad classification used: the division of income levels into very low, low, and moderate categories; and the broad classification of mobility into downwardly mobile, static or stable, and upwardly mobile. This hypothetical distribution for the lower-income sectors' general priorities in metropolitan Mexico has five distinct areas or zones, three in which most households have only one dominant priority: (a) those with very low incomes but with expectations of upward mobility seek opportunities for improving their socio-economic situations above all; (b) those with very low incomes who are downwardly mobile, together with those with medium-low incomes in stable situations, are concerned with their security above all; unlike the former group, they will not risk their present security, or their chances of securing themselves in their present situations, in order to seize opportunities for future improvements. And thirdly; (c) those with the highest incomes in the lower-income range, and with the
Fig. 30. General priorities
highest expectations, are concerned primarily with other than directly economic needs, such as improving their identity or self-image. In addition to these three areas, exclusive to one of the three classes of priority identified, there are two in which substantial overlaps occur. Between areas (a) and (b) there is a band of households running from those with the lowest incomes and least expectations, whose priority may be for security or for opportunity. At the upper end there is a broad band between (b) and (c) in which households have top priorities either for security or for other non-economic factors.

Fig. 31 represents a reasonable though rough generalization for the medians of the general priorities, as they change according to income level. As there are major variations according to expectations, generalizations of this kind must be read with caution; however, it is still a valuable corrective to the grossly misleading notions on which so many policy decisions are currently based.

These findings almost completely support Turner's hypothesis, developed in Peru, introducing only a few modifications (J. Turner, Freedom to Build, pp. 164-166).

The present and refined hypothesis initially states -- a not surprising conclusion -- that virtually all households with low and very low incomes (below the 5S level on the income scale used) are primarily concerned with their present or future material and social security. Only those with relatively high and secure incomes start to rearrange their priorities around needs which are not essential to personal survival and the continuity of the family -- an unoriginal finding supported by author-
A. Future Security (Opportunity)

B. Present Security

C. Other or "Non-economic"

Fig. 31. Revised hypothesis of relation between general priorities and income

++ Essential
+ Important
+ Convenient
- Unimportant/Indifferent
-- Inconvenient

Households with positive mobility expectations

Households with negative mobility expectations

For income scale, see Appendix B, page 540.
ities from all times and cultures, including Abraham Maslow, whose work was used in the formulation of Turner's hypothesis. But, as observed above, it is still necessary to emphasize this fact, as it is rarely incorporated into the official interpretations of demand.

More original is the observation that there are two aspects of security—the security of present positions and the security of opportunities for securing improved positions in the future. These two aspects have very different impacts on demand, and this is scarcely ever taken into account. It is entirely reasonable for young and healthy people with very low incomes to risk present securities for future possibilities, especially if they are optimistic and have some self-confidence. Only the pessimistic or those who have failed are likely to ignore opportunities for improvement and concentrate exclusively on securing the minimum essential for bare survival—through the systemization of their actual situations, in the ways described by Oscar Lewis in *The Culture of Poverty, La Vida,* and other works. A high proportion of the poorest households studied that had a first or second priority for 'opportunity' (7 out of 10) may not be typical of urban places where both the economy and the population are relatively stable or declining. The very poor in such situations have fewer chances of improving their socio-economic positions.

The original hypothesis is supported by the fact that 12 of the 13 households in the intermediate low-income range (or 14 out of 15, if the two marginal cases, 15 and 17, are included) are primarily concerned with securing their present positions. Half of this intermediate low-income group are concerned with security to the exclusion of opportunities or
priorities for materially non-essential satisfactions. This coincidence is understandable in view of the fact that the ceiling for most skilled blue-collar workers is between five and six times subsistence income ($5S$ and $6S$) and between $4S$ and $5S$ for semi-skilled workers. It is therefore natural that the great majority of those approaching their respective ceilings should be primarily concerned with securing what they have already gained.

Those with white-collar, or pale blue-collar jobs, such as skilled manual workers in a foreman's position (as in case 2) can hope to rise to much higher positions on the socio-economic ladder. Of the ten households with incomes over $6.5S$, eight have priorities that are not dominated by concerns for present or future security. Conversely, all households under that intermediate low-income level are concerned for either their present or their future security. And, as if to clinch the argument, the two households that take their security for granted (cases 1 and 2) are those with the highest income and the greatest expectations, respectively.

3.2. Pattern of General Household Economies (Budget Strategies)

Fig. 32A complements Fig. 30 by demonstrating the hypothesized general distribution of households' economies or general budget strategies by incomes and expectations. As no attempt has yet been made to interpret household budgets or economic strategies in terms of elements analogous to the priorities discussed above, this is a simpler analysis.

Three types or styles of household economy or budgeting are evident from the analysis: (a) the poorest and most depressed households merely
Hypothetical Distribution of Household Budget Strategies In Relation to Income and Expectations

- No sufficient data
- Cost Minimization
- Budget Optimization
- Other - Non-economic

Hypothetical Distribution of Housing Expenditure Strategies In Relation to Income and Expectations

- No sufficient data
- Minimizers
- Maximizers
- Optimizers

Fig. 32. Household budget strategies and housing expenditure strategies
minimize all expenditures, and spend only on essentials; (b) the great majority of households optimize their expenditures to varying extents, even most of those with very low incomes. Although low-income families have very small savings margins, and those with very low incomes have none, all but the most desperate or depressed make deliberate sacrifices and trade-offs between expenditures on essentials. The fruit seller's and car painter's families (cases 12 and 22), for instance, are typical optimizers, despite their very low incomes. As observed above, the fruit seller's extended family have optimized in order to invest in their housing, while the car painter has optimized by minimizing his housing expenditure -- thus keeping his options open to take full advantage of opportunities demanding a move at short notice. This contrasted pair of budget optimizers illustrates the very important difference between general and housing budget strategies. Finally; (c) there are the "others", or those with economies guided by priorities for non-essentials such as the desire to establish a social status or by a desire to enjoy a particular environment.

The case studies include three exceptions to the otherwise simple and explicable distribution described above and illustrated in Figure Two of them are very low-income families with budgets that have been grossly distorted by external interventions in their housing situations (cases 24 and 25). The third (case 8, the street vendor) is threatened with eviction from his shanty town dwelling (ciudad perdida La Marranera), exacerbating the alcoholism of the elder male. This is the 'non-essential' expenditure dominating that household's economy.
3.3. **Factors Determining Households' Housing Priorities**

Households' housing priorities and housing economies are both influenced by the housing services known and expected and, of course, by the services actually used. The housing priorities people have, as well as their actual budgets, can be quite different from those that they would have or adopt without the intervention of what they actually experience or have experienced or what they expect. Housing priorities and, to an even greater extent, housing budget strategies must be interpreted with an eye on the actual supply and on actually available resources — either of which can deflect otherwise straightforward adaptations of general priorities and budget strategies to particular circumstances.

The set of cases studied suggests that government interventions in the housing market are especially powerful determinants of housing budgets and priorities. Where neither government programmes nor artificial incentives have substantially altered the market, the correspondence between general and specific priorities and budgets is much more direct. Cases 24 and 25 have been repeatedly mentioned and the third recipient of the subsidized public housing project, case 23 (the government employee and official party member) also behaves quite differently than he would without the opportunity to enter that programme — even though there is an evident balance between that household's priorities and the services supplied (see page 218). Apart from categorical programmes (specific services supplied to certain categories of users), there are special incentives for tolerating mismatches between general and specific priorities and budget strategies. The arbitrarily administered rent-control acts in
Fig. 33. Hypothetical distribution of housing priorities in relation to income and expectations
Fig. 33. Hypothetical distribution of housing priorities in relation to income and expectations.
Mexico City, for example, have certainly changed the housing behavior of households 1, 4, 5, and 6. All of these are putting up with housing standards far below those they could afford, mainly because of the extremely low rents they pay, thanks to the rent-control act.

3.4. The Pattern of Housing Priorities

A precise representation of the pattern of lower-income housing priorities could be made if there were enough data to define the areas or zones of relative frequency for the different priorities. Figs. 33A, B, C and D indicate an approximate and tentative interpretation from the small number of cases studied. From these hypothetical examples it is clear that, given sufficient data, quite precise interpretations and forecasts of priorities can be made; and forecasts of demands can be made when the data is combined with similarly detailed information on accessible resources and actual behavior. The same technique can be applied to specific needs and resources and therefore, to housing or other demands.

In general, Turner's hypothesis for the distribution of housing priorities (footnote 5) is confirmed, but there are some important modifications and refinements. The case studies support the general priority for the successive income levels: the predominant priorities of the lowest income households are locational, the intermediate low-income households are predominantly concerned with secure tenure, and those with upper-lower-incomes are equally concerned with security of tenure and with shelter standards. The indications support the common assumption that concern with high material standards of housing rises with income and
probably predominates among households with incomes ten times as high as the lowest subsistence level.

One modification of the hypothesis is the redefinition of the location factor and its division into two subfactors. The case studies indicate that there are two principal criteria determining households' decisions with regard to location, or their satisfactions with their location: the access it provides to work places and to peers (friends, relatives), and the access it provides to the centers of urban activity. Only the second was included in Turner's original hypothesis. The case study data suggests that it is less important than originally supposed; only three of the twenty-five households having a top priority for 'geographic' as distinct from 'socio-economic' location (cases 3, 5, and 8) — and all three have occupations dependent on inner-city locations. Two of these households, that of the shoemaker (case 3) and the prostitute and procuress (case 5), also have a preference for inner-city locations for more general cultural or socio-psychological reasons — which they share with five of the six cases from the inner-city vecindades — and the third, the alcoholic street vendor's family, lives in the relatively central 'ciudad perdida'.

The above observations emphasize the predominance of the 'socio-economic' factor in determining residential location, as distinct from the 'urban-geographic' factor, which is evidently over-emphasized in the original hypothesis. The fact that the three households having a top priority for inner-city location have occupations dependent on that context emphasizes the overlap between the two criteria. And the fact that six
households showing a high priority for inner-city location for other than socio-economic reasons (including two of the three mentioned above) are all inner-city (vecindad) or inner-ring (ciudad perdida) residents, suggests that they are strongly influenced by their present situations. There are only three cases in which locational priorities for the inner-city are expressed by households that do not have jobs dependent on their inner-city locations (cases 1, 4, and 6), and all have incomes well above the median for the sector investigated.

It is clear that contemporary employment opportunities in the metropolitan area of Mexico are widely scattered and are not concentrated in the inner-city. In earlier stages of the present city's development, it may well have been true that most employment opportunities for the least skilled, and especially for recent migrants, were concentrated in the densest areas of the city, but this is not the case at present. The employment and residential itineraries, which are highly coincident in the case histories, are mainly outside the central areas, and increasingly more so up to the present time.

However, it is true for the sample that the great majority (9 of 10) with very low incomes have top priority for location close to their work places or peers or both. The exception which proves the rule is the factory watchman's family (case 17), who live at a distance from the principal wage-earner's work place, but he lives with his family only on weekends.

Security of tenure, or the assurance of continued residence in the household's present location, is also a high priority for most in the low-
est income sector. This also suggests a modification of the original hypothesis, which indicates a need for residential mobility in order to maximize opportunities for higher incomes. This is borne out by the two families with high expectations for future improvements (cases 14 and 22), but the other eight cases are either stable or expect to become even poorer. For the latter, it is natural that they should seek tenancies that they can be sure of maintaining in order to anchor themselves as much as possible.

The priority for secure tenure predominates at the next intermediate level, as observed above. The most frequent second priority, however, is for improved housing standards (twelve of the thirteen cases with incomes between 4 and 7 times subsistence). Locational factors only appear in five of these cases, all of which are in the 6S and 7S range (there are no obvious general reasons why the two clusters of households with high locational priorities should be so separate but, of course, the number is too small to prove that this is more than a coincidence). This predominance of concern for the security of permanent residence is understandable when seen against the background of the previous experience of the families, all of which have experienced increases of real income and ten of which have experienced major increases during their working lives (see p. 544, Appendix B). When the low ceilings to the incomes that can be obtained from the employment open to most of these households have been reached, the desire to secure what they have already achieved is hardly surprising.

The only really secure housing tenure in contemporary Mexico is possession, de facto or de jure. Ten of the fifteen cases at and between
Fig. 34. Revised hypothesis of relation between housing priorities and income

++ Essential
++ Important
++ Convenient
++ Unimportant/Indifferent
++ Inconvenient

Households with positive mobility expectations

Households with negative mobility expectations
the 3S and 7S income levels have, in fact, built their own homes -- accounting for all but one of the households that have built or are building a substantial permanent dwelling (the exception being the remarkable fruit seller's extended family). Three of the remaining five are beneficiaries of very low frozen rents of centrally-located vecindades (cases 2, 4, and 6) and one, case 23, is a privileged recipient of a subsidized project dwelling. In all probability, all four would have built their own homes like the other ten, but for the exceptional circumstances introduced by government action. (The government employee, case 23, had already bought a plot before being allocated the project unit.) The shoemaker is the only exception to the generalization that can be made for the selection: all households with low, but not very low, incomes have very high actual or pent-up demands for owner-occupancy, even where this means building their own homes over extended periods of time.

3.5. The Pattern of Housing Expenditures

The influences of special conditions created by government housing programmes and legislation have an even greater effect on the housing expenditures of the households which are directly affected. The housing budgets of the five families living in rent-controlled vecindades, and the three occupants of project dwellings are substantially different from what they would have been, but for these relatively exceptional conditions. The only one of these with a "normal" housing expenditure -- one that is a typical ratio of the household's total income -- is the government employee (case 23). But as noted above, this family would have invested more
if it had not been diverted from its intention of building its own home by the offer of a subsidized project dwelling. The others are either paying less than the usual proportions of income (the higher their incomes, the less they pay) or far too much, as in the case of the two very-low-income occupants of the project (cases 24 and 25).

In all the other cases, general budget strategies are virtually coincident with housing expenditures as defined in the study. Based on the cases' situations at two periods -- in 1968 and at the time of the interviews in 1973 -- the three styles of housing expenditures observed are distributed in four areas of the income/expectations chart (Fig. 32B, p. 269). Housing expenditure minimizers are either general cost minimizers or general budget optimizers, for whom housing services have a low priority. The exceptions are those whose housing expenditures have been distorted by special circumstances (such as those introduced by government action). The third housing expenditure strategy is to maximize or to invest all that the household can in their housing. This normally occurs only when owner -- or possessor -- builders are using their housing to secure their positions or to gain access to higher socio-economic levels. In the sample (from pre-1973 data), these are clustered at or below the low-income sector median and on the side of positive expectations. That a large number of households with higher and much higher incomes do the same is well-known to any middle- or upper-income citizen of modern countries where such options exist.

The very-low-income project occupants (cases 24 and 25) are involuntary housing expenditure maximizers and the third project occupant
(case 23) is an inhibited maximizer. On the other hand, the rent-controlled vecindad tenants (cases 1, 2, and 4) are involuntary minimizers. The losses to society as a whole and to the households themselves are evidently considerable when these distortions of housing economy occur.

3.6. Use of Housing Resources

Demands cannot be assessed, interpreted or projected without an adequate knowledge of all the major resources commonly available to people for housing purposes, and an understanding of the factors influencing their decisions to use them and the ways in which they are used. The many resources commonly used by households in the sectors investigated were listed in section III.2.5.

The cases studied indicate that immensely different social and material values are derived from similar sums of money when these are invested by central agencies for people and when the people invest the money themselves, along with the non-monetary resources which can be used in the latter case. The first, or construction costs, of comparable structures can vary by more than 100 percent and the equity earned can reach levels far beyond the limits of mortgage lending.

The variety of resources available to any one household, together with the variety of motives determining its use of those resources, illustrate and, to some extent, explain the immense variety of housing demand -- anyway, of the lower-income sectors that have access to this range of resources and at least partial freedom to use them.

The apparent anomalies in the distribution of investments made in housing and of the equities obtained, can only be explained if the full
range of resources are known and if their use can be seen in the light of the patterns of priority described above. Figure 35 indicates that most of those with the highest equities have incomes in the lowest range. Figure 36 indicates that this paradox is only partially explained for some cases by exceptionally high levels of financial investment. And a comparison of the two figures, of the balances between the levels of investment and equities and their relationships to income, indicates that exceptionally high expenditures are not necessarily associated with high equities. For example, cases 24 and 25 spend excessively high proportions of their incomes on housing (55 and 35 percent) although they cannot afford to spend more than about 7 percent without affecting expenditures on other and even greater necessities, such as food and the journey to work. And, in spite of this self-destructive effort, these families have no equity at all. Cases 19 and 21, on the other hand, have achieved very large equities for their income levels (the market value of their properties being over three years' income), even though the households' present expenditure is well below the norm (between 7 and 8 percent, when they can afford about twice as much).

From the two present figures, it can be seen that nearly all those who have built their own homes have high equities — and that their median income is well below the median for the low-income range. A substantial part of the capital gains obtained are, of course, due to the inflationary rise of land values but, even when this is taken into consideration, these low-income owner- or squatter-builders still achieve remarkably high returns for their financial investments. This generali-
Fig. 35. Distribution of cases x income level and percent income spent on rent/amortization and utilities in 1973
Fig. 36. Distribution of households by income level and equity owned in 1973, in 1973 pesos
zation is more accurate when longer periods are taken into account, as investment tends to be very high initially (as in cases 17, 18, and 20) due to construction, or as in these cases, short-term amortizations for the land and improvements. When these have been completed (as in cases 9, 10, 15, 16, 19, and 21) the proportion of income spent on housing services drops to a low level — often far below the norm or that which the households can easily afford. Fig. 39, page 321 presents the distribution of current costs of housing and income for my sample of family interviews. Its conclusions completely support the findings of the case studies.

All the high equity achievers make substantial use of non-monetary resources, principally their own initiative and determination and the exercise of their managerial and manual skills. The case studies support earlier arguments that managerial skills are as, or even more important than, manual skills and that it is a dangerously misleading error to suppose that self-help potential lies in the latter alone. It is difficult to quantify the gains made from specific operations that have already been carried out, and the study could not include a sample monitoring of building procedures. It is clear, however, that equally considerable sums are saved by low-income Mexican builders as by relatively very high-income U.S. owner-builders.

As these and other monetary and non-monetary resources demand considerable time and effort on the part of the owner-builders, motivation is obviously vital. The relatively low priorities for home-ownership of the households with substantially higher incomes (for example, cases
1, 2, 4, and 6, who are all vecindad renters) have evidently been insufficient to overcome the inhibition of their investment capacity generated by their excessively low rents. Cases 15 and 16, however, were not inhibited by this privilege and both were former inhabitants of other peripheral settlements (one family gave its former house to a relative, the other was a renter).

It is also important to note the informal financial resources so commonly used. Several households reported loans from employers, some of them fairly substantial and all probably essential to realization of their actual achievements.

3.7. Levels of Demand

As mentioned earlier, the two principal levels of demand that must be differentiated are: effective demand and pent-up demand.

**Effective demands** are those actually observed as products of housing priorities, expenditure strategies, and available resources within all limits of present supply constraints.

**Pent-up demands** are the ones that would arise and become effective if the present shortages and other supply limitations (such as categorical relocation projects limiting choice by tying households to a specific spending pattern and destroying the economic rationality of their actions; special incentives or subsidies such as very low, frozen rents, which induce expenditure strategies very different from those preferred in the absence of such incentives) are removed within the existing housing market.
The third level of demand that has less immediate practical relevance can be called potential demands. These would be activated if specific basic changes of supply occur (such as urban land reform or the restructuring of other basic resource markets). In other words, potential demands match the existing resources (irrespective of who controls them at present) with users' priorities and expenditure strategies.

The importance of differentiating these three sets of demands is highlighted by the distribution of expenditures and equities of the cases presented in the proceeding section. Assuming that these are fairly representative, there are clearly major differences between what households could and would invest in their housing services, if existing resources and services were available to them; and what households can do with resources and services actually available to them; and what they do in practice.

In general, and certainly in the case of Mexico, the gap between the existence and availability of key resources, such as building land, is very wide and widening for a majority of potential investors in lower-income housing. The same is probably true of finance and even of building tools, materials and skills. In Mexico, as elsewhere, structural changes in the markets for land and credit, at least, are essential for the closing of this growing gap and therefore, for any major improvements or even stabilization of the housing situation.

The release of pent-up demands generally requires less radical action than the realization of potential demands. While the latter requires major normative, as well as operational, changes, relatively minor pro-
cedural changes within the existing legal framework are sufficient for the activation of substantial proportions of resources for housing actually accessible to or possessed by the would-be users. Tentative conclusions with regard to the tactical release of pent-up demands and to the strategic realization of potential demands are presented in the following chapter. The following paragraphs of this section summarize the outstanding facts obtained from the analysis of the demands of the cases studied.

The ratios of household income to direct housing expenditures (rent or amortization and rates, together with utilities) show that sixteen of the twenty-five households are spending substantially less than they can afford, while seven of the rest are spending substantially more -- three of them (cases 13, 24, and 25) so much more than they should that they must be grossly undernourished. Only two (cases 5 and 8) have a level of housing expenditure that is proportionate to their incomes. If the conventional norm were introduced -- the assumption that all households can afford to spend 25 percent of their incomes on housing, irrespective of their income level -- eighteen would be underspending, four would be within 5 percent of the norm, and three would be overspending. This assumption, however, is increasingly absurd as income levels drop -- few households with incomes below four times subsistence can afford more than 10 to 15 percent for housing and this necessarily diminishing proportion of diminishing incomes drops to zero where the households' entire income must be spent on food and fuel in order to maintain a minimum diet.
Either way, the differences between this potential housing demand, or what people can invest in housing and the actual or effective demand are very large and minly negative. On the more reasonable and conservative assumption adopted for the 'norm', there is a gross underinvestment of about 65,000 pesos annually between sixteen households. The seven overinvestors spend about 20,000 pesos annually in excess of their 'normal' capacity, but only four to such an extent that their nutritional level is dangerously low.

It is interesting to note that over half of the total underinvestment (33,400 pesos out of the total of 65,000 annually) is derived from the four upper-lower income households occupying rent-controlled vecindades, and that nearly half the total overinvestment (9,500 pesos of 21,000) is derived from the two very low-income households occupying subsidized project dwellings. This suggests that the major constraints on the potential of the demand are those introduced by legislation and public administration.

3.8. The Pent-up Demand

Figure 37 is the closest approximation of the pent-up demands that could be made for the twenty-five case families studied with the collected information. It is based on the knowledge of their priorities, economies, and resources, and in some cases, on the pent-up demands explicitly expressed by the households.

The twenty-five cases are distributed between the seven alternative housing sets under the assumption that the present legislative and administrative constraints are removed. Five of these sets exist at
1973 SOCIOECONOMIC MOBILITY EXPECTATIONS

<table>
<thead>
<tr>
<th>TOTAL HOUSEHOLD INCOME</th>
<th>DOWN MOBILE</th>
<th>STABLE</th>
<th>UPPER MOBILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
<td>1C</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>15D</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3V</td>
<td>6A</td>
<td>16D</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>11U</td>
<td>23D</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>13U</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>21U</td>
<td>18U</td>
</tr>
<tr>
<td>3</td>
<td>8V</td>
<td>7V</td>
<td>17U</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>24V</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>13F or R</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**V** = Vecindades (tenements)
**R** = Rental camps (minimum size plots = legal cd. perdida)
**A** = Apartments (condominiums)
**C** = Complete single family house
**D** = Developed (fully serviced) plots
**U** = Undeveloped plots (minimum services)
**F** = Urban farms (rental plots in outer periphery)

Fig. 37. Pent-up demands

*for scale, see Appendix B, page 540.*
1973 SOCIOECONOMIC MOBILITY EXPECTATIONS

<table>
<thead>
<tr>
<th>TOTAL HOUSEHOLD INCOME</th>
<th>DOWN MOBILE</th>
<th>STABLE</th>
<th>UPPER MOBILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
<td></td>
<td>1Vc</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>15U</td>
</tr>
<tr>
<td>7</td>
<td>3V</td>
<td></td>
<td>16U</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6Vc, 4Vc</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>11Q</td>
<td>23U</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>19U, 2Vc</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>9U</td>
<td>10U</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>21U</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20U, 18U</td>
</tr>
<tr>
<td>3</td>
<td>9R</td>
<td>25P</td>
<td>12Q</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>17U</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>22G</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Shack in Friend’s yard)</td>
</tr>
<tr>
<td>2</td>
<td>24R</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>14R</td>
</tr>
<tr>
<td>1</td>
<td>13Q</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

V = Vecindades
Vc = Rent controlled V
U = Fraccionamientos populares (undeveloped plots)
Q = Colonias paracaidistas
R = Colonias perdidas
P = Conjuntos subsidiados
G = Arrimado (guest, without payment)

Fig. 38. Effective (actual) demands

* For scale, see Appendix B, page 540.
present and were discussed in sections II.1-4. Two other, rental camps and urban farmsteads, are proposed by me and will be described in more detail in policy discussion in the last sections of the dissertation. In essence, however, they are adapting and legalizing the main functional characteristics of the ciudades perdidas, and the squatter areas in the outer periphery. The effective demands of the same sample of families (their actual distribution between the housing sets) are shown in Fig. 38.

The two new sets, for which I have identified pent-up demand among the case study families, are most important for the poorest among them. For the family of case 24, an urban farm would be a secure version of the type of housing they have lived in for the longest and happiest time. They used to squat not far from one of the suburban recreation centers, in front of which the mother and daughter used to sell home-made sandwiches. Their mini-farming not only helped the family nutrition, but also provided an important part of the family income. Now, they are staying in a government-built subsidized project.

For the pumpkin seed seller's family, an urban farmstead would also be the secure version of their present situation of squatting in the outer periphery with some subsistence farming, which enables them to slightly improve their hunger-level daily meals. At present, they are also threatened with eviction from the federally-owned land upon which they squat. The other option this family might have chosen, especially in the earlier period, before the father got his present severe ulcers and the family had some positive expectations, is a ren-
tal camp (building a shack similar to the one they now own but close to the low-skill jobs and less expensive food markets).

The family of the part-time car painter/garbage picker (case 22) would also opt for a rental camp, if they had not been lucky enough to find a friend who proposed an identical situation but in an informal and completely cost-free way. Those currently housed in the ciudades perdidas (such as cases 7 and 8), or even more insecure and short-lived condemned tenements (such as case 5), could all afford the economic rents of simply-built, short-life courtyard tenements. If appropriately located, it is reasonable to assume that these three households would all opt for this alternative, if available. As mentioned in section II.1.4., the monthly payments in the ciudades perdidas made by families of cases 7 and 8 are higher than the economic rent for a low-cost tenement (vecindad room).

Housing sets for which I found the highest demand among the case study families were unmortgaged, undeveloped, minimally serviced plots. Five families (cases 17-21) living in the illegal ejido subdivision have found an informal way of satisfying this demand. They bought unmortgaged, undeveloped plots and have gradually introduced services. If they had been able to do it legally, land tenure security would have accelerated their own investment in housing improvement as well as in locality improvements. The latter applies even more to three out of the four squatter families studied. The three typical squatters-consolidators, with low and very low incomes, represented a pent-up demand for unserviced plots. The fourth family, case 13, which has the lowest and
least stable income of the whole sample, represents a demand for urban farmsteads or rental camps.

The families threatened with expropriation to make a place for government housing projects, living in colonia Magdalena Atlazolpan (cases 9 and 10) are not squatters, but because of government action their tenure is even less secure and all private and public improvement, investment, and even maintenance, stopped. Their present incomes, low but not very low, place their pent-up demand in the intermediate position between undeveloped and developed plots, with some priority for the former. Cases 15, 16, and 23 represent a clear pent-up demand for developed plots. All three have high priorities for both ownership and improved housing standards. All have incomes high enough to pay the (reasonable) price of serviced plots and to build their own dwellings to moderately high standards in relatively short periods. Two (15 and 16) have actually done just that, and the third (23) would have done so -- a plot had already been bought -- if it had not been diverted by the offer of a subsidized project dwelling.

Of the six families interviewed in the vecindades, three have moderate or close to moderate income, and one belongs to the middle-class. Three of them have priority for a completely-built single-family house in the middle-class area, and one for a fully-serviced condominium apartment in the center. All four have high priorities for ownership and physical quality on the middle-class level, and can afford to pay the price. All have positive expectations of socio-economic mobility. However, as long as allowed to live in the presently rent-controlled
vecindades, for which they pay 1 or 2 percent of their income in rent, they will continue to do so. The two remaining vecindad families have much lower mobility expectations and lower incomes. However, their jobs require central location; consequently, their pent-up demand is for the central vecindades. One of these families (shoemaker, case 3) is paying a higher free-market rent.

Comparing the tables of pent-up and effective demands, Figs. 37 and 38, we can see that the major discrepancies between the two appear for the families whose present housing situations are most influenced by the government interventions: families living in subdivided projects and in the rent-controlled vecindades.

Based on an analysis of case studies during their entire housing histories, and on the information from family interviews, I have arrived at a hypothetical distribution of the pent-up demand for housing sets by income levels in Mexico City. Those conclusions are summarized in Table 7.

Housing sets for which demand has been identified are divided into two categories: use only, and use and property. The low- and moderate-income populations of the city have been divided into ten groups, as was done in the priority studies, by function of their per capita (per adult unit) income in the multiples of the subsistence income. Information about the number of families in each income group is not available. The table presents principal and additional (less important) pent-up demands. The housing sets in the table exist at present except for the three recommended as a result of this study. These are the
<table>
<thead>
<tr>
<th>MULTIPLES OF SUBSISTENCE INCOME</th>
<th>PENT - UP DEMAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>15+</td>
<td>USE</td>
</tr>
<tr>
<td>10-15</td>
<td>ARITHMOS</td>
</tr>
<tr>
<td>8-10</td>
<td>WITH EMPLOYMENT</td>
</tr>
<tr>
<td>6-8</td>
<td>URBAN FARMSTEAD</td>
</tr>
<tr>
<td>5-6</td>
<td>RENTAL CAMP</td>
</tr>
<tr>
<td>4-5</td>
<td>MINIMAL VECINDAD</td>
</tr>
<tr>
<td>3-4</td>
<td>&quot;GOOD&quot; VECINDAD</td>
</tr>
<tr>
<td>2-3</td>
<td>REENTAL ROOM</td>
</tr>
<tr>
<td>1-2</td>
<td>RENTAL ECON. APARTMENT</td>
</tr>
<tr>
<td>0-1S</td>
<td>USE AND PROPERTY</td>
</tr>
<tr>
<td></td>
<td>PLOT-URBANIZED PLOT</td>
</tr>
<tr>
<td></td>
<td>URBAN PLOT POP.</td>
</tr>
<tr>
<td></td>
<td>URB. PLOT POP.</td>
</tr>
<tr>
<td></td>
<td>APARTMENT MIDDLE CLASS</td>
</tr>
</tbody>
</table>

- Principal Demand
- O Additional Demand
- New Set Proposed

**TABLE 7.**

PENT-UP DEMAND FOR HOUSING SETS BY INCOME LEVEL
urban farmstead, the rental camp, and the plot in the urban ejido (low-income subdivision with secure but restricted tenure system). They will be discussed further in section V.7.

I have used this opportunity to make a very rough check of the predictability of demand. As outlined in section III.2.1., information about incomes and expectations has been used to predict, with the use of hypothetical "normal distributions" developed in this chapter, the general priorities, budget strategies and the first approximation of housing priorities and housing expense strategies. Next, knowledge of the present housing that most families in given income brackets have (which is a very simplified step), and the knowledge of other options on the market, enabled me to improve the prediction of housing priorities and expense strategies and to choose the submarkets that would best meet them. Of course, the specific housing solution, in terms of location, shelter quality, cost, etc. could not be chosen. The results were slightly less aggregate than the ones presented, as one more variable (expectations) was used. In sum, however, both were in agreement.
IV

MISMATCHES AND THEIR CAUSES:

RESOURCE MARKETS, INFRASTRUCTURE AND SERVICES
1. MISMATCHES BETWEEN THE SUPPLY AND DEMAND OF HOUSING SETS

1.1. Shortages

Already an initial analysis of the field data has revealed two principal types of mismatches between the supply and demand of housing sets: shortages, or lack of supply, and the dysfunctions of sets in use.

As discussed in I.2.2.4., and II.5, two kinds of housing sets are particularly short in supply: low-cost rental accommodations near the centers of low-skill employment and inexpensive feed markets, and low-cost unurbanized and urbanized plots. These sets are in highest demand.

In chapter III.3.8 (see figures 37 and 38 and table 7), the distribution of the pent-up demands and effective demands (actual housing choices of the families studied) for different housing sets were summarized.

This section intends to relate these two conclusions in order to identify all the major shortages.

Two important assumptions were made before this analysis: first, that the sets that represent excessive costs to society will be eliminated; second, that new sets should be created to respond to the pent-up demands that cannot be accommodated by existing sets, and to compensate for the elimination of some sets that exist at present.

Elimination, as I see it, means legislative changes and the introduction of a competitive supply that would make those socially costly submarkets no longer viable economically.
It does not mean any forced eradication, relocation, slum clearance or the like. Besides, middle-income housing has been added to the list of sets of pent-up demand. It has been found that the number of families in such sets as rent-controlled vecindades and subsidized projects, in fact, represent a pent-up demand for middle-income housing.  

The main conclusion of this analysis is that there are very few sets where most of the present users have the priority for this particular set. The situation is particularly bad in rental housing, where only in two small sets of use without payment were most of the users satisfied with their present housing. Both of these sets are accessible only to some users. The "Arrimado" situation may serve only those who have relatives or friends willing to house them. Housing as a part of a wage serves only such people as servants, watchmen, or some workshop helpers.

In the ownership category, the disparities between pent-up demands and present housing are smaller. The most significant finding here was the high pent-up demand for urbanized and unurbanized plots from families living presently in various kinds of rental housing. Another interesting finding was that the demand for middle-income housing from families living presently in rent-frozen vecindades and in all kinds of subsidized government projects was higher than had been expected. Table 8 summarizes the complete conclusions of this analysis.

The symbols in Table 8 indicate whether the users have a housing set for which they have priority. I am looking here for the most general degree of match, without analyzing possible dysfunctions in the
use of given sets.

There are three kinds of symbols: one for match (when the effective and pent-up demands agree), and two for mismatch (when they do not agree). Two kinds of mismatch I have distinguished are:

- the situation when a family has a priority for another housing set which is in short supply; and
- the situation when a family has a priority for a set of housing goods and services that does not exist at present.

The size of the symbols corresponds to the approximate proportion of the population of present housing submarkets (present users of each kind of set). The vertical columns of the table permit us to see what proportion of the present users of a given set has, in fact, priority for this set. It also tells us for which other sets priority is given by users unsatisfied with their present housing.

For example, of the present users of rental rooms in family homes in colonias populares, probably around a quarter have, in fact, priority for their kind of housing. The remaining would prefer minimal cost vecindades, or good quality vecindades, and the non-urbanized plots in the colonias populares. A small proportion of the present users of rental rooms in homes also represents pent-up demand for urbanized plots and for the unurbanized plots in the cheapest ejido subdivision (set of secure but limited ownership, that I am proposing).

The vertical column also indicates that the rental rooms cost too much (tables 10 and 11 present this aspect in more detail).

The horizontal rows indicate in which present housing set (vertical
column) can be found the population representing the pent-up demand for the housing set listed in a given row. For example, all the population with a demand for rental rooms presently using this set can be found. If, however, the minimum cost vecindad close to the center is examined, it will be noticed that over half of the population of the ciudades perdidas represent a pent-up demand for this set. Also, a sizeable proportion (at least 20 percent) of the inner-city "infill squatters," renters of rooms in homes in colonias, and squatters in the periphery would prefer to be in the minimum-cost centrally-located vecindades. A small proportion of the population of the subsidized projects also has a pent-up demand for rooms in these vecindades. They all cannot satisfy these demands because of the shortage of supply.

"Urban farmsteads" do not yet exist as a generally accessible type of housing. If the corresponding row of the table is examined, we shall find that according to my estimates, over half of the inhabitants of ciudades perdidas represent a pent-up demand for this set. The other potential user is the same 20 percent of squatters in the peripheral colonias and a small proportion of the inhabitants of subsidized projects (case 24 of the case study sample is an example).

1.2. Dysfunctions of Sets in Use in Respect to User Needs and Priorities

An analysis of shortages summarized in the former section is very much related to an analysis of dysfunctions.

Users represented in Table 8 with a pent-up demand for sets different from those presently used are all suffering different kinds of dysfunctions. In addition to them, however, I have found many users
### Table 8.

**Relation Between Present Housing Sets and the Pent-up Demand**

<table>
<thead>
<tr>
<th>Special Costs</th>
<th>Present Housing Set</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Externalities to Society</strong></td>
<td>S</td>
</tr>
<tr>
<td><strong>Very High Costs to Users</strong></td>
<td>U</td>
</tr>
</tbody>
</table>

- **MATCH** Present Housing Set and Pent-up Demand Agree
- **MISMATCH** Pent-up Demand for the Existing Set that is Short in Supply
- **MISMATCH** Pent-up Demand for Non-existing Type of Set
- 50-100% of Users
- 20-50% of Users
- 5-20% of Users

*New Set Proposed*
whose present housing set matched their preferences, but its cost, location, or other characteristics created a number of problems to the family.

The principal kinds of dysfunctions suffered by the families studied were related to location, tenure, physical quality and cost.

1.2.1. Dysfunctions related to housing location (dislocations)

Difficulty in getting to the centers of low-skill employment opportunities and cheap shopping was one of the main dysfunctions suffered by the families studied. Long and costly travel to work especially damages the economy of families who depend on irregular employment and have more than one working member.

Besides additional costs of travel and food, costs in human energy and in family and social life, families who live far away from the employment concentrations have more difficulties in finding work.

The majority of the families with lowest incomes, irregular employment and many working members live in rental rooms in the peripheral fraccionamientos and squatter colonias. A few also live in peripheral subsidized projects. Many of the renters in the squatter areas and some users of the new projects are victims of the recent slum clearance programs in the center.

At the same time, centrally-located, low-cost, rent-controlled tenements are increasingly occupied by families with priorities and resources for their own house in the periphery and whose economy does not depend on access to the center.
(Travel time to work and markets (one way) of the families in the sample are summarized in the tables in footnote 123. These tables distinguish, also, between walking time (no cost) and travel by public transportation.)

The inhabitants of the centrally-located vecindades and ciudades perdidas are closest to their jobs. The proportion of them who actually walk to their jobs is also much higher than in other types of housing. Some travel, however to jobs outside the center. Those who travel farthest are the inhabitants of new peripheral colonias and the government projects. Two peripheral colonias are an interesting exception: Isidro Fabela and Emiliano Zapata. The first has a number of bus connections directly to the central core of the city, and the second is next to the strongest metropolis subcenter.

The distribution of travel times to markets follows a similar pattern. The vecindades and ciudades perdidas are in a better situation than most of the inhabitants of the colonias in the periphery. The older projects are also closer to their shopping areas. A more detailed analysis of the peripheral colonias is very instructive.

Families with the longest average journey to markets are in Ecatepec and next, in Granjas Valle. Both areas are poorly linked with the closest metropolitan subcenter and have no larger local markets.

Much better is the situation in Netzahualcoyotl, Isidro Fabela, and Emiliano Zapata. The first area has strong local shopping and several markets; the second is very close to the old suburban town, Tlalpan, that has become a metropolitan subcenter and a middle/high-income resi-
dential area. It does not have much local employment, but has a large market; the third is close to the large subcenter of Naucalpan.

Three peripheral squatter areas (Santa Ursula, Pedregal de Santa Ursula and Ajusco), whose inhabitants travel less to markets (mostly walk), are near to the middle-income housing areas with markets.

1.2.2. Dysfunctions related to housing tenure

The principal aspects of tenure are its security, its transferability, and the degree of freedom to use the housing in different ways (degree of control over how the housing is used).

Tenure insecurity is very difficult to measure with numerical indicators, and consequently, difficult to compare. As an approximate indicator in the case studies, the length (number of years) of option of continued residence at a given dwelling has been used. The highest degree of insecurity is suffered by squatters in non-legalized colonias percazistras and renters in ciudades perdidas. Both are threatened by eradication.

The users of some of the old vecindades are in the same situation. Psychological suffering as a result of this insecurity is also difficult to measure. They may be approximated by an examination of the potential loss of income and increase of living costs for the users if the ciudades perdidas were to be eradicated or if the user's property were lost in the eradication of a squatter area.

Squatter consolidators have, in most cases, a strong priority for ownership. Insecure tenure represents to them an important mismatch. It also prevents them from investments in the improvement of the dwellings
and of the locality. The other source of insecurity is in the mismatch between the kinds of tenure that require regular monthly payments, and the irregular incomes of many low-income families.

This mismatch can be seen in all kinds of housing projects and in the commercial rental sets. It has two kinds of consequences. Families are in danger of losing their dwellings if they default on mortgage repayments or cannot continue with paying rents on time. (Usually, they starve themselves first in an attempt to keep paying.) This is particularly bad in the government project housing, where the transferability is legally limited and defaulting families are likely to lose a lot. In commercial rental housing, a family not able to afford it anymore can at least move out without any financial loss. A few families of our case sample who lived in rental apartments, or vecindades, changed their dwellings to ones of a lower quality when the economic situation of the family deteriorated. Families in projects could not do this. The second consequence of a mismatch between fixed mortgage or rent payments and irregular incomes is the impossibility of investing any extra earnings, or any non-monetary resources, in housing improvements. (See II.4 and III.2.5)

The importance for the users of the possibility of incremental construction will be discussed in the next section, which deals with the physical characteristics of housing.

Besides the families with deteriorating incomes, the easy transferability of dwellings is also important for those with irregular employment. They need to move easily, following changes of their employ-
ment place, to avoid excessive transportation costs, and to have time to look for other work opportunities. When in sufficient supply, low-cost vecindades were satisfying this need. Present shortages make such moves very difficult.

A degree of control over the way in which the housing and locality can be used is particularly important for the family economy. In some ciudades perdidas, almost all families are involved in some small-scale informal productive (crafts such as basket-making, or simple woodwork, production of refresments, etc.) or commercial activities. In a typical consolidated colonia, 10 to 20 percent of the labor force is self-employed in some small-scale, and often informal, businesses. Zoning regulations that prohibit such activities in the dwellings and on the streets of most subsidized projects have had very serious consequences to the economy of may families. The importance of these activities has been studied by a number of scholars in several countries. A less studied aspect is the farming and animal breeding activities, and my data gives some insight into their importance, and the consequences of their prohibition.

Small-scale farming or the growing of vegetables for family needs have been identified only in a few cases, and only in the peripheral colonias, suburban villages in the process of being incorporated into the city, or individual suburban farms in the fringe area. However, in the lower-income sections of the city the breeding of domestic animals like hens or pigs is very common. They are evident in all the low-income localities of the sample of forty-nine with approximately
600 families, except for the old city core and its first ring, where there is no space for them, and the government-subsidized project, where it is prohibited and the prohibition is being enforced.

Pigs and hens were owned by the families interviewed in the peripheral subdivisions such as Tlacoligia, San Rafael Chamapa, Acueducto, Magdalena, Allazolpan, Olivar del Conde (even cows), the squatter areas such as Barrio Norte, Santo Domingo de los Reyes, San Nicolas de Paderna, or the ciudades perdidas such as San Pedro Xalpa and Santiago Ahuizotla.

The animals are an important element in the family economy, and the prohibition of them in the subsidized projects is a very serious problem, especially for families with unstable employment. Families 24 and 25 of the case studies used to have pigs and hens before being moved to the Unidad Vicente Guerrero. The animals provided not only food for them but also a key ingredient of the sandwiches that the wives and daughters sold in order to contribute to the family income. Loss of this extra food and extra income dramatically deteriorated the family's nutrition and budget.

1.2.3. Dysfunctions related to the physical characteristics of housing

In a number of inner-city squatter areas (infill squatters, or "zero rent" renters) the users are suffering very unhealthy and even dangerous housing conditions. Lack of tenure security retarded any investment in improvements.

In the ciudades perdidas, many of which lack even the minimal sanitary facilities, owners do not make any improvements. They cannot
be forced to do it, as the whole rental procedure is outside the law, anyway. Users do not do it because of the lack of security of continued residence and lack of resources.

Other housing types, particularly poor in physical terms are, in most cases, the rent-controlled vecindades. Their owners are obliged to provide the necessary maintenance. However, the rents collected from rent-controlled dwellings are not sufficient to pay even the minimal upkeep. Users, in most cases, also do not invest in maintenance.

The physical characteristics of housing and their match with user needs have been analyzed in five main categories: space, services, structural quality, adaptability to changing needs, and general environmental quality.

None of these characteristics are particularly important for the low-income newcomers: migrants or new urban families. They do, of course, prefer better physical quality, especially better sanitary conditions, but find access to employment and lower housing cost much more essential. However, physical characteristics of housing are very important for the families in the consolidation stage looking for a permanent settlement place.

The tables of footnote 125 sum up two physical characteristics of the housing in my interview sample: roofed space per capita and availability of services. Square inches per capita were calculated per adult units. The percentage of services is calculated according to the following criteria: 100 percent of services means that the dwelling has inside: water, drainage, gas, electricity, and telephone.
To make such a summary possible, each of these services separately is "worth" 20 percent if inside the house and 10 percent if it is shared with other families (for example, in a yard of a vecindad).

Priority for different aspects of a dwelling's physical quality changes with family composition and income. The possibility of expansion, adaptability to changing family structure and changing investment priorities (and capacity) are, however, very important at any stage.

Owner-builders always put space before other aspects, as sufficient space is a precondition for further improvement, while initial availability of services is not.

Low-cost housing projects are notorious for cutting down on space and imposing a more rigid structural framework as a way of lowering the cost, while maintaining a full provision of modern services and a final permanent structure, as required by the construction codes. This mismatch of project housing with users' priorities was particularly apparent in the area of Iztacalco, where the interiors included population of both these types of areas: the "squatter settlement" which the government wants to eradicate and the subsidized housing project where the "squatters" are offered housing on very favorable financial terms. "Squatters" were promised the titles to the land they hold nearly twenty years ago. Each was to get a 120 sq. m. plot. The compensatory housing has plots of 72 sq. m. and consequently, very little space for progressive expansion. This is one of the main reasons why most of the squatters did not want to accept the project housing.

A comparison of the space per capita and services (footnote 125)
with income distribution (page 515) and information about the priorities of the families interviewed, has indicated that the biggest mismatches of demand for space and supply offered exist in the rent-controlled vecindades and the subsidized projects.

Especially the projects that did reach the low-income population are very crowded. For example, in Iztacalco, ten of the fourteen interviewed families have less than 3 sq. m. per capita. In the new Colonia Emiliano Zapata, thirteen of nineteen families are also in this position, but all of them can expand their dwellings in the future. Colonias Obrera and Agricola Oriental, over thirty years old, show much more space per capita and a better match with the user space priority than, for example, Colonia Isidro Fabela, only recently legalized, where the housing investments were delayed by tenure insecurity.

Houses in Colonia Tlacoligia, legalized over ten years before Isidro Fabela, are already much larger and have more square meters per capita. Among the squatter areas studied, Ajusco has the best space standards and the best level of services, and consequently, the best satisfied priorities for these aspects of physical quality. It also happens to be the locality with the highest degree of tenure security. The regularization had already begun during the time of the interviews. Iztacalco and Barrio Norte are elder settlements, but continued tenure insecurity has delayed the improvement process.

Space standards in the rent-controlled vecindades are a special case. Their users conscientiously suppress their priority for better physical quality in order to continue savings resulting from frozen
rents. Comparing the space standards of families in Tepito with their incomes and with priorities, one can only wonder at the extent of this voluntary suffering.

The match of the structural quality of housing with user priorities seemed to be most similar to that of services. In the cases of development delayed by insecure tenure, it is below the level that users would like to have and can afford. The same applies to the delapidated rent-controlled vecindades. On the other hand, in the projects the initial structural quality is much better than the families need. In the cases studied, they did prefer to have much more space instead.

In the owner-builder colonias with secure tenure, the consolidation is delayed by a number of diseconomies. The match between the structural quality and other aspects of shelter is much better, however, than in the other areas.

Mismatches related to a lack of the structure's adaptability to future change and expansion was already mentioned in the discussion about tenure. Families explicitly complaining about this limitation were found only in the subsidized government projects. Families in commercial rental housing suffer this limitation, too, but they do not consider it very important, as they treat their present housing as temporary.

Owner-builders' housing is, in general, very adaptable. It is difficult to separate, however, the physical adaptability from the adaptability of the incremental construction process that permits easy change, and from the adaptability of tenure (degree of control aspects
already discussed). The more adaptability as a result of incremental construction process increases, the less legal the settlement is, and consequently, the less likely any enforcement of the limiting building and zoning codes and regulations. In fact, among the families of my interview sample, those who seemed to value the freedom and possibility of building step-by-step and expanding further when they want were the ones in the squatter areas. This was given as the main advantage of the present housing by most squatters in Santo Domingo, Santa Ursula, or San Nicolas de Padierna. One of the families in the low-cost subdivision, Emiliano Zapata, summarized it as: "freedom to build as they want to, how they want to and when they want to."

General environmental quality, defined in terms of the general cleanliness of the area, air and water, existence of public open spaces, vegetation, absence of noise pollution, etc., is another aspect of the match of present housing with user priorities that was analyzed. The importance of environmental quality for the urban poor is a subject of two extreme opinions by professionals: (1) Everybody, including the poor, must live in a healthy environment. Unhealthy housing areas are uninhabitable. Those that cannot be improved should be eradicated. (2) Poor do not care about environmental quality.

Similar opinions are also voiced about the importance of the physical quality of the shelter itself. In the light of my data, both these extreme statements seem incorrect. My conclusion is that the poor enjoy good environmental conditions as much as the rich (if not more, as because of lower transportation mobility and longer work hours,
they cannot leave to rest in the healthier areas). In most cases, they cannot afford it, due to housing costs, required subdivision and construction standards, snob zoning, access by private car only, etc. Forced to make the trade-offs against the other housing characteristics, they consider it also less essential to immediate survival than access to jobs and low cost.

In the inner-city vecindad areas, where air pollution surpasses that of Los Angeles, and noise levels are over 90 decibels, the majority of families complain about these problems. However, all of them are families who do not now live in the center out of economic necessity. They can afford, and ultimately (after the end of rent-control) plan to move to the periphery. One of the main reasons why they want to move is the environmental quality. One family in the vecindad of Tepito (central area) would much prefer to live in Xochimilco (outer periphery) "because of trees and fresh air;" another would like to move to the periphery "to be able to take sun in the patio."

The strongest mismatch between the priority for good environmental conditions and present housing was found among the owner-builders in the peripheral colonias, particularly bad in environmental terms. Ciudad Netzahualcoyotl, with 1.3 million (in 1975) inhabitants, located on the dry, salty bed of the old lake of Texcoco, is one of these areas. Soil conditions do not permit any vegetation growth; dust covers the whole area during the dry season, and mud during the wet season. In recent years, conditions have slightly improved, but still even during the last interview in 1974, many families would prefer, if it were econo-
nominically possible for them, to move to another area "where there are trees and vegetation."

At the same time, good quality of the environment is often given as an important advantage by families living in environmentally better peripheral colonias. They are very satisfied with this aspect of their housing. Out of ten families interviewed in the peripheral squatter areas of Padiernia, three liked the place because of "fresh clean air and trees," two of eleven families interviewed in the squatter area of Santo Domingo considered it a "beautiful place because of trees and vegetation." (Many government housing officials considered both these areas to be unimprovable slums.) In the low-income inner ring subdivision of Oliver del Conde, "nice environment, trees and better air" is mentioned among twenty-five interviewed families as a third most important advantage, after low-cost and existence of basic utilities. In Emiliano Zapata, an outer periphery subdivision of twenty families, four considered good environmental quality one of the chief advantages. Two of them stressed "proximity to mountains and nature," and two others, "clean air."

In Iztacalco, another elder, peripheral, low-cost subdivision, six out of twelve families mentioned the good environmental quality among advantages. Two of them like being "outside the city, closer to nature, not crowded;" one calls it "escaping from the demographic explosion;" one stresses "quietness of the periphery;" two, "large open spaces nearby;" one, the possibility of having a garden.

As Tlacoligia is no longer the outermost periphery in this direc-
tion, one family is wishing to move even further out for purely environmental reasons.

1.2.4. Dysfunctions related to housing cost (diseconomies)

A comparison between housing costs and family incomes indicated two types of mismatches. On the one hand, there are numerous families who pay a very high proportion of income for housing, at the expense of other necessities such as food, clothing or education of children. On the other hand, there are many cases where families spend only a small fraction of what they can afford to pay for their housing, in most cases being directly or indirectly subsidized by the rest of the society.

Families in my sample who paid the highest proportion of income in rent (up to 50 and 70 percent) had, almost all, incomes below 3,000 pesos a month. A majority of them were earning between 800 and 1,200 pesos a month. They were usually renters in the colonias proletarias and free-market vecindades, or lived in the new subsidized projects.

Among the families who spend a very low proportion of their income for housing (between 1 percent and 3 percent) those with incomes between 1,200 and 3,300 pesos a month predominate. They are generally squatters or beneficiaries of frozen rents.

Table 9 and Figure 39 summarize the relation between the current costs of housing and the incomes of the families in my interview sample. Figure distributes the families between the 37 localities and the two principal types of tenure: use only (mostly through rental) and use and possession (mostly through property). As we can see, among the possessors, those who pay the highest proportion of income for housing
are the users of new subsidized projects paying mortgages too high for their incomes, and owner-builders in the new low-cost subdivisions, paying high land prices and continuing incremental construction.

Among the renters, the highest proportion of income spent on housing was found in the old colonias populares and the city center vecindad areas (not rent-controlled). On the other end of the scale, those who spend the lowest proportion of income on housing are renters in rent-controlled central vecindades and a few of the users of the ciudades perdidas. Among the owners, those in the squatter colonias show the lowest proportion of income in housing costs.127

Figure 39 relates the proportion of income spent on housing with the absolute income level. This distribution of families is compared with the theoretical "normal" level of housing costs. It commences from a level three times subsistence per capita, at which a family can spend around 5 percent of its income for housing, if it is to feed itself properly. It increases proportionately to around 30 percent of its income at approximately ten times subsistence level. Figure shows how far from "normal" the present distribution is, and how the highest payments concentrate at the lowest income levels and the lowest payments at the highest income levels.

Comparing Figure 39 with Figure 35 an almost identical distribution of families of the small sample of in-depth case studies is evident.

Table 10 is the product of a more detailed analysis of the relation between family incomes and housing costs. The analysis was
structured by the present supply sets. A comparison of the proportion of income spent for housing with the "normal" levels defined three categories: lower than "normal" level income (underspending), "normal" level, and higher than "normal" level (overspending). Table 10 also indicated if the families enjoy any direct or indirect housing subsidy. It also shows that those who are being subsidized while spending on housing less than they can afford all have per capita incomes of five times subsistence or more. Those who are overspending on housing have, in most cases, incomes of under six times subsistence per capita.

The only housing that did not demonstrate these kinds of mismatches were sets of use without payments and the illegal ejido subdivisions. Most of the housing options for the lowest income groups involves overspending. Families with incomes over six times subsistence have more options, the majority of which allow a "normal" level of housing cost.

The other important mismatch related to housing cost is summarized in Table 11. It is the relation between housing cost and the value of goods and services received. A quantification of the value of having received in the exact and uniform way for all sets was not possible. I have used three ways to estimate this value:

(1) the price of this kind of housing in a situation of sufficient supply (no mortgages) and without subsidy (if in the past, then changed into constant value of pesos by applying standard devaluation table, or commodity price index table applicable for low-income population);

(2) the average good interest rate on the invested capital plus costs of services, taxes, maintenance, etc. (also in constant value of
### Table 9.

**Proportion of Income Spent on Housing by the Interviewed Families by Localities**

<table>
<thead>
<tr>
<th>Localities</th>
<th>Proportion of Income Spent on Housing</th>
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<tbody>
<tr>
<td></td>
<td>10%</td>
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<tr>
<td>1 Centro (Primer Cuadro)</td>
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<td>2 Texcoco (Morelos)</td>
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<td>3 Guerrero</td>
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<td>4 Peralvillo</td>
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<td>5 Obrera</td>
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<td>6 Gertudis Sanchez</td>
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<td>7 Tacubaya</td>
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<td>8 Agropecuaria Oriental</td>
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<td>9 Garza</td>
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<td>10 Magdalena Atzazolpan</td>
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<td>11 Acueduto, El Capulin</td>
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<td>12 Martires de Tacubaya</td>
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<td>13 Olivar del Conde</td>
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<tr>
<td>14 Netzahualcoyotl</td>
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<tr>
<td>15 Isidro Fabela</td>
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<td>16 Granjas Yacala</td>
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<td>17 Tlacolula</td>
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<tr>
<td>18 Emiliano Zapata</td>
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<td>19 Valle Verde</td>
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<td>20 Ecatepec</td>
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<td>21 Iztacalco, J. Rosas</td>
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<td>22 Barrio Norte</td>
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<td>23 Cruz Manca</td>
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<td>24 Santa Ursula</td>
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<td>25 Pedregal de Sta. Urs.</td>
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<td>26 Sta. Ursula Coapa</td>
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<td>27 Atlixco</td>
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<td>28 La Canteria</td>
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<td>29 San Juan Aragon</td>
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<td>30 Padierna</td>
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<td>31 Buenos Aires</td>
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<td>32 La Mizzamor</td>
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<td>33 San Pedro Xalpa</td>
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<td>34 Unidad Santa Fe</td>
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<td>35 U. San Juan Aragon</td>
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<tr>
<td>36 U. Vicente Guerrero</td>
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<td>37 U. Picos Iztacalco</td>
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*As reported during interviews, but reliability of information is questionable.*
Housing costs include: rent, mortgages, utility payments, taxes, basic maintenance.

Fig. 39 Proportion of income spent on housing by families of the interview sample.
### TABLE 10.
RELATION BETWEEN HOUSING COST TO THE USERS AND HOUSEHOLD INCOME
<table>
<thead>
<tr>
<th>MULTIPLES OF SUBSISTENCE INCOME</th>
<th>USE</th>
<th>ARRIMADOS</th>
<th>EMPLOYER PROVIDED</th>
<th>SQUATTER (USE ONLY)</th>
<th>ROOM RENT</th>
<th>APARTMENT RENT</th>
<th>HOUSE RENT, PROJ. SUBS.</th>
<th>APARTMENT, PROJ. SUBS.</th>
<th>HOUSE, PLOT, URB., PROJECT</th>
<th>HOUSE, PLOT, URB., URBANIZED</th>
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- • Payments Approx. Matching Value of Housing Received
- ○ Underpayments (Direct, or Indirect Subsidy)
- ● Overpayments

Notes:
1. The table indicates only the degree of match between cost and value of service for its present users. It does not show the existing shortages of supply.
2. Vecindades in the periphery show less mismatches between cost and value.

**TABLE 11.**

RELATION BETWEEN HOUSING COST TO THE USERS AND THE APPROXIMATE VALUE OF HOUSING GOODS AND SERVICES RECEIVED (BY INCOME GROUPS)
peso). If the cost of construction could not be calculated (for example, in some elder rental housing), the cost of substituting this structure at present was taken;

(3) another, less precise, approximation was the interest rate on the present market value of the property, plus all other costs like services, maintenance, taxes, etc.

Table 11 indicates that except for the three sets of use without payment and the owner-builders in the illegal ejido subdivision, families of all income levels in all the housing sets are paying either too much or too little in relation to the value of housing received. Principal overpayments occur in commercial rental housing and in commercial subdivisions of different degrees of legality.

Underpayments are in the projects, rent-frozen vecindades and squatter areas. A comparison of Tables 10 and 11 permits the identification of double sufferers who overspend on housing and overpay the value they get. These are the poorest users in the commercial sets, both rental and oriented-toward-ownership. There also are double beneficiaries, who underspend and underpay. These are moderate-income families in the projects and in the rent-controlled vecindades and moderate-income squatters.

1.3. Housing Mismatches and Socio-Economic Mobility in Family Case Studies

In order to get a better understanding of the relative importance of dysfunctions in the low-income housing system, a comparative analysis
of socio-economic and housing characteristics of two groups of families was made: those who experience now, or did experience in the past, strong positive socio-economic mobility, and those with negative mobility.

The families whose mobility was caused by specific incidents were excluded from the analysis. These were three families (cases 1, 3, 6) who have experienced periods of rapid deterioration of their economic situation after a death of the head of the household and one family (case 6 again) whose standard of living was suddenly improved after the inheritance of business and property.

I have also excluded one family (case 22) whose recently decreased income is the result of a climatic change. (The father used to work as a part-time car painter, working in open air. He cannot do it on rainy days and in recent years, the proportion of rainy days has gradually decreased.

After these exclusions, within the sample of twenty-five case studies, nine families with strong upward mobility (cases 1, 2, 4, 9, 10, 15, 16, 18, and 19) and six families with downward mobility (cases 5, 7, 8, 13, 24, and 25) were identified. In all cases except one, these mobility trends continue at present. One family (case 7) has had a deteriorating socio-economic situation in the past. More recently, it managed to stabilize its situation and has even achieved small upward mobility.

The comparison between those two groups concentrated on the time at which the analyzed mobility trends initiated. At that time, the income differences were minimal. The group whose situation was to start improving rapidly was earning an average of only 10 percent more than the other group (1,100 per total monthly income versus 1,000 pesos in 1974 pesos). Both numbers are close to the official minimum wage of the time.
The initial spread of incomes was larger in the upward mobile group (300 to 2,400 pesos a month, as compared with 600 to 1,400). Both groups had the same average length of time of urban residence.

There were no major differences in family size and composition (age, number of generations, female household head, etc.). Skill levels in the families which were to begin positive trajectories were a little higher. They also received a little more support from the kin. Differences were, however, as marginal as those of incomes.

Upwardly mobile families got much more help and support from non-kin -- from friends and acquaintances made in the city. Three out of nine of them received, more than once, substantial help from employers. It consisted of non-interest loans and assistance in finding the next job. Among six downwardly mobile families, only one was getting such a help. It ended, however, a long time before the family's negative mobility began.

The largest differences between the two groups was found in their housing characteristics, especially in location with respect to work and in the housing cost as a proportion of family income. The heads of the upwardly mobile families began with an average one-way travel time to work of eighteen minutes. One one of the nine of those family heads was travelling more than twenty minutes (their present average time of travel to work is thirty-eight minutes).

The heads of the downwardly mobile families were travelling on the average of forty-six minutes one way to work. None of the six of them commuted less than forty minutes (their average present travel time to work is fifty-six minutes).
All the upwardly mobile families lived initially in or near the centers of the low-skill employment opportunities and the less expensive food markets (the main city center or the metropolitan subcenters). All the downwardly mobile families were living far from such centers.

The other important difference between the two groups of families was found in the current cost of their initial housing. For the upwardly mobile families, the average was 11 percent. For the downwardly mobile: 30.5 percent.

All the upwardly mobile families had a high degree of housing security (option of continuing residence). The downwardly mobile families did not.

Among the nine upwardly mobile families, three were living in the rent-controlled vecindades, and still continue to live there. Out of the remaining six, two had low rent in the tenement in the metropolitan subcenter where they worked, two had jobs with free housing on the job, and two were paying high rents (30 percent and 35 percent of their income), but very close to their jobs and for a very short time. All of them are living now in the low subdivisions, which are awaiting legalization or have been legalized already.

Among the six downwardly mobile families, who were all too far from job opportunities and markets, three were victims of dislocation by the government intervention. All three were ex-squatters. Two of them were moved to the outlying subsidized public project. One has moved to the inner-ring ciudad perdida, after having lost his squatter house (he got 200 pesos = 16 dollars compensation) by the government eradication action.

The remaining three were dislocated as a result of their own poorly
calculated choice of moving to the periphery before getting permanent employment and developing at least a small savings margin.

Ironically, two of them, who later returned to the more central locations and closer to jobs, and whose situation began to improve a little, are presently removed by a government slum clearance project.

One of the six downwardly mobile families was suffering the second eradication of its dwelling. Overpayments are also linked to the government intervention. Two of the downwardly mobile families pay the highest proportion of their income in rent. They live in the subsidized housing project.

The very small sample analyzed does not permit generalizations. It is also difficult to prove causal relationships. The fine detail of the case study information helps to resolve the second problem. In the families studied, housing location and economy seem to have had an initial impact on the subsequent socio-economic mobility. In the later stages, it becomes a mutually reinforcing relationship. On the one hand, a worsening family situation was limiting the possibilities of change of location and of finding housing with better financial terms; on the other hand, dislocations and high housing costs were hampering mobility. A lack of tenure security made gradual capitalization, through investment in dwelling, impossible. This form of capitalization was an important factor for upwardly mobile families in the later stage. In the initial period, however, there was no evidence of a causal impact of security of tenure on the socio-economic mobility potential.

These hypothetical generalizations support my earlier conclusions about the character of the main mismatches of the system. However, they
would require further research in order to verify them against the larger population.

2. Causes of Mismatches, Markets of Basic Resources and Systems of Service Provision

In broad structural terms, the causes of present mismatches in the housing system are easy to identify. They can be traced to the basic characteristics of the present model of economic development of the country described in the early chapters of this thesis.

Consequently, the metropolitan housing system has to be seen as a component of the national economy, and even as a function of the supranational economic and political interests.

The following sections will concentrate on the more specific causes of mismatches discovered during the study.

Most of the mismatches discussed did not exist, or were substantially less frequent and less acute in the pre-metropolitan Mexico City. In this sense, they are clearly products of the breakdown of the basic low-income housing system described in Chapter II.3.

An obvious cause of the breakdown and subsequent mismatches was the very growth of the city. Geographic growth increased the distances; population growth, mainly within the low-income sector, increased the demand for low-income housing. With growth, the city is also reaching the thresholds of the capacity of its service networks. Their overstepping is becoming increasingly costly, and the quality of some services decreases because of the delays of the infrastructure investments.

Growth within limited space also means the overall increase of densities and the need to use marginal, worse quality, land. However, growth
of demand does not have to necessarily produce shortages of supply, unless there are some constraints on the supply side. These constraints were imposed by inappropriate counterproductive forms of government intervention, and by a lack of intervention where it was most needed. Dysfunctions for users and the costs for society produced by subsidized government projects are most visible, but relatively less important, if compared with the impacts of the government commissions and omissions on the basic resource markets and service provision.

The next section presents my conclusions from an analysis of these markets and service delivery systems.

2.1. Construction Industry and Popular Sector Housing
2.1.1. Introduction

It is suggested in the Introduction and further developed in the final section of this thesis that government housing policy should gradually shift its emphasis away from the production of complete dwelling environments (sets) to one of influencing the conduct of basic resource markets which form the elements of any housing system. Two of these elements, the market for construction materials and tools and the market for construction skills, are part of a larger production system called the construction industry.

Housing, however, is only a part of this industry, and popular sector housing is only part of the housing construction industry. By popular sector housing is meant that type of housing which is characteristic of the colonias populares where the owner of the house assumes general responsibility for its construction, either building it himself or subcontracting
the task in whole or in part to local craftsmen. The house is built incrementally, usually over a lengthy period of time, and materials are purchased in small quantities as income permits. Thus, popular sector housing as referred to in this chapter is not the same as lower-income housing as referred to in other parts of this report. It refers rather to the so-called "informal" portion of the housing construction industry, in which the user is the principal agent.

If one were to judge from the nearly total absence of information concerning this portion of the market, it is clearly not considered to be a very significant sector of production. The only data available concerns, in the case of building materials, large producers and large distributors, and in the case of construction skills, the large construction firms. None of these serve the popular sector directly. No one knows, apparently, what are the aggregate numbers, or even the relative proportions of construction materials and services used by the lower-income housing sector.

Judging from census data, however (the net difference between the total increase of housing units and the formal construction sector production), popular sector housing constitutes a far from negligible portion of the construction industry (see footnote 28). Indeed, this sector probably produces more durable dwelling units than do the government and the large construction firms combined. In doing so, they consume very significant quantities of building materials, make use of a smaller but still important supply of tools and machinery, and generate employment for hundreds of thousands of workers. This popular sector, furthermore, is by far the most stable sector of the housing industry. Government and private commercial housing investment fluctuate widely from year to year. The popular sector
produces at a steadier rate and thus provides a much needed balance to the market.

The pages which follow contain a compilation of the extremely fragmentary data now available along with some educated guesses where these seemed possible and useful. What I have gathered will, hopefully, provide a better picture of how important the low-income sector is within the whole construction industry. It puts together what is known about the structure of the industry insofar as it touches the lower-income housing sector. Thus, it suggests the possibilities inherent in a more complete set of data and the uses to which such information could be put.

2.1.2. The Market for Construction Materials and Tools

The submarket for construction materials and tools may be analyzed in terms of five components: production, warehousing or wholesale distribution, retail distribution, transport, and consumption. (Tools, of course, are not consumed like building materials and should logically be treated in terms of a separate submarket; but in the present popular housing sector, they are, in fact, part of the same market as building materials.) Each of these five components should be analyzed in relation to the interests of the private commercial sector, the government, and the low-income users themselves. It is also important to be aware of the location in which a particular activity of this market occurs, since most of the new construction for the popular sector takes place on the periphery of the metropolitan area.

Production of Building Materials. The available data comes from the Chambers of Commerce of the respective industries. Everything is
classified in terms of construction, in general. There is no specific data on housing. There is also no comprehensive data available on the volumes of each basic material produced by manufactures of different scales or on the employment generated according to scale. I was able to learn, for instance, that there are 2,700 brick factories in the country, that there are 350 of them in the D.F. alone, and that 13,500 persons are employed in this industry throughout the country. But I do not know how many of these persons are employed in the D.F. or in the metropolitan area, and we do not know how many are employed in small, medium or large enterprises. I have data on the total volumes of production in cement, steel wire and rod for reinforcing concrete and brick, but I do not know what percentage of each volume is used in housing, let alone popular sector housing.

Information on the prices of materials at the factory gate is readily available, but these fluctuate widely, according to changes in demand. Such changes in demand are particularly sharp in public sector construction. This results in periods of oversupply (such as for steel rods at the time of inquiry) and periods of deficit with all the unnecessary costs such periods create for the producer, the contractor, the worker, and the customer.

The Wholesale-Retail System. According to my information, a separate wholesale system for construction materials does not exist in Mexico. The wholesalers are the producers themselves, and prices are those at the factory gate. Some large distributors play the role of wholesalers by selling in bulk to small distributors at discounted prices.

Distribution takes place at three levels. These three levels corres-
pond closely to the size of the enterprise. At the first level are the large distributors who sell nine-tenths of their materials to builders and the remainder to government, small distributors or private individuals. They are usually located in central city areas and do not serve directly the zonas urbanas populares. At the second level are the intermediate-size distributors. These prefer to locate in the areas of rapid growth, including some of the colonias populares. They sell basically to the small contractor, the craftsman and the owner-builder. At the third level are the small distributors who sell small quantities directly to owner-builders or to craftsmen. They prefer the same type of locality as the intermediate type of distributor. Ciudad Netzahualcoyotl had sixty-eight registered distributors of the second and third level variety in 1971. San Rafael Chamapa had nine.

The small distributor, who is the principal source of supply for popular sector construction, does constitute an additional stage in the transfer of goods from production to consumption and does, therefore, tend to raise the cost of materials for the owner-builder. But the mark-up in his prices is diminished by the discounts which he receives from large distributors. And in assessing his value, it is important to consider the employment and income which this system of small distributors creates within the popular sector itself.

My information indicates that small distributors do not make large profits on their sales. Data gathered by COPEVI in Ciudad Netzahualcoyotl and San Rafael Chamapa and by Plantecnica in Ciudad Netzahualcoyotl support this contention. Distribution often does not have a sufficient supply of materials.
This is due to existing shortages and also to the lack of credits that would permit them to stockpile enough materials.

The centers of ACCION CASA, where all distribution costs are covered by state subsidy and prices are thus reduced almost to those of the factory, require a separate discussion. I will deal with this topic in section discussing the policy options.

Transportation of Materials. Transportation costs account for the larger part of the difference between factory and retail price. (Examples of transportation costs for sand, gravel, stone and brick in Ciudad Netzahualcoyotl are given in footnote 131.)

Materials are transported from the distributor to the user in three ways: (1) large quantities of three tons or more are delivered by the factory's own trucks; (2) smaller quantities of one or two tons are delivered by the distributor's trucks; or (3) by trucking contractors paid either by the distributor or the customer. Both the size of the order and the distance from the source affect the cost of transportation.

Field interviews which I conducted indicated that the transportation of small quantities of building materials constitutes one of the most difficult problems for popular sector housing. Not only is a single small delivery very expensive, it usually means also that the buyer has a long wait until the truck can line up a whole series of deliveries in the same direction.

Consumption of Materials by the Public, Private and Popular Sectors.

There is no accurate data available on the volumes of building ma-
materials consumed by various sectors. If it were possible to obtain figures on the number of housing units produced by each sector, one could deduce, crudely at least, some estimates of materials consumption, but unfortunately, it was not possible to obtain such figures with any confidence.136

Simple observation would indicate that the consumption of materials by the popular sector is quite significant. It also represents a demand that grows steadily and should be quite predictable. The colonias populares are undergoing continuing stages of consolidation and the demand for certain materials such as steel or cement is actually much higher during the later stages. The size of an existing unit in the popular sector continues to grow with the passage of time. This occurs to a much lesser degree in the private sector and not at all in the public sector. Manufacturers can expect a continuing demand for certain materials even in colonias whose every lot is already occupied.

At present, unfortunately, the supply of materials to the popular sector fluctuates, not according to the demand in that sector but according to the demand in the public sector. The demand in the popular sector is stable and gradually rising. At times of intensive public construction, it has to face some severe shortages of building materials. The result at such times, quite naturally, is inflated prices.

**Tools and Machinery.** As for building materials, there is no data concerning the numbers of tools and machines used by the different sectors in housing construction. There is probably little demand for machines like lifters and cranes. But in the stages of consolidation there may be quite some demand for small concrete mixers. And there is evidently a demand
for hand tools. A study referred to earlier (by Professor Paul Strassman, Colegio de Mexico, 1971) estimates the value of machinery per 1,000 square meters of construction at 1,000 pesos for the public and private sector and 500 pesos for the popular sector. Multiplying this by the total number of square meters constructed in each sector produces totals for each sector in terms of the values placed on the machinery used, but in fact, the figure for the popular sector is very doubtful. Careful observation of the building process and the construction tool market in the popular areas at different stages of consolidation would enable one to make some reasonably accurate estimates of the volume and worth of tools and machinery used by the popular sector.

2.1.3. The Market for Construction Skills

The market for construction skills includes management and entrepreneurial skills, labor, professional services and technical assistance. In order to get an accurate picture of the structure of this market, it ought to be analyzed in terms of the volumes produced and the employment generated by each of the following groups: large construction firms, medium-sized general construction firms, specialized construction firms, independent craftsmen, informal helpers, and the owner-builder himself. But this kind of information is not available. In general, none of the large construction firms is devoted exclusively to housing because there is no stable market for large-scale housing projects. Most of their work is in civil engineering or just general construction. The specialized construction firms tend not to work on housing at all unless they are engaged in one of the few very large projects like Villa Olímpica, Coapa or Nonoalco-Tlatel-
Employment in the Construction Industry. There is no data available on the employment generated by popular sector construction. The organized construction industry claims to generate around 700,000 jobs (4.6 percent of the "economically active population", according to the Revista Mexicana de la Construccion). Some of these people may also work in their spare time in the popular sector. But there are also many independent craftsmen who may work part-time in one sector and part-time in the other. Excelsior or August 3, 1970 states that there are 200,000 independent construction craftsmen in the metropolitan area. It is not clear whether these are accounted for in the figure for jobs generated by the organized construction industry or not.

The Plantechnica study of Ciudad Netzahualcoyotl found thirty-one glass factories, seventy-nine metal working shops, ten electrician shops and one plumber. It also found that most plastering and painting was done by individual workers who came from the D.F. This kind of structure reflects, no doubt, the special stage of consolidation reached by Ciudad Netzahualcoyotl in 1970. The nearly total absence of plumbers reflects the state of the drainage and sewerage system. As these are improved the demand for plumbing services will rise rapidly. Similarly, the need for electricians is now relatively modest, but it is certain to increase in the coming years. A much earlier stage of consolidation is reflected in San Rafael Chamapa, where in 1971 a study by COPEVI found three metal working shops, one glass factory and one carpentry shop.

A gradually consolidating popular sector can provide a much steadier job market than a widely fluctuating public sector. In fact, the popular
sector job market has much greater possibilities for expansion than that of the other sectors. Labor costs in the organized construction industry are growing rapidly. But this does not mean that the labor component of total construction costs is growing. It means rather that the existing labor force is becoming more specialized and better organized. According to the studies of Professor Paul Strassman at the Colegio de Mexico, increasing labor cost is coupled with the decreasing labor intensity of construction through new materials, new construction methods, and mechanization. During the last dozen years, almost all innovation in the organized construction industry has been labor-saving.

**Labor Costs and Total Construction Costs.** Even though popular sector housing constitutes a real and expanding labor market, the cost of labor makes up a much lower percentage of total cost in that sector because the typical owner contributes a great deal himself to the total input. According to the study of Dr. Christian Araud at the Colegio de Mexico, the 1971 cost of labor per square meter of finished house or apartment, done with contracted labor, was: (self-help labor savings not considered)

<table>
<thead>
<tr>
<th>Popular Sector</th>
<th>Public and Commercial Sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>single family house</td>
<td>single family house</td>
</tr>
<tr>
<td>$ 120.1</td>
<td>$ 221.8</td>
</tr>
</tbody>
</table>

Respective total construction costs were:

- $ 363
- $ 678
- $ 729

These differences in construction are in fact at least 300 percent higher if we consider the financing costs of public and private sector housing,
as compared with basically cost financing of popular sector (mainly owner-builder) housing. This coincides quite closely with the results of AURIS' Estudio Netzhualcoyotl, which gives $350 per square meter as the average construction cost. (Costs in San Rafael Chamapa are even lower due to the very early stage of development and more primitive construction.)

Managerial and Professional Skills. Owner-builders use very little of managerial and professional skills other than their own. They are usually the designers of the structures and managers of the construction process. It is not to say that the quality of structures could not improve and the costs get reduced if they would have access to the kind of professional service geared to their needs and payment capacity. The only time owner-builders have to use some professional services at present is when they get the construction permit or want to legalize (which happens much more often) a house already built in order to get the full property title.

Only fragmentary information about the functioning of these professional services is available, almost all from Ciudad Netzhualcoyotl.

Near the local Office of Public Works, where a would-be builder must go to have plans approved, there are usually several private commercial offices which will draw up the necessary plans for the customer. Their prices seem to be quite high. Architects or engineers usually charge up to 10 percent of total cost to people in the higher-income housing levels. In the popular sector, while the absolute cost of plans is lower because the units are much smaller and simpler, it can amount to between 20 percent and 25 percent of total cost. In Ciudad Netzhualcoyotl, the plans
for a house of less than 50 square meters cost, in 1971, 1,000 pesos plus an extra 500 pesos for the legalization document. For a house of 50 to 100 square meters it was 1,500 to 2,000 pesos plus an extra thousand for the legalization document.

In 1971 there were fifteen such offices in Ciudad Netzahualcoyotl. During the construction of that area, about 7-15 percent of the households (according to different estimates) made use of such services. Thus, perhaps 10,000 houses were built with such help and at such additional costs.

There are also organizations which provide assistance to members or partners who pay a fee, and others which are open to everyone. One example, Camara Casa, is already twenty years old and has 3,000 members. Such organizations also provide technical assistance services at fixed fees which are lower than the ones charged by the commercial offices. These organizations are, however, little known.

The same services are also offered by the centers of ACCION CASA, which charge 5 pesos per square meter, including all legal documents, for the plan of a new house. Such a plan requires thirty hours of professional work by an architect and a construction engineer. Real AURIS costs are at least 700 pesos per house. A similar service provides plans of existing houses for purposes of registration and the like for 2 pesos per square meter.

The managerial capacity of most owner-builders expressed in the creative use of different resources was discussed in section III, and there were no management problems that they were not able to resolve by themselves. The situation is more complex with local businesses, inclu-
ding those in the construction field, that often could be helped by some administrative and legal advice. This will be further discussed in policy alternatives.

**Note about the Construction Codes.** Besides the cost of required plans and the fees for construction permits, present construction standards have a number of other negative inputs. In the area of more rigid enforcement, they make incremental construction with occupancy of the unfinished dwelling not possible. Data on the enforcement procedures in Mexico City is not available, but during the study I directed in 1973-74 in Guadalajara, I found a number of owner-builders being fined for occupying houses that were below the standard required by law. One case, for example, was of a family being fined 2,000 pesos for not having a bathroom, when the cost of minimal bathroom (which they still could not afford, but were planning to install) was just about 2,000 pesos. A family building at a less accessible location would not have to face this problem. Bringing services to that location, however, will be much more costly for both the user and the city.

Inappropriate standards, modelled on those of Western Europe and the United States, discourage owner-builders, potential owner-builders, and especially discourage commercial investment into low-cost rental housing.

The building codes, by outlawing the vecindades with collective sanitary facilities and relatively small rooms, have prohibited the construction of the only kind of housing that can be rented cheaply, still leaving a reasonable profit to the owners. 138

Prohibition, by making such investment illegal, and consequently, insecure (running the risk of high fines and even less through eradication)
effectively managed to stop any new supply. The only exceptions are the illegal small-family vecindades, built as an expansion of owner-builder homes, and the very few (I have found two) commercial vecindades in the far-off peripheral colonias.

At the same time, very high returns at no risk can be achieved in land speculation, where, in contrast to the overcontrolled construction industry, there was practically no government intervention.

It is no wonder that capital, of large and small investors, flows into the land, where it does not produce any multiplier effects, but to the contrary, generates high costs to the entire society.

2.2. Land Market

2.2.1. Introduction, Predominance of Non-Market Factors

A specific study of the land market and of its impact on the low-income housing system is beyond the frame of reference of this dissertation. Information discussed in previous chapters, especially in Chapter dealing with owner-builder housing in the periphery, makes it possible to suggest, however, that the land market is the single most important, and most distorted, element of the present low-income housing system. The principal shortages of the housing market and the consequent dysfunctions of the housing in use are caused by land problems more than by any other.

Shortages of low-cost rental housing are partially caused by the building codes. This applies, however, mainly to the investor built larger tenements. Family-built rental housing is scarce as a consequence of delays in the incremental improvement of the colonias, a too slow pace of
investment by the owner-builders.

Land contributes to that in two ways. In the subdivisions with legal title, it is too expensive. Land takes up to 70 percent of the total investment in housing and land combined (four to five times higher than the usual ratio) and there is little left for investment in construction.

In the squatter areas and ejido subdivisions, insecurity of tenure prevents users from investment, and the lack of service mains (that come only after legalization) make major sanitary improvements of dwellings impossible. This affects first, the owner-builder's housing economy and quality. Next, it affects his potential as a supplier of rental accommodations. Finally, high land prices in the legal subdivisions and insecurities and discomforts (because of lack of services) in the illegal ones discourage many families who live now in rental housing in the center and older colonias from moving to the periphery. They do not become owner-builders, and possible future suppliers of rental. On the contrary, by staying in their present housing, they limit even further the scarce supply of rental accommodations.

The principal commercial land market that provides land for middle- and upper-income housing and other land uses by the privileged social groups and the modern economic sector, is a subject of inflationary price increases, on an average of 50 percent a year in recent times.

Very low capital gain taxes, the lack of taxation incentives to not hold unused land within the city, and the lack of other equally secure and lucrative investment possibilities contribute to increased land speculation. It seems, however, that price is not the main factor that limits
the access of the poor to construction land.

In fact, in 1971-1972, the prices of partially serviced, or even unserviced, plots in the fraccionamientos populares in the extreme periphery were close per square meter to those of the completely serviced plots for the middle- and high-income population at much better locations. 139

The main limitations are in the enforcement of construction codes that require high expensive standards for every dwelling that is inhabited, in purchase conditions that limit the minimum size of plots and do not permit more than one family per plot (except to modern, multistorey condominiums), and in land use controls not permitting non-residential activities. This is depriving the poor from access to land in any area that would be of interest to the developer working for middle- and higher-income groups — all the land with better accessibility, ease to urbanize, and better environmental conditions.

2.2.2. Land Submarkets

Discussing owner-builder housing in section II.3.4., I have characterized the main kinds of colonias by function of land tenure. One can easily see that from the user point of view they are not a part of one single continuing land market.

Squatter invasions that create colonias paracaidistas, for example, make land available, at certain points in time only, and at few special locations, to groups of very low- and low-income population. In the latest squatter areas studied, San Nicolas de Padierna, I have found some upper-middle-income artists and architects joining in for the "free land." Those were, however, very exceptional cases. In general, higher income groups
do not have access to information about invasions, nor the trust of the participants and organizers.

Squatters get the least expensive land, but also least tenure security and least comfort due to the lack of services. However, they can build any way they want without having to worry about building inspectors. There is also no control over land uses, nor over any commercial or productive activities. There are, of course, no taxes. The use value of land is its main aspect to most of the squatters; they want to build their homes and live there. There are no absentee investors. I have met a few cases of squatter hiders and "professional squatters,"140 but those were very exceptional, and non-typical.

Some families in the squatter areas, who arrived later, paid for the land to the original invaders (who might have been the average squatter families or leaders or "professional squatters"). The cost of this land is usually still the lowest of all the kinds of owner-builder land. Such transactions are more frequent after the legislation of tenure when land cost becomes also much higher. Squatter land invaded for permanent settlement is usually very peripheral.

Most legal fraccionamientos populares are usually as far off from the centers of employment as the squatter areas. Plots in those subdivisions can be afforded only by families with incomes high and stable enough to be able to meet monthly repayment terms. Subdivisions with legal titles have a sizeable proportion of the investor-buyers, as their plot prices go up at least as quickly as in the high-income areas. This is a link with a general land market, as middle-income investors have both
options open.

Being legal, those subdivisions give secure tenure. They are also subject to some building code enforcement, and some control over land uses and commercial activities, but to a much lesser degree than middle- and high-income areas. The users have to pay property taxes. At the time of the study, there was no evidence of any legal subdivision in Mexico City where the subdivider would have installed the utilities promised to buyers and paid for by them (see section II.3.1.). In some of them the buyers did get legal land titles.

Two other variants of these subdivisions are: the ones where the legal owner was allowed to subdivide but did not give the titles required; and the ones where the legal owner did not secure the authorization for subdivision and, of course, did not give the titles.

In most of these cases, new owners do have the receipt of payments and their tenure is usually legalized at a later date. There were, however, cases of multiple sales of the same plots, as well as cases of organized invasion of subdivided and sold land plots.

During the 1950s and 1960s, cases of fraudulent sales of land to the poor by individuals who did not have any title nor relation to it occurred. In such cases, buyers do not have, of course, any titles. One colonias (Cuadrante de San Francisco) was recently eradicated as a part of an urban clearance program.

The land market in the ejido subdivisions has characteristics between the colonias paracaidistes and the fraccionamientos populares. The ejidos are a special Mexican legal formula of land tenure. They consist
of agricultural land, property of the nation, in which the ejidatarios, peasants holding the land, and their descendants have the rent-free right of use and inheritance for an unlimited period.

Such land cannot be legally sold or rented (the latter especially happens quite frequently in reality). They also cannot be urbanized, except through a complex bureaucratic process by the appropriate government agency.

The ejidos were created as a result of agrarian reform, primarily since 1932. Very similar to the ejidos are the communal lands. They are a heritage of the colonial period, during which the property of the native Indian communities was protected by law, in order to prevent their expropriation by force or by purchase. Those guarantees were abolished by the reforms of the Benito Juarez period, and many Indian communities lost their land. They were reinstated by the agrarian reforms after the last revolution.

Comuneto land can be used and inherited without limits, but like ejido land, it cannot be sold or converted to agricultural uses without complex formalities.

The urbanization of ejido land requires its expropriation and appropriate compensation to the ejidatarios, plus some formalities with the Ministry of Agriculture. This can be done only by the designated government agencies, who then turn the land to other uses.

In reality, however, large extensions of ejido land were settled without any legal procedures of subdivision and sale, mainly by low-income families intending to build their homes. These families acquired the land
usually in one of three ways: (1) they bought it from the ejidatarios (from the peasants themselves); (2) they bought it from the officials of the ejido administration, often on the municipal level; or (3) they have purchased it later from the original buyers. Sales by the ejido administration bureaucrats are the most frequent form. Ejidatarios mostly do not benefit at all, or very little, from these transactions. There were also cases of multiple sales of the same plots.

Such sales of large tracts of ejido land were repeatedly denounced by the Mexican press. Denunciation included even the names and positions of officials involved. This did not harm the officials, nor did it reduce this trade.

In both kinds of sales, the transactions are, of course, illegal and in most (but not all) cases buyers are advised about the illegality of sale. They are also advised to build the initial dwelling as soon as possible (as in the squatter areas) to strengthen their claim to the land. This very illegality of sale eliminates demand from the middle- and higher-income groups, and keeps the prices low. The need to occupy the land makes absentee investments not possible and results in more complete settlements (less vacant plots) than in many legal subdivisions. Still, I met some small "investors" occupying larger plots to sell part of them later.

Despite the complete illegality of the transactions, the de facto security of tenure for families who live on the land is rather high. It increases in time, as more settlers in the area make eradication less likely, and therefore, sale prices grow rapidly during the initial settle-
ment, and resale prices in settled areas are even higher (see section 11.3.3. and 11.3.4) despite no change in the legal status of property and the lack of services.

All the purchases during the initial settlement are made by one payment in cash. In a few cases of resale, the transaction is made by installment payments, but in the majority of cases, these are also single payments in cash. The ejido subdivisions offer, in general, land of better quality and at a better location than the fraccionamientos populares.

The market of plots and housing created by the government projects is open only to specific groups that satisfy the criteria of income levels, employment, and other specified criteria by the agency administering the project. Resales are prohibited and many use limitations are imposed over the inhabitants (see section 11.4.). This market has, from the user point of view, as little in common with a different owner-builder land market as with the land market of commercial subdivisions serving middle and upper classes.

The land in the heavily built-up areas, covered in high proportion by rent-controlled vecindades, forms yet another submarket. Each of these submarkets serves different kinds of buyers with different resources and priorities.

Price is only one, and often not the most important, determinant of access to these markets. The poor cannot afford middle-income subdivisions and the rich cannot afford the ejido fraccionamientos, mainly for other reasons than the cost itself. Most of those factors are non-quantifiable and make the modelling of market behavior, along the lines similar to those
similar to those used in the free market economies of developed countries, not possible. This is to say that these district submarkets are not interrelated on a metropolitan level as part of the same urban and metropolitan system. From this point of view, we deal with a single stratified market.

The delivery of infrastructure and services to the area or near to it will appreciate the land values in any submarket. In fact, most of Mexico City's main avenues and thoroughfares were built with that purpose; many housing projects were, as well.

Also, the shrinkages or increases of supply in one submarket also influence the price levels in the others. This link could clearly be noticed between the submarkets serving the low-income owner-builders and the fully legal commercial markets. Relations between these two groups are present but less direct. The main dividing line is tenure legality and the resulting ownership security.

2.2.3. Land Prices and Trade-offs Open to Users

Land prices in the city vary enormously. In the main commercial center and in the highest class apartment areas, they reach levels equal to those in the center of New York City: 1,000 dollars (12,000 pesos) and more per square meter.

In the centrally-located areas of poorly maintained rent-controlled vecindades, land prices were around 1,500 pesos in 1974. They tripled in the three subsequent years as a result of expected urban renewal programs.
grams.

Prices are between 500 and 1,000 pesos in the areas that, due to their location, have a potential to become middle-class residential neighborhoods, and not less than 250 pesos per square meter in other, partially serviced localities with legalized land tenure.

The lowest per square meter price encountered in the unserviced subdivisions with legal titles was 125 pesos per square meter, at a very remote location with very poor and difficult to improve environmental conditions.

In all these areas, the main price determinants are similar: present use value in terms of access and locality characteristics and expected future gains. In all other areas that serve only low-income population, the more decisive factor is tenure security. In conjunction with that, price may vary from zero in some new squatter areas to around 50 pesos.

In contrast to the official land market, the quality of land, both in structural (slope and soil-carrying potential), and environmental aspects, influence price only very little. Some exceptions to this generalization shall be discussed in the next section dealing with regularizations.

It is very difficult to establish a volume of profits collected by the subdividers, as researchers never get access to the complete data about all the transactions over longer periods of time.

The researchers of COPEVI working for the SIAP/CIID project in which I was involved, were able to compile such a complete list for Colonia San Augustin in Ecatepec (predominantly low-income suburb of Mexico City):
<table>
<thead>
<tr>
<th>Year</th>
<th>Average Sale Price per hectar in pesos</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931-1932</td>
<td>1</td>
</tr>
<tr>
<td>1934-1942</td>
<td>18</td>
</tr>
<tr>
<td>1942</td>
<td>111</td>
</tr>
<tr>
<td>1946</td>
<td>371</td>
</tr>
<tr>
<td>1959</td>
<td>102,000</td>
</tr>
<tr>
<td>(first section subdivided)</td>
<td></td>
</tr>
<tr>
<td>1973</td>
<td>1,350,000</td>
</tr>
<tr>
<td>(second section in subdivision since 1969)</td>
<td></td>
</tr>
</tbody>
</table>

(All that without any investment in infrastructure and services, that were promised in both sections of the subdivision.)

The present fragmentation of the land market plays a very positive role for the users. By eliminating competition from the middle-class and from the formal real estate business, it is keeping the prices and levels much lower than those in the legal market.

The existence of squatter land, ejido land, and subdivisions without titles, permits the prospective owner-builder to trade off security, access, availability of services, etc. for a lower price of land. Very poor squatters, who cannot afford to pay, can "afford" the risk of eradication and lack of services much more easily than the moderate-income families who choose a legal low-cost subdivision.

Different levels of security, access, and environmental quality are offered within each submarket, primarily depending on settlement age.
Photograph 24

Land sales booth in a new private legal subdivision (Subdivision Emiliano Zapata - new section of San Rafael Chamapa).

Photograph 25

Land of the subdivision, Emiliano Zapata.
This permits an even finer grain of adjustment to user resources and priorities.

2.2.4. Land Tenure Legalization

The possibilities open to the low-income owner-builders to pay part of the land price by accepting insecurities of tenure and discomforts because of lack of services and poor structures are disappearing with the progress of tenure legalization action. As a result of tenure legislation, present users get the legal security of ownership, and the value of their land increases rapidly.

The first of these benefits accelerates the investments in housing improvements, with positive results for a large majority of the users as well as society at large. The only exception are some of the poorest squatters who cannot pay the costs of legalization and services and have to sell the land.

Another consequence of legal tenure is the placement of the land on the general land market. Impacts of this on the current users are mixed. All of them enjoy increased equity. Many, however, will sell the land and move out. Some will sell it at lower prices, even before legalization, not being able to pay the legal fees, taxes, and compulsory service installation costs. Others do it shortly after getting official titles, collecting handsome profits. Many intermediaries and real estate speculators earn a lot in the process. The result is, however, simple — market forces push the poor out of the better located colonias closer to the centers and the high- and middle-income residential areas. They get worse locations and the city becomes stratified
by larger homogenous areas.

The impact of the increase in land prices after legalization on the new would-be owner-builders is even more profound. With all the urban land in the legal subdivisions, they will be deprived of all the trade-off options that exist at present. With a lack of any disincentives to land speculation, prices of plots are likely to be very high. Only a few will be able to afford them, and these will be suffering the diseconomies of present owner-builders in the legal subdivisions.\textsuperscript{143}

The only other option will be new invasions\textsuperscript{144} of legalized land ready for commercial subdivisions (and likely to produce violent clashes), or of the peri-urban very remote areas stretching the city service lines even further. In the new legal subdivisions, an increasing proportion of plots is likely to remain unbuilt as small speculative land investments or simply remain unsold.

Another by-product of the expropriation of the ejidos for urban use is the "miraculous" concentration of large portions of the best expropriated land (hundreds of acres) in the hands of a few high government officials or legal commercial subdivisions selling at 250 pesos per square meter of the ejido land which was just expropriated at 10.65 pesos per square meter.

2.3. \textbf{Credit Market}

The low-income population in Mexico City has no access to any formal credit for any aspect of construction or improvement of housing. The only exception is the purchase of a complete house in a subsidized pro-
ject built by Dirección de Habitación Popular of DDF (DHP), INFONAVIT, or FOVISSTE.

The annual production of units by DHP is, however, much below the annual increase of demand. The same applies to the relation between INFONAVIT housing construction and the annual increase of entitled families (derecho-habientes).145

Most of the low-income population is not entitled anyway. INFONAVIT serves a population between 1 and 10 times the official minimum salary (1,250 to 12,500 pesos in 1974). Sixty-nine percent of the Mexico City labor force is earning less than that.

FOVISSTE, besides building projects, also gives housing construction loans. The minimum income for such loans was, in 1974, 2,250 pesos a month, and 95 percent of Mexico City labor force is earning less than that. Consequently, those credits are also not accessible for the low-income population.

Conditions of these mortgage loans are good by general standards: only a 4 percent interest per year with INFONAVIT, and 6 percent with FOVISSTE and DHP. Of these, only a few DHP mortgages in the very few very low-cost projects reach the low-income population. In others, they would not pass the minimum income test. The commercial mortgage and home improvement loans had, in 1974, interest rates from 13 percent a year. They were also not accessible to the low-income population because of the condition that houses have to be valued at no less than 40,000 pesos and built and equipped according to all building regulations.
As described in section II.3., the low-income families who become homeowners do it through the incremental mostly owner-builder construction. Their main financial resources are their own (proportion of current income savings, extra incomes, etc.), loans from relatives, and loans from employers.

Loans are usually small and relatively short-term. Owner-builders of my in-depth case study sample were borrowing between 1,500 to 3,000 pesos (1.2 to 2.4 minimum salaries, or 120 to 240 US dollars), in constant pesos of 1970 to buy a plot and for some stages of the further construction. All those loans were received from employers before the creation of the INFONAVIT (Workers' Housing Fund) that obliges each employer to contribute to the fund in behalf of each worker (see section II.4.). There is a danger that these compulsory contributions may preempt the possibility of the small, informal, usually interest-free loans from employers. The difficulties which one of the families studied is encountering at present in trying to get such a loan seems to confirm these fears. They did not have any problems with getting loans in the past.

As already mentioned, the low-income population in Mexico City does not have access to mortgage loans for the purchase of land and construction of homes. Demand for such loans is, however, low. Families asked about it answered almost invariably that they do not like to have such high debts. They also, and this was especially important, did not want to risk their land and the house as the collateral, being afraid of losing it in the case of reduction of income by loss of job, death, of
principal income-earner, etc. For the low-income family, the house, if mortgaged, loses one of its main advantages as a security mechanism upon which they can rely in a situation of crisis.

The most typical attitude is reflected in a statement by one of the owner-builders studied:

"... as I cannot and do not want to, having no permanent job, have any fixed financial obligations, I prefer to build bit-by-bit, according to my possibilities. ..."

Among owner-builders there is a demand for other kinds of credits -- small short-term loans of different improvements and extensions (such as building a concrete slab or roof, putting a fence around the plot, adding a room to be used as a small shop, adding a bathroom, etc.). During the period of the family case studies, two out of the seven owner-builders studied in detail were actively searching for the possibility of getting such a small loan (cases 17 and 18). One family, for building a small shop in the front of the plot, and the other, for putting up a fence.

The head of the second family earns an official minimum salary in a large firm, and consequently, has an account in INFONAVIT. This account entitles him to take part in the lottery (section II.4.), in which he has a chance of winning a complete house (in the INFONAVIT project), or a loan to buy or build one in the commercial market. Having an owner-built house of his own, he needed only a 3,000 peso (240 dollars) loan for his fence. This was, however, not possible.

The supply side of the low-income housing market is also suffering from lack of credits. This is especially true for the small-scale local
enterprises. Distributors of construction materials in the colonias proletarias cannot get credits to develop their businesses -- to build larger shops and storage space, to increase inventory, etc.

The construction craftsmen and local contractors cannot get credits to buy tools and machinery. For lack of credits, they also cannot buy larger quantities of construction materials that would result in savings for them and for the ultimate users of housing.

On the higher level, the subdividers of low-income areas cannot get credits for even minimal urbanization before the sale. They are given permits to sell with the promise of installation instead. And, as already described, services are never installed by them.

The other very important aspect of the credit market is its very close relation with the land market. More credits to buy land and build houses would, in the present uncontrolled land market, result in the immediate increase of land prices.

Credit funds, instead of increasing the owner-builder's construction capacity and producing a series of multiplier effects in the local economy (and beyond it), would go directly into the pockets of land speculators.

3. **Infrastructure Networks and Services**

3.1. **Introduction**

Infrastructure networks and services are relatively complete in the central areas of the city and in the older colonias populares.

In the newer colonias, their deficiencies or absence are considered
by residents to be among the major disadvantages of their housing.

Existence of infrastructure and services is a precondition for numerous housing improvements. It also directly affects family income and spendings. As a delay in delivering the basic utilities can stop the progressive development of the area, the inappropriate organization and financing scheme of compulsory contributions can have other negative effects. As mentioned earlier, the urbanization program of ciudad Netzahuacoyotl is to cost the inhabitants 13,200 pesos compulsory payment to the government per family.

In his detailed survey of the legalized squatter colonia, Isidro Fabela, in 1974, Peter Ward of the University of Liverpool, has found that a number of the original settlers sold out and moved because they were unable to pay the compulsory quotas for the provision of utilities by the government agency.

In my case studies in one of the newer squatter areas, San Nicolas de Padierna, still awaiting the legalization and provision of utilities, both families studied saw the insecurity of their tenure reflected in two very distinct possibilities: that their tenure will not get legalized and they will get evicted, or that they would be legalized, but will have to go because the tenure legalization payments and utility provision costs will be too high for them.

In Colonia Emiliano Zapata, out of the twenty families interviewed, two gave the expected high cost of service installation by the government agency as an important disadvantage. One family specifically stated that they do not want the sidewalks to be built, as this would mean a 1,200
pesos compulsory contribution per family.

In Colonia Tlacoligia, with one of the highest average incomes of the sample of forty localities, three out of twelve families gave "too high obligatory contribution for street paving" as one of the main disadvantages.

At the same time, in all the colonias where the utilities and services are incomplete, this was given as the principal disadvantage, only second to insecurity of tenure in the legalized squatter areas or clandestine subdivisions.

If secure tenure were provided, the interviewed families were very much willing to contribute labor and some payment (the mix of the two changed substantially, depending on income) towards a solution.

In a number of localities like Tlacoligia, San Rafael Chamapa, Isidro Fabela, or Santa Ursula, we interviewed families that were themselves active in the provision of water and/or sewerage. Often, work was organized by the neighborhood councils -- Juntas de Vecinos.

The case of San Rafael Chamapa offers, however, a very chilling example of government default. As a part of a mutual aid project within the action "Operation Hormiga," conducted by the municipality, the inhabitants were to dig ditches and the city was to install the pipes. The ditches were made, but at the time of the last case study interviews, the pipes were still not there and the ditches were half-filled with sand.

One of the important problems that affects a city's economy is the slow pace at which general revenues increase in relation to the expenses of service provision.
In the Federal District during 1959-1970, the general revenues, of which property taxes form now about 20 percent, increased 2.5 times. During the same time, service costs per inhabitant increased at 3.5 times, and with some services, much more.

According to Sanchez, the increase of water and sewerage cost per inhabitant was as follows:

Water:

1954 - 1958  Expense per inhabitant  16.5 pesos
1967 - 1968  Expense per inhabitant  61.7 pesos

Sewerage:

1954 - 1958  Expense per inhabitant  10.8 pesos
1969 - 1970  Expense per inhabitant  129.6 pesos

(All numbers are in current pesos of the year. The accumulated inflation, measured by the cost of living index, between 1959 and 1970 was around 30 percent.)

One of the contributing factors is the old age and poor condition of many infrastructure lines built by the end of the last century. The other is the slow consolidation of the colonias populares (see section II.3.4.), and consequent slow increase of a tax base.

The other important form of government default is its permissiveness towards the land subdividers who do not install the promised and paid-for services.

3.2. Water

The consumption of water for domestic uses in metropolitan area of
Mexico City differs very sharply between the income groups. In the poorest sectors of the city, such as Ciudad Netzahualcoyotl, the consumption of water is below 80 liters/per person/per day; in the most affluent, it reaches 850 liters.

Lower water consumption reflects a lack of water connections to individual homes in the peripheral areas, and the existence of collective, often also scarce sanitary facilities in vecindades and ciudades perdidas in the center and inner ring.

Of all the services and utilities, water is one for which the lower income population has a highest priority. Water is often metered and the user pays according to the use. In 1974, the price of water in the Federal District was 0.30 pesos per cubic meter, and in the peripheral areas belonging to the State of Mexico, 1.10 pesos.

Some of the legalized colonias, and those to be legalized (all except the recent squatters' settlements and some disputed areas scheduled for eradication) were serviced by the government programs of free distribution of water by cistern trucks. Of the 202 colonias in the Federal District that were in the process of regularization in 1973 and 1974, 21 had water networks installed, 42 were in the planning process, 62 were serviced by free distribution with trucks, and there is no data about the remaining ones. In reality, water was not free at all. The truck drivers were charging between 30 and 70 pesos for one cubic meter, 30 to 250 times more than the price of water from the network. As a result, some of the families studied were paying over 150 pesos a month for water (case 20
was paying 180).

Newer squatter areas use the water delivered by private vendors. The prices charged are a little above those requested by the drivers of the government trucks in the legal colonias.

In some of the colonias, two-year water payments would be sufficient to cover the costs of the installation of the complete water network. Lack of water connection not only makes many housing improvements not possible, it also drains the family income. It also prevents many local small-scale production and service activities that consume water.

3.3. Sewerage

In the service improvement programs, sewerage was generally part of a package deal together with water. My data shows, however, that the priority for sewerage is much smaller. In peripheral colonias, with an average 200 square meters per family (sizes of plots may be even smaller if not all are occupied), no hygiene problems resulting from the lack of sewerage were evident.

More important are the problems with the drainage of rainwater, especially in areas located at low levels and those with impermeable surface soil (such as the salty former lake bed).

At the metropolitan scale, the present rebuilding of the drainage and sewerage system is one of the major infrastructure costs and problems, but this discussion is beyond my frame of reference.

3.4. Electricity

Connection of the electric power network is, for the users, one of
the higher priorities among the utility networks, though it is still much less important than water. Electric connection is, however, much easier and cheaper. Benefits in proportion to costs are also high. Most important seems to be the employment and service consequences, especially the availability of power for all kinds of small machinery and appliances, and the possibility of longer hours of work and services. Electricity helps also local commerce to compete with commerce outside the area by making possible food refrigeration and longer working hours.

At present, about 90 percent of the dwellings in the metropolitan area of Mexico City have electric light. The average monthly payment for electricity among low-income homeowners studied was 25 pesos. In the older colonias, each dwelling or house has an individual meter. In newer areas, the still not consolidated colonias paracaidistas and ejido subdivisions, users generally pay the standard price of 10-15 pesos a month, without any meters.

In many instances, electricity is installed before the legalization of the tenure. Otherwise users would make illegal connections by themselves, stealing the electricity from the main lines of the neighboring colonias. All the efforts to disconnect the illegal networks have been unsuccessful. Destroyed lines were immediately rebuilt. Stolen electricity is a clear loss for the electric company. It is, however, not free for the users. In many cases, it may cost them more than the legal electric bill would be.

First, they have the installation and maintenance costs of the illegal network, which is often unsafe and creates many problems. These
are further increased by repair costs after the efforts of the electric company to destroy them. (A common trick, for example, is placing parallel transformers to burn the illegal networks by producing short circuits in it.)

One of the ways to avoid a disconnection or destruction of the illegal network is by bribing the company agents. In the localities studied, where such a system operated, the average bribe was about 20 pesos per family each time the agent comes. Only a few squatter areas which agents were afraid to enter did not pay any bribes (Santo Domingo de los Reyes, for example). Bribes, in any case, were not a full insurance against disconnection or damage of the illegal network. A bribe was only a payment to the agent to not do it this particular time.

3.5. Street and Road Network

As the low-income population has only very few cars, they are not the important individual users of the street system, and their priority for paying for the roadways is not very high. The important exception is the impact on the access to public transportation and on the transport of goods to shops and building materials to the plots. Consequently, they mostly opt for the asphalting of the main access streets for the buses and the grading and levelling of local streets for internal distribution.

Many improvement programs have been run, however, on "everything or nothing" bases: localities either did not have any paved streets, or the users had to pay for better roads that they felt they needed: the costs of local road improvements were always extracted subsequently from
the population in the form of the compulsory contributions.

This was not the case, however, with the major inner-ring super-
highway network now in construction at the cost of 5,000 million pesos
(400 million dollars), which connects primarily high- and middle-income
areas.

The U.S. urban superhighway experience suggests that it is at
least doubtful if this 'anillo interior' will improve traffic. It is
certain that it does not give any benefits to the low-income population.

At the same time, it is the low-income population that pays most
of the costs, as they form the majority of taxpayers (while not having
cars).

To make the situation even more ironic in the large subsidized
project, inhabited also by some low-income families resettled from the
eradicating inner-city tenements, the dwellers are charged for an "in-
creased property value" as a result of being located next to a super-
highway, also under construction). 153

Besides the isolated road projects, some of them quite large, like
the two superhighway rings just mentioned, the city lacks any comprehen-
sive transportation planning, and consequently, any land use and trans-
portation planning. A broader discussion on that level is, however, out-
side the frame of reference of this dissertation.

3.6. Public Transportation

The concentration of the transportation improvement budget on
arterial construction leaves little for the improvement of public trans-
portation. 154
The subway built in 1968 is saturated, and in one line, working even up to 70 percent over the designed capacity. It has not been extended since the original construction. According to the data of Dirección General de Ingeniería de Transito y Transportes of DDF,¹⁵⁵ there are fourteen million trips made in metropolitan Mexico City on the average day.

Out of that:

- 5,500 buses move 6,000,000 people/trips
- 27,240 collective and individual taxis move 1,800,000 people/trips
- 800,000 cars move 2,500,000 people/trips
- metro moves 1,700,000 people/trips

The remaining trips are made by bicycles, motorcycles, and by a few tramways and trolleybus lines.

The system of metro, tramways, and trolleybuses are run by the city and provide a better standard of service. The metro network is very small, however, and with one exception, connects high- and middle-income areas and government projects. Tramway and trolleybuses serve as extensions of the metro network. They serve the same kind of areas.

The colonias populares in the periphery are served by private bus lines and by collective taxicabs. The system of buses belongs to a large number of enterprises. It lacks any general planning and coordination. In the Federal District only, there are 87 principal bus lines, with 433 different itineraries. Out of these, 205 (46 percent) connect peripheral locations with the center; 126 (28 percent) cross the center to connect
two peripheral locations and only 112 (26 percent) do not cross the center.

A large proportion of the low-income workers who live in the periphery have regular jobs not in the center. There are often, however, in other peripheral areas. To get there they have to go, in most cases, through the center. The situation is worse in the largest low-income areas of the metropolis that are located in the State of Mexico. A one-way journey to the city center from Ecatepec or Netzahualcoyotl takes 60 to 90 minutes, not including the waiting time for the irregular bus service. Netzahualcoyotl, despite 1.3 million population does not have any mass transit or government-owned public transport connection.

The cost of travel is also three to four times higher than to the high-income areas the same distance away from the center. The average proportion of income spent on transportation among the families interviewed in those areas was 5-8 percent.

Another important problem in the peripheral areas is the higher cost of transport in the evenings (in some areas, the double night price is charged after 8 P.M.), and lack of any transport after 10 P.M. In addition, some bus drivers charge more than the ticket price, pocketing the difference. The picture presented of public transportation is very sketchy. It shows, however, how chaotic and deficient the system is. Its most important characteristic is that it gets most users from the low-income areas and least from the high-income (car owners) areas. At the same time, it is least efficient and most expensive in low-income areas and best and cheapest in higher-income areas (except to some exclu-
sive "car only" subdivisions in the far away countryside).

3.7. Telephone

The lack of telephones, both public and private, was mentioned as an important problem by a number of families interviewed in the more consolidated peripheral colonias.

The main reasons were related to local work opportunities for the larger city market, and emergency situations. Many peripheral colonias do not have any telephone connections. Some have them only in shops and a few private homes. The entire Ciudad Netzahualcoyotl has less than a dozen public telephones for 1.3 million inhabitants. Public telephones are quite frequent in the center and the middle and high-income areas. The conversation from a phone booth costs 0.20 pesos, from a shop (the only option for most poor lucky enough to have any telephone at all in their area) it is 1 to 2 pesos (up to ten times more).

3.8. Police Protection

Low-income areas, especially those in the periphery, are deprived, in most cases, of any police protection. At the same time, however, these are the areas with the lowest crime rate. Ciudad Netzahualcoyotl, for example, has one of the lowest crime rates of the entire Republic. It has, however, a police force. It commits around 50 percent of the known crimes, from murders, assaults, and robberies to forcing bribes. Its other function is repression against any grassroot organization of the inhabitants.
3.9. **Other Municipal Services**

More important than the lack of police protection is the lack of garbage collection services. These officially exist and are free (paid by property taxes). In practice, however, they almost never serve low-income areas, even those legalized and paying property taxes.

The garbage truck operators request bribes and do not get them in the poorer areas. Consequently, vacant lots and public spaces are filled with garbage.

Most of the peripheral low-income areas are not covered by telegraphic services and have non-existent or extremely deficient postal services.

3.10. **Educational Services**

Among the non-housing priorities, expressed by the families studied, the education of children was one of the most important priorities.

For lack of funds, and consequently, lack of schools and teachers, the average quality of educational services in the metropolitan area is deteriorating. In the metropolitan area at present, 15 percent of the population does not have any education, 19 percent got only to the third year of primary school. In total, 34 percent are illiterate.

In the years 1970-1975, the number of children of school-age increased 20 percent, while school attendance increased only 4.5 percent. If this trend continues until the end of the decade, the result will be 350,000 children without school education by 1980. In addition, 250,000 will quit school after three years and another 400,000 after five years.
It is obvious that those children will belong to the lowest income sectors, living in the poorest serviced peripheral colonias.
V

IMPLICATIONS FOR POLICY REFORMULATION
1.0 Main Policy Issues

The housing policy issue most often raised by radical groups is whether or not any improvement-oriented intervention in the low income housing field is politically desirable at all. It has already been stated a few times in this thesis that solutions for low-income housing problems are possible only if the entire model of national development strategy is changed from one based on a centralized expansion of the modern sector to one of the progressive development and modernization of the dispersed, small-scale economic activities of the so-called traditional sector. This would require basic changes within the economic and political system of the country.

Such changes may occur gradually or through radical clashes (revolution).

Proponents of the second form of change often use the argument that any planning intervention that is aimed to improve the living conditions of the low income population would reduce the internal contradictions of the exploitive system and delay the confrontation necessary to produce a radical change.

The policy implications which I sought were along an evolutionary path of gradual change. An historical discussion on how successful were past revolutions in improving the living conditions of the poor (in Mexico and in general) could fill dozens of dissertations. My doubts about it were not the main reasons for this focus; the main reasons are moral and conceptual.
The moral problem of the advocates for "the worse, the better" strategy of accelerating the upraising of the unprivileged and exploited masses is the fact that they are not usually hungry and homeless themselves.

Belonging typically to middle- or upper-classes, they argue for "tightening the belt on somebody else's stomach." They wish to exacerbate the sufferings and often even sacrifice the survival of thousands of the poor of the present generation, for what they believe would be a better life after the revolution.

The conceptual reasons are in the differentiation between the streamlining and structural changes.

Streamlining changes, however big they may be in quantitative terms, are the changes that eliminate inconsistencies and bottlenecks in the present system, while retaining all its basic qualitative characteristics in a more stable form.

Structural changes, even if quantitatively small, produce qualitative changes in the basic nature of the system and have a potential for generating or at least facilitating further changes.

Structural changes, at any level, usually include changes in the distribution of control and decision power. The changes can be centralizing or decentralizing in character. Decentralizing changes by definition increase local control and autonomy of action.

The increased autonomy of local groups is an example of a structural change. It automatically reduces their dependence on large institutions and businesses, which, in most cases, reduces exploitation. In the housing field, the owner-builder construction process is an example of
autonomous action. The process still has many dysfunctions, but all of them are related to its dependency on large institutions or monopolistic markets.

Proponents of "evolutionary change" and "revolutionaries" in general agree on the basic long-term objective of improving the living conditions of the poor. "Revolutionaries" believe that the quickest way is the immediate, radical, and complete transformation of the socio-economic system.

Evidence indicates, however, that revolutions were never carried out by the undernourished and homeless, but rather by a little better-off strata of the low-income population. The poorest are too absorbed in the fight for their own physical survival.

In other income levels, political radicalism seems to be a variable independent of income. 158

If these observations are correct, both groups of change-oriented professionals should agree, at least on a short-term basis, on the desirability of working for the improvement of the living conditions of the poor.

The second frequently raised and related issue is that of the relation between housing and poverty.

The argument is that the housing deficiencies of the poor are only a symptom of their general poverty, and as long as poverty persists, housing policies are irrelevant.

My argument is that the deficiencies of the low-income housing system are both a symptom and a cause.

In a very simple model, it can be said that the low-income popu-
-- as producers or suppliers of goods and services -- by very low payments or by being unemployed, and by unfavorable terms of exchange in general;

-- as consumers or users of goods and services -- by very high prices and conditions, and again, unfavorable terms of exchange.

Both these exploitations also apply to housing. Housing construction methods, for example, that substitute machinery for labor contribute to poverty along the first line. Even more important is the added decapitalization of the poor as users of housing; housing is one more barrier against the possible improvement of the family's socio-economic situation. Principal dysfunctions of the housing system (see IV.2), such as dislocations and overpayments, are such barriers. The land market, the market of construction materials, the costs of permits and licenses, higher subsistence and transportation costs in the periphery are only a few of the ways in which housing becomes an important decapitalization channel for the poor.

The logical following issue is that of housing policy goals. In light of the earlier discussion, the improvement of housing conditions alone is not a sufficiently complete objective. Equally or probably more important are two other goals: assisting the socio-economic upward mobility of those affected by the given policy and contributing towards structural changes in the society for a better distribution of the decision-making process, wealth and opportunities.

The last main policy issue is operational -- the choice of areas and instruments of intervention, and the definition of the appropriate roles of public planning and of the appropriate functions of planning
professionals. These will be elaborated after a discussion of the specific policy implications concluded as a result of the study.

2.0 Urban Growth and Migration

Mexico City is facing growth thresholds whose overstepping will be too costly, even if the entire national economy were drained, to support the cost of the capital's further growth. The low-income population (migrants or city-born) has a decreasing chance of being absorbed by the city's economy, but as indicated by the interviews and case study data, the capital is considered as the location of the best economic opportunities (second best after Chicago).

Arresting future growth that would occur at the expense of the rest of the nation seems to be the only non-catastrophic alternative. As the only way to do it, I would suggest the reduction of the comparative advantage, both real and perceived, of doing business, living, and working in Mexico City, as compared with other locations.

I am consciously not going to discuss alternative national development strategies, as the focus of the dissertation is narrower, and the field work did not have this focus.

However it appears that the future growth forecasts, based on past trend extrapolations, are not unavoidable, and that the excessively costly further growth of Mexico City can be slowed down. The earlier discussion of migration motives and outmigration intentions gives a clear indication of this potential. It also suggests the very high importance of information about opportunities at other locations. 159

The Mexican government has declared numerous intentions of arresting the growth of Mexico City. A number of decentralization and "growth
programs have been announced and some carried out. These efforts are, however, very partial, and the primacy of Mexico City is still increasing.

An important finding of the thesis, related to migration into the city, is that the improvement of housing conditions per se does not seem to invite increased migration. (None of the families interviewed came to the city attracted by the possibility of better housing. In fact, many left better housing behind in the hinterland.) It is very possible, however, that the general direction of housing policy may have an important impact on the migration flow.

During the study, it was found that all the labor employed by the owner-builders was local from the same colonia, usually other owner-builders of a similar (10-15 years) length of urban experience. There were no new migrants who came to the city attracted by the incremental improvement of the colonias. A few came attracted by the formal sectors' building booms that are much more visible and widely advertised.

The scarcity of my data in this respect does not permit generalizations. In Caracas (Venezuela), however, studies of the impact of constructing the Perez Jimenez' superblocks on migration have shown that the number of people who came from the country to build them was larger than the number of slum ("rancho") dwellers who were resettled in them as a "final solution" to slum problems.

3.0. Land Market and the Urban Growth Pattern

The study has confirmed that land is the single most important resource input into housing.
The case studies and interviews suggest two kinds of policy implications: those related to general land use planning and urban growth patterns, and those more specific on the tenure arrangements, cost, and location of plots for low-income housing construction.

In terms of spatial pattern, two important trends were found: the beginning of metropolitan decentralization through the creation of the first strong subcenters in the periphery, and the progressive homogenization of large areas of the city in terms of class stratification and land use type. My analysis of the field data suggests that the first development has a very positive potential and should be accelerated. The second trend has a very negative impact on the low-income population.

Naucalpan, and to a lesser degree, Tlanepantla, seem to be until now the only fully developed such subcenters. These subcenters have recreated the basic vecindad-colonia housing system that no longer functions on the scale of the entire metropolitan area. 70 percent of the interview sample of the colonias San Rafael Chamapa and Emiliano Zapata in Naucalpan went there from the rental housing center of Naucalpan. This is also true of five families of the in-depth case studies. All of them followed the "classical" bridgehead consolidation (center-periphery) path with the same economic and social benefits that were possible in the whole city until the 1950s.

The center of Naucalpan offers a good mix of inexpensive rental housing and substantial possibilities of low-skill employment. It has two large industrial areas (Parque Industrial and San Bartolo) offering more skilled employment. The municipality also has large middle- and
high-income areas that offer a number of work opportunities for the low-income population.

The model of Naucalpan has, of course, many problems. One of them as already mentioned in II.4.4., is the land speculation which is beginning in the periphery; others are building codes which discriminate against "substandard" rental housing. Many improvements are necessary.

It has, however, a very important value of precedent of effective metropolitan nucleation, and is proving its beneficial impact on the low-income population.

There are many subcenters in the metropolitan area that have the potential of reaching the level of scale of Naucalpan, and the stimulation of their development should be an important policy objective.

The Naucalpan example indicates that the main ingredients of its success were not modern capital-intensive industrial jobs, but the existence of an urban core with many low-skill jobs, a supply of low-cost rental housing in the center, and inexpensive plots in the periphery. Permanent industrial jobs, usually in the rather labor-intensive industries, were also very important, but more for the families already established in the city. The present development of another subcenter, Ecatepec, places the main emphasis on modern industries. There is no effort to assure the other components of a viable center serving the low-income population. It is possible that this may result in a rather limited success, despite the very high cost of these "job creation programs."

Large areas of homogenous income levels and similar land use patterns are the result of a number of phenomena. The middle-
upper-classes tend to isolate themselves from the low-income population. This is strengthened by real estate speculators who subdivide large tracts of land for specific income groups. Government projects strengthen this same trend. In commercial and industrial land uses, zoning regulations foster the homogenization. Another important factor is the creation of industrial centers or "parques," and commercial centers that attract previously dispersed establishments. Factories in the centers are larger and usually successful in the competition against the more dispersed, local, smaller-scale industries (this is not true for commerce).

The arresting of this trend seems to be a very important task. Almost all families of the in-depth case studies and the majority of those in the family interviews have benefitted from heterogeneous, small-grain land use patterns a number of times. The possibility of a fine mix of employment and residence is essential for job proximity and for the generation of local employment in the area.

The small-grain of income stratification has also benefitted the poor in a number of ways. The most important were: (1) opportunities of service jobs for the rich, and (2) the improved quality of utilities and services. Schools are usually separate but public transportation, telephones, shopping, government medical services are also accessible to the poor. Similarly, electricity and water lines can be much more easily and quickly connected if the mains built for rich areas already exist.

Social integration and the avoidance of ghetto syndromes are usually an argument for higher mixes of incomes. However, my Mexican data does not permit any conclusions on this aspect.
Small grain income stratification and land use mixes should not be taken to the extreme. They should be understood as concepts of mixes of relatively small but still homogeneous groupings, and not of individual plots.

The very small grain, plot by plot, mix most frequently results in the purchase of the remaining low income plots by the upper classes and in the gradual conversion of the locality into an upper/middle class residential area. The preservation of small but still homogeneous groupings seems to be necessary because of the different characteristics of locality demanded by different income groups. Higher income groups demand the exclusion of non-residential land uses from their immediate neighborhood, and larger plots (and consequently less dense road network). A low income locality must have smaller plots (and consequently, denser road network). The zoning regulations in such areas should allow animal breeding, cottage industry and, of course, the incremental construction of houses.

However, all this can be achieved in smaller groupings and not, as at present, by dividing the city into homogenous income and land use areas numbering hundreds of hectares.

A pattern of development with a higher degree of metropolitan nucleation and a higher diversity of land uses and income mixes can be promoted in a number of ways, such as: through legal mechanisms, fiscal incentives, service provision, direct control of land and its conditional leasing to investors or other uses, and, finally, through direct construction.
As discussed in IV.2.2., access of the low-income population to construction land is limited primarily by construction and subdivision codes and by too high prices. Land is also inappropriately located and it lacks services.

Tenure insecurity in the illegal subdivisions is an important disadvantage, but it lowers the prices and protects the land from being bought out by real estate speculators or directly by the middle-class.

The liberalization of codes and standard or their differentiation by zones to better fit the incremental character of the owner-builder construction process and the life styles based more on the extensive and aggregate family patterns are obvious general suggestions.

The problem of land speculation is more complex. Its two main impacts are the too high prices of land and the middle-class take-over of better low-income areas. They are most visible on the urban fringe where there is the most rapid development and most intensive land speculation. They are equally important, however, in the earlier urbanized areas and even in the central parts of the city.

An observation of the process of land speculation suggests two kinds of possible market instruments: fiscal mechanisms as disincentives against speculation and an increase of the competitive supply.

The fiscal mechanism should also assure that the increased value created by society will benefit the whole society and not only selected individuals.

Two kinds of taxes can be suggested: (1) much higher capital gain tax at the time of sale of land than presently exists and (2) the
higher taxation of unused land for locality and general service improvement (urbanization taxes). These should be applied to all sizes of holdings (many vacant plots kept for speculative purposes are of small size dispersed in the low income subdivision).

A special additional measure against large-scale speculators should be the application of the maximum limits of individual holdings (as defined by agrarian reform) to the urban and peri-urban areas.

Another measure that might be considered is the linkage of tenure to the level of improvement on all the non-owner occupied plots. In other words, an owner-occupier would have the full title even if his house is a very primitive one. The investor, however, would get the title only if his improvements, constructions, on the plot achieved a certain standard. Plots owned by absentee landlords not built up during a certain period after purchase, could be expropriated.

The most frequently recommended measure of containing speculation by the competitive supply of land is through the expropriation of the urban perimeter and its nationalization well ahead of the demand and urbanization pressure, and in this way creating a land bank that would release specific areas for a planned development to meet the new demand. The same bank should also gradually acquire unused plots within the urban areas with the objective of putting them into use or providing an incentive for current owners to develop them to avoid expropriation. Such general measures are not likely to be implemented in Mexico at present.

The most feasible competitive supply of land may come from the already national land (ejidal and comunero land). It seems very important, however, to maintain the social control of this land and not to return
it to the game of free market for a number of reasons. Keeping prices low and protecting the poor from being bought out by the middle-class is one reason. The other is in order to maintain more control over the land use pattern and its possible future changes.

For that purpose, it would be necessary to develop a new legal formula for urban communal property. In order to reduce possible land speculation, land should be available for owner-occupiers only (no absentee investment purchaser). The tenure form should give the users security of their investment and the right of continued use, inheritance by children, etc.

The titles, however, should be collective, similar to the rural ejidos, in a form of cooperative ownership. The best alternatives for handling the problems of resale should be further studied. The general increase of all capital gain taxes on the land may be a sufficient disincentive against speculation. If this will not be implemented, the right of resale should be limited to one via the local ejido or cooperative self-government. In such a case, the capital gain on land will benefit the whole ejido and not the seller only. Another possible option is a community land trust. In such a case, land as a community property will not be transferable, only the right of use and improvements would be.

Some proportion of ejido land might be left with the ejido administration and leased for middle-class or even luxury housing, commercial and industrial development, etc., in order to keep a sufficient mix of land uses and social strata.
The liberalization of zoning codes and subdivision and construction standards, besides permitting the low-income population a better adjustment of locality and housing to their needs, would also keep the middle-class out (for example, small-scale industrial activities, on-street commerce, the breeding of animals, etc.).

An appropriate physical layout geared towards the traditional on-street life of a village around a semi-public place, rather than the cosmopolitan car-oriented "garden city" model would have the same result.

An alternative way of lowering the price of land for users and especially for investors, and at the same time of maintaining the social control of property, is a long-term leasing of the national, state, or municipal land. This mechanism seems to be especially appropriate for the center of the city, where the present free-market land prices make many socially desirable constructions impossible. Such land could be leased with specific conditions for specific kinds of constructions or land use.

This seems to be the best way of providing land for the new low-cost vecindades and for the camps of rental plots (legal ciudades perdidas), as the price of land is the main economical barrier against an increase of supply of these sets (of course, the present building codes and rent controls would also have to be changed in order to make the new vecindades and legal ciudades perdidas a feasible proposal).

Another housing set that is best fit for leasehold land is the urban farm.

This is a possible form of intervention in the land market that seems necessary on the basis of this study. It is equally important, however,
to refrain from counterproductive interventions such as the large projects that always appreciate the prices of land and strengthen the class stratification of the city.

4. **Credit Market**

In the field of the credit market, financing, and fiscal systems, this study provides evidence for the need of two lines of intervention:

1. credits and incentives for the users; and
2. credits, incentives, and guarantees for the suppliers.

Table summarizes the conclusions of the distribution of credit preferences among user income groups, based on my field data.

**TABLE**

HYPOTHETICAL DISTRIBUTION OF CREDIT PREFERENCES OF THE LOW-INCOME OWNER-BUILDERS IN MEXICO CITY

<table>
<thead>
<tr>
<th>Desired type of loan</th>
<th>Per capita income</th>
<th>% of total of interviewed who did answer the question</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0 - 3S(^1)</td>
<td>20%</td>
</tr>
<tr>
<td>Short-term, small</td>
<td>3 - 5S</td>
<td>60%</td>
</tr>
<tr>
<td>1,500 - 3,000 pesos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term, medium</td>
<td>5 - 8S</td>
<td>15%</td>
</tr>
<tr>
<td>3,000 - 10,000 pesos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortgage</td>
<td>8S+</td>
<td>5%</td>
</tr>
</tbody>
</table>

\(^1\)S = Subsistence income (see footnote no. 72)
It is evident that the demand for small loans up to 3,000 pesos is the highest. These are generally typical home improvement loans sought by the families who already have partially built houses of their own on their own plots of land. Such loans seem to be a much more legitimate use of the FOVI funds (a proportion of the capital that every private bank has to invest into the social interest housing with the return of 6 percent and 9 percent per year) than the building of housing projects. Besides, the government might give the guarantees to private banks, promising to pick up the defaults by the low-income loan customers. Another possibility is the direct government loan program to groups (co-operatives) along the Ghanaian roof loan idea, or similar to consumer financing, but at a better rate. Consumer financing to buy a TV set, for example, is available to the poor and many families, especially if the middle-low-income strata are using it. Data on default rates is not available, but it cannot be high if this form of sales continues to expand.

Prefabricated roof components, complete bathroom and kitchen installations, etc., may be sold in the same way.161

As stated earlier, the demand for mortgage loans is small. However, it is still big enough to require policies that would increase the access of the low-income population to this kind of credit. Demand may also grow if more flexible repayment terms, better matching the irregularity of the incomes of the low-income population, are introduced. Important progress can be made if land (unimproved or improved plot) would be recognized as a sufficient form of collateral. There are two main ways of doing this: (1) as a direct guarantee for a private bank; (2) as a guarantee for a government institution, like FOGA, that, in turn, guarantees the loan for a private bank.
The second form has the advantage that it would also cover ejido land that cannot legally become private property, and therefore, could not be used as collateral for private banks.

Other possible sources of mortgates and especially of improvement loans may be local savings and loan associations.

It is important to remember that one of the present main sources of credit for owner-builders are informal loans from employers. It is therefore essential to avoid any actions that would reduce this possibility.

The creation of housing financing institutions that require strong contributions from the employers may be useful if all the population, salaried or not, have equal access to their loans.

As described earlier, this is not the case of INTONAVIT whose loans are limited to the upper strata of the low-income population and the middle-class. The forced contributions to INTONAVIT also seem to reduce the funds that are available for informal loans to low-income groups.

Another useful field for further research concerns the fiscal incentives for investment in progressive development (rather than in consumer goods, for example), and especially in the provision of rental housing.

Credit and fiscal policies for suppliers are also very important. These should include credits for the subdividers (to design the layouts, subdivide the land, and provide utilities), for local producers and distributors of construction materials (both individuals and co-operatives), for local contractors, for investors willing to build rental housing, etc.

Credits for subdividers would help to increase the supply of urbanized and non-urbanized plots (if the latter would be allowed by subdivision codes), and to avoid the delay of the installation of services.
Credits for producers and distributors of building materials are needed for two purposes: investment and inventory maintenance. Investment credits are never needed for the purchase of tools and machinery, land, buildings for offices, shops, or the storage (or for the construction of one) of equipment, etc.

The other kind of credits would enable them to maintain an inventory of a size necessary to meet the demand fluctuation. The materials in the inventory may be used as a collateral for the loan.

Credits for local contractors would give them more flexibility and would allow them to get some economies of scale. They enable them to build at a more continuous pace, independently of the fluctuation of the income of the population.

The credit system and tax regulations may be also used to stimulate the construction industry within each low-income colonia, as they provide more local employment, have better distributive effects, and use better the locally abundant resources (especially labor) and less of the scarce ones (imported materials, capital in general).

 Preferential treatment should also be applied to the small investors in rental housing. The credit conditions and level of taxes, could depend on the size of property, the number of such properties owned by the same owner, and on whether the owner lives permanently within the property.

5.0. Construction Industry

5.1. Objectives of Public Intervention

Data of the study has indicated that the present structure of the construction industry is determined by the needs of the large construction
enterprises of the formal sector.

This results in a number of problems for the informal, popular sector construction activities, who, in fact, build more housing than the public and private-commercial sectors combined.

If the goal of public intervention in the construction industry is to improve its performance in serving the needs of the informal sector of housing construction, that, in turn, serves the low-income population, its more specific objectives could be formulated as follows:

(a) to provide a selection of construction materials and tools which suits the need of the popular sector (i.e., materials and tools that are inexpensive but good, accessible, easy to maintain, and adaptable to incremental construction);

(b) to increase the availability to the popular sector of a professional labor force and of technical and professional assistance, offering adequate skills for the lowest price possible within a reasonable range of choices;

(c) to generate as much local employment as possible;

(d) to maximize the total effect of each public peso invested.

These objectives seem to be fully compatible with those of the private commercial sector. The increased participation of the popular sector will generate resources much less dependent on fluctuations in the national economy, thus providing for stability of demand. A larger number of housing units produced also means in increase in the total demand for materials. Large-scale construction firms may be less involved in the pursuit of these objectives than would manufacturers or smaller building firms, but no conflict is necessary. A substantially
higher level of production in the popular sector will involve large construction firms in public works like the development of sewer and water systems, road construction, and the like.

5.2. **Instruments of Public Intervention.**

There are a number of instruments which the government has at its disposal in order to achieve these objectives, such as:

(1) Design, construction, and planning standards;
(2) Licensing;
(3) Taxation;
(4) Price and profit controls;
(5) Public guarantees;
(6) Credit (to producers, distributors, and users);
(7) Subsidies (including price supports);
(8) Direct public ownership (including ownership of industry, transport, distribution, and public works);
(9) Training and technical assistance;
(10) Information (including advertising).

Each of these instruments, or various combinations of them, can be used at one or more levels of the submarket in question. Thus, in the case of materials, an instrument such as price control might be employed at the production level or at the retail level, or at the level of transportation. In the market for skills, an instrument like credit might be used only in relation to independent craftsmen or owner-builders, or in other cases, in relation to all groups, large and small.

A systematic analysis of the possible application and combinations of these instruments should be the subject of a later study, once the information is present for understanding more clearly how these markets
operate and assessing the possible impact of each type of intervention. The following recommendations may serve as a test (at least in the form of a conceptual evaluation of the consequences) of the impact of specific policies using specific instruments.

5.3. **Suggestions for Government Intervention in the Market for Materials and Tools**

*Direct public ownership, competitive participation, and other market control instruments.* Direct public ownership is an extreme case of public intervention into any market. It can occur at the level of production, of wholesale, of retail, or of transportation. Various percentages of the market can be owned, ranging from full nationalization to no participation at all. If we theoretically assume three possible degrees of ownership: full nationalization (100%), competitive participation (5-25%), or no public ownership (0%), this would result in 81 possible combinations of different degrees of public ownership at different levels with very different implications in each case. Full nationalization, however, does not seem to be a realistic proposal at any of the levels, and the choice remains between competitive participation or non-participation.

Competitive participation is recommended as a means of indirect control of quality, price, selection, and supply. By competitive participation is understood the direct control of the smallest percentage of the market which still permits the agency to exercise its influence. Increasing the publicly controlled share should not be the objective. It should be possible for private firms to survive and flourish in
competition with the public agency. There should be no long lasting subsidies to the public competitor. A subsidized public system, if successful in competition, would ultimately replace the existing commercial system and result in a full nationalization of the market, a solution counter-productive, destructive rather than supportive of existing networks, and very expensive for the government.

On the level of production of building materials, besides the regulation of prices and quality, competitive participation can also be used as a means of bringing into the market new, innovative materials in those cases when private business is not eager to do so because of eventual competition with existing profitable sales or because of the initial costs and risk involved. This should be combined with the development of a Building Research Center, similar to ones existing in numerous European countries, which would work on new construction materials and construction techniques and would also fulfill a technical assistance function for private producers. Its emphasis should be on maximizing the use of the local materials and labor intensive construction techniques appropriate for low skill local labor.

On the distribution levels, the public warehousing and wholesale (also as competitive participation, not as an attempt to replace the present structure) can be an important control and promotional tool, especially if combined with the CONASUPO-type retail system organized on the basis of direct state ownership of on franchise principles. This government distribution system should, as mentioned earlier, occupy as small a percentage of the market as will be sufficient to effectively control prices, quality selections, and supply. Control of selection
includes the promotion of new, better materials; control of supply means assuring that adequate quantities are on the market.

Design and construction standards (which should be considerably liberalized), licensing, price and profit controls and other legislative instruments are also useful tools of controlling the building material sub-market.

Support of the market's development. More important than control, however, seems to be the support of the market's development.

The Building Research Center mentioned earlier could assist producers of all sizes in the technological aspects of production. Assistance in business organization and management as well as in all legal and taxation problems would be especially helpful to small producers. Various forms of credit to producers should also be considered, with the possibility of surplus stock being a guarantee for credit. Government purchase guarantees could also be utilized to assure the sufficient supply of particular materials on the market, or to promote the production of new materials.

Particular government support should be extended to locally-based smaller-scale producers who create jobs within the area. The establishment of new businesses of that kind should be especially encouraged and aided. Similar instruments can be utilized on the distribution levels. Preliminary investigation conducted by COPEVI for AURIS in San Rafael Chamapa concluded that local material distributors need assistance in inventory selection, marketing, and business administration. It is very likely that investigations in other areas would also show a need for this type of service along with legal and professional assistance in
the fields of accounting, licensing, and taxation. Credit should also be made accessible for the material distributors. One of the ways could be by loans in proportion to, and under the guarantee of, the amount of material stockpiled. Guarantees of purchase can be utilized in a similar way as was suggested for producers.

Introduction of new tools. Popular housing presently uses only very few tools. However, a broader introduction of some of them seems to be very desirable. Cement mixers, adjustable steel forms for concrete, or perhaps cable jacking equipment for post-tensioned concrete could be made available in several ways: (a) credits to craftsmen or small local builders to buy such tools, (b) establishing a tool rental system as part of the activities of local government offices which rent tools to local construction craftsmen or owner-builders, (c) aid in the form of credit and assistance in establishing analogous private, locally-based tool rental enterprises.

Generally speaking, emphasis should be placed on material-saving and quality-improving tools and not on labor-saving tools.

Transportation of materials between distributor and user. The problem of transporting materials between distributor and user as outlined in the descriptive section of this paper is one of the main dysfunctions of the present construction material sub-market. Transporting small quantities of materials is difficult to arrange, time consuming, and relatively quite expensive.

There seems to be a need for a small conveyance which is very economical in fuel and maintenance costs and which would not require a road surface of high quality. Beasts of burden such as donkeys are
really very practical for this kind of transportation. The "mechanical mule" proposed by Ivan Illich and Antonio Arias also seems to be the type of vehicle to fulfill these needs. The following ways of implementing this idea, or introducing other media of transport with similar characteristics might be considered:

1. a rental system run by private business;
2. a rental system run by the government, perhaps only as competitor and price regulator;
3. selling vehicles to local material distributors, contractors, and craftsmen, possibly on a credit basis;
4. small local transportation firms, with government aid in establishing such businesses and facilitating the purchase of the vehicle on easy terms;
5. selling vehicles directly to the people.

The most desirable solution in my opinion should be a mix of all of the above elements, particularly (3) and (4), with competitive participation by the government as a price regulator.

Role of direct subsidies. The use of direct subsidies in the field of construction materials should be handled very carefully for a number of reasons, one of them being the danger of creating a situation where they become a necessary condition to the balance of the markets. They should be treated only as a remedy for emergency situations rather than a permanent component of policy.

Information. The last instrument of major importance to be discussed here is information about the location of various distributors, their
prices, and selection. One of the forms in which this could be done is advertising. The government might publish a directory in the daily press listing the names and addresses of distributors who maintain relatively low prices and adequate quality. Those who do not meet these standards would not be included on this list.

5.4 Suggestions for Intervention in the Market for Construction Skills

Support of small-scale enterprises. It is suggested that the emphasis of government support should be placed on local, small-scale enterprises, because they: (a) contribute most to the employment generation in the area (local base, labor intensity), (b) are able to respond most easily to the incremental (additive) character of housing construction in the low-income sector, (c) offer services at a cost which is, in effect, low to the user, (d) have high on-the-job training potential.

The type of assistance which should be offered to them is analogous to that for the small producers and distributors of materials, and includes, above all: credit for purchase of materials and tools, and technical assistance in construction methods, business organization, management, etc.

Training programs. In order to increase the supply of the skilled labor force, in particular in the deficit areas (plumbers and electricians in the immediate future, plus others in the more distant future if the volume produced is to be multiplied), the government agencies could also establish training programs for people in the area -- either directly in the form of courses, or, preferably, in the form of on-the-job training which can take two forms: (a) training on local public works and other
types of construction, and (b) training by the local contractors who in this way return the credit they get from the government.

**Security of employment.** This should be followed by help in establishing independent businesses, or some other form of guaranteed employment. One of the possibilities would be for government centers to employ professional labor and rent it to people. This could be combined with a system of credit which would be granted to people who would buy this service (as, for example, to install piping).

**Information.** Information is another basic instrument to be used to improve the operation of the sub-market. An example in the market for building materials would be a systematically updated "directory" either published periodically in the press and/or available in the government information centers in the area.

**Technical and professional assistance.** The last component of the skills sub-market to be discussed is technical and professional assistance.

Earlier, the inflated prices which the popular sector is paying for plans, legalization (registration) procedures, and other officially required formalities in the present technical assistance system were described. To improve the situation, the government can take the following steps:

(a) legislative changes which would largely simplify the registration, legalization, and construction permit procedures, and thereby decrease the complexity and cost of a required plan; for example, one permit could be sufficient for the intended step-by-step construction to be accomplished over a
period of even 20-30 years. It would be issued on the basis of a very general plan only, with the possibility of future alterations which do not require a new permit. The institution of permits should be gradually abolished and substituted by information about standards and their enforcement;

(b) liberalization of standards and changing them from prescriptive regulation to proscriptive rules;

(c) indirect price control through the competitive participation of a government agency. The use of students and other para-professionals could largely cut the costs. The pricing of services, however, should not be based on subsidies as this can lead to the unlimited growth of government technical and professional assistance units at the expense of the commercial ones and at the same time create an unnecessary burden for the government budget.

The other aspect of technical and professional assistance is the provision of information which will help the owner-builder and local contractor or craftsmen to reduce construction cost, and/or to improve the quality of the structure through a better use of materials and construction methods. Training and assistance programs for the labor force, as described previously, are one means. Others would be, for example:

(a) the sale by government centers in the area, by material distributors or other private suppliers, of typical (and therefore, cheap) plans and technical drawings of the components of the building (like concrete roofs, etc.);
(b) the requirement that careful, detailed instructions accompany the sale of construction materials;
(c) inspection or supervision services to be offered by students or other paraprofessionals at a lower cost than those currently available.

The most radical way to achieve both objectives—of providing technical assistance and maintaining some control over construction quality without unnecessary bureaucratic complications—would require a complete change of the building inspector's function. He is now an outsider who controls the presence of legally required plans and the adherence of the structure and construction process to a set of prescriptive regulations. Instead, he should be a locally based advisor to owner-builders and local contractors on construction techniques and design matters. He should be equipped with a small library of appropriate books and plans. His central function should be limited to the enforcement of the general proscriptive rules that assure no conflict between the action of the individual and the welfare of the other members of the community and of the community as a whole. This new role of building inspector would have to be proceeded by the already mentioned legislative changes simplifying the construction permit procedure and construction standards.

Legislative changes that would simplify permit procedures and would liberalize construction standards are also a precondition for increasing the supply of new tenements and of low-cost rental housing, in general.

6.0. Infrastructure Networks and Services

The development and improvement of infrastructure networks and urban services requires strong inputs from metropolitan institutions in planning,
construction, and use stages. At the same time, it is essential that the process of acquiring and using services is under the effective control of the community.

The case histories and interviews report a success story of service improvements with strong community participation in the colonias with strong and trusted local improvement councils, through which users were able to influence the pace, extent, and sequence of service installation (Tlacogligia).

However, failures were numerous. They had usually two kinds of causes. Some resulted from an imposed system of service provision (Netzahualcoyotl) without local control and even participation. The others were a consequence of the failure of central planning and implementation agencies to respond to local initiative, or to comply with the planned and promised schedule of installing service mains or providing materials to be used by the local self-help installation or distribution networks (Granjas Valle, Chamapa).

The central planning of service networks is necessary to integrate the local services into the metropolitan networks. The central administration of construction and use is also essential because of the size of the continuous network, and because of the complexity and necessary scale of some of the technological processes.

Local control is essential to assure that the characteristics of services match the needs and priorities of the users.

Most important of these characteristics are: quality and corresponding cost, mix of services and the sequence of their installation, and the combination of inputs into installation (especially the proportion
between capital and labor). The payments for the service installation must be flexible. Quantities of payments should be distributed over time in different ways for different families. Even those commitments should be made in annual totals, and consequently, in monthly averages, and not as fixed level monthly payments.

The option to contribute labor instead of money, or a different proportion of each of the two should also exist.

The auxiliary paid labor used for the installation of services should preferably be from the given area. The main teams must be permanently employed by the company and moved from place to place as the jobs move. This work may be also used to teach certain construction trades that will be in demand for the further consolidation of the area, such as plumbers and electricians.

The option (wherever it is technically possible) of the complete construction of local services and infrastructure networks by the community, with the necessary support and assistance from the municipal or metropolitan institutions should also exist.

Good coordination of local improvements with a central city-wide system is especially important in such networks as water, sewage and drainage, and streets. This is an especially sensitive problem if the local networks are built by, or together with, self-help effort.

The dependence of local services on the city-wide systems may be reduced by the development of technologies that permit more localized networks. Closed circuit water/sewage systems (like on the manned spaceships) are already technologically possible and may soon become economically feasible. 165 The composting of organic waste and domestic sewage
even on the household level, has also been implemented in a number of places.\textsuperscript{166} The widespread use of solar energy, or of wind energy in urban areas are more remote possibilities. It is important to remember, however, that technological innovation may permit a much larger autonomy for the local systems, and in many cases permit their independent self-help construction by the local population from local resources.

Appropriate layouts of the initial subdivision are extremely important for the cost and even for the possibility of installing service networks.

All the subdivision layouts leave far too little public space for future uses.

The only motive is the maximization of the number of plots to sell (or settle in squatter areas). Even within these criteria, it is done usually most incompetently, losing many potential plots because of the lack of adjusting the layout to topographic configuration, and the far too dense network of streets. Less expensive service networks, and a higher efficiency of land use could be achieved if the subdivision layouts would be prepared by competent technicians. This, however, will be possible only when the volume and diversity of land supply will get ahead of the demand so that owner-builders will be able to buy prepared plots (with different types of tenure, quality of services, and prices) rather than have to invade or buy from clandestine subdividers. The key solution lies, therefore, in the land market.

All the networks and services would require separate studies in order to arrive at a coordinated set of sectoral improvement programs. I will not discuss more detailed suggestions for each of the networks.
and services here, but I will concentrate for a moment on public transport.

Policies in the field of transportation have a special importance as a counterpart of the land policies (access is a function of location and of transportation means).

In general terms, transportation problems may be resolved in four ways:

(1) by reducing the time and cost of travel to the present destination;
(2) by changing the destination to one with better access (lower cost and time of travel);
(3) by changing the place of origin of the trip; and
(4) by eliminating the need of the trip.

All these usually refer to problems with trips that are being made. In the case of the low-income population, equally important are the latent trips (that are not made, mainly because of cost), especially those to possible employment locations for the secondary income contributors, to less expensive markets, and to educational and health services.

The policies should address these, too.

An analysis of the present functioning of the public transportation system suggests immediately three important moves to reduce the time and costs of travel for the poor. First is the comprehensive planning and coordination of the public transportation system that should improve its performance in the areas of maximum patronage, which are the low-income settlements.

Second is the stimulation of all auxiliary, less-centralized transportation systems like collective taxis and microbuses operated by
individuals or co-operatives. Licensing procedures should be liberalized and taxation of them should be reduced to make them more attractive as a way of earning income and making them cheaper for the users.

Third is the control and rationalization of ticket prices and systems. In most cases, this would require subsidies. I believe, however, that the objective of improving access to employment markets is, alone, sufficient justification for subsidizing public transport. Subsidies may be on the demand, or on the supply side, or through the municipalization of public transport and the establishment of prices on social rather than purely economic criteria. The rationalization of ticket systems would be useful for the persons who need to make trips requiring few changes between different lines. Many interviewed were in such a situation and presently, they needed to buy a separate ticket on each section of the trip done by a separate line.

Changing the destination of the trip to one with better access means, in terms of the low-income population, the creation of employment opportunities with the appropriate kind of skill requirements, and of the inexpensive food markets in the sections of the city inhabited by low-income population. Stimulating the local employment base and local commerce (with some price and quality regulating mechanisms like competitive participation of public sector commerce) may result in the elimination of the need for a number of trips — an absolute reduction of travel time and cost.

The last of the standard ways of approaching transportation problems — change of the origin of the trip — also seems applicable in light of the study's findings. Its principal form would be the construction of new rental housing in and close to the centers.
7.0. **Submarkets of Housing Sets**

One of the principal objectives of housing policy is to improve housing conditions for the user, or more specifically, the match between users' needs and priorities, on the one side, and the supply of housing types (sets) available on the other.

An analysis of the way in which the present housing submarkets, resource markets, infrastructure, and services function has suggested that resource markets are the main level on which the intervention is needed.

Changes in the housing submarkets can best be achieved by improving the functioning of the resource markets and the way in which urban services are installed and delivered. Two main directions of intervention that seem most important are:

1. to facilitate and support the owner-builder construction and the progressive improvement of the localities; and
2. to encourage more low-cost rental supply.

These two directions are related. Stimulation of the owner-builder process benefits first the owner-builders and their families, who would live in larger and better homes. It contributes also, in two ways, to the increase of rental supply. First, better conditions for owner-builder construction will attract many of the long-time renters in the center and elder colonias, who want to construct homes in the periphery but could not because of the present diseconomies and insecurities of the owner-builder situation. The housing they would vacate would then become available for new users.

Secondly, many owner-builders construct rooms or houses for rent on their plots.
A large proportion of the rental housing supply was in the past provided by investors who built tenements or series of houses exclusively for rent. This may be another important source of rental supply in the future.

Policies for assisting owner-builders in general were discussed on the level of basic resource markets.

Presently, I will concentrate on the stimulation of the low cost rental supply and the control of their prices.

Any system of rent control is very difficult to administer and to adjust to inflation. It is also counterproductive if the increase of the low-cost rental supply is an objective (see chapter II.1.1.).

One possible option that would simplify the administration and avoid the diseconomies of frozen rents, is a law establishing a ceiling for rent at the level of a certain proportion of the assessed value of the rented property.

This would give the owners the possibility of adjusting rents to inflation, and the city the way to adjust tax revenues to increased service costs. In the colonias populares, however, rental housing is so dispersed and so easy to hide that the implementation of rent controls would be impossible anyway. The more feasible way to control prices is through assuring a sufficient volume of supply and preventing the monopolization of the rental market.

This implies providing incentives for the largest possible number of suppliers. Credits for the construction of rental housing should be available. This should not be difficult to implement as rooms and houses for rent are usually constructed when the family has already secure
land tenure and a large part of its own dwelling built. Both could, therefore, serve as a collateral if necessary.

The policies which are suggested for owner-builders -- increasing the availability of appropriate construction materials, simplifying building permits and lowering their costs, providing technical assistance, etc. -- would also increase the supply of rental housing.

Another factor is the capacity of the infrastructure networks and services. They should be designed to serve a larger population when the area starts to accommodate renters.

It is also important to note that renters have a usually higher priority for access to employment centers than owners do. Consequently, not every locality is appropriate for rental housing. This potential can be increased by the provision of good and inexpensive public transportation.

Another important consideration applicable to all rental supply is the level of taxes for rental units. If too high, they may result in a disincentive for any new construction of rental housing.

One possible option would be the preferential treatment of low-cost rental housing (defined for example, as costing less than 20 percent of the official minimum salary for a room with shared utilities) to permit an automatic adjustment to inflation, freeing up to 2 or 3 of these units from any taxes.

The problems of the vecindades in the central areas require additional measures. The central areas have a lot of unbuilt land (over 40 percent of the intermediate ring around the center, according to INDECO). In the areas best suited for the new vecindades, land prices are often too
high to permit both low rents and attractive profits for investors. The only possibility seems to be a leasehold of publicly owned land, specifically for this kind of construction. Some rent limitation mechanism (a proportion of the official minimum salary, or the interest on investment adjusted to inflation are two different approaches) could be included in the leasehold contract. The time limitation on the lease should be long enough to attract investors, but also short enough to give the public sector the assurance of recapturing the land when it would be more desirable to put it in other use.

To discourage the monopolization of the market by a few large vecindades landlords (the present situation in some central areas of Mexico City) it seems desirable to introduce preferential treatment (for example, with property taxes and taxes on income from rents) for those vecindad owners who live within this property.

Another problem of the vecindades are the existing frozen rents. It seems that an immediate suspension of rent control before an increase of supply and the creation of better conditions for owner-builders will be counterproductive. It would result in a dramatic increase of rents, much over the possibilities of payment for many of the tenants.

After the supply is increased, a gradual decontrolling of rents would bring them to a level corresponding to the average rate of interest on their market value or to a level corresponding to the economic rent for the new vecindades in the same area.

In my sample of the central vecindad area of Tepito, for example, only two of the thirty-five families will not be able to pay rents of 200-250 pesos a month (the majority could pay double this amount).
290-250 pesos is the level of economic rent for a dwelling in a new vecindad of a good quality if the costs of land were controlled (for example, through the leaseholds proposed above).

In the same area of Tepito, fifteen out of the thirty-five interviewed families would go to the periphery to build, or buy, their own houses if rent control were terminated.

The ciudades perdidas are another rental housing set that requires a separate discussion. The present policies for their eradication and the relocation of the families to the peripheral housing projects have had disastrous effects on family economies. Their subsistence depends on the income of a number of contributors, almost all employed very near to the ciudad perdida.

When relocated, many will not be able to continue their work. Fixed level, high and regular mortgage payments are bound to conflict with the irregular family incomes.

In the project, they get a much better physical quality of housing. Their priorities are, however, very different. They have a very low priority for housing in general (compared with other expenditures). Within the housing set, itself, they have a much higher priority for proximity to centers than for physical standard.

Analyzing their priorities and capacities of payments, the present users of the ciudades perdidas are the potential clients for the new vecindades (see Table 8 page 303).

It seems very likely that faced by the competition of the new vecindades, many of the ciudades perdidas would simply disappear.
The average payment (in 1972) of 122 pesos a month in the ciudad perdida La Marranera (148 in Buenos Aires, and 110 in San Pedro X), would be low but still economically feasible, as a rent in a minimum standard commercial vecindad. Double that amount (240-250 pesos a month) would still be around 15 percent of the average monthly family income (of 1,750 pesos a month in La Marranera), for housing of a much better physical quality, more tenure security and, most importantly, the same central location. 240-250 pesos a month is also only 50 percent of the total monthly cost (mortgage, taxes, utilities, compulsory life insurance, and added transportation cost) of the cheapest subsidized housing project that the government is able to offer (always far on the periphery).

In some cases, with appropriate credit and tax incentives, the ciudades perdidas could be rebuilt into vecindades.

However, in ciudades perdidas there is a minority group of very poor families who cannot afford even the cheapest vecindades. They may not be able to spend more than 50, or even 25, pesos per month on housing.

Between the twenty-six families interviewed in La Marranera and Buenos Aires, there was one such situation. One could argue that the problems of these families are economic in nature and as such cannot be resolved with housing instruments. In most cases, this is probably so. On the other hand, however, these families need and will find some housing anyway. It is very likely that, if left alone with their extremely scarce resources against the market which definitely does not favor their interests, they will not be able to find any appropriate kind of housing. They would end up as squatters in the extreme periphery far from employment possibilities and from any hope for improvement.
There is, therefore, a need to introduce some form of relatively centrally located rental supply at the very lowest cost and standard level. At the same time, all subsidies should be avoided as they would tend to keep people from moving out even after their incomes have improved. They might also invite new migrants to come to the city.

Worker hotels with large collective bedrooms may be one of the possible solutions for single individuals.

The best solution for the very low-income families with a need for very cheap but still centrally located housing seems to be the construction of a temporary house (or shack) on the possibly least expensive rental mini-plot of land -- a demand for a certain form of legal ciudad perdida, or "rental camp."

Legal, and consequently secure, in terms of tenure and controlled in terms of basic physical safety and hygiene, these "rental camps" would also be a good alternative for many of the "infill squatters" who now live on the railway property, under the bridges, and virtually in the streets.

To give an example from my case study sample, this would be the place where the car painter and the rag picker (case #22), Rafael, could build his shack of discarded materials, if his "comadre" would not have invited him to do it in her yard.

Other beneficiaries will be some of the squatters from the far away periphery, whose very low incomes are partially a result of the big differences (both in terms of time and cost) between their present residences and the concentrations of low skill jobs. The family of Hedilberto, the vendor of roasted pumpkin seeds (case #13), is an example of such a situation.
Camps would be also a solution for some of the "Ciudadores" if the control of land speculation would eliminate this set. In order to assure the transitory character of residence in these "camps" and make it possible to locate them very near the centers, land designated for other uses in the future, but temporarily not utilized should be used.

This land would be leased by the public sector (if the land is public) or with public guarantees for the owner, to the non-profit groups or even individual investors for a limited (possibly renewable) period of time. The leasees then would install the minimal communal sanitary facilities, trace the layout of "mini-plots," and start renting.

Another new rental housing set proposed in this thesis are the "urban farmsteads." Here the basic idea is to rent peri-urban open land for a limited period like public territorial reserves for future urban development, to very low-income families for subsistence farming, that would help to assure minimum nutrition levels despite irregular incomes. This would be an important alternative for some of the peripheral squatters and some of the ciudadores.

Interventions on the housing sets oriented towards ownership, implied by this study, are exclusively on the level of basic resource markets and service provisions. I am suggesting the need of one new set: the unurbanized plots in the "urban ejidos." The concept of the urban ejidos already has some precedences, even one in Mexico City (Colonia Hidalgo). The legal formula is not clear, however, and the bureaucratic procedures are very complex.

It requires further study and an evaluation of the different alternatives that would best achieve two main objectives:
(1) give the owner-builders full tenure security; and
(2) avoid returning the land to the free market speculative game
    that would immediately outbid the poor.

The new housing sets suggested here should not be understood as alone
capable of solving housing problems. They are only one of the possible
products of the policy, and not the most important one.

If my diagnosis is correct, these sets are needed now. As the
city and its population changes other sets may be needed tomorrow.

The answer is therefore not in "providing" these sets, but rather
in rebuilding the flexible, basic, low income housing system that, with
sufficient resources and support services available to all housing suppliers,
would be capable of generating these and other new housing sets when the
demand arises.

8.0 Levels of policy intervention, central planning, and local control

8.1 Multiplier effects and risks of public intervention on different
    levels.

The low income housing system, and policy implications have been
discussed on three principal levels:

(1) housing sets, (2) infrastructure networks and services, and
(3) basic resource markets.

Public intervention was favored on the level of the basic resource
markets and the improvement of urban infrastructure and service provision,
as on these levels were found the principal causes for the housing
system's dysfunction.

Two other considerations will be added which also favor this approach.
First is the multiplier effect of each public peso invested, and second
the degree of risk of loss of investment and of default by the users.

My study of the series of public housing projects, covered by the interview sample, has indicated that they did not generate any additional investment by the users nor by the private commercial sector into housing improvement. Complete project areas were built by large contractors and additional constructions are practically nonexistent as they are usually discouraged or prohibited.

In fact the additional investment of other sectors may be less than zero -- because of subsidized interest rates, users do not even repay the government capital costs.

Beyond the limits of the project the impact is even more negative. As the supply of many building materials is limited, more projects mean less materials left for the popular sector owner-builder construction. If we add a comparison of the resourcefulness of the poor owner-builders with the wastefulness of the prestigious "low income" projects, the conclusion is obvious: the more government invests into project construction the less low income housing is built in total.

The inflation of land prices which projects aggravate makes it even more true.

Another form of government intervention on the level of housing sets is the eradication of the ciudades perdidas and the squatter areas - "solving" the housing problem of the poor by destroying the dwellings they occupy - the only ones they can afford.

It would be too ironic to try to find any positive multiplier effects of this form of "investment" into housing improvement.

The capital and the construction capacity which is now invested in projects, if used for the installation of infrastructure networks, would
generate an investment into housing and locality improvement by users and
the private commercial sector that would be higher than the total volume
of public investment. As the case histories demonstrate, 400 pesos
per family for a water main or 1200 for water and sewage mains make an
immediate investment of 2000 to 4000 pesos into bathroom and kitchen
possible. Water and electricity also permit a number of investments in
home appliances.

The data collected suggests however that the highest ratio between
public investment and the value of housing improvement, as a result of
the users' and commercial sector's input, can be achieved by intervention
on the level of the basic resource markets.

Granting security of tenure, liberalizing the building codes, and
the regulation or introduction of new taxes to curb land speculation, may
have certain political costs, but the economic costs are very low. In
fact, increased taxes or public enterprises run at a profit to provide
fair competition to the private commercial sector, should even bring
immediate revenues.

When we look at the danger of loss of invested capital, public
housing projects are obviously the worse risk. I do not have sufficiently
comprehensive data on the default rates in Mexican projects to make any
generalizations. However, the Latin American average of default of pay-
ments in public housing seems to be between 40 and 60%. (60% for the
Alliance for Progress projects). The usual poor maintenance and insti-
tutional limitations imposed on users make projects appreciate in value
more slowly than other real estate. Some are so devastated that they
require a complete "urban renewal" a decade after being built (Nonoalco-
Tlateloco) in order to retain any use - and hence, commercial value.
In contrast, there were no defaults of repayments on service installation costs in the cases where the kinds and quality of services, and the consequent costs were discussed and agreed upon with the community. There are at present some problems with the repayment of the comprehensive service in Cd. Netzahualcoyotl. However, this program was imposed by the government; its content does not respond to the needs and priorities of the users. Many doubts were also raised about the ways in which funds collected for service improvement have been used.

On the level of the basic resource market there are virtually no risks of defaults by users or of the decapitalization of programs, except because of their possible misuse by corrupt administrators. However, even this kind of risk is reduced, since interventions on the resource markets are mainly of a legislative nature.

As such it does not allow as many possibilities of corruption as in the case of specific programs or even services where the eligibility and final selection of the beneficiaries is determined for each user or group of users.

8.2. Public policy as a framework for local action and the role of the professional.

In section III.1.1, I have discussed the immense variability of specific housing demands and the impossibility of prepackaged projects, designed for an "average" user, to meet the diverse needs and priorities of families.

Only a system of diversified local suppliers, many of them "self-suppliers" (=owner-builders), can meet this diversity. The same applies to the needed variety of rental supply.
This locally controlled system can function only if the basic resources of which housing is built - land, technology, and credit - are available to all who are able and wish to build, and if their activity is coordinated into an orderly urban growth process which will result in the well functioning of the metropolitan area as a whole.

This can be achieved only through central planning and the control of the distribution and use of those scarce resources, especially land, and the provision of main infrastructure and service networks.

This central planning has to be primarily legislative in nature, providing the rules and limits for the local construction, exchange, and use of housing.

This simplified model implies two principal roles for the planning professional.

On the local level he may be working as an advisor to individuals and to communities helping them to increase the effectiveness of their actions.

On the central level his input is needed to plan the general urban growth pattern, to give the legal framework for the local actions, and to assure the availability of the basic resources and the support infrastructure, which they need.

The local level work in general includes one or more stages of housing action: promotion, design, and construction, and use and management. The forms of professional intervention on this level may include all kinds of legal and technical advice: help in the development of the community organizations, cooperatives, and local businesses, the physical design and organization of construction (especially of the community
projects), helping to articulate demand for policy changes, assisting in contacts and negotiations with the city authorities or with the sectoral government agencies (that provide most of urban services) etc. In other words, the professional intervention on the local level would have a primarily operational and educational character of helping the "actors" of the housing process - the users and local suppliers - "play their game."

On the central level the main input of the professional would be advising those who make decisions about the use of basic resources and the distribution of services. His function here is the development of the "rules of the game," or the general limits for the unlimited variety of forms of local action.

The work is therefore primarily normative in character, and its instruments are mainly legal.

The function of guiding the general urban growth and providing the framework, resources, and support for local action, to assure its efficiency and equity should be probably the only function of the central intervention. In the present situation, with all the dysfunctions of the housing system described in this thesis, there is also a need for intervention on the specific housing submarkets, to increase their supply and reduce dysfunctions. This may mean specific centrally sponsored actions, such as the promotion of investments into rental housing and especially into the vecindades, which would require the expropriation of some centrally located underused land and leasing it to investors. Another example, already existing, are some actions of tenure legalization or service provision.
Such actions did not exist and were not necessary before the breakdown of the basic low income housing system.

Probably they will also be unnecessary when barriers on the supply side are removed and the system will start to function again.

At present these actions serve a double purpose: they directly improve the housing conditions of the low income population, and help to develop new routines for serving this population in the future.

These new routines when they are no longer "actions" but rather standard procedures, permit the building of the institutional basis of a system for central planning and providing of basic supports for the locally controlled housing action.

8.3 Note on problems of policy implementation.

The policy implications of the thesis should not be understood as complete recommendations. More profound study, especially of the basic resource markets, will be necessary to formulate the policies and strategies for their implementation.

The execution of the suggested policies will meet numerous obstacles. They will be mostly political, and - therefore - legal, as a consequence of the economic interests of the present power elites of the country.

A lack of resources is, in the case of Mexico, a much less important obstacle than the distribution of control over existing resources and over political power which enables the extension of this control to new areas.

The speculative land market, the most difficult and most important field of intervention, is the best illustration of that situation. Any proposals to expropriate and nationalize the urban fringe areas are not
likely to be implemented because a substantial proportion of this land belongs to the members of the ruling elite, or even government, who are not likely to expropriate themselves.

One of the main ways in which many government officials built their personal fortunes was through the acquisition of large portions of periurban land and the use of decision power over the infrastructure investments to prepare it for development and appreciate its value. (The entire history of growth in Mexico City provides examples of this - the main "avenidas" of the city of the 1930's, the high income areas of Pedregal de San Angel (illegally expropriated ejido land), Ciudad Satelite, or the very recent (1974) "miracles" of the land market near the new urban superhighway extension Picachio - Ajusco. This tradition of land speculation by government officials was in fact initiated in the times of Benito Juarez and the Reforma (heralded now as one of the most progressive periods in the country's history). These groups would oppose the introduction of laws which would prevent land speculation.

However, some policies may be easier than others. The creation of land reserves from ejido land and subdividing them as urban ejidos (see p. 416) could preempt the possibility of speculative gains by the private real estate industry but would not affect any present private ownership. The simultaneous provision of attractive options for alternative investment in industry, construction, etc. might further reduce the opposition.

The imposition of high capital gain taxes and new high taxes on unutilized land seems simpler in technical legal terms than the develop-
ment of land reserves and "urban ejidos." Politically, it will probably be much more difficult. However, the main objective of forcing the development of vacant land within the city and of lowering its price, might be supported by the construction industry, (including construction materials, and contraction) and by industrial investors. Another possible source of support might be the groups in the government who are uncommitted to land speculation and interested in increased city revenues, and the unions, whose many members are, as owner-builders, suffering from the inflated land prices.

Finally, an important consideration is that the concept of urban land reform (such as the creation of land reserves, the increase of taxes, the transfer of controls, the introduction and promotion of communal ownership, etc.) would be very much within the tradition of the political rhetorics of the ruling revolutionary-institutional party (PRI), and within the idea of the "continuing revolution" (revolucion en marcha). Therefore, it might be considered by the PRI as means to regain its "revolutionary" credibility and generate popular support when it becomes politically necessary.

Implementation of the suggested credit programs of small home-improvement loans and of loans for local contractors, craftsmen, and building material distributors should not generate substantial opposition. An aspect of these programs, which particularly requires further study are the forms of administrating the large quantity of relatively small loans. An expansion of these loan programs and the introduction of larger loans for the construction of new vecindades, the addition of rental units to family homes, and finally mortgages for lower income groups would require large funds.
Utilizing FOVI funds, and, partially, INFONAVIT funds for this purpose is likely to meet stiff opposition of the construction industry, which is interested in the continuation of the present policy of using them for housing projects. The architectural profession is likely to be another obstacle, as the large majority of architects today favor the continuation of the project approach which depends on the present use of FOVI and INFONAVIT funds. In this respect, the reform of the credit system is related to the reorganization of the construction industry.

It seems that the interest of the construction materials' industry and of contractors may diverge with respect to owner-builders, and to the other forms of decentralized housing provision, and, consequently, to the use of the low interest loans of FOVI and INFONAVIT funds to increase these kinds of housing supply.

If the support of owner-builders and other constructors will mean an increase of the aggregate demand for principal construction material, the material producers are likely to support suggested policies. There may also be a split between large- and small-scale suppliers, with smaller suppliers supporting the pro-owner-builder policies. The importance of the small suppliers may increase with time if credits are available to them, as numerous technologies of a small scale production of construction materials, at low cost have been recently developed (including cement production).

The only exception would be the producers and importers of some specialized materials like aluminum window and door profiles, or prefabricated wall-curtains, which are demanded only by project housing.
Problems with large contractors may be more difficult. However, if the proposed new approach generates enough work in utility networks and other services to compensate for lost project construction, the opposition of these groups may diminish. A helpful factor is the lack of any large contractors with a long term housing experience. They usually specialized in large public works and industrial projects and only recently, since the creation of INFONAVIT in 1971, entered the housing field.

For the industries producing construction tools and machinery, the situation is somewhat similar. The decrease of project construction reduces the demand for some kinds of equipment. Large infrastructure works are likely to compensate for this decrease however. In addition, owner-builder and other local construction could be greatly improved by an increased use of appropriate equipment. A further increase of the owner-builder construction volume, and the liberalization of the building code to permit new tenement construction, would produce even more demand for certain kinds of tools and equipment.

In terms of timing, some interventions in different resource markets are interdependent. For example, a sufficient supply of new plots at non-speculative prices (but not necessarily the control of the entire land market) is necessary before the introduction of mortgage loans for the purchase of land and the construction of a house by low income families (otherwise the land prices will go up and new credits, instead of increasing the owner-builder construction, will go into the pockets of the land speculators).
However, home-improvement loans, and loans to the local suppliers of housing, materials etc., can be introduced immediately.

Rechanneling all the project funds to support the local housing suppliers and owner-builders, and abandoning project construction may be difficult. However, policies of support, and especially removing the barriers such as inappropriate building codes or the lack of small home improvement credits, can be an important first step that would enable the localized housing industry to prove its merits more clearly, and facilitate the further evaluation of policies.

With the improvement of service provision, three kinds of obstacles can be expected: (1) a lack of funds and technical capacity for large service provision programs, (2) a lack of experience, in the service supply institutions, in designing a service supply which originates with the user and is gauged to his payment schedule and priority of sequence, and (3) gradual service provision.

However, these obstacles seem possible to overcome: Funds are necessary for the large scale front end investments, but these will be repaid by the users. In the subsequent areas to be services, the earlier customers' repayments may serve as seed money for the new ones, following the principal of a revolving fund. Initial funds should be rather easy to receive from the World Bank Group, as these kinds of loans are presently one of the priorities of IBRD.

It would be even better to avoid further foreign indebtedness and utilize the INFONAVIT and FOVI credits for this purpose. However, this may be more difficult from a political point of view. The problem of readjusting old institutions to new modes of serving the population should
be studied more in detail for each specific case. Some general propositions have been given towards the end of section 8.2, p. 476.

The supply of new housing sets that are not available at present should not, in the long run, require any affirmative action by the government.

The legal framework, and the structure of the basic resource markets and the service institutions, should permit the creation of a new supply in response to new demand. The sets proposed at present need some affirmative action, but the main condition of their implementation is in the restructuring of the law and of the basic resource markets.

An important tactical problem is the ideological justification of allowing the construction of new vecindades and the provision of rental camps, and urban farmsteads (which would be "substandard housing"), against which a lot of propaganda was directed in the last quarter of a century (especially against the vecindades).

Two options are possible here. One is a completely open and well publicized new definition of low income housing problems and solutions. If such an open admission of past misunderstandings and policy errors is difficult, one could give new sets the names maximally consistent with past party rhetoric - calling the new vecindades "minimum cost collective housing," the new legal ciudades perdidas (rental camps) "intermediate" or "temporary residence camps" etc.

The last implementation issue, that I will discuss, are the subsidies. Their use is making programs more costly for the government, and consequently, limits the number of the population served. Subsidies, if applied only in the major cities, also produce artificial economies for the users
and may invite immigration and induce further urban growth. Any appreciation of the relative importance of housing vs. other user needs clearly suggests that subsidies, if at all, should first be used to increase employment and other opportunities. My analysis of migration suggested that they should be used in areas that export population and not in the principal metropolitan cities.

If any subsidies at all would be used in the housing field, they should be restricted to the hinterland.

These were some of the implementation problems of governmental intervention.

At least equally important would be a discussion of the potentials and problems of grass root political action as a way of pressuring for government policy changes as well as the means of creating alternative production modes, service institutions, and precedents.

Those will have to be left for the further study. The focus of this thesis was on the implications for public sector intervention, as the public officials and professionals working for public housing and planning agencies are far more likely to come across this material than the grass root political activists.
LOW-INCOME HOUSING SYSTEM IN MEXICO CITY

by

Tomasz Leopold Sudra

Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy
at the
Massachusetts Institute of Technology

August 1976

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INTRODUCTION

1. In many urban metropolitan areas, particularly in the so called "developing countries," (see footnote #2), more than half of the land area is devoted to low income housing. Its growth is accelerating in virtually all large cities. In Mexico City, for example, low income housing increased from 40% to 70% of the total developed area between 1950 and 1975. Yet this is undoubtedly the least understood component of urban growth and change.

2. The low income population is usually defined as one with earnings below a certain level, for example, the officially established minimum wage.

For the purpose of this study I have defined low income in housing terms as income which is insufficient to afford the unsubsidised housing of the minimum standard satisfying the existing building codes and regulations.

A precise definition of the number of households and persons in this situation is not possible. Census data includes earnings per person employed, but not the family income. In the lower income strata most families have more than one income contributor. Income stability is at least as important as its absolute level when it comes to the possibility of renting or of a mortgaged purchase of an apartment or house. Households with an unstable income, though not even very low, will not be able to afford either of the two.

Income stability data also is not available. Many informal earnings and the non-monetary incomes are not accounted in the official statistics. Consequently, only a very approximate number may be given, and this is 70% of the metropolitan area population. In addition, there is a certain proportion of families who can afford free market contractor built housing and choose the incremental owner-builder process, the most typical low income route to home ownership. Also, the so-called "social interest housing" mostly serves the middle income population, although the low income groups are used to justify the subsidies.

Both of these population groups are living in areas which are either primarily low income or were built for low income families. On the other hand, there are low income households living outside the low income areas. Servants in high and middle income districts of night guards in industrial or office areas are such cases.

Consequently, the low income housing system cannot be described as one serving the low income population only, nor as one functioning in the areas of the city inhabited by low income people. It is predominantly so, but it is important to remember that other income groups may choose the same housing goods and services or that some poor may live in other areas.
The low income housing system is connected with housing serving other population groups, through the markets of basic resources (land, credit, and markets of construction industry) and through the networks and systems of service provision. The needs of higher income sectors are always served first, and they control the basic resource markets.

The direct link between low income and upper income housing, that is provided in the U.S. and Western Europe by some degree of downward filtering does not exist. Two exceptions, that are discussed in later chapters, are: the conversion of some old, city center mansions into tenements in the 1920's, and the upward filtering of subsidized project housing away from their "target population."

3. The term "developing" country is still commonly used but in most of these countries there is little evidence of development that would justify such a name. It also implies a desirable direction of change following the model of so called "developed" countries. This term will be used in " " or will be discussed as low income countries.

4. The sequence of development and consolidation of the new low income settlements is very similar: a gradual increase of densities, of rental housing supply, and of local employment opportunities.

The location of different types of housing in relation to employment and service centers, the physical design of these different types, and tenure arrangements are also similar.

On the demand side, I have identified the same primary demand profiles: beginners (migrants "bridgeheaders," using Turner's typology, or new urban families) and families with larger urban experience and some savings margin.

The first have priority for cheap rental close to employment opportunities, the second for land plots for owner-builder construction.

The demand for other types of housing was present mainly in substitution for shortages of these basic two.

Inappropriate building codes and the lack of land market controls were among the main causes of these shortages.

(Government interventions neglected those problems however.)

They were centered on the eradication of "substandard" shanty towns tenements, and on the construction of subsidised low income housing projects. Projects housed mainly the middle class.

The land for new low income owner-builder housing was not designated and planned. The new low income areas were settled spontaneously and illegally. They were incorporated into cities at later dates. Due to unplanned layouts, the costs of servicing were higher.
List of such similarities could be continued. Recently, some new policies resulted in more variations. In general terms, however, one could still compare the level of development and complexity of low-income housing of Sao Paulo to present Mexico City, of present Lima, Peru to Mexico City in the 1960s, or of present La Paz, Bolivia to Mexico City of the 1950s.

The conclusions from the Mexico City study were used as a base for developing a working hypothesis of the low-income housing system in Lima and S. Paulo. It was confirmed in Ismailia. The Sao Paulo study is still in the early stages, but a preliminary evaluation of available secondary data indicates even greater similarities.
5. As a departure point from which housing is described as a process, Turner uses a simple feedback model including *actors*, *activities* and *ends* (or achievements) within the context of being modified by those very activities. (See page 437.)

Actors control various resources and operate within different markets. They develop various activities towards their respective immediate ends and long range goals. The feedback loops take the form of expectations of needs to be satisfied, as very few would undertake any action without expecting some positive outcome.

The expectations bring us the notion of needs and priorities, another important component of Turner's concept which I shall discuss later in this section.

The quality of the shelter is only one of the ends of the users. The other typical ends, in general the more important ones, may be the proximity to work and relatives, or the security of tenure. Turner also noticed that the quality of the shelter is independently variable from the socio-economic situations of families which was and still is contrary to the majority of the assumptions on which low income housing policies are developed.

Another important contribution Turner makes to the theory of the low income housing system is in its disaggregation into three basic levels: subsystems, components, and elements. A specific combination of the model variables (actors, activities and ends within a context) constitute a subsystem - for example: vecindades (low cost tenements) of colonias proletarias (low cost subdivisions).

The system as a whole and its subsystems consist of components which can be physical and non-physical. Networks, spaces, and structures are the main categories of the physical components. The whole system with its subsystems and components are built of elements such as land, tools and skills, building materials, and exchange systems.

A systemic approach to housing is also represented by other scholars such as Forrester (1968), or Araud (1972); both have tried with rather limited success and with no practical testing, to develop mathematical simulation models of housing.
A Simple Feedback Scheme from Bertalanffy, General System Theory 1968 p.43


* Context 1 & 2 = before and after modification by the system observed
** stimulus is assumed to be the equivalent of opportunity in housing

**T**urner's model of housing system,
as presented in Notes for Housing Policy,
Auris and InDeCo, Mexico City, and Cambridge, Mass., 1971
TURNER'S HYPOTHESIS OF HOUSING PRIORITIES
A theory of housing as a process places special importance on user's decisions and their motivations, particularly on their relative priority for different needs to be satisfied with a change of their housing situation. According to Turner (Turner J., Fichter, R. ed.; Freedom to Build, chapter 7 "Housing as a Verb," p. 161.), "demand is a dependent variable of the anticipated costs and benefits of the action and products required to meet the demand; that is, the felt needs of the actors, and the means they possess and are willing to invest."

As a result of his Peruvian studies, Turner proposed that the basic housing needs are: location in terms of proximity to the main urban center (as the concentration of the lower skilled employment), tenure in terms of freehold ownership and shelter in terms of the modern standard dwelling. On the basis of empirical data from family case studies, he suggested a certain correlation between the relative priorities of those needs with the income level of the household. As indicated on page 438, an increase in income decreases the importance of location in terms of proximity to unskilled jobs, and increases the importance of the shelter's physical quality. Freehold ownership is inconvenient for the very poor; it rapidly increases in importance becoming essential for the low and lower middle income groups and it decreases to mere convenience as the income rises further. At any particular income level, the resources and priorities determine different families' investments in housing.

Turner compares housing needs with the more general vital needs arguing that the first ones are dependent variables of the latter ones. As a tentative hypothesis, he suggests a correspondence between the housing needs of location, tenure, and shelter and the three vital needs of opportunity, security, and identity.

6. The concept of the housing set indicates a similarity to Turner's idea of the housing subsystem. There are, however, important differences. Although the concept of the housing subsystem is a very useful theoretical model indeed, it is too specific for the practical purposes of a metropolitan housing system's analysis. This concept, including both the supply and the demand side of the housing market, permits an analysis of the system's mismatches; yet, at the same time, if used as a main analytic category, it would result in too many analytical components. The subsystems, even when generalized to main types, are also supply determined. Low cost tenements and the people living in them comprise a collection of subsystems, but the main category within which the analysis is conducted, the low cost tenement, is a supply category – a type of combination of housing goods and services or "set."
### TABLE 1: Intercensal Rates of Population Growth in Mexico: 1900 - 1970

<table>
<thead>
<tr>
<th>YEAR</th>
<th>1900</th>
<th>1910</th>
<th>1920</th>
<th>1930</th>
<th>1940</th>
<th>1950</th>
<th>1960</th>
<th>1970</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCREMENTAL RATE OF GROWTH (%)</td>
<td>1.08</td>
<td>-0.51</td>
<td>1.70</td>
<td>1.75</td>
<td>2.65</td>
<td>3.03</td>
<td>3.35</td>
<td></td>
</tr>
</tbody>
</table>

The 1970 rate of population increase was 3.45% and in 1974, 3.53%.

1 Period of the Mexican Revolution

### TABLE 2: Birth Rates and Death Rates in Mexico, 1900 - 1974

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BIRTH (0/00) RATES</td>
<td>30.5</td>
<td>32.0</td>
<td>31.4</td>
<td>50.8</td>
<td>48.1</td>
<td>46.3</td>
<td>44.9</td>
<td>43.1</td>
<td>43.1</td>
</tr>
<tr>
<td>DEATH (0/00) RATES</td>
<td>--</td>
<td>33.2</td>
<td>25.1</td>
<td>26.6</td>
<td>23.2</td>
<td>16.2</td>
<td>11.2</td>
<td>8.6</td>
<td>7.8</td>
</tr>
</tbody>
</table>

### TABLE 3: Distribution of Population by age in Mexico 1930 - 1970.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>1930</th>
<th>1940</th>
<th>1950</th>
<th>1960</th>
<th>1970</th>
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<tr>
<td>PROPORTION OF POPULATION AGED:</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>0 - 14</td>
<td>40.9</td>
<td>42.6</td>
<td>43.1</td>
<td>45.8</td>
<td>46.2</td>
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<tr>
<td>15 - 64</td>
<td>56.2</td>
<td>54.5</td>
<td>53.6</td>
<td>50.9</td>
<td>50.1</td>
</tr>
<tr>
<td>65+</td>
<td>2.9</td>
<td>2.9</td>
<td>3.3</td>
<td>3.3</td>
<td>3.7</td>
</tr>
<tr>
<td>DEPENDENCY RATIO</td>
<td>0.78</td>
<td>0.83</td>
<td>0.86</td>
<td>0.96</td>
<td>1.00</td>
</tr>
</tbody>
</table>
Sources for Tables 1-3:

El Colegio de Mexico: *Dinamica de la Poblacion de Mexico*, Mexico, D.F., 1970


Summarized by R. Cuca of the EDI, World Bank, 1974, mimeo.


11. Term introduced by Mishan, in "Towards Economic Growth and Social Justice" *International Labor Review*, Geneva 1971 describes a model of development based on the growth of the modern sector industries without consideration of their labor force absorption capacity nor the loss of employment in the traditional sector as a result of its underinvestment and the loss of markets to the modern sector. Mishan contrasts this "crash modernization" with "dual development" (emphasis on the modern sector, but some investments directed into the traditional sector to maintain its employment potential) and "progressive development" (investments concentrated on the modernization of the traditional sector, expansion of its markets and increase of its employment potential; investments in the modern sector are limited to those that do not compete with traditional market production, and support its expansion).


13. Edmundo Flores in *Vieja Revolucion Nuevos Problemas*, Mexico 1970, estimates the underemployed portion of the economically active population at 30-40 percent. A more recent study by the Study Group for Unemployment Problems of Commision Nacional de los Salarios Míimos suggests a proportion of 44.8 percent underemployed, or 5.8 million of the 13 million in the labor force. (Excelsior, March 18, 1974).

<table>
<thead>
<tr>
<th>Deciles (10% of families)</th>
<th>Average Monthly Income</th>
<th>1950</th>
<th>1958</th>
<th>1963</th>
<th>Deciles</th>
<th>Accumulated</th>
<th>Deciles</th>
<th>Accumulated</th>
<th>Deciles</th>
<th>Accumulated</th>
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<tr>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>258</td>
<td>297</td>
<td>315</td>
<td></td>
<td>2.7</td>
<td>2.7</td>
<td>2.22</td>
<td>2.22</td>
<td>1.96</td>
<td>1.96</td>
</tr>
<tr>
<td>II</td>
<td>325</td>
<td>375</td>
<td>356</td>
<td></td>
<td>2.4</td>
<td>6.1</td>
<td>2.80</td>
<td>5.02</td>
<td>2.21</td>
<td>4.17</td>
</tr>
<tr>
<td>III</td>
<td>363</td>
<td>441</td>
<td>518</td>
<td></td>
<td>3.8</td>
<td>9.9</td>
<td>3.29</td>
<td>8.31</td>
<td>3.22</td>
<td>7.39</td>
</tr>
<tr>
<td>IV</td>
<td>421</td>
<td>516</td>
<td>598</td>
<td></td>
<td>4.4</td>
<td>14.3</td>
<td>3.85</td>
<td>12.16</td>
<td>3.72</td>
<td>11.11</td>
</tr>
<tr>
<td>V</td>
<td>460</td>
<td>608</td>
<td>738</td>
<td></td>
<td>4.8</td>
<td>19.1</td>
<td>4.54</td>
<td>16.70</td>
<td>4.59</td>
<td>15.70</td>
</tr>
<tr>
<td>VI</td>
<td>526</td>
<td>789</td>
<td>834</td>
<td></td>
<td>5.5</td>
<td>24.6</td>
<td>5.52</td>
<td>22.22</td>
<td>5.19</td>
<td>20.89</td>
</tr>
<tr>
<td>VII</td>
<td>669</td>
<td>842</td>
<td>1,056</td>
<td></td>
<td>7.0</td>
<td>31.6</td>
<td>6.29</td>
<td>28.51</td>
<td>6.57</td>
<td>27.46</td>
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<tr>
<td>VIII</td>
<td>823</td>
<td>1,147</td>
<td>1,592</td>
<td></td>
<td>8.6</td>
<td>40.2</td>
<td>8.57</td>
<td>37.08</td>
<td>9.90</td>
<td>37.36</td>
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<tr>
<td>IX</td>
<td>1,033</td>
<td>1,820</td>
<td>2,049</td>
<td></td>
<td>10.8</td>
<td>51.0</td>
<td>13.59</td>
<td>50.67</td>
<td>12.74</td>
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<td>X</td>
<td>4,687</td>
<td>6,605</td>
<td>8,025</td>
<td></td>
<td>49.0</td>
<td>100.0</td>
<td>49.33</td>
<td>100.00</td>
<td>49.90</td>
<td>100.00</td>
</tr>
<tr>
<td>5.0</td>
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<td></td>
<td></td>
<td>8.8</td>
<td>8.8</td>
<td>10.70</td>
<td>10.70</td>
<td>11.58</td>
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<tr>
<td>5.0</td>
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<td></td>
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<td>10.2</td>
<td>49.0</td>
<td>38.63</td>
<td>49.33</td>
<td>38.32</td>
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<tr>
<td>TOTAL</td>
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<td>1,608</td>
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<td>100.0</td>
<td></td>
<td>100.00</td>
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15.

ANNUAL AVERAGE GROWTH OF REAL FAMILY INCOMES BY PERIOD

<table>
<thead>
<tr>
<th>Deciles (10% of the families)</th>
<th>1950-1958 (1)</th>
<th>1958-1963 (2)</th>
<th>1950-1963 (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1.8</td>
<td>1.2</td>
<td>1.6</td>
</tr>
<tr>
<td>II</td>
<td>1.8</td>
<td>-1.0</td>
<td>0.7</td>
</tr>
<tr>
<td>III</td>
<td>2.4</td>
<td>3.2</td>
<td>2.8</td>
</tr>
<tr>
<td>IV</td>
<td>2.5</td>
<td>3.0</td>
<td>2.7</td>
</tr>
<tr>
<td>V</td>
<td>3.6</td>
<td>3.9</td>
<td>3.7</td>
</tr>
<tr>
<td>VI</td>
<td>5.2</td>
<td>1.1</td>
<td>3.6</td>
</tr>
<tr>
<td>VII</td>
<td>2.9</td>
<td>4.6</td>
<td>3.6</td>
</tr>
<tr>
<td>VIII</td>
<td>4.2</td>
<td>6.7</td>
<td>5.2</td>
</tr>
<tr>
<td>IX</td>
<td>7.3</td>
<td>2.4</td>
<td>5.4</td>
</tr>
<tr>
<td>X</td>
<td>4.3</td>
<td>3.9</td>
<td>4.2</td>
</tr>
<tr>
<td>5.0</td>
<td>6.8</td>
<td>5.4</td>
<td>6.2</td>
</tr>
<tr>
<td>5.0</td>
<td>3.8</td>
<td>3.6</td>
<td>3.7</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4.2</td>
<td>3.8</td>
<td>4.1</td>
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</table>

Source: See footnote 14.
<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>GINI COEFFICIENT</th>
</tr>
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<tbody>
<tr>
<td>Argentina</td>
<td>0.46</td>
</tr>
<tr>
<td>Brasil</td>
<td>0.52</td>
</tr>
<tr>
<td>Colombia</td>
<td>0.47</td>
</tr>
<tr>
<td>El Salvador</td>
<td>0.53</td>
</tr>
<tr>
<td>Venezuela</td>
<td>0.53</td>
</tr>
<tr>
<td>Panama</td>
<td>0.48</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>0.50</td>
</tr>
<tr>
<td>Mexico (1963)</td>
<td>0.55</td>
</tr>
<tr>
<td>U.S.</td>
<td>0.39</td>
</tr>
<tr>
<td>Britain</td>
<td>0.39</td>
</tr>
<tr>
<td>Japan</td>
<td>0.31</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>0.28</td>
</tr>
<tr>
<td>Denmark</td>
<td>0.23</td>
</tr>
<tr>
<td>Mexico (1969)</td>
<td>0.58</td>
</tr>
</tbody>
</table>

Gini Coefficients in Selected Countries.

Sources:
17. In 1965, out of the 32 states and territories of Mexico, 8 with the highest average per capita income (over 40 US $ per month of 1965), inhabited by 30.3 percent of the country's population, benefitted from 55.8 percent of the total state government spending in the nation. 29.3 percent of the population was covered by social security benefits, and 80.9 percent was using electric energy. They produced 59.6 percent of all industrial goods, and 24.5 percent of the population was employed in agriculture. In contrast to this, 17 of the poorest states and territories (with average per capita incomes below 27 US $ per month in 1965), with 43.7 percent of the national population received only 22.1 percent of the state government spending, 6.7 percent of their population was covered by social security benefits, and 41.4 percent was using electric energy. Those states had 72.1 percent of the population in agriculture and contributed 12.9 percent to the national industrial production (Navarrete 1971). A comparison between all the states of the Republic clearly indicates that the most rapid growth and the highest levels of development are located in the Federal District and in the states of the north, close to the US border. The only major exception seems to be the State of Mexico which demonstrates a relatively low level of development but indicates very rapid growth. The fact that it surrounds the Federal District and therefore shares an increasing proportion of the Metropolitan Mexico City growth, confirms the general pattern. (See table on the following page)

18. According to the VIII Census Industrial, 1965, in the Federal District and the State of Mexico, the modern sector employed 58.5 of the industrial labor with 67.3 percent of invested capital (the rest corresponds to the traditional sector). In the most developed state of the north, Nuevo Leon, the modern sector employs 66.6 percent of industrial labor with 78.2 percent of invested capital.

In one of the less, but not least, developed states, Puebla, only 18.7 percent of employment was provided by the modern sector, with 17.7 percent of capital invested in the modern industry. Proportions corresponding to the traditional sector were, conversely, 81.3 percent of employment and 82.3 percent invested capital. Wages and benefits are consistently higher in modern sector industries, but its labor absorption capacity per unit of production is much lower.
Indices of Socio-Economic Development of Federal Entities (States, Territories, and DF) in Mexico 1950-1960

Source: Navarrete I. (1971)
INCOME DISTRIBUTION IN D.F. (FEDERAL DISTRICT) AND IN THE MEXICAN REPUBLIC
AS REPORTED BY 1970 CENSUS

Source: Projects SIAP - CIID


24.

<table>
<thead>
<tr>
<th></th>
<th>% increase of urban population</th>
<th>% increase from natural growth</th>
<th>% increase from migration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1940 - 1950</td>
<td>4.9%</td>
<td>2.1%</td>
<td>2.8%</td>
</tr>
<tr>
<td>1950 - 1960</td>
<td>4.8%</td>
<td>3.1%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

Table: Contribution of rural to urban migration to urban growth in Mexico.

25.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>average annual migration rate in 37 cities</td>
<td>1.38%</td>
<td>2.88%</td>
<td>1.9%</td>
<td>1.26%</td>
</tr>
<tr>
<td>average annual rate of natural growth in 37 cities</td>
<td>1.11%</td>
<td>1.83%</td>
<td>2.76%</td>
<td>3.26%</td>
</tr>
<tr>
<td>average national rate of natural growth</td>
<td>1.75%</td>
<td>2.65%</td>
<td>3.03%</td>
<td>3.35%</td>
</tr>
</tbody>
</table>

Table: Contribution of natural growth and migration to urban growth in the 37 largest cities of Mexico.
26. Similarly Muños suggests that migration was increasing the Mexico City population by 3.7% a year during the 1940s, 1.9% in the 1950s, and 2.9% in the 1960s. However, C. Bataillon, (La Ciudad y Campo en Mexico Central, Mexico DF, 1972, p. 152.) suggests that the proportion of migrants is continuing to decrease. According to his data, migration contributed 67% to the total population increase of the metropolitan area in the 30s, 63% in the 40s, 55% in the 50s, and 51% in the 60s. (Limits of the metropolitan area taken by Batallon are different from those of Unikel).

27.

<table>
<thead>
<tr>
<th>Country</th>
<th>average # of persons per room</th>
<th>% of dwellings with 3 or more persons per room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>1.4</td>
<td>15.3</td>
</tr>
<tr>
<td>Brazil</td>
<td>1.3</td>
<td>----</td>
</tr>
<tr>
<td>Chile</td>
<td>1.6</td>
<td>23.8</td>
</tr>
<tr>
<td>Columbia</td>
<td>1.9</td>
<td>----</td>
</tr>
<tr>
<td>Peru</td>
<td>2.2</td>
<td>33.3</td>
</tr>
<tr>
<td>Ceylon</td>
<td>2.2</td>
<td>----</td>
</tr>
<tr>
<td>Ecuador</td>
<td>2.5</td>
<td>49.0</td>
</tr>
<tr>
<td>Correa</td>
<td>2.5</td>
<td>46.6</td>
</tr>
<tr>
<td>India</td>
<td>2.6</td>
<td>----</td>
</tr>
<tr>
<td>Mexico</td>
<td>2.9</td>
<td>57.0</td>
</tr>
<tr>
<td>Nigeria</td>
<td>3.0</td>
<td>41.3</td>
</tr>
<tr>
<td>Pakistan</td>
<td>3.1</td>
<td>60.5</td>
</tr>
</tbody>
</table>

Table: Levels of Housing Overcrowding in Selected Countries

## HOUSING CONSTRUCTION BY SECTORS

<table>
<thead>
<tr>
<th>1925 to 1963</th>
<th>No. of dwellings in thousands</th>
<th>% total no. of dwellings</th>
<th>% of dwellings constructed</th>
<th>Investment in current pesos</th>
<th>Constr. in thous. per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Existing dwellings at the beginning of period</td>
<td>2,000</td>
<td>40%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(b) Public Sector</td>
<td>1,311</td>
<td>2%</td>
<td>3%</td>
<td>6,744</td>
<td>3.0</td>
</tr>
<tr>
<td>(c) Private Commercial Sector</td>
<td>1,000</td>
<td>15%</td>
<td>26%</td>
<td>nd.</td>
<td>25.6</td>
</tr>
<tr>
<td>(d) Other</td>
<td>2,769</td>
<td>43%</td>
<td>71%</td>
<td>?</td>
<td>71.5</td>
</tr>
<tr>
<td>(e) Total no. of dwellings</td>
<td>6,500(3)</td>
<td>100%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(f) Total no. of dwellings constructed</td>
<td>3,900</td>
<td>-</td>
<td>100%</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1964 to 1970</th>
<th>No. of dwellings in thousands</th>
<th>% total no. of dwellings</th>
<th>% of dwellings constructed</th>
<th>Investment in current pesos</th>
<th>Constr. in thous. per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Existing dwellings at the beginning of period</td>
<td>6,500</td>
<td>78%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(b) Public Sector</td>
<td>125</td>
<td>2%</td>
<td>7%</td>
<td>7,286</td>
<td>17.8</td>
</tr>
<tr>
<td>(c) Private Commercial Sector</td>
<td>344</td>
<td>4%</td>
<td>19%</td>
<td>nd.</td>
<td>49.1</td>
</tr>
<tr>
<td>(d) Other</td>
<td>1,317</td>
<td>16%</td>
<td>74%</td>
<td>?</td>
<td>188.2</td>
</tr>
<tr>
<td>(e) Total no. of dwellings</td>
<td>8,286</td>
<td>100%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(f) Total no. of dwellings constructed</td>
<td>1,786</td>
<td>-</td>
<td>100%</td>
<td>255.1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1971 to 1974</th>
<th>No. of dwellings in thousands</th>
<th>% total no. of dwellings</th>
<th>% of dwellings constructed</th>
<th>Investment in current pesos</th>
<th>Constr. in thous. per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Existing dwellings at the beginning of period</td>
<td>8,286</td>
<td>88%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(b) Public Sector</td>
<td>326</td>
<td>3%</td>
<td>27%</td>
<td>23.24</td>
<td>81.5</td>
</tr>
<tr>
<td>(c) Private Commercial Sector</td>
<td>254</td>
<td>3%</td>
<td>22%</td>
<td>23.965</td>
<td>63.5</td>
</tr>
<tr>
<td>(d) Other</td>
<td>596</td>
<td>6%</td>
<td>51%</td>
<td>?</td>
<td>149.0</td>
</tr>
<tr>
<td>(e) Total no. of dwellings</td>
<td>9,400</td>
<td>100%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(f) Total no. of dwellings constructed</td>
<td>1,174</td>
<td>-</td>
<td>100%</td>
<td>29</td>
<td></td>
</tr>
</tbody>
</table>

Source: As footnote 27.

(d) others = "Popular" (or "Informal") Sector
### NORMATIVE NEEDS OF HOUSING CONSTRUCTION (IN THOUSANDS) FOR THE REPUBLIC OF MEXICO (1970-1980)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Construction to absorb present deficit</th>
<th>Construction for replacement</th>
<th>Constr. to serve demographic growth</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TOTAL</td>
<td>URBAN</td>
<td>RURAL</td>
<td>TOTAL</td>
</tr>
<tr>
<td>1970</td>
<td>250</td>
<td>150</td>
<td>100</td>
<td>240</td>
</tr>
<tr>
<td>1971</td>
<td>266</td>
<td>156</td>
<td>110</td>
<td>261</td>
</tr>
<tr>
<td>1972</td>
<td>286</td>
<td>162</td>
<td>124</td>
<td>283</td>
</tr>
<tr>
<td>1973</td>
<td>307</td>
<td>100</td>
<td>138</td>
<td>306</td>
</tr>
<tr>
<td>1974</td>
<td>329</td>
<td>179</td>
<td>153</td>
<td>331</td>
</tr>
<tr>
<td>1975</td>
<td>355</td>
<td>184</td>
<td>171</td>
<td>356</td>
</tr>
<tr>
<td>1976</td>
<td>331</td>
<td>191</td>
<td>190</td>
<td>383</td>
</tr>
<tr>
<td>1977</td>
<td>411</td>
<td>199</td>
<td>212</td>
<td>412</td>
</tr>
<tr>
<td>1978</td>
<td>442</td>
<td>207</td>
<td>235</td>
<td>443</td>
</tr>
<tr>
<td>1979</td>
<td>477</td>
<td>215</td>
<td>262</td>
<td>475</td>
</tr>
<tr>
<td>1980</td>
<td>517</td>
<td>224</td>
<td>293</td>
<td>508</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4,021</td>
<td>2,033</td>
<td>1,988</td>
<td>3,908</td>
</tr>
</tbody>
</table>

Rates of present construction in thousands:
- Public sector 82 dwellings per year
- Private sector 64 dwellings per year
- TOTAL 146
- Irregular sector 149
- TOTAL 295

Source: As footnote 27.
30. That is, beginning with the plan of Cortes and not including pre-
Columbian Tenochtitlan.

31. The present administration is the first, since the Lazaro Cardenas
period in the 1930s, to carry out large rural development programs.

32. Source: Subdireccion de Planeacion, Obras Publicas, Estado de
Mexico. The population forecasts for the year 2000, for metropolitan
Mexico City, made by different institutions, vary between 27 and 30
million. The only exception is the Federal District Planning Office
with a prognosis of 19 million.

33. Estimates vary from 63 to 75%.

34. All the land capable of being urbanized with an average crude den-
sity of approximately 1500 persons per square kilometer.


37. Dr. Humberto Bravo Alvarez, Director, Departamento de Contaminacion
Ambiental de la UNAM.

38. Dr. Francisco Camacho Lacroix, president; Sociedad Medica del Valle
de Mexico.

39. D. Fox, "Patterns of Mortality and Morbidity in Mexico City," Geo-
 graphical Review. #1972.

40. Report of H. Gonzales, Governor of the State of Mexico, cited in

41. Lic. Abel Hernandez Delgadillo, Director del Servicio Publico del
Empleo, de la Secretaria del Trabajo y Prevision Social.

42. Types of housing supply described as a composite of cost, location,
tenure, shelter quality and other aspects, reflecting its multi-dimensional
characteristics.

43. Names commonly used at that time and meaning respectively "slum
area" and "horseshoe of slums."

44. I do not have precise data on migration to the metropolitan area as
a whole, but in the 1960s (1960–1970) 2.4 million people migrated to the
DF and 1.08 million to the state of Mexico (the latter number includes
also parts of the state other than the metropolitan area).

45. Data about colonia Sector Popular is derived from an unpublished
study conducted by Peter Ward of the University of Liverpool.
46. On the contrary, government renewal projects, many of which were only announced and never executed, produced a quadrupling of land prices in the central vecindad areas within 5 years.

47. Land prices per square meter may be in fact even lower in some middle income areas.


52. Ward, Peter, The Squatter Settlements as Slum or Housing Solution - Evidence from Mexico City, Lanchester Polytechnic, January 1976.

53. In the two extremes of the low income housing areas (old almost exclusively rental central areas, or currently being settled ownership subdivisions in the periphery) the housing types (sets) in use and ones available for new entries may be identical. Anywhere, however, between these two extremes the housing sets are most likely to be very different. The 10 year old colonia, for example, may contain almost exclusively ownership housing, but offers only a room, or house, rental for new entries.

In Mexico City, even in the rental areas, the very cheap, rent controlled tenements are predominant (70% of all tenements in Primer Cuadro - the historic center of the city - are rent controlled), while for new entries, the relatively expensive tenements with uncontrolled rents is the effective supply.

54. Consequently the sequence of the housing solution types (sets) predominant in the area could be hypothesized as follows:

COMMON SEQUENCE OF HOUSING SETS IN USE

(Order within each stage indicates the proportional importance of each housing type (set).)

1. Possession of land and incipient house - no security, no legal title.

2. Possession of land, and partially built house, de facto security - no legal title.
3. Ownership of land and a house in one of many stages of incremental construction.

4. Ownership of land and of complete house, room rental with family.

5. As 4 above plus rental of land and house.

6. Room rental with family, ownership of land and house, rental of land and house.

7. Room rental with family, rental of land and house, ownership of land and house, rental of apartment, rental of the room in low cost tenement.

8. Low cost tenement, rental of land and house, rental of room with family, rental of apartment, ownership of land and house.

9. Low cost tenements, rental of apartments, plus very small proportion of ownership of land and house, and of rental of the land and house.

55. These rings are, naturally, not symmetrical, and often not complete, as the low income housing areas did not grow identically in all directions.

56. As explained in footnote #42 the term subsystem is used to describe the types of combinations of housing sets (housing solution types - supply factor) and the types of socio-economic family characteristics (demand side).

57. Analyzing the in depth case studies, and the larger sample of family interviews, it was noticed that the migration motives of an exclusively economic nature are given usually by persons who came to the city alone, or by families who had decided to move a number of years after marriage. Many young families who came to the city right after marriage, give family reasons as their motives, while in reality economic opportunities were the main cause for them as well.

I did not find any single family where the "family" or "personal" reasons for migration were not in fact economic.

58. The study of COPEVI in Tomatlan (1972) (Tomatlan-Candelaria, Regeneracion Urbana, COPEVI-DDF, 1972, Cd. de Mexico, mimeo) indicates that 52% of the family heads who did respond to the question (58 persons out of 112 in the sample of 130) arrived in the city because they expected better jobs, 8% to give a better education to children, and 4% because of better health services. In total at least 64% said that they have come to improve their socio-economic situation. 23% arrived for "family reasons." 9% of the respondents had "other" reasons, some of which most likely would be related to expectations of socio-economic mobility.
The study by Browning and Feindt in Monterrey (1971), concludes, on the basis of a sample of 810 migrant families, that better work was the cause for 70% of the migration, educational opportunities 7%, and family reasons 17%. The study by W. Cornelius (1973), does not have direct data about the migration motives. However, his questionnaire has questions about the major objectives for a general improvement of the economic situation, 24% seeking permanent employment, 15% education. This amounts to 66% clearly in the category of general socioeconomic mobility. Of the remaining families 9% were preoccupied principally with health improvement, 15% with the security of tenure of the land they possess.

Only 9% mentioned an improvement of living conditions as their principle objective.

The quality of housing is one aspect of living conditions, and the relatively low importance of that factor among migrants already established in the city, seems to confirm my hypothesis of the lack of housing motives for migration.

59. Theoretical concepts about these areas, and about the intra-metropolitan migration of low income population, have changed a great deal during the last decade.

At first, up to the Turner's studies in Peru, it was generally accepted that peripheral shanty towns and squatter settlements were the reception areas of poor migrants coming into the city.

Calderon, Calle and Dorslaer (1963); cited in Brown (1972) describe the city's peripheral settlements as a "refuge" for recent migrants.

Schulman (1966) says that "...in the past two decades poor rural people have flocked to the cities, found no opportunities but stayed on in the urban fringe shanty towns squatting squalidly on the land."

Also Charles Abrams (1966) suggests that many of the urban fringe squatters are newcomers.

A very different point of view was proposed by Turner (1965, 1966) who suggested that not the periphery, but the old, dense, low quality, central housing areas were the reception centers of the migrants and the move to the periphery comes in the later stage of the urban experience.

In Turner's hypothesis on the settlement pattern of the urban poor in the metropolitan areas, developed in Lima, the city is divided into two broad areas - the center and the periphery - in which the two main groups of subsystems were located: the low cost rental area in the center, and the low cost subdivision on the periphery. The first was serving as a "bridgehead" for new migrants, while the second for "consolidation" in the city of the families, which have already developed a certain savings margin. Turner's own data from Lima as well as from studies by Mangin (1967), Ray (1966), and others confirmed those findings.
In his article "Latin American Squatter Settlements: A Problem and a Solution" (Mangin, 1967), Mangin cites results of his own research in Peru, demonstrating that in the peripheral barriadas the average length of the family head’s urban residence was 9 years and almost none of the inhabitants of the barriada were less than 3 years in the city. In the same article, Mangin also cites similar findings from such Latin American cities as Bogota, Guatemala City, Sto. Domingo, Baranquilla, Montevideo, Rio de Janeiro, Panama City and others. Also, he reports in more detail on Ray’s findings from Venezuelan squatter settlements that almost 100% of the people "come from the barrios within the city and not from the countryside."

Frieden (1965) observed that the vecindades (low cost tenements) of the center serve as a reception area for migrants. He also notes a "considerable migration" from the vecindades to the colonias proletarias, the low cost subdivisions in the periphery. In his summary in Latin American Urban Research, Morse states that: "once aimed at the urban destination, it is now widely accepted that Latin American migrants characteristically proceed to the inner city slums, which serve as staging areas for the invasion of peripheral land" (Morse 1971a:22).

However, Turner, in a 1968 JAIP article (Turner 1968), includes Lima only as an example of one particular stage of the development of a settlement and the intra-city migration process, which he calls a Midtransitional City.

The other stages are the Early Transitional City (practically without the Low Income periphery) and the Late Transitional City where the "bridgehead" function is taken over by the new, third type of zone - the inner ring around the city.

He also includes in this model a series of geographic variations. This concept demonstrates a similarity to the Burgess theory of concentric rings from the early Chicago school. It is also in agreement with the concept of rent density gradients.

In 1968 it was also formulated for the case of Mexico City by Jane Brown (1968) on the base of an analysis of the data from a large survey conducted by the Mexican Government Social Security Institute in 1962, and published in 1967 (IMSS, 1967). The Brown study proposes the division of the city into 3 zones (core, intermediate ring, and periphery) and concludes that the intermediate ring is a major reception area. This concept of three-zonal dynamics seems to be the third stage of the theory development.

Some variation of this group would be the studies that do not arrive at similar conclusions, but still suggest some clear-cut regularity. The Amato (1970) study is one of them.
In his study of the change of the spatial structure of Bogota, Lima, Quito and Santiago, Amato concludes that the lowest socioeconomic groups live farthest away from the center of the city and the middle income groups tend to live closest.

In the last category of theoretical propositions, I would place the work by Vaughan and Feindt (1972) that suggests the absence of any pattern.

Vaughan and Feindt studied the Initial Settlement and Intracity Movement of Migrants in Monterrey, Mexico separating the Primer Cuadro, the very central core, from the rest of the city (which was later subdivided into 7 concentric rings). As a result of the study they suggest no clear regularities...

"...Migrants, upon arrival to Monterrey were dispersed throughout the metropolitan area, and not very heavily concentrated in any particular section ...

...Once there, the migrants' moves within the city did not follow a simple pattern. There were moves in all directions; from the center outwards, from the outer area inwardly, and within the same radial zone. Generally, there was more movement out of the central area than out of the other parts of the city, but most of these migrants did not go to the periphery but to an intermediate location ...

... and indicate that much further research is needed in order to understand the nature of population movements in the cities.

Despite big differences these various propositions should not be seen in a complete contradiction with each other; they might be, at least at some points, complementary if we would refer them to different stages of the urbanization process.

60. These observations are confirmed by D. Vaughan and W. Feindt (1972) who found in Monterrey that 70% of the migrants of their sample (the sample of migrants was 916 families out of the total of 1640 families interviewed) chose their first residences with their friends or relatives, or within the same locality. Also in Monterrey, H. Browning and W. Feindt (1971) found that 58% in the sample of 818 families lived initially with their relatives or friends in the city. Of the remaining 42% about a half had known somebody in the city, and one fifth received some help in finding accommodation, usually in the same locality.


62. Ajusco and Isidro Fabela.

63. Pages 458, 459, and 460 show the distribution of localities of the migrant's first residences with upward socio-economic mobility, downward mobility, and without mobility, respectively. They are distributed in
FIRST RESIDENCES OF FAMILIES WITHOUT SOCIO-ECONOMIC MOBILITY BY:
DATE OF ARRIVAL, DISTANCE FROM THE CENTER, AND HOUSING TYPE OCCUPIED
FIRST RESIDENCES OF FAMILIES WITH DOWNWARD SOCIO-ECONOMIC MOBILITY BY:
DATE OF ARRIVAL, DISTANCE FROM THE CENTER AND HOUSING TYPE OCCUPIED
relation to the time and distance from the center, with an indication of housing type occupied. Housing types sets follow the typology used in a 1972 sample of interviews:

a. renter or non-paying guest (arrimado) in a tenement (both in the center and in colonias outside the center).
b. renter or arrimado in a shanty town (ciudad perdida)
c. arrimado, renter or squatter in the squatter colonia.
d. arrimado or renter (except in a tenement) in a low cost subdivision.
e. servant, or renter, in a middle or high income residential area.

Figures are based on data from a 1972 sample of 207 families in 16 localities.

We can observe that the relative dispersion of the first residences of the upwardly mobile families is slightly smaller than for the other 2 groups.

Until 1960, when the metropolitan subcenters started to play much stronger roles, the average family with a subsequent upward mobility was arriving at a location closer to the central area of the city, than the average family without such mobility. Families with upward mobility have also, in a larger proportion than other groups, arrived at the tenements of the city's central areas.

Counting only the arrivals to the central area (historic center plus the periphery of the 1920s and 1930s, up to 3 km from the center), 22 out of 25 families with upward mobility entered the city through tenements (vecindades), 13 out of 18 families without mobility, 2 out of 5 families with negative mobility.

If we count only the arrivals since 1940 (when the shortage of vecindades began), 15 out of 16 upwardly mobile lived first in vecindades, 9 out of 13 static, and only 1 out of 3 downwardly mobile.

Vaughn and Feindt (1972) in the already cited study in Monterrey have found a similar regularity: families with manual employment who came to the localities outside the center experience a smaller occupational mobility, than the families who arrived in the center. Monterrey at the time of their study was an almost completely mono-centric metropolitan area, comparable in its structure to Mexico City of the 1950s.
II. SUBMARKETS OF THE PRESENT LOW INCOME HOUSING SYSTEM

64. The distribution of the different types of rental housing in my interview sample is indicated in the table on page 463.

It can be noticed that the mix of the types of rental units changes with the distance from the center.

As stated on page 114 the percentage and type of rental accommodation, as a characteristic of the development stage, depends not only on distance but also on the proximity to employment centers.

This explains the lower percentages of rental housing in Netzahualcoyotl and Granjas Valle - relatively further from centers, and in Magdalena Atlazolpan where the development process is being delayed by the still insecure tenure situation.

However the findings from the sample of family interviews presented in the table coincide with a detailed survey of 3 colonies, originally squatter areas, conducted by Peter Ward of Liverpool University. Ward found in El Sector Popular (which is by age, distance from the center, and development level between Agricola Oriental and Olivar del Conde), approximately 60% of the population were renters, in Isidro Fabela approximately 40% and none in Santo Domingo de los Reyes.

His results in St. Domingo coincide with mine. In Sector Popular and Isidro Fabela I believe his numbers are more accurate as my selection method (random by geographic location) was slightly biased against the renters.

65. We can find them in most developing countries' cities, in Latin America, Africa and Asia.

66. A 1935 study by Comision de Casas Baratas has estimated that 500,000 people have lived in tugurios (the middle class name for vecindades or for the area of the city covered by the vecindades, literally "slum"). However, this number probably included families living in other than vecindad types of housing.

The study by ENHUOP (Banco Nacional Hipotecario Urbano y de Obras Publicas - National Bank for Urban Mortgages and Public Works.) in 1952 also did not distinguish between the different types of tugurios. It has noted, however, that almost all housing in the tugurio areas is of the vecindad type.

According to this data, the population of the tugurios was around 1 million (200,000 families), or 33.6% of the total population of the city. 90% of them were renters.
<table>
<thead>
<tr>
<th>Vecindad</th>
<th>Sample Analyzed</th>
<th>Total Room %</th>
<th>Apart-</th>
<th>Tenement Room</th>
<th>Land</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Centro (Primer Cuadro)</td>
<td>13</td>
<td>13 100%</td>
<td>3</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>2 Tepito (Morelos)</td>
<td>35</td>
<td>35 100%</td>
<td></td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>3 Guerrero</td>
<td>10</td>
<td>9 90%</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4 Peralvillo</td>
<td>6</td>
<td>6 100%</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Obrera</td>
<td>12</td>
<td>7 60%</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>6 Gaudalupe Sanchez</td>
<td>12</td>
<td>11 92%</td>
<td>4</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>7 Tacubaya</td>
<td>8</td>
<td>6 70%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Agricola Oriental</td>
<td>9</td>
<td>5 60%</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Garza</td>
<td>10</td>
<td>9 N.D.*</td>
<td>1</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>10 Magdalena Atizolpan</td>
<td>12</td>
<td>3 25%</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>11 Acueducto, El Capulin</td>
<td>6</td>
<td>6 N.D.*</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12 Martires de Tacubaya</td>
<td>9</td>
<td>3 33%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 Olivar del Conde</td>
<td>25</td>
<td>12 48%</td>
<td>8</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>14 Nacahualcochitl</td>
<td>18</td>
<td>2 11%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 Isidro Fabela</td>
<td>27</td>
<td>8 29%</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>16 Granjas Valle</td>
<td>11</td>
<td>1 8%</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>17 Tlacolita</td>
<td>12</td>
<td>3 25%</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>18 Emiliano Zapata</td>
<td>18</td>
<td>1 52%</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 Valle Verde</td>
<td>3</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 Ecatepec</td>
<td>19</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 Istacalco, J. Rosas</td>
<td>20</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 Barrio Norte</td>
<td>12</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 Cruz Manca</td>
<td>18</td>
<td>0</td>
<td>1/2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 Santa Ursula</td>
<td>12</td>
<td>0</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 Padrejel de Sta. Ura.</td>
<td>15</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 Sta. Ursula Corona</td>
<td>6</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27 Atuesco</td>
<td>20</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28 La Cantera</td>
<td>12</td>
<td>8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29 Sto Domingo</td>
<td>10</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 Padierna</td>
<td>10</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31 Buenos Aires</td>
<td>10</td>
<td>9 90%</td>
<td>1</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>32 La Barrancera</td>
<td>15</td>
<td>15 100%</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33 San Pedro Xalpa</td>
<td>15</td>
<td>15 100%</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 Unidad Santa Fe</td>
<td>15</td>
<td>80%</td>
<td>3</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>35 U. San Juan Aragon</td>
<td>17</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 U. Vicente Guerrero</td>
<td>15</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37 U. Picosa Istacalco</td>
<td>14</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ND = no data. Only a sample of renters was interviewed at these locations.

PROPORTION OF RENTAL HOUSING IN THE SAMPLE STUDIED, BY LOCALITIES
68. A study of COPEVI in the localities of Tomatlan and Candelaria in 1972, in the first ring around the old center, indicated that 39% and 43% respectively, of the vecindad dwellings had frozen rent. The proportion of tenement buildings with some rent-frozen dwellings is, of course, higher.

For example a study by COPEVI in 1972 found in the Tepito area in the first ring around the center 50% of vecindad dwellings were under rent control, but all 100 of vecindades had some rent controlled dwellings.

A study by IMSS (Instituto Mexicano del Seguro Social, Mexican Social Security Institute) in 1962 registered 51% of the buildings with frozen rent in the central area of the city (center and ring I in my classification), and 45% in the intermediate ring around this central area.

The proportion was highest in the historic center and in Tepito area.

69. "Horseshoe of slums" - slum ring around the center in all directions except the West; it corresponds to Ring I and II of our division of the city.

70. BNHUOP study findings.

71. Instituto Nacional de Vivienda - National Housing Institute, that was reorganized into INDECO in 1970.

72. Minimum income necessary to survive. Minimum income for adequate nutrition, clothing, and other expenses at modest level, including housing, is about 3 x subsistence, or 1 minimum salary for an average family of 5.

73. A COPEVI study of the Tomatlan and Candelaria areas (1972), where vecindades were 70 and 80% of the housing stock, the rest being low cost apartment houses, 47% of families had some so called "social benefits," which indicates, in Mexico, permanent income and stable employment.

The remainder were mainly established shopkeepers, craftsmen, etc. who also had stable jobs, usually self-employed, and relatively regular incomes. A possible exception could be the 11% of street vendors.

74. According to Cornelius (1971) the average time of urban residence of the families presently living in the central area vecindades was 33 years. The time of their residence in the vecindad could be less however, as some migrants might have lived in other types of housing before moving into the vecindad (in our sample of Tepito this was the case for 15% of the families).

Enrique Valencia found in 1965 that in the vecindades of La Merced area 64% of the migrants had more than 15 years of residence and 79% more than 10 years. Susan Eckstein (1971) has found that 78% of the vecindad families studied by her have over 10 years of continued residence, and 55% over 21 years.
75. A COPEVI study found that 38% of the families living in the Tomatlan vecindades have chosen their housing mainly because of its proximity to their jobs; in Candelaria - 20%.

76. In Tepito and Peralvillo, out of 41 families, 19 mentioned that the low quality of their dwelling was the main disadvantage of their housing and 17, the low quality of sanitary facilities.

77. It was possible to divide them into 4 different groups.

The first of the 15 families had rents frozen between 20 and 100 pesos per month for rent and services together (average 65 pesos). This was between 0.8% and 12.5% (average 3.2%) of their incomes, an average 7 times subsistence level per capita (total average 3380 pesos a month).

The four families paying the highest rents of the sample were spending between 370 and 500 pesos a month (average 420 pesos) for free market rent and services. This was between 19% and 41% (average 30%) of their monthly incomes of 2.8 times subsistence level per capita. Three families with housing costs between 200 and 350 pesos were spending an average 14.5% of their 3.2 times subsistence level per capita income (1670 total).

The remaining 19 families had housing costs (including frozen rents) between 100 and 200 pesos a month and average per capita incomes of 5.5 times subsistence.

79. The study does not contain data on the relation between income and rent level. It has information about the relation between the time of residence in the same locality and the rent level. As my data indicates that generally longer residents have achieved higher incomes, this can be used as a partial approximation for control purposes. According to the study in Candelaria, 87% of the families arrived in the last 3 years are paying high free market rents. This group constitutes 27% of all residents with free market rents. Only 9% of those recently arrived had frozen rents.

Among the families with more than 25 years of residence, 52% have frozen rents, and they constitute 38% of all in that situation. 30% had free market rents (6.5% of all in this situation). In Tomatlan, the situation was similar: 84% of the recently arrived (during the last 3 years) were paying free market rents and only 3% had frozen rents.

On the other extreme, among the families with over 25 years of residence in the locality, 66% had frozen rents and 28% free market rents.

80. For example, one of the families interviewed, which is presently living in a vecindad room with 350 pesos monthly rent in Colonia Obrera (23% of income in rent) has moved there from an apartment in the center that cost less than 800 pesos a month (50% of income).
60% of the city blocks (6,375 of 10,478 total) had some tugurio housing. In 21% of the city's blocks between 1/3 and 2/3 of the buildings were tugurios.

The comparison of this information with the results of my study in these areas in 1972 suggests a possible overestimation of the number of tugurios. Also a study by COPEVI in the areas of Tomatlan and Candelaria, adjacent to the historic center, has identified 20 to 30% of rental housing as apartments, usually poorly maintained, but better equipped, larger, and better built than vecindades.

Consequently my estimate of the population of vecindades in 1950 is between 700,000 and 800,000 people.

Since the 1952 BNHUOP study, information about the population of vecindades is even scarcer.

Some vecindad areas were demolished to give place for the urban renewal projects like Nonoalco-Tlateloco or Candelaria. Frieden (1965; p. 77 and 78) and Brown (1972; p. 62) suggest that the population of vecindades is much reduced.

My case studies and interviews do not confirm this hypothesis.

It seems evident that the immigration of new families into vecindades has dropped sharply, but at the same time the migration of larger, more established families from vecindades to peripheral colonies has practically ended. It seems that the vecindades, at present, have more large families than in 1950. Also a comparison of the number of square meters per capita in 1952 with my present calculations (see the physical quality of vecindades, p. 120) indicates a large increase in the densities of dwelling occupancy.

A lack of reliable data does not permit the comparison of the vecindad population reduced by demolitions with the increase by overcrowding. I hypothesize that they cancel each other, or produce a net increase (comparing one of the renewal project areas with the total existing vecindad area at which densification of use has occurred).

At the same time a large number of vecindades have been built outside the center, especially in the areas that were the periphery in the 1940s and 1950s.

Numerous vecindades were also built in the metropolitan sub-centers, like Naucalpan and Tlanepantla.

67. Calculations are based on: the number of migrants entering the city; the proportion of them entering different housing types in my sample; the proportion of vecindades in colonias studied through family survey; the case studies and locality analysis; the information from families studied about their former residences, and the data collected for the preparation of master plans for the municipalities of Naucalpan and Tlanepantla.
81. My interviews in the colonias of the periphery of the 1960s, such as Pedregal de Santa Ursula, Ahusco, Isidro Fabela, etc., indicate that the majority of families, which did not arrive directly from the province, lived previously in rental rooms or houses in the older colonias. The only exception was the area of San Rafael Champa, very close to the metropolitan subcenter of Naucalpan, which had at that time, a sufficient supply of vecindades.

82. For example, in Colonia Obrera, the family incomes of owners averaged 5100 pesos a month, and of renters - 2960 pesos; in Gertrudis Sanchez they were 4900 and 2408, in Agricola Oriental 6000 and 2850 respectively.

83. In Colonia Obrera the average renter of my sample stayed there for 6 years, the average owner - 24 years. In Colonia Gertrudis Sanchez - 9 and 18 years.

84. In theory, these kinds of taxes are collected at present. In practice, however, the taxation system is very inefficient, especially in the newly legalized low-income areas, and is non-existant in the illegal areas.

85. INV has made an interesting study of Cd. perdida Buenos Aires (Una Ciudad Perdida, INV, Mexico City, 1968), but it did not go beyond this one locality.

86. The available estimates of the population of the ciudades perdidas, were based on the broadest morphological definition just discussed, and consequently, included a number of other types of housing. Even those numbers are significant however. A study of BNHUOP SA in 1947 estimated that the jacales (shanty towns, a term commonly used in the same sense as the ciudad perdida) covered 2.3% of the urban area, or 150 ha. Another study of BNHUOPSA, 5 years later, using the same definition of the jacales, concludes that they cover 9.6% of the urban area, or 1800 ha with approximately 10.7% of the city's inhabitants (315,000). Even if we allow a substantial margin of error, or an uneven application of the definition of the jacales, a comparison of those numbers indicates a sharp increase of shanties when the shortage of vecindades began to be felt.

My findings in Guadalajara support this conclusion. Still in 1973, Guadalajara (1.5 million inhabitants at that time) did not have particularly strong shortages of vecindades. It also did not have any ciudades perdidas and very few other shanties.

87. On the basis of this data and of the most recent, but less comprehensive studies by IMSS (1962), INDECO (1971) and Dirección de Vivienda Popular de DDF (1973)

88. During 1973/74 the government conducted a program of "eradication of the ciudades perdidas." In total, 134 ciudades perdidas with a total 50,757 inhabitants were eradicated.
The term used in government reports is however less precise than our ciudad perdida definition as it also includes, besides rental shanty towns, the morphologically similar, but socio-economically very different, "infill squatter" areas on federally owned land.

The majority of the eradicated areas are in the last category.

In all instances, covered by the study, the eradication worsened rather than improved families' economy and hope for increased income.

Eradicated families, who could afford it, were relocated to the new housing projects of good modern standard, located on the periphery, far from job opportunities and much too costly, even if subsidized, for a significant percentage of families. The poorest families have to look for a new low cost rental unit, usually more badly located, and costing higher than the eradicated ciudad perdida.

This may be producing new ciudades perdidas, or other types of shanty towns, more peripherally located and therefore, not yet counted in the statistics.

89. For example in 1973, in Colonia Isidro Fabela, 4 families out of a random sample of 27 were arrimados. In 1974, in Colonia Emiliano Zapata (a semi-legal subdivision in the northwest of the city) 3 out of 20 were. In both cases, their incomes were of the lowest within the locality sample.

90. Comadre and compadre mean, literally, godmother and godfather. In reality, however, and so is it in Rafael's case, it often is used to describe the unrelated person who assumes the qualities of a blood relative.

91. During the residence in the vecindad, the family budget was distributed as follows: 60% food, 20% rent, 4% transportation, 6% medical, 3% clothing, 5% education, 2% other. Now, in the arrimado situation it is as follows: 75% food, 5% clothing, 3% medical, 5% education, 10% savings, 2% other. The total income has returned to the previous level.

92. For definitions see chapter II.3.1. page 179.

93. The cheapest to-date was a house (half of a very small duplex with half of a 140 sq. m. plot) in the Ciudad Azteca commercial project, some 20 km. from the center, with a mortgage payment of approximately 600 pesos a month in 1972.


96. They are beginning to be more frequent again since 1974 as a result of the action of tenure legalization conducted by government agencies.
During the interviews in Cd. Netzahualcoyotl in the summer of 1972, three families of the sample (all in the same section of this area) were in the payment strike. They and their neighbors wanted to force the subdivider to install the services that he had promised, for which they were paying. In the colonias of Ecatepec, studied in 1974, all the 16 plot owners interviewed were in the payment strike for the same reason. The remaining 4 families of the sample of 20 were cuidadores, and I could not learn if the owners of their plots were also on strike or not.

In Ciudad Netzahualcoyotl, the government agency created to urbanize the area ("Fideicomiso Netzahualcoyotl") is charging each plot owner 13,200 pesos, to be paid 110 pesos a month for 10 years, for the complete urbanization of the area. Urbanization was paid for in the initial land purchase from the subdivider. Various government institutions have already charged the families for some services, such as water, drainage, sidewalks, etc. Only a part of these services, paid for the second time, was provided.

Owner-builder resources will be discussed in further detail in chapter

In recent (September-November 1974) surveys in Netzahualcoyotl and Ecatpe, in the northeast of the metropolitan area, COPEVI found a similar length of construction time for the first stage. In Ecatpe (a sample of 45 families) 15 (33%) built in less than 3 months, 12 (27%) in 3-6 months, and 8 (18%) in 6-12 months. In Netzahualcoyotl (a sample of 56 families) 25% took less than 2 months to build the first stage.

At the same time, overall densities were relatively high indicating a relatively good land use efficiency. In San Rafael Chamapa, for example, 7 years after initial illegal subdivision, and still 1 year before legalization, gross density was 428 persons per hectare (according to Arq. Felipe Ortega of AURIS - unpublished paper).

Also the first families arriving to the illegal ejido subdivision (case 17) usually built the first structure rapidly which would support their claim to the land but would still not be too big a loss if eradicated. Once more secure, they demolished this first house, to build the permanent one.
103. The following account by COPEVI compares one of the poorest areas in Ecatepec (zona V) with the high income area of Lomas de Chapultepec:

<table>
<thead>
<tr>
<th>Goods and Services</th>
<th>Price in Chapultepec</th>
<th>Price in Zona V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh milk (1 liter)</td>
<td>3.30</td>
<td>3.50-3.60</td>
</tr>
<tr>
<td>Dehydrated milk (1/4 liter)</td>
<td>3.20</td>
<td>3.40-4.00</td>
</tr>
<tr>
<td>Black beans (1 kg)</td>
<td>8.00-8.50</td>
<td>9.00</td>
</tr>
<tr>
<td>Sugar</td>
<td>2.15</td>
<td>2.30</td>
</tr>
<tr>
<td>Rice</td>
<td>8.90</td>
<td>9.00</td>
</tr>
<tr>
<td>Chicken</td>
<td>25.90</td>
<td>28.00-35.00</td>
</tr>
<tr>
<td>Telephone (3 min.)</td>
<td>0.20 (public)</td>
<td>1.00 (no public, only in shops)</td>
</tr>
<tr>
<td>Bus to center</td>
<td>0.50 (13.5 km)</td>
<td>1.80 (17.5 km)</td>
</tr>
</tbody>
</table>

104. The only exceptions are the rent-controlled vecindades of the central areas of the city.

105. To approximate the level of social benefit, I have calculated the cost of housing the Mexico City owner-builders in the subsidized projects.

At the present rate of subsidy, I have found that in the Unidad Santa Fe (a housing project of the Mexican Social Security Institute), the rent subsidy for only 500,000 families would be 2 billion pesos a year (160 million dollars). If we add also the renters in the owner-built housing, we get to around 3.2 billion pesos (250 million $). This would be only a subsidy of current cost, not counting the amortization of original investment.

At the rate of the subsidy at the Nonoalco project the corresponding numbers would be "only" 120 million and 190 million dollars. Rents in Nonoalco are however too high for most of owner-builders and almost all renters, so that the subsidy should be higher if the price is to be affordable for them.

106. The lottery gives a certain priority to lower income families.


108. ".....estamos logrando que cada trabajador sea dueño de su esperanza que tenga lo que siempre aspiro: habitación y eso es un triunfo digase lo que se diga," Arq. E. Rincon Gallardo, Atizapan, Edo. de Mexico, June 16, 1974.

110. The regularization of Santo Domingo is presently (1976) in its final stages.

111. Per adult unit: a person 15 years old and older = 1 adult unit, 8-14 years = 75% of adult unit, 0-7 years = 50%.

112. In the FOVI sponsored, new subsidized credit "social interest housing," I was renting an apartment during 2 years in Mexico City. The mortgage take over price (of a 25 year mortgage with 10% down payment) reached 90% of the original cash price in 2 years.

113. Interviews in this locality were conducted as a part of a SIAP (Inter-American Planning Society) research project on Low Cost Housing.

114. In Unidad Nonoalco-Tlatelolco, a housing project of the early '60s, according to information I got from the social workers who did the pre-renewal survey of the project area population, only 3% of those families for whom the project was primarily intended have in fact moved into it.

115. One of the families described it as follows:

"I went to live with my husband in one vecindad in the Colonia Morelos (Tepito). We were living there 12 years and paying 150 pesos rent a month. One day these people from DDF came and took us to this public housing project ("nos sacaron y se nos llevaron a la Unidad Habitacional")."

The other family went already twice through the eradication experience:

"In Colonia Guerrero we lived in one vecindad paying 400 pesos a month. When the vecindad was eradicated as a part of an urban renewal project, we went to Colonia Morelos. We lived in the vecindad there for some 6 years, until one day the DDF took us out to bring us here ("DDF nos saco de alli para llevarnos a vivir a la Unidad Habitacional")."

116. El Sol del Mediodia, April 18, 1975, Mexico City.

117. This simplified typology does not imply that there are no intermediate types. Rent controlled vecindades, for example, were giving its users during the last 30 years a high degree of security that has encouraged them, in some cases, to do certain alterations and improvements inside the dwellings.

One can also cite examples of housing sets offering control over management but not over construction (like some tenant-management schemes, not existing in Mexico).
III. USER PRIORITIES AND RESOURCES: PATTERNS OF HOUSING DEMAND

118 Basic reference on permanent income hypothesis is:

(1) Milton F. Radman, A Theory of the Consumption Function (especially chapters 1-3, 9).

Empirical evidence is from:


See also:


119 Those familiar with Turner's hypothesis (see Freedom to Build, pp. 166-7) will note the modifications introduced as a result of this study. While the interpretation of 'security' and its median are confirmed with minor changes, the interpretation of 'opportunity' has been substantially modified, along with the median distribution, and the third factor has been changed from social identity to a general category for all other basic priorities determining specific priorities. The identity factor is typical or even dominant in this third general category, so a similarity with Turner's hypothesis is maintained.

120 These could be, for instance, knowledge of resources available to the household, their skill or capability for using available resources, and their willingness to exercise those capabilities or selected resources. The recognition of the importance of these independently variable household economies or budget strategies came too late in the analysis to attempt an interpretation of this kind.
IV. MISMATCHES AND THEIR CAUSES: RESOURCE MARKETS, INFRASTRUCTURE AND SERVICES

121 I shall discuss that point further in section

122 See discussion in sections II.1. and II.4.

123 See tables on pp. 474 and 475.

124 Lisa Peattie (in Colombia), Madhu Sarin (in India).

125 See tables on pp. 476 and 477.

126 Persons 15 years old or more = 1 adult unit
   Persons 8-14 years old = 0.75 adult unit
   Persons 8 years old = 0.5 adult unit

127 Unidad Picos de Iztacalco, locality 37 is not considered, as their low costs are only temporary.

128

Production Volumes for Cement, Steel (1968-1970) and Brick (1965) for Use in Construction

<table>
<thead>
<tr>
<th></th>
<th>1965</th>
<th>1968</th>
<th>1970</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement:</td>
<td>6,008,327 m. tons</td>
<td>7,179,981 m. tons</td>
<td></td>
</tr>
<tr>
<td>Steel (for reinforcing concrete)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 1/4&quot; wire:</td>
<td>29,025 m. tons</td>
<td>44,525 m. tons</td>
<td></td>
</tr>
<tr>
<td>- 5/16-5/8&quot; corrugated rod:</td>
<td>359,437 m. tons</td>
<td>448,176 m. tons</td>
<td></td>
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Source: Chambers of Commerce of the respective industries. For brick, the industrial census of 1965.
TIME (ONE-WAY TRIP) AND MODE OF TRAVEL TO WORK,
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**TIME (ONE-WAY TRIP) AND MODE OF TRAVEL TO MARKETS, BY LOCALITIES**
NUMBER OF SQ. METERS, UNDER THE ROOF, PER CAPITA
IN DWELLINGS OF THE FAMILY INTERVIEW SAMPLE, BY LOCALITY
AVAILABILITY OF UTILITIES IN DWELLINGS OF THE FAMILY INTERVIEW SAMPLE, BY LOCALITIES

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</tbody>
</table>

For explanation of % of utilities see Appendix D-1: explanation of case study graph no. 15.
Factory Prices of Building Materials, Averages for 1970 (in pesos)

<table>
<thead>
<tr>
<th>Material</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>240 per ton</td>
</tr>
<tr>
<td>Steel</td>
<td>2,000 &quot; &quot;</td>
</tr>
<tr>
<td>Sand</td>
<td>15 &quot; cubic meter</td>
</tr>
<tr>
<td>Tezontle</td>
<td>25 &quot; &quot; &quot;</td>
</tr>
<tr>
<td>Large Brick</td>
<td>240-270 &quot; thousand</td>
</tr>
<tr>
<td>Large Tezontle Brick</td>
<td>360 &quot; &quot;</td>
</tr>
<tr>
<td>Large Red Brick</td>
<td>340 &quot; &quot;</td>
</tr>
</tbody>
</table>

Source: Chambers of Commerce of the respective industries.

See page 479.

Typical Profit Margin of Small Building Materials Distributors in Ciucad Netzahualcoyotl (in pesos)

<table>
<thead>
<tr>
<th>Material</th>
<th>Profit Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement (per bag)</td>
<td>1.00 - 2.00</td>
</tr>
<tr>
<td>Sand (per cubic meter)</td>
<td>5.00</td>
</tr>
<tr>
<td>Gravel (per cubic meter)</td>
<td>5.00</td>
</tr>
<tr>
<td>Large Bricks (per thousand)</td>
<td>40.00</td>
</tr>
<tr>
<td>Steel (per ton)</td>
<td>150.00</td>
</tr>
<tr>
<td>Steel Rods (per ton)</td>
<td>300.00</td>
</tr>
<tr>
<td>Wire (per ton)</td>
<td>200.00</td>
</tr>
<tr>
<td>Annealing wire (per kg)</td>
<td>0.50</td>
</tr>
</tbody>
</table>

Source: COPEVI
Public Investment in Housing - 1955-1966

Retail Prices of Building Materials in San Rafael Chamapa (Prices Paid by 16 Families Interviewed and Prices Charged by 9 Distributors — Stationary and Mobile) in Pesos

<table>
<thead>
<tr>
<th>Material</th>
<th>Range of Prices Paid</th>
<th>Average*</th>
<th>Range of Prices Charged</th>
<th>Average*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement (per bag)</td>
<td>14-17</td>
<td>15.80(14)</td>
<td>14-16</td>
<td>15.40(7)</td>
</tr>
<tr>
<td>Red Brick (per thous.)</td>
<td>250-440</td>
<td>380 (11)</td>
<td>350</td>
<td>(1)</td>
</tr>
<tr>
<td>Cement Brick (per thous.)</td>
<td>300-500</td>
<td>400 (4)</td>
<td>300-420</td>
<td>390 (4)</td>
</tr>
<tr>
<td>Drainpipes (per piece)</td>
<td>5.50-6</td>
<td>5.75 (2)</td>
<td>5.50-6</td>
<td>6.00 (3)</td>
</tr>
<tr>
<td>Plateboard (per piece)</td>
<td>4.50-6</td>
<td>4.80 (3)</td>
<td>3.50-7</td>
<td>5.00 (5)</td>
</tr>
<tr>
<td>Corrugated Steel (3/8 x 12&quot;)</td>
<td>13.50-16</td>
<td>14.30 (9)</td>
<td>13-15</td>
<td>13.90 (9)</td>
</tr>
<tr>
<td>Thick Wire (per kg.)</td>
<td>3.50-4</td>
<td>3.60 (4)</td>
<td>2.70-3.50</td>
<td>3.00 (5)</td>
</tr>
<tr>
<td>Tile (per m²)</td>
<td>18-25</td>
<td>21.50 (2)</td>
<td>23</td>
<td>(1)</td>
</tr>
<tr>
<td>Stone (truckload)</td>
<td>140-180</td>
<td>157 (6)</td>
<td>140-160</td>
<td>150 (5)</td>
</tr>
<tr>
<td>Gravel (per m³) (truckload)</td>
<td>120-200</td>
<td>156 (11)</td>
<td>140-180</td>
<td>150 (5)</td>
</tr>
<tr>
<td>Sand (per m³) (truckload)</td>
<td>120-200</td>
<td>147 (9)</td>
<td>140-150</td>
<td>142 (5)</td>
</tr>
</tbody>
</table>

*Figures in parentheses indicate number of users or sellers reporting.

Source: Compiled from COPEVI, Accion Casa—San Rafael Chamapa: Mexico June 14, 1971 (unpublished).
Retail Prices of Selected Building Materials in Ciudad Netzahualcoyotl, in Pesos. (For prices of sand, gravel, stone and brick, see Table on page 134.)

<table>
<thead>
<tr>
<th>Material</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement (per bag) (@ 280 per ton)</td>
<td>14.00</td>
</tr>
<tr>
<td>Lime (per bag) (@ 160 per ton)</td>
<td>14.00</td>
</tr>
<tr>
<td>Mortar (per ton)</td>
<td>160.00</td>
</tr>
<tr>
<td>Plaster (per ton)</td>
<td>125.00</td>
</tr>
<tr>
<td>Rod (per 12 meters) (@ 2,200 per ton)</td>
<td>14.00</td>
</tr>
<tr>
<td>Recasted wire #18 (per kg.)</td>
<td>3.50</td>
</tr>
<tr>
<td>Nails (different sizes, per kg.)</td>
<td>5.00</td>
</tr>
<tr>
<td>W.C.</td>
<td>205.00</td>
</tr>
<tr>
<td>Washstand</td>
<td>178.00</td>
</tr>
<tr>
<td>Washtub</td>
<td>38.00</td>
</tr>
<tr>
<td>Kitchen sink (granite)</td>
<td>320.00</td>
</tr>
<tr>
<td>Gas heaters</td>
<td>461.00</td>
</tr>
<tr>
<td>Water tank (per square meter)</td>
<td>30.00</td>
</tr>
<tr>
<td>Tile (per square meter)</td>
<td>15-25.00</td>
</tr>
</tbody>
</table>

Source: Plantécnica
Typical Costs for Transportation of Construction Materials in Ciudad Netzahualcoyotl (in pesos)

<table>
<thead>
<tr>
<th>Material</th>
<th>Black Sand</th>
<th>Dark Sand</th>
<th>Gravel</th>
<th>Red Tezontle Stone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of the materials in the mines</td>
<td>$15 $m^3</td>
<td>$10 $m^3</td>
<td>$10 &amp; 15 $m^3</td>
<td>$25 $m^3</td>
</tr>
<tr>
<td>Freight to Ciudad Netza-hualcoyotl</td>
<td>$10 $m^3</td>
<td>$10 $m^3</td>
<td>$10 $m^3</td>
<td>$15 $m^3</td>
</tr>
<tr>
<td>Cost in firms of materials</td>
<td>$30 $m^3</td>
<td>$25 $m^3</td>
<td>$25 &amp; 30 $m^3</td>
<td>$45 $m^3</td>
</tr>
<tr>
<td>Freight to the work</td>
<td>$15 $m^3</td>
<td>$15 $m^3</td>
<td>$15 $m^3</td>
<td>$20 $m^3</td>
</tr>
<tr>
<td>Cost to the user on the site</td>
<td>$45 $m^3</td>
<td>$40 $m^3</td>
<td>$40 &amp; 45 $m^3</td>
<td>$65 $m^3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material</th>
<th>Manufacturing Price</th>
<th>Freight</th>
<th>Cost to the User on the Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brick (clear color)</td>
<td>$250 per thousand</td>
<td>$70</td>
<td>$320</td>
</tr>
<tr>
<td>Brick (black color)</td>
<td>$320 per thousand</td>
<td>$70</td>
<td>$390</td>
</tr>
<tr>
<td>Brick (tezontle)</td>
<td>$360 per thousand</td>
<td>$70</td>
<td>$430</td>
</tr>
</tbody>
</table>

Source: Plantécnica
COPEVI found the following typical costs of transportation according to the size of the truck used (in 1971):

<table>
<thead>
<tr>
<th>Size of Truck</th>
<th>Less than 5 km.</th>
<th>5 to 15 km.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 ton</td>
<td>30-50 pesos</td>
<td>50-90 pesos</td>
</tr>
<tr>
<td>3-6 ton</td>
<td>40-70 pesos</td>
<td>80-120 pesos</td>
</tr>
</tbody>
</table>

A study of housing materials costs, conducted at the Colegio de Mexico by Dr. Christian Araud, estimates the average costs of various types of materials used in housing per 1,000 m² of floor space. These figures, representing averages over the period 1960-1970, are as follows:

<table>
<thead>
<tr>
<th>Material</th>
<th>Average Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>24,550 pesos</td>
</tr>
<tr>
<td>Sand and Gravel</td>
<td>17,000 &quot;</td>
</tr>
<tr>
<td>Lime</td>
<td>2,000 &quot;</td>
</tr>
<tr>
<td>Semi-finished Woods</td>
<td>26,500 &quot;</td>
</tr>
<tr>
<td>Steel</td>
<td>50,000 &quot;</td>
</tr>
<tr>
<td>Red Brick</td>
<td>24,000 &quot;</td>
</tr>
<tr>
<td>Cement Brick</td>
<td>31,000 &quot;</td>
</tr>
</tbody>
</table>

If we knew the average number of units produced annually by each sector, we could estimate the average size per unit in square meters (say 70 m² for the public and private sectors and 30 m² for the popular sector) and thus obtain an estimate of production in square meters. Multiplying this by the costs given in the above table and then dividing by prices for each material such as those given in the footnote no. 129, we would have some very rough estimates of the volumes of each kind of material consumed by the various sectors.

Unfortunately, it is difficult to determine housing unit production by sector (for very approximate figures, see chapter I.1.4. and footnote 28). For one thing, the category of "Social Interest Housing" involves both public and private investment. For another, in the national census figures on total new housing it is difficult to distinguish houses built of non-durable materials, particularly for the State of Mexico, which has rural as well as urban housing in the popular sector. Furthermore, the incremental nature of popular sector housing makes it extremely difficult to determine in what year a unit is completed.
INDICES OF CONSTRUCTION COSTS IN D.F. 1954-1970:
MATERIALS VS. LABOR

Source: Camara de la Industria de Construccion
Paradoxically, nearly 50 percent of the inner ring land is vacant (according to an INDECO survey in 1971). There is no demand for land uses which are permitted there (office, residential, etc.). There is a strong demand for low-cost rental (existence of ciudades perdidas and key money payments are enough to prove it), but construction of it is not permitted. As the land continues unbuilt, service lines are extended further into the periphery, and people have to commute further to work. Building codes are satisfied, however.

In Guadalajara in 1974, the prices of land in the most luxurious subdivision in the periphery, El Palmar, started from 208 pesos per square meter, while in the fraccionamientos populares at the same distance from the center, but in markedly less attractive location, they were 250 pesos per square meter.

Those who resell the land, after it gets some tenure security and some commercial value, in order to squat in the next area. For example, some squatters in Santo Domingo sold their plots in Santa Ursula. They invaded Santa Ursula after having sold plots in their earlier squatter area of Copilco.

The mayor of Netzahualcoyotl has imposed, for example, a 10,000 peso tax (called "voluntary contribution") for the permit to open a shop. (Ultimas Noticias de Excelsior, February 12, 1974)

There is no single institution conducting regularizations. At the end of the field data collection period, three different institutions in the metropolitan area conducting expropriations of ejido land for urban purposes were identified: DDF, INDECO, and AURIS; and four subsequently regularizing tenure and formally transferring land to users (who primarily bought it from the ejidatarios or from ejido officials at least five years earlier): AURIS, Procuraduria de Colonias Populares, FIDEURBE, and CORETT. Besides the municipal government, different levels of the ejido system administration (up to its federal central office), and even the President of the Republic were often involved in the process.

The difference that present land prices make to the economy of owner-builders could be best illustrated by a calculation of how much the successful owner-builders of the in-depth case studies in San Rafael Chamapa would have to pay in order to buy the land now in the new sector of that area, subdivided commercially as the legal subdivision Emiliano Zapata. Land in Emiliano Zapata is worse to build on, more distant from the city and more difficult to urbanize than the older sections of San Rafael.

(Table on next page)
### Table: Total Investment and Cost of Land

<table>
<thead>
<tr>
<th>Case Number</th>
<th>Total Investment in Housing</th>
<th>Total Investment in Land (including legalization of tenure)</th>
<th>Cost of Land at Present Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>13,000</td>
<td>6,200</td>
<td>100,000</td>
</tr>
<tr>
<td>18</td>
<td>7,200</td>
<td>4,600</td>
<td>40,000</td>
</tr>
<tr>
<td>19</td>
<td>13,400</td>
<td>2,900</td>
<td>40,000</td>
</tr>
<tr>
<td>20</td>
<td>5,700</td>
<td>1,750</td>
<td>22,000</td>
</tr>
<tr>
<td>21</td>
<td>9,400</td>
<td>4,635</td>
<td>25,000</td>
</tr>
</tbody>
</table>

### Text:

144 As a consequence of the availability of inexpensive ejido land in the suburbs of Mexico City belonging to the State of Mexico, there were no squatter invasions in those areas.

145 Even if INFONAVIT would cease to admit new members, it would take it 120 years to satisfy the present backlog of demand.

146 For a complete list of resources used by families studied, see section III.2.5. page 261.


### Cost of Living Index:

<table>
<thead>
<tr>
<th>Year</th>
<th>Pesos of 1970</th>
<th>Year</th>
<th>Pesos of 1970</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>35.4</td>
<td>1963</td>
<td>78.6</td>
</tr>
<tr>
<td>1951</td>
<td>45.6</td>
<td>1964</td>
<td>82.0</td>
</tr>
<tr>
<td>1952</td>
<td>49.9</td>
<td>1965</td>
<td>83.5</td>
</tr>
<tr>
<td>1953</td>
<td>46.7</td>
<td>1966</td>
<td>86.5</td>
</tr>
<tr>
<td>1954</td>
<td>50.1</td>
<td>1967</td>
<td>89.0</td>
</tr>
<tr>
<td>1955</td>
<td>59.1</td>
<td>1968</td>
<td>91.6</td>
</tr>
<tr>
<td>1956</td>
<td>61.6</td>
<td>1969</td>
<td>94.0</td>
</tr>
<tr>
<td>1957</td>
<td>64.8</td>
<td>1970</td>
<td>100.0</td>
</tr>
<tr>
<td>1958</td>
<td>71.7</td>
<td>1971</td>
<td>105.2</td>
</tr>
<tr>
<td>1959</td>
<td>74.1</td>
<td>1972</td>
<td>110.0</td>
</tr>
<tr>
<td>1960</td>
<td>76.0</td>
<td>1973</td>
<td>120.4</td>
</tr>
<tr>
<td>1961</td>
<td>78.8</td>
<td>August 1974</td>
<td>145.0</td>
</tr>
<tr>
<td>1962</td>
<td>78.8</td>
<td>December 1974</td>
<td>173.0</td>
</tr>
</tbody>
</table>

Cost of Living Index in Mexico City in constant pesos of 1970.
CONSUMPTION OF WATER BY INCOME GROUPS IN METROPOLITAN MEXICO CITY IN 1974

<table>
<thead>
<tr>
<th>Income</th>
<th>Average Water Consumption in Liters per Capita per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 1,900</td>
<td>121</td>
</tr>
<tr>
<td>1,900 - 3,600</td>
<td>184</td>
</tr>
<tr>
<td>3,600 - 7,200</td>
<td>268</td>
</tr>
<tr>
<td>7,200 - 14,400</td>
<td>338</td>
</tr>
<tr>
<td>14,400 +</td>
<td>509</td>
</tr>
</tbody>
</table>

Source: Comision de Aguas del Valle de Mexico, Estudio de Consumo Cited by G. Romero in Los Servicios Publicos y en Relacion con la Vivienda de los Sectores de Bajos Ingresos, proyecto SIAP-CIID, Mexico, 1975.

151 Informes, Procuradoria de Colonias Populares, cited by G. Romero, op.cit.

152 C. Romero, op.cit.

153 In Unidad Vicente Guerrero, the prices of the apartments that are on the superhighway cutting the project in half were increased from 62,500 to 80,000 pesos, and monthly payments from 575 to 875 pesos. Those apartments were purchased at lower prices over a year earlier. Excelsior, November 22, 1973.

154 The metropolitan area of Mexico City has consumed, in 1974, 105,000 cars, of the 235,000 built in the country. The Mayor of Mexico City, in reply to the critics of investments in superhighways and the lack of improvements of the metro, said: "It is not possible to limit the growth of the automobile industry, one of the foundations of the development of the country." G. Romero, op.cit.
155 *Compendio Estadístico del Transporte*, DDF, October, 1972.


158. The myth of the inherent radicalism of the urban poor was very consequent-ly criticized by the works of Wayne Cornelius, mostly based on Mexican data.

159. Even if the living conditions and mobility opportunities at other locations become better, a balancing of the attraction of Mexico City will require specific efforts in the mass media and educational system. Mexico City also has the other important advantage of friends and relatives already in the city. Alternate new migration centers will initially not have this.

160. My interviews in the squatter areas suggest that, before market pressure 'educates' squatters about the commercial value of their land and the possibilities of speculation, they are interested in de facto use security and the subsequent introduction of urban services and not in full freehold titles, especially if the last requires high regularization payments.

In the squatter colonia, Ajusco, for example, my interviewers in 1972 met a number of families who did not want the land titles (which mean regularization payments and property taxes), once they had a substitution in the form of a document promising the title when the family makes the appropriate payments.

The present situation in Ajusco (1976) is pathetic. The entire colonia is being forcibly regularized. Owners are getting titles and services are being installed. The area is very attractive for the middle-class - it has very good roads and public transport connections and is next to the fancy suburb of Coyoacan. The compulsory contributions for legalization plus services are much lower than the pent-up free market prices if the squatter wants to sell the land (legalization is around 80 pesos per sq. meter, and land may be sold immediately for 400 pesos. A new buyer pays the urbanization costs himself). This seems to be great business for the squatters if they want to sell. At the same time, however, it is much too high for those who want to continue to stay in the area and would have to absorb it within their budget.

161. In fact, BANAMEX had a "bathroom loan" program in 1968-1970 that was discontinued for reasons which I was not able to identify.

162. It is important to keep in mind, however, that even at lower prices, the demand for these freehold plots will be smaller than for the much cheaper land in the ejidos subdivisions.

163. prescriptive = giving the lines, models, of action everybody must follow;

164. proscriptive = providing the limits for action that nobody should cross.

166. Sweden has a particularly rich experience with localized systems of waste and sewage disposal and composting. Systems like Clivus Multrum are still too costly and much too dependent on modern technology (the use of fiberglass), but new inventions may adapt such a system to the poorer countries' conditions.

167. Some supply subsidies are now used in the Federal District.


169. The termination of such a leasehold may sometimes be a problem. I believe, however, that from the squatter's point of view, even a 10 year secure lease is preferable to the danger of being eradicated any day.

At the same time any possible problems with the termination of a leasehold, at the location chosen by the city for urban farms are probably preferable for the city to the squatter invasion at a totally unexpected location, often against the intended urban growth strategy.

Problems with the termination of a leasehold should be diminished by two other factors:

- the possibility of a new leasehold at another location, and

- the low attractiveness of urban farms for squatters with intentions to build their permanent residence, if a sufficient supply of urbanized and unurbanized ejido type subdivisions is provided (urban farms would never be provided with urban services, and they will be very distant from the urban employment centers, located beyond the urban perimeter).
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Fondo de Operacion y Descuento Bancario a la Vivienda. Folleto No. 1-3
Requisitos para Otorgar Credito para la Construccion de Viviendas de Interes Social y para la Compra de una Vivienda, 1964.


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The Concept of "Marginality" as Applied to Squatter Settlements. 1975.


LIST OF NEWSPAPERS MONITORED DURING THE RESEARCH PERIOD:

1. *El Dia*
2. *El Excelsior*
3. *El Heraldo de Mexico*
4. *El Nacional*
5. *El Sol*
6. *El Sol del Mediodia*
7. *La Nacion*
8. *Novedades*
9. *Novedades del la Tarde*
10. *Ovaciones*
11. *Ultimas Noticias de Excelsior*
LIST AND GLOSSARY OF INSTITUTIONS

I. List of Principal Institutions -- Sources of Data

1. AURIS (Instituto de Accion Urbana e Integracion Social)
   - Centro de Transmision del Conocimiento (Naucalpan)
   - Division de Tecnologia (Toluca)

2. Asociacion Hipotecaria Mexicana

3. Banco de Mexico

4. Banco Hipotecario y Fiduciario

5. Banco de Obras y Servicios Publicos

6. Buro de Investigaciones de Mercados

7. Camara Nacional de la Industria de la Construccion

8. CETENAL (Comision de Estudios del Teritorio Nacional)

9. COPEVI (Centro Operacional de Poblamiento y Vivienda)

10. Colegio de Mexico
    - Centro de Estudios Demograficos y Economicos

11. Comision Federal de Electricidad

12. CONACYT (Consejo Nacional de Sciencia y Tecnologa)

13. DDF (Departamento del Distrito Federal)
    - Direccion de Habitacion Popular
    - Direccion de Obras Publicas
    - Direccion de Planeacion
    - Direccion de Aguas y Saneamiento
    - Direccion de Transito y Transporte
    - Direccion de Promocion de la Habitacion Popular
    - FIDEURBE (Fideicomiso de Interes Social para Integracion al Desarrollo Urbano)
14. Delegaciones Politicas in DF, and municipal governments in the Estado de Mexico

15. FOVI (Fondo de Operacion y Descuento Bancario a la Vivienda)

16. Government of the Estado de Mexico
   - Operacion Progreso
   - Plan de Vivienda Campesina
   - Other branches of the government, see 13

17. IMSS (Instituto Mexicano del Seguro Social)

18. INFONAVIT (Instituto del Fondo Nacional de Vivienda para los Trabajadores)
   - Departmento de Estudios Economicos

19. INDECO (Instituto Nacional para el Desarrollo de la Comunidad Rural y de la Vivienda Popular)

20. Investigadores del Mercado y Asociados

21. Museo de la Ciudad de Mexico

22. Secretaria de la Presidencia

23. Comision de Estudios de la Area Metropolitana

24. Secretaria de Hacienda y Credito Publico

25. Secretaria de Industria y Comercio
   -Direccion General de Estadistica

26. Secretaria de Recursos Hydraulicos

27. Secretaria de Salubridad y Asistencia
   - Comision Constructora y de Ingenieria Sanitaria
   - Comision de Saneamiento Ambiental

28. Secretaria de Trabajo y Prevision Social
   - Servicio Publico del Empleo

29. Sociedad Medica del Valle de Mexico

30. Sociedad Mexicana de Siquiatria Biologica
31. SMP (Sociedad Mexicana de Planificacion)

32. SIAP (Sociedad Interamericana de Planificacion)

33. UNAM (Universidad Nacional Antanoma de Mexico)
   - Escuela Nacional de Arquitectura, Division de Estudios Superiores
   - Instituto de Estudios Economicos
   - Departamento de Contaminacion Ambiental

34. UIA (Universidad Iberoamericana)
   - Escuela de Arquitectura
   - Escuela de Antropologia

II. Abbreviations

AURIS

Instituto de Accion Urbana e Integracion Social
(Institute for Urban Action and Social Integration)
"Decentralized government institution" for urban planning and development in the State of Mexico. Builds middle-income housing (Ixcallis), industrial parques, carries out some low-income housing actions.

BANAMEX

Banco Nacional de Mexico S.A.
(National Bank of Mexico, Inc.)

One of two largest commercial banks of the country. Constructs large middle-income housing projects ("social interest") with FOVI funds.

BANOSPSA

Banco Nacional de Obras y Servicios Publicos S.A.
(National Bank for Public Works and Services)

Finances and supervises public works, including some housing. Previously involved in direct public housing construction under its earlier name of BNHUOPSA.

BIMSA

Buro de Investigaciones de Mercados S.A.
(Office of Market Research, Inc.)

Private consulting institution serving private business.
<table>
<thead>
<tr>
<th>Code</th>
<th>Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BM</td>
<td>Banco de Mexico</td>
<td>Bank of the nation (government institution).</td>
</tr>
<tr>
<td>BNUO</td>
<td>Banco Nacional Hipotecario Urbano y de Obras Publicas S.A.</td>
<td>(National Bank for Urban Mortgages and Public Services) Has financed, built and administered numerous housing projects, including Nonoalco-Tlatelolco. Reorganized into BANOSPSA.</td>
</tr>
<tr>
<td>CCISSSA</td>
<td>Comision Constructora y de Ingenieria Sanitaria de la Secretaria de Salubridad y Asistencia (SSA)</td>
<td>(Commission for Construction and Sanitary Engineering of the Ministry of Health and Welfare) Building infrastructure and assisting in housing remodelling, mainly in rural areas.</td>
</tr>
<tr>
<td>CEAM</td>
<td>Comision de Estudios de la Area Metropolitana</td>
<td>(Commission of the Studies of the Metropolitan Area) Located at the level of the Secretariat of the President of the Republic. Carried out some initial metropolitan planning.</td>
</tr>
<tr>
<td>CETENAL</td>
<td>Comision de Estudios del Territorio Nacional</td>
<td>(Commission for Studies of the National Territory)</td>
</tr>
<tr>
<td>CFE</td>
<td>Comision Federal de Electricidad</td>
<td>(Federal Electric Power Commission) Builds, owns and operates all elements of the national electric power supply system.</td>
</tr>
<tr>
<td>CIID</td>
<td>(See IDRC)</td>
<td></td>
</tr>
<tr>
<td>CIHAC</td>
<td>Centro Impulsor de la Habitacion, A.C.</td>
<td>(Center for Stimulation of Housing) Research and promotion center founded jointly by Chamber of Construction Industry and Chamber of Industry of Construction Materials. CIHAC was an important promoter of INFONAVIT.</td>
</tr>
<tr>
<td>Colegio de Mexico</td>
<td></td>
<td>National research and academic institution on the university level in Mexico City.</td>
</tr>
</tbody>
</table>
COPEVI  Centro Operacional de Poblamiento y Vivienda A.C. (Operational Center for Settlement and Housing)
Non-profit organization for research and advocacy action in low-income settlements and housing in Mexico City. Its division, Procalli, does direct construction.

CSASSA  Comision de Saneamiento Ambiental de la Secretaria de Salubridad y Asistencia (SSA) (Commission of the Environmental Sanitation)
Pollution control agency of the Ministry of Health and Welfare (SSA).

DAAC  Departamento de Asuntos Agrarios y Colonizacion (Department of Agriculture and Colonization)
Related to low-income urban housing through its function in regularization of illegal ejido subdivisions.

DDF  Departamento del Distrito Federal (Federal District Department)
Government of the Federal District (DF) covering the central part and the majority of Mexico City metropolitan area.

DF  Distrito Federal (Federal District)
Administrative entity of the Republic, covering the central and southern sections of the metropolitan area of Mexico City.

DHP  La Direccion General de la Habitacion Popular or in short: Habitacion Popular (General Administration of Popular Housing)
Department of DDF. Responsible for planning, design and construction of low-income housing.

FIDEURBE  Fideicomiso de Interes Social para Integracion al Desarrollo Urbano (Social Interest Trust for Integration in the Urban Development)
Functions within the Federal District. Regularizes (in cooperation with other institutions) land tenure in illegal subdivisions. Supposed to carry out urban renewal projects.
FOGA  Fondo de Garantía y Apoyo a los Creditos para la Vivienda  
(Fund for the Guarantee and Support of Housing Credits)
Mortgage guarantee program established by government under "Alliance for Progress."

FOVI  Fondo de Operacion y Descuento Bancario a la Vivienda  
(Operational and Banking Discount Fund for Housing)
Program channeling capital of private banks into lower-cost housing via direct construction of housing project or their financing at subsidized mortgage rates. Established under "Alliance for Progress."

FOVIMI  Fondo de la Vivienda Militar  
(Military Housing Fund)
Fund for building and financing (including giving individual mortgage loans) housing for members of the Army, Navy and Air Force.

FOVISSSTE  Fondo de Vivienda de los Trabajadores del Estado  
(Housing Fund of the State Employees)
Fund for constructing housing projects and giving mortgages and other housing-related loans for government employees.

IBRD  International Bank for Reconstruction and Development
Part of the World Bank group. Provides loans for development projects, including housing and urban infrastructure.

IDRC  CIID (in Spanish)  
(International Development Research Center)
Research support division of the Canadian government agency for international development.

IMSS  Instituto Mexicano del Seguro Social  
(Mexican Social Security Institute)
Providing medical and other social services to the entitled population groups. Presently building mainly medical centers. In the past, has built a number of housing projects (Independencia, Santa Fe), and conducted surveys of environmental and housing conditions.
INDECO
Instituto Nacional para el Desarrollo de la Comunidad Rural y de la Vivienda Popular
(National Institute for Rural Community Development and Popular Housing)

Created from INV (see below). Builds middle-income housing projects. Rebuilding disaster areas. Supposed to carry out community development and low-cost housing action.

INFONAVIT
Instituto del Fondo Nacional de Vivienda para los Trabajadores
(Institute of the National Fund for Workers' Housing)

Housing finance agency for regular employees of private sector.

INV
Instituto Nacional de Vivienda
(National Housing Institute)

Was carrying out research, promotion and construction of housing. Reorganized into INDECO in 1971 (see above).

ISSSTE
Instituto del Seguro Social al Servicio de los Trabajadores del Estado
(Social Security Institute for State Employees)

PRI
Partido Revolucionario
(Revolutionary Institutional Party)

Principal Party in Mexico. Under different names, continuously in power for over fifty years (since the last revolution).

SIAP
Sociedad Interamericana de Planificacion
(Inter-American Planning Society)

SMP
Sociedad Mexicana de Planificacion
(Mexican Planning Society)

SMSB
Sociedad Mexicana de Siguiatria Biologica
(Mexican Society of Biological Psychiatry)

SMVM
Sociedad Medica del Valle de Mexico
(Medical Society of the Valley of Mexico)

Carried out research on the environmental conditions in the Valley of Mexico.
SOP

Secretaria de Obras Publicas
(Ministry of Public Works)

Together with municipal and "delegacion" (in DF)
governments, is responsible for installation of
urban services.

SSA

Secretaria de Salubridad y Asistencia
(Ministry of Health and Welfare)

UIA

Universidad Iberoamericana
(Ibero-American University)

Principal private university in Mexico City.

UNAM

Universidad Nacional Autonoma de Mexico
(National Autonomous University of Mexico)

Principal national university in Mexico City.
LOW-INCOME HOUSING SYSTEM IN MEXICO CITY

by

Tomasz Leopold Sudra

Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

at the

Massachusetts Institute of Technology

August 1976

VOLUME 3
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APPENDIX A

METHODOLOGICAL NOTE

The analysis of the low income housing system is done in qualitative rather than quantitative terms. This is the consequence of a general approach which examines the relationships between the system's components while viewing problems in terms of dysfunctions or mismatches between characteristics of supply and demand requirements and not merely as the deficits of products of a specified standard. Numerical aggregation and statistical data is used only as an additional source of information or in order to check some of the conclusions drawn from the case study analysis.

1. Data Sources

The data base of the dissertation is derived from six main sources:

1) Bibliographic research including published and unpublished materials from various governmental and academic institutions, research organizations, and individuals. The specialized bibliography assembled during this research is attached.

2) Mass media monitoring to provide information regarding daily developments in the low income housing field, public and private sector attitudes and policies as well as indications of user priorities and their match/mismatch with the existing supply. Eleven daily papers of Mexico City were monitored from October 1972 till September 1974.

3) Family interviews using a uniform questionnaire in order to provide basic information about the relationship between the socio-economic history of families and their housing situations, and in order to permit the selection of families for the in-depth case studies. The total of 600 families interviewed were distributed according to the general principles of a stratified random sample.

4) Case studies of families selected from the family interview sample to provide the basic qualitative information for the analysis of the system's functioning: 25 case studies have been conducted, processed and 5 additional cases have been studied to complement the representativeness of the main 25. (Analysis of the initial 25 cases has shown that some situations were not represented.)

5) Physical and economic surveys of localities as background information for the analysis and evaluation of family interviews and case studies.
6) Interviews with public agency officials and key individuals in the housing supply sector.

2. Description of the field work, samples, and chronology of research.

Family interviews and in depth case studies were the two main steps in the field work.

2.1. Family Interviews

The interviews were conducted by Mexican students and social workers except for the few I conducted myself. The average interview time was approximately one hour. The first 200 interviews were made during the Low Income Housing Study for the Master Plan Office of Mexico City (Oficina del Plano Regulador, DDF) in May 1972 - January 1973, directed by John Turner and myself. The next 300 interviews were conducted by my students at UNAM (low income settlement system study in metropolitan Mexico City; UNAM - National University, School of Architecture, courses: Evolution and Development of Mexico City and Urban Studies II, spring 1973), and at UIA (low income housing study; UIA - Iberoamerican University, course: Low Income Housing, spring, summer and fall of 1973) in Mexico City.

The selection of localities for family interviews was based upon (basic criteria):
- income data from census
- employment data from census
- housing quality data from census and other sources
- data on the quality of services and utilities from census and from corresponding branches of local and city governments
- environmental quality data
- specific materials and studies on low quality housing, illegal subdivisions, areas under rent control, etc.

The income data was considered the most important variable. It permitted the identification of sections in the city of particular interest to the study. The selection of specific localities within these sections was also aided by the local visits and preliminary interviews in the field as well as with officials and professionals, in order to assure that the selected localities represented the types of dwelling environments in which the low income population lived. An additional check was provided by the initial identification of housing types used by the low income population. It was based on language describing the types of housing in which the poor lived, on corresponding terms in mass media language, and on typologies from earlier studies and professional reports.
As a result five main types of housing and some preliminary hypotheses about their proportional distribution were established. While identifying localities for family interviews I tried to assure the approximate proportional representation of these types in my sample. The same process was repeated for each of the series of family interviews just mentioned, enlarging the sample within the same framework. (The last group of approximately 100 families interviewed which was not used for the selection of families for the case studies, was made as part of a project of low cost housing for low income population, sponsored by SIAP and IDRC, which I was co-directing in Mexico City.)

The localities for these interviews were chosen from the areas most recently urbanized or altered (government eradication programs etc.) in order to update the earlier sample. All families surveyed are randomly selected in the localities by means of a geometrical grid superimposed over a locality map (or sketch map in the new squatter areas where the maps are not available). In the absence of any lists of the inhabitants in each locality, the location of each family's dwelling rather than the families themselves was randomly selected. This method may underrepresent the families living in particularly crowded conditions and overrepresent possessor-occupiers living as single families in separate houses especially in peripheral areas. This problem would be avoided if a full list were available, from which a sample could be chosen randomly.

To minimize these possible misrepresentations in each locality in which an average of 16 families were interviewed, only 14 were selected randomly, and the remaining 2, to be interviewed at the end, were chosen from the type missed or underrepresented by random distribution. A large tenement in the predominantly possessor-occupier low income subdivision would be an example of such a case.

The list of localities is presented in the table on p. 531, and their geographic distribution in relation to the income levels is indicated in map, p. 533 in Appendix B. All the interviews were conducted with the same uniform questionnaires designed for our first study (DDF project). (See Appendix C)

For the purpose of this dissertation, the family questionnaires were processed only partially with two objectives in mind: getting an idea of the very basic pattern of the system (submarkets, geographic itineraries of families between areas, and the socioeconomic trajectories), and choosing the families for the case studies. All the questionnaires were summarized in the summary charts (see Appendix C) reducing about 40 pages of data to one chart of basic data. This was necessary for further analysis of the questionnaire data and essential for practical purposes as it would simply be impossible to bring over 25,000 pages of original questionnaires to M.I.T. Those summaries were next used for additional analysis. The interviews in the localities were usually preceded by a general description of the locality as a whole in order to provide the immediate context for the questionnaires analysis.
2.2. Case Studies

The main source of field data were the in-depth family case studies.

2.2.1. Family selection:

The families were selected to satisfy the criteria of representing the most frequent patterns of the following characteristics:

Primary
- Household, or family type
  Category (nuclear, extended, etc.)
  Number of persons in the household
  Basic age/sex composition
- General character of change the family is undergoing
- Socio-economic status of the household
  Occupational
  Income
  Educational
- Socio-economic mobility of the household (including future expectations)
  Occupational
  Income
  Educational
- Residential location of the household
- Residential itinerary of the household (by locality and sub-systems, beginning with migration data from rural area and including future moves)
- Tenure situation
- Tenure history (including future expectations)
- History of the supply/demand match/mismatch
- Sequence of priorities and of achievements
Secondary

- Shelter quality and shelter quality history

- The relevance for action programs (like low cost subdivisions, sites and services, consolidation, new low cost tenements, old tenements' reconstruction, etc.).

The brief character of the family interviews does not necessarily provide precise and in-depth knowledge of all these factors. Selection, therefore, had to be approximate. Another distorting factor was the degree to which the families were willing to answer the questions – we had to select families which were willing to cooperate.

2.2.2. Case study proceedings:

The interviews were conducted by Mexican interviewers and myself.

Each case study included a number of interviews in the form of unstructured conversation with the members of the family. The interviewers used a uniform detailed guide to plan the conversations in advance and to check the completeness of the data afterwards. The guide was not used during the conversation in order to keep its character as unstructured and as informal as possible.

The processing graphs included with the case studies were filled in gradually, beginning with the first interview. The form of the graphs assures the continuity of the data related to each relevant aspect studied. The guide and graphs are included and further discussed in Appendix D.

The guide was divided into five main sections: 1) basic household/housing characteristics; 2) background history of the household; 3) housing characteristics over time 4) socio-economic characteristics over time 5) priorities over time.

The first section included the basic data about the family history which was taken from the family interviews conducted during the earlier study. Missing data was to be completed during the present interviews.

The second section included information on:

- place of origin of household head and his wife and their life there;
- each place of residence before moving to Mexico City;
- visits to Mexico City before moving;
- moving to Mexico City;
- arrival to Mexico City;
The third and fourth sections covered the family history in Mexico City. The basic division of this section was by residential moves, within which the dividing points were:

- changes in family cycle;
- changes in employment and income situation;
- other important changes in the household situation (such as changes in relation to rural family assets, etc.);
- important contextual changes (locality, city) affecting the family;

The fifth section concentrated on family priorities and their changes over time. It included three basic groups:

- housing (improvements, changes and moving);
- locality (improvements, changes and moving);
- other expenditures.

The priorities were discussed within the economic possibilities of the families but on the assumption of an unsuppressed supply. Questions about the ranking of priorities and the trade-offs between different categories and within them were also included.

In the course of a case study, interviewers often participated in family events - spending Sunday in the park with parents and children, drinking beer with the household head, visiting the place of the previous family residence etc. One of the techniques used in order to have additional insight into the family priorities was a "game."

The game was played with 20% of the cases and for each family the game was different. On the basis of the interviews a list was prepared of the commodities, housing improvements, etc., which were the subject of the family expenditure priorities. The approximate "access prices" of these were computed as a composite of the real market price and the facility of installment purchase by the family. Then the access prices were translated into points taking the lowest price on the list as a unit. The items were written with the corresponding points on separate, small cards, the number of copies being equal to the number of participants in the game. At the beginning of the game each participant received the full set of cards. Then the person directing the game asked every one his choice of items if in the present situation he/she could spend on it "n" point, then "z" points (corresponding roughly to a certain amount of money). This was then followed by similar questions for specific past situations. The set of choices for each moment were discussed by the participants and the interviewer. Results of the game reported in the cases include the game table with access prices and points, plus a listing of choices made by the participants.
2.2.3. Presentation format of case studies:

All of the data in the case studies is presented as given by the families and observed by the interviewers.

The names and addresses have been changed to protect the privacy of the families. To keep the authenticity of the cases, changes of addresses have been minimal - kept always within the same locality. The monetary data in the case studies is given in current pesos as reported by the families. For the purpose of analysis, they were converted into constant pesos. As the conversion tables based on the commodity group price indices specific for the lower sectors of the urban population do not exist, the following table of cost of living index in pesos of 1970 (for the period 1950-1974) was used as a partial substitute for a full conversion table.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>PESOS OF 1970</th>
<th>YEAR</th>
<th>PESOS OF 1970</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>35.4</td>
<td>1965</td>
<td>83.5</td>
</tr>
<tr>
<td>1951</td>
<td>45.6</td>
<td>1966</td>
<td>86.5</td>
</tr>
<tr>
<td>1952</td>
<td>49.9</td>
<td>1967</td>
<td>89.0</td>
</tr>
<tr>
<td>1953</td>
<td>46.7</td>
<td>1968</td>
<td>91.6</td>
</tr>
<tr>
<td>1954</td>
<td>50.1</td>
<td>1969</td>
<td>94.0</td>
</tr>
<tr>
<td>1955</td>
<td>59.1</td>
<td>1970</td>
<td>100.0</td>
</tr>
<tr>
<td>1956</td>
<td>61.6</td>
<td>1971</td>
<td>105.2</td>
</tr>
<tr>
<td>1957</td>
<td>64.8</td>
<td>1972</td>
<td>110.0</td>
</tr>
<tr>
<td>1958</td>
<td>71.7</td>
<td>1973</td>
<td>120.4</td>
</tr>
<tr>
<td>1959</td>
<td>74.1</td>
<td>August 1974</td>
<td>145.0</td>
</tr>
<tr>
<td>1960</td>
<td>76.0</td>
<td>December 1974</td>
<td>173.0</td>
</tr>
<tr>
<td>1961</td>
<td>78.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1962</td>
<td>78.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1963</td>
<td>78.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1964</td>
<td>82.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table
Cost of living index in Mexico City in constant pesos of 1970.

Sources: IBRD report, #192-ME, June 1973, Table 6.2, Mexico: Price Indices, column 6; Banco Nacional de Mexico.

The presentation of each case study consisted of:

1) A city income distribution map with an indication of the present residential locality of the family.

2) A map of the locality of the present residence of the family with an approximate indication of the residence.
3) Written section

4) Results of the game attempting to simulate housing and other investment choices (only 20% if cases).

5) Plan, elevation, cross section of the present residence and, when relevant and available, plans of earlier residences and of the incremental construction of present residence.

6) Graphs and tables presenting the changes over time of particular aspects of the socio-economic and housing history of the family.

7) Photographic material.

Basic material on case studies is presented in Appendix D. It includes the case studies guide and presentation graphs, an example of one complete case study and graphic summaries of all 25 cases together with key photographs of dwellings and localities.

3. Analysis and Accounting Systems

3.1 Family Interviews

The main body of information sought from the sample of interviews dealt with the general housing and socio-economic histories of the families and the relations between the two. The graphic summaries of housing histories, geographic itineraries and the changes in occupational status on the summary charts for each interview (see Appendix C for details) were the first step of the analysis. On the basis of these summaries it was possible to develop a general hypothesis of the way in which the low income housing system has functioned during the last 40 years. Conclusions could be drawn about the differences between its two periods; metropolitan (1935-1955) and centralized - metropolitan (1955-1975) with regard to the following characteristics:

- Geographic trajectories of the household and their relation to socio-economic mobility;

- Socio-economic status versus socio-economic mobility;

- The common sequences of use of housing packages (types);

- The frequency of the packages by areas of the city;

- Reception areas and their relation to socio-economic mobility of families.

The same factors in the specific localities were also analyzed.

The graphs of the itineraries and histories were completed by the remaining data on the summary chart during the process of selecting the case studies. This remaining data containing other socio-economic and
housing characteristics of the families has been tabulated in order to
demonstrate the frequencies of factors analyzed in the case studies –
especially the dysfunctions of the system (such as overpayments, dislocation
with respect to work and markets, or physical deficiencies of the dwelling)
and some key characteristics of the population sampled (such as family
and economy types, or income levels and employment stability).

Analysis has revealed some of the interview deficiencies. The
modified summary chart which could be utilized for developing a new
questionnaire is enclosed in Appendix C. I had intended to make a comple-
mentary statistical analysis of the interview data with the use of the
SSSP program, but the uneven degree of completeness of the data about the
localities and the interviews made such an analysis impossible.

3.2 Case Studies

The case study data analysis started with the graphs with the
longitudinal series of data over time summarizing specific aspects of each
case. These graphs (explained in Appendix D) make possible the study of
relations between three groups of factors: socio-economic histories, housing
histories, and change of needs and priorities. This was done for each
case and then the cases were studied on a comparative basis. For each
family residence studied, the costs and benefits, both monetary and non-
monetary for the users (carrying implications to other actors) and the
distribution of control in different stages of the housing process and
between different actors were analyzed.

The accounting system used is an application of a vector method
developed by Turner. The form of graphic presentation used has been
developed by Labret for other types of social analysis. The monetary and
non-monetary accounts are separated. Page 523 shows an example of such
accounts for Case #17 of an owner-builder in the legalized illegal ejido
subdivision.

Windmill diagrams represent the costs and benefits to the users of
the present residence and of each significant earlier residence on which
data was available.

The graphs of the costs and benefits for the families are scaled from
1 to 5 according to the table of "normal" levels, calculated for the
first six months of 1973.

The "normal" levels of costs, capital costs, and assets (equity)
corresponding to the respective income levels have been calculated on the
base of the INDECO mortgage tables and the empirical analysis of housing
cases under conditions of unsuppressed supply. The maximum indebtedness
of 30 monthly family incomes is taken as a proxy of "normal" assets for a
given income. The "normal" levels of prices (current costs, including
rent/ amortization and payments of services) are calculated as a percentage
of the wage, assuming 10% for the lower income group (3-5 times subsistence),
20% for the upper lower income group (5-8 times subsistence) and 25% for
the middle income populations (8 times subsistence and above).
Family income is given as the real family income including the security factor to control for income irregularities; per capita income is calculated in adult units assuming one unit for a person 16 or more years of age, 0.75 of a unit for ages 8 to 15 and 0.5 of a unit for ages 0 to 7.

The "normal" levels of access, shelter, and tenure conditions were calculated on the basis of the family surveys (first series) conducted in 1972, and verified by empirical observation and an analysis of census data.

Access is measured as the unit of time of a one way journey to work and the percentage of the wage taken up by the cost of this journey on a monthly basis.

Shelter quality is measured by the number of square meters of roofed space per person (adult unit) and by the percentage of services available. This calculation of percentage of service is based upon the assumption that full 100% service means water, sewage, electricity, gas and telephone in the unit. In order to calculate the percentage of services in a given residence we assume that each of the five services listed has a value of 20% of full service if it is in the unit and of 10% if it is adjacent or shared.

The tenure situation is measured by the number of years of option of continued residence (tenure security) and by the relative savings resulting from the residence as compared with the closest market options at the time (tenure economy and transfrerability). The latter is calculated as the percentage ratio between the closest market option and the families' current costs in the residence analyzed.

The graphs permit an evaluation of the relation between factors analyzed in each residence and a comparison between different cases in the same period and also in different periods if monetary factors are in the constant value of peso.

Page 523 presents an example of the current housing situation of a factory watchman, Selondonio, and his family. His assets, in an incrementally self-built house and land, are on the middle income level. This would be "normal" for a family earning 5000 pesos or more, but their income is only 1120 pesos per month. Their monetary investment is slightly higher than "normal" with such income, since it would be "normal" for a family earning 1800 pesos a month. As the house has all five services except telephone, their utility bill is higher than "normal" for their income. However, they can easily afford it because housing costs after the completion of construction, are nearly zero. On the non-monetary account, there is very good access to employment in terms of the proportion of income spent and moderate access in terms of the amount of time spent. The physical standards of the dwelling, both in terms of services and space, are on the good-moderate income level. Tenure offers maximum security (freehold) and a very high degree of savings in comparison with similar alternatives on the present market. Consequently, there would be easy transfer if the family would wish to move.

MONETARY COST/BENEFIT ACCOUNT

<table>
<thead>
<tr>
<th>Income</th>
<th>Per House</th>
<th>Per Capita</th>
<th>Total Pesos</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1120.00</td>
<td>$170.00</td>
<td>$170.00</td>
<td>2.5/2.5</td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td>Rent or Amortiz</td>
<td>Utilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$180.00</td>
<td>$180.00</td>
<td>$0/4.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costs</td>
<td>Unimproved Land</td>
<td>Construction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$6000.00</td>
<td>$6800.00</td>
<td>$12700.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assets</td>
<td>Market Value</td>
<td>Mortage Equity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$80000</td>
<td>$80000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NON-MONETARY COST/BENEFIT ACCOUNT

<table>
<thead>
<tr>
<th>Factor Indicator</th>
<th>Quantity</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access</td>
<td>Time Of Journey To Work</td>
<td>45 Min</td>
</tr>
<tr>
<td></td>
<td>Cost Of Above As % Of Wage</td>
<td>1%</td>
</tr>
<tr>
<td>Shelter</td>
<td>Roofed Area/Per Cap</td>
<td>10m²</td>
</tr>
<tr>
<td></td>
<td>% Utilities Available</td>
<td>80%</td>
</tr>
<tr>
<td>Tenure</td>
<td>Years Option Control Resid</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>% Price Of Alternative Res</td>
<td>700%</td>
</tr>
</tbody>
</table>

Table of the "normal levels of monetary costs and benefits:

<table>
<thead>
<tr>
<th>Household =6</th>
<th>Incomes $ per household</th>
<th>Prices Rent/amort'z'n. Utilities</th>
<th>Costs Construct'n Total</th>
<th>Equity assets Maximum indebtedness: 30 monthly incomes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$ per capita</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>=6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5850</td>
<td>1170</td>
<td>1462</td>
<td>100,000</td>
</tr>
<tr>
<td></td>
<td>975</td>
<td>292</td>
<td></td>
<td>175,000</td>
</tr>
<tr>
<td>5 Middle moderate</td>
<td>4725</td>
<td>787</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3600</td>
<td>720</td>
<td>900</td>
<td>102,000</td>
</tr>
<tr>
<td>4 Lower moderate</td>
<td>2925</td>
<td>487</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2250</td>
<td>338</td>
<td>450</td>
<td>67,000</td>
</tr>
<tr>
<td>3 Upper lower</td>
<td>1800</td>
<td>300</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1350</td>
<td>135</td>
<td>205</td>
<td>40,000</td>
</tr>
<tr>
<td>2 Middle lower</td>
<td>900</td>
<td>150</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>450</td>
<td>22</td>
<td>44</td>
<td>13,500</td>
</tr>
<tr>
<td>1 Lower lower</td>
<td>300</td>
<td>50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table of the "normal" levels of the non-monetary costs and benefits:

<table>
<thead>
<tr>
<th>Household = 6</th>
<th>Access</th>
<th>Shelter</th>
<th>Tenure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time to work.</td>
<td>Sq. meters</td>
<td>Roofed/pers.</td>
</tr>
<tr>
<td></td>
<td>Journey cost % of wage</td>
<td>% utilities</td>
<td>% of alternatives</td>
</tr>
<tr>
<td></td>
<td>Years option</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Middle moderate</td>
<td>10 min. 0-2%</td>
<td>15 sq.m., 100%</td>
<td>30 yrs. 75%</td>
</tr>
<tr>
<td>4 Lower moderate</td>
<td>10-20 min. 2-5%</td>
<td>10-15 sq.m. 60-90%</td>
<td>10-30 yrs. 75-90%</td>
</tr>
<tr>
<td>3 Upper lower</td>
<td>20-40 min. 6-10%</td>
<td>6-10 sq.m. 30-60%</td>
<td>5-10 yrs. 90-110%</td>
</tr>
<tr>
<td>2 Middle lower</td>
<td>40-60 min. 10-20%</td>
<td>3-6 sq.m. 10-30%</td>
<td>1-5 yrs. 110-150%</td>
</tr>
<tr>
<td>1 Lower lower</td>
<td>60 min. 20%</td>
<td>3 sq.m.</td>
<td>1 yr. 150%</td>
</tr>
</tbody>
</table>
The definition of principle housing supply packages and analysis of costs and benefits of main subsystems is based on case studies data but verified with the help of the interview sample.

For the summary of the costs and benefits of basic subsystems a simpler version of the described accounting systems is used (see page 128 for an example). The scale for each vector has three levels only. There are four vectors for each demand and each supply side which are subsequently compared.

The scale is as follows (from highest level 3, to lowest level 1):

**Income:** 5-8 times subsistence (and more); 3-5 times subsistence; and 0-3 times subsistence per capita (subsistence income for an adult person is assumed to be 75 pesos a month, i.e. for the first half of 1973; the present value will be higher as a result of price changes since the end of June, 1973; 100 - October 1974.

**Tenure:** freehold; de facto ownership without legal title or rent with long term secure contract; rent with short term contract or without formal contract, also squatter with no tenure security.

**Shelter:** modern standard shelter with all services; permanent structure with incomplete services and the possibility of progressive improvement; minimum quality shelter giving the basic physical protection.

**Access:** walking distance from the center of the diversified low skill employment opportunities and the central (cheap) food (and other subsistence product) markets; 30-45 minutes by public transport from the center, defined as above; 90 and more minutes from the center by public transport.

**Price:** includes current monthly costs and monthly mortgages or land payments; high - 350 and more pesos; medium - 100-200 pesos; low - 0-50 pesos (in pesos of June, 1973).

Tenure, Shelter and Access are both supply and demand variables while Price is a supply counterpart of the income variable of the demand side.

3.3 **Further analysis**

The analysis of users needs, priorities, and resources is again based on the case study data and is verified and complemented by the interviews. It is discussed in more detail in chapter 2 of section III of the dissertation. The analysis went through six stages:

- Household economies (or budget strategies);
- Household general priorities;
- Housing economies (or housing expenditure strategies);
- Housing priorities;
- Housing resources of the household;
- Demand patterns.

For each of these aspects, the individual cases were first studied to determine these family characteristics. The interpretation of past behavior was more important in the analysis than the explicitly declared attitudes. Next, priorities, economies, and demands were clustered in relation to the different characteristics of the socio-economic situation of the families. It was noted that total family income and socio-economic mobility expectations provide the clearest clustering of priorities and economies. Finally, a hypothetical generalization about these factors was made, based on the analysis of three periods in each of the case studies (year 1973, 1968, and at the arrival to present residence). These conclusions were checked with five additional case studies and with the information on priorities and economies which could be extracted from the large sample of the shorter family interviews done earlier. About 30% of the family interviews (or about 180 interviews) did contain general information on this topic. Because of the short time taken by the interviews, the quality of this information is, however, less reliable than in the case studies.

The analysis of the match between supply and demand for each housing submarket has been done in two stages: as part of the analysis of a given submarket, and in a summary of the mismatches of the system. The details of the analysis are uneven between the submarkets as a function of unequal data availability.

In the first part of the analysis the simplified model of three sectors was used: users themselves, the private commercial sector (including direct suppliers of commercial housing or its components or resources), and the public sector.

The basic indicators of the match have been divided into monetary and non-monetary categories. The main monetary indicators for the users were: the relation between current housing costs and the value of housing goods and services received, and the equity earned in relation to investment and income.

The principal non-monetary factors included: access to employment and low cost markets as well as to local networks of kin and friends; the match of tenure type with the security of continued residence, and the ease of its transferability as needed; and the match of physical quality of housing with the spatial, environmental, structural, and utility quality needed.

The main monetary indicators for the private-commercial sectors were: net profits and assets. In the non-monetary category the stability and security of continued profits and the potential for expansion were considered.
For the public sector the principal monetary indicator was the relation between the costs of providing utilities and services and the tax revenues. The other important factor is the assessed value of properties and their increase potential.

On the non-monetary side the principal factor was the impact on the stability of the political system (typical principal government interest). User satisfaction, public welfare as affected by the submarket, and the public image are in some way subsumed by this main factor.

The second part focused on the user costs and benefits and on the macrosocial and macroeconomic impacts.

The analysis ends with a brief discussion of some of the aspects of the basic resource markets of land, technology, and finance. The principal focus of the analysis is the impact on incremental construction and progressive development considered by myself to be the main past and present supply of housing stock, and the only one with the potential to meet the demand needs. The focus on a brief analysis of the infrastructure methods and services is similar. Policy implications are reached on the basis of the mismatch analysis of deficits and dysfunctions of the present housing system and of the resources available for the solutions.
APPENDIX B

LOCALITIES AND POPULATION STUDIED

1. Localities

Family interviews were conducted in 49 localities, which are listed on pp. 531-2. The method of their selection is discussed in Appendix A. The analyzed data refers to only 37 localities. This reduction is the result of 2 factors: (1) data from six localities was analyzed together with the data of neighboring localities (because of the small size of the sample, physical proximity, and very similar characteristics); (2) in six localities the majority of the questionnaires were incomplete, and could not be used for analysis (they were useful though for the selection of the in-depth case studies).

The typology on the following list is one which was used at the beginning of the study, before starting the field data collecting process. (Only the information about the city growth ring which contains the locality refers to the concept of the spatial pattern of the low income housing system explained in I.3.)

Localities are grouped in the list according to the Mexico City colloquial language typology of low income housing areas. The last group (middle income housing) was included for comparative purposes.

Within each type, localities are listed according to their approximate age, beginning with the eldest ones.

Numbers on the list correspond to numbers on the map, on p. 533.

Explanation of typology:

I. Herradura de tugurios, literally "Horseshoe of Slums," refers to the oldest low income housing areas adjacent, from the east, north, and partially south, to the historic center of the city. As a result of a certain form of downward filtering, the herradura extended itself also over the parts of a center.

Vecindades, the Mexican name for low cost tenements (zona de vecindades - zone of low cost tenements) are usually organized around a central courtyard with communal services. Vecindades, the predominant housing solution within the herradura, usually of one or two floors, were built for profit in those areas primarily between the turn of the century and 1940. Some are subdivided and rebuilt old higher income homes. Zona de Vecindades is a more popular name, while herradura de tugurios, although used more in literature and reports, is an upper and middle class term.
II. Colonias proletarias and colonias populares, mean respectively: the proletarian and the popular districts, and describe the low income subdivisions. The list does not distinguish, as colloquial language typology does not either, between the legal or partially legal subdivisions, legalized illegal subdivisions of communal ejido land and legalized squatter invasion areas.

III. Colonias paracaidistas - the parachutist districts, or zonas de invasion - the invasion districts, refer generally to squatter settlements. Presently those terms are also used to describe the not legalized, clandestine subdivisions of the communally owned ejido land. Once the occupants are granted legal land titles, such an area is called colonias proletaria or colonia popular.

IV. Zonas de jaca, ciudades perdidas, respectively districts of shacks, lost cities: describe the shanty towns with land or shacks for rent. Because of the morphological similarity this term is sometimes used to describe some squatter settlements.

V. Unidades habitacionales, or conjuntos subsidiados are the subsidized public housing projects.

VI. Pueblos rurales - the rural villages, which are becoming absorbed by the metropolitan area. Some of the colonias developed on the base of such villages.

VII. Colonias de clase media, the middle class housing areas, were included in the initial research for comparative purposes, but not included in the further analysis of data.

2. Population:

2.1 Family interviews

As explained in the Project Framework, section I.1., it was not possible to define the exact number of the population of the low income housing system. Depending on the definition accepted, it would vary between 5 and 8 million people - between 50 to 80% of the total population of the metropolitan area. The intention of the sample was to represent as closely as possible the characteristics of this population. The total family incomes (see p. 534) of the family interview sample indicate a very high variety (in general, and within the localities), with the concentration between 900 and 2500 pesos, and especially 1000 and 1500 pesos.

This cannot be compared with the distribution of family incomes in the city as a whole, as such data is not available. Personal income data from the 1970 census indicates that 85% of the labor force earns below 2500 pesos a month, 47% below 1000 pesos (minimum salary) and 16% below 500.
This is less than in the families of the sample. However, since lower income families often have more than one income contributor, the actual family income distribution of the lower income population may be similar to the one of the sample. Per capita (per adult unit) incomes (p. 535) also demonstrate a high variety (wide distribution). The variety of income levels, both in general, and within localities, implies the large variety of capacities of payment for housing.

Unstable incomes also mean a need of flexibility in housing expenditures. There is no aggregate data on income stability available. My findings on that are presented on p. 536, indicating 30% or more of the population with irregular income in 13 out of the 33 low income localities (4 subsidized projects not included) and in some cases, up to 66% and even 80% (in the squatter colonia of Santo Domingo de los Reyes).

The table also includes a very general division between the families with irregular incomes (receiving income more than 50% of a year), and very irregular (less than 50%) ones.

Squatter settlements and "ciudades perdidas" have more families with irregular incomes than other areas; they also have the relatively lowest incomes. The number of contributors to family income has not been studied on a larger scale. It is an important factor as it demonstrates the dependence of maintaining the present income on the present residence location.

Secondary and tertiary income earners contribute a smaller proportion of income, they usually walk to work, working locally. A change of residence location adds transportation costs which in some cases are higher than their small earnings.

The majority of families interviewed did have secondary income contributors. Their number was usually decreasing, the further the locality was from the concentration of low skill employment opportunities. (See p. 537). In terms of family economy, 3 types have been distinguished: receiving, autonomous, and contributing. As table on p. 538 indicates, almost all families are in the autonomous category. This is different from the conclusions of studies in other areas, especially those studying the earlier stages of the urbanization process.

Table on p. 539 distributes the families by general types. Nuclear families predominate. In some of the colonias populares, in the central vecindad area of Tepito, in the ciudad perdida, and in the squatter area of Iztacalco, a larger proportion of extensive families were found. All the localities with larger numbers of extensive families are the present, or former, squatter areas, or other (Tepito and ciudad perdida San Pedro Xalpa) areas presently in danger of eradication. It is possible that struggle, which is necessary in order to settle and to retain property, leads to more family contacts and, consequently, a continued residence in larger units. However, Tepito is a special case because of the very low, frozen rents which provide additional incentive not to move out despite high overcrowding.
<table>
<thead>
<tr>
<th>No.</th>
<th>Locality name</th>
<th>Distance to city center in km.</th>
<th>Ring</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Herradura de tugurios, Zona de vecindades</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>2</td>
<td>Centro (Primer Cuadro)</td>
<td>0-1</td>
<td>I</td>
</tr>
<tr>
<td>3</td>
<td>Tepito (Morelos)</td>
<td>2</td>
<td>I</td>
</tr>
<tr>
<td>4</td>
<td>Guerrero</td>
<td>2-3</td>
<td>I</td>
</tr>
<tr>
<td>5</td>
<td>Peralvillo</td>
<td>3</td>
<td>I</td>
</tr>
<tr>
<td>6</td>
<td>Colonias Proletarias, Colonias Populares</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Oberera</td>
<td>3</td>
<td>II</td>
</tr>
<tr>
<td>6</td>
<td>Gertrudis Sanchez</td>
<td>4-5</td>
<td>II</td>
</tr>
<tr>
<td>7</td>
<td>Tlacoligia</td>
<td>7</td>
<td>II</td>
</tr>
<tr>
<td>8</td>
<td>Agricola Oriental</td>
<td>8</td>
<td>II</td>
</tr>
<tr>
<td>9</td>
<td>Garza</td>
<td>8</td>
<td>II</td>
</tr>
<tr>
<td>10</td>
<td>Magdalena Atlazolpan</td>
<td>8</td>
<td>III</td>
</tr>
<tr>
<td>11</td>
<td>Acueducto</td>
<td>9</td>
<td>III</td>
</tr>
<tr>
<td>12</td>
<td>El Capulin</td>
<td>9</td>
<td>III</td>
</tr>
<tr>
<td>13</td>
<td>Martires de Tlacoligia</td>
<td>10</td>
<td>III</td>
</tr>
<tr>
<td>14</td>
<td>Olivar del Conde</td>
<td>10</td>
<td>III</td>
</tr>
<tr>
<td>15</td>
<td>Netzahualcoyotl</td>
<td>11</td>
<td>IV</td>
</tr>
<tr>
<td>16</td>
<td>Isidro Fabela (Pedregal de Carrasco)</td>
<td>16</td>
<td>IV</td>
</tr>
<tr>
<td>17</td>
<td>Granjas Valle de Guadalupe</td>
<td>12</td>
<td>IV</td>
</tr>
<tr>
<td>18</td>
<td>Tlacoligia</td>
<td>20</td>
<td>V</td>
</tr>
<tr>
<td>19</td>
<td>San Rafael Chamapa</td>
<td>18</td>
<td>V</td>
</tr>
<tr>
<td>20</td>
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<td>V</td>
</tr>
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<td>21</td>
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<td>V</td>
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<tr>
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<td>Ecatepec - Piel Roja</td>
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<tr>
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<td>Ecatepec - Florida</td>
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<td>V</td>
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<td>25</td>
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<td>Colonia Paracaidistas, Zonas de Invasión</td>
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<tr>
<td>21</td>
<td>Ixtacalco</td>
<td>6</td>
<td>II</td>
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<td>Juventino Rosas</td>
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</tr>
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<td>23</td>
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<td>10</td>
<td>III</td>
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<tr>
<td>24</td>
<td>Cruz Manca</td>
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</tr>
<tr>
<td>25</td>
<td>Santa Ursula</td>
<td>15</td>
<td>IV</td>
</tr>
<tr>
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<td>Pedregal de Santa Ursula</td>
<td>15</td>
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<td>Santa Ursula Coapa</td>
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<td>28</td>
<td>Ajusco</td>
<td>15</td>
<td>IV</td>
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<td>29</td>
<td>La Cantera</td>
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<td>IV</td>
</tr>
<tr>
<td>30</td>
<td>Santo Domingo de los Reyes</td>
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<td>IV</td>
</tr>
<tr>
<td>No.</td>
<td>Locality name</td>
<td>Distance to city center in km.</td>
<td>Ring</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------------------------------------</td>
<td>--------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>30</td>
<td>San Nicolás de Padierna</td>
<td>21</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td><strong>Zonas de Jacales, Ciudades Perdidas</strong></td>
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<td></td>
</tr>
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<td>31</td>
<td>Buenos Aires</td>
<td>3</td>
<td>II</td>
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<tr>
<td>32</td>
<td>La Marranera (Magdalena Mixhuca)</td>
<td>5</td>
<td>II</td>
</tr>
<tr>
<td>33</td>
<td>San Pedro Xalpa</td>
<td>12</td>
<td>III</td>
</tr>
<tr>
<td>34</td>
<td>Santiago Ahuizotla</td>
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<td>III</td>
</tr>
<tr>
<td></td>
<td><strong>Unidades Habitacionales, Conjuntos Subsidiados</strong></td>
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<td></td>
</tr>
<tr>
<td>34</td>
<td>Unidad Santa Fe</td>
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<td>III</td>
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<td>35</td>
<td>Unidad San Juan de Aragon</td>
<td>6-8</td>
<td>II/III</td>
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LOCALITIES OF THE SAMPLE OF FAMILY INTERVIEWS IN RELATION TO GROWTH RINGS OF THE CITY
TOTAL INCOMES OF THE INTERVIEWED FAMILIES,
BY LOCALITIES (IN PESOS OF 1970)
### Monthly Income Per Capita in Pesos

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<tr>
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<td>17 Barrio Suria</td>
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**Per Capita Incomes of the Interviewed Families, by Localities**
### NUMBER OF HOUSEHOLDS INTERVIEWED

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<th>Vecindad</th>
<th>Total in the Locality</th>
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<th>Very Irregular Income</th>
<th>% with Irregular and Very Irregular Income</th>
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<tr>
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<tr>
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</tr>
<tr>
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<tr>
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<tr>
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</tr>
<tr>
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<tr>
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REGULARITY OF INCOME OF THE INTERVIEWED FAMILIES, BY LOCALITY
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NUMBER OF CONTRIBUTORS TO FAMILY INCOME, BY LOCALITIES
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<td>35 U. San Juan Aragon</td>
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<tr>
<td>36 U. Vicente Guerrero</td>
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<tr>
<td>37 U. Picos Iztacalco</td>
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</tbody>
</table>

*Types of family economies in the interview sample, by localities*
<table>
<thead>
<tr>
<th>Vecindad</th>
<th>Incomplete Nuclear</th>
<th>Extensive Aggregate</th>
<th>Incomplete Extensive</th>
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<th>Extensive Aggregate</th>
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<tbody>
<tr>
<td>1 Centro (Primer Cuadro)</td>
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<td>2 Tepito (Moralos)</td>
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<td>5 Obrera</td>
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<td>7 Tacubaya</td>
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<td>9 Garza</td>
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<td>10 Magdalena Atlazolpan</td>
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<td>11 Acueducto, El Capulín</td>
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<td>12 Narritas de Tacubaya</td>
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<td>13 Oliver del Conde</td>
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<td>14 Netzahualcoyotl</td>
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<td>15 Isidro Fabela</td>
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<td>20 Ecatepec</td>
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<tr>
<td>21 Iztacalco, J. Rosas</td>
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<td>22 Barrio Norte</td>
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<td>24 Santa Ursula</td>
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<tr>
<td>25 Pedregal de Sta. Urs.</td>
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<td>26 Sta. Ursula Coapa</td>
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<td>27 Atzaco</td>
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<td>28 La Cantera</td>
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<td>29 Sto Domingo</td>
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<tr>
<td>30 Padierna</td>
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<td>31 Buenos Aires</td>
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<tr>
<td>32 La Marranera</td>
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<td></td>
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<tr>
<td>33 San Pedro Xalpa</td>
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<td>34 Unidad Santa Fe</td>
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<td>36 U. Vicente Guerrero</td>
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<td>37 U. Picos Iztacalco</td>
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</tbody>
</table>

TYPES OF FAMILIES INTERVIEWED,
BY LOCALITY
2.2 Case Studies

As explained in appendix A, the families of the in depth case studies were selected from the large interview sample, according to the series of criteria that would assure their representativeness.

Figures (A), (B), and (C) present the distribution of these families in relation to their mobility expectations, occupational status, and income.

Scale 1:10 for occupational status was as follows:


Total income scale (in thousands of pesos of 1973 per year):

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<tbody>
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<tr>
<td>3.6</td>
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<td>11</td>
<td>17</td>
<td>22</td>
<td>30</td>
<td>36</td>
<td>50</td>
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<tr>
<td>8</td>
<td>72</td>
<td>72</td>
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</table>

Per capita income scale (in subsistence multiplier per adult unit):

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<td>6</td>
<td>7</td>
<td>8</td>
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<tr>
<td>0-15</td>
<td>1-25</td>
<td>2-35</td>
<td>3-45</td>
<td>4-55</td>
<td>5-65</td>
<td>6-85</td>
<td>8-105</td>
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Per-capita income is calculated in "adult units":
Persons 15 years old and more are taken as 1 adult unit;
Persons 8-14 years old are taken as 0.75 adult unit;
Birthdate - 7 years old is taken as 0.5 adult unit.
1973 SOCIOECONOMIC MOBILITY EXPECTATIONS

<table>
<thead>
<tr>
<th>OCCUPATIONAL STATUS OF THE HOUSEHOLD HEAD</th>
<th>DOWN MOBILE</th>
<th>STABLE</th>
<th>UPPER MOBILE</th>
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<td>7</td>
<td>1 2</td>
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<td>23 15 4</td>
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<tr>
<td>1'</td>
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</tr>
<tr>
<td>LOW INCOME</td>
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<td>5</td>
<td>24 17 18 14</td>
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<td>1'</td>
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<tr>
<td>VERY LOW INCOME</td>
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<td>S</td>
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<tr>
<td>SUBSISTENCE LEVEL (S)</td>
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OCCUPATIONAL STATUS OF THE HOUSEHOLD HEAD
AND SOCIOECONOMIC MOBILITY EXPECTATIONS IN
25 CASE STUDIES
<table>
<thead>
<tr>
<th>TOTAL HOUSEHOLD INCOME</th>
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<th>STABLE</th>
<th>UPPER MOBILE</th>
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<tr>
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<td>13</td>
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TOTAL HOUSEHOLD INCOME
AND SOCIO-ECONOMIC MOBILITY EXPECTATIONS
IN 25 CASE STUDIES
1973 Socioeconomic Mobility Expectations

<table>
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<th>Per Capita Income</th>
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<th>Stable</th>
<th>Upper Mobile</th>
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<td>7 25</td>
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<td>21</td>
<td>9 12 17</td>
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<tr>
<td>1</td>
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<td>20</td>
<td>22 14</td>
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</tbody>
</table>

Per Capita Income and Socio-economic Mobility Expectations in 25 Case Studies
CHANGES OF ANNUAL INCOMES OF FAMILIES OF 25 IN-DEPTH CASE STUDIES
Figure on page 544 shows changes of annual family incomes over time.

Distribution of cases by localities, and locality type is shown in Table

<table>
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<th>Locality</th>
<th>Locality Type</th>
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<td>A. Tepito</td>
<td>City center - vecindades</td>
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<td>5-6</td>
<td>B. Centro - 1er Cuadro</td>
<td>City center - vecindades</td>
</tr>
<tr>
<td>7-8</td>
<td>C. Marranera</td>
<td>Ciudad perdida</td>
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<tr>
<td>9-10</td>
<td>D. Magdalena Atlazolpan</td>
<td>Fraccionamiento popular</td>
</tr>
<tr>
<td>11-12</td>
<td>E. Sto. Domingo de los Reyes</td>
<td>Colonia paracaidista</td>
</tr>
<tr>
<td>13-14</td>
<td>F. San Nicolas de Padierna</td>
<td>Colonia paracaidista</td>
</tr>
<tr>
<td>15-16</td>
<td>G. Tlacoligia</td>
<td>Fraccionamiento popular</td>
</tr>
<tr>
<td>17-21</td>
<td>H. Chamapa</td>
<td>Fraccionamiento popular</td>
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<tr>
<td>22</td>
<td>I. Sta. Cruz Meyehualco</td>
<td>Conjunto subsidiado</td>
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<tr>
<td>23-25</td>
<td>J. Vicente Guerrero</td>
<td>Conjunto subsidiado</td>
</tr>
</tbody>
</table>

Position of localities is indicated on the following map (page 546).
LOCALITIES OF THE SAMPLE OF IN-DEPTH FAMILY CASE STUDIES IN RELATION TO INCOME DISTRIBUTION OF POPULATION
1. Family Interview Questionnaire

The following questionnaire was used for the household interviews conducted in this study. It should not be considered a model reflecting the author's present opinion on how such a questionnaire should be written. On the contrary -- the experience of the study suggested a number of its weaknesses.

Many of the questions which invited imprecise answers required explanation to the interviewed; some others I decided to skip.

The basic structure of the questionnaire is organized by residential moves, so that the questions are asked separately for each location at which the household resided. The only exceptions are the questions about the household's monetary economy, which are left for the end as there is always the possibility that after such "delicate" questions, the family may refuse any further answers.

An interview of one family took between 30 to 90 minutes, depending on the complexity of the family's history and the willingness on the part of the family to talk about it.

I had initially hoped to interview only the family heads and this remained the preferred form throughout all the family interviews. Because of time and resource limitations, however, in many cases I had to accept an interview with the household head's wife (or husband) as the second best solution, when the head of the household was not available. In these cases, when neither was at home, or the family refused to answer the questions, their right hand neighbor was chosen. If this would not work either (which did not occur) then the left hand neighbor would be solicited.

The original, completed questionnaires are presently in Mexico City with the 3 following institutions:

- UIA (School of Architecture)
- UNAM (School of Architecture)
- COPEVI

Samples of the completed questionnaire and the originals of the summary charts are in the author's possession.
INTRODUCCIÓN.

Pedregal de Conra

"BUENOS DÍAS (TARDES, NOCHES). ESTAMOS HACIENDO UN ESTUDIO SOBRE ALGUNAS CARACTERÍSTICAS DE LA VIVIENDA Y LA POBLACIÓN DE LA CIUDAD DE MÉXICO.

EL ESTUDIO SE ESTÁ LLEVANDO A CABO POR PARTE DE UN GRUPO DE Estudiantes independientes, su finalidad es conocer algunas característicaS, tales como el lugar de procedencia de las personas, aspectos relacionados con el trabajo y ocupación, el número de hijos y la educación de los mismos, etc.

ESTE CUESTIONARIO ESTÁ SIENDO APLICADO APROXIMADAMENTE A 100 FAMILIAS QUE VIVEN EN LA CIUDAD DE MÉXICO. USTED HA SIDO SELECCIONADO COMO UNA DE EllAS Y ES DE SUMA IMPORTANCIA QUE COLOBRE CON NOSOTROS, PERMITIENDO HACERLE UNA SERIE DE PREGUNTAS, LO QUE LE AGRADECEMOS DE ANTEMANO.

PERMITANOS AGREGAR QUE TODA INFORMACIÓN QUE ESTAMOS RECOGiendo ES DE CARÁCTER Estrictamente CONFIDENCIAL, Y SOLO SERá UTILIZADA EN LA ELABORACIÓN DE CUADROS ESTADÍSTICOS, O SEA, NUNCA SERá RELACIONADA CON SU PERSONA EN PARTICULAR."

ENTREVISTADO: SRA.
ENTREVISTADOR: RDC.
FECHA: 18 de Sept. 72.
HORA DE INICIAR: 9.35.-
HORA DE TERMINAR: 10.20.-
CALLE: INT. (Colonia)
NO. MANZANA: LOTE:
COLONIA: Tláhuac (Puebla)

NUMERACIÓN DE CUESTIONARIO:—

H.V.L. 01.00  PRIMER DIGITO INDICA  TEMA
01.01.00  SEGUNDO DIGITO INDICA  TIEMPO
01.01.01.00  TERCER DIGITO INDICA  SUB-TEMA
01.01.01.01  CUARTO DIGITO INDICA  PREGUNTA

H  INDICA  HOGAR
V  INDICA  VIVIENDA
L  INDICA  LOCALIDAD

DIFERENCIACIÓN DEL TEXTO DEL CUESTIONARIO:

— INSTRUCCIONES AL ENTREVISTADOR
— PREGUNTAS A RESPONDER
— ESPACIO DE CODIFICACIÓN
— ESPACIO PARA ANOTACIONES, OBSERVACIONES Y ANÁLISIS DE LAS PREGUNTAS DEL ENTREVISTADOR.
### 01.00 COMPOSICIÓN FAMILIAR

#### 01.01 SITUACIÓN ACTUAL

#### 01.01.01. NÚMEROS Y SUS RELACIONES

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<th>OBSERVACIONES</th>
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### 02.00 ORIGEN Y MOVILIDAD

#### 02.01 SITUACION PASADA.

#### 02.01.01. LUGAR DE NACIMIENTO DE LOS JEFES DE LA FAMILIA:

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<td>¿ DONDE NACIO UD? ¿ Y SU ESPOSA(o)?</td>
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<td>CONV.-CONVIVIENTE</td>
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<td>¿ QUE LENGUAS SE HABLABAN EN SU CASA PATerna?</td>
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<td>02.01.01.02</td>
<td>¿ SE HABLA ALGUN DIALECTO INDIGENA EN SU CASA?</td>
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#### 02.01.02 MOVILIDAD DE RESIDENCIA DEL LUGAR DE NACIMIENTO A LA CD. DE MEXICO.

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<td>¿ QUE EDAD TENIA UD. CUANDO DEJO SU LUGAR DE NACIMIENTO?</td>
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<td>¿ Y SU ESPOSA (o) ?</td>
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<td>A DONDE SE CAMBIO UD?</td>
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<td>¿ Y SU ESPOSA (o) ?</td>
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### 02.01.02. MOVILIDAD DE RESIDENCIA DEL LUGAR DE NACIMIENTO A LA CD. DE MEXICO CONT.

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<td>02.01.02.04</td>
<td>CUÁNTO TIEMPO VIVIÓ AHÍ? Y SU ESPOSA (O)</td>
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<td>02.01.02.05</td>
<td>A DÓNDE SE VOLVIÓ A CAMBIAR? Y Y SU ESPOSA (O)</td>
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<td>02.01.02.06</td>
<td>¿ POR QUÉ?</td>
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<td>02.01.02.07</td>
<td>CUÁNTO TIEMPO VIVIÓ AHÍ? Y SU ESPOSA (O)</td>
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### 02.01.03 VISITAS A LA CD. DE MÉXICO

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<td>CUÁNDO VISITÓ UD. POR PRIMERA VEZ LA CD. DE MÉXICO? Y SU ESPOSA (O)?</td>
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<td>02.01.03.02</td>
<td>PORQUÉ RAZÓN?</td>
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<td>02.01.03.03</td>
<td>CUÁNTAS VECES VINO A MÉXICO, ANTES DE QUE FIJARA AHÍ SU RESIDENCIA? Y Y SU ESPOSA (O)?</td>
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### Movilidad de Residencia en la CD. de México

#### Primer Lugar de Residencia, Situación Pasada

#### Localidad

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<tr>
<td>03.01.01.01.</td>
<td>¿Cuando llegó a vivir a México? ¿Dónde estaba su casa?</td>
<td></td>
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<tr>
<td></td>
<td>Y la de su esposa (o)</td>
<td></td>
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<tr>
<td>03.01.01.02.</td>
<td>¿Por qué escogió ese lugar y no otro?</td>
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<tr>
<td>03.01.01.03.</td>
<td>¿Cuánto tiempo permaneció en ese lugar?</td>
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<tr>
<td></td>
<td>Y su esposa (o)</td>
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#### Tipo de Vivienda

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<td>¿Qué tipo de casa tenía Ud.?</td>
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<tr>
<td>03.01.02.02.</td>
<td>¿Cuántos cuartos tenía? ¿Rec, com. sala, patio?</td>
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<tr>
<td>03.01.02.03.</td>
<td>¿Cuántas personas vivían ahí?</td>
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<td>03.01.02.04.</td>
<td>¿En qué condiciones físicas estaba su casa?</td>
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<td></td>
<td>T. pintado</td>
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<td></td>
<td>Fino mosaico</td>
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### TIPO DE VIVIENDA, CONTINUACIÓN

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<td>- EN LA CALLE?</td>
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<td></td>
<td>AGUA, DRENAJE, LUZ</td>
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### TENENCIA Y ESTABILIDAD DE RESIDENCIA:

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<td>¿ CUÁNTO LE COSTÓ EL TERRENO?</td>
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<td>¿ CUÁNTO LE COSTÓ LA CASA?</td>
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<td>03.01.03.04.</td>
<td>¿ CUÁNTO PAGABA DE RENTA POR:</td>
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<td>¿ CUÁLES ERAN LAS PRINCIPALES VENTAJAS?</td>
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### 03.01.05 INGRESOS NO MONETARIOS

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<td>¿ OBTENÍA ALGUNOS PRODUCTOS DE SUS PROPIEDADES EN LA PROVINCIA, DE SUS PARIETES, O DE ALGÚN OTRO LADO?</td>
<td>SI</td>
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<td></td>
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<td>03.01.05.02</td>
<td>¿ QUÉ CANTIDAD?</td>
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<td>03.01.05.03</td>
<td>¿ CULTIVABA O CREABA ALGO EN SU CASA?</td>
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<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td>¿ QUÉ?</td>
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### INSTRUCCIONES

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<th>Preguntas</th>
<th>Observaciones</th>
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<tr>
<td>03.01.06.01</td>
<td>EN AQUÉL TIEMPO ¿CUÁNTOS PARIENTES TENÍA UD. EN LA CD. DE MÉXICO, SIN CONTAR LOS DE LA COLONIA?</td>
<td>8 en total</td>
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<td>03.01.06.02</td>
<td>¿CUÁNTOS EN LA COLONIA O ZONA?</td>
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<td>03.01.06.03</td>
<td>¿QUÉ TAN A MENUDO LOS VISITABA?</td>
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### ÁREAS DE COMERCIO

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<td>¿DÓNDE HACÍA SUS COMPRAS?</td>
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<td>03.01.07.02</td>
<td>¿QUÉ MEDIO DE TRANSPORTE UTILIZABA PARA REALIZAR SUS COMPRAS?</td>
<td>Común de</td>
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<td>03.01.07.03</td>
<td>¿CUÁNTO TIEMPO EMPLEABA PARA IR DE COMPRAS?</td>
<td>4 a 5 cuerdas</td>
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<td>03.01.07.04</td>
<td>¿CUÁNTO LE COSTABA EL IR DE COMPRAS?</td>
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<td>¿QUÉ TAN A MENUDO IBA DE COMPRAS?</td>
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<td>03.01.08.01 ¿ A QUÉ OTRO LUGAR DE LA CIUDAD Ú COLONIA TENÍAN QUE IR LOS MIEMBROS DE LA FAMILIA?</td>
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<td>03.01.08.02 ¿ POR QUÉ RAZONES?</td>
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**LUGAR DE RESIDENCIA EN LA CD. DE MEXICO.**

**LOCALIDAD:**

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<tr>
<td></td>
<td>CUÁNDO DEJÓ ESTE LUGAR, DEL QUE HEMOS ESTADO HABlando ¿ A DÓNDE SE FUE A VIVIR?</td>
<td>Cal. Alamos</td>
<td></td>
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<tr>
<td></td>
<td>¿PORQUÉ DEJÓ SU PRIMERA CASA?</td>
<td>Por querer vivir cerca de los pares.</td>
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<tr>
<td></td>
<td>¿PORQUÉ ESCOGIÓ ESE LUGAR Y NO OTRO?</td>
<td>Por ser más tranquilo en el Alamo.</td>
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<td>¿CUÁNTO TIEMPO PERMANECIÓ AHÍ?</td>
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**TIPO DE VIVIENDA**

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<td>¿QUÉ TIPO DE CASA TENÍA UD.?</td>
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<tr>
<td>SI ERA JACAL, CASA, CONDOMINIO, APARTAMENTO, ETC...........</td>
<td>¿CUÁNTOS CUARTOS TENÍA?</td>
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<tr>
<td></td>
<td>¿CUÁNTAS PERSONAS VIVIÉAN AHÍ?</td>
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<td></td>
<td>¿EN QUE CONDICIONES FÍSICAS ESTABA SU CASA?</td>
<td>T. Cartón, Piso Cemento, P. falso que</td>
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**OBSERVACIONES:**

- CP. Villa Cortés
- Trabajaba por 1 año
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<td>- EN SEMI PRIVADO?</td>
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<td>- EN LA CALLE?</td>
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<td>DRENAJE</td>
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<td>¿ QUE TIPO DE PROPIEDAD TENÍA?</td>
<td>SIGANINS</td>
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<td>HAGA LA PREGUNTA SI ES PROPIETARIO.-</td>
<td>¿ CUÁNTO LE COSTÓ EL TERRENO?</td>
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<td>ESPECIFICA SI SUB-ARRENDA.-</td>
<td>¿ CUÁNTO LE COSTÓ LA CASA?</td>
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<td>SERVICIOS DE: AGUA, LUZ, GAS, ETC.....</td>
<td>¿ CUÁNTO PAGABA DE RENTA POR:</td>
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OTROS MOVIMIENTOS DENTRO DE LA CIUDAD

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<td>EJEMPLO: ESCUELA, AMISTADES, DIVERSIONES.-</td>
<td>¿ A QUÉ OTRO LUGAR DE LA CIUDAD Ó COLONIA TENÍAN QUE IR LOS MIEMBROS DE LA FAMILIA?</td>
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<td>¿ PORQUÉ RAZONES ?</td>
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<td>¿ CUÁNTO TIEMPO EMPLEABAN PARA IR A ESPS LUGARES?</td>
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<td>¿ CUÁNTO LES COSTABA ?</td>
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<th>TIEMPO</th>
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### OPCIONES Y PREFERENCIAS

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<th>OBSERVACIONES</th>
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<tbody>
<tr>
<td></td>
<td>¿CUÁLES ERAN LAS PRINCIPALES DESVENTAJAS DE SU CASA?</td>
<td></td>
<td>[\text{escriba las 3 formas} - \text{pensar} - \text{pasar}] - pero no [\text{hubo problemas} - \text{no} - \text{a veces se gubara}] - no</td>
</tr>
<tr>
<td></td>
<td>¿CUÁLES ERAN LAS PRINCIPALES VENTAJAS?</td>
<td></td>
<td>no lo gustaba mucho</td>
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### INGRESOS NO MONETARIOS:

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</thead>
<tbody>
<tr>
<td></td>
<td>¿OBTENÍAS ALGUNOS PRODUCTOS DE SUS PROPIEDADES EN LA PROVINCIA, DE SUS PARIENTES O DE ALGÚN OTRO LADO?</td>
<td></td>
<td>[ ] SI [X] NO</td>
</tr>
<tr>
<td></td>
<td>¿CUÁL ES LA CANTIDAD?</td>
<td></td>
<td>[ ] SI [X] NO</td>
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<tr>
<td></td>
<td>¿CULTIVABAS O CREABAS ALGO EN SU CASA?</td>
<td></td>
<td>[ ] SI [X] NO</td>
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<tr>
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<td>¿CUÁL ES LA CANTIDAD?</td>
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<td>[ ] SI [X] NO</td>
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### INTERCAMBIO SOCIAL

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<tbody>
<tr>
<td></td>
<td>EN AQUÉL TIEMPO I CUÁNTOS PARIENTES TENÍA UD. EN LA C.D. DE MÉXICO, SIN CONTAR LOS DE LA COLONIA?</td>
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<tr>
<td></td>
<td>¿ CUÁNTOS EN LA COLONIA O ZONA?</td>
<td>1</td>
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</tr>
<tr>
<td></td>
<td>¿ QUÉ TAN A MENUDO LOS VISITABA?</td>
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<td>CESI RIVAS</td>
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### ÁREAS DE COMERCIO:

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<tbody>
<tr>
<td></td>
<td>¿ DONDE HACÍA SUS COMPRAS?</td>
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<td>MERCADO PONTILOC</td>
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<td></td>
<td>¿ QUÉ MEDIO DE TRANSPORTE UTILIZABA PARA REALIZAR SUS COMPRAS?</td>
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<td>CAMINLO</td>
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<td></td>
<td>¿CUÁNTO TIEMPO EMPLEABA PARA IR DE COMPRAS?</td>
<td>3</td>
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<td>¿CUántO LE COSTABA EL IR DE COMPRAS?</td>
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<td>¿ QUÉ TAN A MENUDO IBA DE COMPRAS?</td>
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LUGAR DE RESIDENCIA EN LA CD. DE MEXICO.

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<tbody>
<tr>
<td></td>
<td>CUÁNDO DEJÓ ESTE LUGAR, DEL QUE HEMOS ESTADO HABLANDO ¿ A DÓNDE SE FUE A VIVIR?</td>
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<tr>
<td></td>
<td>LUGAR FABELO</td>
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<td></td>
<td>¿PORQUÉ DEJÓ SU PRIMERA CASA?</td>
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<tr>
<td></td>
<td>POR ELENTAR QUE PEGABA.</td>
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<tr>
<td></td>
<td>¿PORQUÉ ESCOGIÓ ESE LUGAR Y NO OTRO?</td>
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<tr>
<td></td>
<td>COOPERATIVA QUE IBRA Y VENDER TORNOS.</td>
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<tr>
<td></td>
<td>¿CUÁNTO TIEMPO PERMANECIÓ AHÍ? 2 AÑOS.</td>
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<table>
<thead>
<tr>
<th>TIPO DE VIVIENDA</th>
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<th>OBSERVACIONES</th>
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</thead>
<tbody>
<tr>
<td>INDICAR: SI ERA JACAL, CASA, CONDOMINIO, APARTAMENTO, ETC.</td>
<td>¿ QUÉ TIPO DE CASA TENÍA UD.?</td>
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<tr>
<td></td>
<td>CASA PARTICULAR</td>
<td></td>
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<tr>
<td></td>
<td>¿ CUántOS CUARTOS TENÍA ? (1)</td>
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<td></td>
<td>¿ CUántAS PERSONAS VIVIÁN AHÍ ? 16</td>
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<td>¿ EN QUE CONDICIONES FÍSICAS ESTABA SU CASA?</td>
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<td></td>
<td>T. CONTIÍN</td>
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<td>PISO CARRO</td>
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<td>P. FAMÍLIA</td>
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<td>INSTRUCCIONES</td>
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<td>OBSERVACIONES</td>
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<td>¿QUÉ INSTALACIONES TENÍA?</td>
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<tr>
<td>- EN LA VIVIENDA?</td>
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<td>- EN SEMI PRIVADO?</td>
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<td>- EN LA CALLE?</td>
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**TENENCIA Y ESTABILIDAD DE RESIDENCIA**

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<th>OBSERVACIONES</th>
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<td><strong>INSTRUCCIONES</strong></td>
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<tr>
<td>INDIQUE SI FRA INQUILINO ó PROPIETARIO.-</td>
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<tr>
<td>HAGA LA PREGUNTA SI ES PROPIETARIO.-</td>
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<tr>
<td>ESPECIFICAR SI SUB-ARRENDA.-</td>
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<tr>
<td>SERVICIOS DE: AGUA, LUZ, GAS, ETC.......</td>
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<tr>
<td>¿QUE TIPO DE PROPIEDAD TENÍA?</td>
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<tr>
<td>- PROPIETARIO</td>
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<tr>
<td>¿CUÁNTO LE COSTÓ EL TERRENO?</td>
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<tr>
<td>$5000.-</td>
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<td>¿CUÁNTO LE COSTÓ LA CASA?</td>
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<td>APROSS. $1000.-</td>
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<td>¿CUántO PAGABA DE RENTA POR:</td>
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<td>TERRENO</td>
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OTROS MOVIMIENTOS DENTRO DE LA CIUDAD

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<th>PREGUNTAS</th>
<th>COD</th>
<th>OBSERVACIONES</th>
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</table>
| EJEMPLO: ESCUELA, AMISTADES, DIVERSIONES. - | ¿ A QUÉ OTRO LUGAR DE LA CIUDAD Ó COLONIA TENDÍAN QUE IR LOS MIEMBROS DE LA FAMILIA?  
¿ PORQUÉ RAZONES ?  
¿ QUÉ MEDIO DE TRANSPORTE UTILIZABAN?  
¿ CUántO TIEMPO EMPLEABAN PARA IR A ESOS LUGARES?  
¿ CUántO LES COSTABA ? |     |               |

<table>
<thead>
<tr>
<th>01.01.01.01 MIEMB.</th>
<th>LUGARES</th>
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<th>TRANSPORTE</th>
<th>TIEMPO</th>
<th>COSTO</th>
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### Opciones y Preferencias

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<th>OBSERVACIONES</th>
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<tbody>
<tr>
<td></td>
<td>¿Cuáles eran las principales desventajas de su casa?</td>
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<tr>
<td></td>
<td>Se getaban, aire, lechos, animales, piedra, barro, cerámica.</td>
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<tr>
<td></td>
<td>¿Cuáles eran las principales ventajas?</td>
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<tr>
<td></td>
<td>Era propiedad</td>
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### Ingresos no monetarios:

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</thead>
<tbody>
<tr>
<td></td>
<td>¿Obtenía algunos productos de sus propiedades en la provincia, de sus parientes o de algún otro lado?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SI ☐ NO ☒</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>¿Qué cantidad?</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>¿Cultivaba o creaba algo en su casa?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SI ☒ NO ☐</td>
<td></td>
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<tr>
<td></td>
<td>¿Qué? pollo, frutas, etc.</td>
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<tr>
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<td>¿Qué cantidad?</td>
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### Intercambio Social

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<tbody>
<tr>
<td></td>
<td>En aquél tiempo ¿cuántos parientes tenía Ud. en la Cd. de México, sin contar los de la colonia?</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>¿Cuántos en la colonia o zona?</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>¿Cuánto tan a menudo los visitaba?</td>
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### Areas de Comercio:

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<tbody>
<tr>
<td></td>
<td>¿Donde hacía sus compras?</td>
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<tr>
<td></td>
<td>Thalpen o Portillo</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>¿Qué medio de transporte utilizaba para realizar sus compras?</td>
<td></td>
<td>Thalpen o carrito</td>
</tr>
<tr>
<td></td>
<td>¿Cuánto tiempo empleaba para ir de compras?</td>
<td>1/2 hora</td>
<td>1/2 hora</td>
</tr>
<tr>
<td></td>
<td>¿Cuánto le costaba el ir de compras?</td>
<td></td>
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<tr>
<td></td>
<td>¿Cuánto tan a menudo iba de compras?</td>
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### 04.00 RESIDENCIA ACTUAL EN LA CD. DE MEXICO

#### 04.01 SITUACION ACTUAL

#### 04.01.01 LOCALIDAD

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<td>04.01.01.01</td>
<td>¿CUÁNTO TIEMPO HA VIVIDO AQUI?</td>
<td>4 año</td>
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<tr>
<td>04.01.01.02</td>
<td>¿PORQUÉ ESCOGIÓ ESTE LUGAR Y NO OTRO?</td>
<td>regresó su casa.</td>
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#### 04.01.02 RESIDENCIAS PREFERIDAS

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<tr>
<td>04.01.02.01</td>
<td>¿PIENSA CAMBIARSE DE ESTE LUGAR?</td>
<td>SI ( ) NO ( X)</td>
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<tr>
<td>04.01.02.02</td>
<td>¿PORQUÉ?</td>
<td>escu. patrullan</td>
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<tr>
<td>04.01.02.03</td>
<td>A DÓNDE?</td>
<td>por sus hijos.</td>
<td></td>
</tr>
<tr>
<td>04.01.02.04</td>
<td>¿PORQUÉ AHÍ?</td>
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</tr>
<tr>
<td>04.01.02.05</td>
<td>DÓNDE PREFERIRÍA VIVIR SI UD. PUDIERA ESCoger EL LUGAR?</td>
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<tr>
<td>04.01.02.06</td>
<td>¿PORQUÉ?</td>
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<tr>
<td>04.01.03.01</td>
<td>04.01.03.01 ¿QUÉ TIPO DE CASA LE GUSTARÍA TENER?</td>
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<td>04.01.03.02</td>
<td>04.01.03.02 ¿QUÉ VENTAJAS TENDRÍA LA CASA QUE UD. ESCOGERÍA?</td>
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<tr>
<td>04.01.03.03</td>
<td>04.01.03.03 ¿PORQUÉ NO PUEDE OBTENER LA CASA QUE UD. DESEARÍA TENER?</td>
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<tr>
<td>04.01.03.04</td>
<td>04.01.03.04 ¿QUÉ DESVENTAJA TIENE ÉSTA CASA?</td>
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<td>04.01.03.05</td>
<td>04.01.03.05 ¿QUÉ VENTAJAS TIENE SU CASA?</td>
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<td>04.01.03.06</td>
<td>04.01.03.05 ¿PODRÍA UD. VENDER SU PROPIEDAD Ó SU TÍTULO DE TENENCIA FÁCILMENTE?</td>
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<td>SI ( ) NO ( )</td>
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<tr>
<td>04.01.03.07</td>
<td>04.01.03.07 ¿PODRÍA UD. ENCONTRAR Ó CONSTRUIR FÁCILMENTE OTRA CASA COMO ÉSTA?</td>
<td></td>
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### Tenencia y Estabilidad de Residencia

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<th>OBSERVACIONES</th>
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<tr>
<td>04.01.04.01</td>
<td>¿Quién es el dueño de este terreno?</td>
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<tr>
<td>04.01.04.02</td>
<td>¿Cuánto le costó?</td>
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<td>04.01.04.03</td>
<td>¿Cuánto cree que vale ahora?</td>
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<td>04.01.04.04</td>
<td>¿Quién es el dueño de esta casa?</td>
<td>Sra.</td>
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<td>04.01.04.05</td>
<td>¿Cuánto le costó?</td>
<td>No sale habitualmente.</td>
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<td>04.01.04.06</td>
<td>¿Cuánto cree que vale ahora?</td>
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<td>04.01.04.07</td>
<td>¿Qué acuerdos o contratos ha hecho con el propietario?</td>
<td>Niños</td>
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<td>04.01.04.08</td>
<td>¿Por cuánto tiempo puede permanecer aquí?</td>
<td>Indefinidamente</td>
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<td>04.01.04.09</td>
<td>¿Por qué se tendría que cambiar de casa?</td>
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<td>¿Cuánto paga de renta por:</td>
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<tr>
<td></td>
<td>(agua, luz, gas, etc.)</td>
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<td>IMPUESTOS PREDIALES?</td>
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<td>04.01.05.01</td>
<td><strong>¿CON QUÉ TIPO DE RECURSOS O PROPIEDADES CUENTA UD?</strong></td>
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<td><strong>¿QUÉ RECURSOS ADICIONALES NECESITARÍA UD. PARA MEJORAR LAS CONDICIONES EN QUE VIVE?</strong></td>
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<td>Hija encuentra buen trabajo.</td>
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<td>NINGUNO</td>
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<td><strong>¿POR QUÉ?</strong></td>
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<td>Su es la puesta</td>
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<td>al regresar tros</td>
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<td><strong>¿AHORRA ALGÚN DINERO?</strong></td>
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<td><strong>ASISTENCIA Y RECURSOS:</strong></td>
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<td></td>
<td><strong>04.01.05.01</strong> INDIQUE SI TIENE TERRENOS CASAS, PRESTAMOS &amp; AHORROS.</td>
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<tr>
<td>04.01.06.01</td>
<td>¿Posee Ud. alguna propiedad en la provincia?</td>
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<td>SI (   ) NO (   )</td>
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<td>¿Qué tipo de propiedad?</td>
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<td>04.01.06.02</td>
<td>¿Ha pensado alguna vez en volver a vivir a ese lugar?</td>
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<td>SI (   ) NO (   )</td>
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<td>04.01.06.03</td>
<td>¿Por qué?</td>
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<td>04.01.06.04</td>
<td>¿Por qué no?</td>
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<td>Pasas Río de Conmunicación</td>
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<td>04.01.06.05</td>
<td>¿Visita Ud. la provincia de la cual usted proviene?</td>
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<td>SI (   ) NO (   )</td>
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<td>¿Y visita a sus parientes?</td>
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<td>04.01.06.06</td>
<td>¿Qué tan seguido?</td>
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<td>Hace 20 años</td>
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<td>04.01.06.07</td>
<td>¿En qué ocasiones?</td>
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<td>04.01.06.08</td>
<td>¿Recibe visitas de sus parientes de la provincia?</td>
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<td>SI (   ) NO (   )</td>
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<td>04.01.06.09</td>
<td>¿Qué tan seguido?</td>
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<tr>
<td>04.01.06.10</td>
<td>¿En qué ocasiones?</td>
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<td>Hace 7 años</td>
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04.01.06 se refiere a los parientes de la provincia.
### INSTRUCCIONES

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<th>OBSERVACIONES</th>
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<tr>
<td>04.01.07.01</td>
<td>¿CUÁNTOS PARIENTES TIENE EN LA CD. DE MEXICO?</td>
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<td>¿CUÁNTOS EN LA COLONIA O ZONA?</td>
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<td>¿EN QUÉ OCASIONES?</td>
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<td>¿QUE TAN A MENUDO LOS VISITA?</td>
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### INGRESOS NO-MONETARIOS

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<th>OBSERVACIONES</th>
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<tbody>
<tr>
<td>04.01.08.01</td>
<td>¿OBTIENE ALGUNOS PRODUCTOS DE SUS PROPIEDADES EN LA PROVINCIA, DE SUS PARIENTES O DE ALGÚN OTRO LADO?</td>
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<td>SI ( ) NO ( )</td>
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<tr>
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<td>¿CUANTO LE COSTARIA SI TUVIERA QUE COMPRARLOS AQUI?</td>
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### ÁREAS DE COMERCIO

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<td>¿DÓNDE HACE SUS COMPRAS?</td>
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<td>04.01.09.02</td>
<td>¿QUE MEDIO DE TRANSPORTE UTILIZA PARA HACER SUS COMPRAS?</td>
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<td>04.01.09.03</td>
<td>¿QUE TIEMPO LE TOMA EL IR DE COMPRAS?</td>
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<td>04.01.09.04</td>
<td>¿CUANTO LE CUESTA EL IR DE COMPRAS?</td>
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### INSTRUCCIONES

04.01.10.01 POR EJEMPLO ESCUELA, AMISTADES, DIVERSIONES, ETC...

### PREGUNTAS

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<th>Código</th>
<th>LUGARES</th>
<th>RAZONES</th>
<th>TRANSFERT</th>
<th>TIEMPO</th>
<th>COSTO</th>
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### INSTRUCCIONES

05.01.01.02 ESPECIFICAR EN DETALLE EL TIPO EXACTO DE TRABAJO QUE DESEMPEÑAN.

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<th>MIEMBRO</th>
<th>TRABAJOS</th>
<th>TIPO DE TRABAJO</th>
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<th>PERMANENCIA</th>
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<td>PESIMA</td>
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<td>PESIMA</td>
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05.01.01.04 ¿ TRABAJA EL JEFE DE LA FAMILIA PARA EL MISMO, O ESTÁ EMPLEADO POR OTRA PERSONA?

EMPLEADO

05.01.01.05 ¿ TIENE ALGÚN NEGOCIO O FÁBRICA EN SU CASA?

SI ( ) NO ( X ) TIPO
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<td>¿ DÓNDE ESTÁ SITUADO SU TRABAJO?</td>
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<tr>
<td>05.01.02.02</td>
<td>¿ QUÉ MEDIO DE TRANSPORTE UTILIZA?</td>
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<tr>
<td>05.01.02.03</td>
<td>¿ CUÁNTO TIEMPO EMPLEA PARA LLEGAR A SU TRABAJO?</td>
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<tr>
<td>05.01.02.04</td>
<td>¿ CUÁNTO GASTA EN TRANSPORTE?</td>
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<th>TIEMPO</th>
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**Notas**: 

- [Firma]
### 05.02 PRIMER TRABAJO EN LA CD. DE MEXICO

#### 05.02.01 OCUPACIONES

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<td>¿CUÁL FUE EL PRIMER TRABAJO QUE TUVO EL JEFE DE LA FAMILIA EN LA CD. DE MEXICO?</td>
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<td>05.02.01.02</td>
<td>¿QUÉ MIEMBROS DE LA FAMILIA ERAAN LOS QUE MAS CONTRIBUÍAN ECONÓMICAMENTE Y QUE TRABAJOS TENÍAN?</td>
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<tr>
<td>05.02.01.03</td>
<td>¿CUÁNTO TIEMPO PERMANCECIÉRAN JEFE Y MIEMBROS EN SUS TRABAJOS?</td>
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<th>05.02.01.03 PERMANENCIA</th>
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<td>H. del Hogar</td>
<td>peror</td>
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#### 05.02.02 PRIMER LUGAR DE TRABAJO

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<td>¿QUÉ MEDIOS DE TRANSPORTE UTILIZABA?</td>
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TRABAJO EN LA CD. DE MEXICO

OCUPACIONES:

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0  X Antes, LO MAS BAJO
1  X Ahora, LO MAS ALTO

0  X Antes, LO MAS BAJO
1  X Ahora, LO MAS ALTO

10 LO MAS ALTO
### Espectativas, Continuación

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### Participación

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### GASTOS DE SUBSISTENCIA:

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### SITUACIÓN FINANCIERA

#### INGRESOS

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<td>¿CUÁNTO GANAN LOS MIEMBROS DE LA FAMILIA QUE ACTUALMENTE TRABAJAN?</td>
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### Situación cuando llegó a México

#### Ingresos

#### Instrucciones

07.02.01.01 ¿Cuánto ganaba el jefe de la familia cuando llegó a México, y los miembros que contribuyan más económicamente?

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<td>$30 al mes</td>
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#### Situaciones Intermedias

#### Instrucciones

07.03.01.01 ¿Cuánto ganaba el jefe de la familia y los miembros que contribuyan más económicamente?

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**Observaciones:**
- En la construcción se han realizado trabajos de mejora en la estructura.
- Las actividades de investigación se centrarán en la mejora de la calidad de la estructura.
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| CCB. | OBSERVACION |
2. **Summary Chart of the Family Interview Questionnaire:**

Translation and explanation of the form summarizing the family interviews

The top line of the form (see page 594) includes, after the words METROPOLITAN AREA OF MEXICO CITY, the name of the locality and the number of the household (within the group interviewed at this locality) which corresponds to the number of the questionnaire.

In the next line "situation and change of the family" (one which the family is undergoing) is described in one sentence like, for example: "young family, recently arrived from rural area, children preschool age. family may grow further."

The vertical graph on the left side of the page indicates the present household income: the left column indicates the total real monthly income* in Mexican pesos of 1972. The right column indicates the per capita income**, expressed in multiples of the "subsistence income***.

The following graph, in the upper right hand corner, has a horizontal scale demonstrating the years between 1900 and 2000. The scale has been distorted in order to leave the more space for the years from 1950 to the present, about which we usually have more information. The vertical scales correspond to the geographic itinerary on the left side and the trajectory of the socio-economic mobility on the right side in terms of the type of occupation of the main income contributor, usually a household head. On the geographic itinerary scale, the word ZOCALO refers to the central square of the city, considered the main center of the whole metropolitan area.

Below this word is indicated the distance in kilometers from "Zocalo" to the household head's place of origin in the country or provincial town and to the other locations on his geographic itinerary before moving to the Mexico City Metropolitan Area.

"real income" signifies here one on which the household can count with security every month; in other words, it is a total income multiplied by the employment stability factor.

"per capita income" equals the real income, divided by the number of the "adult units" in the household. Each person who was 15 years old or older, was considered one "adult unit," between 8 and 14 years - 75%, and 0 to 7 years - 50% of the adult unit.

"Subsistence income" is the minimum income necessary for the adult person to survive without the symptoms of malnutrition, choosing the cheapest possible food. It is assumed that in the Mexico City climate 85% to 90% of the subsistence income is spent on food and the remainder for the cheapest form of clothing and transportation. Practically nothing is left for housing. The concept of subsistence income is very useful for a comparison of data between regions and countries, cultures and historic periods.
SUMARY CHART OF FAMILY INTERVIEW QUESTIONNAIRE

Example
Lo sez. le ayudó a su madre a cocinar, 
ediste que estuviéramos de nigros.
Como la primera vivienda falleció una acaso que 
diez o la calle, lo sez. se dio mole y las do
mieres.

El único deseo de la sez. es que este caso 
se le quede a sus hijos, y que no se les quite.
Above the word "Zocalo" are indicated the distances to the places of residence within the metropolitan Area.

As can be seen in the example (page 594), the line of the geographic trajectory is accompanied by circular symbols and letters. These symbols indicate the physical quality of the housing and the locality (left side of the circle corresponds to dwelling and right side to locality), each of them in three categories: bad-unimprovable, (fully hatched), improvable (1 quarter hatched, one not), and good (both quarters not hatched).

The letters correspond to the specific physical housing environment type in which the family was living at a given point. There are 9 different types distinguished: vecindad (low cost tenement), ciudad perdida (rental shanty town), colonia paracaidista (squatter area), colonia proletaria (low cost subdivision), unidad habitacional (subsidized public housing), lower cost private commercial housing area, upper-middle income housing area, industrial area, and rural village.

The remaining content of the questionnaire summary chart is divided into 3 parts:

- Items 1 to 15 refer to different periods in the household's life (the information is represented by numbers and symbols). The position of the information in the line, against the horizontal scale of years from 1900 to the present indicates the period to which the given data refers.

- Items 16 and 17 refer to present attitudes and are marked by choosing one of the alternatives.

- Item 18 is answered descriptively on the reverse side of the page.

The reverse side of the page also serves for any other additional comments or explanations which might be necessary.

The data summarized in items 1 to 18 are as follows:

1. The type of family; seven types were considered: incomplete (I), nuclear (N), extended (E), aggregate (A), incomplete-extended (IE), incomplete-aggregate (IA), and extended-aggregate (EA).

2. Number of family members

3. Number of family members who contribute income.

4. Type of family economy; 3 types were considered: receiving (R), autonomous (A) and contributing (C).
5. Income stability; 3 levels of income stability were distinguished: very irregular (P) meaning more than 50% of the time without income; irregular (I) 50% to 75% of the time with this income, and regular (R) over 75% of the time with the declared income.

6. Total income in current pesos

7. Per capita income in current pesos

8. Monthly housing cost in current pesos

9. Monthly cost of utilities in current pesos

10. Housing and utility payments as a proportion of income

11. Housing standards: surface under the roof per capita and percentage of utilities (see

12. Tenure type: "arrimado" (A); employer provided (T); rental, including also lent without payment, "infill squatters" and cuidadores" (R); ownership (P) including also property oriented squatters.

13. Time and means of travel to market. The one way travel time is given in minutes. The letter "T" next to the number of minutes means that public transport was used. Otherwise it refers to walking time.

14. Distance to market. Indications as in 13

15. Advantages and disadvantages (as defined by the family).

16. Importance (place in the sequence of relative importance):

- Location of dwelling near the center of the city
- Location of dwelling near one's own employment place
- Being the owner of the dwelling
- Having a modern standard dwelling
- Low housing cost.

17. Expectations

a) socio-economic mobility
b) housing improvement

18. Brief description of the present housing needs and priorities of the family.

The summary chart has proven to be very useful for the data processing and analysis. However, in designing a similar chart for future use I
would add 4 items:

- age of the household head
- travel cost (one way) to employment
- travel cost (one way) to market
- level of general match between the housing demand of the family and the given housing it has had (an aggregate indicator, for which I would have to design a reference scale).
1. Case Study Guide and Explanation of the Case Study Graphs

Case Study Guide

I BASIC HOUSEHOLD / HOUSING CHARACTERISTICS

1. Household or family type:
   a. Category (nuclear, extended, etc.)
   b. No. of persons in the household
   c. Basic age/sex, composition

2. General character of change the family is undergoing

3. Socio-economic status of the household:
   a. Occupational
   b. Income
   c. Educational

4. Socio-economic mobility of the household -- (including future expectations):
   a. Occupational
   b. Income
   c. Educational

5. Residential location of the household

6. Residential itinerary of the household by localities and subsystems, beginning with migration date from rural or other area; include the anticipated future moves:
   a. Tenure situation / for each place
   b. Shelter quality / for each place

7. Brief summary of the supply/demand match/mismatch:
   a. Present
   b. Past

8. Representativeness of household in terms of the distribution of demand and supply patterns

9. Relevance for action programs (such as urban renewal, new low cost tenements, old tenement reconstruction, low cost subdivisions and site and service programs)

(ONLY BRIEF GENERAL ANSWERS FOR THE ABOVE QUESTIONS)
BASIC PERSONAL DATA:

1. Place and date of birth of household head
2. Place and date of birth of his/her wife/husband
3. Present household composition:
   a. name, age, sex, education and occupation of all the members in the household
   b. their relationship and permanence of residence in the household

II BACKGROUND HISTORY OF THE HOUSEHOLD

PLACE OF ORIGIN OF HOUSEHOLD HEAD AND SPOUSE

1. How big was his/her father's family (immediate family)?
2. What did his/her father do for a living (describe job, work relations, position in respect to means of production and productive process)?
3. If in monetary economy how much approximately did he earn? Did he support anyone else besides his nuclear family?
4. Did they speak any native language in the house?
5. Where was his/her close family when first moved from the place of birth?
6. What was his/her occupational/prosperity/income/educational status at the place of birth at the time of moving from this place?
7. State of family at the time of moving.
8. State of community relations at the time of moving.
9. Where are his/her brothers and sisters now?
10. Why did she/he move from this place?

EACH PLACE OF RESIDENCE BEFORE MOVING TO THIS CITY OR AREA:

1. Locality and state
2. Dates of residences
3. Family status, obligations to family in place of origin
4. Occupation
5. Income
6. Education
7. Housing Situation
   Location
   Tenure, cost
   Standards
8. Family expenditure distribution (food, clothing, housing, transportation, appliances, etc., education, savings, others)
9. General advantages and disadvantages of living there
10. Housing priorities at this point (location, tenure, shelter standards, others)
11. Why did they move from this place?
   (IF RECENT MIGRANTS TO THIS CITY GET MORE DETAIL)
III VISITS TO THE CITY BEFORE MOVING

1. Describe for household head and spouse, whether married or not:
   a. When was the first visit made here and why?
   b. How many more visits were made before deciding to come and why?

2. For any longer periods of stay of household head and spouse describe:
   a. Work
   b. Housing
   c. Supporting family back home?
   d. Or being supported by them?

MOVING TO THE CITY

1. Did he or she (the household head) have any contacts before coming?
   a. Who were they, what relationship?
   b. What did they do or where did they work?
   c. Where did they live (describe place by type, rent and tenure)?

2. Did any contact provide him/her with accommodation upon arrival?
   a. Who was this contact?
   b. Where did they provide accommodation?
   c. What kind of accommodation was it (in their own dwelling, sub-rented room or dwelling, rented room or dwelling, piece of land, etc.)?
   d. Did he or she pay rent, and how much?

3. If contact did not provide accommodation,
   a. Did they help in finding any, and if so, how?
   b. Did they suggest where permanent or temporary accommodation could be found?
   c. Who provided this help?

4. Did the household head have a job lined up before coming to the city?
   a. What was it?
   b. How did he find it or who helped him?

5. Did any contacts (specify whom)
   a. Find a job for household head before or after arriving?
   b. Suggest where or how to look for one?
   c. Actually provide a job? If so, where, how long after arrival, and how did household support himself until then?

6. Did the household head have a particular skill that he/she thought would easily find a job?

7. Did he/she have any other questions relative to settling down in the city and what were they?

8. What were the sources of information for these questions?
9. General priorities upon arrival:
   a. What did he/she most hope to get out of coming to the city?
   b. How long did he/she expect to stay?
   c. What did he/she most want to spend money on?

ARRIVAL TO THE CITY

1. Was the household head married upon arrival?
   a. If so did he/she bring the family along?
   b. If not who was the family staying with?

2. Did the household head have any obligations
   a. To his/her nuclear family back home?
   b. To parents or other family members?
   c. To others, and why?

3. Did the household head receive any financial support
   a. From nuclear family if married?
   b. From parents or other family members?
   c. From property or other investment resource?
   d. From other?

4. What was his/her attitude towards various responsibilities, such as:
   a. Support of spouse and eagerness to bring him/her to the city?
   b. Need to become financially independent, if supported by family?
   c. Maintenance of property or other investments resource belonging
      or partially belonging to him/her, now or possibly in the future?

5. What was the most important or the 1st, 2nd, 3rd, most important
   thing he/she tried to do upon arriving?

6. Description of job upon arriving:
   a. How household head got it and how long after arriving or between
      jobs?
   b. What and where was the job?

7. If self employed, describe in detail:
   a. How that activity was chosen?
   b. How household head set it up and got it started?
   c. What help he/she received, from whom and under what conditions?

8. Did the household head like the job?
   a. If so, what did he/she like about it?
   b. If not, why not?

DWELLING SITUATION UPON ARRIVAL

1. How did the household head find a place to stay?
   a. Who suggested it or other places?
   b. Did he/she have a choice?
   c. If so, why this place instead of others?
2. Locality description:
   a. Indicate population density and land use.
   b. Describe utilities services and facilities of the locality.
   c. Describe predominant types of dwelling and standard.

3. Was the place a dwelling unit or a piece of land?
   a. Number of rooms, area per capita
   b. Utilities (in unit, adjacent or on street)
   c. Quality of construction
   d. Was it temporary, semi temporary or permanent?
   e. Did they make any additions or modifications to the unit or the land?

4. Did they rent or buy or begin to buy the place?
   a. How much was the monthly rent or payments?
   b. Were the rent or payments a severe burden?
   c. Did they try to compensate by, for example, sub-renting?

5. If the family built the dwelling themselves:
   a. Where did they get the materials?
   b. Where or from whom did they hear about them?
   c. What was the total actual cost of the dwelling unit, excluding the land value?
   d. How much time did they spend building it?

SOCIAL PATTERNS

1. With whom was the household head most friendly?
   a. Relatives in the city
   b. Friends made in the vicinity of the dwelling
   c. Work friends, initial contacts, or others

2. When the household head moved to the city
   a. Did he/she lose contact with old friends?
   b. Form new relationships?

3. Did he or she keep in close contact with
   a. Relatives in the city or back home?
   b. Neighborhood friends?
   c. Did he/she want to keep in contact with them?

4. Did close neighbors help or exchange favors (child care, money lending, food, etc.)?
   a. Did their relatives?
   b. Did any other?

THE FOLLOWING INFORMATION SHOULD BE COMPLETED FOR EACH RESIDENCE

IV. HOUSING CHARACTERISTICS OVER TIME

1. Why did the family leave its previous residence?
   a. Where did it move to?
b. Why did they choose this place?
c. How long did they stay there (approximate dates)?

2. How did household head find a place to stay?
a. Who suggested it or other places?
b. Did he/she have a choice?
c. If so, why this place instead of other possibilities?

3. Did he/she like the place?
a. If so, for what reasons?
b. If not, why not?

4. Locality description:
a. Indicate population, density, land use intensity and type of this location.
b. Indicate one way distance, travel time and cost to center of city and/or other large employment center.
c. Indicate utilities, services and facilities of the location (describe and specify mail, police, garbage collection, etc., characteristics of and distance to schools, sportsfields, etc.).
d. Describe environmental quality and community life.
e. Describe predominant types of tenure and standard.

5. Tenure:
a. If rented, what type of contract, length of contract, frozen or unfrozen rent (rent control)?
b. If owned, describe type of contract for house and land.
c. Describe security and transferability.
d. If owner was other than occupant, who was the owner of land and house?

6. Standard:
a. Was the place a dwelling unit or a piece of land?
b. Describe: number of rooms, sq. meters under roof, sq. meters under roof per capita, sq. m. of open space shared with other families (how many)?
c. Describe utilities (in unit, adjacent or on street) in detail: water (delivery and storage); sewer; streets (paved or what) street lighting.
d. Describe type and quality of construction: walls, floor; roof; windows; others.
e. Describe improvements, enlargements and other changes of the shelter.
f. Was the construction big or small?
a. Was it temporary; semi permanent or permanent?

7. If the family built the dwelling themselves
a. Where did they get materials and hear of them?
b. What materials were easiest to find?
c. Which materials did they prefer and why?
d. Who delivered the materials?
e. What did the components of the building cost?
8. Did anyone help the family build the dwelling?  
   a. Who and what did they do? When?  
   b. Did they pay them? How much?  

9. The land that the dwelling was built on:  
   a. Was it shared with other families?  
   b. Was this family alone on it?  
   c. If they owned it, did they subrent a part to other families?  

10. Price - Investment:  
    a. Describe initial down payment and length and quantity of monthly payments for the land.  
    b. Describe initial down payment for the house. (if incremental construction, describe sequence, timing and costs).  
    c. Describe monthly payments and their length (mortgage).  
    d. Describe other investments in the house and locality improvements.  

11. Cost - monthly:  
    a. Rent (specify for what)  
    b. Taxes (specify for what)  
    c. Utilities (specify as in 6c, in detail)  

12. Equity:  
    a. Sale value at the end of residence  
    b. Key money, in case of rent  

13. Decision distribution pattern:  
    a. Who and why decisions were made?  
    b. Advantages and disadvantage of living there  

14. Did household head borrow money to buy land or materials?  
    a. How much, from whom and for what?  
    b. At what interest rate or basis for repayment?  
    c. Where did he/she hear about money lending source?  

V SOCIO-ECONOMIC CHARACTERISTICS OVER TIME  

1. How many people were living in the household?  
   a. Who were they?  
   b. Employment and education of all income contributors, including: location of job; type of business; description of job; regularity (regular, irregular, occasional); length of employment; earnings; additional benefits including social security; time and cost of travel to work (one way); means of transportation.  

2. Did they have these jobs before moving to this location? If they found them after moving,  
   a. How were they found?  
   b. Did anyone help them find jobs? If so, who, and in what way?  
   c. Did household head or main contributors have a skill that helped them get a job?  
   d. How did the household support itself between jobs?
3. Total family (household) income:
   a. Distribution of family expenditures (how much for food, clothing, transportation, shelter, health, savings, etc.)
   b. Non-housing investments: appliances, utensils, tools, furniture, display, vehicles, etc.

4. Non-monetary income:
   a. Did they cultivate anything or have any farm animals at this location?
   b. Did they bring or receive any goods from place of origin?
   c. Any other non-monetary income

5. Relatives in the city:
   a. In the immediate neighborhood or in the metropolitan area? Who and where?
   b. Frequency of visits

6. Shopping:
   a. Where did they do their basic shopping and with what frequency?
   b. Time and cost of travel (one way) to shop. What means of transportation?
   c. On a typical shopping day, how much did they spend? and on what?

7. Other regular movements within the city of all household members:
   a. Who; where to; for what; travel time and cost; means of transportation, frequency?

8. Describe forms of recreation or leisure.
   a. What were they?
   b. Describe cost, travel time and cost, frequency and means of transportation.

9. Was anybody interested in improving housing conditions and environmental quality?
   a. Local representatives; local, municipal or state or federal government; neighbors; church groups; political parties; family itself; etc.
   b. What changes and by whom?

10. Describe community life, mutual aid – organized or unorganized. Did any household members ever contribute labor or money towards improving the community?
    a. If so, who did and in what way?

VI PRIORITIES OVER TIME

1. General priorities for type of housing and location at this point in time. For what reasons.
2. Specific priorities for location:
   a. Distance to center of city or other large employment center
   b. Population density, land uses and intensity
   c. Other locality attributes: utilities (in unit adjacent or in street); services (mail, police, public transportation, garbage collection, etc.); facilities (schools, sport fields, cultural, commercial, etc.); environmental quality; community life

3. Priorities for tenure:
   a. Rent, length, and type of contract, etc.
   b. Ownership, and conditions
   c. Importance of security and transfer ability

4. Priorities for standard:
   a. Number of rooms; sq. m. under roof; sq. m. open space (relative importance of private or shared)
   b. Utilities (specify relative importance and whether in unit, adjacent or in street): water (piped tap, hose, truck, other); sewerage (water-borne, pit latrine, other); electricity (legal, illegal); gas (piped, bottled); telephone; different fittings (shower, bath, w.c. sink, etc.)
   c. Type and quality of construction: walls; floor; roof; windows; other

5. Priorities for price - investment:
   a. Initial down payment and monthly payments on land
   b. Initial down payment and monthly (if mortgage) payments on house
   c. If incremental construction: sequence, timing and cost

6. Costs - monthly:
   a. For rent, taxes and utilities

7. Which of the above (2 to 6) is most important? Which second, third, etc.?

8. Priorities for other investments at the time:
   a. Appliances, tools, furniture, vehicles. etc.
   b. Expenditure distribution: (food, clothing, shelter, etc.
   c. Compare actual investment patterns and ask for reasoned difference.
   d. 'Other' priorities vs. housing priorities

9. Housing and community improvement priorities:
   a. General priorities for improving housing and community services and utilities
   b. Readiness to pay or contribute labor
   c. Ranking priorities for housing unit improvements vs. community improvements, other investments vs. moving to location

10. Specific improvement priorities:
    a. The most important thing to be done to housing unit: who can do it; time and cost; second and third.
b. The most important thing to improve locality: who can do it; time and cost, total and per family; the second and third.
c. The most important other family expenditure or investment; cost; the second and third.
d. Priorities and trade offs between a, b, and c; willingness to pay or contribute labor for a and b.

11. Credit priorities:
   a. Mortgage, long or short
   b. Long or short term loan
   c. Savings of other; explain.

12. Priorities for assistance:
   a. Technical assistance, what kind?
   b. Any other assistance, specify.
Explanation of the Case Study Graphs:

The graphs of the case study are numbered in the top right hand corner. The number consists of two parts: the first is the number of the case (in the example #20) and next, after a dash, the number of the graph (from 1 to 20).

Clarificatory notes to the graphs (if they cannot be placed on the same page) are on the following page numbered like the graph with an addition of A - for example, 20-4A. The graphs numbered 16 and 17 are repeated for each significant residence and numbered, for example, in case 20, as follows: 20-16-1, 20-17-1, 20-16-2, 20-17-2, etc. All the cases have the same numbering system, for example, graph 15 always indicates the changes in the utilities that a family has had in the house.

The following are comments and explanations to particular graphs:

1. The sequence of the family moves between different housing types. Types he called "subsystems," redefined as a result of the analysis of the case studies. This more refined typology is explained in I.1.1. and II.

3-15. General notes: On all these graphs, the horizontal scale indicates the years from 1900 to 2000. The monetary data presented (graphs 5, 6, 7) is in current pesos. Information about the sex, age category, and position in the family of particular members (graphs 4, 5, 11, 12) is presented by symbols and letters explained at the bottom of these graphs.

3. The number of household members includes all family members and other household members sharing the dwelling and economy at a given time. Family members not living together with the rest of the household are not included.

8. The graph is cumulative: the percentages of the total family budget spent in each expense category specified at the bottom of the graph are represented by the distance between the line for an expense category and the immediately adjacent line below. For example: the proportion of income spent on clothing (category 2) is shown as the distance between line 1 (food: 55% in 1973) and line 2 (line 2 is on the level of 65% which means that 10% of income was spent on clothing).

14. The dashed area indicates the private space under the roof - the clear area (under the step-like line) represents private open space.

16. The wind-mill diagrams represent the costs and benefits to the users of the present residence and of each significant earlier residence about which data was available. Monetary data is in the current pesos of the year. For explanation of the graph see Appendix A: Methodological Note, section 3.2., page
17. The graph represents the distribution of control over the main stages and operations of the housing process. "X" indicates the main decision maker in one of the 3 principal stages of the process. A black circle signifies the main decision maker in a given operation, a white circle the secondary contributor to the decision.
2. Example of One Case Study

CASE STUDY NO....................... 20

SUBSYSTEM.......................... ILLEGAL LEGALIZED
LOW COST SUBDIVISION

LOCALITY............................ SAN RAFAEL CHAMAPA

COLONIA............................ LOS CUARTOS

CALLE................................. GORRIONES

NAME OF HOUSEHOLD HEAD............ MANUEL RONCAL G.

PERIOD OF FIELD WORK: JULY - SEPTEMBER 1973
GUIDE TO THE LOCALITY MAP

streets

residential

commercial

industrial

open space

subway

bus

community center

health

school

recreational

religious

market

location of the case study
BASIC HOUSEHOLD/HOUSING CHARACTERISTICS

1. Household or family type:

Nuclear, thirteen member family. Father, 44, Mother, 42, Reinaldo, 21, David, 18, Bonifacio, 15, Zenaida, 9, Rosa, 7, Joel, 5, Graciela, 3, Manelino, 2 and Emma, 2 months old.

2. General character of change the family is undergoing:

The family is going through the stage of educating the children while the two older ones are already working.

3. Socio-economic status of the family:

The father works as a mason at present. The eldest son also contributes to the family income. Their income level is variable. The mother is a housewife. Educationally, the family is advancing. The father studied to the third grade; the mother didn't study; Reinaldo studied up to fifth grade, and David up to sixth grade. Bonifacio is in fifth grade, Zenaida in fourth, Arturo in sixth, Manuel in second and Rosa is in first grade.

4. Socio-economic mobility of the family:

The father has worked as a peasant, as an assistant mason, as unskilled factory worker, as a skilled factory worker and at present as a mason. His income has been ascending, and stabilized when he worked in a factory; at present it varies due to his work as a mason, but the eldest son has begun to contribute to the family income. Educationally, as mentioned above, the family has advanced from almost illiterate parents to at least a grade school level for all the children.

5. Residential location of the household:

The residence is in an illegal, legalized low cost subdivision called San Rafael Chamapa, on the northwestern periphery of the city.

6. Residential itinerary of the household:

They lived in two residences before leaving their home town in 1961. Upon arriving in Mexico City they lived in three residences in the Colonia Modelo, until they moved to San Rafael Chamapa in 1964.

7. Tenure situation:

At present they own a house and the land on which it is built.
8. Tenure History:

Since their arrival in Mexico City they have rented their residences; they missed a chance to buy the next to the last one, before they moved to San Rafael Chamapa, where they own a house today.

9. Summary of supply/demand match/mismatch:

The balance of supply and demand during their first few residences was negative, but evolved towards the present situation in which there is an adequate match.

BASIC PERSONAL DATA

Manuel, the father, was born on a ranch near Punta Gallegos, in the State of Michoacan, in the year of 1929.

Guadalupe, his wife, was born in the same place in the year 1931.

Present household composition:

Manuel, 44, mason; Guadalupe, 42, housewife; Reinaldo, 21, chauffeur; David, 18, worker; Bonifacio, 15 student; Zenaida, 15, student; Arturo, 11, student; Manuel, 9, student; Rosa, 7, student; Joel, 5; Graciela, 3; Marcelino, 2; and Emma, 2 months old.

BACKGROUND HISTORY OF THE HOUSEHOLD

Place of origin of the household's head and his wife:

Manuel's father was a poor peasant who worked on other peoples' lands. His family was composed of the parents and two sisters. Shortly after he was born he became very ill and was taken by his parents to his grandmother's house. She was the local witch doctor, and cured him with a treatment of dew drops and cow milk whey. When Manuel was 2 years old, the grandfather died and the grandmother asked the boy's parents to let her keep him. He lived with his grandmother from then on, and tilled her land of fourteen hectares, although most of it was unfit for agriculture. At the age of eighteen he married Guadalupe and continued to live with the grandmother. They had three children who died. When the grandmother passed away, an uncle of his came down from the United States, took over the inheritance and sold almost all the land. However, Manuel managed to get $500.00 pesos out of him. He and his wife went to live with his in-laws and Manuel sold an ox he owned in order to build a small adobe house on his father-in-law's land, in 1955. For six years he worked the land together with his father-in-law, but his financial situation was deteriorating to the point that, in 1961, he decided to go to Mexico City.
EACH PLACE OF RESIDENCE BEFORE MOVING TO MEXICO CITY

In his first residence, as mentioned above, he lived for twenty-four years, including two years with his wife. He worked as a farmer on his grandmother's land, and during the good years made up to $1,800.00 pesos a year, although the income was in general low and variable. He had an education up to the third grade; the local elementary school had no fourth grade. Manuel had plans of staying in this residence indefinitely but his uncle came along and spoiled them.

His second residence was located in the same town of Punta Gallegos. He lived with his in-laws during the time he built their adobe home. His first three surviving children were born here and they made the deteriorating financial situation even more critical. Now several of his relatives had emigrated to the city and he had heard of the ease in finding jobs and making money there, as compared to surviving in the countryside. He decided to go to Mexico City to make a living in 1961.

MOVING TO MEXICO CITY

Although Manuel had many friends and relatives in the city, he decided to go and stay with his sister, after renting his adobe house back home, and putting his wife and children in charge of his in-laws. His sister, who lived in the Colonia Modelo of the low cost subdivision of Alce-Blanco, was very happy to put him up (first residence in Mexico City). The next day after walking for several hours, he found a job as an assistant mason and began earning $13.00 pesos a day. Several weeks later on his way back home, he stopped by at a cinder block factory and the person in charge offered him a job, bettering his salary by $1.00 peso. Later, a cousin of his got him a job in a plastic factory where he worked, which offered him the same $14.00 pesos a day. For a while, he tried to work a night shift in an alcohol factory, but after passing out on his day job, decided to stick with the plastic factory.

Towards the end of July, 1961, he sent for his family and rented a room in a tenement, about a block away from his sister's house (second residence). This was convenient because he was near to his relatives and friends. After a month there they moved to another vecindad nearby (third residence). Two years later, he moved into a lot a block away from his previous residence, where he built a small house (fourth residence). A few months later, he built another room for his compadre (godfather of his children). In 1964, he moved to San Rafael Chamapa (present residence) after buying a whole block of land with several relatives and friends, from the farmers who lived there. They divided the land equally, and each built their own home. This permitted them to continue living happily near each other.

Manuel continued working in the plastic factory until 1970, when a union movement divided the workers. The group to which he belonged was asking for a raise, work clothes, and other benefits, but lost the
struggle and were all fired. After that, he lost interest in factories and began working full-time as a mason. Most of his work is done in Chamapa, where he charges low prices, considering that his clients are in the same financial situation he is. Occasionally, he works in the city specializing in setting tile, but he prefers to work in Chamapa doing piece work and among his people.

SOCIO-ECONOMIC/HOUSING CHARACTERISTICS OVER TIME

FOURTH RESIDENCE

The family left their previous residence because they were offered a piece of land at a low rent on which to build their house.

The lot was about a block from their previous residence, in the same Colonia Alce Blanco.

They stayed in this residence from 1963 to 1964.

HOUSING CHARACTERISTICS

Location: The Colonia is in the industrial area of Naucalpan de Juarez, which is on the periphery about twelve kilometers from the center of the city, and very well connected by several bus lines. There are markets and schools as well as garbage collection, police and transportation services. There is water, sewerage, and electricity in the area, although in general, the environmental quality is poor.

Tenure: A lady for whom Manuel had done masonry jobs, rented Manuel the 180 sq. m. lot for $150 pesos. The agreement was that he could build and rent as many rooms as he liked, but that she would keep the buildings after he left. A year later the woman offered to sell the land to him for $12,000.00 pesos, with a $2,000.00 pesos downpayment. Manuel says that he was foolish not to have bought the land, since he and his family were quite happy with the area.

Standard and Cost: The dwelling he built consisted of one 20 sq. m. room built of wood with corrugated tar cardboard for the walls as well as for the roof; the floor was compacted earth and it had no windows. He built the latrine of the same materials at the far end of the lot. And a few months later he built a 12 sq. m. kitchen of the same materials next to the house. In all, he spent around $500.00 pesos since he used demolition wood with which he worked as a mason. The total surface of roofed space was 32 sq. m. with 5 sq. m. per capita. The six-member family had a total of 148 sq. m. of open space.

Soon after, Manuel built his compadre's room, and rented it to him for $150.00 pesos a month. It was a 12 sq. m. room built like his own house that cost him $200.00 pesos, because he also used demolition materials for the structure.
Advantages: This residence had the advantage of permitting the family a greater amount of privacy, private open space and to continue living in the area and near the social group with which they were friendly. They also had a small savings margin derived from the rent of their compadre's house.

SOCIO-ECONOMIC CHARACTERISTICS

At this point the family was composed of the parents, three boys and a little girl. Manuel's financial situation was quite stable since he had a permanent job at the plastic factory making $850.00 pesos a month. They had an additional benefit of social security which covered the whole family. He walked to work which was only 300 meters from his home. They did their shopping in the area or crossed the freeway to buy in Naucalpan. Their expenditure distribution was 70 percent for food, 10 percent for utilities and recreation, 10 percent for clothes, 5 percent for savings and 5 percent for education. Manuel made several non-housing investments to furnish his house, but this did not include the building's quality because it would go to the landlady.

Around this time, a brother of Manuel's from Michoacan came to live with them temporarily, and agreed to pay an unspecified amount of money. They had no non-monetary income of any kind. Their social life was quite intense in the neighborhood since there was a considerable group of relatives and friends, all of them from Michoacan.

PRIORITIES OVER TIME

Location and tenure: The location of the residence was very convenient for the family for the reasons mentioned above. The offer of the landlady to sell the lot was an opportunity that they had by-passed because they thought they couldn't pay. However, it awoke the desire to buy a property for an easier price with transportation services nearby and which permitted them to continue their social life with relatives and friends.

Standard: Their priorities for the construction quality of a future residence were to use brick and a better quality cardboard sheet, or if possible, a concrete slab.

SOCIO-ECONOMIC/HOUSING CHARACTERISTICS OVER TIME

PRESENT RESIDENCE

Manuel had heard through a friend that cheap land was being sold about five kilometers from Naucalpan, in a place called Chamapa. He and two compadres visited the place one weekend and got in touch with the ejidatario who was selling the land. He sold only large 4,000 sq. m. lots, which were about the size of a block, at $7.00/sq. m. The three men decided to get a group of friends and relatives together to buy the land, and then subdivide it according to each one's needs and financial possibilities. They agreed with the ejidatario to pay him in monthly
installments and the man didn't even mention the illegality of the sale; he only gave them a handwritten receipt and the advice that they should build immediately and occupy the land. The layout of this subdivision was carried out by the ejidatarios, themselves, and this resulted in very steep streets in certain parts. The only utilities in the area was water transported by truck and before long, electricity.

In 1964, Manuel was one of the first to move and he was in charge of protecting the rest of the land from an invasion by squatters. Today, there are spontaneous markets, several small stores, schools, and such services as police, public lighting, and mail. Streets are partially paved and a water and sewerage system is being installed.

HOUSING CHARACTERISTICS

Location: The area described above is densely populated and is on the western periphery of the city on the old highway to Toluca. Most of the streets are unpaved except for one that leads to a state government subdivision called Izcallí Chamapa, which was originally built for the residents of Chamapa, but then handed over to government employees. The environmental quality is in general poor, with sewers running through the streets and garbage dumps near the housing areas.

Tenure: Up to 1971, the residents of Chamapa were officially considered as squatters. This situation was solved by an expropriation of the ejido on behalf of the federal government. Land titles were given to the residents and they were charged 10.65 pesos for a square meter of land for this operation. An additional 0.50 pesos per square meter was charged for the improvement of the highway.

Standard and cost: Manuel's house consists of two 16 sq. m. bedrooms across the front of his lot. Through them one enters the house onto a patio in which there is a latrine, a chicken coop, the washing and laundry unit and his wife's potted plants. On one side, there is a 16 sq. m. kitchen. There is about 3.3 sq. m. of covered area per capita. Originally, Manuel's lot was 190 sq. m., but he gave half of it to a brother of his who, today, is married. The unit has 40 sq. m. of open space and 8 sq. m. of area for the storage of demolition wood and other building materials.

Being a mason, Manuel built the house with the aid of his eldest son. The foundation is rock on which there is a concrete base which is waterproof. The walls are made from hollow cement block which support a light wooden structure which, in turn, supports the asbestos sheet roof, which initially was corrugated tar cardboard. The floor in all rooms is polished cement.

As in most residences in the area, Manuel built a small cistern to catch rainwater from the roof. There is also, since 1972, water connected to the house, but it is of a very poor quality, as it comes from the nearby artificial lake without treatment. The family uses
it only for bathing and washing clothes. Very often the water does not get there at all because of low pressure in the installation. It costs them around 20 pesos a month. This temporary system is to be replaced by a permanent one when the local installation will be connected to the higher pressure drinking water system of the city.

In the meantime, however, they are forced to buy water from trucks for which they pay 4.50 pesos for a 200 liter drum; on the average they consume 3 drums a week, but sometimes, when the pressure in the water installation is low, up to 10. On the average the truck-water costs them 60 pesos a month, bringing the total water bill to 80 pesos a month.

Electricity was installed barely a year ago, before which most people stole electricity from a highway line. The monthly bill is at present (1973) around 30 pesos.

Sewerage is being installed, but most people lacking running water haven't been hooked up to it. They spend about $120.00 pesos a month on gas for cooking and petroleum, which they use to heat water for bathing.

Manuel built his house in two stages; first, he built the bedrooms, one of which was used as a kitchen. It took him two months to build them, working weekends, with the help of a friend. The cost of the building materials was about $3,100.00 pesos. After two years, he started the second stage - building the kitchen. It took him a year to finish it, working by himself every now and then. The cost for it was $850.00 pesos.

Price investment: Manuel initially paid $1,400.00 pesos for his lot. When he divided the land with his brother, the value of the land went down to $700.00 pesos. The legalization by the State of Mexico government cost them $1,050.00 pesos. He thinks his property is now worth some $45,000.00 pesos. His present property taxes are around 120 pesos a year. Manuel's initial investment was 40 percent from his savings and about 60 percent from different loans.

Advantage: Having become owners of their land and house is the main advantage of this residence, as well as having maintained the social atmosphere in which they lived. The basic disadvantage is the lack or irregularity of some of the services and utilities.

SOCIO-ECONOMIC CHARACTERISTICS

During their stay here, the five smallest children were born. During the period that Manuel still worked in the factory, it took him about forty minutes to get there by bus at the cost of $1.00 pesos one way. This was the main source of income for the family until 1970, when he lost his job after a union struggle. From then on, working as a mason in Chamapa, he earns about $800.00 pesos a month. Recently, the eldest son began working as a truck driver and earns an average of $1,000.00
pesos a month, of which he contributes half to the household income. The total family income is then around $1,800.00 pesos a month. The family expenditure distribution remains more or less the same. The children go to school which is only one hundred meters away; the market is about three hundred meters from the house. They occasionally go out for a picnic or gather at home with their friends. The mother contributes to the family income by doing a sort of embroidery and drawn work on table cloths. She picks them up at a textile factory and gets $8.00 or $10.00 pesos a piece when she takes them back.

PRIORITIES OVER TIME

Tenure: The sense of ownership has become very important for Manuel, particularly since he has stopped working in an organized, compulsory way. Today his children insist more and more that he rest but he is content to do small jobs to contribute to the family income.

Standard and cost: The immediate improvement that Manuel would like to do in the unit is to enlarge the bedrooms and plaster and paint the walls. Eventually, he would like to substitute the asbestos sheet roof for reinforced-concrete slabs.

Location: See advantages, above. Manuel says that probably due to his contacts in the city and to the fact that he found good jobs, his family never had the need to go look for a living in the center of the city.
FATHER'S GRANDMOTHER'S HOUSE
PUNTA GALLEGOS EDO. DE MICHOACAN
scale 1 : 200

FAMILY RESIDENCES IN MEXICO CITY
COLOMIA ALCE BLANCO
case 20

ROOM IN VECINDAD 1
see general map

scale 1: 200

ROOM IN VECINDAD 2
see general map

RENTED PLOT see general map

BR - Bedroom
K - Kitchen
1. Compadre's dwelling
case 20

FAMILY HOUSE AT CHAMAPA

BR - Bedroom
D - Dining
K - Kitchen
T - Toilet
L - Laundry

First stage
two months
$3100.00
Mex.Cy

Second stage
one year
$850.00
Mex.Cy

scale 1: 100

scale 1: 200
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<thead>
<tr>
<th>Others</th>
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<th>Basic</th>
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<td>Upper income</td>
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<td>Middle income</td>
<td>6.1.2.2</td>
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<tr>
<td>Low income</td>
<td>6.1.2.3</td>
<td>2.1.1.2</td>
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<tr>
<td>Private commercial projects, relatively low cost</td>
<td>6.1.2.4</td>
<td>2.1.1.2</td>
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<tr>
<td>Subsidized housing projects</td>
<td>6.1.2.4</td>
<td>2.1.1.2</td>
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</table>

Sistema legal y variable de ubicación de la familia

 aficionado y voluntario
SUBSYSTEM TRAJECTORY OF THE FAMILY

The parents' first dwellings were located in their native place: Punta Gallegos, Michoacan.

When they arrived in Mexico City, they stayed in a vecindad located in the Colonia Alce Blanco. After a short period of time, they moved to another vecindad 90 mts. away from the former because "Era un pulguero, que no se podia dormir" (there were so many flees, that sleeping was impossible).

They moved from here to a house built by the father in a rented plot on an adjacent block. The family remained here until they decided to move to Chamapa where they live up to now.
<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Permanence</th>
<th>Education</th>
<th>Occupation</th>
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<tr>
<td>1</td>
<td>Sr. Manuel Roncal</td>
<td>44</td>
<td>M</td>
<td>&quot;</td>
<td>3</td>
<td>Mason</td>
</tr>
<tr>
<td>2</td>
<td>Sra. Guadalupe Roncal</td>
<td>42</td>
<td>F</td>
<td>&quot;</td>
<td>0</td>
<td>Housewife</td>
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<tr>
<td>3</td>
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<td>21</td>
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<td>&quot;</td>
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<td>Driver</td>
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<tr>
<td>4</td>
<td>David</td>
<td>18</td>
<td>F</td>
<td>&quot;</td>
<td>6</td>
<td>Worker</td>
</tr>
<tr>
<td>5</td>
<td>Bonifacio</td>
<td>15</td>
<td>M</td>
<td>&quot;</td>
<td>5</td>
<td>Student</td>
</tr>
<tr>
<td>6</td>
<td>Zenaida</td>
<td>13</td>
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<tr>
<td>7</td>
<td>Arturo</td>
<td>11</td>
<td>M</td>
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<tr>
<td>8</td>
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<td>9</td>
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<tr>
<td>13</td>
<td>Ema</td>
<td>2 mos.</td>
<td>M</td>
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<td></td>
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</tbody>
</table>
The father suffers the loss of his grandfather.
1948: Alejandra, daughter 1 (D-1) is born; grandmother dies.
1949: Epifanio, son 1 (S-1) is born and dies within 6 hours.
1950: Juan, (S-2) is born and dies within 4 hours.
1951: Reinaldo, (S-3) is born.
1953: Alejandra, (D-1) dies.
1954: David, (S-4) is born.
1957: Bonifacio, (S-5) is born.
1959: Zenaida, (D-2) is born.
1961: Arturo, (S-6) is born.
1963: Manuel, (S-7) is born.
1965: Rosa, (D-3) is born.
1967: Joel, (S-8) is born.
1969: Graciela, (D-4) is born.
1972: Marcelino, (S-9) is born.
1973: Ema, (D-4) is born.

Note. - Seeking clarity, the graphic shows in an amplified way, the space corresponds to the years 1947 to 1951.
LEVELS AND TRAJECTORIES OF OCCUPATIONAL STATUS

OCCUPATIONS OF THE ECONOMICALLY ACTIVE HOUSEHOLD MEMBERS

- ○ = CHILDREN (MALE FEMALE)
- ● = ADOLESCENTS
- ○ = ADULTS
- ○ = AGED
- P = PARENTS
- GP = GRANDPARENT
- D1 = ELDEST DAUGHTER
- D2 = SECOND DAUGHTER
- S1 = ELDEST SON
- ETC.

NOTE: ADD ACLA RATORY NOTES AS NECESSARY
LEVELS AND TRAJECTORIES OF OCCUPATIONAL STATUS

Up to 1961, father works the land as a farmer.

From 1961 to 1942, father works in a factory as an unskilled worker.

From 1962 to 1970, he works as a semi-skilled worker. Eventually, out of the factory, he works as a skilled mason.

1970 - 1973, father works only as a skilled mason. Son 3, learns to drive (1973) and works as a skilled driver.
MONTHLY INCOME OF BASIC CONTRIBUTORS*

in Mexico City

○ = CHILDREN (MALE FEMALE)
△ = ADOLESCENTS
● = ADULTS
◎ = AGED
P = PARENTS
GP = GRANDPARENT
D1 = ELDEST DAUGHTER
D2 = SECOND DAUGHTER
S1 = ELDEST SON
ETC.

*Note: Income in current pesos
MONTHLY TOTAL INCOME OF HOUSEHOLD* in Mexico City

*Note: Income in current pesos
MONTHLY PER CAPITA INCOME

*Note: Income in current pesos in Mexico City
20-8

EXPENDITURES DISTRIBUTION

In Mexico City

1 FOOD
2 CLOTHING
3 MEDICINE
4 HOUSING AND UTILITIES
5 TRANSPORTATION
6 EDUCATION
7 SAVINGS
8 OTHER
EXPENDITURE DISTRIBUTION

Considering the possibility of needing urgent medical attention, the family always save some money for such occasions. When too expensive, they ask for a loan from relatives or friends.

Transportation expenses are practically non-existent, since such expenses are leveled by the money earned by the mother in small house-jobs obtained by her when shopping at Naucalpan.
1.- Sister's dwelling in Colonia Alce Blanco
2.- Vecindad located in Colonia Alce Blanco
3.- Vecindad located in Colonia Alce Blanco
4.- Dwelling at Colonia Alce Blanco.
5.- Dwelling at Sn. Rafael Chamapa, Edo. de Mexico.
URBAN LOCATION OF HOUSEHOLD'S RESIDENCES

DISTANCE OF DWELLING FROM PERIPHERY

in Mexico City
DISTANCE TO WORK AND SCHOOL

in Mexico City

○ ● ○ = CHILDREN (MALE FEMALE)
= ADOLESCENTS
= ADULTS
= AGED
P = PARENTS
GP = GRANDPARENT
D1 = ELDEST DAUGHTER
D2 = SECOND DAUGHTER
S1 = ELDEST SON
ETC.
WITHIN BLOCK
IN DWELLING

RADIUS OF SOCIAL ACTIVITY OF HOUSEHOLD MEMBERS

in Mexico City

○ ○ = CHILDREN (MALE FEMALE)
○ = ADOLESCENTS
● = ADULTS
○ = AGED
P = PARENTS
GP = GRANDPARENT
D1 = ELDEST DAUGHTER
D2 = SECOND DAUGHTER
S1 = ELDEST SON
ETC.

NOTE: ADD ACLAIRATORY NOTES AS NECESSARY
FORM OF TENURE AND DURATION OF RESIDENCE

TENURE TYPE OF DWELLING AND CONTRACT

0.- Dwelling as farmers in Michoacan.
1.- Dwelling at Colonia Alce Blanco, D.F.-2 months living with sister.
2.- Vecindad at Colonia Alce Blanco, D.F.
3.- Vecindad at Colonia Alce Blanco, D.F.
4.- Dwelling at Colonia Alce Blanco, D.F.
5.- Illegal residence at Chamapa, Edo. de Mexico.
6.- Legal residence at Chamapa, Edo. de Mexico.

NOTE: RENTER CATEGORY INCLUDES ALSO SERVANT WITH ROOM
0.- Dwelling in the middle of farming land.
1.- No private space while staying 2 months with sister.
2.- One room at vecindad; small exterior space.
3.- One room at vecindad; small exterior space.
4.- Dwelling built in rented plot.
5.- Dwelling at Chamapa. Proprietors.
1.- Sister's dwelling; water from trucks, electricity stolen.
2.- One room at Vecindad 1; water and sewer; shared.
3.- One room at Vecindad 2; water and sewer; shared.
4.- Dwelling at rented plot; water; adjacent; pit latrine.
5.- Dwelling at Sn Rafael Chamapa; water; initially no utilities, only electricity: stolen; since 1972, gas: in unit.

At present, legal electricity is connected, and a temporary water system is installed (but the low pressure makes it come very seldom; the community is presently organizing to get a new pressure tank up the hill), there is a sewer in the street but it is not connected inside the dwelling.

**NOTE:**

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<tr>
<th>UTILITIES:</th>
<th>WATER</th>
<th>20%</th>
<th>10%</th>
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<tbody>
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<td>SEWERS</td>
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<tr>
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<tr>
<td>TELEPHONE</td>
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</table>

in Mexico City
## Monetary Cost/Benefit Account

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<th>Factor</th>
<th>Indicator</th>
<th>Quantity</th>
<th>Level</th>
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</thead>
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<tr>
<td></td>
<td>Per Capita</td>
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## Non-Monetary Cost/Benefit Account

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<th>Quantity</th>
<th>Level</th>
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<tbody>
<tr>
<td>Access</td>
<td>Time of Journey to Work</td>
<td>10 min.</td>
<td>5.5</td>
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<tr>
<td></td>
<td>Cost of Above</td>
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</tr>
<tr>
<td></td>
<td>AS % of Wage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shelter</td>
<td>Roofed Area/Person</td>
<td>2.3 m²</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>% Utility Available</td>
<td>20%</td>
<td>2.5</td>
</tr>
<tr>
<td>Tenure</td>
<td>Years Option</td>
<td>1.5</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>Cont’d Residence</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Price of Alternative</td>
<td>100%</td>
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FOURTH RESIDENCE 1963 - 1964

MONETARY COST/BENEFIT ACCOUNT

<table>
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<tr>
<th>INCOME</th>
<th>PER HSHLD</th>
<th>PER CAPITA</th>
<th>TOTAL PESOS</th>
<th>LEVEL</th>
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<tr>
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<td></td>
<td></td>
<td>$850.-</td>
<td>3 110.-</td>
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<td>CNSTRCTN</td>
<td>$500.-</td>
<td>$500</td>
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<tr>
<td>ASSETS</td>
<td>MARKET VALUE</td>
<td>MRTGG</td>
<td>DEBT</td>
<td>EQUITY</td>
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*Rent received from "compadre" was covering the housing costs.

NON-MONETARY COST/BENEFIT ACCOUNT

<table>
<thead>
<tr>
<th>ACTOR INDICATOR</th>
<th>QNTTY</th>
<th>LEVEL</th>
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<tbody>
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<tr>
<td>TIME OF JOURNEY TO WORK</td>
<td>10 min</td>
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</tr>
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<td>COST OF ABOVE AS% OF WAGE</td>
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<td>5</td>
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<tr>
<td>SHELTER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROOFED AREA/PER CAP</td>
<td>5 m2</td>
<td>2.5</td>
</tr>
<tr>
<td>% UTILITIES AVAILABLE</td>
<td>20%</td>
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<tr>
<td>TENURE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>YEARS OPTION CONTND RESIDENCE</td>
<td>30</td>
<td>5</td>
</tr>
<tr>
<td>% PRICE OF ALTERNATIVE RES</td>
<td>100%</td>
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INCOME HSHLD-PER CAP

PRICE UTILITIES AMRTZN

COST LAND CNSTRCTN

KY MNY EQUITY

ASSETS

ACCESS TIME COST

AREA UTIL SHELTER

YRS OP % ALT

TENURE
### Monetary Cost/Benefit Account

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Per HSHLD</th>
<th>Per Capita</th>
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<td>$1300.00</td>
<td>$140.00</td>
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<td>Rent or Utilities</td>
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### Non-Monetary Cost/Benefit Account

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<td></td>
<td>Cost of above as % of wage</td>
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<tr>
<td>Shelter</td>
<td>Roofed Area/Per Cap.</td>
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<td>% Utilities Available</td>
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<td>% Price of Alternative Res</td>
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### Activities

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<tbody>
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<td></td>
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<td>THE DECISION TO INVEST OR BUILD</td>
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</tr>
<tr>
<td>FUNDING AND THE RECOVERY OF LOANS</td>
<td>●</td>
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<td></td>
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<tr>
<td>LOCATION AND THE SELECTION OF SITES</td>
<td>●</td>
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<td>DESIGNS AND SPECIFICATIONS (INCL. COSTS)</td>
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<td>●</td>
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<td>LAND IMPROVEMENTS</td>
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<td>LABOR CONTRACTING</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SUPERVISION</td>
<td>●</td>
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<td>RENTING, SUBLETTING, ETC.</td>
<td>○</td>
<td>●</td>
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<td>○</td>
<td>●</td>
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<td>COMMENTARIES</td>
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<td>COMMERCIAL SECTOR</td>
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<tr>
<td>The decision to invest or build</td>
<td>●</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>Funding and the recovery of loans</td>
<td>●</td>
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<tr>
<td>Location and the selection of sites</td>
<td>○</td>
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<td>Designs and specifications (incl. costs)</td>
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<td>Licenses and permissions for construction or use changes</td>
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<td>Land acquisition</td>
<td>○</td>
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</tr>
<tr>
<td>Land improvements</td>
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<td>Materials, tools and equipment purchase/rent (or general contracting)</td>
<td>●</td>
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<td>Labor contracting</td>
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<td><strong>MANAGEMENT</strong></td>
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<td>●</td>
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<td>Taxation</td>
<td>●</td>
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<tr>
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### Activities

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<th>Activities</th>
<th>Users</th>
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<th>Commercial Sector</th>
<th>Public Sector</th>
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<td>Funding and the recovery of loans</td>
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<tr>
<td>Location and the selection of sites</td>
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<tr>
<td>Designs and specifications (incl. costs)</td>
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<tr>
<td>Licenses and permissions for construction or use changes</td>
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</tr>
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<td><strong>Construction</strong></td>
<td>✔</td>
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<td>Land acquisition</td>
<td>✔</td>
<td></td>
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<td>Land improvements</td>
<td>✔</td>
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<td>Materials, tools and equipment purchase/rent (or general contracting)</td>
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<td></td>
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<tr>
<td><strong>Management</strong></td>
<td>✔</td>
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<td>Property transfers</td>
<td>✔</td>
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<td>Ownership</td>
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<td>Maintenance</td>
<td>✔</td>
<td></td>
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</tr>
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</table>
PRIORITY FOR LOCATION AS FUNCTION OF PROXIMITY TO CENTER

NOTE: SUBSISTENCE INCOME = $ 60.00 per/capita per month.

++  essential
+   important
+-  convenient
-   unimportant/indifferent
--  inconvenient/dangerous
NOTE: SUBSISTENCE INCOME = $60.00 per/capita per month

++ essential
+ important
+- convenient
- unimportant/indifferent
-- inconvenient/dangerous
NOTE: SUBSISTENCE INCOME = $60.00 per/capita per month.

++ essential
++ important
+- convenient
+- unimportant / indifferent
-- inconvenient / dangerous
3. **Explanation of Case Study Summary Graphs**

The front page of the summary of each case includes a map of the locality (in the upper left corner) with the case marked as a dot. For the legend of the map see page ___ in Appendix D. The plans, elevations, and section of the present residence are presented in a scale of 1:200, the schematic plans of the earlier residences (if applicable) in a scale of 1:400 and sometimes, a sketch plan locating the dwelling within its immediate surroundings in an approximate scale of 1:1000.

The following are comments and explanations for particular graphs:

The horizontal scale of graphs 1 to 9 refers to the years 1900 to 2000.

1. The number of household members includes all family members and other household members (such as non-paying guests, friends, etc) who are sharing the dwelling and the common economy at a given time. The family members not living together and/or having an independent economy (such as some married children) are not included.

2a. Total family income. The scale of income, in multipliers of subsistence income per capita, is placed on the left side of the graph. The income changes are indicated on the graph by the continuous line. 1 subsistence income per capita (for definition, see footnote ___) was 60 pesos in 1972, 75 pesos in 1973, and 100 pesos in 1974.

2b. The occupation of the main income contributor is indicated by an interrupted line against the scale placed on the right side of the graph. For an explanation of symbols and letters see page ___ in Appendix D.

3a. The housing price, including utilities, as a percentage of the total family income is indicated by a continuous line against the left side scale of the graph.

3b. The form of tenure and duration of residence is indicated by the double line against the scale on the right side of the graph. The numbers over the double line correspond to the subsequent residences. The same number with an added letter (such as #A after 3) means a change in the form of tenure in the same residence.

4a. The urban location distance from the center is indicated by a continuous line against the scale, in kilometers, on the left side of the graph.

4b. The one way distance to work of the main income contributor is indicated against the scale in minutes on the right side of the graph. For an explanation of symbols and letters see page ___ in Appendix D.

5. The area of private roofed space is represented by hatching - the area of private open space, by the lack of hatching between the upper and lower step-like line (over the hatched area). The scale is in meters.
6. Utilities are summarized as follows: 100% of utilities means water, sewage, electricity, gas, and telephone inside the dwelling. Each of these separately is considered as 20% if in the unit or as 10% if adjacent or shared (for example collective services in the tenement).

7. The graph is cumulative. The percentages of the budget spent in each expenditure category are shown over the earlier category of the list below the graph. (If necessary see paragraph 8 page in Appendix D for further explanation.)

8. In the summary graph of housing priorities, priorities are defined as follows.

   Location G (geographic): priority to live near the main urban center of low skill job opportunities and cheap markets.

   Location E (socio-economic): priority to live near one's own job.

   Tenure: priority to be the owner of the dwelling

   Standard: priority to use a dwelling of modern standard.

For further explanation, see pages

9. "Wind-mills" in this graph relate to the time scale (years 1900 til 2000) on graph 8 above. For the scale of the arms of the windmills see page . The number of household members is scaled as follows:

   up to 3 -- level 1

   3 to 6 -- level 2

   over 6 -- level 3

10. A summary of the costs and benefits of the present residence:
For the scale of the arms of the "wind-mill" see page (same as for graph 8). The same scale is used for summarizing the typical situation of the main housing submarkets in chapter II.

Under graph #10 the cost (household's capital investment in dwelling) and present equity (amount the household would receive if it would transfer its dwelling to another household: this would be the sale cost in ownership cases, and "key money" in rental housing) is indicated in pesos of 1973.
4.0. SUMMARIES OF TWENTY-FIVE CASE STUDIES
Household Heads: Soledad Bravo vd. de Gutierrez (74) and Jose Chavez (30), her grandson-in-law (main income contributor)

Eight-member, extended, four-generational family.

Soledad, who is now a 74 year old grandmother, arrived in Mexico City with her husband in 1930.

They moved into the same tenement in the center, where she is staying now. They changed apartments three times since they moved there, the last time in 1948, taking advantage of the better ones being vacated.

Pedro, Soledad's husband, was a career soldier. He was working in the military prison, one kilometer from home. After retirement, in 1955, he started to complement his income by selling lottery tickets. He died in 1962.

Their only daughter, Celia, got married and left home in 1948. In 1960, after her husband's death, she returned with her four daughters to the parents' vecindad.

Both Soledad and Celia have had pensions after their husbands died.

Their top priority was the upbringing and education of Celia's daughters. This was possible, even with their small funds, thanks to very inexpensive housing and the low subsistence costs close to the central markets.

Silvia studied up to the first grade of high school and then married Jose in 1967. Jose is a dental technician and is working for the army. They have no children. Lupita studied up to the sixth grade and then, in 1968, became a beautician. Since Jose moved in and Lupita has started to work, the family economy has improved vastly.

The elder sisters help to pay for the education of the two younger ones. Laura is about to finish business school. Rosa Maria is about to enter high school or business school. She did not know yet which one.

The family income is now well over 8,000 pesos a month. They have a live-in servant. Their housing costs include 28 pesos rent, 40 pesos electricity, and 10 pesos water payment per month.

The apartment consists of two $15$ m$^2$ rooms, and a small patio, kitchen and toilet that add up to about $9$ m$^2$. This gives $5$ m$^2$ per capita without including the mezzanine (Pedro built a wooden mezzanine in one of the rooms, as it is common in these tenements). They have water, electricity, sewerage connection and telephone in the dwelling.

Soledad hasn't put in a shower because she has a very close friend who lives in a larger apartment nearby. Soledad and her family are always welcome to use the friend's shower.

Since the dwelling was very humid, they decided to cover the walls with wood
paneling, which was provided at a low price by Silvia's father-in-law, who owns a lumber yard.

Presently, in view of an urban renewal program, Silvia's husband has applied to the army for a subsidized rate mortgage loan. If it did come through, the whole family would move out with them, probably to Coyoacan or Ciudad Satelite, both middle-income residential areas in the periphery.
Vecindad building in Avenida Peralvillo

Entrance from the street into the vecindad patio
EXPENDITURES DISTRIBUTION

HOUSING PRIORITIES—SUMMARY

LOCATION
TENURE
STANDARD

INCOME
PRICE

ACCESS
NEEDED
GIVEN

GIVEN
NEEDED

COST
EQUITY
3000
15 - 20000
Household Head: Joaquin Gonzalez (25)

Nuclear family, father, mother, two small children

The father has worked successively as an assistant in a tricycle repair shop, in a drum shop, as an electrician (all these jobs were in the center, next to the residence), and now works as a maintenance shop foreman for Siemens Company. His workplace is some 5 kilometers away (45 minutes by two buses).

His present income is 3,500 pesos; he has all kinds of social security benefits covering the whole family. He has high expectations for himself and expects to give college education to his children.

Joaquin has lived in the same tenement all his life. The contract (frozen rent) is in the name of his father. The parents moved out when Joaquin and Virginia got married. They are living now in a condominium apartment.

Joaquin has no plans to move out of the tenements, except if he is forced to by the urban renewal program.

If rent control is removed, he would still like to stay, paying higher rent or buying a condominium apartment, if available. He likes the area and is an active member of the community.
Case #2

Entrance from the street

Vecindad patio
URBAN LOCATION DISTANCE FROM THE CENTER (Km.)
DISTANCE TO WORK OF MAIN INCOME CONTRIBUTOR (Min)

AREA OF PRIVATE SPACE (ROOFED AND OPEN)

UTILITIES:
- WATER
- SEWERS
- ELECTRICITY
- GAS
- TELEPHONE

NOTE:
- WATER
- SEWERS
- ELECTRICITY
- IN
- ADJACENT
- GAS
- UNIT
- OR SHARED
- TELEPHONE

UTILITIES: 20% 10%
case 3 TEPITO

SCALE 1:10000

SCALE 1:1000

LR LIVING ROOM
DR DINING ROOM
D DINING
BR BEDROOM
K KITCHEN
T TOILET-BATHROOM
P PATIO
W WORK PLACE

SCALE 1:200
Seven person nuclear family

Family is going through two stages of its development. While the older children (22, 20, 16) are getting married and leaving home, the two youngest (5, 3), from a new relationship, are not yet in school.

Margarita's parents moved to Mexico City in 1936, and to this tenement in 1938. Her father was a shoemaker. The central location was essential for his business, as it is also for the family now. She has worked since she was a child decorating shoes.

In 1948 she got married (at age 15). In 1957, after her husband's death, she moved back, with three children. After the death of her parents in 1958 and 1962, she took over the shop. Her children were going to school in the morning and helping with shoes in the evenings. They have studied as far as fifth grade, as did Margarita.

Presently, she works decorating shoeware for a larger factory and making handbags (her new "line"). The eldest daughter was helping her in this activity until she got married and moved out. The two eldest sons work making shoes and give part of their earnings to the family.

The income of the family is low and variable. They have no plans to move, except if forced to by urban renewal.

Their rent is officially frozen, but it was progressively adjusted when the new contracts were signed by Margarita after her parents' deaths.
One of the corridors of the vecindad's patio

In the patio, near the street entrance
EXPENDITURES DISTRIBUTION

HOUSING PRIORITIES - SUMMARY

LOCATION

TENURE

STANDARD

INCOME PRICE

ACCESS GIVEN

TENURE GIVEN

GIVEN NEEDED

SHELTER

COST EQUITY

0 3000

DISTANCE TO CITY CENTER

INCOME

DISTANCE TO WORK

11 IN HOUSEHOLD
case 4  TEPITO

SCALE 1: 10000

LR  LIVING ROOM
DR  DINING ROOM
D  DINING
K  KITCHEN
BR  BEDROOM
P  PATIO

SCALE 1: 1000

SCALE 1: 200
Household Heads: Dante Suarez (32), main income contributor and
Magdalena Mora de Suarez (69), his mother; "titular head of household"

Extended five-person family

The father was a soldier when he married Magdalena, the mother, and was promoted up to a sergeant during the time that he lived with the family. He left the family in 1936.

The son, Dante, who is the present household head, has a permanent job as a data compiler with the Instituto del Seguro Social (Federal Social Security Institute). He is also studying at the National University of Mexico to become a dentist. He expects to finish in the next two-three years. Due to his relatively low income earning, the official minimum wage, he also works as a house-to-house salesman of illegally imported American clothes. This income is higher than the latter, although it is variable. The total family income can be considered medium-high within the low-income sector of population, around 3,000 pesos a month. Their savings margin is minimum.

Dante has great expectations for his children and hopes he will be able to provide them with a college education.

The older brother, Luis, is a traveling salesman. He covers the central and western part of the country. He began working as an assistant in clothes shops in the neighborhood. His possibilities of improving his occupational level are limited by the nature of his work. He is at home only occasionally and does not contribute to the family income.

This is Magdalena's fourth residence in Mexico City. All of them were vecindades (tenements). She has lived in this one since 1936. The rent is frozen at 25 pesos a month, since 1942.

Thanks to the low rate the family pays for their residence, they have been able to use their income for other investments, such as education. (Magdalena and her husband had nine children.) However, the residence is no longer totally satisfactory for Dante, who has to travel a long way to work and to the university, both located in the southern periphery of the city.
Vecindad building

The patio -- corridor
### IN THE HOUSEHOLD

#### Occupation of the Main Income Contributor
- Salary earner
- Wage earner
- Day laborer

#### Housing Price / Family Income
- Housing Price = Monthly Current Costs

#### Form of Tenure and Duration of Residence
- Freehold
- Freehold W. Mortg
- W. Legal Land Titl
- W/O Legal Land Titl
- Renter Rent Control
- Renter W. Contract
- Renter W/O Contract
- W. Family Friends
- No Payment
- Squatter
case 5  CENTRO

SCALE 1:400

LR  LIVING ROOM
BR  BEDROOM
K   KITCHEN

SCALE 1:200

A-A'

THIRD FLOOR
SECOND FLOOR
FIRST FLOOR

SCALE 1:10000
Household Head: Maria Lobos (55)

Incomplete nuclear family; mother with a daughter

The mother arrived in 1953 to stay with her son and daughter (who came to the city earlier) for a short period at a squatter settlement on the periphery. After a period, she left the city in an attempt to make a living again in Veracruz or Puebla, but returned after two years to rent a room in a center city tenement. From there, she moved to a legalized squatter settlement on the periphery and then came back to a center city tenement (vecindad), where they live at present.

The family has a spoken agreement with the landlord by which they rent the room in the tenement (60 pesos a month, under rent control).

The mother has basically always worked as a laundress until recently, when her disease no longer permitted her such an effort. After two other children grew up (a mechanic and a domestic servant) and left the household, the smallest daughter, who had no education, began working as a free-lance prostitute (since the age of 13) at home in order to support herself and her ailing mother. She has VD. She hopes to begin working in a factory when she turns eighteen.

The tenement is scheduled for eradication. They did not know where they would go next.
Door of one of the apartments on the floor

View of the patio of a vecindad -- converted colonial mansion in the historic center of the city
case 6  CENTRO

SECOND FLOOR

FIRST FLOOR

P PATIO
WP WASHING PLACE

SCALE 1:10000

SCALE 1:400

LR LIVING ROOM
DR DINING ROOM
D DINING
BR BEDROOM
K KITCHEN
C CLOSET

SCALE 1:200
Household Head: Angel Alba (36) and wife, Roselva Martinez de Alba (48)

The grandmother, Roselva's mother, worked first as a storekeeper in San Cristobal in the State of Chiapas, and upon moving to Mexico City after her husband died (in 1927) she worked as a concierge, in a bakery, as a storekeeper, and finally as a housewife. As a girl, Roselva worked at home and tended the store. She lived with her mother for a spell after she married, and then left home. Her husband was an electrician and she had three children of his before he died. Her second husband works irregularly as a blacksmith. The mother works at home as a housewife; the eldest daughter works as a secretary in a bank, and the second daughter has finished her studies as a kindergarten teacher and will soon begin working. The income level is medium (2,900-3,000 pesos a month) and relatively stable. It should improve soon, with the second daughter's earnings. The two youngest children are in elementary and in high school. The family expects to give them both college education.

During her life in Mexico City, Roselva has changed her residence sixteen times. Five of her first six residences were concierge positions of Roselva's mother. Next, they were renting apartments, mostly in vecindades, of different quality, depending on the current economic situation of the family. They even went through an unsuccessful owner-builder experiment, which they had to give up because of too long distances to work, markets and schools.

They have lived in their present rent-controlled vecindad (tenement) since 1965 (70 pesos a month). As the building is scheduled for demolition, they are planning to move to the periphery. They have a priority for buying a house on monthly installments of up to $500.00 pesos, and over a ten-year period. So far, the family has applied for a house at San Juan de Aragon, a subsidized housing project, but they have had no reply to date.
View from the old kitchen stairs of the mansion into the patio. The mansion was converted into a tenement in 1920 or the early 1930's
URBAN LOCATION DISTANCE FROM THE CENTER (Km.)
DISTANCE TO WORK OF MAIN INCOME CONTRIBUTOR (Min)

AREA OF PRIVATE SPACE (ROOFED AND OPEN)

UTILITIES

NOTE

WATER
SEWERS
20 %
10 %

ELECTRICITY
IN
ADJACENT

GAS
UNIT
OR SHARED

TELEPHONE
case 7 MAGDALENA MIXHUCA

1. ACCESS
2. RESIDENCE
3. WASH AREA
4. W.C.
5. TWO STORY PRIVATE BUILDING
6. CHURCH
7. OTHER RESIDENCES
8. KIOSK, WATER FAWCET

PRESENT RESIDENCE, PART OF CIUDAD PERDIDA (SHANTY TOWN)

SCALE 1:400

LR LIVING ROOM
DR DINING ROOM
D DINING
BR BEDROOM
K KITCHEN
L LAUNDRY
T TOILET-BATHROOM
C CLOSET

SCALE 1:200
Felix and his wife, Modesta, arrived in Mexico City in 1961. They started by renting a small basement apartment, then lived in two subsequent servants' quarters in exchange for his wife's washing, while he worked as an assistant mason.

Next, he worked as an apprentice newsboy. Now, he holds a relatively permanent, self-employed job as newsboy; his mother complements the income by laundering; the older children occasionally help their father and do household chores.

Their income level is relatively low and variable; there is no savings margin. The father is semi-literate, the mother illiterate.

Educationally, the family is advancing. The parents hope to provide their children with at least a semi-professional education.

The next two family residences were rental of a small house in the peripheral colonia, Granjas del Arenal, and their present rented house in ciudad perdida la Marranera. They stayed only six months in the Granjas del Arenal house, but it was enough to break down the family economy. It was too far from work, from markets and too expensive to rent, to live, and to travel. The children and wife could not provide additional income.

Their house in La Marranera is very modest but much more adequately located and reasonably priced. Unfortunately, they are threatened with eviction by the government eradication program. This will send them back to the periphery.
In ciudad perdida La Marranera

Fernandez' family house
IN THE HOUSEHOLD

OCCUPATION OF THE MAIN INCOME CONTRIBUTOR

FAMILY INCOME

HOUSING PRICE / FAMILY INCOME

HOUSING PRICE = MONTHLY CURRENT COSTS

FORM OF TENURE AND DURATION OF RESIDENCE

FREEHOLD
FREEHOLD W. MORTG
W. LEGAL LAND TITL
W/O LEGAL LAND TITL
RENTER RENT CONTROL
RENTER W. CONTRACT
RENTER W/O CONTRACT
W. FAMILY FRIENDS
NO PAYMENT
SQUATTER
case 8 MAGDALENA MIXHUCA

PRESENT RESIDENCE, PART OF CIUDAD PERDIDA (SHANTY TOWN)

1. ACCESS
2. RESIDENCE
3. WASHING AND LAUNDRY
4. W.C.
5. TWO STORIES PRIVATE BUILDING
6. CHURCH
7. OTHER RESIDENCES
8. KIOSK, WATER FAUCET

SCALE 1:400

SCALE 1:10000

SCALE 1:200

LR LIVING ROOM
DR DINING ROOM
D DINING
BR BEDROOM
K KITCHEN
TR SCRAP METAL, GLASS AND TRASH DEPOSIT AREA.
CI CAVED IN - ROOFLESS SPACE.
2 CABINET RADIO-RECORD PLAYER
I PETROLEUM STOVE ON TABLE
Extended nine person family

Ofelia and Mario (her husband) arrived independently in Mexico City in 1938 and 1939, respectively. They have both lived initially in vecindades, she as arrimada, he renting.

After their marriage in 1942, they rented a small house in colonia proletaria (low-cost subdivision), only 2 km from the center.

Mario was working as an independent mason and had a regular income. He complemented it by trading scrap metal. Their first three children were born there. They stayed there for 11 years and moved, 4 years ago, to another rented house.

Mario continued his masonry work and Ofelia started to work in a tortilla factory. Two more children were born during this period. The next move was to the squatter settlement in the periphery, where Mario built a primitive house for the family, and they were planning to improve it gradually, after getting some degree of tenure security. He was working as a mason. Towards the end of their stay there, he got a better job with the city government gardening department. It was better paid and included social security benefits for the whole family.

Unfortunately, they were evicted forcefully by the government agency. They moved to the ciudad perdida La Marranera, where they live now. They rented a small plot on which they constructed a shack. Soon after moving, Mario started to drink more than ever. He lost his city gardening job. He contributes very little to the household at present, investing most of his earnings in drinking, and staying away from the household for weeks at a time.

Ofelia makes food and buys fruit that she then peddles on the streets and at the entrance of different factories and business establishments.

The two daughters, Maria and Josefina, who live at home, have worked first as cleaning women. Since 1970, they work in the corn ship factory. Maria's husband, Julio, works as an assistant carpenter in a shop nearby, but he contributes none of his earnings to the household because he is saving in order to move his family to another location. The youngest son is currently finishing elementary school and contributes nothing to the household. Three small children of Maria and Julio live with the family.

When the ciudad perdida is eradicated by the current government program, the family will finally break down. Ofelia, with her youngest son, will go to live with her married daughter, who owns an owner-built house in the periphery. The other members of the family will go in their own directions. Only the drunk Mario does not make any plans.
Case #8

Ciudad perdida "La Marranera"

"La Marranera" -- Hernandez family house to the right
## IN THE HOUSEHOLD

### Occupation of the Main Income Contributor

<table>
<thead>
<tr>
<th>Family Income</th>
<th>10'</th>
<th>20'</th>
<th>30'</th>
<th>40'</th>
<th>50'</th>
<th>60'</th>
<th>70'</th>
<th>80'</th>
<th>90'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary Earner</td>
<td>*</td>
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<tr>
<td>Wage Earner</td>
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<tr>
<td>Day Laborer</td>
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</tr>
</tbody>
</table>

### Housing Price / Family Income

<table>
<thead>
<tr>
<th>Form of Tenure and Duration of Residence</th>
<th>FREEHOLD</th>
<th>FREEHOLD W. MORTG</th>
<th>W. LEGAL LAND TITL</th>
<th>W/O LEGAL LAND TITL</th>
<th>RENTER RENT CONTROL</th>
<th>RENTER W. CONTRACT</th>
<th>RENTER W/O CONTRACT</th>
<th>W. FAMILY FRIENDS</th>
<th>NO PAYMENT</th>
<th>SQUATTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing Price = Monthly Current Costs</td>
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</tr>
</tbody>
</table>
Household Head: Felipe Perez (37)

Nuclear ten-person family; father, mother and eight children

The recently married couple moved into a tenement at Santa Maria la Redonda in the intermediate ring of the city in 1956. They moved to Colonia Nueva Rosita, on the periphery, renting a house, in 1959. Finally, they bought a piece of land in 1966 and built a house in the Colonia Magdalena Atlazolpan.

The family freeholds the land they built their house on, although they have no legal papers to prove their ownership.

The father worked first as an orderly, then as a waiter, and finally, as a skilled cook, with an income level that is stable and includes additional benefits, such as social security.

The father and mother both read and write.

There has been a gradual income ascendant over the years. The income level will probably increase if the oldest daughter begins working. Educationally, the family is clearly advancing. Four children are in elementary school and two are in high school.

Their present house, as well as locality, is in a state of complete disrepair and lacks services. Felipe is blaming for that the tenure insecurity and specifically the threat of having their property expropriated for a new public housing project.

They have already lost, without any compensation, 25 percent of the land when the new street was traced.
Street near Perez home

Typical street in Magdalena Atazolpan
URBAN LOCATION DISTANCE FROM THE CENTER (Km.)
DISTANCE TO WORK OF MAIN INCOME CONTRIBUTOR (Min)

AREA OF PRIVATE SPACE (ROOFED AND OPEN)

NOTE

WATER
SEWERS  20%  10%
ELECTRICITY IN ADJACENT
GAS UNIT OR SHARED
TELEPHONE
EXPENDITURES DISTRIBUTION

FOOD 1
CLOTHING 2
MEDICINE 3
HOUSING AND UTILITIES 4
TRANSPORTATION 5
EDUCATION 6
SAVINGS 7
OTHER 8

HOUSING PRIORITIES—SUMMARY

LOCATION G ——— E ———
TENURE ————
STANDARD ————

INCOME
PRICE

ACCESS
NEEDED GIVEN
GIVEN
NEEDED

*COST EQUITY
10000 20000*
case 10 MAGDALENA ATLAZOLPAN

SCALE 1:10,000

LR LIVING ROOM
DR DINING ROOM
D DINING
BR BEDROOM
K KITCHEN
L LAUNDRY
T TOILET-BATHROOM

SCALE 1:200
Household Head: Juan Jimenez (35)

Nuclear twelve-member family; father, mother and ten children, from 3 months to 18 years old

The family is going through the stage of education of the children, one in high school and five in elementary, although the oldest son is already working full-time and three children at the bottom are not yet in school.

The father worked his way up from an assistant butcher to his present occupation. Now, he holds a relatively permanent job as a skilled butcher; the son has recently begun to work as an employee of a commercial firm. They both have social security as an important fringe benefit.

Their income level, however, is relatively low.

The father and mother can read and write, but didn't finish grade school.

There has been a gradual income ascendant over a period of years. There are no important income increases in view, other than the son's recent contribution. However, the family is quite optimistic towards the future on account of having social security, on the one hand, and providing the children with the most education possible.

Before marrying, Juan lived with his parents in Mixcoac, in the intermediate ring of the city. In 1953, he moved to a vecindad in a proletarian neighborhood near the periphery. In 1963, the family moved, also renting, to their present location. The family rents the house from an uncle, with only a spoken agreement. They are in the process of buying land in the nearby proletaria. They will move there to build their own house.
Jimenez family rented house

View of the patio
OCCUPATION OF THE MAIN INCOME CONTRIBUTOR

FAMILY INCOME

HOUSING PRICE / FAMILY INCOME

Housing Price = Monthly Current Costs

Form of Tenure and Duration of Residence

FREEHOLD
FREEHOLD W. MORTG
W. LEGAL LAND TITL
W/O LEGAL LAND TITL
RENTER RENT CONTROL
RENTER W. CONTRACT
RENTER W/O CONTRACT
W. FAMILY FRIENDS
NO PAYMENT
SQUATTER
MAP OF THE LOT.
1-6 HOUSES OF DIFFERENT FAMILIES
1. DOÑA MANUELA'S HOUSE ("OWNER")
4. JORGE'S HOUSE
A. LATRINE
B. PIGS (DOÑA MANUELA'S)
C. GARBAGE
D. UNUSED ROOM

SCALE 1: 10000

LR LIVING ROOM
DR DINING ROOM
D DINING
BR BEDROOM
K KITCHEN

SCALE 1: 200
Household Head: Jorge Rendon (54)

Nuclear seven-member family; the second of the father

The family is going through the stage of education of the children, while the oldest son is already working and the youngest two are not yet in school.

The father arrived in 1965, to a one-room apartment in a tenement of a low-cost sub-division, Copilco El Alto. Six months later, the family moved to its present residence, which they built in one month.

It is located in the illegal fraccionamiento popular (low-cost sub-division), Santo Domingo Los Reyes, on the periphery at the southern tip of the city by the University City of Mexico.

In their present residence, they paid rent for six years to the person who originally squatted on the land, although she had no legal indenture that proved her ownership. Presently, the family no longer pays any rent, but lives in fear of losing their home while the city government resolves the situation.

They hope that the government will give them land titles. It is also possible, however, that they will be evicted.

The father worked as a sacristan (sexton) in his home town. Lack of any other experience has limited his occupational progress. He holds, now, a relatively permanent job as a twenty-four hour a day watchman of an auto repair shop. His oldest son works in the same place as a mechanic.

There was a very gradual income ascendant over the years that was reinforced when the oldest son began working recently. No other important income increases are in view. Educationally, the family is advancing and hopes to provide the children with college education, if possible.

Mother and father both lack any schooling. Their two sons (14, 10) are currently in school.
URBAN LOCATION DISTANCE FROM THE CENTER (Km.)
DISTANCE TO WORK OF MAIN INCOME CONTRIBUTOR (Min)

| DISTANCE TO WORK OF MAIN INCOME CONTRIBUTOR (Min) |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 180               | 120               | 90                | 60                | 40                | 20                | 10                |
| Km.               | 1/2               | 1                 | 2                 | 3                 | 5                 | 8                 |

AREA OF PRIVATE SPACE (ROOFED AND OPEN)

<table>
<thead>
<tr>
<th>AREA OF PRIVATE SPACE (ROOFED AND OPEN)</th>
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<tbody>
<tr>
<td>4096</td>
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<td>2048</td>
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<td>128</td>
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<td>16</td>
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% UTILITIES

<table>
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<tbody>
<tr>
<td>WATER</td>
</tr>
<tr>
<td>SEWERS</td>
</tr>
<tr>
<td>20%</td>
</tr>
<tr>
<td>10%</td>
</tr>
</tbody>
</table>

NOTE

UTILITIES:
- WATER
- SEWERS
- ELECTRICITY
- GAS
- TELEPHONE

20% IN UNIT
10% ADJACENT OR SHARED
EXPENDITURES DISTRIBUTION

FOOD
CLOTHING
MEDICINE
HOUSING AND UTILITIES
TRANSPORTATION
EDUCATION
SAVINGS
OTHER

HOUSING PRIORITIES—SUMMARY

LOCATION G --- E ---
TENURE -------
STANDARD -----

INCOME PRICE

ACCESS
GIVEN
NEEDED

GIVEN
NEEDED

SHelter

COST EQUITY
5000 12000
case 12
SANTO DOMINGO
DE LOS REYES
Household Head: Elena Otero (48)

Extended three-generational fourteen-member family, plus young couple of non-paying guests

Doña Elena arrived in Mexico City in 1947 and shortly after found a job as a domestic servant living with a family in Santa Julia. From there, she went to a one-room apartment in the same neighborhood. After that, she moved to a one-room apartment in Tacuba. These three residences are in the intermediate ring of the city, basically middle- and low-cost residential areas. Their next move was to a squatters' settlement, La Cienega, on the southern periphery of the city. After they were evicted by the army, the family moved to Tecoliapan, a small rural village on the periphery that has since been absorbed by the city. Finally, in 1952, the family moved to Santo Domingo Los Reyes, their present residence.

Santo Domingo Los Reyes is an illegal fraccionamiento popular (low-cost sub-division) on the southern periphery of the city.

Their house, built incrementally over 17 years (it took Elena five years to overcome her fear of being evicted again), is one of the largest permanently built homes of the sample. They still do not have land titles, however, and they live in fear that the government will evict them or will charge exorbitant amounts for legalizing their tenure.

Doña Elena has worked successively as a domestic servant, a street fruit vendor and, currently, tends a store selling fruit at home. She has brought up her family with the help of different husbands. At the present, her older sons are contributing to the household income, although they already have families of their own to support. Her present husband is a bricklayer. Her two older sons work as city paving outfit foreman and bricklayer. Their income is relatively low and variable.

The number of members in the family will probably grow more than its income. Educationally, the family isn't advancing a great deal. The mother puts no pressure on the children to go to school if they don't want to.
Doña Elena's shop, with the wall of the house behind

Two sections of Doña Elena's house
IN THE HOUSEHOLD

--- Ocupation of the Main Income Contributor ---
FAMILY INCOME

--- Housing Price / Family Income
Housing Price = Monthly Current Costs

--- Form of Tenure and Duration of Residence

FREEHOLD
FREEHOLD W. MORTG
W. LEGAL LAND TITL
W/O LEGAL LAND TITL
RENTER RENT CONTROL
RENTER W. CONTRACT
RENTER W/O CONTRACT
W. FAMILY FRIENDS
NO PAYMENT
SQUATTER
Household Head: Hedilberto Garcia (33)

Nuclear family of eight members

The family is entering the stage of education of children, possibly also of growth of family.

The father lived on an urban farm in Mixcoac, in the intermediate ring of the city, until he married in 1960 and moved out to squat at Padierna, on the southern periphery of the city. After being evicted, he has moved to the nearby present residence in the same squatter settlement, in 1961.

The father worked successively as a campesino (peasant), a street vendor, an assistant mason, a shoe shine boy. Now, he works irregularly as a street vendor of roasted pumpkin seeds. The mother occasionally complements the income by laundering. The income level is low and variable.

There is no change in view, from an occupational standpoint. There has been a recent decline in income and no savings margin.

The father and mother are illiterate. The children will probably have to quit school before long to contribute to the family income.
García family adobe house on the edge of the cañon in Padierna squatter colonia
IN THE HOUSEHOLD

--- Ocupation of the Main Income Contributor ---

FAMILY INCOME

--- Housing Price / Family Income ---

Housing Price = Monthly Current Costs

Form of Tenure and Duration of Residence

- Freehold
- Freehold W. Mortg
- W. Legal Land Titl
- W/O Legal Land Titl
- Renter Rent Control
- Renter W. Contract
- Renter W/O Contract
- W. Family Friends
- No Payment
- Squatter
EXPENDITURES DISTRIBUTION

FOOD
CLOTHING
MEDICINE
HOUSING AND UTILITIES
TRANSPORTATION
EDUCATION
SAVINGS
OTHER

HOUSING PRIORITIES—SUMMARY

LOCATION
g
E

TENURE
standard

INCOME
PRICE

ACCESS
needed
given

COST
EQUITY
1800
7000*

*estimated by the owner upon tenure legalization.
Household Head: Aurora Cortes (40)

Basically an eight-member nuclear family; mother and seven children
The father, who lives, has been serving a long jail term and is not likely to get out soon. At present, there is also a sister of the mother staying with the family (ninth member of family)

Before the father was jailed, back in their home town, he supported the family as a farmer. Since then, the mother began working as a launderess and eventually moved to Mexico City, washing clothes and working as a domestic servant.

The income level of the family is relatively steady but low.

Recently, the eldest daughter began to work as a domestic servant, too, which has increased the family income substantially. Another important income increase in view will be when the second daughter begins working as a secretary. She has finished secretarial school and is looking for a job. Educationally, the family is also advancing. Other children hope to obtain a semi-professional level.

The mother is barely literate. The rest of the children are in or about to enter elementary school, except for one daughter (13), who is in high school and one son (10), who is a deaf mute.

After leaving her home town, the mother came to stay with the sister, who lived in this squatter settlement, Pedregal de San Nicolas, on the southern periphery of the city. A month later, she set up her own house nearby, where they have lived ever since.

Probably due to the number of years they have spent there, they feel quite secure in possession of their land. They think that the government will eventually legalize the tenure situation of the squatters, charging them a certain amount, depending on the size of the lot, as has happened with other settlements. If they can't foot the bill, they say, they'll simply transfer the property and go squat somewhere else. They feel pretty sure against being evicted, because, they say, the settlers would all join to protest and resist.
Gradually, the family has been substituting the original corrugated tar cardboard walls for stone, which they extract from the ground and pile up with no mortar, much like rural stone fences.
EXPENDITURES DISTRIBUTION

100%
100
90
80
70
60
50
40
30
20
10

1. FOOD
2. CLOTHING
3. MEDICINE
4. HOUSING AND UTILITIES
5. TRANSPORTATION
6. EDUCATION
7. SAVINGS
8. OTHER

HOUSING PRIORITIES—SUMMARY

LOCATION G ———— E ————
TENURE ————
STANDARD ————

*assuming legalization of tenure.

INCOME
LOCATION
DISTANCE TO CITY CENTER
DISTANCE TO WORK
II IN HOUSEHOLD

COST
EQUITY
250
10000*
case 15  TLACOLIGIA

SCALE 1:10,000

FIRST DEVELOPMENT  1963
SECOND DEVELOPMENT  1966
THIRD DEVELOPMENT  1970

PRESENT RESIDENCE  1973
Household Head: Antonio Rodriguez (64)

Seven-member, three-generational extended family; father (64), son (32), son's wife (22), grandson (5), granddaughter (4), granddaughter (3), granddaughter (2)

The father arrived in Mexico in 1928, married in 1930 and lived at the servants' quarters of the middle-income residential zone, intermediate ring, until 1943. The couple moved to Norte 2, Colonia Defensores, a fraccionamiento popular, where they lived from 1943 to 1958. They built the family house that they gave, in 1958, to Antonio's parents, who decided to move to Mexico City, too. The family moved to Tepehuanes No. 65 Colonia Tlalcoligia, a fraccionamiento popular, in 1958, and lived there to the present in their owner-built house. There are no future moves in view.

The father worked successively as a farmer, truck driver assistant, with a city paving outfit, and as a textile worker.

Semi-retired, he tends miscellaneous store at home; his son, an accountant, works with a private company. His wife works as a housewife.

There was a very gradual income ascendant over a period of years at first, and after the graduation of the son, there was an important increase in income. There is a probable future increase of income.

Educationally, the family is advancing. The parents hope to provide their children with a professional education.
Front of Rodriguez family house from the street

In the patio of the Rodriguez house
Household Head: Procopio Perez (50)

Nuclear seven-member family

The father arrived in Mexico City in 1942. He moved in with his sister at Calle San Lucas in Coyoacan. When he married in 1952, they continued to live at the same residence. In 1957, they left the middle-income intermediate ring residential zone to move to Tepehuanes #94, Colonia Tlalcoligia, a low-cost sub-division in the periphery at the south of the city.

When they moved, they began to rent land, holding a ten-year contract. Recently, they have begun to buy the lot.

The father, working as a carpenter for a large company on contracts, is sole support of the family. The mother works as a housewife.

The father has always worked as a carpenter, from apprentice to a skilled semi-professional level. The eldest daughter is about to graduate as a nurse.

The income level has steadily increased over the years. There is a probable future increase of income when the daughter starts working. Educationally, the family level is advancing. The parents hope to provide the children with at least a semi-professional education.
Perez family house, view from the street into the patio

Interior of the living room
URBAN LOCATION DISTANCE FROM THE CENTER (Km.)
DISTANCE TO WORK OF MAIN INCOME CONTRIBUTOR (Min)

ISO
120
90

50%
40%
30%
20%
10%

NOTE
WATER
SEWERS
20%
10%

UTILITIES:
ELECTRICITY
IN
ADJACENT
GAS
UNIT
OR SHARED
TELEPHONE
EXPENDITURES DISTRIBUTION

HOUSING PRIORITIES—SUMMARY

LOCATION G ------- E -------

TENURE .........

STANDARD -------

INCOME PRICE

ACCESS

GIVEN NEEDED

SHELTER

COST EQUITY

60000 15000
CASE 17  SAN RAFAEL CHAMAPA

SELEDONIO'S PARENTS
HOUSE IN MICHOACAN

NEWLY WED RESIDENCE
IN MICHOACAN

SECOND RESIDENCE
IN MICHOACAN

VECINDAD IN
AZCAPOTZALCO, DF

SCALE 1: 10 000

WATCHMAN ROOM IN A FACTORY
AZCAPOTZALCO, DF

"CASA CHICA", FIRST HOUSE IN
SAN RAFAEL CHAMAPA

PRESENT RESIDENCE IN SAN RAFAEL CHAMAPA
1."CASA GRANDE" DR DINING ROOM
2.HOUSE OF SON 1 BR BED ROOM
3.HOUSE OF SON 2 K KITCHEN
4.WASHING
5.PIT LATRINE
6.CHICKEN COOP
7.STORAGE

SCALE 1: 400

SCALE 1: 200

HOUSE OF SON 1

HOUSE OF SON 2
Household Head: Seledonio Carrera (55)

Extended three-generational family of seventeen members

Seledonio was a farmer on the ejido collective farm in the State of Michoacan, occupying an important position in this local community. He also knew masonry, carpentry and iron work trades.

He has built, by himself, two family homes on the farm.

Seledonio arrived in Mexico City in 1952, without the intention of staying for good. He was investing all his earnings in his farm and visited his family there frequently. Two years later, however, his family followed him to Mexico City.

His first job was as a helper to a machine operator in a factory, where his relative was working. Only a few days later, he was offered a velader (watchman) position, which he holds up to the present.

Seledonio's first urban residence was in the vecindad (tenement) in the peripheral subcenter near his relatives. Shortly after having become a velader, he moved to a room with a toilet, provided as part of a wage, next to the factory gate. He lived there with his growing family until 1964, when he bought a plot in the illegal "ejido" subdivision in the nearby periphery of the city.

To keep the price low, he bought a large piece of land with a group of friends. Next, they subdivided it between them. Seledonio has built, with the help of his sons, four houses on his plot. The first was a "casa chica," a small house to move into right after buying a plot; next, was a "casa grande," the permanent family home. The two next houses were built for the sons and their families when they got married. All of them were constructed mainly during weekends and holidays.

Seledonio is a principal income contributor. He is earning just a few cents over the official minimum salary level. His three elder sons are semi-skilled workers in the factory where their father is the watchman.

Both parents are illiterate, although they have started primary school in the rural area of origin. Their children have passed at least three classes of primary school, most have six, and some still continue further.
Seledonio's street

Mrs. Carrera in the front of "Casa Grande;" further to the right is the oldest son's house
4 a
URBAN LOCATION DISTANCE FROM THE CENTER (Km.)
DISTANCE TO WORK OF MAIN INCOME CONTRIBUTOR (Min)

4 b

5
AREA OF PRIVATE SPACE (ROOFED AND OPEN)

6
% UTILITIES

NOTE
WATER  SEWERS  20%  10%
UTILITIES:  ELECTRICITY IN  ADJACENT
            GAS      UNIT  OR SHARED
            TELEPHONE
case 18  SAN RAFAEL CHAMAPA

Parents House in Oaxaca

Vecindad in Xinalapa, D.F.

Vecindad in San Bartolo, Naucalpan, Edo. de Mexico

Scale 1:400

Household plot at Chamapa

Scale approx. 1:400

House in San Rafael, Chamapa

BR - Bedroom
K - Kitchen
D - Dining

Scale 1:200
Household Head: Angel Santos Castro (32)

Nuclear seven-member family

Angel was an "ejido" farmer in the State of Oaxaca. He moved to Mexico City in 1961. Here he worked as a gardner and a concierge in the high-income area, raising chickens on the large suburban farm and finally as a packaging worker in a flour mill. He holds the last job until now.

In his first jobs, he stayed in servant quarters. Working on the chicken farm, he lived with his family in the vecindad in the nearby subcenter of the city. His next two residences were vecindades close to the flour mill. In 1971, he bought a plot in the illegal ejido subdivision, San Rafael Chamapa, where he built the house with the help of an informal loan from his employer. The land tenure was legalized shortly thereafter, and Angel is still paying the legislative costs.

Both parents are illiterate. Despite that, Angel is a leader in the local community (his fluency in Zapotec, the native language of the Oaxaca area, increases the confidence that neighbors of the same origin have in him).

His top priority is to give the best possible education to his children.
Santo family house in the top left corner

Angel, his wife and children in front of the house
IN THE HOUSEHOLD

--- OCCUPATION OF THE MAIN INCOME CONTRIBUTOR ---
FAMILY INCOME

--- HOUSING PRICE / FAMILY INCOME ---
HOUSING PRICE = MONTHLY CURRENT COSTS
FORM OF TENURE AND DURATION OF RESIDENCE

FREEHOLD
FREEHOLD W. MORTG
W. LEGAL LAND TITL
W/O LEGAL LAND TITL
RENTER RENT CONTROL
RENTER W. CONTRACT
RENTER W/O CONTRACT
W. FAMILY FRIENDS
NO PAYMENT
SQUATTER
URBAN LOCATION DISTANCE FROM THE CENTER (Km.)

DISTANCE TO WORK OF MAIN INCOME CONTRIBUTOR (Min)

AREA OF PRIVATE SPACE (ROOFED AND OPEN)

% UTILITIES

NOTE

WATER
SEWERS

20% 10%

ELECTRICITY
GAS

IN  ADJACENT
UNIT  OR SHARED

TELEPHONE
case 19   SAN RAFAEL CHAMAPA

BEDROOM
KITCHEN
BARN

MARRIED HOUSE HUEJUCA, JAL.

VECINIDAD, GRANJAS MEXICO, D.F.

SCALE 1: 400

FIRST CONSTRUCTION STAGE ONE YEAR $ 4,000.00

SECOND CONSTRUCTION STAGE THREE MONTHS $ 2,000.00

THIRD CONSTRUCTION STAGE TWO MONTHS $ 4,500.00

HOUSE IN CHAMAPA
BR. - BEDROOM
S - SHOP
K - KITCHEN
T - BATHROOM

SCALE 1: 400

HOUSEHOLD PLOT IN CHAMAPA

SCALE 1: 200
Household Head: Juan Ramirez (37)

Nuclear family of eleven members

The father was a landless farmworker in his home village. During the ten years since his arrival in the city, he has advanced from the unskilled job of carrying heavy bags and items in the factory to one of the supervisor of the workshop in the same factory. His income has increased correspondingly.

The mother is running a small informal clothing store at home.

Both parents have studied as far as the fourth year of primary school. All of their school age children study. Their education is an important priority of the family.

Juan arrived in the city with his young wife and three children from a former marriage (his first wife died while giving birth to their last child). Their first residence, for fifteen days, was with a relative. Next, they rented a room in a vecindad for four years, and in 1967 they moved to the illegal subdivision, San Rafael Chamapa. Their land tenure was legalized in 1971. They own the house, built by a friend-mason with the help of Juan and the family.
House of the Ramirez family
# IN THE HOUSEHOLD

---

### OCCUPATION OF THE MAIN INCOME CONTRIBUTOR

#### FAMILY INCOME

- **salary earner.**
- **wage earner.**
- **day laborer.**

---

### HOUSING PRICE / FAMILY INCOME

**Housing Price = Monthly Current Costs**

#### FORM OF TENURE AND DURATION OF RESIDENCE

- **Freehold**
- **Freehold W. Mortg**
- **W. Legal Land TItl**
- **W/O Legal Land Titl**
- **Renter Rent Control**
- **Renter W. Contract**
- **Renter W/O Contract**
- **W. Family Friends**
- **No Payment**
- **Squatter**
case 20  SAN RAFAEL CHAMAPA

FATHER'S GRANDMOTHER'S HOUSE PUNTA GALLEGOS, MICHOCAN

SCALE 1:400

GENERAL PLAN
FAMILY RESIDENCES IN MEXICO CITY
COLONIA ALCE BLANCO

ONE ROOM VECINDAD 1
COL. ALCE BLANCO
(SEE GENERAL PLAN)

ONE ROOM VECINDAD 2
COL. ALCE BLANCO
(SEE GENERAL PLAN)

RENTED PLOT, COLONIA ALCE BLANCO (SEE GEN. PLAN)

1 FAMILY BEDROOM
2 FAMILY KITCHEN
3 FAMILY COMPADRE'S DWELLING

SCALE 1:400

FAMILY HOUSE AT CHAMAPA
BR - BEDROOM
D - DINING
K - KITCHEN
T - BATHROOM

SCALE 1:400

FIRST STAGE, TWO MONTHS $3,100.00
SECOND STAGE, ONE YEAR $850.00
Household Head: Manuel Roncal (44)

Nuclear thirteen-member family

The family is going through the stage of education of the children, while the two older ones are already working.

The father has worked as a peasant, an assistant mason, an unskilled factory worker, a skilled factory worker and, at present, as a mason. His income has been ascendant, and stabilized when he worked in a factory; at present, it varies due to his work as a mason, but the eldest son has begun to contribute to the family income. The mother is a housewife.

Educationally, the family has advanced from almost illiterate parents to at least a grade school level for all the children.

They lived in two residences before leaving their home town in 1961. Upon arriving in Mexico City, they lived in three rented residences, including two vecindades, in the Colonia Modelo, until they moved to San Rafael Chamapa in 1964. San Rafael Chamapa is an illegal legalized low-cost subdivision on the northwestern periphery of the city.

Manuel has built their house with the help of his eldest son.
Case #20

Roncal family house from the street

Roncal family house courtyard
URBAN LOCATION DISTANCE FROM THE CENTER (Km.)
DISTANCE TO WORK OF MAIN INCOME CONTRIBUTOR (Min)

AREA OF PRIVATE SPACE (ROOFED AND OPEN)

NOTES

<table>
<thead>
<tr>
<th>UTILITIES</th>
<th>100%</th>
<th>90%</th>
<th>80%</th>
<th>70%</th>
<th>60%</th>
<th>50%</th>
<th>40%</th>
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NOTE: UTILITIES: WATER, SEWERS, 20%; ELECTRICITY, IN; GAS, UNIT; TELEPHONE, ADJACENT OR SHARED.
case 21  SAN RAFAEL CHAMAPA

Parent's house in Aculco, Edo. de Mex.

House in Aculco, Edo. de Mexico

Vecindad in Colonia Pro-Hogar, D.F.

Vecindad in Ahuizotla, D.F.

Scale 1:400

House in Colonia Olivar, Del Conde, D.F.

Present residence

First stage one month
$1,300.00

Second stage 45 days
$2,000.00

Third stage five days
$1,450.00

Present residence

Scale 1:400

BR - Bedroom
K - Kitchen
D - Dining
T - Bathroom

Scale 1:200
Household Head: Ezequiel Zamorra (49)

Nuclear nine-member family

The father has worked as a farmworker. In Mexico City, he has worked as a factory watchman and as a truck driver. He is working now as a taxi-cab driver.

He arrived in Mexico City, as a bachelor, in 1939, and rented rooms in two vecindades until 1947. Between 1947 and 1962, he rented a house in an elder low-income colonia. At first, he shared it with a friend and next, after his marriage in 1954, with his family.

In 1962, they moved, following the relocation of the factory, to a vecindad in the metropolitan subcenter, Nancalpan.

In the same year, they moved to their present residence in the illegal, now legalized, ejido subdivision, San Rafael Chamapa. Here, Ezequiel has built his own house. He did it himself, with the minor help of local craftsmen.

Ezequiel is the main income contributor. His two eldest daughters work as servants and contribute to the family income. The remaining school-age children are studying.

The father hopes to give secondary education to all the children.
Case #21

The Zamorra house from the street

Entering the patio

The mother and the third daughter in the kitchen
case 22  STA. CRUZ MEYEHUALCO

LIVING WITH AN UNCLE STAL CRUZ MEYEHUALCO D.F.
 SCALE 1:400

LIVING WITH HIS COMADRE IN STA. CRUZ
MEYEHUALCO (PRESENT)

1 COMADRE'S HOUSE
2 FAMILY DWELLING

PRESENT FAMILY DWELLING
 SCALE 1:200

BR - BEDROOM
K - KITCHEN
D - DINING
T - TOILET
LR - LIVING ROOM
DR - DINING ROOM
Household Head: Rafael Verdugo (30)

Nuclear eight-member family

The father, born in a small village, arrived in the city in 1959. His first work was that of a car painter assistant, from which he has advanced to become a car painter.

Presently, because of a series of unusually wet seasons, he is alternating this work with one of "pepenedor" (rag picker) on the municipal garbage dump.

Until his marriage in 1964, he was living as "arrimado" (non-paying guest) with relatives. After his marriage, the family lived with the wife's parents and next, with Rafael's uncle. The following residence (1968-1973) was in a vecindad. They had to leave it for another "arrimado" situation when the reduced income became not sufficient to pay the rent and at the same time properly nourish and educate their children.

Rafael has built, from materials found on the garbage dump, his house in a friend's yard.

All of their school-age children are studying, and the family slowly accumulates savings for a move to their own house in the future.
Case #22

Verdugo family house
4 a URBAN LOCATION DISTANCE FROM THE CENTER (Km.)
DISTANCE TO WORK OF MAIN INCOME CONTRIBUTOR (Min)

<table>
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<th>Km.</th>
<th>10'</th>
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<th>30'</th>
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4 b

5 AREA OF PRIVATE SPACE (ROOFED AND OPEN)

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<tr>
<th>M²</th>
<th>4096</th>
<th>2048</th>
<th>1024</th>
<th>512</th>
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50' 40' 30' 20' 10'

6 % UTILITIES

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<tr>
<th>%</th>
<th>100</th>
<th>90</th>
<th>80</th>
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NOTE

UTILITIES: WATER, SEWERS, ELECTRICITY, GAS, TELEPHONE

787
case 23 VICENTE GUERRERO

ROOM IN THE VECINDAD IN TEPITO D.F.
SCALE 1 : 200

HOUSE IN UNIDAD VICENTE GUERRERO D.F.

SCALE 1 : 200

BR - BEDROOM
K - KITCHEN
D - DINING
T - TOILET
LR - LIVING ROOM
Household Head: Clemente Torres (56)

Ten-member nuclear family

The father was born in the vecindad of Tepito in the central area of Mexico City. The mother arrived in the same area with her parents in her early childhood.

They have lived their whole lives in the same vecindad until being moved recently to the public housing project, Vicente Guerrero, in the periphery of the city. Here, they enjoy the subsidized low-cost mortgage.

The father has worked as a shoemaker's apprentice, as a shoemaker, as a worker in a shoe factory. Now, he is working as a federal employee, as an upholsterer of office furniture. He is a member of a ruling PRI party. His income has been slowly increasing in the last twenty years. He and his family enjoy social security coverage and other fringe benefits.

The eldest daughter has secretarial and key punch operator diplomas. The second daughter is studying to become a certified nurse.

The father hopes to give at least primary education to all the children.
The Torres house in the Unidad Vicente Guerrero project
IN THE HOUSEHOLD

--- OCCUPATION OF THE MAIN INCOME CONTRIBUTOR ---

FAMILY INCOME

--- HOUSING PRICE / FAMILY INCOME

HOUSING PRICE = MONTHLY CURRENT COSTS

FORM OF TENURE AND DURATION OF RESIDENCE

FREEHOLD
FREEHOLD W. MORTG
W. LEGAL LAND TITL
W/O LEGAL LAND TITL
RENTER RENT CONTROL
RENTER W. CONTRACT
RENTER W/O CONTRACT
W. FAMILY FRIENDS
NO PAYMENT
SQUATTER
case 24  VICENTE GUERRERO

TYPICAL DWELLING WHILE TAKING CARE OF PLOTS
SCALE 1:400

BR - BEDROOM
K - KITCHEN
D - DINING
LR - LIVING ROOM
T - BATHROOM

SCALE 1:200

HOUSE IN THE UNIDAD VICENTE GUERRERO
Household Head: Sixto Sanchez (55)

A nuclear three-person family

The family has gone from the stages of the initial couple, to an extended family with many children and again, to a nuclear couple with only the youngest son.

Upon arriving in Mexico City in 1932, the couple stayed in a stable for several days. A few days later, they moved to the Colonia Guauhtemoc, where they lived for twenty years on two different lots which they watched (as cuidadores). In the same manner, they went to other colonias. This happened between 1952 and 1973. In August of 1973, they were moved to the Unidad Vicente Guerrero, a subsidized public housing project.

The father has worked as a stable cleaner, as an assistant mason, as a night watchman, has been in charge of vacant lots, and at present works as a gardener. The mother has worked in a tortilla shop, as a laundress, as a domestic servant and, at present, as the leader of a group of settlers; at the same time, she has always worked as a housewife.

Three married children contribute to supporting the elderly couple. Although the parents are illiterate, they have tried to give as much as possible of an education to their children. The son that lives with them has studied as far as the sixth grade.

The family's income has always been very unstable and relatively low. It is lower than before. Their budget is also upset by the very high, for their income, mortgage and utility payments.
The Sanchez house in the Unidad Vicente Guerrero project
NOTE

URBAN LOCATION DISTANCE FROM THE CENTER (Km.)
DISTANCE TO WORK OF MAIN INCOME CONTRIBUTOR (Min)

AREA OF PRIVATE SPACE (ROOFED AND OPEN)

UTILITIES

NOTE

WATER
SEWERS
ELECTRICITY
GAS
TELEPHONE
20% IN
10% ADJACENT
UTILITIES
OR SHARED
EXPENDITURES DISTRIBUTION

FOOD
CLOTHING
MEDICINE
HOUSING AND UTILITIES
TRANSPORTATION
EDUCATION
SAVINGS
OTHER

HOUSING PRIORITIES—SUMMARY

LOCATION
TENURE
STANDARD

INCOME
PRICE

ACCESS GIVEN

GIVEN NEEDED

SHELTER

COST EQUITY

560 500
case 25 VICENTE GUERRERO

VECINDAD IN TACUBAYA D.F.

VECINDAD IN COLONIA OBRERA D.F.

DWELLING IN CANTERAS DEL PEÑON VIEJO

SCALE 1:400

SCALE 1:10,000

HOUSE IN UNIDAD VICENTE GUERRERO

BR - BEDROOM
K - KITCHEN
D - DINING
T - BATHROOM

SCALE 1:200
Household Head: Melesio Corral (45)

Nuclear three-member family

The father arrived in Mexico City in 1945. Since then, he has lived in a number of vecindades, before and after his marriage. They were squatting in their last place, from where they were moved to the public housing project, Unidad Vicente Guerrero, in 1973.

The father has worked as a peasant, as an assistant mason, and now he is a piece-work mason with a variable and unsteady income. The mother helps occasionally working as a laundress. Recently, the son has begun to work as an assistant mason.

Educationally, the family has advanced only very little. The father had one year of schooling, the mother had three, and the son has had four years of schooling.

The income level has increased over the years, although it has never been stable.

Recently, it has decreased, as it is more difficult to find the masonry work near the project than it was at the previous locations. This, together with high, for their income, mortgage and service payments, is putting the family in a very difficult economic situation.
The Corral house in the Unidad Vicente Guerrero project