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**EXPLORATIONS INTO THE CHARACTERISTICS, THE DETERMINANTS OF
PRODUCTION, AND THE IMPACT OF LAND POLICIES ON THE INFORMAL
HOUSING SECTOR IN ALEXANDRIA, EGYPT**

by

MOSTAFA MORSI EL ARABY

**A dissertation submitted in partial fulfillment of the
requirements for the degree of**

**DOCTOR OF PHILOSOPHY
in
URBAN STUDIES**

**Portland State University
1993**

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AN ABSTRACT OF THE DISSERTATION OF Mostafa Morsi El Araby for the Doctor of
Philosophy in Urban Studies presented May 7, 1993.

Title: Explorations into the Characteristics, the Determinants of Production, and the
Impact of Land Policies on the Informal Housing Sector in Alexandria, Egypt.

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This study investigates the housing characteristics and the determinants of housing production of the informal housing sector in Alexandria, Egypt. It also examines the impact of land policies on the development of the informal housing sector. Informal housing, by definition, is constructed and acquired outside the legal procedure of land and building registration and without the necessary permissions and approvals. Therefore,

there is a little knowledge about it, and its role in the housing market could be underestimated. The aim of this research is to enhance the factual knowledge about informal housing as a basis for future policy development.

The findings of this research, based on data collected from a field study conducted in four informal settlements in Alexandria in 1991, include the following:

1. Macro-economic, political, and social structures accelerated the emergence and the development of informal housing settlements, which occurred rapidly during and after times of economic and political crises.
2. Informal settlements are heterogeneous and it is not evident that informal housing is synonymous with marginal housing for poor people.
3. Informal settlements have low levels of public utilities and infrastructure.
4. Income, household size, age of household head, and tenure status of the household are the major variables that explain different patterns of housing consumption and expenditure among informal households.
5. Inhabitants of informal settlements have moved from other areas of the city rather than origins outside Alexandria. Owners are more satisfied with both the units and the neighborhoods than renters are.
6. The determinants of informal housing production are in a dynamic process of change and are self-organized. The general conditions of the overall housing market influence informal housing in similar ways. Informal housing finance depends upon small scale and incremental methods of savings.
7. Implementation of different land policies results in augmenting provision of illegal land subdivisions, increasing land prices and expanding informal land market operation.

From the analysis undertaken in this research and previous findings, some policy implications for future planning for informal development become evident.

To

Khadija, my mother,
who gave me more than a live

Amel, my wife,
who gave me more than a love

Karim and *Nada*, my children,
who gave me more than a happiness

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CHAPTER I

INTRODUCTION AND DEFINITION

INTRODUCTION

The problems associated with the immense growth of the informal housing sector in most developing countries, Egypt included, have become alarmingly apparent during the last decades. The search for techniques and policies to manage, deal with, and benefit from this phenomenal growth has become a continuing theme in the professional housing and planning literature (adapted from Noe, 1989).

One familiar debate centers on the positive values the "informal" squatter settlements provide to their residents and their societies (Stokes, 1962; Laquian, 1968) relative to the negative externalities generated (invasion of agricultural land, uncontrolled development, pollution, and public health hazards, etc.). The seminal work of experts, such as Abrams (1964, 1966), Leeds (1967), Mangin (1967), Stokes (1962), and Turner (1966, 1968) in the 1960s, illustrate that what was considered a problem is, in fact, the solution. They urge that the mechanisms of providing housing by the poor themselves in their squatter areas can be used to draw policies to deal with the housing problems on a broader scale.

On the other end of the spectrum, only a few experts, such as De Souza and Porter (1974), and Mountjoy (1978), consider informal settlements, i.e., squatter settlements, slums, or both, as producers of social ills and advocate the eradication and the replacement of these settlements in other planned areas, and/or in public housing projects. This approach has gained a limited acceptance in the literature because of its high social and economic cost (Dwyer, 1975). In fact, this approach has been critiqued as being

ineffective, irrational, and beyond the capabilities of most governments in developing countries (Peattie, 1979; Turner, 1977; Yeh and Laquian, 1979).

As a result of the pioneering work of such experts as Turner and others, a new direction of dealing with squatter settlements as a valuable source for housing production, especially for the poor, was observed, and the “self-help” approach emerged. The major thrust of the self-help approach is that people can do more for themselves than others, such as governments, can do for them. According to this approach, the poor can build their own houses by relying on self-help techniques. Therefore, the poor can build up capital in their housing units and convert their idle time to productive time (Patton, 1988). In this approach, housing was viewed not as a consumer commodity but as an employment opportunity and a force that generated other economic activity (Turner and Fichter, 1972). The self-help approach was appealing as a low cost, low tech approach (Patton, 1988). The World Bank, the United States Agency for International Development (US AID), and other international and bilateral agencies (e.g., the European Development Fund, the Canadian International Development Agency, and the Asian Development Bank) directed their efforts and funding primarily towards self-help projects, sites and services programs, and community upgrading projects (Laquian, 1983). Because many governments of Third World countries were strapped for funds in the early 1970s (Patton, 1988), they adopted more supportive policies towards squatters' settlements and other illegal settlements in which “self-help” predominated (Ward, 1989).

As indicated earlier, the “self-help” approach has been adopted in two programs: sites and services, and community upgrading. The first program involves the provision of plots, materials and technical assistance to be used by the poor themselves, by means of self-help, for producing their own houses. In order to reduce the cost of providing land, most of these projects are located in peripheral areas around urban centers (Payne, 1984). Hence, these locations are designed and planned for residential development for low

income groups. The second program involves the provision of technical assistance to upgrade the housing conditions and infrastructure, and the provision of social services in existing squatters' and slum areas.

In fact, this philosophy became the "conventional wisdom" in designing housing policies on the basis of "self-help" in most developing countries--at least until the early 1980s (Ward, 1989; Patton, 1988). High costs, inadequacy, and difficulties of the implementation of such "self-help" based policies and projects (Payne, 1984) have caused some other experts to look more cautiously at the "self-help" approach, its consequent sites and services, and its upgrading concepts. The implementation of such policies in different parts in most developing countries, for more than 20 years now, illustrates the unsuitability of applying these approaches to the broader nature of housing problems in these countries.

Furthermore, these policies and programs (which are based on "self-help" techniques) contradict the realities and the nature of the housing provision in many parts of the developing world. Further studies about housing provision in different Third World countries (Van Huyck et al., 1986; Moavenzadeh, 1987) illustrate that methods of self-help constitute a very small portion of the total housing production (Peattie, 1987a; Kitay, 1987). Most of the additions to the housing stock have been produced through the informal housing sector by other mechanisms of production (see, for example, Van Huyck et al., 1986; Romaya, 1985; Mayo et al., 1987). These mechanisms of production constitute a market system and methods of production similar to those of the conventional "formal" sector (Gilbert and Ward, 1985).

These findings alert most professionals, housing experts, and planners to the informal housing sector as being the dominant sector of housing production, and the fastest growing sector of production and expansion in most developing countries (Van Huyck et al., 1986). In the 1970s and early 1980s, the total housing units produced by the informal housing sector exceed the total housing units produced by both the private formal sector

and the governmental sector by three to four times (see, for example, Van Huyck et al., 1986; Kitay, 1987; Mayo et al., 1985).

This attention led not only to the emergence of a new direction of thinking about the informal sector as a vital economic sector and as a potential for development but also to the search for techniques to deal with its immense growth. This new direction includes, as one component of a broader balanced institutional, governmental, and macroeconomic strategy, a qualified acceptance of the inevitable existence and the growth of the informal housing sector. By taking this position, it has been argued, a careful guidance of informal housing growth will promote economic and social efficiency in the informal housing settlements and will reduce some of the negative results of its excessive growth (see, for example, Peattie, 1987a; Rodwin and Sanyal, 1987).

This view is the central argument in most recent publications in the field of urban housing in developing countries. These publications reflect a call for broader approaches in dealing with housing problems in developing countries that are free from the project-based orientation of the past (Setchell, 1988). They argue that flexible, effective, and realistic policies for dealing with urban housing problems (Payne, 1992) will help both informal sector and formal sector to provide housing, especially for the urban poor (see, for example, Sanyal, 1990; Weiss, 1990; Peattie, 1987a; Rodwin and Sanyal, 1987; Van Huyck, 1987).

These new approaches for dealing with housing problems in the 1990s must be based upon an understanding and a detailed knowledge about both formal and informal housing sectors; this research is concerned mainly with the informal housing sector. Most of the previous publications emphasize the need for further studies and research in the field of informal housing to fill in the existing gaps in the current knowledge. Before going further into the introduction of this study, it is important to define "informal housing sector" in the context of this research.

DEFINITION

The "informal housing sector", in general, covers a wide variety of interests for different groups, i.e., economic planners, housing experts, liberals, radicals (Peattie, 1987b). Consequently, the definition of that sector is not strictly attached to any specific discipline. It has to be specified, however, according to the nature and purpose of conducting any research within each discipline. In a general sense, there is no sole definition for the informal housing sector. Rather, a set of characteristics about its activities, or ways of producing housing, could be an appropriate way to define the informal housing sector. Because informal housing means different things to different people (Abt Associates, 1982), it is important to specify what we mean by informal housing in the context of this research, and it is more appropriate to have a solid stand for that definition, rather than a set of characteristics or activities. This definition will be elaborated upon later.

The word "informal" has been defined as "not done or made according to a recognized or prescribed form; not according to order; unofficial . . . Done, performed, etc. without formality" (The Oxford English Dictionary, 1989). In addition, the word "informal" has been defined as "non-formal activities that occur without a regularly prescribed or ceremonial procedure" (Webster's Dictionary, 1986). Furthermore, the word "informal" is described as "characteristic of or appropriate to ordinary casual, or familiar use; not outside the general norm" (Webster's Dictionary, 1986; The World Book Dictionary, 1987). Roget's II Dictionary (1988) defines "informal" as unconstrained by rigid standards and as simple, easy going, and unpretentious. Informal is not necessary illegal; illegal could imply immoral, and this is not the case of informality in housing.

In general, the informal sector has been recognized as those activities that are not officially noticed through registration and taxation procedure (Hopkins, 1992) and as all those activities that are not precisely and individually registered or recorded in a regular

manner (Charms, 1992). However, the general approach in defining informal housing is to rely on meeting the legal status and the legal procedure of registration for both land and buildings and on obtaining permission for land subdivision and building construction (see, for example, Abt Associates, 1982; Hopkins, 1992; and others). These criteria will be the basis of defining informal housing for the purpose of this study.

Informal housing is defined, relying on the legal status, as housing that has been produced or acquired without the legal procedure of obtaining permission and without registration; which has been built on registered or unregistered, or unofficially subdivided private land; and which has been produced on either publicly or privately owned land.

In the case of Alexandria, Egypt, and according to that definition, five categories of informal housing activities have been distinguished, depending on the legal status for land tenure, land subdivision, building permission, and building standards. The first two categories represent squatter settlements that have been erected on either publicly or privately owned lands. The third and fourth categories represent informal settlements that have been constructed on privately owned land, but owners failed to adhere to legal subdivision requirements and, consequently, could not obtain building permits. The fifth category represents the semi-formal housing types, where both land and buildings are registered legally, and owners obtained permits for building construction. Nevertheless, owners did not adhere to and cope with the stipulations of the permits regarding building standards and codes. Categories 3 and 4 represent the housing types that are characterized with high degrees of informality and informal activities. These two housing categories, also, constitute the major segment of the informal housing sector. Therefore, the types of housing in categories 3 and 4 are the main concern and focus of this study. These categories are illustrated in more detail in Chapter III.

ALEXANDRIA: THE CASE STUDY

In this research, the informal housing sector in Alexandria, Egypt, will be examined in relation to the concepts and ways of thinking discussed previously. As earlier identified, settlements with high degrees of informality are the major concern of this study. Until recently, this type of housing and its manifested settlements have had little attention from scholars, and few studies have been conducted in that field (see, for example, Chabbi, 1988, on Tunis; El Kadi, 1988, on Cairo; and Coquery, 1990, on Lome). In a recent study, Baross and Van der Linden (1990) have called these types of settlements "Substandard Commercial Residential Subdivisions--SCRS," with an evidence that SCRSs constitute a major supply of cheap building plots in a number of Third World cities. These settlements are characterized by planned layouts, low service levels, suburban locations, construction standards higher than in squatter areas, high tenure security, and nonconformity with urban development plans (Baross et al., 1990). Another recent work (Rakodi, 1992) points out that a large proportion of housing has been supplied by the so-called informal or unconventional sector. This component of housing supply is rarely ignored today, although it is still often labeled unsatisfactory in terms of prevailing housing and planning standards.

Therefore, this research will cover an important gap in the documentation of the informal sector as a whole by examining the informal housing in Alexandria, Egypt, comprehensively. The selection of Alexandria, as a case study, is appropriate in this context for several reasons.

1. Alexandria is the second primate city and the major Port in Egypt. In 1986, it had 3 million inhabitants and an urban primacy index of 30.2 % (CAPMAS, 1990), with the expectation of reaching 5 million inhabitants in the year 2005 (Alexandria 2005, 1984).

2. In 1984, about 40% of total industrial activities in Egypt were in Alexandria, and with current trends, the city will probably continue its role as a magnet for both population and industrial concentration (Alexandria 2005, 1984).
3. Currently, the city is facing severe housing problems, such as acute housing shortages and high density and deterioration rates of the residential buildings in the city's core. More than 30% of the city's residents are under the poverty level; almost 70% of new units added to the housing stock (1970-1984) were added by the informal sector, and high rates of informal housing activities are currently expanding in the east and the west sides of the city (Alexandria 2005, 1984).
4. In 1982, a unique State Land Protection Policy (SLPP) came into effect. It was applied, with specific mechanisms of implementation, only in Alexandria. After more than a decade, the effects of SLPP, along with other national land policies, on informal housing settlements have become evident and are, in many instances, measurable.

The choice of Alexandria as the field of study provides the opportunity to examine the factors involved not only in the formation of an informal housing sector but also in the shaping of a city in a developing country. The contribution of this research lies in providing new information about the informal housing sector, thus filling in an important gap in the literature about the informal housing activities comprehensively and providing information about informal housing in a major North-African city.

Most of literature has focused on the informal housing sector--squatter settlements in particular--in Latin America, Asia, and some parts of western Africa. In fact, addressing the problems of Africa is of importance because it is the fastest growing continent in terms of population and urbanization and the slowest growing continent in terms of economic growth (Towfighi, 1987). The consequent problems of this imbalance

(such as housing deficit, food shortage, and unemployment) are visible in many parts of the continent, especially major urban centers, and Alexandria, Egypt, is typical.

Examining informal housing in Alexandria will add to the knowledge of the field by illuminating informal housing composition and urban structure, housing demand, housing construction, housing finance, and residents' attitudes towards their illegal status. Most of these points have been covered inadequately or not at all in previous research. Therefore, this study investigates these issues, as well as provides empirical evidence, to validate previously tested issues that constitute the conventional wisdom about the nature and the characteristics of the informal housing sector. In order to have an empirical stand about these "debatable" issues, this study answers questions, among others, about informal housing characteristics, informal housing demand, informal housing supply, legal status, and informal land market.

These questions include the following. (1) Are informal housing units marginal in terms of location, standards, type and occupants? (2) Are residents of informal housing poor and new comers to urban areas? (3) Is informal housing only occupied by owners? (4) What are the variables which affect informal housing demand? (5) Are these variables similar to conventional demand variables? (6) Does informal housing really satisfy the needs of its residents? (7) Is informal housing actually self-built with autonomous and low scale operations? (8) How is informal housing produced and what are the factors that determine its production? (9) Is the legal status of both housing and land important to informal housing inhabitants? (10) Is having a legal title for land and/or unit of importance so that it has to be the core of policies regarding informal housing? (11) How do land policies influence the development of informal housing settlements? And (12) What are the factors that affect both the supply and the demand of informal lands? The contribution of this research lies in answering and clarifying the issues related to the preceding questions in the case of Alexandria, Egypt.

The information gained from the research of Alexandria pertains not only to Alexandria but also to other cities and parts of the less developed world that have similar conditions and problems. Understanding the informal housing sector can lead to implementing appropriate, adequate, and realistic housing policies, so that the acute housing problems facing most developing countries can be eased or even solved.

To present the research findings, supporting literature, and analysis, this dissertation is divided into nine chapters. Chapter II is a review of the literature related to the subject including the following:

1. Previous studies concerned with informal housing in the context of the informal economy
2. An analysis of the theoretical framework of informal housing with respect to “self-help” approach and its influence upon informal housing production
3. An elaboration about informal housing market parameters, i.e., housing demand, production, finance, and land
4. An analysis of recent directions in developing policies regarding the role of informal housing

In light of the review of these subjects, the research hypotheses are then formulated.

Chapter III presents the research methods and data analysis. It describes informal housing categories, in the case of Alexandria, which are defined as a basis for the sampling procedure. In addition, issues of sampling procedure, selection of the study areas and sample size are elaborated. Following this elaboration about the survey and the data collection procedures, on which the research is based, is a brief review of the data analysis, the research models, and some methodological considerations. The chapter ends with a discussion of obstacles that arose throughout the process of the field survey.

Chapter IV explores briefly the effects of macro-economic, political, and social structures upon the process of urbanization and housing in Egypt, in general, and in

Alexandria, in particular; this exploration includes factors of the development of Alexandria's urban growth and effects upon its housing sector.

Chapter V begins with a chronological account of the development of the informal housing settlements. In light of the development and some findings discussed in the subsequent chapter, the last section of Chapter V undertakes a multi-directional empirical analysis of the physical characteristics of the informal housing settlements and summarizes socioeconomic and demographic characteristics of inhabitants of informal neighborhoods.

Chapter VI includes an examination of informal housing demand and identifies issues of tenure status, tenure choice, residential choice, and mobility. In addition, this chapter provides explanations of housing demand functions and presents the empirical results of housing consumption and expenditure models. The last section of Chapter VI reveals residents' satisfaction with current housing and neighborhoods and their willingness to pay for improvements.

Chapter VII demonstrates the various factors that determine housing production and housing construction. Housing production and housing stock, along with factors of labor, construction materials, and construction prices are all examined. Chapter VII ends with an examination of housing finance for both housing units and lands. The housing finance section examines how owners and renters finance acquisition of housing units, or buildings. The chapter concludes with an elaboration of the affordability gap between housing prices and incomes.

Chapter VIII examines the informal land market, with information collected from the study areas, including an analysis of the effects of National Land Policies along with the State Land Protection Policy (SLPP) on the development of informal housing settlements with regard to land subdivision, land invasion, land tenure, and land prices. Finally, this chapter examines the operation of the informal land market with regard to mechanisms of land acquisition and land transaction.

In light of the descriptive analysis conducted in Chapter IV and the empirical analysis presented in Chapters V through VIII, Chapter IX summarizes the dissertation's findings, suggests some policy implications of the research with regard to future planning for informal housing development, and evaluates the current need for actions to reduce the potential negative effects associated with the phenomenal growth of informal housing.

CHAPTER II

REVIEW OF THE LITERATURE

The informal housing sector is a relatively new area of empirical research. Few studies deal specifically with the informal housing sector as a whole. As mentioned previously, most writings on the subject are directed towards studying the nature, characteristics and processes of housing production within squatter settlements and thus, recommending policies. The implementation of such policies in developing countries illustrates the unsuitability of applying these policies to the broader nature of the informal housing sector. The application of such policies, in turn, misleads sincere efforts to solve housing problems in developing countries (Ward, 1989). The usefulness of such policies is a central point of debate in most recent publications in the field of urban and informal housing in developing countries (see, for example, Pamuk, 1991; and Setchell, 1988). These publications call for further research and study of the informal housing sector to cover gaps in the current body of knowledge. Thus, the development of a consistent framework for explaining the characteristics of the informal housing sector in Alexandria and the factors affecting its determinants of production, financing, and land has to be based upon the theoretical foundation of current literature.

The phenomenal growth of informal housing in many developing countries is a direct result of failure of most governments in providing housing or in facilitating the provision of housing for major segments of their population. Third World governments may have failed to provide people with houses, but shelter was nonetheless built both in villages and in urban areas without the governmental help or aid and also outside governmental regulations and control (Patton, 1988). Informal housing is not uniform

across the world. Rather, each country has its own circumstances in which informal housing evolves and emerges. Though differences exist between, for example, the *favelas* of Brazil, the *villas miserias* of Argentina, the *barrios* of Ecuador, the *gecekondus* of Turkey, and the *Ezebs* (ranches) of Egypt, similar features also exist.

Informal housing development within most developing countries is characterized by two major features of shelter provision processes: (1) squatter or illegal housing, which is mainly built on public or "illegally occupied" private lands, and (2) unauthorized housing (Patton, 1988), which is constructed on privately "owned" land but without the necessary permits, or in violation of some aspects of the formal city plan or building code (Patton, 1988). This research is concerned with the "unauthorized" housing types, and the review of the literature will clarify and differentiate between the squatter settlements and the unauthorized "informal" housing.

The purpose of the review of literature is to discuss the theoretical basis for different approaches to the informal housing sector and to highlight the key issues in developing the analytical framework for this study. The aim is to develop a consistent understanding about the realities of the informal housing sector as a basis for future policies and ways of governmental intervention in the housing market. The review of the theoretical literature comes from four interrelated bodies of work: studies concerned with the informal housing sector in the context of the informal economy; analysis of informal housing theoretical framework and its impact upon housing policies; analysis of housing markets in developing countries; and review of recent approaches for development policies with regard to the role of the informal housing sector.

In exploring the major topics in the preceding fields, this chapter consists of five major sections. The first section explores the different approaches to informal economy and its relation to informal housing. The second section reviews the literature that illustrates the emergence of the informal housing sector as a result of urban housing

problems in most developing countries. In addition, it reviews different theoretical frameworks dealing with informal housing, mainly the self-help approach with its impact on housing production through the informal housing sector. It reviews the shortcomings of implementing policies based on this approach. The third section examines the housing market parameters in the context of developing countries: housing supply, demand, finance, and land. The section concludes with a discussion of the effects of securing land tenure upon the residents and the physical development of the informal housing settlements. The fourth section reviews the new trends of thinking about the informal sector, as well as the new approaches for developing policies for dealing with the informal housing sector in the context of broader urban housing problems. Based on these fields and subjects, the fifth section presents the research hypotheses and concludes the review.

INFORMAL HOUSING IN THE CONTEXT OF INFORMAL ECONOMY

Informal housing arrangements in Third World cities are one of the myriad production and consumption activities within the informal economy that increasing numbers of households are involved in outside the formal regulations and protection of the state (Yonder, 1988). Thus, informal housing is functional and related to both the existence and the development of the informal housing sector. Informal settlements are the physical setting for several economic activities (Yonder, 1988), where the use of the term "informal" serves to characterize the systems devised by the poor in developing countries within which the production and the buying and selling of goods and services takes place (Ishmael, 1988). For the poor, these systems represent the normal adaptive mechanisms to other systems that are totally dysfunctional and uncoupled from the reality of Third World experience (Ishmael and Dubinsky, 1985). The informal sector, in general, is regarded as the parallel economy to the formal one, where many activities are taking place and where links to the formal sector exist, as will be explained later in this section.

The urban informal sector, in the context of rural-urban migration and the process of urbanization in developing countries, is functional in two ways:

1. The development of small scale, low capital to labor enterprises of all types results in the production and circulation of goods and services affordable by those who, by necessity, live and work in this sector (Ishmael, 1988).
2. In the absence of any formal sector, either private or public alternatives, through different mechanisms (which include self-help) aimed at increasing affordability, the informal sector can supply its own shelter needs and quite often can provide a portion of its services needs (Ishmael, 1988; Sethuraman, 1981).

While employment and other economic activities are the major concern in the first activity, housing production is mainly the focus of the second activity and the major concern of this study. In fact, these two activities are not mutually exclusive. In order to understand the relationship between the informal sector and informal housing, as a multi-activity sector that includes housing, it is important to illustrate, first, the theoretical debate about the informal sector definition and, second, the linkages between both formal and informal sectors. The following discussion addresses the informal sector theoretical debate.

Informal Sector Theoretical Debate

The idea of identifying the informal sector is first introduced by J. K. Hart (1971) in his paper "Informal Income Opportunity and Urban Employment in Africa" at the Institute of Development Studies, University of Sussex. Hart divided Ghana's economy into "informal"--an extension of the concept of traditional-- and "formal"--more or less analogous to modern sector--emphasizing the significance of self employment and small enterprises in the informal sector (Hart, 1971). The formal/ informal dualism is further legitimized in the International Labor Organization's (ILO) World Program report on Kenya with its identification of "working poor," and from that point it has been a central

organizing concept in research about the informal sector in developing countries.

Distinctions between the informal and formal sectors are represented in the ways of doing informal activities that are characterized by the following: ease of entry, reliance of indigenous resources, family ownership of enterprises, small scale of operation, labor intensive and adapted technology, skills acquired outside the formal systems, and unregulated and competitive market (ILO, 1972).

This definition has been criticized because while all these criteria come together to define a competitive market, some of them are relatively complex and cannot be reduced to simple observation (Charms, 1990). Some authors have tried to break them into simpler and more specific criteria. Sethuraman (1976) gives the following as conditions for the membership in the informal sector: employment of no more than ten persons, non-application of legal and administrative regulations, employment of family members, no fixed working hours or days, no institutional loans, production intended for the final consumer, no use of mechanical and electrical energy, and the peripatetic or semi-permanent character of the activity (quoted by Charms, 1990, p.13).

Mazumdar (1975) introduces informal sector into the model of temporary and definitive migrants who come to urban areas to seek employment in the informal sector. Todaro (1969,1985), among others, identifies rural-urban migration, unemployment rates and differences in urban-rural incomes as a model to define informal sector activities. Since these publications much research has been conducted, contributing to the refinement of our understanding about the informal sector (Sanyal, 1988). Because of the contribution of these publications, the concept of an “informal sector” is coming into general use to serve the purposes of many different groups (Peattie, 1987b). Research findings highlight some of the critical issues of the informal sector and generate new questions. The following four points summarize these findings.

First, research indicates that the informal sector is heterogeneous, with participants

in many economic activities (which contradicts the petty trading and production approach) that contribute significantly to the functioning of the urban economy (Sanyal, 1988). These economic activities are not reflected in the national economy. Furthermore, applying the dualistic approach to all sectors of the economy creates both qualitative and quantitative problems. For example, Kannappau (1985) argues that imposing an immutable dualistic structure greatly oversimplifies the functioning of labor markets throughout the developing world. These markets are more diverse, fluid, and competitive than that model recognizes (Tannen, 1991). Thus, the informal sector is not only diverse, heterogeneous, and competitive, but it is also highly structured or organized in its own way (Hopkins, 1992). Furthermore, the informal sector has linkages to the formal sector and formal economy (Sethuraman, 1981).

Second, in contrast to the "labor in waiting" notion of Todaro (1985) and the "Marginality Theory" of Berry (1973) and dos Santos (1971)--both of which describe the rural migrants to cities as a potential labor surplus for the informal sector and as a mid-employment step to join the formal sector--recent research indicates that neither recent migrants nor the poorest of the poor alone wholly constitute the informal sector (Sanyal, 1988). Tannen's findings (1991) in Brazil support the claim that there are large variations in income and urban residence within both informal and formal sectors. However, these differences can be explained in terms of differential skill (Tannen, 1991).

Third, the tendency to consider the "urban informal sector" and the "urban poor" as being synonymous could be a mistake (Amin, 1977). Not all persons who live and work in the informal sector are poor, and not all poor people live and work in the informal sector.

Finally, related to these three findings, Mazumdar (1981) suggests that the "stepping stone" theory, which implies that informal sector workers would prefer to be in the formal sector, may not be correct. On the contrary, some workers may prefer informal sector employment and may actually shift from formal sector to the informal sector to start

their own businesses (Mazumdar, 1981). This proposition is supported by longitudinal study of changing housing patterns and strategies in Cairo (1950-1985), where Wikan (1990) found that members of the second generation of his initial sample left formal employment for private informal employment where they generate more income. Furthermore, in operating their business, skill acquisition is necessary for both owners and workers. Hence, the earlier notion that informal sector workers lack any education or skill is not correct. These workers may have little formal education but they have acquired skills, often sophisticated skills (Sanyal, 1988).

To summarize, the informal sector has been recognized as those activities that are not officially noticed through registration and taxation procedure (Hopkins, 1992) and as all those activities that are not precisely and individually registered or recorded by regular methods (Charms, 1992). Peattie (1987a) argues that within these general guidelines of identifying informal activities, it is important to identify "informal sector activities" for each area of interest and concern (employment, industries, housing, etc.). In the case of identifying the informal housing sector, the ideal is to distinguish between formal and informal housing activities on the basis of degrees of informality, i.e., the legal status for both building and land. According to this distinction, housing settlements that have a high level of informal housing in relation to overall housing activity can be defined as informal housing settlements, and vice versa.

Informal / Formal Sector Linkages

As illustrated previously, informal housing is a part of informal sector activities. In order to understand the relation between the informal housing and the informal sector, it is appropriate to analyze the relationship between formal and informal sectors as a whole. Analyzing this relationship is important because informal housing is part of it. The linkages of the informal sector, if any, to the formal sector have to be a consideration guiding any research (Welings and Sutcliffe, 1984). Thus, research is guided by whether

or not one considers the informal sector as

1. autonomous, which involves production parallel to that of the formal sector but with its own capacity for expansion and growth
2. integrated and dependent on the formal sector
3. integrated to the "upper economic circuits" in such way as to be continuously disadvantaged and exploited (quoted from Ishmael, 1988)

Within each of these approaches, there is no agreement about the degree of integration of the informal sector. Hence, the alternatives--autonomy, integrated, or exploited integration--each imply different modes of insertion within the wider economy, affecting the assimilation process in different ways (Ishmael, 1988).

First, the autonomous "two" sector terminology has been criticized because it is a crude and sometimes confusing classification. Furthermore, difficulties arise with attempts to apply the formal/ informal sector dichotomy to people, many of whom work in both sectors at different stages of their lives and economic cycles, times of year (seasonally), or even times of the day (as in Egypt, where the same person may hold two jobs, one in each sector, and work in both of them in the same day).

This autonomous "two" sector terminology is also criticized because it raises the question of whether the formal/informal sector terminology can be applied to housing settlements, since the same settlement may include both units that have or have not the necessary permits and approvals and with or without access to secure tenure. Criticisms also include the descriptive nature of the distinction between formal and informal sectors, concealing the links between the two sectors in terms of their relationship to land allocation processes, infrastructure installation, building materials supply, etc.(Rakodi, 1992).

Finally, this label is also criticized as a static concept, failing to recognize changes in the practical and legal status of areas over time, i.e., the process of changes through consolidation, transformation, or deterioration. Payne (1989) argues that the accumulating

evidence on the characteristics of illegal land subdivision and unregulated house production emphasizes the inappropriateness of such a twofold division.

Second, research confirms that the informal sector is not autonomous, as the ILO had initially concluded. Rather there are linkages between the informal and the formal sectors (Sethuraman, 1981). There are, however, two interpretations about the nature of the linkages (Sanyal, 1988). For instance, Sethuraman (1976,1981), Weeks (1975), Mazumdar (1975), and others interpret the linkages as benign--that is, both sectors gain from each other (Sanyal, 1988). Others, like Bromley and Gerry (1979), Portes and Walton (1981), and Moser (1978, 1984) view these links as an exploitative relationship where the formal sector gains at the expense of the informal sector.

According to the "integrated and dependent" approach, the relationship between the two sectors is a positive one because the informal sector plays a complementary role in the urbanization process (Yonder, 1988), either by absorbing part of the unemployment of the urban population or by producing certain services and goods (such as housing) wherever the formal sector does not (adopted from Yonder, 1988). Thus, expanding and supporting the role of the informal sector in the production of goods and services will benefit both the formal and informal sector.

Third, the structuralists of Latin America, such as Castells (1983), dos Santos (1971), and Cardoso and Reyna (1968), have argued that the informal sector is not only integrated with the formal sector but is functional to and exploited by the formal sector, due to the capitalist mode of production. This results in a continuous cycle of uneven development, inequality, and poverty (Ishmael, 1988). Within this framework, informal settlements are "a stable structure of peripheral urban economics" (Portes and Walton, 1981). They not only function for the capitalist accumulation process by lowering the costs of production, they also let the state maintain political stability through patronage relations with the squatters and through the ideology of home ownership (Yonder, 1988). In

contrast, from the perspective of the "integrated and benign" approach, informal settlements are "a temporary phenomenon; a dysfunction brought about by rapid population growth, imbalances in the distribution of resources and income, and national poverty during the inevitable transition period before economic development policies take effect" (Gilbert and Guglar, 1982). Their integration depends on well designed and well prepared realistic policies and on commitment on the part of governments (Yonder, 1988).

Both approaches illustrate an implicit assumption about the high capacity of informal housing settlements to absorb low-income people and provide housing to different groups that cannot gain access to housing through the formal sector. Thus, informal housing complements private conventional housing (Rakodi, 1992). Questions about what conditions and in what sectors of the economy the relationship is benign or exploitative are beyond the purpose and the focus of this study. However, the relationship between both formal and informal economic sectors within the informal housing settlements--in terms of households employment--will be examined during the process of conducting this study.

The level of debate about the informal sector has been summarized in the work of Peattie (1979, 1982, 1987a, 1987b). In one of her papers about the controversies surrounding the informal sector she states:

It appeals [informal sector] to liberals with an interest in problems of poverty; to economic planners who want their accounting systems to represent the actual economy more accurately; to radicals who want to bring into planning analysis a more structuralist view of the economy, and to those who want to "privatize" activities such as housing production, either out of a populist commitment to action by the "people" or out of conservative commitment to restraint in government welfare expenditure. (Peattie, 1987b)

However, within any of the described disciplines, in order to carry out a careful analysis and reach useful conclusions about the informal sector--in our case, informal housing--it is important to examine all activities of the informal sector comprehensively (Peattie, 1987b). Consequently, issues of housing production, land and materials markets, finance, and linkages between formal and informal sectors are critical for creating a

working and sensitive housing policy, which integrates, politically, the most difficult elements in policy development (Peattie, 1987b). In a recent study, Sanyal (1991) claims that policies, in regard to the urban informal sector (UIS), have to be based upon empirical evidence and that "a better understanding of UIS politics is crucial for planners, who tend to recommend various policies for supporting the UIS" (Sanyal, 1991). Most of these issues are addressed in this study, along with issues of economic, planning, and governmental institutions.

In order to examine some of these issues, a theoretical background about informal housing will follow. The informal housing theoretical framework examines the evolutionary process of the informal housing sector and the development of ideas to explain and trace its characteristics--mainly the "self-help" approach. The discussion concludes by elaborating the effects of implementing housing policies based on the "self-help" approach.

INFORMAL HOUSING THEORETICAL FRAMEWORK

This section addresses the emergence of the informal housing sector as a result of urban housing problems in developing countries. It also reviews the literature related to the "self-help" approach, its influence on informal housing production, and the shortcomings of policies based on this approach in different developing countries.

Informal Housing Evolutionary Process

One of the major outcomes of the immense increase of population in the developing countries (especially in the 1950s, as a result of improvements in public health), coupled with massive rural-urban migration to major urban centers (Portes, 1971; Dwyer, 1975; Payne, 1977), has been an extensive housing crisis. Rapid urban growth accelerates the need for housing units and accommodations in most urban areas in the developing countries (Payne, 1977). Another contributing factor to the acceleration of this crisis is the tendency of most governments in developing countries to concentrate and centralize huge

economic activities and investments in major urban areas, especially primate cities (Payne, 1977, 1984), which create an imbalance between rural and urban areas.

These factors, along with others (e.g., scarce resources, economic recession, controlled policies, political economy structures), reduce the capacity of most nations in the developing world to deal effectively with the basic problems arising from the process of urbanization (see, for example, Malpezzi, 1992, 1986; Aina, 1989, 1990; Gugler, 1988). The available evidence on the gaps between the supply and demand for shelter and services in many developing countries makes this incapacity very obvious (Aina, 1989). In Egypt, for example, this shortage has been estimated to be over 3 million units between 1984 and 2000 (El Araby, 1985). The scarcity and high cost of building materials, the gaps between income, and increasing prices, indicate that basic housing has been beyond the reach of the majority of ordinary people (Blitzer, Hardoy, and Satterthwaite, 1981), most of whom live below poverty level.

In a World Bank survey of some cities in the developing countries, the proportion of urban population that exists below poverty level was estimated to exceed 54% of the urban population, and was projected to reach more than 60% of total in the year 2000 (DIESA, 1980). A United Nations (UN) study from Egypt indicates that almost one third of the urban population in major Egyptian cities is below the poverty level (Korayem, 1987). Furthermore, another UN study shows that 21% of the urban population in Egypt, as of 1985, is below poverty level, and almost 60% of all household income is spent on food and cereals (IBRD, 1992). This fact puts most families in a very critical situation in satisfying their needs for goods and services, housing included.

Most governmental policies for dealing with housing problems are designed to provide governmental assistance in the form of public housing units (Hardoy and Satterthwaite, 1981). In the 1970s and early 1980s, under pressure by the international aid agencies, many governments agreed to participate in the sites and services and upgrading

projects, however, most of which were used as showcase projects (Nientied et al., 1988). These two approaches have proved to be limited in scale, inefficient, and wasteful of scarce resources (Ward, 1982; 1989). When all of the above limitations are added together, the number of people excluded from housing programs can readily be imagined (Payne, 1977; Ward, 1982a).

With the continuation of this crisis for more than three decades now, people have found alternative personal and collective ways to house themselves and to provide shelter for others, by generating methods of financing, organizing, and building housing units and settlements. This phenomenon started in the late 1950s in the form of squatting around big cities (Turner, 1972, 1977), and it has been transformed and expanded to form a housing sector that is called the "informal" housing sector.

Much attention has been given to the squatters and the squatting process, especially in the 1960s, with the pioneering work of experts and philosophers such as Turner, Mangin, Abrams, Leeds and others. Yet it has become obvious, especially in the 1980s, that mechanisms for producing housing other than squatting and developing temporary shelter are widely prevalent. Recent studies indicate that unauthorized "informal" housing is produced much the same as the housing of formal sector is produced (see, for example, Baross et al., 1990; Patton, 1988). Through the informal housing sector, these other mechanisms form the bulk of the housing production in most developing countries (Van Huyck et. al, 1986), and there is a little knowledge about the informal sector or their ways of producing housing. Hence, policies based on mechanisms of providing housing in squatter settlements, i.e., self-help, cannot be applied to the wide informal housing market, where the informal "unauthorized" housing has another market system (Gilbert and Ward, 1985; Peattie, 1987a). Through different mechanisms of housing production and finance, the informal housing sector has come to dominate the provision of new housing units and has become the fastest growing housing sector in most developing countries. The

continual existence of factors, such as massive urban and population growth, unbalanced rural-urban sectors, governmental policies, and administrative bureaucracies, accelerates the expansion of the informal housing sector and maintains urban housing problems in many developing countries.

Self-Help Theoretical Framework and Informal Housing

Self-help is not a new idea. The writings of Smiles in 1859 and Engles in 1872 introduce the term “self-help” in relation to the Victorian ideas about self-improvements and in relation to the housing question. A contemporary definition and ideology about self-help is introduced by Turner and followed by others in the early 1970s (see: Turner and Fichter, 1972; Turner, 1976, 1977; Ward, 1982a). The idea has been revised in the late 1980s and early 1990s (see, for example, Burgess, 1982; Nientied and Linden, 1988; Ward, 1988; Coquery, 1990; Turner, 1990).

Our understanding of the nature of urban housing in most developing countries has been influenced by the idea of self-help, and has come a long way since the seminal work of Abrams, Mangin, Leeds, Turner and others in the 1960s and early 1970s. They focused mainly on how spontaneous and squatters' settlements provided housing and accommodation for the urban poor. As a result of this pioneering work, more supportive policies were adopted towards squatters and other illegal settlements in which self-help predominated (Ward, 1989). This self-help approach, which has been adopted in two programs (sites and services and community upgrading) became the conventional wisdom to design policies and draw solutions for the housing crisis in most developing countries--at least until the early 1980s (Ward, 1989; Patton, 1988).

In fact, the terminology of self-help, as introduced in the work of Turner, was driven by and based upon the “intermediate technology” school of thought, which tied housing into the orbit of the debate of this intermediate technology. Turner gives two major reasons for advocating this terminology: (1) the significance of construction activities

within “informal” employment structure, and (2) the growing political and social sensitivity of housing problems in the developing countries (Turner, 1977, 1979). This terminology has been used in the most important component of Turner’s work: popular construction. He divides housing activities into three major components, as illustrated in Table I. He states that “a viable housing policy would be based on: (1) principle of self-government in housing; (2) basis of prescriptive laws; and (3) use of small scale technological and managerial tools” (Turner, 1977). Turner’s recommendations, which are a part of what Paradilla has called “the urbanization of political activities,” aimed at the depolitization of housing (Burgess, 1982, 1979). He supports relying on mechanisms of self-help in the production of housing and minimizing the role of governmental intervention in the housing sector. The first point has been criticized by scholars as being contradictory to the reality of the housing production mechanisms in many developing countries, while the second point is still considered a valid argument about the role of governments and the ways it handles the housing problems.

TABLE I
HOUSING ACTIVITIES COMPONENTS ACCORDING TO
TURNER’S WORK

Housing Activity	Actors	Procedure	Purpose
Demand	Users	Planning	Use value
Supply	Private & commercial	Construction	Profit maximization
Regulations	Public sector & government	Management	Maintaining public order

Illustration: by the author based on Turner, 1977.

Furthermore, Turner’s recommendations about encouraging mechanisms of self-help are widely accepted (as indicated earlier) among housing experts, planners, governments, and international aid groups (Ward, 1982a, Ward, 1989). Self-help housing seems to be an

effective social and political alternative, and it makes good sense economically (Patton, 1988; Ward, 1989).

The major criticism of the self-help notion is that "self-help" is not necessarily "self-built" (Burgess, 1982, 1979). "Self-help" is "the action of providing for, or helping oneself without depending on others" (Longman Dictionary, 1980), while "self-built" is defined as an economic use of labor power, or effort, in the form of the individual or by a group to build a certain project (Longman Dictionary, 1980 quoted in Soliman, 1985). For instance, Burgess (1982) indicates that "it has become increasingly clear that a degree of self-help housing is obviously involved and dependent, in one way or another, on the cooperation of the wider market and economy" (Burgess, 1982, p.78). This observation suggests that the most appropriate way to interpret the "self-help" concept is as a "self-built" notion. Therefore, the self-help concept, in the context of this research, refers to the notion of "self- built."

One of the major problems in the debate on self-help housing is that it is very difficult to define what its proponents mean by self-help. While the philosophy of "self-help" is based upon the presumption that people should do more for themselves (Turner, 1977, 1979), it ignores a major feature of societies that are based on a social division of labor (Burgess, 1982, 1979). The level of the debate over "self-help" has been expanded to cover, besides housing production, issues of capitalism, commodity, and utility (Gilbert and Van der Linden, 1987), which are beyond the scope of this research. The major concern in this study is the housing production, as it is directly related to designing housing policies. In short, when policies are designed in the light of this theoretical framework, such as with sites and services programs and with community upgrading schemes, the effect of its implementation will depend on the degree to which actual housing production deviates from or conforms to this framework. Evidence from the literature suggests that policies based on this theoretical framework could mislead sincere efforts to solve housing

problems in developing countries (Ward, 1989). Rakodi (1992) states that "the notion of 'self-help' or auto construction, which was said to typify informal housing areas, informed early attempts to provide alternatives to public sector house construction, but was increasingly criticized for being a misrepresentation of reality, an inappropriate basis for housing strategies for the majority of urban households, and ideologically dubious."

One of a long list of factors that contribute to the misleading nature of the self-help approach as a basis for housing policy is that even "self-built" mechanisms constitute a very small portion of housing production in the informal sector, even in squatter settlements. Findings of empirical studies and research done by Soliman (1985), Peattie (1987a), Ishmael (1988), Aina (1989), and others obviously confirm that. For example, Soliman (1985) finds that "self-built" techniques constituted a small portion--10% to 22%--of the total housing construction in the squatter settlements in Alexandria. Furthermore, Ishmael (1988) finds that 34% of her sample, in the squatter settlements of St. Vincent and Dominica, used a contractor in the initial stage of building and development; this proportion increased to 75% in later stages of development. Coquery (1990) shows that "spontaneous housing" involved a long-term process of assembling knowledge, contacts, land, and materials and is more likely to be owner-organized than owner-built.

The importance of assessing the share of "self-help" and understanding the limitations or the opportunities of adopting policies based on this perspective is illustrated in the work of Peattie (1987a) where she states:

It is conventional to divide housing into three categories, a "private sector" of recognized [often called the formal sector] developments of modern standards housing, a sector of small producers often called "self help" or "incremental building", more recently the "informal sector", and a governmental "public" sector The "self help", informal housing component of private shelter production is generally much larger [than formal one] However, the level of our understanding and factual knowledge about these two is in reverse relationship to their contribution to shelter output. . . . However, facts are beginning to be collected on the process of shelter production. This building process is not clearly dominated by process of self help in the usual meaning of the term The facts now coming in show that building in the informal sector is

commercialized in other ways. The fact the buildings are being produced to be used does not constitute them “production for use” in the usual sense of the term These facts are, of course, far from trivial for policy. (Peattie, 1987a, 267-269)

The point, following this previous discussion, is not the “self-help” per se. Rather, it is the contribution and the share of housing production using that technique (even self-built) in relation to total housing production. This concept is important in formulating policies to deal, in general, with housing problems. Yet it is evident that, after more than 20 years of experience, policies of “self-help” are not only inadequate and limited in scale but also inappropriate regarding the nature and realities of the housing problem itself. This failure could be the result of the following.

1. Little knowledge about the housing production and housing construction industry, much of which we once misunderstood as self-help (Peattie, 1987a)
2. Critical thresholds that remain unknown regarding low income populations and shelter needs (Peattie, 1987a; Payne, 1984)
3. Misunderstanding the nature of mechanisms of delivering housing in the housing market and underestimating the importance of the informal housing sector in this process of providing housing for different income groups (Rodwin and Sanyal, 1987; Moavensadeh, 1987)
4. Policies tending to concentrate on only one part of the problem--housing the poor--and even failing to do so, rather than considering all parts of the problem (Rodwin and Sanyal, 1987; Van Huyck, 1987)
5. Mismatches between the available factual knowledge about housing sectors (i.e., formal, informal, and public), their contributions, and roles in the overall housing market both at the city and the national levels, and current policy instruments and guidelines (Rakodi, 1992)

While the “self-help” approach is introduced as an attempt to solve the deficiencies created by governments’ inability to provide decent housing and meet the housing needs for all,

informal housing is not self-help even though it serves the same purpose of providing housing, especially for the urban poor. Thus, it is more appropriate to be very sensitive to all aspects of the housing market when trying to develop policies for dealing with that market.

INFORMAL HOUSING MARKET PARAMETERS

Housing markets, in general, and housing markets in developing countries in particular, perform within three segments: inputs, production, and demand. Malpezzi and Ball (1992) identified inputs as land, labor, finance, materials, and infrastructure. Supply side agents are landlords and developers, who combine these inputs to produce housing services. To the extent that homeowners and renters maintain or upgrade their units, they too are producers. Demand side agents are homeowners and renters who consume housing. Prices inform the producers of housing services whether to provide more or less housing and inform the input suppliers about providing more or fewer units (Malpezzi and Ball, 1992). Figure 1 shows a schematic diagram of how the housing market works.

Figure 1. How Housing Markets Work. Adaptation from Malpezzi and Ball, 1992.

It has been argued that analyzing housing markets involves integrating two major paradigms: neoclassical economics and political economics. Neoclassical economics analyzes housing markets in terms of supply and demand within a utility-maximization framework; political economics emphasizes the need to incorporate political, social, and

cultural factors affecting housing in addition to other economic characteristics (Rakodi, 1992). The implication is that both approaches influence the inputs and the outputs of the housing markets.

The competitiveness of the housing market and its input markets depends critically on the conditions of entry and exit and on the regulatory framework (Malpezzi and Ball, 1992). Conditions under which housing is produced or consumed in developing countries are characterized by imperfections, while the market in developed countries is close to being competitive (Lodhi and Pasha, 1991). The imperfections are caused by differentials in the ease of access for households, classified by income, education, occupation, location, and access to land and credit markets (AERC, 1989), differentials that result in creating diverse forms of tenure ranging from formal ownership to illegal squatting. Furthermore, these imperfections are caused by direct governmental intervention in the housing markets either by producing housing, or by fixing housing prices--by means of rent control, for example--or by controlling output and prices of materials. Finally, these imperfections are caused by a considerable rigidity on the supply side of the market because of bottlenecks in the availability of inputs, such as developed land, construction materials and municipal services (Lodhi and Pasha, 1991).

Housing Demand

As indicated earlier in this chapter, factors such as population increase, rural-urban migration movements and concentration of economic, social, and cultural services in major cities in most developing countries have resulted in increasing the demand for housing and other services within major urban centers. While the demand for housing has increased, governments or private formal sector providers have not been able to satisfy that demand, especially for middle and low income groups. Consequently, many urban dwellers have found "informal" ways to satisfy their need for housing. Previous empirical research about informal housing in developing countries supports the following assertions (Malpezzi and

Ball, 1992). First, for both owners and renters, income elasticity within countries were less than one. Thus, low income households pay higher fractions of their incomes towards housing than higher income households. Second, rent to income ratios are usually higher for owners. And, finally, demand for housing is price inelastic (see, among others, Malpezzi and Mayo, 1985, 1987; Struyk et al., 1990; Lodhi and Pasha, 1991).

In 1981, the World Bank funded a study of housing demand and finance in developing countries. The study included an analysis of sixteen cities in eight countries, Cairo, Egypt included. Patterns of housing expenditure were examined in relation to household income, household size, and tenure (World Bank, 1988). The level of expenditure on housing by owners is generally greater than by tenants, because of a desire to hedge against future rent by buying, because owners want to generate income and future capital gains (Rakodi, 1992), and because owners find housing investments as a safe refuge for capital in countries with limited alternative investment opportunities (Malpezzi and Mayo, 1985). The findings suggest that households' willingness to pay for living space increases with income; willingness to pay for living space declines as household size increases; and willingness to pay for several services is quite responsive to income (World Bank, quoted in Rakodi, 1992).

Mainly from UN sources, Malpezzi and Ball (1992) demonstrated the importance of rental housing as a form of urban tenure. Rental housing is significant in the cities of many developing countries, sometimes making up two-thirds or more of the housing stock (Malpezzi et al., 1989), but it has been studied little until recently, perhaps because of the preoccupation of analysts and policy advocates with the positive benefit of self-help and house-ownership (Gilbert, 1987; Rakodi, 1992).

Studies by Edwards (1982) in Columbia, Rakodi (1989) in Lusaka, and Peunant (1990) in Malawi reveal widespread renting, but no sign that petty landlordism is developing into a large scale capitalist activity (Rakodi, 1992). However, Amis

(1984,1988), in Nairobi, found that in unauthorized settlements, political packing and access to formal sector credit have enabled larger-scale landlordism to displace petty landlordism. Other studies demonstrate a mix of large scale and small scale landlordism existing within informal settlements (Aina, 1990, in Kenya; Lee-Smith, 1990, in Nairobi). The implications are that both supply--in terms of access to land--and demand--in terms of cost of construction and renting in relation to incomes--are likely to play a role in forming these types of landlordism and, consequently, in the production of rental housing.

Related to these findings, an estimated 20% to 40% of all urban households in developing countries are living on land to which neither they nor their landlords have legal title (Malpezzi and Ball, 1992). However, a recent study of housing supply for owner-occupation indicates that the division between legality and illegality is not seen as either easy to define or particularly significant (Duberson and Yapi-Diahou, in Rakodi, 1992). Therefore, the inevitable role of rental housing in providing accommodation for the poor and its potential as a generator of income for landlords (Rakodi, 1992) require further investigation in the field. The described "need" for informal housing is satisfied through different mechanisms of housing production and housing supply systems: squatters and temporary structures, and unauthorized "permanent" structures. The mechanisms of unauthorized housing production are similar in many ways to mechanisms of production of the formal sector, however. These systems of housing production are elaborated in the following section.

Housing Supply and Production

The housing delivery system in most developing countries has been divided into three sectors: public, formal, and informal. Public sector housing is often provided, predominantly, for lower and middle-income groups. This type of housing is usually subsidized and therefore limited in quantity. The formal sector provides private conventional housing for those who can afford to pay the market price for properly

surveyed and serviced "authorized" land and approved housing construction, in most cases with access to formal sector credit and mortgages. Since the early 1960s, housing experts and planners recognize the significance of housing that the informal sector produces for meeting the demand of low income and poor people. Studies have centered on the capacity of "squatter and spontaneous" settlements in providing housing for low income groups. The systems of informal housing production have provided a model for changing housing policies. The mechanisms of providing housing within informal settlements by using self autonomous techniques have been adopted as a basis for the favored housing policies of the 1970s: (1) the provision of sites and serviced plots and (2) the upgrading of squatter settlements (Rakodi, 1992). In the late 1970s, more attention moved towards study of the mechanisms of housing production within the informal sector in areas other than squatter settlements, i.e., illegal land subdivisions and unauthorized semi-informal types of buildings. Yet, there are gaps in the current body of information about this type of housing production.

Previous empirical research covers three major issues of housing production: building materials, labor, and mode of construction. Mourad (1983) studied the building environment of the informal settlements in Cairo, where he discussed and examined parameters of the building process to include the construction mode, the time of construction, and the supply of materials. Other studies of housing construction have looked at original units construction mechanisms (Ishmael, 1988), owners' participation in the construction process (Ishmael, 1988; Aina, 1989), and the governmental role in the supply of building materials (Abt Associates, 1982). Other points, covered briefly in these studies, are obstacles to the completion of construction, obstacles to building legally, professional participation in the process of production (e.g., contractors, architects), and changes in the process of construction over the years of a settlement's development. Most of these issues and parameters are examined in this study.

On one hand, the type and mode of housing construction, the level of amenities included in any type of building, and the use of building materials are tied to owner's income, available funds, and other sources of finance. On the other hand, the needed types of housing units are related to the consumer's ability to get housing within constraints of a budget. Hence, both informal housing supply and demand are tied to the economic level of both providers and consumers of this type of housing. In this context, the financing of land, construction, and housing units is crucial when studying any given "informal" housing market. Therefore, the housing finance issue is elaborated in the following section.

Housing Finance

Capital for housing construction and purchase is in very limited supply in developing countries. Most urban households in less developed countries do not have access to mortgage finance (Struyk and Ravicz, 1992). This results in lower levels of housing investment than would otherwise occur. Therefore, housing becomes overcrowded, the units are built poorly, and shanty towns develop (Struyk and Ravicz, 1992). In response to these problems, housing experts have called for expanding mortgage lending through formal financial institutions and for mobilizing private sector institutions' savings and resources to increase the supply of credit for housing purposes (World Bank, 1988).

Housing finance is available to only a small fraction of the formal housing sector that produces housing for a small proportion of the "higher income" urban population. In Egypt, for example, formal financial institutions have a limited reach (Abt Associates, 1982), and existing national level financing institutions have either very limited funds or no authorization to make housing loans (Abu El-Ez, 1992). As a result, most financing for housing construction activities, in both the formal and informal sectors, has relied upon "personal" savings and incremental ways of "private" finance (see, for example, Ishmael,

1988; Aina, 1990; Aryeety and Hyuha, 1992). In general, obstacles for many urban households in obtaining formal sector finance have led to a phenomenal increase of access to financing through the informal sector. This situation has created the informal finance sector, which acts as a complement and a substitute to the formal finance sector (Aryeety and Hyuha, 1992). Finance for informal housing has been derived from different sources: inheritance, small scale private savings, sale of other properties, small scale "informal" saving institutions, remittances, and other sources (Hettige, 1990; Adams, 1991; Nada, 1991).

To make housing finance more accessible and affordable to borrowers and less risky for lenders, Rakodi (1992) and Struyk et al. (1992) suggest a variety of lending policies and practices. They suggest that the housing finance system has to compete for deposits and personal savings, create an appropriate term structure for long-term mortgage lending, be responsive to household needs, incomes and ability to pay, and entail both improvements in the design of housing finance systems, institutions, and procedures and macro economic policies (Rakodi, 1992 and Struyk and Ravicz, 1992). In any event, special attention must be given to allow formal financial institutions, when developed, to facilitate the informal housing construction, purchase, and rental activities. Though it could be argued that creating such a system will, undoubtedly, legitimize informal sector activities, which might be accompanied by increasing prices, the availability of funds for the vast majority of urban population, in the long run, will lead to improved housing quality and improved physical conditions of informal dwellings and neighborhoods.

Empirical studies about informal finance have differentiated between financing for housing, land, and construction, and these studies have examined housing finance for both renters and owners. Housing cost for owners is also differentiated from cost for renters. However, in most of the empirical studies, housing cost has been calculated based on estimations of approximate cost reported by owners. Forms of key-money and other side

payments to get access to housing units have been examined also (Abt Associates, 1982; Ishmael, 1988; Hettige, 1990). These issues are examined in this study to include access to finance and availability of savings.

Land Market and Security of Tenure

Land is the central issue for the development of many economic sectors, housing included. In the context of the informal housing sector, land plays a major role in the development of the informal housing settlements. These settlements, which are a common feature of most rapidly growing Third World cities, involve both informal building construction and informal land acquisition mechanisms. The conventional view of these settlements, which involve the self-construction of shelter and the illegal occupation of land (Amis, 1990), has to be revised. The first point of self-help or self-construction has been already discussed, and the second point of "land" is elaborated on here.

People may remain under the impression that land invasions by the poor are still frequent. However, evidence from many parts of Latin America, Asia, and Africa indicates that there is virtually no invasion in the sense of a spontaneous grouping of people taking over a place at once (see, for example, Asiama, 1990; Amis, 1990; Yonder, 1988; Amis, 1984; Angel et al., 1983; Dawes, 1982; Angel, 1982; Ward, 1982b). Land for housing in informal settlements is becoming a more commercialized and a more organized process (Amis, 1984). Baross and Van der Linden (1990) point out that "what appears to be changing is that an increasing proportion of the land on which low-income settlements grow and develop is now supplied by commercial entrepreneurs." This process of illegal land subdivision has been characterized by planned layouts, low service levels, suburban locations, high tenure security, and non conformity with urban development plans (Baross et al., 1990). These types of subdivisions have become a major supply of cheap land in the cities of many developing countries. Another factor that contributed to the spread of this type of land supply is that the land market in most developing countries is often highly

unorganized in terms of records, registration files, documentation, etc. (Malpezzi et al., 1992). Therefore, the phenomena of squatting, and later informal housing, is not as spontaneous as we usually consider it (Ward, 1989). Market systems have, in fact, developed to take care of the demand (Doebele, 1987; Angel, 1982). Hence, the traditional arguments of both land acquisition mechanisms by squatters and policies developed to deal with squatters by securing tenure have to be revised.

The traditional argument that securing land and tenure for residents of existing informal settlements will ultimately lead to improvements in housing and settlement conditions, is no longer the case, however. According to contemporary evidence from many parts of the Third World, security has been established by one means or another (Amis, 1990) in most informal settlements. Amis (1990) indicates that establishing security is important to encourage investment in these settlements. Once security is established, capital is attracted to these settlements regardless of their legal position. It is this process that has transformed the major part of urban housing in most developing countries from tiny squatter areas to huge informal settlements. The contemporary argument now concerns what forms of security lead to this expansion and transformation? Is it legality or recognition or both?

It is important, at this point, to differentiate between two means of providing security: (1) legal recognition in law, "*de jure*," and (2) legal recognition in practice, "*de facto*," (Saleem, 1983). The first point has been advocated by Turner (1972, 1977) and his followers who claim that the regularization of tenure in slums and squatter settlements, along with upgrading the infrastructure, will lead to the improvement of housing and settlements over time. This view is the basis for the gradual approach which was developed in the late 1960s and was adopted in the early 1970s by most international aid organizations (e.g., World Bank, United Nations, US AID). This approach pressed for the need to secure land and building tenure when implementing projects of sites and

services and slum upgrading in most developing countries (Angel, 1982; Payne, 1984). The approach assumes that the land is taken over by the poor, that the government intervenes in a later date to provide improved services and land tenure, and that these informal systems generate sufficient land and housing for the urban poor (Turner, 1972, 1977).

This gradual approach is showing major flaws in its ability to handle housing, even for the poor, on a large scale (Angel, 1982, 1983). Furthermore, recent studies have shown that securing land tenure by giving legal title and by legalizing existing informal settlements is insufficient to maintain or improve the access of low income groups to housing (Yonder, 1988; Asiama, 1990). Housing improvements are related, to a large extent, to the available resources and to the level of poverty rather than to the legality of land tenure (Soliman, 1985, 1987). Even if it may be true that an urban population in informal settlements has an interest in legal land title (Ward, 1982b) and consequently legal status, the main issue that concerns them is the security for capital investment rather than the legality of the land title *per se* (Amis, 1990).

A number of difficulties arise with the provision of security of tenure by the “*de jure*” procedures (Angel, 1982; Angel et al., 1983; Payne, 1984) including the following.

1. Housing improvements are not related to having legal status; people (who are struggling to afford necessities of living) have other priorities than getting legal recognition.
2. The administrative provision of tenure turns out to be an extremely difficult proposition (Angel, 1982). When security of tenure is officially proposed, the number of claims to any particular piece of property can be multiplied by four or five times.
3. The residents of the informal settlements are not only owners. Renters constitute more than 50% of the total households in most settlements (Edwards,

1990), and they are not a homogeneous group (Amis, 1990; Ward, 1989; Peattie, 1987a; Soliman, 1985; Angel, 1982). The moment tenure or any other improvement is introduced, property values go up. Consequently, rents rise and access to new units becomes more difficult, a result that, most cases, hurts the tenants who are usually the lowest income groups.

4. Increasing land and property values leads to increased speculation. The entrepreneurs who provided land for the poor, before raising the value of their properties, will get to the lower middle and middle income groups and markets; and as they learn how time could benefit them--waiting for future legislation--levels of development in informal settlements may be also reduced (Angel et al., 1983). This proposition could explain the phenomenon of high vacancy rates in informal settlements.
5. Finally, when governments have become strong and able to control the use of land and development, the land is often withdrawn from use by the poor and put to other kinds of development (Angel, 1982). In some cases, governments acted in ways adverse to the poor by evicting them to make way for commercial development and by not building for the poor on the land that has been acquired (Doebele, 1983, 1987). In a number of developing countries, governments behave like large private corporations. These governments act in the land market for speculation, where they provide security of tenure in exchange for high fees (Doebele, 1987; Amis, 1990; Angel, 1982), or selling public lands in the market price, for occupants or landholders, as in the case of Egypt. It is only rational for governments to take money that has been acquired through the previous procedure to use it for financing education or military programs or whatever (Angel, 1982, Doebele, 1987).

All of the preceding factors contribute to frustrate the ability of securing land tenure by

means of “*de jure*” procedures.

On the other hand, most governments in developing countries accept the informal “unauthorized” settlements, by “*de facto*,” for the sake of political stability (Nientied and Linden, 1988; Amis, 1990). In this context, the acceptance of informal settlements is a relatively painless and potentially profitable way to appease the urban poor in the Third World (Amis, 1990). Furthermore, the governments in developing countries are in favor of providing housing through illegal access to maintain their political, administrative, and economic power (Nientied et al., 1988).

This situation has led to establishing security in the informal settlements. Consequently, informal settlements attract investment, as indicated earlier. In turn, attracting investments to informal housing results in a significant increase of the informal housing sector activities in most developing countries. This uncontrolled development has negative consequences for the growth of cities, for public health, and for the stability of social structures. It also has positive consequences, such as providing shelter.

As illustrated in the previous discussion, both alternatives of securing land tenure have pitfalls and shortcomings. What is the proper role for government to play in the land market and in securing tenure? Is it actually harmful, especially for the poor, to secure tenure by means of “*de jure*”? What are the real needs of the people, with respect to the land question and securing tenure? How can security of tenure and availability of land help them to contribute their best in the development process of their settlements? These are the questions addressed in the empirical work of this research.

Land for housing in the informal settlements is the central focus of some empirical studies (see, for example, Asiama, 1990; Yonder, 1988; Amis, 1984). Parameters of land tenure, accessibility to land, land subdivision, land commercialization, and land acquisition have been examined. For instance, Yonder (1988) discusses (1) land market structure, with focus on land prices, property taxes, regulations and land use, characteristics of

suppliers and buyers, and payments for land, and (2) the institutional and political effects upon land markets in Istanbul, Turkey.

NEW POLICY APPROACHES FOR "INFORMAL" DEVELOPMENT

With the recognition of the vital role of the informal housing sector in the wider "urban" economy, the informal housing sector has been viewed as "a useful instrument of effective development strategy" (Jacobs, 1984). The role of the housing sector in general has shifted remarkably from the narrow perspective of housing as an item of basic unproductive consumption, to the wider perspective that acknowledges the positive impacts of housing on increased productivity, both on an individual and national basis (Ishmael, 1988). Newer paradigms of the late 1980s include what Fass (1987) calls the "household firm," where the unit is functioning productively, e.g., as a factory, workplace, store, etc., in activities that highlight the importance of housing through its intersected linkages with the wider economy (Fass, 1987).

Another component of this new paradigm, is the role of government in the housing policy, a role that is now being openly questioned. Gilbert and Ward (1985) illustrate how changes in governmental policies led to increased housing productivity in three Latin American countries. Late in the 1980s, especially after the United Nation declaration of 1987 as the year of International Shelter for the Homeless, two relatively new trends in addressing housing issues and problems in developing countries were observed (Setchell, 1988):

1. The governmental effort to promote private sector provision of housing, especially for the urban poor
2. The effects of remittances on local land and housing markets

The discussion about "new policy" approaches, in the context of this research, involves a concern about the first point of governmental policies towards housing production, while

the second point is beyond the scope this research. The "new" governmental efforts to promote the private sector participation in the housing market have been conceptualized outside the approaches of the past. The approach of the 1950s and the 1960s of providing governmental "public" housing was abandoned. Public housing has been criticized as being inefficient in terms of production cost and time, and as being inequitable in terms of distribution of its units, that never reach intended beneficiaries. The policies of the 1970s and early 1980s based on the self-help approach proved to be limited in scale, not widely implemented, but remaining at the level of showcase projects; moreover, the lowest income groups are usually not the principle beneficiaries of these schemes (Nientied and Linden, 1988; Patton, 1988).

As a result of the UN declaration in 1987, a new paradigm has emerged. This paradigm advocates that government's role in housing should be that of a facilitator, i.e., a provider of the right mix of incentives, fiscal policies and monetary policies to promote private sector production of housing. This paradigm reverses the traditional role of government in constructing housing units (Sumka, 1987). Rodwin and Sanyal (1987) discuss the redirection of shelter and development policies, where they take the position that a fundamental change of perspectives is required regarding shelter built by the poor. Informal housing settlements exhibit extraordinarily flexible adjustments to problems that neither the government nor the formal sector have been able to solve (Rodwin and Sanyal, 1987).

Recent studies show that informal housing is not self-helped but rather self-organized (see, among others, Rondinelli, 1990; Van Lindert and Van Westen, 1991). Therefore, with regard to development plans, it has been argued that shelter strategies and alternatives are not only determined by structural constraints, but by the poor themselves (Van Lindert and Van Westen, 1991). Turner (1990) argues that community based organizations in Lima, Peru, have proved themselves in acting as mediators between the

government and the people. This approach is calling for the necessary support of the government, which controls resources and ways of legislation, to encourage people to carry on their projects and programs to fit their own needs and priorities (Turner, 1990).

In most developing countries, Egypt included, formal housing is estimated to provide 10% to 12% of new housing units (Van Huyck and McCarney, 1986). With the notable exception of Hong Kong, Israel, and Singapore, the public sector rarely accounts for more than 10% of new units in most developing countries (Kitay, 1987). The informal housing sector produces almost 80% of additions to the housing stock in many developing countries (Van Huyck and McCarney, 1986; Romaya, 1985; Abt Associates, 1982), yet we know very little about the informal housing sector, and consequently its role is still underestimated. The reformulation of housing policies has to be based upon a complete understanding of the various sectors of the housing production and the housing market. Because the informal housing sector now dominates the supply of new housing units in most developing countries, special attention and emphasis have to be given to the role of that sector.

More understanding of the informal sector is required in order to facilitate its eventual transition into a healthful, productive, and efficient component of the urban economy (Rodwin and Sanyal, 1987; Mayo, 1987). The role of the government must be to provide land, materials, and institutional reform to improve access to finance through formal private sector institutions, such as banks. In this process of governmental reform and in the formulation of new policies, the target group has to be identified and distinguished not only on the basis of income, but also on the basis of gender (see, Rodwin and Sanyal, 1987).

The decentralization of government in most developing countries has become a central issue in this new paradigm. The emphasis here is to strengthen the role of local governments to enable them to deal with developing policies, making decisions,

implementing policies, and developing an economic base outside the domain of their central governments (Peattie, 1987a; Rodwin and Sanyal, 1987). Decentralization of the decision-making regarding both the setting of building standards, materials, land use, and building regulations and the developing of their own "decentralized" policies and rules, is essential in creating a responsive relation between the regulator--local government-- and local needs.

This notion of decentralization has been emphasized in the work of Hall (1991) as an enabling strategy for the Third World. He states, "Future strategy must be based on guiding growth rather than trying to stem it, or reverse it" (Hall, 1991). Hall introduces a five point strategy for coping with unprecedented urbanization and intense housing problems. This strategy includes finding locations for absorbing growth, making land available through public intervention, securing land tenure by leasing land rent-free (not freehold), developing infrastructure and transportation systems, and giving people access to employment and finance. However, Hall does not address issues of governmental policies nor does he make explicit the role of the informal sector. The best way for decentralization may be through the integration of the two approaches.

Weiss (1990) contributes to this new paradigm an evolutionary approach to the informal sector, an approach that emphasizes flexibility and self-organization. He defines the informal sector as "survival territory," where the informal sector supplies a territory of economic survival for the majority of people. It is no longer a marginal sector, according to Weiss. In fact, because effective control is out of the question in view of the quantitative dimension of the problem, shifting emphasis from conventional styles of town planning to indirect incentive systems appears to be essential. These systems have to focus on "orientation" general guidelines and to leave room for decentralized decisions about investment and consumption (Weiss, 1990).

To achieve supportive policies and to cover the gaps in our knowledge and understanding about the informal sector, much knowledge and research is needed (Rodwin

and Sanyal, 1987; Burns, 1988). Acknowledging these gaps is necessary even if housing experts and researchers feel confident about the main direction to follow (Weiss, 1990; Burns et al., 1987). This candor facilitates more deliberate program experiments and helps improve performance as programs progress (Rodwin and Sanyal, 1987).

RESEARCH HYPOTHESES

The review of the literature about the informal housing sector has helped to develop the analytical framework for this study. Furthermore, the literature review serves as a basis for the research hypotheses tested in the case of Alexandria, Egypt. The points of debate, as they appeared in the literature, surrounding informal housing include issues of macroeconomics, of political and social contexts, of the nature of informal settlements, of variations among informal dwellers of housing supply and demand, of the mechanisms of housing production, of housing finance, and of the land market. These issues are the basis of the following hypotheses:

1. Macro-economic, political, and social constraints in Egypt, in general, and Alexandria, in particular, restrict the performance of the housing market and result in market failure to provide housing. That shortage, in turn, accelerates the emergence of the informal housing sector within the city. Levels of informality are inconsistent and widespread throughout the city, though informal housing activities are concentrated in peripheral areas.
2. To the extent the first hypothesis applies, these informal housing settlements are the fastest growing and expanding areas within the city. These settlements are heterogeneous with respect to socioeconomic, demographic, and physical characteristics. Informal settlements provide opportunities for “informal sector” activities or petty production and services, as well as other services and production that are directly linked either to the private formal sector or to the

state "public" sector.

3. Among the major variables of housing demand and expenditure, housing consumption, tenure choice, and residential decisions are income, household size, tenure status, legal status, level of education of the household head, and years in the current residence. Income and household size probably affect demand the most. However, these effects will differ between owners and renters. Most renters are in the lowest income categories, and they pay more for housing-- in terms of rent to income ratios--higher than owners pay. Most residents of these settlements are not newcomers to the city. Rather, they have moved there from other parts of the city. The informal housing market is very commercialized, in terms of tenure, and the aggregate number of renters is expected to be higher than owners.
4. Housing satisfaction within the unit is higher than housing satisfaction within the settlement itself; willingness to pay for improvements in the services and infrastructure within settlements, on the other hand, is higher than willingness to pay for improvements within the unit itself. Among the major variables of housing satisfaction are both tenure status, legal status, and physical characteristics of housing units and physical characteristics and services of neighborhoods. Legal and tenure status of housing units probably affect housing satisfaction the most.
5. The determinants of housing production, over time, undergo significant transformation and are displaced by features more characteristic of the way that shelter is produced in the conventional market. This type of displacement can be identified, incrementally, on an individual unit basis, resulting in radical physical transformation of the settlements over time. Different modes of production, with respect to labor, and different types of housing providers are

expected to exist. The degree to which they conform to or deviate from the theoretical framework of “self-help” is associated with different processes of housing production.

6. Within the informal settlements, migration-related remittances and other autonomous systems of savings, borrowing, selling other property, or selling jewelry are the most common methods of generating financing for housing. No major governmental or private financial institutions influence this financial procedure.
7. Land policies, on both national and local levels, lead to the spread of informal land subdivisions within the city. On one hand, national land policies, that set regulations concerning land subdivisions, land use, land ownership, and land registration, lead to increase the supply of illegal land subdivisions, the invasion of public land, and the uncontrolled use of land. On the other hand, ways of securing land tenure, as introduced by the State Land Protection Policy (SLPP) in Alexandria, concerning adjustment of the regulations for public landholders in order to legalize their tenure status (Decree No. 324 of 1982), lead to reducing development on vacant land, reducing housing construction, and consequently reducing land prices and land speculation within informal housing settlements. Land price is the major factor affecting different land acquisition mechanisms. Land tenure varies from squatters to formal owners. Despite the informal status of land ownership, high security levels exist and land transactions satisfy the needs of both sellers and buyers.

CONCLUDING REMARKS

The review of the informal housing literature has demonstrated that arguments about its role in most developing countries have often centered on the capacity of the private

sector (even informal and outside the legal procedure) to provide and deliver affordable housing to middle, moderate, and low income groups. Related to this debate is the advent of supply-side governmental policies and bureaucratic procedures during recent eras, which tend to ignore housing as a vital economic sector and, along with other factors, fuel the boom expansion of the informal housing.

At times, government has intervened in informal areas through actions such as full-scale demolition of the shelters and settlements (Aina, 1990). Housing experts and researchers have objected to these governmental actions and to the consequent distortions they create (Hardoy and Satterthwaite, 1981). Significantly, more debate is now heard concerning public interventions through both macroeconomic and microeconomic levels by decentralizing the decision making, by outlining broader policy for regulations and standards, and by facilitating access to finance, materials, and land.

Advocators of governmental reform, such as Rodwin and Sanyal (1987) and Van Huyck (1987), emphasize that other governmental interventions through the demand side--e.g., housing payments and direct rents payments--have to be provided for the target group. In general, Antrobus (1993) argues that principles of justice, equity, participation, sustainability, and decentralized control should guide policy regarding informal housing sector.

This "new policy" approach reflects a call for new directions and approaches, free from the project-based orientation of the past. These directions and policies need to move toward realistic, flexible, and general guidelines and policies. If these new policies aim to encourage the private sector to provide housing, especially to low income groups, the new policies must be based upon a real understanding of the current housing situation. In order to achieve the goal of increasing private participation in the provision of housing, complete understanding about this private sector (formal and informal) has to be provided. Hence, further research is needed. The experience gained from reviewing the literature, as

documented in this chapter, suggests that "a starting point for a policy would be a research into the constraints and problems faced by the informal sector in different historical and cultural settings" (Antrobus, 1993).

The contribution of this research lies in the enhancement of the factual knowledge about the informal sector. This study addresses questions related to the impact of macroeconomic, political, and social structures upon the development of informal housing sector activities. In addition, this study tries to answer other questions related to the nature of informal housing, the characteristics of informal housing inhabitants, the forces behind the actual demand for informal housing, the processes of informal housing supply, sources of housing finance and the ways in which land is used to produce this informal housing. The main goal of this study, however, is to reach a satisfactory level of knowledge about the realities of the informal housing sector as a basis for implementing "alternative" housing policy. Enhancing our understanding about the informal housing sector will lead to recommending, implementing and, consequently, designing appropriate and adequate policies, realistically, so that the acute housing problems in Egypt and in other parts of the developing world can be eased or even solved.

CHAPTER III

RESEARCH METHODS AND DATA ANALYSIS

Data for this research are obtained predominantly from a survey of households within the informal housing settlements in Alexandria. Census data and secondary data sources--including previous studies about Alexandria and its housing sectors, Alexandria Master Plan documents (Alexandria 2005, 1984), the State Land Protection Agency in Alexandria (SLPA) records, assessments, and available files--are used.

INFORMAL HOUSING CATEGORIES IN ALEXANDRIA

As indicated earlier, informal housing is defined as housing which has been produced or acquired without legal permission and without registration; which has been built on registered, unregistered, or unofficially subdivided private land; or which has been produced on publicly owned land.

In the case of Alexandria five categories of informal housing activities are distinguished by the writer, depending on the legal status for land tenure, land subdivision, building permission and building standards. Table II illustrates these categories.

TABLE II

INFORMAL HOUSING CATEGORIES IN ALEXANDRIA

Category	Land Subdivision	Land Tenure	Building Permission	Housing Type
1	Illegal	Illegal	No Permission	Squatter
2	Legal	Illegal	No Permission	Squatter
3	Illegal	Semi-Legal	Not Available	Informal
4	Illegal	Not-Recognized	Not Available	Informal
5	Legal	Legal	Not Adhered	Semi Formal

The table shows that these categories include three housing types: squatter housing, unauthorized "informal" housing, and semi-formal housing. These categories are classified according to degree of informality, to include the following (Abt Associates, 1982):

1. Dwellings constructed on illegally-occupied land not included in a legal subdivision. Examples are temporary or permanent structures situated on public land abutting a canal or right of way, or private land (vacant land comprising part of a building site slated for non residential construction). Figure 2 depicts examples of this type.
2. Dwellings constructed on illegally-occupied land within a legal subdivision. Examples are temporary or permanent structures situated on public open space, or on private residential lots where the landowner is absent, figure 3.
3. Dwellings constructed on legally-owned land outside a legal subdivision. Examples include temporary or permanent structures in a parcel on private land- either subdivided and sold by a subdivider without a permit to subdivide and re-sell the land, or without complying with zoning regulations. This type includes the transformation of agricultural land into urban use, figure 4.
4. Dwellings constructed on formally-owned land not recognized by law. Examples are temporary or permanent structures situated on private land that have purchased from a public land holder who claims to own the land according to the 1936 law, but who has not obtained building permission or registered the land because the law does not recognize such lands, figure 5.
5. Dwellings constructed on legally-owned land included in a legal subdivision. Examples are dwellings constructed on private land zoned for residential use included in a legal subdivision. The owner has complied with part or all the zoning regulations, but has built without a building permit or without adhering to the building codes and regulations, figure 6.

Figure 2. Squatting along Right of Way. Shacks constructed beside Alexandria-Cairo (El Hadara, Alexandria) railway. 1991 photo.

Figure 3. Squatting on Privately Owned Land. The land is included in a legal subdivision (Smouha, Alexandria) but may be abandoned because the owner is absent . 1991 photo.

Figure 4. Illegal Land Subdivision over Privately Owned Land. The land is not included in a legal subdivision and is subdivided and sold illegally. Upper photo from Abis, central Alexandria; lower photo from Ezbet Danna, eastern Alexandria. 1991 photos.

Figure 5. Housing Development over Formally Owned Land not Recognized by Law. Example from El Agamy, a resort area, western Alexandria in 1991.

Figure 6. Examples of Semi-Formal Housing. This type of housing was built without adhering to building standards and regulations, despite having a permit. Right photo from Smouha, central Alexandria; left photo from the sea shore of Alexandria. 1991 photos.

Categories 1 and 2 represent the most informal examples of squatting (see, for example, Soliman, 1985; Abt Associates, 1982; Turner, 1977). In some countries, especially in Latin America and Asia, these housing arrangements form the bulk of informal housing (Ishmael, 1988; Trivelli, 1982).

The studies of Abt Associates (1982), Mourad (1983), Soliman (1985), Van Huyck et Al. (1986), Yonder (1988), Aina (1990), and others confirm that these two types represent a small share of the housing stock (approximately from 12% to 15%) in other countries of the Third World--Egypt, Turkey, Nigeria for example. Most dwellings in the informal housing sector of these countries appear to be illegal because the owners have ignored subdivision or building permit regulations (Abt Associates, 1982, Gilbert and Ward 1985). In Alexandria, this type of informal dwellings--unauthorized housing--is represented by categories 3, 4, and 5. Housing depicted in category 5 is scattered throughout the city and is located within high, middle and low income "formal" residential settlements. Nevertheless, the focus of this study is the housing process for those of low and lower income groups, those people who are, in most cases, concentrated in specific areas by large numbers. These areas are represented in categories 3 and 4--the so-called informal settlements. Thus, housing in categories 3 and 4 is the major subject of this study because it fits the definition of the unauthorized housing, has concentration of low income groups, and exhibits high levels of informal activities. The types of housing presented in categories 3 and 4 are the basis for the sampling procedure and the selection of case study areas.

SAMPLING PROCEDURE

To select a representative sample of the informal housing areas (settlements) in Alexandria, a three stage sampling procedure is applied to all informal housing areas in the city. This sampling procedure is based on the 1986 census data (the most recent census in

Egypt). The census divides Alexandria into fourteen administrative districts (*Qisms*). Each administrative district is then divided into administrative areas (*Shiakhah*), and each administrative area is divided into sub-administrative areas (*Mantekas*). Census data is available only for administrative districts and administrative areas.

The first stage of the sampling procedure is used to select the districts which contain major informal housing areas. The second stage of sampling procedure selects, among these districts, a sample of administrative areas. Finally, the study areas--sub-administrative areas--are chosen from a sampling frame of the pre-selected administrative areas.

First Stage Sampling Procedure

Among the fourteen Census "administrative" Districts (CD)--14 *Qisms*-- in the city of Alexandria and according to the Census data of 1986 and the type of housing found in categories three and four of the informal housing classification, six CDs were chosen according to the research criteria, Figure 7 and Table III. Districts must include various statistical areas "*Shiakhah*" that include informal housing areas in different levels of development. Variables used for this purpose include the following:

1. Population size and rates of population increase among three decades (1976-1986)
2. Rates of population increase (that has been absorbed within each CD) in relation to total population increase of the city (1976-1986)
3. Rates of additions to the housing stock of each district (1960-1986)
4. Tenure status (% renters), and current use for dwellings (vacancy rate)

Other variables used in the selection of CDs are building starts, uncompleted buildings, and percentage of dwelling units attached to public infrastructure. Unfortunately, census data does not provide information about land tenure, building permission, or dwelling units in relation to land subdivision. However, Soliman (1987) identifies general areas of land

Figure 7. The selected Census Districts (CD) within Alexandria.

TABLE III
CHARACTERISTICS OF THE SELECTED CENSUS DISTRICTS

Census Districts (CD) District/ <i>Qism</i>	Population growth within each CD 1976-1986	% of pop. increase to total city increase 1976-1986	% of buildings added between 1960-1986	% of renters to total number of H. H.	Vacancy rate (1986)
Al Montazah	111.8%	49.2%	79.1%	51.1%	14.8%
Al Ramel	37.2%	27.7%	69.5%	57.5%	12.5%
Moherm Bey	2.9%	2.1%	48.0%	66.9%	4.2%
Mena Al Basal	30.9%	11.8%	53.2%	58.2%	11.3%
Dekhila	110.6%	8.5%	85.8%	41.8%	28.3%
Al Ameria	135.4%	10.7%	95.6%	11.7%	25.5%

Source: Calculated by the author from the CAPMAS, 1987b, Housing, Population, and Establishment Census For Alexandria City, November, 1986; and CAPMAS, 1992, Detailed Results: Alexandria City.

ownership in Alexandria, and his classification is used for the purpose of selecting the CDs in the context of this research.

Second Stage Sampling Procedure

The first stage of sampling resulted in the selection of six CDs (*Qisms*) including Al Montazah, Al Ramel, Moherm Bey, Mena Al Basal, Al Dekhila, and Al Ameria. Two are located in the eastern, one in the central, and three in the western part of the city. High rental rates (due to rent control), a high incidence of formal land occupancy, and decline in the growth rate are all factors in the exclusion of most central city CDs from this selection. Census administrative areas (*Shiakhat*) within the selected CD's are classified according to five criteria--listed below--and a sample of 18 Areas are randomly selected, TABLE IV, with a total of 298,016 dwelling units, and 246,678 households (CAPMAS, 1987b).

TABLE IV
SELECTED CENSUS AREAS (*SHIAKHAT*) IN ALEXANDRIA

Census District "Qism"	Census Area "Shiakha"	Total No. Dwellings	Total No. Households
Al Montazah	El Syouf Quibly	28061	22391
Al Montazah	Al Ghamrawy	8106	4149
Al Montazah	Al Mandara Quibly	38515	28880
Al Montazah	Al Manshia Baharia	4564	3943
Al Montazah	Al Naseria	3496	1675
Al Montazah	Sidi Bishr Quibly	44090	34145
El Ramel	Al Zaheria	14099	12231
El Ramel	El Qusay Quibly	10836	9344
El Ramel	Al Mahrousa	13271	12018
El Ramel	Danna Al Gedidah	52695	48836
Moherm Bey	El Sabhia and Ezbet Sharkas	11766	10536
Moherm Bey	El Bab Al Gedid	10075	11233
El Dekhila	El Dekhila	16208	12940
El Dekhila	Al Max	5480	5044
Mena Al Basal	Werdian Quibly	9269	8455
Mena Al Basal	Al Metras	19365	15131
Al Ameria	Al Agamy Quibly	4300	999
Al Ameria	Zawiet Abdel Qadeer	925	592
Al Ameria	Maryout	6391	5811
Totals		298016	246678

Source: CAPMAS, 1987, Housing, Population, and Establishment Census for Alexandria City, November, 1986.

The selection of the census administrative areas (*Shiakhah*) is based on the following criteria:

1. Different levels of informal and formal housing (in order to make a typology)
2. Different rates of owners and renters (in order to obtain information about determinants of production and land acquisition)
3. Types of housing units in both legal and illegal subdivision, especially in the case of public landholders
4. Old and new physical development patterns
5. Major land use transformation

Third Stage Sampling Procedure

To select a representative sample for the informal housing areas in Alexandria, a stratification sampling procedure is applied to these census areas according to size and years of establishment. First, areas are stratified into three categories according to size (10,000 dwelling units and under, 10,001 to 20,000 dwelling units, and over 20,000 dwelling units). Second, areas are stratified into three stratum: 15 years and under, 15 to 25 years, and over 25 years of establishment (based on their appearance in the 1960, 1966, and 1976 census reports). Three administrative census areas are then randomly selected, one from each stratum, where the selection probability is proportional to the 1986 census administrative area (*Shiakhah*) population of dwelling units.

The three census areas have been selected to include: (1) Danna El Gedidah, (2) El Sabhia, and (3) Al Agamy Qibly. The population of Danna El Gedidah--according to the census figures of 1986--is estimated at 229,622 inhabitants; El Sabhia, 51,766; and El Agamy Qibly, 6,798. The administrative area (*Shiakhah*) of Danna El Gedidah includes four major sub-administrative areas: *Ezbet* (ranch) Danna, *Ezbet* Abu Soliman, *Mantekat* (area) Sabahi and *Ard* (land) Shamaa. The administrative area (*Shiakhah*) of El Sabhia

includes four sub areas: *Ezbet El Sabhia*, *Ezbet Sharkas*, *Ezbet Raáfat* ad *Ezbet Nadi El Sid*. The administrative area (*Shiakha*) of El Agamy Quibly includes two sub areas: *Ezbet Allam*, and *Merighem*.

Among these ten sub-administrative areas within Alexandria, and according to the Census data of 1986, four sub-administrative areas were chosen to represent the informal housing settlements according to this research criteria. Sub-administrative areas must include high degrees of informal activities in different stages of development. Variables used for this purpose include the following:

1. Population size
2. Rates of population increase between three decades (1966-86)
3. Different levels of informal development
4. Different socioeconomic groups comprising lower middle income and low income residents.

Study Areas. From the previous sampling selection procedures, four sub-administrative areas were selected to include *Ezbet Danna* (area 1), *Ezbet Abu Soliman* (area 2), *Ezbet Nadi El Sid* (area 3), and *Ezbet Allam* (area 4), refer to Figure 8. As indicated earlier, the word *Ezbet* in Arabic means ranch, which implies that most of the informal housing settlements in Egypt were originally agricultural lands. To develop a sampling frame for the study sample, these four study areas were divided into sub-areas and block groups (Appendix A provides more details about the households survey). Aerial maps of Alexandria, 1978 and 1986, were used to identify boundaries and block groups within each sub area. Knowing the approximate number of households on each block was essential to the selection of a block sample with PSS--Proportional Sample to Size-- (Babbie, 1989). Census data of 1986 does not provide the number of households on residential blocks. Furthermore, the 1978 and 1986 aerial maps of Alexandria have to be updated for the period (1986-1991).

Figure 8. The Selected Case Study Areas. Danna (area 1) and Abu Soliman (area 2), eastern Alexandria; Nadi El Sid (area 3), central Alexandria; and Allam (area 4), western Alexandria.

To that end, a scanning survey was conducted. The scanning survey contributed the following list of needs:

1. To identify aggregate number of total housing units, total households, characteristics of housing, infrastructure, land ownership and land prices, and physical characteristics in each area
2. To serve as a sampling frame for the detailed household survey
3. To update the 1978 and 1986 aerial maps by adding housing blocks constructed or demolished between 1986-1991 to estimate the total number of households by block

In this study, "informal" housing units represent all those units built on illegally occupied and subdivided lands and/or constructed outside the official regulations, licenses, and fees that cover housing construction.

Sample Size and Data Collection

The sample was to be comprised of 400 households--a conventional representative number for large population (Babbie 1989, 1986). However, because of "official" obstacles, the sample size was set, *de facto*, at 280 cases. Eight cases out of the 280 were omitted because of serious missing data. Therefore, 280 households were interviewed but 272 questionnaires were completed: 51% --138 cases--in Danna (area 1), 24% --65 cases--in Abu Soliman (area 2), 14% --39--in Nadi El Sid (area 3), and 11% --30--in Allam (area 4). Table V shows sample distribution and size within each area.

TABLE V
SAMPLE DISTRIBUTION BY AREA AND SIZE

	Sample Size	Total No Dwelling Units ¹	Study Area in % of Shiakha	Community size ² pop. h.h.		% of Total Sample
ADMINISTRATIVE AREA (<i>SHIAKHA</i>)						
Danna El Gedidah	203					
El Sabhia	39					
El Agamy Quibly	30					
STUDY AREA						
Danna (area 1)	138	14372	35%	64584	12420	51%
Abu Soliman (area 2)	65	6706	16%	32594	6036	24%
Nadi El Sid (area 3)	39	4118	24%	18273	3583	14%
Allam (area 4)	30	2698	67%	10804	2251	11%
Total	272	27844		26255	24290	100%

Eight trained interviewers (part/time employees of the Census agency office in Alexandria and students from the Faculty of Social Services, Alexandria University) assisted with the administration of the household survey, which was conducted on a face-

¹ The process of estimating the total number of dwelling units is presented in Appendix A, which has been done through a scanning survey.

² According to the findings of the field study the average household size was estimated, then calculations for total households and total population were computed according to the results of the scanning survey (Appendix A).

to-face basis. An architect and a civil engineer helped control the data collection procedure-both on volunteer basis.

Each interviewer was given an area map to ensure the interview of pre-targeted household heads (the household survey and sampling procedure are explained in more detail in Appendix A). Each interview ran from 45 minutes to approximately one hour. Training sessions in both office and field averaged 13 hours, with general meetings and discussions every two evenings once field work had begun.

More than 35% of all interviews were administrated by the author. This allowed for an in-depth understanding of the factors that affect the search for shelter within informal settlements. It also provided very useful guidance for continuous quality control in the screening of completed questionnaires.

DATA ANALYSIS

A variety of analytical methods and data analysis techniques were used in this research. Because the research covers several topics and tests different hypotheses, no single method or technique was sufficient. Depending on the nature of each hypothesis, and consequently the ways of testing it, the type of variables which will be used for testing it, and the degree to which the level of analysis is required, are all factors which determine the type of analysis. In fact, the design of the questionnaire, as described in Appendix A, is compatible with the structure of the hypotheses under investigation. In this way, the data accurately fits the required type and level of analysis.

The data analysis includes simple statistics; cross tabulation and tables; and multivariate analysis such as logit and regression models. It has been argued, however, that methods of descriptive analysis and simple multivariate analysis are the most appropriate ways for analyzing data gathered from primary sources (Babbie, 1989; Hunt, 1985; Homles, 1967), given the limitations of collecting data through that procedure in

most cases of doing research (Miller, 1984; Spector, 1986). Consequently, descriptive analysis constitutes the most appropriate way of analyzing most of the research hypotheses to explain the relationship between variables under testing. However, in other cases, methods of multivariate analysis are used to test specific hypotheses by means of regression analysis.

For instance, in the discussion of the informal housing development and growth in Alexandria (Chapter V) analysis is predominantly qualitative and descriptive and relies on secondary information provided by various resources, including Alexandria 2005 planning reports, previous research about housing in Alexandria, and other sources of information. Furthermore, detailed data tables, simple statistics, and cross tabulation are used to examine different aspects of informal settlement's development process; physical characteristics of areas under study; and social and economic characteristics of the households.

Chapter VI discusses tenure choice, location choice, housing demand, housing consumption, and housing satisfaction using simple statistics and multivariate analysis. The models are elaborated in the next section, "Research Models." Other issues of housing stock, building materials, prices, housing finance, land market and others, which are presented in Chapters VII and VIII, are analyzed with simple statistics, methods of detailed data tables, and cross tabulation.

RESEARCH MODELS

As previously indicated, four multivariate models are developed to examine housing tenure choice, housing expenditure, housing consumption, and housing satisfaction. The examination of tenure choice follows those models used in the studies of Tipple and Willis (1991) in Kumasi, Daniere (1990) in Cairo and Manila, Zorn (1988) in South Korea, and Malpezzi and Mayo (1987) in eight developing country cities. In this model, housing tenure alternatives are designated as rental or owner occupied. In the informal housing

sector, owners sometimes own (1) dwelling units, or (2) dwelling units and part of the same building, or (3) dwelling units and the entire building. All owners are included in the second category for three reasons. First, the owning category fits accurately their tenure status; second, the sample is primarily concerned with dwelling units; and third, any differences, if any, between owning a unit, or a unit and part of building, or a whole building, are explained by simple statistics. The studies of Abt Associates (1982), Friedman (1988), and Maplezzi et al. (1987) include all these categories under one "own" category using a simple logistic regression model which appears remarkably free of major biases (Malpezzi et al., 1987).

The probability of being an owner depends on income, household size, head's education and age, a vector of dwelling physical characteristics and length in current residence (Malpezzi et al., 1987). The logit model is based on the cumulative logistic probability function which is specified as follows:

$$P_0 / P_r = \beta'_0 + \beta'_1 Y_1 + \beta'_2 N_2 + \beta'_3 E_3 + \beta'_4 A_4 + \sum_{i=4}^n \beta'_i X_{i-3} + \mu \quad (1).$$

The dependent variable P_0 / P_r is the odd that a particular choice will be made, where P_0 is the probability that a dwelling is owned and P_r is the probability that it is rented. The logistic function (Z) will take any value from 0 to 1, near 0 when $Z \rightarrow -\infty$ and 1 when $Z \rightarrow +\infty$ (Aly, 1991). The curve representing this function is systematic when $Z = 0$. The logit model examines the conditional probability of a single variable, given a set of other variables, which may be qualitative or cardinal (see Aldrich and Nelson, 1984). The independent variables are specified as the following: Y is the household's permanent monthly income, N is the household size, E is the household head's level of education, A is the head's age, and X is a vector of dwelling unit physical characteristics, including water and sewer connections, legal status and length of residence.

The following two models--housing consumption and expenditure--are used to estimate housing demand functions. The second equation is used to examine housing consumption Q , in terms of space available to the household, where housing quantity is the observed variable. Housing consumption could be measured in two ways: total number of rooms per household, or persons per room. The number of rooms per household is a good measure for housing consumption. However, it is a discrete variable and unless considerations and precautions are taken in the model specification a violation of the model assumptions may occur. The alternative--person per room ratio--is an interval variable and, according to Wheaton (1981) and Mayo (1982), is a sensitive measure for housing consumption, Q . In this study, housing consumption is measured by persons per room, where the general equation is specified as the following:

$$Q_i = \beta_0' + \beta_1' Y_1 + \beta_2' N_2 + \beta_3' E_3 + \sum_{i=4}^n \beta_i' Z_{i-3} + \mu \quad (2).$$

Where Q_i is the calculated person/room ratio; the Y term is the income of the household; N is the household size; E is the household head's educational level; and Z is a vector of physical characteristics of housing units including tenure status, legal status and unit gross area. Separate estimations for owners and renters are justified (see Ioannides et al., 1983 and Mayo, 1981) and are made in this study.

Before the demand for housing can be estimated, it is necessary to estimate imputed rents of owner-occupied properties (Lodhi and Pasha, 1991). Leuw (1971) indicates that such rent can be based on owners' direct imputation (derived from direct estimation), or estimations from a hedonic rent equation (derived from observed rents for renters), or on capital value. The last approach can be used if capital gains are excluded. For owners, the rent variable is constructed by a fixed amortization rate to owner's estimate of housing value (ratio of rent to value). Malpezzi and Mayo (1985), and Malpezzi and Mayo (1987) applied this way of measurement for some cities in 8 developing countries, including

Egypt. When amortized housing values were used, amortization rates were based on percentage of value generally assumed to be between 1% and 1.5% of value per month, with this amortization rate fixed for all units in the sample.

The approach most commonly used to determine imputed rents is an estimation of a hedonic equation. However, this method generally works well for the formal segment of the housing market (Malpezzi and Mayo, 1985; Lodhi and Pasha, 1991). In the case of the informal segment of the market, there is generally a problem of a limited number of observations (Lodhi and Pasha, 1991). Therefore, the sample of housing units and properties must be large. Otherwise, the capability of the hedonic model to predict owner-imputed rents is hindered. It has been argued that the rental market within informal settlements is limited in operation given a low opportunity cost of time, materials and construction technology. In addition, there are problems of property maintenance, illegal connections to utilities, and other hazards (Weiss, 1978). The previously mentioned imperfections of the informal housing market operation create biased characteristics when employed in a hedonic equation. Thus, the validity of hedonic estimates of owners-imputed rent is questionable.

The most suitable approach in the context of this study is to rely on owners' assessment of the market rental/capital value of their dwellings and properties. This approach has been criticized as it can lead to biases. Owners of luxury units may be inclined to understate values in the presence of income and wealth taxes (Lodhi and Pasha, 1991) as in the case of some developing countries (South Korea is an example). However, data gathered for this research has been collected on a face-to-face basis, and respondents understood that interviewers were not governmental officials or tax assessors. Thus, the prospect of overstated or understated reported values is reduced to a minimum.

With the estimation of imputed rents for owners explained, the housing demand equation can be specified (Lodhi and Pasha, 1991) to estimate a housing expenditure

function. Since rent is the observed/estimated variable, one must generally adopt a housing expenditure equation (Malpezzi and Mayo, 1985) of the following type:

$$R_i = \beta'_0 + \beta'_1 Y_i + \beta'_2 N_i + \sum_{i=3}^n \beta'_i Z_{i-2} + \sum_{J=2}^n \beta'_J X_{J-1} + \mu \quad (3).$$

Generally, this equation is estimated separately for owners and renters. For the latter, R_i is the observed rent (exclusive of utility payment); for the owners it is the net imputed rent based on the owners estimations. The Y term is the permanent monthly income of the household, N is the household size, Z is a vector of demographic characteristics of the household including age and education level of heads, and X is a vector of physical characteristics of housing units including legal status, tenure status and years in current residence (see Abt Associates, 1982; Malpezzi and Mayo, 1985; Mayo, 1981).

The final model is a regression equation to examine housing satisfaction, where the depended variable is the measured satisfaction for both housing units and neighborhoods. Participants were asked to estimate their satisfaction on a 4- part scale from very satisfied to not satisfied. An interval scale of ten points was assigned to the responses with 10 as the highest value.

Two separate equations were estimated for housing unit and neighborhood satisfaction, S . The general equation for analyzing this relationship is specified as the following:

$$S_i = \beta'_0 + \beta'_1 T_i + \beta'_2 L_i + \beta'_3 P_{r3} + \beta'_4 G_{a4} + \sum_{i=7}^n \beta'_i Z_{i-6} + \mu \quad (4).$$

The dependent variable S_i is a measure of housing satisfaction; T is the tenure status; L is the legal status for the dwelling; P_r is the calculated persons per room ratio; G_a is the unit's gross area; and Z is a vector of the unit's physical characteristics, including water, sewer and electricity connections, as well as kitchen and bathroom. The same equation was used to examine neighborhood satisfaction with all the specified variables except for Z ,

a vector of neighborhood physical characteristics including garbage accumulation, nearby school, public sewer connections, and housing unit satisfaction that was used only in the neighborhood satisfaction equation.

A linear specification is used in equations 2, 3, and 4. According to Mayo (1981), this not only has the advantage of being derived explicitly from a utility function, but also fits better than log-linear or double log equations. The alternative functional forms tend to produce similar results when the range of income variability in the data is limited (Lodhi and Pasha, 1991).

As illustrated previously, different techniques are used to analyze data gathered from both the households survey and other secondary sources of data. The ultimate determining factor of using a specific technique is its suitability to the desired level of analysis according to the nature of each stated hypothesis.

RESEARCH OBSTACLES

Four hundred households were targeted as a representative sample size for large population (Babbie 1989, 1986). However, in November 1991, permission for doing the field survey was denied, and the process of collecting data was forced to stop. By that time, a total of 206 questionnaires had been completed. A further 41 questionnaires were completed, by the author, during the pilot study--prior to the execution of actual survey. By late November 1991, another 33 questionnaires were completed. Fortunately, the questionnaire was employed in most of the settlements under study. Therefore, the sample represents the four study areas. In December 1991, a partial clearance was provided to do interviews, but only with persons in charge such as officials, bureaucrats, city planners, etc. Problems encountered were not exceptional or unique to a field survey in Egypt.

Consequently, the sample size was set at 280 households. Out of this 280 cases, 8 cases were omitted because of serious missing data values. Therefore, as previously

indicated, a total of 272 cases were completed (A further discussion about the Household survey is presented later in Appendix A).

These external problems could have had a critical effect on "access to field, sample selection, methods used and the characteristics of the data collected" (Peil, 1983), and could have limited the number of case studies. In this study, issues of sample selection and characteristics of the collected data (crucial to external validity) were handled during the pilot study; the pre-selection of units; and the control of the field work during the process of data collection. Thus, reliability and external validity were assured.

Limiting the number of cases made a little basis for generalization (Yin, quoted in Yonder, 1988). However, Yin (1985) indicates that the purpose of case studies is not to make statistical generalizations, but rather, analytical generalizations (quoted by Yonder, 1988). In this research, the purpose was to develop a framework for understanding the mechanisms of informal housing settlements and their relation to the macro-economic, political and social fabrics as basis for policy formation, rather than to "represent" the detailed situation in all informal settlements. For instance, the discussion of Alexandria's growth and the development process of informal settlements that are presented in the next two chapters, should help in placing the study areas and the sample in context and in "developing a framework within which replication generalizations may be made" (Yonder, 1988).

CHAPTER IV

THE IMPACTS OF MACRO-STRUCTURES UPON URBAN GROWTH AND HOUSING IN ALEXANDRIA

The underlying factors that affect the urbanization process and housing in Egypt, in general, and in Alexandria, in particular, can be traced by examining events or changes that occurred within a specific period of time, with reference to macro-economic, political, and social changes. These processes of change affect major economic sectors, housing included. In addition, they influence both urban and social structures of the country. Previous experience and evidence suggest that major urban centers in many developing countries, including Egypt, became visible manifestations of the effects of such changes. In fact, major urban centers are the most impacted areas by such changes (see, Noe, 1989 and Gugler, 1988). The following discussion elaborates how these macro-factors affect housing and urban growth patterns, briefly, in Egypt and, in detail, in Alexandria. The discussion gives special attention to examining how such changes restrict the operation of formal private and public sectors and, consequently, result in the evolution of informal housing sector activities. Therefore, the last section of this chapter elaborates how these factors result in the creation and expansion of informal housing settlements.

THE IMPACTS OF MACRO-STRUCTURES ON HOUSING AND URBAN GROWTH IN EGYPT

In Egypt, three major influences have affected urban growth patterns and the housing sector as a whole: the political-economic influence, the political influence, and the social influence.

The Political-Economic Influence

Political-economic events affect urban growth and housing. Among these events are the following: the Revolution of 1952, the wars with Israel (1948, 1956, 1967 and 1973), the socialization acts of President Nasser (early 1960s), the Open Door policies (*Infitah*) of President Sadat (mid-1970s), the peace treaty with Israel (late 1970s), and the privatization of the economy (late 1980s and early 1990s). Mainly, such events affect the housing construction industry in different ways: inflation of prices, reduction of financial and credit sources, labor unavailability resulting in low levels of productivity, unavailability and periodical bottlenecks of construction materials, and increasing housing and construction prices. In addition, these events resulted in radical private sector withdrawal from participating in the market and in decreased levels of private investments in housing, especially after the nationalization of the economy in 1961.

Furthermore, since 1952, housing has been seen as a non-productive sector of the economy, so that many administrations have directed their attention, resources, and funds towards industrial activities. The government has participated in the housing sector not only by building public housing projects but also by limiting availability of resources to the private sector. The result has been a housing deficit and a continuous housing shortage, especially in urban areas since the late fifties.

For instance, the period 1958-1988 witnessed a substantial decrease in total investment in housing (for both public and private sectors), low levels of housing production, and, most importantly, an increase of production of "luxury" and upper-middle cost units over low cost units, especially after the *Infitah* policies of President Sadat (for more details, see El Araby, 1992a). Furthermore, these policies resulted in creating a housing deficit estimated at 2.7 million units in 1986 with a need to build almost 300 thousands new units each year between 1986 and 2000 to overcome the deficit (Ministry of Housing "MOH", 1992).

The political-economic events (1960-1986), previously described, ultimately resulted in increasing numbers of deteriorated units, rural units in urban places, marginal residential places, and separate rooms as housing units (CAPMAS, 1987a). As a result of economic and social factors combined with these political-economic events, people found no alternatives in either public or formal private sector. Their solution was to seek low cost housing, affordable land, employment, and other services through the informal sector. The aggregate results of previous studies (MOH, 1992; The Parliament, 1984; El Kadi, 1987; IAURIF, 1986; Doroso, 1985) indicate that almost 60% of total housing production in Egypt between 1977-1989 has been produced through the informal sector, 31% through private formal sector, and 9% through the public sector. Figure 9 illustrates that distribution. Figure 9 shows the number of total units produced by the three sectors between 1977-1989 (there are no data available for the informal sector before 1977).

Figure 9. Total Units Produced by Sector in Selected Years 1977-1989.
Data Source: Ministry of Housing, Housing Plans 1987-1992; IAURIF, 1986; and El Kadi, 1987.

However, it is anticipated that the informal housing sector had a very minor role in providing housing units, at least until the late 1950s. By that time, most housing was produced through the formal private sector. Meanwhile, the public housing sector shared a very small portion of total housing production (for more details see El Araby, 1992a, pp. 84-92). A radical change in the housing delivery system in Egypt occurred in the early 1960s with the socialization acts of President Nasser in 1961. This ideological change resulted in limiting the role of the private formal sector in the housing market, in expanding the role of public sector participation and provision of housing, and in creating--along with other factors--an intense need for housing, that was met through informal sector provision of housing and other services.

The Political Influence

Particularly after the revolution of 1952, political leaders sought support by suggesting policies for redistribution of the wealth to help the poor. Leaders enacted such policies as rent control for both buildings and lands, land reform, nationalization of private sector, and public sector responsibility for delivering services and basic needs. The effects of such policies and controls have been examined in numerous studies (see, for example, Malpezzi, 1986; Hardman, 1987; Harik, 1991, Malpezzi et al., 1992 and others). Studies of land and housing policies suggest the following:

Housing policies which, for more than 40 years now, have centered around means of rent control for both housing and land, centralized building regulations and unrealistic building standards, along with the absence of any major urban land control law until 1982, complicated and contradicted land subdivision laws, and thresholds in current land use, subdivision and acquisition regulations are all factors that resulted in: 1. the destruction of rental "formal" market; 2. massive conversion of agricultural lands to urban uses; 3. increase the demand for both housing and land in urban areas [due to interaction effects of other political, economic and social reasons]; and 4. creation of informal access for housing and land to meet increases in demand. (El Araby, 1992a)

Due to increasing levels of investments, economic activities, infrastructure, public and social services in major urban centers, both the preceding political-economic events and

housing and land policies resulted in urban-rural economic and social systems biased in favor of urban areas. The outcome of these events and policies was a growth of internal migration from rural and small urban centers to major cities. The intensive movements of internal migration (especially in the 1960s) along with rapid population growth resulted in a boom expansion of major urban centers and cities in Egypt, namely Cairo and Alexandria.

The Social Influence

The phenomenal growth of major urban centers in Egypt was also influenced by ideologies of converting the society from an agricultural "undeveloped" society to an industrial "developed" society. The revolutionary regime of 1952, reinforced these ideologies in most development policies, so that the agricultural sector was neglected and, consequently, started to deteriorate at least until the green revolution and food security programs of President Sadat in the late 1970s. As a result, rural-urban migration movements again accelerated, and rural areas suffered from lack of jobs and services as most witnessed a steady loss in their agricultural lands, in their agricultural productivity, and in their populations.

Furthermore, education was seen both as a right, such as "air and water," and as a way of control. Consequently, educational policies were formulated to achieve, each year, a target of increasing the total number of elementary, secondary, or university graduates, to whom the government pledged jobs. Thus, attention was given to providing educational opportunities and facilities on a large scale; most of these facilities, traditionally, were located in major urban centers. However, while the number of graduates increased over the years, avenues and opportunities for employment narrowed, and aspirations for having a brighter future diminished.

In these circumstances, people migrate from rural areas to urban centers to seek employment, education and other services, and from Egypt to other countries to seek opportunities for a better and more secure future. People migrate for many reasons. The

theory of migration depends upon pull and push factors (Todaro, 1985). Todaro's study indicates that people migrate mostly for employment opportunities. The flow of internal migration is dominated by the fact that major urban centers are absorbing most of those migrants. These results are also true and evident in Egypt. Between 1960-1986 the Cairo and Alexandria regions absorbed 73% of the internal movements in Egypt (CAPMAS, 1987a). One of the most visible impacts of high levels of internal migration is the accompanying increase in densities within those cities and unabated urban sprawl on the periphery as the settlements on the lower priced peripheral city land keep growing (El Araby, 1992a).

This process of social change within the country affected both the supply and the demand for housing. While internal migration pressed the demand for housing, international migration influenced housing supply through the multiple effect of remittances from workers abroad, which played a major role in financing land purchase and building construction (see, Adams, 1991; Nada, 1991). A major part of these investments goes to informal housing. International migration not only affected housing finance but also affected the construction industry. Most skilled labor, especially in the 1960s and 1970s, migrated to other Arab "rich" countries. The "migrating" skilled labor was mostly replaced by other low skilled or unskilled labor. This process of labor migration affected the productivity and availability of labor and created a serious labor problem in the housing construction industry (see, El Araby, 1992a, and IAURIF, 1986).

Table VI summarizes the impacts of macroeconomic, political and social structures upon the urban growth and housing in Egypt. The overall implications of the described macro-structures' influence upon housing and urban growth are that demand for housing and other services in major cities has increased. With no alternatives for obtaining necessary goods and services in either the public or the formal private sectors, people turned to the informal sector for low-wage employment, self employment, low-cost

TABLE VI

MACRO STRUCTURES IMPACTS UPON URBAN GROWTH AND HOUSING IN EGYPT

MACRO-STRUCTURES' CHANGES	IMPACT ON URBAN GROWTH	EFFECT ON HOUSING
EVENTS OF POLITICAL ECONOMY		
Revolution, 1952	Means of political control centered in major cities	Private sector withdrawal from housing supply
Socialization acts, 1960s	Vulnerable governments structures avoided	Reduction in housing investments
Wars with Israel (1948,1956,1967&1973)	confrontations with masses	Inflation of prices
Open Door policies, 1970s	Relocation of Suez canal residents to inner cities	Unavailability of labor and materials
Economic reform, 1980s	Establish new towns near major cities	Increase housing prices and construction cost
Privatization of the economy, 1990s		
POLITICAL ACTIONS		
Housing Policies	Conversion of agricultural lands to urban uses	Destruction of rental housing market
Rent control	Uncontrolled urban growth and expansion patterns	Demand increased for controlled units and lands
Building standards	Local authorities tied to central control	Decreased maintenance levels of housing stock
Building regulations	Urban sprawl	Controlled housing market under the state domination
Land Policies	Illegal invasion of urban land	Housing stock deficit
Land subdivision	Illegal land subdivisions	
Agricultural land reform		
Urban planning law		
Land tenure regulations		
SOCIAL CHANGES		
Industrial society	Population concentration in major cities	Increased demand for housing and other services in urban areas
Population increase	Increased levels of urban unemployment	Housing supply through public, private & Informal sectors
Internal migration	Creation of urban-rural unbalance system	Informal access for both land and housing
International migration	Deterioration of agricultural sector	Rural units in urban Areas
Investments in major urban centers & cities	Remittances used for investment and land purchase, mostly in urban areas	Private housing finance
Allocation of resources and services in favor of urban areas		Remittances used for housing investment

housing, affordable land, and other services. The questions now concern how these macro-factors affected the urbanization of Alexandria, influenced its housing situation, and resulted in the creation of its informal housing settlements.

URBAN GROWTH AND HOUSING IN ALEXANDRIA

In Alexandria, macroeconomic, political, and social factors have affected the city's urban growth patterns and its housing situation in the following ways: population increase and concentration of economic activities, spatial growth, constraints on land supply, creation of a housing deficit, and evolution of informal housing settlements.

Population Increase

Alexandria is the second largest Egyptian city. Its population has grown rapidly. In 1947, it had 949,447 inhabitants; in 1960, 1.5 million; in 1976, 2.35 million; and in 1986, 2.91 million, with an average increase of 2.86% per year between 1976-1986 (CAPMAS; 1987b). In 1986, it had an urban index of 13.8% of the total urban population in Egypt. In June 1991, the population of Alexandria was estimated at 3,212,114 inhabitants with an average increase of 2.91% per year between 1986-1991. By the year 2005, its estimated population will be 4.8 million inhabitants (Alexandria 2005, 1984), which could have serious implications for the city. Figure 10 illustrates the population growth pattern in Alexandria for the last century.

Between 1976 and 1986 the population of Alexandria has grown by 25.8%, which is lower than the growth rate of Egypt (estimated at 31.6% in the same period) and the growth rate of Greater Cairo Region (Cairo, Giza, and Qalyoubia) which was estimated at 36.2% in the same period. This difference can be attributed to the average variance between net population increase rates, i.e., excess fertility over mortality, in urban and rural areas--the Alexandria region contains only urban areas while the Greater Cairo Region includes rural areas. The net population increase in rural Egypt (1976-1986) was estimated

at 4.4% annually (Aly, 1991). In 1986, the annual net population increase rate in Alexandria estimated at 2.52%. The described discrepancy can also be attributed to the fact that the Greater Cairo Region absorbs proportionately more internal migrants than Alexandria. Between 1976-1986, the city absorbed more than 34% of the total internal migration in Egypt. During the same period, the Greater Cairo Region absorbed almost half of the internal migration movements (Feiler, 1992). In 1986, 21% of all residents in Alexandria (612,639 persons) were migrants.

Figure 10. Population Increase in Alexandria 1897-1991. The figure for 2005 is estimated by Alexandria 2005 (1984). Data source: CAPMAS 1987b, 1991, 1992.

As indicated previously, concentration of investments and economic activities in major urban areas, including Alexandria, accelerated this internal migration. In that context, Alexandria is a major industrial base, and housing more than 43% of all industrial activities in Egypt (CAPMAS, 1990). In 1984, more than 22% of all workers in the industrial sector in Egypt resided in Alexandria (Alexandria 2005, 1984). According to another estimation (Ministry of Industry 1984; quoted in Soliman, 1985) 30% of the working population in Alexandria are working in the industrial sector, which will need

around 600,000 more workers between 1985 and 2005. Industries are scattered in the southern part of the city. However, as a result of the expansion of industrial activities in the 1980s, including the completion of *El Dekhila* Port, the Reinforced Steel Bars Factory in *El Dekhila*, and the Free Trade zone in *El Ameria*, a major industrial concentration currently exists in the western part of the city. The expansion of such activities affects the spatial growth of the city, as elaborated in the following section.

Spatial Growth

Alexandria extends along the Mediterranean sea for more than 66 kilometers to the west and 20 kilometers to the east along a narrow coastal strip between the sea and lake Maryout (see Figure 11). However, the part of the city that is already urbanized does not exceed 55 kilometers of this strip. The spatial distribution of the population within the city is unbalanced between the eastern part, the central "old city," and western part. Figure 12 diagrams the residential densities within Alexandria.

The eastern part of Alexandria, which includes four major administrative districts--*Al Montazah, El Ramel, Sidi Gaber, and Bab Sharky*--contains the largest concentration of population, 1,581,302 inhabitants in 1986 (54.2% of total population). In contrast, the western part (which contains more than 40% of the area of Alexandria) has only 505,004 inhabitants (as of 1986) with a percentage of 17.3% of total population. The central part, which includes the old town contains 28.5% of the total population with a high percentage of overcrowding and high residential densities. In 1986, the residential density in one of the central city districts (*El Gomrok*) reached 114,338 persons per square kilometer and in another district (*Moharem-Bey*) 89,326 persons per square kilometer (CAPMAS, 1987b).

Alexandria currently is expanding east and west. Expansion to the southeast will invade more agricultural lands, and expansion to the southwest will invade desert lands, extending towards the *El Ameria* district, a potential district for development. The results

Figure 11. The City of Alexandria in 1991.

Figure 12. Spatial Distribution of Population in Alexandria in 1986. Data source: CAPMAS, 1987b.

of the population increase and the spatial distribution of the population are arbitrary extension of the city to the west (Soliman, 1985), a high percentage of overcrowding and deteriorating units in the city center, and a high concentration and a rapid rate of population increase in the eastern part of the city. The results of these combined factors are deficits in the city infrastructure, mixed land use patterns, limited supply of developed lands, and rapid expansion of uncontrolled residential development.

Limited Supply of Land

One of the major housing constraints is the scarcity of land as a vital resource (El Araby, 1992a). In Alexandria, available land for housing, especially in the east and the center parts of the city, is relatively scarce. This scarcity has resulted in high price inflation and prohibitively high land costs when land goes on the market (Soliman, 1985). Comparative aerial photographs for Alexandria (1978 and 1986) over the past 15 years show that the urban area is expanding rapidly toward the west due the exhaustion of land, even illegally occupied land, in the central and the eastern part of the city. The surrounding areas in the south and the west of the city, which 15 years ago were water filled lands, sand dunes, or agricultural lands are now developed and dotted with housing. Figure 13 illustrates Alexandria's urban growth between 1956-1986.

In Alexandria, as in many other parts of Egypt, the agricultural sector is the most deteriorated economic sector. During the last 30 years, Alexandria had lost more than 21,000 *Feddan* (one feddan is equivalent to 1.038 acres), more than third of its cultivated lands (Alexandria 2005, 1984). In 1984, the total cultivated area was around 53,000 *Feddan* located mainly in the southeast part of the city, in addition to 18,000 *Feddan* reclaimed "desert" lands located in the southwest part of the city--not fully prepared to be productive (Alexandria 2005, 1984). By the year 2005, the Alexandria Master Plan recommends cultivated area to reach 140,000 *Feddan* (Alexandria 2005, 1984). Under current conditions, these recommendations may not be feasible. However, the availability

Figure 13. Alexandria Urban Growth 1956-1986.

of the "easy" lands in the southeast part of the city, while they are productive lands, may attract developers and land speculators to invade these lands and convert them for urban use.

The biggest constraint, however, is not that the land is scarce or limited, but that access to land by those with lower incomes is unequal. Even though the amount of land suitable for housing is not limited in the western part of the city, these areas are susceptible to flooding, have weak subsoil's, and are inaccessible to transportation, infrastructure, and other services. Moreover, the amount of land available is itself adversely affected by the irrational land policies (such as the State Land Protection Policy) and ad hoc nature of land usage in urban areas. Therefore, in certain areas, land is either unavailable or prohibitively expensive.

Creation of the Housing Deficit

The Alexandria Master Plan 2005 estimates that, as of 1984, the housing deficit in Alexandria stood at 100,000 units. It acknowledged the need to decrease the housing backlog. The additional units are needed not only for new household formation and for meeting population increase but also for replacing those units that had been lost through deterioration, collapse, age, or change of use. Housing demand over the next twenty years--1985-2005--is estimated at 30,780 units annually. It has been estimated that 10 units per 1000 persons should be built per annum to meet that demand (see Table VII). The Housing Construction Authority and the Alexandria Master Plan (1984) estimated that the maximum capacity of both public and private construction sectors, in Alexandria, is around 5.7 units per 1000 persons per year (quoted in Soliman, 1985) . As indicated earlier, several reasons affect both private and public sectors decisions to invest in housing: war construction, rent control policies, financial credit facilities for housing, shortage in building materials, rising construction costs, and labor migration. As a result, in no year has the number of units constructed kept pace with additional needs (Mohie El-Din, 1982).

TABLE VII
HOUSING DEMAND IN ALEXANDRIA 1985-2005

Requirements	Total Number of Units in 1985	Annual Units to Built 1985-2005
To meet population increase 1985-2005	348,900	17,445
To replace old units	166,700	8,335
To meet current shortage	100,000	5,000
Total needed units	615,600	30,780

Source: Alexandria 2005: Comprehensive Master Plan, 1984.

An examination of the housing stock in Alexandria between 1976 and 1986 reveals the escalation of separate rooms as housing units. These sorts of dwellings have increased by more than 5.2 times in the same period, to reach 107,280 units in 1986 (CAPMAS, 1987b). This increase reflects inadequate housing supply. The deterioration of units is an even worse problem. The total number of deteriorated units increased by more than 4.6 times between 1960 and 1986. The provision of rural units in Alexandria--as an urban area--reached a peak of 5,890 dwelling units in 1966 and these figures increased until 1986 when they reached 13,628 units (CAPMAS, 1987b). The number of rural units is, thus, more than doubled in twenty years (refer to Table VIII).

TABLE VIII
ALEXANDRIA HOUSING STOCK 1976-1986
(HOUSING TYPES IN PERCENTAGE OF TOTAL)

Housing Type	1976	1986
Single family housing	1%	1
Apartments under 100 sq. m	45	35
Apartments above 100 sq. m	40	48
Separate rooms	12	14
Rural units	1	2
Marginal residential places	1	1
Total	100%	100%

Areas were estimated by total number of rooms per unit multiplied by median room size based on CAPMAS report "Housing unit Census in Cities," 1984.

Increasing provision of rural units in urban areas implies that rural migrants, who bring with them rural customs and traditions to urban areas, build their houses and provide their own shelter because, as anticipated, they do not find alternatives. These types of houses are mostly informal, and are the visible manifestations of an existing housing shortage. Moreover, marginal residential places more than doubled between 1966-1986, reaching 10,633 units in 1986 or about 1% of the housing stock in the same year.

Furthermore, during the same period, the housing stock of Alexandria underwent a major change with decrease in the number of units under 100 square meters (as an indication of economic units, that have 3 rooms per unit and under), and increasing the number of units larger than 100 square meter by 8%. This change could be a direct result of more luxury units added to the housing stock between 1976 and 1986, to be exempt from rent control, than middle and low-cost units added to the housing stock in the same period. In both figures of 1976 and 1986, about 17% of the total housing stock is substandard units according to the criteria of the Ministry of Housing (MOH, 1992).

The relatively low income of the bottom 65% to 70% of the population in Alexandria, as well as of the population in other urban centers in Egypt, effectively precludes people buying into the conventional housing market. The price of the cheapest units in the conventional market, without land, starts at 22,000 Egyptian Pounds (LE)--almost 7,000 US Dollars in 1991--which is the price of a dwelling in the public housing project in *El Hanovile*, western Alexandria (El Araby, 1992a). While income data in Alexandria is very hard to come by, Korayem (1987) estimates that close to 50% of the households in urban Egypt in 1984 earned less than LE 250 per month and that more than 67% of them fall below the poverty line, which was estimated as LE 144 per month, a total of about 24% of total households (Korayem, 1987). A UN study estimated that 21% of total urban population, as of 1985, is below absolute poverty level. More than 60% of household income within this particular group was spent on food and cereal (IBRD, 1992). Another

study about household sources of income in an informal settlement in Cairo showed that the mean income of households was LE 163 in 1987, when almost 64% of households were below poverty level (Tekce, 1991). These studies indicated that 60% to 70% of the reported expenditures went for food. The implication is that most families, especially those under the poverty level, struggle to make their ends meet and to satisfy their needs for services and goods other than food, that include housing. Therefore, a serious affordability gap between incomes and prices exists, especially for the low income people who are a majority in Egypt, and in Alexandria.

As previously mentioned, in Egypt, and in Alexandria, there are few units produced annually on the formal market. It was estimated that formal housing production does not exceed 5.75 units per 1000 inhabitants in any one year (1976-1986), with the exclusion of units produced in the new towns of Egypt. This figure is considerably below the desirable standard of 8 to 10 units per 1000 inhabitants per year. This limited housing production situation, however, is shared by most Third World countries regardless of size (UN, 1984). The scarcity of units built by the public sector and tendency of private formal developers to serve mainly the needs of the upper spectrum of the market mean that the bulk of the population is directly involved in providing its own shelter (Ishmael, 1988), by one means or another, and in satisfying its need for housing and other goods through autonomous ways of production.

Evolution of Informal Housing

As previously elaborated, the economic, political, and social factors that affect urban growth and housing in Egypt in general, and in Alexandria in particular, have influenced the evolution of the informal housing sector. The overall effects of these factors was the increased demand for housing and other services in the city. To meet that demand, people found access for housing, land, and other services through the informal sector.

The informal housing settlements are the fastest growing areas within the city. Most of them doubled in population every ten years between 1966 and 1986. These settlements also had high rates of housing additions in the same period. The built-up ratio doubled between 1976 and 1986, which means massive vertical and horizontal expansion has occurred over these areas. An examination of the population growth within major informal administrative areas (*Shiakhah*) supports this result. The population in most informal areas increased by almost 10 times between 1960 and 1986--no formal area increased at that rate. Figure 14 depicts the pattern of population growth in some selected informal areas, where one of these areas--Danna--had almost quarter million inhabitants as of 1986.

Figure 14. Population Growth in Major Informal Statistical Areas (*Shiakhah*) in Alexandria 1960-1986. Data source: CAPMAS, 1987a, 1987b, 1992.

Shortages and bottlenecks of supply through both public and formal private sectors have led to increased housing supply through the informal sector. Results of Alexandria Comprehensive Master Plan indicates that more than 90% of all new units added to the

housing stock between 1976 and 1984 were built by the private sector and that only 10% of all new units were built by the public sector (Alexandria 2005, 1984).

Out of all private sector units, only 40% were built through the formal mode, i.e., acquiring town planning permissions, obtaining formal finance and mortgages, using modern techniques of construction, and building huge residential complexes on individual or cooperative lots. The remaining 60% of the private sector units were constructed through the informal housing sector without access to formal procedures of permissions, necessary approvals, and formal finance. Nevertheless, public sector involvement in providing new housing units--10% of the total--is done through the construction of conventional public housing projects, as the sole governmental approach in the housing market. The development of informal housing activities is examined in more details in the following chapter, with empirical evidence from the study areas.

CONCLUSIONS

It is evident that these macro-structures had a significant influence upon the growth of major urban centers and the creation of two primate cities in Egypt, Cairo and Alexandria. In addition, these structures resulted in a biased system in favor of urban areas. As a result, the need for housing and other services in major urban centers increased.

In Alexandria, macroeconomic, political, and social factors affected the city's urban growth patterns and its housing situation in the following ways: population increase and concentration of economic activities, spatial growth, constraints in the land supply, creation of a housing deficit, and evolution of informal housing settlements. The results of the population increase and the spatial distribution of the population are mixed land use, limited supply of land, deficits in the city infrastructure, and rapid expansion of uncontrolled residential development. Currently, the city is expanding east and west.

Alexandria will probably continue to expand and develop. Expansion to the southeast will invade more agricultural lands, which is not desirable, and expansion to the southwest will invade desert lands. Under current conditions, Alexandria will continue its rampant growth and will face all the hazards, problems and constraints involved in that growth.

Furthermore, these macro-structures affected the performance of the housing market and resulted in a failure to provide housing, especially for low income and poor people, through both formal private or public sectors. The alternative, for a major segment of urban dwellers, was to rely on informal access to housing, land, employment and other services. Informal housing settlements are growing rapidly, and the development patterns of the settlements under study are discussed in the following chapter.

CHAPTER V

INFORMAL HOUSING SETTLEMENTS: THE STUDY AREAS

Informal housing settlements are the feasible manifestations of structural deficiencies of a macroeconomic and institutional type (Ishmael, 1988). Policies for dealing with these settlements and their residents can be successful only as part of wider macro-economic policies related to "the reformation of institutional priorities and values within the context of specifically targeted population policies" (Ishmael, 1988). Therefore, examining the process of development and the physical and social characteristics of informal housing settlements, through evidence from the study areas, can provide a basis for understanding the functions and the dynamics of the informal housing sector and a basis for implementing alternative housing policies.

THE DEVELOPMENT PROCESS OF INFORMAL SETTLEMENTS

The four settlements under study have been examined chronologically during three periods: late 1950s and early 1960s; late 1960s and early 1970s; late 1970s and 1980s. The development of informal housing settlements shows that most areas had been influenced in similar ways by macro-structures that are illustrated in the preceding chapter. Most of the settlements studied shared similar patterns of development and witnessed major structural and physical changes, though differences exist, during times of economic and political crises within the country. Throughout the following analysis, as previously indicated, the names of the study areas will be referred by number in the following order: *Ezbet Danna* (area 1), *Ezbet Abu Soliman* (area 2), *Ezbet Nadi El Sid* (area 3) and *Ezbet Allam* (area 4).

Development Pattern in 1950s and Early 1960s

All of the settlements studied exhibited low levels of housing development in the late 1940s, 1950s and early 1960s. By the early 1950s, most areas were agricultural lands located outside the urbanized area of Alexandria. All of these areas, as indicated earlier, are called ranches (*Ezebs*) and, at that time, only farmers resided on them.

Until the early 1950s, areas 1 and 2 (Danna and Abu Soliman)--two adjacent studied areas located in eastern Alexandria--were agricultural lands and only three groups of housing had been erected in the areas, mainly for farmers' use. The level of development for housing in both areas was low level, until the late 1950s and the early 1960s, and three landlords owned major parts of these lands: Youssef Danna, Abu Zid Khalifa and Ahmed Abu Soliman. By the mid and late 1950s, major parts of this land went under the control of the General Authority for Agricultural Reform (GAAR) and the State Land Agency (SLA). For instance, the lands of Youssef Danna were nationalized, after the Agricultural Land Reform Acts of 1952, 1954 and 1958, and became state land (*Amlak Amerya*)¹, that went under the control of the GAAR office in Alexandria. The family of Abu Zid Khalifa placed parts of their land under the Endowment Ministry (*Awkaf*)² control, so that they would not lose the benefits of their lands due to land reform acts.

¹ The State Land "*Amlak Amerya*" is this land that is owned or taken over from its original owners by the government. A State Land Agency (SLA) "*Maslaht Al Amlak Al Amerya*" has the control over the use and the tenure of most of these lands. However, it is a common practice in Egypt to find that other governmental agencies, e.g. General Authority for Agricultural Reform (GAAR), could claim responsibility and control over parts of these lands. In many cases, this situation created confusion and an uncertainty about the tenure status and the proper use of these lands.

² *Wakf* or *Awkaf* means endowed property not subject to normal transactions, its income being assigned by the founder (Makar, 1988). The Wakf system involves three actors: 1. the founder, who assigns property, money, etc., to be used and invested through the endowment system and who also assigns the beneficiaries of this investment; 2. the controller; the Ministry of Awkaf in the case of Egypt, who is responsible to manage, run, control, and plan the use of the endowed properties to achieve the best possible revenues; and 3. the user, who could control the actual use of these properties, e.g., a renter of an endowed property, or who could be a beneficiary user, e.g., a student in an endowed school. The endowed properties usually made in perpetuity, which supports a specific endowments institution, mostly religious, devoted to good work (Makar, 1988).

Some parts of Abu Soliman's family lands were free hold, others rented, and the rest were unrecognized (due to lack of registration documentation).

Under these types of control, people found access to these lands by (1) applying for a specification (*Takhsis*) for those who wished to rent a parcel of land or those who were already renting or occupying a piece of land from the original owner (through the GAAR office or the *Awkaf* agency); or (2) applying for variance or exchange of use for those renters of agricultural lands (through the *Awkaf* agency); and/or (3) applying for variance of ownership (*Melkiah and/or Istibdal*)³ for those who wish to own a piece of land within these areas or the like (through the GAAR office or the *Awkaf* agency respectively).

Please refer to Figure 15.

The process of having a variance, an exchange, or a specification for a parcel of land was a very lengthy and confused bureaucratic procedure that created a status of uncertainty about the tenure and about the “allowed” use of these lands. The process of changing land tenure and access to these lands, along with another parallel procedure of subdividing the lands of Abu Soliman Family and the rest of Abu Zid Khalifa land--which was subdivided and sold by Dr. Kamel Khalifa, helped to accelerate development of housing and other activities within these two settlements. Furthermore, the construction of a major road (later called Abu Soliman street) to the east side of these areas--over a dried up water flue-- contributed to increasing accessibility to these lands. Most importantly, the government itself helped in initiating and accelerating this development process by erecting a major public housing project over the agricultural land of area 1 (Danna) and by constructing and expanding major industrial activities and factories in an adjacent area--just across Abu Soliman street. All of these factors helped to accelerate the level of housing and other economic activities in both settlements.

³ *Istibdal* is the process of exchange of the ownership title for some endowment properties, which could be done through the responsible Endowment agency.

1958

1969

Figure 15. Danna and Abu Soliman Development Pattern 1958 to 1969. The upper map is of 1958 when most of the land was agricultural; the lower map is of 1969 and shows the increased level of housing development that had invaded most of the agricultural land.

Area 3 (Nadi El Sid) is in central Alexandria. By the 1950s, the area was mainly agricultural state land *Amlak Amerya*, that was reserved as a safety zone for the runways of Alexandria Airport--2 km to the east of the area (1 Km equals approximately 0.625 miles). The land of this area was state owned land which controlled by the Alexandria Governorate Planning Agency. Therefore, a fragmented responsibility of the control and the ownership of the land occurred. This situation created confusion about who owned or controlled the use of these land, at least for early settlers in this area. The major starting point for developing this area came in the early 1960s, when the government erected a Technical School on the northwestern edge of the area, specified the land for locating the Egyptian Hunting Club *Nadi El Sid El Misry*, and constructed a major public housing project--Nasser Public Housing Project--in the area. This public housing project contained 10 blocks of one-story row houses to be owned by residents over a 15 year period and to accommodate 330 families (see Figure 16). These units were connected to public water, electricity and sanitary systems. This area was connected to the major Alexandria-Cairo Agricultural road⁴ with a road (later named "Abd El Menam Riyadh street," please refer to the area map), and a series of small factories and small workshops sprawl in the area.

In contrast to these three settlements, area 4 (Allam), that is located in the western part of Alexandria, exhibited another type of development because it was developed over desert land. Until the late 1950s, no major feature of development could be found in the area except for a few scattered houses of El Dariasa family.⁵ Most of the land was used to produce fruits where a lot of fig trees were planted in the area.

⁴ Alexandria and Cairo are connected by two major highways: the agricultural road, which runs along the west side of the Nile delta, and the desert road, which runs through the Western Desert.

⁵ Members of this family are relatives of Sons of Ali's tribe "*Awlad Ali*," which is a tribe with Libyan origins. The founders of this tribe put their hands on vital parts of Egypt's western desert, and according to the 1936 land law (which gave any person who holds public land for more than 15 years the right to own it; Chapter VIII provides more details about land policies in Egypt), they claim to own these desert lands, major parts of them located in the western part of Alexandria.

Figure 16. Location of Major Public Housing Projects, Nearby Industrial Expansions, and Major Streets in the Study Areas. Upper: Danna and Abu Soliman; middle: Nadi El Sid; lower: Allam.

There was a main "stone" paved road for Allam quarry, that was owned by Allam family who had a license from the Egyptian Quarry Agency to extract lime stones from the hillside. The bulk of the land was acquired by these two families and until the late 1960s and early 1970s levels of housing development were low.

Development Pattern in Late 1960s and Early 1970s

During this period, housing development varied within and among the four areas under study. Areas 1, 2 and 3 witnessed substantial increase in housing construction activities, and significant numbers of "new" residents began to reside on these three areas. By that time, much of the agricultural lands in these areas were converted to many other uses, e.g., houses, storage areas.

Demand for housing, in general, and in these areas in particular, increased due to:

1. The defeat of the army in the 1967 war and the reallocation of residents of the Canal zone cities to inner cities (Cairo and Alexandria absorbed most of this internal movement)
2. A radical shortage of housing occurred in this period due to the socialization laws of the early 1960s that limited the role of the formal private sector in providing housing
3. The anticipated "available" low cost units within most of these areas. Evidence from Chapter VII suggests that major housing expansions and additions occurred by that time to meet this anticipated increase in demand

With the growing number and pressure of residents of areas 1 and 2 (Danna and Abu Soliman), the Governor of Alexandria (*Hamdi Ashour*) agreed to serve the two areas with both public water and electric systems. Other social services also provided in both areas included a primary school and a center of technical training for textile crafts.

Area 4 (Ezbet Allam), in contrast to these settlements, did not witness any major changes in its development or housing activities. This may have occurred because

Alexandria itself by that time did not expand in a vigorous manner to the west. The west side of Alexandria was perceived as remote and inaccessible in terms of transportation and services.

Development Pattern in Late 1970s and 1980s

A major trend of development and transformation within most informal settlements occurred in the mid and late 1970s for these reasons:

1. the Open Door policy of President Sadat, that increased the expectations of economic stability and the opportunities of "secure" private investment in Egypt
2. the in-and-out migration movements, mainly to Arab countries, and the feeling of freedom to reside, invest and move back and forth to the country.

Consequently, migration related remittances increased--remittances considered major revenue source--and major share of it was invested in housing

3. the return of most military conscripts to civilian life after the 1973 war, most of them established new households and searched for housing
4. the increase of land values within major cities, Alexandria included, and the inevitable speculation among land developers and land subdividers.

For instance, a boom of housing activities occurred in mid 1970s and early 1980s in areas 1 and 2 that radically changed the physical characteristics of both areas, see Figure 17. By then, all of the lands in these areas were exhausted, precipitating a vertical expansion.

Some of the old buildings were demolished to build 4 or 5-story concrete building. Most buildings had vertical additions that increased residential densities, commercial activities, and pressure for infrastructure, transportation and social facilities in both areas.

In the late 1970s, a massive invasion to Nadi El Sid's land occurred (area 3). Lands were invaded and subdivided according to the old agricultural subdivision, and the area witnessed the development of houses, workshops, storage areas and shops. Some original settlers--who did not own the land but held land parcels--sold the right to use these

Figure 17. Danna and Abu Soliman Current Development Pattern. Upper map of 1978 depicts the exhaustion of horizontal expansion over the agricultural land; lower picture shows the vertical expansion as in 1991.

parcels to other people. By the end of 1970s and early 1980s, most of the area was developed, and by some political pressure and some communications with people in charge, a public primary school was constructed, and water and electricity systems were connected to the area.

Furthermore, the declaration of the state Land Protection Policy in 1982 (Alexandria Governorate: Decree No. 324 of 1982 concerning adjustment of the regulations for public landholders in order to legalize illegal settlements) significantly affected the development pattern of areas 3 and 4. The Decree stated that if any public land holder erected any type of building over his land before 1982, a title for the building and a permission for connecting this building with water and electric municipal services would be given. As a result, the level of housing development increased even more vigorously. In addition, the practice of subdividing acquired land, reselling it to others, and constructing structures on it reached a peak. Figure 18 provides evidence from area 4 (Allam) of extraordinary housing and land development boom in the very short period between 1982 and 1986. This area expanded both horizontally and vertically and in 1991 (the date of the household survey) it contained an estimated 2698 dwelling units and provided accommodation for 10,804 persons. It seems that this area will continue its potential for further development and expansion, based on current conditions in Alexandria, where the west side of the city becomes the only opportunity for those seeking housing and lands.

PHYSICAL CHARACTERISTICS OF INFORMAL SETTLEMENTS

Spatial and Residential Characteristics

Spatial and residential characteristics within the study areas were examined with regard to gross area, total estimated population, residential densities and residential units. Areas 1 and 2 (Danna and Abu Soliman) accommodated an estimated 18,000 households with an estimated total population of more than 97,000 persons in 1991. Combined, they

Figure 18. The Development Pattern of Ezbet Allam between 1982-1986. Upper map of 1982 illustrates the low level of development and the lower map of 1986 depicts the expansion of housing development over the area.

occupied a continuous area toward the east side of Alexandria of approximately 816,250 square meters (20,161 acre--1 square meter = 0.0247 acre). The estimated residential density for both settlements approached 119,090 persons per square kilometer (45,969 persons per square mile--1 square kilometer = 0.386 square mile). This estimated density is above the average residential density for the census administrative district (*Qism El Ramel*) in which these two areas are located. In 1986, the average district density estimated at 64,038 persons per square kilometer (CAPMAS, 1987b). This difference can be attributed to the fact that the district has many formal "high-income--modest density" areas.

The spatial development of the two areas is exemplary of fragmented subdivision of agricultural land, where all current streets and roads are created, in fact, over old water flues of the agricultural land. The commercialization of housing units is evident in both areas, where renters in Danna represent 58% of respondents (80 out of 139) and represent 54% of all respondents in Abu Soliman (35 out of 65). The separate room per family represents 14% of all units within the two areas and more than 85% of all other housing units are under 100 square meter--under 1,076 square feet. These two settlements are the most established settlements studied.

Area 3, Nadi El Sid, located in the central part of Alexandria, provides accommodation for an estimated population of 18,273 persons living in 3,583 households as of 1991. It occupies an area of almost 225,000 square meters (5,557 square acre) with a residential density estimated at 81,213 persons per square kilometer (31,348 persons per square mile). This density figure is below the district census figure in 1986--where the average density in that district (*Moharem Bey*) is estimated at 89,989 person per square kilometer (CAPMAS, 1987b)--34,740 persons per square mile. It is important to mention that "*Moharem Bey*" district is one of the most dense districts in Alexandria that contains informal housing areas, slum areas and formal middle class areas. Thus, it can be argued

that informal areas have similar residential densities to those formal middle class areas. The percentage of renters in Nadi El Sid constitutes 47% of all respondents (18 out of 39), the separate room per family represents only 10% of all housing units, and the units under 100 square meter constitute 91% of all sample units, see Figure 19.

Area 4 (Ezbet Allam), is the newest of the settlements studied. This area provides accommodation for an estimated 10,804 persons in 1991. It covers an area of approximately 462,000 square meters (11,411 square acre), refer to Figure 20. In 1991, it had a residential density estimated at 32,739 persons per square kilometer (12,637 persons per square mile). There is a significance difference between the estimated residential density in this area and the average census district density, the average density for the "*El Ameria*" district was 47 persons per square kilometer in 1986 (CAPMAS, 1987b). This significant difference is the direct result of a massive occupation of residential units and lands in some administrative areas of the district in a very short period of time. In addition, this district occupied a large area, most of that is still vacant. Furthermore, the "*El Ameria*" district contains many northern resort and beach areas with low population density. The difference between census and estimated residential densities supported the hypothesis that informal areas, in general, are growing fast. This area is characterized by the following: (1) high percentage of renters (59% of sample), (2) a decrease in the one room per family ratio to reach 5% of all housing units, and (3) high percentage of units over 100 square meter, that is estimated to equal 25% of all housing units within this area.

Services Level

A study of the level of services within the study areas examined parameters of water, electricity, and sewer. The results, illustrated throughout the following analysis, are extracted from the household survey of this study, executed in 1991.

Figure 19. Ezbet Nadi El Sid Urban Pattern. Upper map of 1986 shows that all of the agricultural land was transformed to urban uses, and lower photo illustrates the housing development pattern in the area in 1991.

Figure 20. Ezbet Allam Urban Pattern. Upper map of 1986, and lower photo shows the level of housing development in the area in 1991.

Water. Three types of water connections to the dwellings were found within the study areas:

1. public "municipal" water connections
2. private indoor "illegal" connections
3. private "legal" connections through underground water tanks

Those who do not have a water connection to their dwellings usually got water from public stand pipes or other sources. Ninety-one percent of all respondents had a direct water connection, public or private, to their buildings and/or units, 6% of the sample got water from a public stand pipe in the street (mainly in area 1 and 4 --Danna and Allam), and 3% got their water from other sources (carrying it from water trucks, neighbors or water wells). Access to water was not considered to be a major problem in the settlement studied. Most households found many ways to have a direct water connection to their dwellings. However, only 40% of all households had a public water connection to their dwellings, which is much lower than the median city ratio--estimated at 94.5% as of 1986 (CAPMAS, 1987b).

One of the major features of this situation is that almost half of all households within the sample have some sort of illegal connection or private indoor water connection to their dwellings, i.e., illegal connection from a public water pipe or private connection from a neighbor or a friend. The implication is that despite the improvements in the water provision system in the city as a whole, informal areas still lack a sufficient water connection system. One can then ask, whether this could be the result of informality and illegality of the units and buildings. The answer, however, is no because most water supply projects in the city were funded through foreign aid and loans. Therefore, the only aim for the Water Supply Authority, not only in this particular area but also in other areas within the city, is to increase revenues and reach the point of cost-recovery effectiveness--if it could do so, for its projects. The legality issue of both the construction of the building or

the land acquisition do not seem to be a major obstacle for connecting a building, and consequently a dwelling unit, with water system. Nevertheless, it seems that other rationales or political desires are the most influential factors that affect the decision to connect informal areas with public water systems.

Another water supply system to dwelling units was the underground tanks, found mainly in area 4 (Allam), at least until 1987. In this area, the only source for pure water was through water trucks and carriers that brought the water to houses which then was stored in underground water tanks. Water for domestic use was extracted from underground water wells. In fact, after 1987 a major project for supplying public water system to *El Agamy* sub-administrative district, where area 4 is located, was implemented. However, some parts of the area still lack public water service.

Next to access, the biggest problem in the four settlements studied was extremely low water pressure and frequent stoppages in supply (mainly in Ezbet Allam).

Electricity. Most respondents had a connection "legally or illegally" for electricity, however, in this study it was not easy to differentiate between legal and illegal connections because:

1. it was difficult to ask the respondents this question, directly, because people may suspect the intentions of the interview (in Egypt, there is a police department-- Electricity Police Department--responsible for periodical inspection of the legality of public electricity connections)
2. many people who don't have a legal connection, in most cases, take a connection from a neighbor, nearby shop and/or a friend and reimburse them for the usage

In any event, 93% of all respondents had electricity in their units and the rest, 7% (18 families), were too poor to afford the cost.

Sewer. In the four settlements studied, four major ways of connecting dwelling units to sewers were as follows:

1. public "municipal" sewer connection
2. private connection to open sewer channels in the streets
3. connection to private septic tanks
4. pit latrine

Forty eight percent of all the sample (119 housing units) were already connected or will be connected to a public sewer system.⁶ However, a large number of housing units (36% of the sample, 99 housing units) had a sewer connection from their dwellings to uncovered channel on the street (Please refer to Figure 22). Waste was intended to run and be collected in a septic tank--mostly to serve a group of houses. However, these channels and tanks continually flowed over onto the streets. A further 12% of all housing units had private sewer connections to a septic tank, mostly the residents of area 4 (Allam). It was a remarkable advantage for the residents of this desert area to have a sewer connection so efficient and suitable to the nature of the desert soil that it avoided environmental problems prevalent in the other three areas. Finally, 8%, or 22 families, had no sanitary system (no toilets in their rooms/units) except a pit latrine.

More than half of the sample, then, did not have a connection to a public sanitary system. The implication for health and environmental hazards is significant. The perceptible lack of sanitary system seriously affects the quality of life within informal settlements and creates serious health problems to inhabitants. These health and environmental problems became even worse where garbage accumulated, frequently, on many streets of the areas under study. Thrown on the streets and left to be burned, it was eventually collected by men with donkey's carts, or collected by governmental garbage

⁶ By the time of the survey, two major sewer projects were under construction in areas 1 and 2 and area 3. The first project in areas 1 and 2 scheduled for completion in mid 1993, so that some units were considered to be potential for public sewer connection and this was the reason why some households reported that they will be connected to a public sewer connection.

Figure 21. Means of Indirect Piped Water Connections. Example from Danna in 1991.

Figure 22. Uncovered Sewers on the Streets. In Ezbet Danna, left, and Ezbet Nadi El Sid, right.

trucks (when garbage was accumulated in some spots, residents collected money for the driver to pick up this garbage).

HOUSEHOLDS' SOCIOECONOMIC AND DEMOGRAPHIC CHARACTERISTICS

On the basis of this examination of the physical characteristics of the four settlements, this section analyzes the socioeconomic and demographic characteristics within these informal settlements. The analysis of the social and economic characteristics of the inhabitants of informal settlements is instructive in assessing both the problems and the achievements that are associated with living within constraints of informal, sometimes "marginal," housing. This assessment is essential to guide any attempt to implement policy options or new ways of intervention with regard to those inhabitants, who constitute the human side of the informal sector and who often have been neglected in the formulation of housing policies. Table IX provides a brief description of the households and housing characteristics.

Socioeconomic and demographic characteristics have been analyzed in this section with regard to income and expenditure, employment, and demographic characteristics, age and gender composition, educational status, and household size.

Income

Respondents in this study were asked to identify their sources of income, to state their monthly income, and to recapitulate the ways in that this income is spent. In the design of the questionnaire, the income question appears twice. It first appears when respondents are asked about their employment status. A backup question occurs at the end of the interview, after respondents have identified their expenditures. In fact, this backup procedure helps identify any differences in the reported income, reduce the number of missing values, and calculate the permanent monthly income of the households as precisely as possible. The permanent monthly income values are used in their actual interval values

TABLE IX
AVERAGE HOUSEHOLDS AND HOUSING CHARACTERISTICS

	Owners	Renters	All
HOUSEHOLD CHARACTERISTICS			
Permanent monthly income (LE)	448.5	224.1	344.3
Household size (number of persons per household)	5.9	5.0	5.1
Number of adults	3.7	2.9	
Number of children	2.5	2.0	
Age of household head (years)	46.4	43.1	
Schooling of household head (years)	6.2	7.3	
Monthly rent (renters), Estimated rent (owners)	79.5	33.3	
HOUSING CHARACTERISTICS			
Percentage of total housing units in apartment buildings (%)	90.4	98.6	
Number of rooms per household (# rooms)	2.3	1.6	1.8
Persons per room ratio (person/room)	2.0	2.4	
Years in current residence (years)	13.5	19.8	15.3
Percentage of housing units with interior plastered walls (%)	98.3	86.0	91.7
Percentage of housing units with exterior plastered walls (%)	66.4	46.2	55.1
Percentage of housing units with reinforced concrete roofs (%)	97.8	92.0	94.1
Percentage of housing units with public "Municipal" water connection (%)	43.4	38.0	40.4
Percentage of housing units with indoor piped water (%)	97.8	85.0	91.0
Percentage of housing units with connection to electricity (%)	99.0	87.3	93.0
Percentage of housing units with connection to public sewer System (%)	48.0	45.9	48.0
Percentage of housing units with major appliances; stove, refrigerator and washer (%)	82.0	42.0	54.0
Percentage of housing units with telephones (%)	40.0	26.0	32.0
Total number of sample (N)	122	150	272

Values presented are Mean Values.

LE 1 Egyptian Pounds = \$ 0.30 US Dollars as of 1991.

when the models of housing demand were manipulated. (These models are presented in the following chapter.) The permanent income is the gross income earned by all members of a household on a regular monthly basis.

The ranges of income categories, as illustrated in Table X, that classifies all households into low, medium and high income groups are derived from other studies about household income in urban Egypt (see, Korayem, 1987; Tekce, 1990). However, the presented ranges of income categories, in this study, have been adjusted to differences of values between the time of this survey and times of reported values as documented in these studies, that is, the adjusted difference for inflation ratios on a yearly basis (inflation of consumer price index ratios has been calculated according to the estimation of an IBRD study in 1992).

Income is earned by families from salaried employment, self employment profits, and other sources, that ranged from low to very high income categories. As seen in Table X, approximately 51% of respondents earn less than LE 4000 per year, 25% earn between LE 4000 and 6000, and 24% earn over LE 6000 annually (In 1991, the average value of 1 US Dollar equaled LE 3.3 Egyptian Pounds). The income profile for all respondents is remarkably close to other income distributions "after adjustment to inflation" generally accepted for the city, as an urban center in Egypt, with 55% of the population earning under LE 4000 per year--poor/low income, 25% earning LE 4000-6000 per year--middle income, and 20% earning more than LE 6000 annually --upper income (Korayem, 1987). In 1984, Korayem estimated that people who live under poverty level are those who have a monthly income of LE 150 and found that almost 51% of his sample were under this line (Korayem, 1987). In another study, Tekce (1990) computed the poverty line as being equal to LE 183 per month for a household (as of 1987 in an informal settlement in Cairo). These figures have been adjusted to inflation increase, and, in the context of this study, a comparable poverty level was computed, using the criteria of the World Bank (IBRD,

1992), and estimated at almost LE 255.33 per month, as of 1991. According to that, almost 37% of total households are living under this absolute poverty level.

TABLE X
HOUSEHOLDS' PERMANENT MONTHLY INCOME
(IN PERCENTAGE OF TOTAL SAMPLE)

Income Range		Percent
Low	LE < 40	8
	41 - 85	10
	86 - 165	10
	166 - 250*	9
	251 - 330	14
	Subtotal	51%
Medium	331 - 420	13
	421 - 500	12
	Subtotal	25%
High	501 - 580	7
	581 - 670	3
	over 671	14
	Subtotal	24%
	Total	100%

\$ 1 US Dollar = LE 3.3 Egyptian Pounds, as of 1991.

* The estimated poverty line in this study.

Table XI itemizes the monthly income of the respondents by settlement. While the figures for all settlements are fairly similar, a larger percentage of those of low income live in the oldest established settlements (58% and 52% in areas 1 and 2--Danna and Abu Soliman--respectively) rather than in the newly established settlements (48% in area 3--Nadi El Sid, and 50% in area 4--Allam). The size of the middle income group was significantly larger in the newly established areas--areas 3 and 4--than in other old established areas (38% and 25% in areas 3 and 4, versus 15% and 16% in areas 1 and 2, respectively). While the size of the upper income groups was high in the oldest two settlements (30% and 32% in areas 1 and 2, respectively), it was low in the two other settlements (13% and 25% in areas 3 and 4, respectively).

TABLE XI
HOUSEHOLDS PERMANENT MONTHLY INCOME BY SETTLEMENT
(IN PERCENTAGE OF EACH SETTLEMENT)

Income Range	Danna N = 138	Abu Soliman N = 65	Nadi El Sid N = 39	Allam N = 30
Low				
LE < 40	10	5	10	
41 - 85	14	11	10	20
86 - 165	5	7	7	5
166 - 250*	5	11	7	
251 - 330	24	18	14	25
Subgroup	58%	52%	48%	50%
Medium				
331 - 420	10	9	21	13
421 - 500	5	7	17	12
Subgroup	15%	16%	38%	25%
High				
501 - 580	10	12		25
581 - 670	15	18	3	
over 671	5	2	10	
Subgroup	30%	32%	13%	25%
Total	100%	100%	100%	100%

\$ 1 US Dollar = LE 3. 3 Egyptian Pounds, as of 1991.

* The estimated poverty line in this study.

The oldest settlements of Danna and Abu Soliman (areas 1 and 2) showed the most skewed distribution of income between low and high income groups. This result means that older informal settlements that normally have long term residents accommodate both low and high income groups. High income households were those who mostly made their ways through the settlements themselves--operating businesses, selling lands or units, etc. within the settlements. Poor and low income households were those whose inhabitants resided on the area for a period of time, mostly in single rooms and cheap, low quality or deteriorated units. By contrast, newly established informal settlements contain large proportions of upper-low and middle income groups. The implication is that informal housing have come to be a viable alternative not only to the poor and low income groups, but for middle and high income groups as well. It is clear, however, that a wide range and diversity of income groups are found in all of the settlements studied, a fact that is evident in the heterogeneity of housing units depicted within the settlements themselves.

Fifty-two percent of all households had more than one working adult. Of those, 74% had two workers; 13%, three workers; 6%, four workers; and 7% had more than four. Twenty-three percent of the households have family members residing in the gulf area or overseas, mainly Saudi Arabia, Oman, Jordan and Kuwait. Only 19% receive any form of remittances from abroad, less than 20% of these (or only 3.7% of the entire sample) receive remittances on a regular basis.

Questions on expenditures were asked of all respondents to identify, in order of importance, the way in which money was spent. Eighty three percent of all respondents reported food expenditure as the major cost item. Money to cover debts or saving clubs' payments (*Gamiyya*)⁷ was listed second in importance and was cited 29% of the time. Third in importance was expenditure on education--especially for households who had family members in schools, universities, etc. For the overall sample, no exact expenditure values were calculated because of missing reported values, a problem that became evident during data processing. Some of the respondents were afraid to report their expenditure values, especially for food items (social beliefs influenced this situation). Still other respondents reported some values and failed to report others. The rest were not able to recall and answered "do not remember". However, because of time limits and restrictions for executing the survey, surveyors were instructed not to press for exact expenditure values when a respondent hesitated.

Employment

By the time of the survey in 1991, a total of 210 household heads, or 77% of all the sample, were engaged in some type of employment. The rest (23% of household heads, 62 household heads) reported unemployment, of whom a high percentage were males with

⁷ Saving clubs (*Gamiyya*) are informal savings institutions. Recruitment is based on friendship (Wikan, 1980). Members pay a regular contribution (per day, week or month). Each time they pay, a premium is paid to one member on a payment priority circle among all members (Wikan, 1980, p.36).

some sort of capability or training (27 household heads represent 44% of the unemployed households) that could allow them to hold any type of work. In any event, the remaining 56% of unemployed household heads (35) were single women, disabled, ill, or elderly household heads. In response to the question posed to those who reported to be currently unemployed: "How do you get the money to buy the things that you have to have?" 29% reported income from their spouse, 14% from odd jobs, 16% from children, and 10% from government welfare or pension programs. The remaining 31% reported "others" that could involve some self employment activities "sewing", charities and alms, or indefinite sources.

The analysis of employment revealed that all household heads are working within three prominent groupings of employment:

1. self-employment activities that accounted for 40% of all workers
2. salaried employment activities with 37% of all workers
3. combination of both types of activities that represented 23% of all workers

Forty percent of all workers obtained income exclusively from self-employment activities. Sixteen percent work in shops, offices, building materials supplies and/or workshops that they own and operate. A total of 18% of the self-employed were involved in other types of vending operations either on the street, at the market, or at home, selling an assortment of goods including fruits and vegetables, cakes, sweets, soft drinks, cigarettes, shoes, clothing, etc. A further 8% were involved in some other types of self-employment activities such as maids, vehicle body workers, or workers at their homes. This result supports the hypotheses that persons in informal self-employment activities could accept and participate in any type of petty domestic work in order to supplement their family incomes. A seventeen percent of households are engaged in some type of construction work, that could imply that opportunities for work within the construction sector may have affected their decision to locate and reside in these areas. Eleven percent in this group

operated vehicles that they own, or work for an owner, that were used as taxis, collective taxis "microbuses," or trucks. Table XII presents a detailed itemization of all the self-employment economic activities.

TABLE XII
SELF EMPLOYED ACTIVITIES

Type of Employment	Percent
Street vendors	18
Truck / Taxi / Bus Driver	11
Construction Worker / "builder"	17
Carpenter / Craftsman / Plumber / etc.	21
Technician / Mechanic. / Shop or Workshop Operator	9
Owners of Business / Contractors / Suppliers. / etc.	16
Others (home vendors, farmers or temporarily employment)	8
Total Percent	100

N = 84 (40% of 210 Working Household Heads)

Thirty seven percent (78) of those employed household heads were engaged in wage earning activities. Table XIII presents a tabulation of the various types of wage earning activities.

TABLE XIII
WAGE EARNING ACTIVITIES

Type of Work	Percent
Laborers/ Public Sector	12
Laborers/ Private Sector	54
Technicians / Public Sector	6
Technicians / Private Sector	9
Professionals, employees or administrators / Public Sector	7
Professionals, employees or administrators / Private Sector	4
Others (part time or temporarily jobs)	8
Total Percent	100

N = 78 (37% of 210 Working Household Heads)

The largest share were laborers in the private sector, 54% of total salaried employees. It is noteworthy that the total number of workers, technicians, and professionals who work in the private sector is way above the total number of those who

work in the public/governmental sector--67% versus 25% respectively. One may speculate that the private sector may provide more job opportunities, and/or higher incomes than the public sector. The public sector provided jobs mostly for educated persons, while the private sector offered, though more flexible, and provided jobs for a variety of unskilled, low skilled and/or skilled workers.

Workers who had salaried jobs have the advantage of a regular source of income. However, 23% of all workers earned income from a combination of self-employment and salaried employment activities, Table XIV.

TABLE XIV
SALARIED AND SELF-EMPLOYED ACTIVITIES

Salaried Activity (Main Job)	Self Employment Activity	Percent
Public Sector Employee / Technician / etc.	Driver	25
Public Sector Employee / Technician / etc.	Artisan / Carpenter / Business Owner	22
Worker / Laborer	Builder / Artisan / Mechanic / etc.	25
Worker / Laborer	Watchman / Guard / Worker	24
Other	Other	4
Total Percent		100

N = 48 (23% of 210 Working Household Heads)

One employment fact in Alexandria, and in Egypt, is that the official "governmental" working hours are from 8 AM to 2 PM. Therefore, a governmental worker, or other employee, has time to hold a second job. The advantage of this system is that the ranks of the "officially" unemployed are lessened, as more people are able to share whatever jobs are available, and people can supplement their incomes by having two jobs in the same day. Within this sub-group, people participated in all sorts of self-employment activities to supplement their regular incomes. Packaging their time around a particular activity, these workers could get work only part time in the classical sense (Owens, 1974). Some respondents reported that income derived from the self-employment activity surpassed that of their part time "regular" job.

Informal settlements inhabitants, through their production and consumption of goods and services, were vitally linked into the wider economy. Some supplied a job, a loan, building materials, a piece of land; those small builders who are participating in both sectors; carpenters, artisans and others produced commodities for formal market consumption; governmental employees started small enterprise in informal settlements or held some type of informal (part time) jobs; all maintained vital and fluid links between the two sectors. Therefore, it could be argued that both sectors, i.e., informal and formal, were intricately intervened. Nevertheless, this issue is beyond the focus of this study and further research is needed.

Age and Gender Composition

Most respondents in this study were joint heads of households (i.e., wife and husband--68%) or single heads (widow, divorced and female headed households--28%), ranging from 20-80 years in age. Fifty-four percent of all household heads were in the 20-40 age group, 34% in the 40-60 age group and 12% in the over 60 years group. Overall, 88% households heads were between 20-60 years of age.

Of the total population of 1,390 persons in the sample, 30% (417) were under age of 20 years old, 38% were between 20-40 years old (528), 26% were between age 40-60 years (316), and 6% were over 60 years old (84). These results are consistent with 1986 census figures where 68% of all persons in Alexandria were between 12-65 years old, 27% were under 12 years old and 5% were over 65 years old. Fifty-three percent of the respondents were males and 46% were females, 28% (76) were single heads of households, where female household heads accounted for 10% of the total sample (26) or 34% of the total single household heads.

Educational Status

Fifty-two percent of the sample population (723 out of 1,390 persons) had gone to school, 13% knew how to read and write, and 35% were illiterate. For those who had gone to school, 32% finished (or were enrolled) primary, 16% finished (or were enrolled) preparatory, 18% finished (or were enrolled) secondary or technically education, 6% were currently in university or higher-education institution, and 4% have a university or upper degree. The remaining, 24%, had left school.

However, the educational level of the household head is the most important variable, because it has been used in the analysis of housing demand models, as represented in the following chapter. Household heads were asked to identify their educational status and years in school. Nevertheless, heads who knew only how to read and write were assigned a value of 2 years of schooling. Those who had finished primary were assigned 6 years of schooling; preparatory, 9 years; and secondary, 12 years. Beyond that, an exact number of years in schooling was recognized. Identically, heads who left school at any stage were asked indirectly to give an exact number of years in school. The sample distribution illustrated that 30% of heads were illiterate, 21% could read and write, 25% had gone to primary school, 14% had secondary certificates, and 10% had a university or upper degree.

Household Size

The sample distribution illustrated that the most frequent household size was the 5-6 person category that represented 41% of all households. Twenty-nine percent were 3-4 person households, 12% were 1-2 person household and 18% were over 6-person households. An elderly person, single man, or single woman made up the single person households. Twenty-eight percent of all households were headed by one adult, and 5% of all respondents lived in single person households. It could be concluded that 23% of all respondents lived in single-adult households (i.e., single parent with children). Forty-three

percent of all households contained two adults, 21% contained 3 adults, and 36% were made of households contain more than 3 adults.

With a total survey population of approximately 1,390 persons, the average household size was 5.2 persons. However, this figure is higher than the official census figure of 1986, which reported that the average household size in Alexandria is 4.5 person/household (CAPMAS, 1987b). The distribution of persons per room was 1.8 out of 771 rooms, with 65% of all rooms (501 rooms) being used for sleeping. This figure is consistent with census figures for the administrative areas (*Shiakhah*) under study, however, it is higher than average figure for Alexandria as it was estimated at 1.5 person/room in 1986 (CAPMAS, 1987b).

All of the socioeconomic and demographic variables analyzed and illustrated throughout this chapter--for income and expenditure; employment; and demographic characteristics, including age and gender composition, educational status, and household size--were used to examine the informal housing demand, the topic of the next chapter.

CONCLUSIONS

The analysis and the results presented in this chapter confirm the second research hypothesis about the development and the characteristics of informal housing settlements. It is evident that most informal housing settlements had grown rapidly. For example, in a time span of 10 years an undeveloped area could be transformed into a well established settlement. Furthermore, most informal settlements developed rapidly in the period between 1965-1980, mainly during or after times of political and economic crises within the country. The government itself had initiated the process of informal housing development by either erecting public housing projects in these areas, or placing major industrial and economic activities in nearby areas.

Informal settlements are heterogeneous with respect to all social, economic, demographic and physical characteristics. Major parts of services, i.e., water and sewer services, are provided by the inhabitants themselves. Informal settlements have low levels of public utilities and services. The legality is not an important issue to connect informal areas with infrastructure, however, political desires seem to be the most influential factor that affect the decision of connecting an area with services or not.

Informal housing inhabitants are engaged in different types of formal and informal employment activities. The heterogeneous characteristics of income groups who reside in the informal settlements made it clear that informal housing is not synonymous with poverty or marginality. Informal housing settlements provided accommodation to high, middle and low income groups. It is evident that newer informal settlements contain high proportions of middle and upper low income groups, as an indication that informal housing is satisfying the need of various groups.

CHAPTER VI

HOUSING DEMAND AND SATISFACTION

The demand for housing in all the settlements studied reflects the actual housing needs of residents of informal settlements. This "effective" demand does not indicate the kind of housing that families ought to have, but, rather, the kind that they are actually renting, buying, or building (Strassmann, 1982). It is a function of income, wealth, household size, tenure, access to credit and subsidies, access to land, and preference for location, services and other goods (Strassmann, 1982; Buckley and Mayo, 1989; and Rakodi, 1992). Effective housing demand does not necessarily mean that occupied units or houses satisfy the needs of their residents. Therefore, residents might be satisfied and/or dissatisfied with their units or neighborhoods and, consequently, "effective" housing demand levels and housing satisfaction must be examined simultaneously. The effective need for housing varies with income, size, life cycle, education, tenure and legal status of a household. Housing satisfaction, on the other hand, depends more on the physical characteristics of units and neighborhoods.

This chapter analyzes effective housing demand and its accompanied levels of satisfaction. The chapter further presents empirical results of the research models. Data from the household survey is analyzed for owners and tenants, taking into account both group's distinct characteristics (Strassmann, 1982). Logit analysis suggests the probability of being an owner or a tenant. Factors affecting residential mobility and demand for location are examined by cross-tabulation and simple statistics. Determinants of housing expenditure and consumption are expressed in two regression models. Regression and

cross-tabulation show how physical characteristics of units and neighborhoods affect housing satisfaction and the resident's willingness to pay for improvements.

EFFECTIVE HOUSING DEMAND

The analysis of housing demand parameters and models, as illustrated in Chapter III, relies on household socioeconomic and demographic characteristics as well as housing characteristics. A description of the household and housing characteristics, illustrated in the preceding chapter, where Table IX, Chapter V provides a detailed description of variables such as income, employment, education, age, and household size. A further description of other variables such as tenure and mobility is presented in this chapter.

Tenant-Occupied Housing

As indicated earlier, the majority (55% of sample or 150 households) were renters who rent either a "single" room or a dwelling unit. Thirteen percent of all households (35 families) live in a single room as a residence place. Rents in most cases are stable and are fixed to the "agreed" rental values. Rent control seems to have an impact upon rental units, even in informal settlements. First, renters always pay some kind of side payments, i.e., key money, advanced rent, or direct payment toward rent, in order to have access to rental units. This procedure becomes the sole way to rent a unit. This phenomenon occurs in similar ways within the formal housing market (Hardman, 1988). Second, rents are fixed to the "agreed" value that is set at the lease time. No evidence was found that landlords raised rents in a regular or a periodical manner.

Though raising rents is not a common practice within the settlements studied, vulnerable and poor families expressed a fear about unexpected rent increases. Nevertheless, if a landlord wants to evict a resident from a rental unit or a room, he can propose a rent increase or claim that he does not receive rent on a regular monthly basis. In the latter case, renters can file a police report and pay rent in the court house. In the former

case, renters can negotiate the increase with the landlord or find social networks--relatives or friends--to resolve the dispute with the owner. In fact, in such cases, these are the two alternative for many families. Moving is not an option. Similar practices are evident in the formal rental market, except the owners of rental units in the formal sector cannot increase rents.

In fact, the ability to increase rents is the most significant difference between formal and informal housing. Another difference is that renters of informal units cannot file complaints about their rents to the Rent Determination Committee (RDC) within their municipalities. However, in some cases, renters find "illegal" ways to have a "legal" rent determination from their RDC, through personal relationships, corruption, etc. The result of having a fixed rent, in most cases, is that 45% of all renters have been in their units for more than fifteen years, compared with 27.1% for owners who had been in their premises for the same period. Respondents were asked to identify their current monthly rental payment and their first monthly payments when they moved in. As indicated, no major difference was found. Table XV provides a distribution of rental payments across rent and income categories.

TABLE XV
MONTHLY RENTAL PAYMENTS

Income Categories	Rent Category						Total
	0-5	6-10	11-20	21-40	41-80	81+	
0-85	6	18	22	1	0	0	47
86-165	2	3	12	1	0	0	18
166-330	0	5	10	12	11	0	38
331-660	0	3	8	14	6	6	37
661+	0	1	3	1	2	3	10
Total	8	30	55	29	19	9	150

Mean Rent = 33.26 LE

In fact, current payments towards rent are the reported values in this study and are presented in the preceding table. Rental payments ranged between 3.80 to 85.00 Egyptian Pounds (LE) with a mean value of 32.26 LE per month. Tenants in lower income categories pay higher shares of their incomes in rent than tenants in the middle and upper income categories as shown in Table XVI. Figures showing rent/income ratios are consistent with "acceptable" proportions of income spent on housing; renters pay from 25 to 30% percent of their incomes for housing. However, lower income households live mostly in separate rooms or acquire small and low-quality units with or without minimal basic services. Therefore, the reported relationship between rents and income must be viewed with caution.

TABLE XVI
SHARE OF MONTHLY RENT IN INCOME

Monthly Income	Rent in Percentage of Income
0-85	30.0%
86-165	13.8
166-330	15.2
331-660	10.5
661+	8.2
Mean Value	15.4%

Total Mean Income	=	344.316 LE
Mean Income (Renters)	=	224.123 LE
1 LE	=	0.3 US \$ in 1991

The relation between income and rent is illustrated in more detail in the cross-tabulation presented in Table XVII, called a stock-user matrix (Strassmann, 1982 and Mayo, 1985). Tenants (users) are shown in rows of income categories, and rental units (stock) are shown in columns of rental ranges. The five income categories range from less than 85 LE to more than 661 LE, each with twice the income of the next lower category. The rental housing categories range similarly from less than 5 LE to 80 LE per month, each cell with double rental value. This description of the stock-user matrix is adopted from Strassmann (1982, p. 48).

TABLE XVII
 RENT AS A FUNCTION OF MONTHLY INCOME
 (BY CATEGORY IN PERCENTAGE OF EACH CELL)

Income Categories	Rent Category						Total
	0-5	6-10	11-20	21-40	41-80	81+	
0-85	<u>4.0</u>	12.0	14.5	0.7	0.0	0.0	31.2
86-165	1.4	<u>2.0</u>	8.0	0.7	0.0	0.0	12.1
166-330	0.0	3.5	<u>6.6</u>	8.0	7.2	0.0	25.3
331-660	0.0	2.0	5.4	<u>9.2</u>	4.0	4.0	24.6
661+	0.0	0.7	2.0	0.7	<u>1.4</u>	<u>2.0</u>	6.8
Total	5.4	20.2	36.5	19.3	12.3	6.0	100%

N = 150 (100% of renters)

In the diagonal of the table were 25.2 percent of all renters. Fifty-nine percent were in cells above the diagonal and only 15.7% were below. While it is not appropriate to attribute significance to any individual cell because of the small sample, the most frequent combinations are those tenants who have incomes from 0-85 LE and pay 11-20 LE for monthly rent (14.5%). The only significance attributed to this matrix is that almost 60% of the sample were in cells to the right of the diagonal. In any event, it can be argued that households in the right of the diagonal might consume more rental housing than their actual needs. Nevertheless, evidence from the housing consumption and expenditure models, that will be presented later in this chapter, and that examine separately the relationship between income and space consumption, and income and housing prices, suggests that as income goes up, both consumption and prices increase. In any event, it is evident that households with lower incomes consume less housing but pay a greater share of their incomes for it.

Owner-Occupied Housing

The process by which owners acquired housing units and/or lands could be presented in Chapter VII which covers housing production as a characteristic of the process

by which most owners built. It could also be presented in Chapter VIII which covers the informal land market as a characteristic of the mechanism by which owners acquire lands and buildings. However, a discussion of housing demand and satisfaction, the subject of this chapter, cannot be completed without examining owner-occupied housing and tenure.

Renters and owners within the study sample expressed a preference for ownership--84% and 91% respectively. Significantly, 9% of all owners preferred to be renters rather than owners. Some owners expressed the need to sell their properties, use the money in other investments and pay rent in any other place. However, preference of owning was not consistent with actual behavior, where only 45% of all households (122 out of 272 households) were owners. Those who chose to become owners tended to do so in different ways. They built on vacant land or acquired existing units or buildings. Sixty-seven percent of all owners built on vacant land. The remaining 33% who have acquired existing units or buildings claimed that they made major additions or changes after acquiring their properties. Table XVIII itemizes patterns of owner-occupied housing. Only 5.7% of all owners acquired just a dwelling unit --a condominium. Most owners, almost 87% of the sample, either built on vacant land; or bought land and a building. The implication is that owners of informal housing not only seek housing for consumption, but that they look at it for investment opportunities as well.

TABLE XVIII
PATTERNS OF OWNER-OCCUPIED HOUSING
(BY TOTAL NUMBER AND PERCENTAGE)

Pattern of Ownership	Total Number	Percentage of Total
Built on vacant land	82	67.2
Acquired building and dwelling	25	20.6
Acquired part of building and dwelling	8	6.5
Only acquired dwelling	7	5.7
Total	122	100%

N = 122 (100% of owners)

The distribution of income among owners and renters, illustrated by Table XIX, shows that ownership is positively related to income. Almost 71% of all owners earned incomes within middle and upper income categories--331 LE and above--while only 31.5% of renters earned similar incomes.

TABLE XIX
MONTHLY INCOME FOR OWNERS AND RENTERS

Income Category	Percent of Owners	Percent of Renters	Percent of Total
0-85	1.6	31.0	18.0
86-165	7.3	12.0	10.0
166-330	20.4	25.5	23.0
331-660	47.8	24.5	35.0
661+	22.9	7.0	14.0
Total percent	100%	100%	100%
Total number (N)	N = 122 Owners	N = 150 Renters	N = 272 Households

Incomes were also examined in relation to housing values. Table XX shows the distribution of housing by income and value categories. A large proportion of owners (47.8%) had middle incomes but acquired the most expensive units. Housing values are anticipated to rise with income. However, according to the figures presented in Table XX, a major proportion of owners acquired expensive units even though they had only upper-middle incomes.

TABLE XX
DISTRIBUTION OF HOUSING BY INCOME AND VALUE

Income Category	Percent of Owners	Average Value
0-85	1.6	552.00
86-165	7.3	1176.00
166-330	20.4	13265.00
331-660	47.8	34856.00
661+	22.9	25763.00
Mean Income 448.47	100.0%	22710.00 (weighted average)

This result may be because average housing value has been calculated by averaging actual cost of constructing or purchasing the dwelling unit (at the time of acquisition or construction) and current estimated values. Incomes, meanwhile, are presented in their actual current values. While owner estimations for the value of their dwellings might have skewed results, it was the only appropriate way to bring different housing values to a current value. Furthermore, this result can imply that owners with high incomes acquire units for longer periods than owners with upper middle incomes.

Results of the logit analysis for tenure choice suggest that income has a slight impact upon the probability of ownership. The probability of owning is positively associated with family size and the age of the household head as shown in Table XXI.

TABLE XXI
ESTIMATOR FOR OWNING OR RENTING
LOGIT MODEL

Independent Variable	Coefficient	t-ratio
CONSTANT	-1.858	-2.622
PINCOM	1.842	1.887
HHZ	1.758	2.046
HED	0.137	0.777
HAGE	0.054	4.071
LST	0.462	1.043
PWC	-0.876	-1.994
PSC	0.704	1.804

Dep Var: Po/Pr (own = 1 & rent = 0)

N = 272 (100% of sample)

According to the presented results, if the dwelling had no public "municipal" water connection, the probability of ownership went up. However, forty four percent of all owners had public water connection versus 38% of renters. The only explanation for the apparent discrepancy is that owners did not evaluate the public water connection as an incentive to own because many owners and renters found other ways to obtain indoor

piped water. Almost ninety-eight percent of all owners had indoor piped water versus 85% of renters. Neither the connection to a public sewerage system nor the existence of a legal title for units seem to affect the probability of owning. Households who seek owner occupied housing may be influenced by other factors such as prices, opportunity to invest, and so on. The effect of these other factors is illustrated in the following section.

Mobility and Demand for Housing

The determinants of residential choice among different income groups in developed countries are space, cost of space and the distance of journeys to work (Strassmann, 1982). Maintenance and improvements of structures in preferred neighborhoods, regardless of density or distance, also appear to be determinants (Wheaton, 1982). These models of residential choice have been applied in different areas of developing countries, but with other factors, such as internal migration. Internal migration is anticipated to be a major determinant for residential location, mainly within informal settlements. For many migrants, locating within informal settlements is seen as a transitory step and considered marginal in the context of urban housing (Todaro, 1985). However, evidence from this study does not support that.

In the informal settlements of Alexandria, only 36% of all household heads--98 out of 272 households--were born outside Alexandria. A high percentage (73.3%) had moved to Alexandria more than 15 years ago. Only 25% had moved directly to the settlement under study, and most had moved more than once before settling in their current residence and area. The implication is that most households of informal settlements moved from other areas of the city; they were not migrants or newcomers to Alexandria. Nevertheless, a small fraction of all households (14%) reported to have always lived in the settlement under study--38 out of 272 households. Forty-five percent--122 out of 272 households--had moved once. Twenty-three percent--62 households--had moved twice. A further 18%--50 households--had moved more than twice. See Figure 23.

Figure 23. Household Composition by Origin and Mobility Status.

The price of a rental unit, a piece of land, and/or a building or an owned unit seems to be the most influential determinant of residential choice. More than 74% of all renters reported availability of rental units in a suitable price range as a major reason for moving to the area. Almost 59% of all owners cited items related to unit or land prices, as well as expansion or addition to properties, as major reasons to move to an area. As illustrated in Table XXII, neither physical characteristics of area--e.g., density, crowding--nor distance of journey to work seems to have affected residential choice. Households were asked to identify their previous moves. Their answers reveal that changes in tenure and family status tended to significantly influence the decision to move.

TABLE XXII
WHY HOUSEHOLDS MOVED TO AN AREA
(IN PERCENTAGE OF CATEGORIES)

	Owners	Renters
Availability of land/building unit in affordable price range	37%	-
Availability of rental units in affordable price range	-	74%
Addition to own property and/or motivation	22%	-
Inheritance	14%	9%
More space	10%	8%
Move to better serviced neighborhood	4%	3%
Proximity to work	7%	3%
Other/Don't know	6%	3%
Total percent	100%	100%
Total sample (N)	N = 122	N = 150

N = 272 (100% of sample)

A total of forty-nine percent of all movers did so to be owners--34%, or to own a new place--8, or to own a new place for a new household formation--7%. Table XXIII shows that ownership has been the primary reason for a previous move.

TABLE XXIII
REASON TO MOVE TO DWELLING UNIT

Reason	Percentage
Became an owner	34
Owning a new place	8
New household formation (as an owner)	7
Renting a new place	37
New household formation (as a renter)	10
Other	4
Total	100

N = 234 (100% of movers and 86% of total)

However, some previous renters moved to be owners, and they are included in the first category. Other renters moved in order to renting a new place, because of new household formation or unavailability of their previous unit (due to eviction, collapse, demolish, etc.).

As a result, thirty seven percent of movers were renters for new space, 10% moved to rent a new place for a new household formation, while the remaining 4% moved due to "other" reasons.

Households tended to stay for a long period of time in their units; renters were more likely to follow this pattern than owners. As indicated previously, 45% of all renters had remained in their units for more than 15 years, while only 27% of all owners had stayed for more than 15 years in their units. Figure 24 indicates that changes in family and tenure status resulted in a decision to move.

Figure 24. Composition of Mover's Households.

New movers were more likely to be owners. Where almost 34% of all owners had moved to current residences 10 years or less previously--only 22% of renter had moved in the last

10 years. Modest percentages of renters and owners stayed in their units between 10 and 15 years--32.6% and 38.5% respectively.

When households were asked about possibilities of moving to another dwelling in the next five years, 30% (82 out of 272) expressed no opportunity to move or did not want to move. Most of these households cited the unavailability of both funds and other comparable units as the major reason for staying in their units. However, the majority of households (70%) expressed a desire to move to an improved dwelling, better serviced neighborhood and better quality living conditions. In actuality, though, most households have financial constraints that prevent their achieving this goal.

The study of residential mobility illustrates that conventional factors such as density, neighborhood physical characteristics, and time and mode of journeys to work did not seem to have any impact upon location choices. Most household heads traveled to their workplace using different modes of transportation as presented in Table XXIV. Most household heads and primary workers used public transport modes, though a significant proportion used private, or semi-public modes--mainly collected taxis, an informal sector transportation mode.

TABLE XXIV
MODES OF TRANSPORT USED TO GET TO WORK
(IN PERCENTAGE OF TOTAL RESPONSES)

Mode of Transport	Head of Household	Spouse or Other Family Worker
Public Transportation	28.9%	43.8%
Taxi/Collected Taxis	22.0	37.5
None/Work at home	11.2	3.0
Employer provided transport	13.2	5.4
Car	6.8	0.0
Walk	10.0	8.3
Other (Bicycle/Motorcycle)	10.9	2.0

DETERMINANTS OF HOUSING CONSUMPTION AND EXPENDITURE

The determinants of tenure choice and residential location decisions include income, family size, age of household head, and years in current residence. These variables, and others have been employed to test housing consumption and other demand parameters. All the variable that were used in examining demand models are listed in Table XXV.

TABLE XXV
LIST OF VARIABLES

Variable	Definition
PINCOME	Permanent household monthly income--In LE
HHZ	Household size--Number of persons per household
HED	Household head educational status--Years of schooling
HAGE	Household head age--In years
TST	Tenure status--Dummy variable 0 = Renter, 1 = Owner
LST	Legal status of owning or renting - 0 = Illegal, 1 = Legal
PWC	Public water connection--Dummy variable 0 = N, 1 = Y
IPW	Indoor piped water--Dummy variable 0 = N, 1 = Y
PSS	Public sewer connection--Dummy variable 0 = N, 1 = Y
EEX	Electricity connection--Dummy variable 0 = N, 1 = Y
YCRS	Years in current residence--In years
URENT	Monthly unit rent for renters--In LE
ESRENT	Estimated monthly rent for owners--In LE
HVALUE	Average housing value--In LE
LPRICE	Land price at the time of purchase--In LE
NROM	Number of rooms per household
PROM	Number of persons per room
NSC	Existence of nearby school 0 = N, 1 = Y
GAC	Garbage accumulation 0 = N, 1 = Y
GAEA	Gross area of dwelling unit--In square meters
HST	Housing unit satisfaction--A scale from 0 to 10
NHT	Neighborhood satisfaction--A scale from 0 to 10
NYES	Neighborhood years of establishment--Number of years
MIGST	Household head migration status 0 = NONMIG, 1 = MIGRANT

The relative unimportance of distance to work and physical characteristics of neighborhoods as determinants of location choices means that higher expenditures on

housing went for bigger spaces and better structures (Strassmann, 1982). Bigger spaces refers to space consumption, and ability to pay higher prices for better structures can be traced by examining the actual behavior of households in their search and bid for housing.

Space consumption is measured in two principal ways: number of rooms per family or number of persons per room. In this study, space consumption is measured as the number of persons per room because all the values of that variable were intervals. Results of a multivariate regression--equation 2 in Chapter III--confirm that income, household size, tenure status, and gross area for dwelling units affected space consumption. Table XXVI indicates these relationships among owners and renters.

TABLE XXVI
ESTIMATOR FOR HOUSING CONSUMPTION
DETERMINANTS OF CROWDING

	All	Owners	Renters
CONSTANT	1.993	1.667	2.386
PINCOM	-0.240 (-2.980)**	0.245 (1.866)*	-0.238 (-2.099)**
HHZ	0.278 (4.087)**	0.289 (3.100)**	0.311 (3.155)**
HED	-0.159 (-1.798)	-0.165 (-1.682)	-0.178 (-1.874)*
TST	-0.146 (-3.054)**	—	—
LST	-0.081 (1.097)	—	0.121 (1.230)
GAEA	-1.023 (-4.454)**	—	—
ADJ. R ²	0.52	0.51	0.52
N =	272	122	150

Values in parentheses are t-ratios

** Significant at 99% level of confidence

* Significant at 95% level of confidence

Dependent variable: Persons per room

Income was negatively associated with number of persons/room, for both renters and owners. This means that number of rooms available for a household increased as income

increased. Space consumption is positively related to the size of a household and indicates that number of rooms a household occupied was not related to its size. Owners tended to have more space than renters. Tenure status is negatively related to space consumption. This means that owners consume more housing as their persons per room ratio is decreasing in relation to tenure. As anticipated, the estimated gross area for the dwelling unit is negatively associated with crowding; as the gross area increases, the number of rooms increases and, thus, the persons per room ratio decreases. Results of the space consumption model suggest that low income households and large families--especially renters--suffered from an acute crowding problem.

The general model for housing demand, as specified in equation (3)--Chapter III, has been estimated for both owners and renters, and is presented in Table XXVII.

TABLE XXVII
DETERMINANTS OF THE HOUSING DEMAND FUNCTION
ESTIMATOR FOR HOUSING EXPENDITURE

	Owners	Renters
CONSTANT	43.093	21.354
PINCOM	0.606 (8.540)**	0.012 (2.290)**
HHZ	0.436 (11.454)**	0.866 (7.925)**
HED	0.472 (1.543)	0.584 (1.834)*
HAGE	0.442 (3.998)**	0.201 (1.896)*
LST	0.523 (1.054)	0.089 (1.097)
YCRS	-0.714 (-3.454)**	-0.462 (-0.272)
ADJ. R ²	0.175	0.155
N =	122	150

Values in parentheses are t-ratios

** Significant at 99% level of confidence

* Significant at 95% level of confidence

Dependent variable: Estimated rent and actual rent

The link between housing expenditure and permanent income for both owners and renters is strong and significant. Not only did households consume and are willing to pay more for housing as their income increased, but owners were willing to pay more than renters as supported by the explanatory power of the regression model. Household size is also important in this housing expenditure equation. The effect of change in household size for owners appears to be larger than those for renters. The implication is that housing expenditure for owners peaks at relatively large household sizes. Among four significant variables out of six, age variable is significant, years in current residence is also significant, although the latter has a negative sign.

In general, it appears that determinants of housing expenditure and consumption are similar for both owners and renters. However, it seems that housing affordability levels for renters are lower than those for owners--Malpezzi and Mayo (1985) interpret the rent to income relationship as an appropriate way to examine affordability. Lodhi and Pasha (1991) interpret such findings as due to partial differences in housing preferences arising from various socio-cultural factors. This highlights the possibility that renters have lower preferences for housing in relation to other items in their consumption bundle (Lodhi and Pasha, 1991). This result is evident in the case of informal housing settlements in Alexandria.

HOUSING SATISFACTION

The discussion of housing demand illustrates that households within informal settlements consume housing within their budget constraints in response to their actual minimum needs and affordability levels. An assumption might be made, therefore, that housing satisfaction is generally low as people in the informal sector rent or own whatever units they can afford--not what they would like to rent or own. Evidence from this study, however, does not confirm that.

When households were asked, "Are you satisfied with your current unit?," for example, most of them were hesitant and confused and asked us, "What do you mean?" A further explanation was given, in most cases, about housing and neighborhood satisfaction. Households were asked to rate their level of satisfaction with their units and neighborhoods from very satisfied, somewhat satisfied, to somewhat not satisfied, and not satisfied. A rank from ten to zero was assigned to these categories--10, 6.6, 3.3, and zero--and was employed as a dependent variable in estimating housing and neighborhood satisfaction. Another classification was made. Households that said they were very or somewhat satisfied were classified as satisfied; those that said they were somewhat not satisfied or not satisfied were classified as not satisfied. Percentages of expressed satisfaction for both housing units and neighborhoods are given in Table XXVIII.

TABLE XXVIII

SATISFACTION WITH HOUSING AND NEIGHBORHOOD
(IN PERCENTAGE OF SATISFACTION RESPONSES)

	Housing	Neighborhood
All	70.9%	76.5%
Owners	76.0	81.2
Renters	66.0	72.5

Total N = 272

For owners N = 122, and for renters N = 150

The majority of households expressed satisfaction with both units and neighborhoods. However, overall satisfaction with neighborhoods was higher than overall satisfaction with housing units. Please refer to Table XXVIII. As anticipated, owners were more satisfied with their units and neighborhoods than renters. Surprisingly, renters and owners were more satisfied with their neighborhoods than their units even though both complained about low level of services. However, these results are consistent with the observed differences in actual behavior of households in their search for housing, as

indicated in the mobility section of this chapter. Table XXIX presents satisfaction with units and provides a decomposition of sources of satisfaction and dissatisfaction for both owners and renters.

TABLE XXIX
SOURCES OF SATISFACTION AND DISSATISFACTION WITH HOUSING UNITS
(IN PERCENTAGE OF TOTAL SUBGROUPS)

Sources of Satisfaction or Dissatisfaction	Owners N = 122		Renters N = 150	
	Sat.	Diss.	Sat.	Diss.
Sufficient number of rooms	22	30	16	38
Ownership	16	—	—	—
Cheap rent	—	—	14	4
Close to transportation	9	8	13	4
Close to schools	4	4	4	—
Close to employment	4	8	9	—
Healthful dwelling	13	12	14	20
Quiet neighborhood	6	18	14	18
Near family and/or friends	6	8	5	6
Social environment	16	8	11	4
Other	4	4	0	6
Total	100	100	100	100
Subgroup Number	N = 94	N = 28	N = 99	N = 51

Households were asked to identify the most important factor in their satisfaction evaluation. Both owners and renters reported number of rooms as a major source of satisfaction, conversely, most dissatisfied owners and renters cited insufficient number of rooms as a major source of dissatisfaction. Therefore, it is anticipated that number of rooms had a great impact upon housing satisfaction. In fact, evidence from the regression analysis supports that (regression analysis is presented in the next section). Ownership and appropriate social environment ranked second in importance as sources of owners satisfaction. Cheap rent, a healthful dwelling, and quiet neighborhood were cited as second sources of renter satisfaction. Proximity to work, transportation, schools, and other facilities had a major impact upon both owner and renter satisfaction. On the other

hand, unhealthful dwellings and noisy neighborhoods were cited as the second major source of dissatisfaction for both owners and renters.

As a follow-up, households were asked to associate their neighborhood satisfaction assessment with twelve different factors. Sources of satisfaction and dissatisfaction associated with neighborhoods are presented in Table XXX.

TABLE XXX
SOURCES OF SATISFACTION AND DISSATISFACTION WITH NEIGHBORHOODS
(IN PERCENTAGE OF TOTAL SUBGROUPS)

Sources of Satisfaction or Dissatisfaction	Owners N = 122		Renters N = 150	
	Sat.	Diss.	Sat.	Diss.
Healthy area/Unhealthy	14	21	12	24
Appropriate social environment/Inappropriate	23	4	22	—
Quiet/Noise	10	8	12	8
Clean/Not clean	5	13	10	14
Adequate transportation/Inadequate transportation	15	4	16	5
Shopping and stores/Lack of shopping facilities	7	4	9	8
Health facilities/Lack of health facilities	5	4	8	5
Lots of workshops	—	4	—	5
Lack of sewers	—	8	—	8
Overflowing of sewers	—	13	—	12
Adequate schools/Lack of schools	11	—	11	5
Adequate fire protection/Lack of fire protection	—	13	—	13
Other	10	4	0	5
Total	100	100	100	100
Subgroup Number	N = 99	N = 23	N = 109	N = 41

Patterns of satisfaction and dissatisfaction appear to be similar between owners and renters. Appropriate social environment was cited as a major reason for owner and renter satisfaction with neighborhoods--23% and 22% respectively. In addition, adequate transportation and healthful area were cited as secondary sources for neighborhood satisfaction for both owners and renters. For those households who were not satisfied with their neighborhoods, unhealthful area was reported as the first source of dissatisfaction for both owners and renters--21% and 24% respectively. Second of

importance, as sources of dissatisfaction, were an unclean area, overflowing of sewers, and lack of fire protection. Nearby schools, quiet areas, and availability of shopping facilities had a slight influence upon neighborhood satisfaction. In general, both owners and renters expressed similar patterns of dissatisfaction sources.

DETERMINANTS OF HOUSING AND NEIGHBORHOOD SATISFACTION

A multivariate regression analysis was employed--equation (4) in Chapter III--for both housing units and neighborhoods. Results of these analyses are illustrated in Table XXXI. The link between housing satisfaction and ownership is strong, and as the probability of being an owner increases by 10%, housing satisfaction increases by 30%. As the number of persons per room increases, housing satisfaction significantly declines. Each additional person per room tended to decrease the level of satisfaction by 10%. The existence of kitchens appears to be a major source of satisfaction. Accumulation of garbage on the streets was a significant source of dissatisfaction. Families with indoor water connection, electricity, and a separate bathroom were more likely to be satisfied with their housing than those who don't.

Housing satisfaction was included in the regression equation of neighborhood satisfaction. Mayo, et al. (1985) and Abt Associates' study in Cairo (1982) incorporated a housing satisfaction variable in the neighborhood satisfaction equation because there is an anticipated high correlation between the two. In this study, households satisfied with their units are also satisfied with their neighborhoods, see Table XXXI. The connection to a public sewer system increases the level of satisfaction within neighborhoods.

Furthermore, the existence of a nearby school--as an indication of social services--increases the likelihood of neighborhood satisfaction. Physical characteristics of neighborhoods, such as garbage accumulation on streets seem to negatively affect neighborhood

satisfaction. Legal status and tenure status, on the other hand, have no effect upon neighborhood satisfaction.

TABLE XXXI
ESTIMATOR OF HOUSING AND NEIGHBORHOOD SATISFACTION

Independent Variables	Housing Units	Neighborhood
CONSTANT	0.768	0.834
TST	1.043 (3.328)**	0.515 (1.043)
LST	—	1.673 (1.249)*
PROM	-0.478 (-3.112)**	—
IPW	0.487 (1.946)**	
EEX	0.789 (1.541)*	
KITCHEN	0.776 (4.099)**	
BATHROOM	0.491 (1.843)*	
PSC		2.989 (3.015)**
NSC		2.119 (1.903)*
GAC	-0.875 (-5.716)**	-1.087 (-3.653)**
HST		1.754 (2.900)**
ADJ. R ²	0.46	0.52
N =	272	272

Values in parentheses are t-ratios

** Significant at 99% level of confidence

* Significant at 95% level of confidence

Dependent variable: Housing satisfaction 'HST' and Neighborhood satisfaction 'NHT'

To conclude, housing and neighborhood characteristics are most likely to affect the level of satisfaction. Crowding, physical and environmental problems are negative determinants of satisfaction. Ownership, availability of water and electricity, sewer connections, and the existence of private kitchens and bathrooms are positive determinants.

WILLINGNESS TO PAY

It has been noted that low levels of public utilities and the existence of environmental hazards significantly reduce levels of satisfaction. Although households--both owners and renters--complained about such problems often, they expressed a willingness to pay for neighborhood improvements. A modest percentage of households, also, expressed a willingness to pay for housing structure improvements. However, the overall willingness to pay is much higher for neighborhoods than for housing structures--69% versus 48% respectively. Table XXXII itemizes different aspects of the willingness to pay for these improvements between owners and renters.

TABLE XXXII

WILLINGNESS TO PAY FOR NEIGHBORHOOD IMPROVEMENTS
(IN PERCENTAGE OF TOTAL RESPONSES)

	Owners	Renters
Water connection	4%	6%
Electric connection	1	1
Sewer connection	23	29
Paved streets	11	12
Regular garbage collection	17	18
Health care center	2	2
Public schools	2	2
Sufficient transport	2	4
Church/Mosque	3	1
Fire station	9	6
Fight insects, rats, etc.	11	9
Other	15	10
Total	100%	100%
N =	75	113

N = 188 (61% of sample)

It is significant that a low percentage of all households expressed a willingness to pay for housing structure improvements. This can be attributed to the fact that most households are

comprised of renters. Renters, on the one hand, may feel that maintenance of structures are the responsibility of owners. Owners, on the other hand, are not willing to pay for improvements unless they will benefit their own units. For those households that expressed a willingness to pay for neighborhood improvements--188 out of 272 households--both owners and renters reported public sewerage connection as first in importance, 23% and 29% respectively. However, renters (75%) are more likely to participate in paying for these improvements than owners (61%).

The need for a regular garbage collection ranked second in willingness to pay for such a service among both owners and renters. Willingness to pay for a "legal" title was expressed by owners in "Other" aspects of improvements. Both renters and owners emphasize eradication of insects and rats, paved streets, and the existence of a nearby fire station in that order. While the interpretation of the numbers is of limited use because of the small sample, it appears that a considerable number of households are willing to pay for upgrading current services.

CONCLUSIONS

This chapter examines the major variables which affect informal housing demand and informal housing satisfaction. Informal housing demand, in terms of tenure, space consumption and expenditure, depends on household income, household size, age of head of household and tenure status. Hypothesis 3 postulates that legal status of housing units, level of education for the household head and years in current residence also affect informal housing demand functions. However, no statistical evidence supports this hypothesis. The presented empirical results ascertain that determinants of housing demand differ between owners and renters. Owners are most likely to consume more housing spaces than renters and pay higher prices, in absolute values, for housing units. Owners earn incomes higher than renters, but renters pay higher proportions of their incomes for

housing than owners. Neither the provision of public utilities nor the legal status of housing units affects the possibility of being an owner in the informal sector. The implication is that enforcing the law against informal housing by denying titles or public utilities to informal dwellers does not influence the informal housing development, in general, or the ability to own informal dwellings, in particular.

An analysis of residential mobility verifies the hypothesis that informal housing residents are long-term residents of the city rather than being migrants or newcomers to the city. Variables such as physical characteristics of neighborhoods or proximity to work place do not affect residential location choices. Housing prices for both owners and renters and the ability to own are the explanatory variables behind the demand for housing and location.

The evidence extracted from housing and neighborhood satisfaction models contradicts the research hypothesis. Both owners and renters express higher levels of satisfaction with neighborhoods than with housing units. Moreover, physical characteristics of both housing units and neighborhoods, e.g., space consumption, water and sewer connections, garbage collection, are the variables that affect housing and neighborhood satisfaction. Both owners and renters exhibit a need for improvements in the current services in their neighborhoods, for which they express a willingness to pay.

CHAPTER VII

HOUSING PRODUCTION AND FINANCE ¹

This study is concerned, to a major extent, with determinants of informal housing production: effective demand and systems of supply. Effective demand, examined in the preceding chapter, illustrates that most informal owners provide units for rental use. Generally, housing units are produced in response to demand. This production process is also affected by factors such as labor, materials and supplies, prices, capital and finance, and land. Therefore, a study of the housing production system must start with an examination of how production processes have changed throughout different stages of informal housing development. The effect of other factors, such as materials and labor, upon these production processes must be examined and illustrated. The housing finance section provides the analysis of finance for both land and construction. Nevertheless, the land issue, a major determinant of informal housing production and development, is discussed throughout Chapter VIII.

PROCESSES OF HOUSING PRODUCTION

Though it can undoubtedly take many forms, the process by which housing units are produced and erected or transformed from one physical structure form to another is a distinctive process—one which must be examined in the context of the economic cycle of households; the level of consolidation and years of establishment within any specific area. From collected data and informal discussions and meeting with inhabitants and contractors

¹ This chapter is a modification of another chapter titled "Housing Construction and Finance" which appeared in a Thesis submitted to Alexandria University in 1992. However, the version presented here has additions, alterations and illustrations which did not appeared before.

of the informal settlements, one can distinguish three major patterns of housing types and production processes that occur and change through different development stages of informal housing and informal settlements.

Pattern One: Consolidation and Conversion

This pattern of development mostly occurred during early stages of housing development within informal settlements. It is characterized by one or two-story buildings, exclusively residential and, in most cases, owner occupied. Further, they were, generally, occupied by nuclear and extended families and built by the owner and his family or the owner and hired laborers. None of the respondents reported hiring a contractor or a construction site manager for constructing this type of unit. Rather, construction is dependent upon the owner's available time and funds. The construction process is distinguished by three stages:

1. The first unit, generally constructed in brick with a temporary roof. Building materials might be new, but more often materials were second hand, or had been given by friends or relatives, or collected. The one or two-room unit was generally constructed on a temporary foundation frame that might be wood or concrete--supported by concrete blocks, lime stones or red bricks. Basic sanitary facilities were all outdoor, including generally a small shack in the yard used as a kitchen
2. The process of consolidation began with this stage, when a kitchen and one or two bed rooms were generally added to the original structure
3. As the process of consolidation continued, a roof of concrete was constructed, and a kitchen and a bathroom were added; all in concrete roofs. Alternatively, an additional room or two in brick, with any type of roof were added to the original unit, but on a permanent foundation. Additions were usually undertaken by families who wished to open a shop, add a separate unit for a

married son, or add rental rooms. Sometimes, a second floor was erected and an "enclosed" downstairs was added to the original building, all in concrete. Table XXXIII shows first-addition types in the process of consolidation and conversion.

TABLE XXXIII
TYPE OF FIRST ADDITION
(DURING THE PROCESS OF CONSOLIDATION)

Type of Addition	Percent
Concrete works / roof works	10
Kitchen and bathroom	27
One or two bed rooms	15
Enclosed downstairs	10
Rooms upstairs	10
Shop	3
Other (kitchen, living room, etc.)	25
Total Percent	100

For the most part, these housing types are built in the early stages of occupancy of a piece of land in newly developed settlements, usually under 10 years of establishment. Please, refer to Figure 25. They are built by low to lower income groups to meet primarily immediate shelter need, although some are built for investment in rental units or shops. Housing designs are basic adaptations of rural types and are designed by the owner, a friend, or a builder who might be a member of the owner's family or a friend.

Pattern Two: Transformation

The process of transformation starts during any of the previously described stages but it typically takes place in this pattern of development. This type of development is characteristic of 3 to 5-story residential buildings. Residential units within these buildings, generally, are occupied by both owners and renters. Built for rental use and capital investment, for providing shelter for nuclear and extended families, this type of housing was considered to be a sound, steady investment with tangible returns.

Figure 25. Housing Units in the Process of Consolidation. Upper photo: major additions are adjoined to the original unit; lower photo: major vertical extensions are added to the original unit. Examples from *Ezbet Allam* in 1991.

These buildings are transformed from one-story unit or a temporary building to a multi-story concrete building in one of the following ways.

1. In the first method, the original unit is transformed part by part and concrete columns are installed in the corners of each room and connected to the original foundation. Then, a concrete roof is constructed for this part. The same process is followed in the other sections, in a consequent steps, until the whole unit and area is transformed.
2. In the second method, a concrete unit is built next to the original one. Activities and belongings are moved to the new unit until the old section is demolished and new unit/or units are added to the old section of the site. Alternatively, new brick walls are built around the old ones, increasing the unit size in each direction. The roof is removed and replaced in sections and interior walls demolished as the new roof cover grows. In all of the above units, the downstairs area is built in concrete, allowing for vertical expansion, Figure 26.
3. In the third method, families, who are wealthy enough to move temporarily to another place and who have sufficient funds to build a new building, demolish the old building and put foundation for the new building. This new building is allowing more future vertical expansion and is designed by either a professional builder, or by a contractor, Figure 27.

Providers of this housing type are, in most cases, owners who supplied and financed their houses with accumulated capital through work, business, or self-employment, or through land and housing speculation, or through working abroad. Most of these owners had phased the construction of their homes over a relatively long period of time. However, other owners who accumulated capital through working abroad, mainly in the rich Arab countries, were able to construct their houses over very short periods of time. Other petty developers, sometimes invested in and provided this type of housing.

Figure 26. Examples of Buildings after the Process of Transformation. Notice the different levels of additions over the original buildings and units. Example from Danna in 1991.

Figure 27. Demolition of the Original Unit and Constructing a New Building over the Land. Example from Abu Soliman in 1991.

Empirical evidence shows that this pattern of housing developed, mainly between late 1960s and mid-1970s. Unit designs are a reflection of the owners needs and the experience of the builder or the contractor who carried out construction under the supervision of the owner (for more details about housing designs see, El Araby, 1992a).

Pattern Three: New Construction

In general, this housing pattern mostly includes buildings of five-story or more. These buildings include units that are used as rental and condominium units. In Danna (area 1), for example, the price of these units was from 18 to 25 thousands Egyptian Pounds--5.4 to 7.6 thousand US Dollars in 1991. The area of these units ranged from 100 to 130 square meter--1,076 to 1,400 square foot. Owners of these types of buildings may or may not reside in them. In this pattern, buildings are not converted or transformed, but rather are constructed to provide housing units as a finished commodity. Numerous amenities are included such as plumbing, finished facades, designed entrances and guards for this type of buildings, see Figure 28.

Because these dwelling types require a substantial capital investment, they are financed by entrepreneurs, e.g., a group of investors who profit well in the informal housing market. Furthermore, because the production of these housing types involves construction problems and complex engineering requirements, a construction contractor, architect, civil engineer, or professional building technician is engaged in one way or another to solve these problems (Abt Associates, 1982).

Housing Stock and Building Characteristics

All of the settlements studied went through different stages of development and had a mixture of all the previously-described patterns. It is not easy to find a settlement that is characterized by only one development pattern. Nevertheless, according to the previous discussion that housing patterns were developed over time, one would expect that these

Figure 28. Examples of New “Constructed” Buildings. Upper photos shows examples from Danna and Abu Soliman; lower photo right from Allam, and lower left from Nadi El Sid.

types of housing are, only, found in older settlements (established for at least 20 years). This, however, is not the case. These types of housing are found in *Ezbet Allam* (area 4), the newest settlement in this study, and were built in the last ten years. This fact implies that factors other than the level of consolidation and years of settlement establishment--e.g., housing need, availability of land, unit's price and availability, location, services--affect the housing supply and the housing stock.

As indicated in chapter IV, macroeconomic and social factors within Egypt, in general, and Alexandria, in particular, influenced the development process of most informal settlements. An examination of the informal housing stock depicted that a boom of building construction had occurred between 1975-1991 (the survey year). Almost 60% of all additions to the housing stock--through upgrading, addition to existing structures, or new construction--had been erected after 1975. Table XXXIV illustrates that construction activity for additions, upgrade and new construction remained within low limits before the mid 1970s. For the purpose of constructing these three types of units, a petty contractor, a home-builder, a general or a specialized contractor, or a group of labor under owner's supervision was hired to do the job. Homeowners tended to use specialized contractors to do most of the concrete work, including foundation and roof works. For other types of work such as walls, installments and finishing, most homeowners hired a specialized worker--semi or low skilled--to execute the job.

TABLE XXXIV
PERIOD OF MAJOR ADDITION/UPGRADE OR NEW CONSTRUCTION

Period	Addition / Upgrade	New Construction
Before 1955	2	
1956 - 1965	10	5
1966 - 1975	30	35
1976 - 1985	53	50
After 1985	5	10
Total Percent	100	100

No evidence was found that general, large scale contractors played any role in constructing housing within the informal housing sector. Some owners, when asked if their builders or contractors used any mechanical equipment during the process of construction, responded negatively. However, other owners claimed that electrical "concrete" mixers and mechanical holders were used. Table XXXV itemizes the structural works for which a contractor or a builder was hired.

TABLE XXXV

STRUCTURAL WORKS FOR WHICH A BUILDER/CONTRACTOR WAS HIRED
(WITH PERCENT FOR EACH TYPE OF WORK)

Structural Work	Percent
Concrete works / roof works	80
Addition	70
New construction of entire building	93
Walls / Installments	26
Install doors / windows	20
Finishing Works "paintings, etc."	10

As indicated previously, all settlements studied had a mixture of all housing development patterns. However, pattern two is the main pattern of development, and was easily identified within most study areas. The median height for all residential buildings was 4 floors, and the most frequent category of building heights were 3 to 5 stories, Table XXXVI. Forty eight percent of all residential buildings were between 3 to 5 stories (130 buildings out of 272), 31% (84) were one or two stories, and 21% (58) were over five stories. However, the maximum observed height was 10 stories.

TABLE XXXVI

BUILDING HEIGHTS

Height Category	Percent
1 - 2 Floors	31
3 - 5 Floors	48
+ 5 Floors	21
Total	100

The gross area for dwellings ranged from approximately 50 square meters to 140 square meters--approximately 550 to 1,500 square feet. Table XXXVII illustrates housing units by gross area.

TABLE XXXVII
HOUSING UNITS BY GROSS AREA

Gross Area	Percent
< 50 square meter	20
51 - 75 square meter	41
76 - 100 square meter	24
> 101 square meter	14
Total	100

Units with gross areas ranging from 50-75 square meters--approximately 550-800 square foot--represented 41% of all units (excluding households living in a single room). A substantial number of units under 50 square meters--under 550 square foot--was found and constituted 20% of all units (49), 25% of all units (58) ranged from 75-100 square meter--approximately 800-1,100 square foot, and a further 14% units (34) exceeded 100 square meter.

Construction Problems

Owners who built their homes or made major additions or modifications to their units were asked to identify major construction problems they faced during the process of construction. Thirty-three percent of this group stated that they face no problems during their construction process; people in this group arranged everything in advance of their construction from securing construction financing to obtaining materials and labor. Financing was found to be a major problem that led 23% of all owners to temporarily stop construction until they had accumulated sufficient funds. This may explain why the process of conversion and transformation always took some time to be completed, especially for low-income people. Table XXXVIII itemizes the encountered problems.

TABLE XXXVIII
MAJOR CONSTRUCTION PROBLEMS
(IN PERCENTAGE OF TOTAL)

Type of Problem	Percent
No major problems	33
Building materials (shortage, quality, etc.)	24
Labor (availability, transportation, etc.)	8
Water (for construction)	5
Finance	23
Governmental hazards	3
No building permission	0
Other (theft, etc.)	4
Total Percent	100

N = 105 (100% of owners who built on vacant land or made major additions)

Owners stated that a shortage of building materials (10%), poor building materials (8%) and getting materials to the site (6%) were obstacles. Respondents reported other problems as well. Five percent cited lack of water, 3% cited difficulty in transporting labor to the construction site, and 7% cited "Other" as major construction problems. Contrary to the expectation that government's objections to this informal type of housing would be a major obstacle to the construction process, only 3% of this sub-sample (3 respondents) claimed that they had experienced problems from government during construction. Interestingly, no respondents reported the non-existence of a building permit as a problem.

BUILDING MATERIALS AND CONSTRUCTION PRICES

In all of the settlements studied, many buildings are constructed in concrete skeleton or bearing wall structures. Most of these residential buildings are 4 to 6-story buildings and most of them have brick and unplastered facades. A significant number of buildings is exhibit a sort of transformation and consolidation from brick walls and any type of roof (tin, wood, etc.) to concrete roofs and, in some cases, columns. It is common to find within the settlements different types of buildings in different stages of development and construction.

Supply of Building Materials

No one involved in the building process appeared to have major difficulty in obtaining materials even though some respondents reported that frequent shortage of and poor quality building materials existed. Materials were available at either free or black markets. Most of informal housing developers--e.g., contractors, builders or home owners--obtained materials, without the benefit of governmental subsidies because of the illegal nature of the type of housing they developed, by the free market prices "which are expensive in terms of pocket costs but very quickly acquired" (Abt Associates, 1982). These developers obtained materials from private distributors who cover both legal and black market operations. The former include distributors selling material obtained legally at regulated but not subsidized prices. The latter include distributors of materials obtained by different sources at subsidized prices and who resell these materials, in the open market, at a profit under the regulated or free market prices. In some cases, especially when large quantities are ordered, some suppliers give some credit terms. However, many of the respondents claimed that they paid cash in advance for their supplies. Most builders, in the studied areas, obtained materials from small-scale distributors or intermediate-level suppliers in the area where they live. Table XXXIX presents the distribution of building material by source.

TABLE XXXIX
SOURCES OF BUILDING MATERIALS
(IN PERCENTAGE OF TOTAL)

Source	Percent
Nearby supplier	70
Home builder	12
Outside supplier	10
Government	3
Other sources	5
Total	100

N = 98 (80% of owners)

Seventy percent of all home owners/builders obtain materials from a supplier in the area, 12% from another home builder, 10% from a supplier outside the area, 3% from government, i.e., those people who purchase permits for obtaining subsidized materials from the initial "formal" beneficiaries and got the building materials through governmental agencies, and a further 5% from other sources (collected over time, or through employers in some distributing agencies).

Prices of Building Materials

The government sometimes affects overall supply of building materials and inflates the prices of major building materials such as cement and reinforced steel bars. One of the interviewed respondents, who works as a contractor, reported that when government interfered in the cement market, it was very hard to obtain cement in the early 1980's. Then, when the government prohibited the imports of steel bars in 1986 to protect the national steel industry, the price of steel increased from 480-500 LE per ton in 1986 to 800-860 in 1989. Steel prices rose further to 1,250 LE per ton in 1991 (prices were obtained from Abt Associates, 1982; IAURIF, 1986; the in-depth interviews and survey of this study, 1991).

However, the government's responsibility for supply problems may now be decreased because of the fact that the spread between controlled and open market prices is currently limited. However, the major problem encountered is the radical increase in the prices of building materials--a wide gap between prices and disposable incomes was created due to reformation of the Egyptian economy as the government currently is moving towards the free market economy. Increasing the building materials prices affected the overall construction prices, as shown in the forthcoming section.

Two major materials appear to have a great importance and impact upon the construction of any dwelling unit: cement and reinforced steel bars. While only a few owners, contractors and suppliers reported any problem for obtaining cement, some

contractors and suppliers reported that not all diameters of the reinforced steel bars were always available. The price of cement per ton increased by 164% in 1991 from the 1981 price (in open market), while the governmental price was increased per ton by 270% in 1991 from the 1981 price (almost 3 times). The price of steel bars has also increased significantly in the last ten years. On the one hand, the open-market price of steel per ton increased by 385% between 1981-1991. On the other hand, the governmental price rose by 363% for the same period (El Araby, 1992a).

However, it is noticeable that the spread between government and market prices decreased in this period from 150% (market over governmental prices in 1981) to 110% (market over government prices) in 1991; and this could be the direct result of the government policy to free the Egyptian market. While these results should be viewed by caution the availability of materials has improved in the last decade.

Despite these improvements in the availability of materials, it is apparent that there still are shortages. These shortages raise prices and, inevitably, the cost of construction for informal housing. However, people sometimes find ways to overcome the problem of shortages or the high price of materials. For example, cement and reinforced bars are marginal substitutes for each other; when the price of one rises in relation to the other, the second may be substituted for the first. This material substitution has its own technical limits and risks. However, the observed practices of builders in the informal sector suggests that builders frequently made these substitutions, randomly, with serious and dangerous implications for the safety of residential buildings and structures.

For the less important materials, many home builders and homeowners tended to use second hand materials as a way to mitigate the high prices of materials. A total of 32% of all those who built their homes or made major additions to their units (45% of the sample) used second hand materials of all types. Table XL itemizes the type and variety of building materials that purchased second hand.

TABLE XL
SECOND HAND BUILDING MATERIAL
(IN PERCENTAGE OF TOTAL)

Type of Material	Percent
Reinforced steel bars	11
Gravel	8
Doors / windows	33
Lumber for floors	5
Bricks	22
Toilet / sink	10
Other (glass, etc.)	11
Total Percent	100

N = 39 (32% of owners)

Two second hand materials were commonly used: wood and brick. Thirty-eight percent cited doors, windows and floor lumber as the second hand material they used, while 22% cited various types of second hand bricks. Glass and reinforced steel bars were used by 11%, and sanitary equipment by 10%. Nevertheless, regardless of the type of material or the source for obtaining it, second hand building materials were instrumental in reducing cost. This is significant since a large number of informal households are poor or below the poverty line. The second hand building material market operates in both very low and commercial scale with items being sold by both individuals and retailers. A seller of second-hand materials may have been someone in the process of converting his one-story brick building to a concrete multi-story concrete building, or someone who inherited a house in a very bad condition and was looking to demolish the house and sell various components. Large scale second-hand suppliers are themselves demolition contractors who collect and recycle the collected materials. Other suppliers are those who purchase certain types of second-hand materials, according to their specialization, in quantities from demolition contractors for resale to individuals.

To summarize, the political-economic reformation of the Egyptian economy in late 1980s and early 1990s has had an effect in reducing the gap between controlled and open

market prices, that is currently limited. As a result, the government's responsibility for building material and supply problems may be decreased. However, a radical increase in the prices of building materials continues to be a major problem, as illustrated in the previous discussion. This increase has affected overall construction prices, as proved in the following section.

Construction and Sales Prices

Prices are generally expressed in relation to one square meter of gross floor area. Results obtained from the survey of this study were adjusted with technical ratios that characterize the spatial performances of the project. The breakdown of the net outlay of one m³ of reinforced concrete, prepared in the traditional way was as follows:

Net labor cost	20 to 25 LE per m ³
Price of labor charged by sub contractors	25 to 30 LE per m ³
Materials and equipment costs	80 LE per m ³
<hr/>	
Total calculated cost	100 to 105 LE per m ³
Costs obtained from survey	120 LE per m ³
Price charged to owner by contractor	160 LE per m ³

The noted price increase, from a number of labor contractors (who charge up to 150 per cubic meter) and particularly at the level of the general contractor's invoicing (up to 300 per cubic meter), cannot be explained by low labor productivity, but reflects, instead, the favorable position of the contractor in the negotiation with his client (IAURIF, 1986). The cost of a structure determined for a concrete frame system with small component filling can be broken down as shown in Table XLI, which provides a comparison between building costs in 1986 and 1991. Differences between the prices of 1986 and 1991 arise from the impact of construction material prices, from productivity in concrete preparation and handling, from the quality of the brick work and from the importance of finishing works (adopted from IAURIF, 1986).

TABLE XLI
COST OF STRUCTURES BY COMPONENTS

Structure Component	1986	1991
Reinforced concrete	30	59
Filling	18	32
Plastering	12	21
Foundation / earth work	15	24
Average cost	75	136
Average price	85	150

Cost per square meter in Egyptian pounds at 1986 & 1991 prices
 LE 1 Egyptian pound = \$ 0.3 US Dollar as of 1991
 Source: IAURIF, 1986 and Household survey of this study, 1991.

The comparison between the construction prices observed by the IAURIF team in 1986 and the findings of the surveys of this study in 1991 illustrates that construction prices have increased by 144% for low cost housing, 166% for medium housing and more than double for the luxury housing in a period of five years. Table XLII indicates observed 1991 construction prices.

TABLE XLII
OBSERVED STRUCTURES AND HOUSING PRICES

Housing Type	Price
Low-cost housing	180
Medium-cost housing	225
Luxury housing	350 - 400

Price per square meter in Egyptian pounds at 1991 prices
 LE 1 Egyptian pound = \$ 0.3 US Dollar as of 1991

In the case of low cost housing, the difference between total construction cost and structure price is about 30 LE per square meter that corresponds to the cost of other finishing materials that were not included in Table XLI. Medium-cost housing price and luxury housing price corresponds to better finishing and more expensive amenities. The price of luxury units may reach 400 or 500 LE per square meter as the result of increasing

construction costs and building prices. The housing production process is influenced by: (1) both building materials and prices, as illustrated; (2) labor availability and productivity, to be examined in the following section; and (3) sources of finance, to be examined later in this chapter.

LABOR

The self-help approach--namely Turner's approach--implied that self-build construction technique is a major way of erecting and building housing within informal settlements (by household, by family and friends during spare time and weekends). However, the empirical results of this study found that only 10% of those who built their houses or made major additions to units relied on this type of construction technique.

Those people who were too poor to hire a home builder, and consequently, must rely on self-help techniques, are at the same time too poor to invest their time for constructing their units. Instead, they invest their time in meeting basic needs and prefer to rent, even a single room. In fact, the poor do not have the luxury of owning a piece of land, constructing a small unit over it, and then converting or transforming it. While this process of housing construction--as documented in numerous studies--may have been true in squatter settlements, it is no longer true within all the informal settlements studied.

However, one can find people who squat along canal sides (El Mahmoudia Canal² southern Danna and Abu Soliman--areas 1 and 2 in this study), railroads lines, right of way, or street sides. Those people occupy shacks that had been constructed out of temporary materials (tin, wood, metal sheets) by means of self-help, where the time of construction did not exceed a week. This phenomenon of squatting, and its consequent

² El Mahmoudia Canal is a former navigable waterway which runs through south-central and southeastern parts of Alexandria. It had been excavated between 1818-1821. The Canal was designed by the French architect Pasal Caste. In the past, the canal used to ensure the steady supply of water to the city and linked Alexandria to the rest of the country (Awad, 1992), however, in the present time the canal dried and many informal economic activities locate along its both northern and southern sides.

self-help domain construction technique--which is beyond the scope of this study--is another manifestation of the housing crisis and the deficits in the macro-economic conditions within the whole country, and it should be studied separately. An examination of this squatting practice--in the context of Alexandria--should be analyzed. Then, its relevance to the informal housing as a whole could be assessed. In many cases, this type of squatting turned out to be permanent in the same condition as it was developed, without consolidation, conversion, or upgrading.

Broadly speaking, in the early stages of development within the study areas self-help might be evident, however, in later stages of development, the reliance on self-help as a valid form of construction technique is not evident or even important. Figure 29 presents the distribution of the use of labor during the same five stages of construction processes, that are described earlier in this chapter.

Figure 29. The Use of Labor Throughout Different Production Processes.

Only 10% of all households that built their houses or made major additions to units claimed that they were involved in the construction process of their units, mainly doing finishing works; or constructing their original unit. A substantial number of owners used a home builder, who could be a friend, in the process of upgrading and converting their units (22%). Hired laborers (builders) under the supervision of the owner (46% of all responses) were widely used for informal housing construction. In this situation, owners played the role of general contractor while laborers played the role of sub-contractors in the formal sector. Only 12% relied on builders (skilled and unskilled laborers) under the supervision of a site manager, while 10% relied on a general contractor for constructing the concrete frame and other specialized contractors for other aspects of construction. These findings are presented in Table XLIII.

TABLE XLIII
USE OF LABOR DURING CONSTRUCTION PROCESSES
(IN PERCENTAGE OF TOTAL)

Type of Labor	Percent
Homeowner / family or friends	10
Home builders and laborers	22
Builder / Contractor under owner supervision	46
Builder / Contractor under site manager and owner supervision	12
General Contractor	10
Total Percent	100

N = 105 (100% of owners who built on vacant land or made major additions)

However, the turn-key project system by a single general contractor was not found in the settlements studied. Labor for producing different types of housing is readily available. It is recruited from cafes and other gathering places, sometimes directly by the contractor, sometimes by his foreman. The quality of labor is generally adequate for lower quality housing, however, it was mentioned periodically that skilled laborers were in

shortage. It is important to notice that the same contractors and laborers were working in both the formal and informal sectors; as indicated previously.

A comparison between labor rates per day between 1981 - 1991 was estimated (El Araby, 1992a). All figures were more than doubled between the two dates. An enormous increase in the wages of skilled laborers, i.e., carpenters, bricklayers, tillers, plumbers and electricians, was noticed. The rates for unskilled laborers, even with increases for inflation, did not rise at the same rates as for skilled laborers (see, for more details, El Araby, 1992a).

The use of labor in the construction of informal housing represents an organized system of housing provision, Table XLIV shows that. The degree to which this system could be similar to the conventional "formal" system depends on discretionary funds that are allocated for housing production.

In any event, there is no evidence that the system of informal housing production is typical to the self-help construction technique. However, increasingly, over time, these production procedures are displaced by other characteristics that make the informal construction process approximately similar to the way in that labor, materials and finance are used in the conventional formal market. For a subsection of all inhabitants of informal settlements, however, acquisition of land informally, the use of some means of self-help and low-paid laborers, the way in that materials acquired through second hand and/or defected sources, "were all instruments in their bid to augment earnings and to access a shelter" (Ishmael, 1988). These inhabitants along with all other people who sought housing within informal settlements tended to do so with budget constraints and according to the available sources of finance. Therefore, an examination of the housing and land finance sources is elaborated in the following.

TABLE XLIV
USE OF LABOR DURING CONSTRUCTION PROCESSES
BY TYPE OF WORK

Type of Work	Use of Labor
Site preparation	Self-help of owners and friends, or, mostly, means of cost-saving methods, i.e., hired laborers that use, usually, labor intensive techniques.
Building process	Builders / contractors (under owner's supervision) who could use both skilled and unskilled labor. Generally, these petty contractors were operating in the formal sector also, however, in the informal sector semi-skilled labor was, usually, used to do the work of skilled ones.
Finishing works	Semi-skilled labor, or self-help with friends and owners efforts. In some cases, skilled and professional labor was used under owner supervision, however, they were labor intensive / small capital entrepreneurs.
Payments	Cash on day to day, or weekly basis.
Working days and hours	Week days/ weekends. No fixed working hours.
Completion time	Indefinite, it depends, generally, on the owner's financing situation, and the ability of the owner to rent or sell his potential units.
Finished product	Units, in most cases, are habitat but not completed in the conventional sense. Most building facades remain unplastered, specialized laborers are hired to do specific jobs--quality of finished product depends upon owners' desires and budgets.
Quality of construction	Satisfactory, not far from conventional standards but generally lower than "formal" sector quality. However, economizes of building materials and other ways for reducing cost affect the overall quality and may result in safety hazards.

HOUSING FINANCE

Formal financial institutions in Egypt have a limited reach (Abt Associates, 1982). Despite overall economic growth, as measured by real household incomes, household saving, asset formation and activities of the general banking system- all of which registered increases, the level of formal home mortgage funds has remained stagnant (PADCO, 1981). The primary source of funds for home mortgage institutions is the Central Bank allocations (Pratt Associates, 1979; MOP, 1987). Consequently, the housing finance institutions were unable to mobilize household savings.

Sources of Finance

According to the results of this study, as anticipated, the role of banks or home mortgage institutions in the financing process of informal housing is non existent. Only one respondent (out of 272 respondents) reported that he obtained a short-term loan from the National Bank for Development (*Al Watany Lil Tanmia*) to fund expansion to his textile "dyeing" workshop in Nadi El Sid (area 3). He used the money from this loan to purchase a larger piece of land in the same area, where he lives.

The rate at which buildings are constructed depends upon the availability of the owner's funds. As previously mentioned, 23% of all owners were forced to stop their construction for lack of finance. Many of them obtained capital by selling inherited land or property or by spending a period of time in other Arab countries. Table XLV shows major findings about sources of finance for purchases of property and land--for owners--and sources for key money and/ or advanced rents--for renters. The table represents the "incrementally" high use of informal finance. Reliance on banks for either savings or loans is virtually nonexistent. Almost 8% of the sample size (22 households out of 272 households) relied on savings, bank savings or bank loans for property or land purchase. Only one household used bank loan for land purchase, 2 households relied on bank

savings to finance property purchase, and a further 19 households used "other savings" to finance either land or property purchase. Only 3% of the sample (8 households) relied on savings from bank for key money.

TABLE XLV
SOURCES OF FINANCE FOR HOUSING AND LAND
(IN PERCENTAGE OF TOTAL EACH SUBGROUP)

Sources of finance	Owners		Renters Rental units
	Property purchase	Land purchase	
Paid nothing		8	
Savings in <i>Gamiyya</i> "Saving Club"	6	7	26
Savings in Bank	6		5
Other saving	12	16	22
Working abroad (Remittances)	21	19	15
Key money refund	3		
Sale other unit/ units	6	6	
Sale of property	9	17	13
Sale of jewelry	10	10	9
Inheritance	18	11	
Loan from bank/ institution		1	
Loan from relatives/friends	3	5	10
Other	3		
Total Percent	100	100	100
	N = 40	N = 88	N = 150

Renters usually paid key money, advanced rent and/or side payments outside contract money in order to have access to rental units / rental rooms.

Aside from inheritance, that as previously noted played a large role in property purchase, the major informal financing sources were both sale of property and/or jewelry and working abroad. Sale of property and jewelry was counted as 18% of financing property purchase, 27% of land purchase and 22% for key money. Remittances from working abroad also played a major role for financing housing. Twenty one percent of property purchases were financed by working abroad and its related remittances, 19% for land purchase and 15% for key money. Saving clubs (*Gamiyya*) were the most prevalent source for funds for key money payments, being used in 26% of cases (as indicated earlier, *Gamiyya* is an informal credit institution most often used for major savings for consumer

goods, weddings, etc.. More details are provided in chapter V, p. 119). Gifts and loans from family or friends played only a very modest role in housing finance.

Affordability Gap

When households were asked whether they had savings or not, few households claim to be explicitly saving for housing--only 1% of owners and 3% of renters. Only modestly larger fractions of households (4%) expect to buy either land or a building within the next five years--4 percent.

These gloomy expectations are a reflection of the true housing crisis in Egypt, that is a crisis in the ability of the population to afford to enter the housing market if they are not already in it. Thus, despite a significant building boom and widespread expansion of basic utilities (Abt Associates, 1982), opportunities for entering the housing market as an owner are severely restricted. Even were mortgage financing more widely available, few households would be able to afford even the most minimal units given current construction and land costs. For example, a minimal unit of 35 square meters built according to "popular" construction would cost LE 5,250. A small plot of 50 square meters purchased on the periphery of Alexandria might cost LE 2,000 to LE 3,000 and in a better serviced or more central area, from LE 3,500 to LE 5,000.

Thus, depending on location a small new "popular" unit might cost from LE 7250 to LE 10250, were such a unit to be financed with a 25% down payment (LE 1,800 to LE 2,500), the down payment would amount to from roughly 60 to 130% of median annual household expenditures. This, in itself, would be extremely difficult for most households to come by unless recourse could be made to repatriations from family members or significant jewelry or property sales. Were the remaining amount financed over 20 years at 10 percent (bank rates are currently higher than that), monthly payments would range from LE 45 to LE 117 or from 17% to 45% of median household expenditures. Relative to expenditures at the twenty-fifth percentile of the income distribution, payments would

represent from 27% to 71% of household expenditures. At the twenty-fifth, food expenditures alone comprise roughly 70% of household expenditures; thus units would clearly not be affordable for low income households without subsidy.

Nor is it feasible for most low income households to purchase existing units. Household survey owners were asked to estimate the current market value of their dwellings. Among informal sector owners in the settlement studies, the median estimated market value of existing units was LE 12,000, with more than 50% of all units in the range LE 5,000 to LE 25,000. Therefore, most existing units are, as well, beyond the range of low income households seeking to become owners.

The alternative for most households is, as it has been for some time, to remain as renters. However, renters face some of the same housing cost and affordability problems as potential owners. The result of all the above factors is an affordability gap between incomes and housing costs. This gap results in making the entry into the housing market for the first time, especially for those of low income group, a most difficult challenge. Meanwhile, this affordability gap has reduced levels of mobility between owners and renters. Moreover, overall household mobility, i.e., those people who need larger units or more space, is also reduced. Consequently, the informal housing sector becomes the sole provider for a bulk of the urban population who seek access to shelter and housing.

CONCLUSIONS

The determinants of housing production proved to be in a process of dynamic change through consolidation, conversion, transformation and new construction. This finding verifies research hypothesis number 5. It is evident that determinants of housing production processes undergo significant changes and, over time, are displayed with major features of housing production in the conventional formal market. Furthermore, general market conditions that affect production and construction prices in the overall housing

market influence informal housing production and prices in similar ways, as postulated in the research hypothesis. Increasing construction prices led to increases in housing costs and, consequently, housing prices.

Informal housing is not self-built as the self-help approach implies. Rather, it is self-organized by owners and providers of this type of housing. Most of these providers are middle to lower-upper income groups and are petty investors who profit from housing in the informal sector. These results imply that future planning for informal housing development or dealing with its current or potential problems could be based upon organizing, directing and collaborating with those providers of informal housing in their local settings. Furthermore, it is important to direct planning efforts with regard to housing supply programs to the middle income groups because they are the groups that could provide housing--mostly rental housing--to different income groups. Low income and poor groups are mostly consumers of housing, so that proposing housing policies that postulate that poor persons are able to construct and build their houses, i.e., self-help policies, would not be realistic, effective or of benefit to the urban poor. Other housing demand subsidy programs are more suitably directed to the poor.

Finally, the last section of this chapter demonstrates that informal housing finance depends upon small scale and incremental savings and is privately financed. In fact, there does not exist of any governmental or institutional participation in the informal financing process. Providers--owners--mobilize their savings, over time or at once, to produce or purchase different types of housing units. Remittances and "other" savings play a major role in financing land and property purchases. Consumers--renters--finance their access to housing units mainly through saving clubs (*Gamiyya*), which are informal savings institutions.

CHAPTER VIII

IMPACT OF LAND POLICIES UPON INFORMAL LAND MARKET

In all case study areas, and in other parts of Alexandria as well, owning a piece of land is a source of pride and security. Regardless of the size of the parcel, land is an economic asset that can be used as collateral to secure financing; it can be used to generate income when it is worked or if it is rented; and it can be sold (Ishmael, 1988).

The purpose of this chapter is to examine the ways that land policies influenced informal land market--based on evidence from the settlements studied--with regard to land subdivision, land invasion, land tenure, land prices, land acquisition mechanisms, and land registrations and transactions. Therefore, a review of the history of land policies in Egypt is instructive in assessing the degree to which land policies affected the operation and the evolution of informal land market.

REVIEW OF LAND POLICIES IN EGYPT

The history of land policies goes back to the 19th century when Egypt was under the Ottoman Empire. Mohammed Ali (1805-1848) successfully controlled Egypt's land. First, he took control over the Endowment Authority *El Awkaf*, by placing it under the state control (EL Abady, in Akbar, 1992). Second, he took over *Mamalik* land after their defeat in 1811. Mohammed Ali gave peasant farmers (*Fallahin*) from 5 to 8 hectares to use and control. This right could be transferred to their heirs, but the state would still own the land.

The Ottoman Land Law of 1858, the first land law, distinguished five types of land tenure: owned land, state land *Amlak Amerya*, endowment land *Awkaf*, public use

land, and dead land *Maoat* (Akbar, 1992). According to that law, state lands were those lands that had been left by their original owners either because inability of paying taxes or cultivating these lands. Some owners, who were afraid of losing their lands, endowed their lands so that they and their heirs would not lose benefits of these lands. This law tried to limit the *Wakf* process (Akbar, 1992) by establishing a state land authority that could take over "private" land before owners of these lands endowed them. According to the same law, the dead land was defined as the desert and unlivable, "remote" land; anyone who could convert this land to a livable use could then own it.

After this law, from 1871 to 1918, a system of transferring land ownership and transforming land use called *Taboo* was in effect. This system allowed occupants and workers of state lands to own them, by paying fees equal to the amount of six years of property taxes. All public landholders had to register the land they occupied or rented so that tax assessments could be made. However, until the beginning of the 20th century, most of the public-held lands were not registered (Akbar, 1992). This system was modified in 1911 to allow occupiers of state land, who did not register their land under the *Taboo* system, to register it. Further, this modification allowed registered public landholders to convert the use of agricultural lands to any other use. However, until 1918, most of the state land was not registered (El Abady, in Akbar, 1992).

In 1936, King Fouad I declared another land law. It gave people the right to own and to have a title for state "public" lands if they held them, without any outside disputes or claims, for more than 15 years prior to 1936. In addition, other people who held, occupied and used a piece of state land without a permission--even for less than 15 years--could own it but over a further 15 years period. This right would be withdrawn if the land was not used in the first five years of this allowed period. Mainly, the law tried to secure the western boundary of Egypt by granting land tenure for Ali Sons tribe (*Awlad Ali*), who inhabited large parcels of state land in the western desert and who had Libyan

roots, therefore, good relations with the monarchy system in Libya.

Following this law, the Egyptian Civil Law considered the uncultivated and unowned lands as state lands (Abd El Tawa~ab, 1985). Therefore, the state could sell, rent or give these unclaimed lands to whomever it considered suitable and capable of using this land. The Agricultural Law of 1940 and its modifications aimed to further regularize the process of agricultural land subdivisions, conversions and variances.

All of these laws and events affected the process by which land was purchased, endowed, or acquired, at least until the first half of the 20th century. They also affected the way by which land rights could be transferred or inherited. All of these factors created six land tenure types. They were state owned land; endowed *wakf* land; free hold landlords; holders of "dead" or "state" lands; renters; and unclassified and potential owners who did not have a clear title for their lands. The effect of these types of land tenure significantly influenced the process by which land was used, transferred, invaded, or transformed, and has affected potential informal land development in recent years.

A radical change in the land policies occurred in Egypt after the revolution of 1952 with the emergence of Agricultural Reform acts in 1952, 1958, 1961 and 1964. Those reform acts gradually limited the ownership of land. In 1961, a maximum ownership of 100 *Feddans* per family--one *feddan* is equivalent to 4,201 square meters which equals 1038 acres--was allowed. Therefore, the national government became a major owner of Egypt's land. Even though the national government claimed to be the major owner, other governmental bodies, such as the General Agricultural Reform Authority, the Ministry of War, different Governorates, etc., also made that claim. Consequently, a fragmented responsibility, a confused and an unclear type of tenure, use, or ownership over these "public" lands occurred. For example, in order to have a legal access to a parcel of the nationalized "agricultural" land, an application had to be submitted to the Agricultural Reform Authority in Cairo--in a long, complicated and time

consuming "paper bureaucratic" procedure. Meanwhile, other papers had to be processed through the State Land Agency and the concerned Governorate. Therefore, having access to these lands depended, to a major extent, upon personal relations, bribes and corruption (Akbar, 1992).

Land Law No. 100/1964 applied all the authorizations and amendments of the 1952 law to urban and building areas. In addition, this law declared all desert lands to be state land. The Agricultural Law of 1978 and Law No. 3 of 1982 introduced regulations regarding planning regulation, land use, urban growth boundaries, agricultural lands, and land subdivision. Table XLVI summarizes the major land policies in Egypt in the last century. In order to understand how these laws affected the operation of the land market in general, a detailed review of land policies regarding land subdivision and land tenure regulations, is presented in the following section.

Land Subdivision Regulations

Legal land subdivision may occur either on agricultural land with proper variances, or on non-agricultural urban land. In either case, procedures are time consuming and costly, and the chances of success are small.

Subdivision of agricultural land can legally occur under special conditions set forth by the 1978 Agricultural Law which vests authority in the Ministry of Agriculture to develop Land defined as agricultural by the Land Reclamation Act. Prior to 1978, local officials and not the Ministry of Agriculture had authority to control subdivision of agricultural land (regardless of their success at enforcement) and to require that the subdivision comply with requirements facilitating the cost-efficient provision of infrastructure. However, if land being subdivided has been identified as agricultural, this very definition exempts the land from local government subdivision control because under the law it has been categorized as non-developable regardless of what the owner is using it for (Abt Associates, 1982).

TABLE XLVI

HISTORY OF LAND POLICIES IN EGYPT 1858-1982

Law	Authorization / Activity
Ottoman Land Law 1858	Defines five categories of land tenure. Any one who could convert dead land to livable use would own it. The law tried to control the <i>Wakf</i> movement by establishing a state land system. Ownership for those who worked and occupied state lands. Registration of state land under the <i>Taboo</i> system
Land Law 1936	Adjustments of tenure status for public land holders, who hold the land more than 15 years without any conflicts or disputes over it. State land holders could own their land, in a period of 15 years, if they would be able to use it in a period of 5 years
Land Subdivision Law No. 152 / 1940	Regulations of agricultural land subdivision, rules for cultivated lands, and irrigation regulations.
Egyptian Civil Law	Uncultivated and unclaimed "owned" land became state land. The government could sell, rent or use these lands. A state permission is required to use or dispose these "state" lands.
Agricultural Reform Law No. 178 / 1952	Limit ownership to 200 <i>feddans</i> per adult person and 100 <i>feddans</i> to all "family" children. The government would compensate owners for the rest of their lands. The captive land would go under the control of General Agricultural Reform Authority to be distributed to peasants.
Modification to Agricultural Reform Law 1958	Limit ownership to 300 <i>feddans</i> per family. Restricted the uses of some "desert" land. The Ministry of Military had controlled parts of vital security lands.
National Land Law 1961	Limit ownership to 100 <i>feddans</i> per family that include desert and uncultivated land. Nationalize the properties of larger scale landlords. Governments, local and central, took control over the excess land.
Agricultural Reform Law No. 100 / 1964	Apply all the 1952 law authorizations and amendments to all urban and building lands. All desert land became state land.
Modifications Law No. 50 / 1969	Organize the selling and renting procedure of captive land through the Agricultural Lands Trust Fund that aimed to recover money to be used in financing agricultural projects.
Modification to Land Subdivision Law 1975	Regulations regarding conversion and variance of agricultural lands to urban uses, land reclamation requirements, and establish the land subdivision committee.
Agricultural Law Law No. 170 / 1978	Subdivisions, variances and conversions of agricultural lands to urban uses rules and requirements.
Urban Planning Law Law No. 3 / 1982	Requirements and regulations concerning urban growth limitations, legal urban land subdivision, land use, land conversion and land invasion.

Nevertheless, if the owner wants to subdivide his land, he can get a variance by persuading the authorities that this land is "non-cultivable". Example of subdivision activities created by using loopholes in existing laws are (Abt Associates, 1982):

1. An individual subdivides land to accommodate family members. There is often no policing to confirm that subdivision is taking place for this purpose rather than to provide parcels for non-related buyers.
2. Persons calling themselves "contractors" buy up "non-cultivable" agricultural land, compensate the landowner and farm laborers living on the land, and re-sell parcels for residential use-often deriving a profit of 100 percent or more. In most cases, these "contractors" are not contractors by definition but transferees of land and are inflating land prices and encouraging informal development.
3. A landowner installs a facility that is considered to be a contribution to the "Food Security" Program, i.e., an individual can start a poultry farm and on the same site install housing for "employees" of that facility. He does not necessarily have to prove that the occupants of housing in his situation are indeed employees. This type of subdivision is not considered residential subdivision under existing laws.

The procedure for obtaining variances is lengthy. First, a governorate committee has to be formed to evaluate the petition. The local inspectors of housing and education and the local agricultural manager. The committee inspects the property to make sure that all general codes are being followed (for example, the property must be at least 100 meters from a canal). Once the committee has approved the application in writing, the Minister of Agriculture has to set up a review committee: vice-ministers of agriculture, industry, education, planning and housing (Abt Associates, 1982). Not surprisingly, few applications are made.

Subdivision of non-agricultural land is apparently not much easier than that of agricultural land. Other studies (PADCO, 1981; IAURIF, 1986) indicate that the application procedure for obtaining a subdivision permit is too expensive and time consuming to make it worthwhile to go through legal channels. In addition to regular fees attached to applications, potential subdividers must hire an architect or planner to prepare subdivision plans to be submitted to officials. "Official" architect and

syndication fees range from 10 percent of project costs for small projects to 2% for large projects. The review process usually takes six months or more and there is no guarantee that permission will be granted in the end. Thus, many small subdividers would rather risk going ahead and subdividing their land illegally than to have to go through the bureaucratic maze of application and confirmation.

Many subdividers resent the standards included in the subdivision law requiring 10 m. road widths and allowances for public uses, because they think they are excessive and irrelevant to the indigenous population (Abt Associates, 1982). Although some illegal subdividers will allow one or two meters right-of-way fronting building lots and allocate a minimal amount of open space for public use, the majority do not. They will instead shift the responsibility concerning setbacks for roads to the home builder.

While illegal subdividers close to existing main line infrastructure sometimes provide extensions to newly subdivided areas, they do not always feel compelled to provide any basic infrastructure. Subdividers know that once a subdivision becomes a neighborhood and residents go to register their land or lobby collectively through their local neighborhood councils, residents will eventually obtain public facilities and infrastructure (Abt Associates, 1982). Subdividers and developers also know, from observing the informal process, that the government may expropriate land from private landowners or use adjacent public land to install social facilities like mosques, churches, schools and hospitals (Abt Associates, 1982). Figure 30 illustrates the development of illegal land subdivisions over agricultural and desert lands, and shows the extensive and rapid development of illegal subdivisions. Contemporary subdivisions over agricultural land maintain the "regular" pattern of previous agricultural subdivisions. In contrast, illegal subdivisions over desert land display mostly an irregular pattern of development.

Figure 30. The Development Pattern of Illegal land subdivisions. Source: Steinberg (1990).

Land Tenure Modifications

In 1982, the Alexandria Governorate issued a state land decree. Under the general guidelines of the State Land Protection Strategy, adjustment of regulations for public landholders were developed to take steps towards legalizing land titles and securing tenure status for these public landholders (Decree No. 324 of 1982; Alexandria Governorate, 1982). A State Land Protection Agency office in Alexandria was established to be responsible for the implementation of this policy.

This state land policy is assumed to be applicable to any "public" or "state land" parcel within Alexandria. Any public landholder is required to pay as downpayment a base fee of 2.5 LE (3 US Dollars as of January, 1982) per square meter if he wants to legalize his land tenure status. A downpayment receipt will be issued, as the initial step for registration. The end of 1982 was set as the time limit to accept applications and payments.

The decree stated that "a committee of planners, officials and bureaucrats will assess the total value of the land according to a criteria judgment of variables such as location, gross area, zone, use, level of services, level of amenities and others" (Alexandria Governorate, Decree 324/1982). According to the decree, "the assigned land values will be definite, and when it will be declared any landholder would have a choice either to pay at once or to pay in installments over a ten year period, the base pre-paid fees will be deducted from total, and at either case a formal title for the land will be issued" (Alexandria Governorate, Decree 324/1982).

Furthermore, if any public landholder had erected any type of building over a parcel of public land before January 1982, he could be eligible for formal connection to all public water, electricity, telephone, and sewer systems, where applicable. The date at which a building was erected could be confirmed by requesting an assessment of construction date and building age through the concerned local municipality (*El Hay*)

within which the land is located. A representative of the Engineering Department--an architect or a planner--will assess the building construction date, value, use, and need for services in a field observation report, for which the landholder will pay a fee. This assessment report, along with the downpayment receipt could then be submitted to any "public utility" authority, e.g., Municipal Water Agency, and the connection to the service, in most cases, would be granted. This procedure, on one hand, accelerated the level of housing development on these "public" lands, as indicated in Chapter 5. And, on the other hand, it opened the door for personal relations and corruption to control the process by which informal units and houses could be connected to municipal utilities.

The decree seemed to be realistic and, thus, many applications were submitted to the SLPA in Alexandria in 1982. It was estimated that more than 20 million Egyptian Pounds (23.8 million US dollars as of 1982) were collected as downpayments¹. However, in January 1986, when a re-registration session was opened, few applications were made, as elaborated later in this chapter.

To summarize, it is clear that the land policies, as applied in Egypt, and their consequent land regulations helped to create a confused, complicated and unclear system of land ownership, which, in turn, affected the operation of the land market as a whole. The following section assessing the impact of land policies upon the informal land market.

LAND POLICIES IMPACTS ON THE INFORMAL LAND MARKET

A review of current land subdivision, urban growth and land tenure policies is instructive in assessing the impact of policies upon the growth of informal land subdivisions, and consequently, the operation of the informal land market in Alexandria.

¹ This estimation was calculated from a review by the author of the State Land Protection Agency files in Alexandria. However, the files were not able to be circulated or copied, so that no reference could be referred to in the text of this research.

These policies affect land subdivision and land invasion processes, and influence land prices and land tenure patterns within the four settlements studied.

Supply of Illegal Land Subdivisions

Most of the informal housing in the settlements studied have been situated on land that was illegally subdivided, i.e., subdivision in contravention of procedures and standards dictated by different laws of 1940, 1975, and 1982. In fact, many owners failed to adhere to the subdivision regulations regarding their land. Consequently, they failed to have a legal subdivision. As a result, the land was subdivided illegally, therefore, subdivided land could not be registered and the type of housing that developed over them was informal.

However, according to a planning official interviewed, the 1982 urban planning law--please refer to table XLVI--has been ineffective since enactment; once a neighborhood has been established in an illegal subdivision, the law was virtually impossible to enforce. Even when a citation is made after the subdivision had been established, it was difficult to remove people who have bought parcels and constructed houses on them. The city could use its rights against the "violation" subdivider as well as the individual parcel owners (adopted from Abt Associate, 1982), but the individuals' rights to develop private property protected the subdivider and the property owner, in most cases. This fact has been evident in many cases from Sidi Bisher Qibly area, where the Civil Court gave many property owners the right to stay on their parcels and protected them from eviction despite the need to use parts of these parcels for public use--for implementing a sanitation project in the area (El Araby, 1992a).

The process of land subdivision on privately owned agricultural lands took the form of "big pieces" of registered lands being subdivided into "small pieces" of unregistered lands. The subdivisions of areas 1 and 2 (Danna and Abu Soliman), as exhibited throughout the years 1958-1986, illustrated that parcels were subdivided from a

feddan or more (4200 square meters--almost 1,038 acres) to parcels ranged from 80 to 120 square meter--approximately 860 to 1300 square feet. Area 3 (Nadi El Sid), publicly owned agricultural lands were subdivided by the initial settlers of the area, although it had been characterized by the grid pattern of the public housing project that was constructed during the early 1960s. A variation in lot sizes was found in this area where lots ranged from 60 square meters to 300 square meters. In area 4 (Allam), the "publicly-owned" desert lands were subdivided by the two families of Allam and El Dariasa in the late 1960s. The early land subdivision of the area aimed mainly at facilitating trucks' movements for Allam's stone quarry. Most lands were divided into big pieces--by *feddans*--then many parcels were subdivided to small areas and sold by the square meter. As indicated previously, a land subdivision boom occurred in this area after 1982.

This land subdivision process happened gradually. For example, a carpenter returned from Kuwait in 1986 and bought 1 *Karat* (175 square meters--approximately 1900 square foot) from Fawzy Abu Soliman; a land subdivider who sold most of his 50 *feddans* in different parts of areas 1 and 2--Danna and Abu soliman. The carpenter then subdivided his land into two pieces (80 and 95 square meters--approximately 860 and 1040 square foot) and sold the first piece to help in constructing the other. Figure 31 depicts the process of land subdivision over the agricultural lands of Danna and Abu Soliman.

Illegal Land Invasion

People who either subdivided or invaded land illegally did not find any obstacles to do so because there were no urban growth planning law--at least until 1982, or specified land use regulations, or determinants of zoning, or clear ownership of "public" lands. The certainty of "public" ownership was lost between different central and local authorities, and both of them claimed ownership or control. There was also uncertainty about private ownership for other public landholders who felt that they "own" the land,

Figure 31. The Development Process of Illegal Land Subdivisions.
Example from Danna and Abu Soliman.

according to 1936 law. All of these factors resulted in the invasion of major parts of the urban land in Alexandria (El Araby, 1992a). The illegal occupation of land can take one of three forms. First, land may be "invaded" spontaneously by literally hundreds of families simultaneously. Second, it can be accessed via the input of a third party (generally illegally, resulting in the development of what are commonly known as private lots (Ishmael, 1988). And, third, land can be invaded through gradual infiltration, carried out by a small group of people who, by noting the lack of reaction of the land owners, occupy a particular parcel and increase densities and uses of this land (ECLAC, in Ishmael, 1988).

There is no evidence that land invasion was planned in any way or that a large number of families invaded one area in the same time for any reason (as in many Latin American cities) in the four settlements studied. Land invasion in the study areas progressed through the process of "gradual infiltration". Land invasion mainly occurred during and after political and economic crisis times in late 1950s after the 1956 war; early 1960s after the socialization acts of president Nasser and the Yemen War; late 1960s after the defeat of 1967, early 1970s before and after the 1973 war; and late 1970s after the open door policies and Camp David agreements of President Sadat.

News of availability of land traveled at the local level by word of mouth (Ishmael, 1988) and quite often was the results of people coming into the area, especially in the early stages of developing that area; to assist a relative/friend in the construction of his unit or adding major modifications to his existing unit; or relocating to a public housing project in the site. Realizing that more lands were available and the ownership of these lands is uncertain, the former (i.e., friends who assisted) relocated as well as passed on the word to relatives and other close friends. However, as explained previously, the development of the study areas started by a government action such as the erection of public housing projects over these "agricultural" or "vacant" land.

In area 3 (Nadi El Sid), for example, land invasion started after the distribution of the governmental units in early 1960s where it took two forms of invasion. First, old settlers in the area start a gradual occupation of vacant lands, where its ownership was in doubt and unclear, with a partial connection with people in power in the authorities. These settlers became the leaders of the area and their power extended over the area, and the faith of the newcomers in the relative power of those people helped to invade the land in a substantially short period. Second, the people who were evicted from other slum areas within the city, or lost their homes due to collapse or any other reason moved to this area in order to establish the moral claims of being homeless due to other economic and housing crises of the country.

Area 4 (Allam) and other parts of El Agamy and western Alexandria had gone through a different mechanism of land invasion. Two families had the initial control over the lands of area 4: Allam family and El Dariasa Family. The former had a license to extract lime stones from a quarry in the site, while the latter "inherited" the right to use and occupy this land as being members of Ali' sons tribe (*Awlad Ali*). Those two families had a good and a natural relations with this tribe (i.e., Ali' Sons) who had a great influence in the Egyptian western desert and Libyan Boarder (Soliman, 1985). The politicians avoided conflict with this tribe's relatives for national security reasons before 1973, and avoided taking any legal action against them (Sadat, 1978 quoted from Soliman, 1985). Those two families felt that they were the owners of the land. In the 1960s and early 1970s, they began to subdivide the land and sold it for private land developers mainly for commercial use. In some cases, some landholders have succeeded to gain a "title" for their land through courts according to the law of 1936.

In all areas, Danna and Abu Soliman, Nadi El Sid, and Allam, politicians and governmental officials avoided any conflict with inhabitants of those areas and preferred not to take any action against them. This is mainly related to the fact that the government

was itself facing other economic and military crises and by many means tried to avoid any trouble with the people that could result in creating more internal troubles or civil riots within the country. Table XLVII presents the chief factors that led to squat the land. A significant 64% of all responses were based on the fact that land was available for housing.

TABLE XLVII
WHY PEOPLE SQUAT

Reason	Percent
The land was there	36
I was told to do so	28
The land was Idle	26
The location was good	6
It was a chance to own land	4
Total	100

N = 46 (100% of All squatters who equal 17% of total sample)

As illustrated in the above discussion, three major factors contributed to the succession of land invasion in the last two decades. First, the uncertainty of land tenure status, that is mainly related to disputes between different governmental agencies and the interpretation of different land holding laws. Second, the backing of the invasion process by initial settlers (i.e., Bedouin tribe in western Alexandria) who claimed power over the areas and claimed strong and direct relations, that could be true, to officials and politicians who had power at that time. Third, the macro-economic and political conditions in the country as a whole, that led many local or planning authorities to avoid any conflict with the invaders or inhabitants of these areas.

By the time of the study, 39% of all squatters--14% of all sample--had taken steps to secure land title. Alexandria Governorate issued a decree (No. 324 of 1982) concerning adjustments of the regulations for public land holders in order to legalize their tenure situation and, consequently, their settlements. The Decree gave the people who

squat a plot of public land, even if they purchased it from another or illegal owner, the right to repurchase the plot through the State Land Protection Agency in Alexandria by January 1982. However, in January 1986, the agency declared the acceptance of new applications for land registration. As indicated earlier, few applications were made--according to the files of the SLPA almost 20% applications were made in 1986 and the rest were made in 1982.

However, because of high levels of consolidation among residents, a large number of landholders, on one hand, had not paid the charges, and the people who paid the charges, on the other hand, did not have any benefits till now, or even did not have a title of their lands, after almost ten years of payments. A major dispute occurred between the State Land Agency, who claimed to be responsible for these "public" state lands *Amlak Amerya*, and the general Organization for Agricultural Reformation, the General Organization for National Water, and the Ministry of Defense. Each of the latter agencies claimed that they owned major parts of the land, that were applicable to the Decree regulations, and thus these payments must be paid to them directly and not to the SLPA. Some cases went to the court and no decisions have been made yet. All the collected money is gone and used within the Alexandria's Governorate, not within the designated areas.

However, no body is quite sure how to implement this decree or how to have clear cut ways to legalize the land for those people who already paid this downpayment, or how to deal with people who found themselves in a situation where the actual owner of their land did not recognize their payments to the SLPA, and by law, they are still squatters on this land. However, the remaining 61% of all squatters feel very secure on the land in spite of the legality of their tenure. Legality of land tenure does not seem to be a major obstacle to "work" the land or construct a house over it.

Informal Types of Land Tenure

Current land tenure in the settlements takes a number of forms: ownership, squatting, renting, and occupancy free of cost. Landowners, the largest category, form 42% of the sample. A substantial number of them do not registered their lands. Squatters (identified as those who had built homes on lands that they did not own or rent, in the absence of the original owner permission) represent 35% of all sample. However, squatting is subdivided into three categories: Squatters (11%); original squatters now recognized by government (14%); and registered squatters under *Tahker*² system (10%), Table XLVIII.

TABLE XLVIII
TYPES OF LAND TENURE

Tenure Type	Percent
Owners	42
Squatters	11
Original Squatters recognized by Law	14
Registered Squatters "Hekr"	10
Renters "wakf" or "private"	20
Other (rent free of cost)	3
Total	100

N = 122 (100% of all owners = 45% of total sample)

Renting is mainly a process through which land is rented from the original owner. In most cases the owner is a public agency, and the land is to be used by the original renter. However, some renters sold the right of using these land, by a sub-rent contract, to other people. The total number of renters represents 20% of all sample; 41% of those renters had a sub-rent contract from the original renter. Of all settlers in the study areas, only 3% occupied the land rent free. Table XLIX provides a cross tabulation of land tenure arrangements by settlement.

² *Heker* literally means monopoly. The *Tahker* system is proposed to give squatters of endowment lands *Wakf* the right to use and register these lands for themselves and their heirs, but they can not release the land or rent it. These squatters pay annual fee for using the land.

TABLE XLIX
LAND TENURE BY SETTLEMENT
(IN PERCENTAGE OF LANDLORDS WITHIN EACH SETTLEMENT)

Tenure Type	Danna N = 59	Abu Soliman N = 29	Nadi El Sid N = 21	Allam N = 14
Landowners	62	55		
Squatters			38	28
Recognized squatters			42	42
Registered squatter	11	14		
Public or private renters	27	31	10	23
Other			10	7
Total Percent	100	100	100	100

Most landowners are located in Danna and Abu Soliman (areas 1 and 2), while virtually none are located in Nadi El Sid (area 3) or Allam (area 4). High percentages of squatters were located in Nadi El Sid and Allam. This distinction between land tenure in the studied settlements is largely related to the origin of each settlement. For example, some landholders in Danna and Abu Soliman who originally succeeded in securing their tenure through registration--in accordance with the law of 1936--became free-landholders. The original settlers in Nadi El Sid occupied the land knowing that they could not be evacuated from the land. The original landholders of Allam always had the feeling that they "owned" the land due to other political circumstances that previously discussed.

Many public renters were located in Danna (area 1) because of the fact that some of the lands of Youssef Danna and Abu Zid Khalifa went under the General Authority of Agricultural Reform and Endowment Ministry *Awkaf* and by different processes of variance, exchange, etc., as previously mentioned, some parcels were rented during the sixties. The recognized squatters form of tenure, those who paid the downpayment to the State Land Protection Agency to register their lands, was found in Nadi El Sid and Allam. Finally, other forms of tenure were registered squatter *Hekr* that was found in Danna and Abu Soliman and the rent free-of cost that was found in Nadi El Sid.

Increased Land Prices

Residential land prices have increased steadily since 1970 when the informal housing phenomenon began to gain momentum (Abt Associates, 1982). Nevertheless, land policies, along with other factors of macro-economic, political and social conditions within the country had a great impact upon increasing land prices. In the settlements studied, average prices ranged from (in Egyptian Pounds per square meter) LE 2 to 4 per square meter in the 1960s, from LE 6 to 10 per square meter in early 1970s, from LE 15 to 25 per square meter in late 1970s, from LE 30 to 45 per square meter in the mid 1980s, and from LE 60 to 90 per square meter in the early 1990s. The land price could reach as high as LE 150 per square meter or higher for prime residential and commercial locations (in areas 1 and 4).

Table L presents a cross tabulation for the land prices within the study areas by the time of purchase. It is quite clear that a rapid and a radical increase happened in the land prices, that almost doubled every 10 years. Average land price was LE 2 per square meter in the 1950s. It reached LE 57 per square meter in the 1980s--an increase of more than 28 times in a span of 30 years.

The willingness to pay these prices varies according to the importance the homeowner places on location. Most seem to be more concerned with the nature and the width of the main street facing their parcel. Even those homeowners who built their homes illegally were concerned with the street width because the Egyptian Building Regulation permit the maximum height of a building to be equal to 1.5 (one and a half) times the street width. This implies that investors in the informal sector had a feeling that, in a time, their lands and/or homes will be legalized. Owners then might benefit from the regulations that could add value to their lands. The commercial nature of the adjacent street adds another value to the land, where land developers could maximize their profit through either using the first floor of their buildings for commercial activities, or keeping

the land for future speculation that in most cases raised the value of the land.

TABLE L
LAND PRICES BY TIME OF PURCHASE

Price Category	Time of Purchase							
	+ 30 Years		30 to 20 Years		20 to 10 Years		- 10 Years	
	N	Av. Price	N	Av. Price	N	Av. Price	N	Av. Price
LE < 2	8	1. 20						
3 - 5	5	3. 50	4	4. 00				
6 - 10			5	6. 80				
11 - 20			6	24. 00				
21 - 30			3	24. 00	15	27. 00		
31 - 40					11	34. 00	2	35. 00
41 - 50					2	46. 00	8	47. 00
51 - 60					1	65. 00	5	65. 00
61 - 70								
71 - 80							2	76. 00
81 - 90								
+ 91							1	98. 00
Total Number	13		18		31		18	
Average Price		2. 00		12. 00		31. 00		57. 00
% of Sample		17%		22%		38%		23%

N = 80 (65% of all owners and 30% of all sample)

All prices are illustrated in terms of value per square meter, values are presented in Egyptian Pounds (LE).

Another factor affecting the price of land parcels is the proximity of existing or proposed infrastructure or social services. Proximity to recreational amenities (which simply do not exist in any study area) or to place of employment do not seem to affect land prices. People who could afford to invest in land suitable for residential use bought as much as possible (usually by *feddan*--4201 square meter) for speculative reasons. For instance, in late 1960s, the price of one *feddan* in area 4 (Allam) averaged LE 150 or LE 0.28 per square meter. In the late 1980s, the average land price in the area reached LE 44 per square meter--an increase of approximate 150 times in twenty years. People of modest incomes bought larger lots than required (usually by *karat* - 175 square meter) so that they could expand their homes or resell vacant lots at a later date. Finally, land was filtered to low income groups who, in many instances, bought only by square meter. This

group got only enough land to construct a small dwelling that could later be expanded vertically (Abt Associates, 1982).

Informal Land and Building Acquisition

In the four study areas, three types of land and housing acquisition mechanisms existed. First, owners who acquired a piece of land and erected a house or apartment building on it--67% of all owners (82 out of total 122) built on vacant land. Second, owners who acquired existing buildings--that means they also own the land--28% of all owners (35 out of 122) purchased existing buildings. And, third, owners who acquired, only, existing dwelling units--5% of all owners (5 out of 122) purchased housing units. Furthermore, most owners who acquired existing buildings or dwellings claimed to have subsequently made major additions or changes--59% (23 out of 40) of these owners claimed that. The minority of these owners kept their units as they acquired them and made no improvements. Owners who chose to either build on vacant land or to add incrementally to existing buildings usually did so to match their demand for housing with their incomes and available resources. The higher the possibility of having stable increase in income, the greater the chance to build on vacant land or to make major additions to existing units or houses (Abt Associates, 1982). This was evident in the radical changes in the type of housing constructed and the rate of housing starts during the economic boom of the mid 1970s . Fifty-six of all who built on vacant land or made major additions to their houses and units (105 owners) claimed that they did so in the last 15 years.

The reasons for choosing either lots or existing dwellings reflect the importance of the land issue in the location decisions. The availability of land at a good price reported by 44% of the sub-sample of owners--those who built over vacant land or made major changes to their buildings or units--as the major reason for acquiring land. See Table LI. The opportunity to own a piece of land, as a future investment, reported by 28% of all

respondents. However, the location of the parcel or the characteristics of the area only cited by 4% of all respondents in this sub-sample. Therefore, owners who prefer to build rather than to purchase are more sensitive to the price and the availability of land than to other factors that may affect their location choice. Table LI shows the reasons for which owners acquire lands.

TABLE LI
WHY OWNERS ACQUIRE LAND

Reason	Percent
Availability of land at low price	44
Opportunity to own land "security and investment"	28
Inheritance	13
Near relatives / work	7
Less crowded, better services etc.	4
Other (personal, etc.)	4
Total	100

N = 82 (100% of those owners who built on vacant land = 67% of all owners)

Other factors such as inheritance reported by 13% of all owners as the reason for acquiring land or building. Proximity to relatives, friends, or work found not to be of importance, 7% of all respondents cited "near relatives/friends, or near work" as the major reason to locate in the area. Lack of concern expressed for such factors may imply that owners feel that it is simply not worth the additional cost to achieve high levels of access to these services when initially choosing land or a dwelling (Abt Ass., 1982).

Informal Land Registration and Transactions

As illustrated under the topic of land subdivision, many private owners (mainly in areas 1 and 2--Danna and Abu Soliman) were not able to register their land because they mainly failed to adhere to legal land subdivision. Under existing laws, all rights of privately held property must be transferred legally and registered through the local district office of the Land Registration Division of the Ministry of Justice (*El Shaher El Aquary*).

Even though there were few formal registrations cited in the study areas--those owners who had a formal land title, other informal ways of land registration were observed that confirmed that a land transfer had been made. In some instances, the seller would go to court with the buyer, where the seller would allege partial non-payment for land on the part of the buyer. The court then charges in writing that the buyer must pay the unpaid amount, and a court order is issued. The buyer then pays and receives receipt from the seller. Other way is that after writing a primary contract between the seller and the buyer, the buyer goes to court claiming that a dispute had occurred between him and the buyer about the exactness of the contract. Then court issues an order regarding the exactness and effectiveness of this contract (*Seha wa Nafaz*). This order is delivered for both buyer and seller. To many people, this action constitutes a form of registration, and goes no further than that. In fact, this happened not only for the privately owned lands, but also for the publicly owned lands. In area 4 (Allam), a number of buyers who mainly purchased large amounts of land, went to court with the seller who claimed, i.e., the seller, to own the land by a kind of inheritance according to the law of 1936. Then, a court decision is issued to confirm this type of transaction.

Another way of getting a formal document for the transfer of land is through the police. After the buyer got his land, he goes to the police station to issue a police report against the seller accusing the seller of invading his land. Then, the police confirms this event, by visiting the site and issuing another report that confirms this invasion. Then, seller and buyer go to court and declare they are able to solve the dispute (*Tasalouh*), a court report is then issued. Many others landholders or land buyers, especially who own a small piece of land, started directly by constructing any kind of building on the site, or in other cases complete their building and then go to the local district to register their lot numbers and addresses so that they may be eligible for postal and communication services. Table LII illustrates how land owners proved their ownership.

TABLE LII
PROOF OF OWNERSHIP

Proof	Percent
Formal Title / registered or not	35
Primary contract / registered or not	33
Primary contract and payment receipt or court order	17
Primary contract and down payment receipt	9
Family title / not registered	3
Other (include nothing)	3
Total Percent	100

N = 122 (100% of all owners)

Thirty five percent of all owners had a formal land title--some of them did not register the transfer of the land title under which he became the land owner. Thirty three percent had a contract with the previous formal owner but is not registered because the land, in most cases, was subdivided illegally. Twenty six percent had a primary contract and a kind of payment receipt for the court, or a kind of court order, or a downpayment receipt from the State Land Protection Agency. Three percent of owners had an unregistered family title and a further 3% had nothing to prove their land ownership, unless the fact that their houses were there.

Land transactions in the form of primary contract, which constitutes most cases, were always settled in a satisfactory manner. The seller and the buyer were always able to agree on most articles of the contract, which could be written by one of them or an friend and was signed by two witnesses, along with the seller and the buyer, who exchanged the copies of the agreement.

CONCLUSIONS

This chapter has outlined the main land policy issues in Egypt and their impact upon the development process of informal housing sector. The early land policies in Egypt affected the process in which land was purchased, transferred, endowed, and/or

acquired at least until the first half of the twentieth century. These policies also affected the way by which land rights could be transferred or inherited. Six land tenure types were observed that significantly impacted the process of how land was transferred, subdivided, used, and transformed as potential for informal development in recent years.

The presented evidence confirms the final research hypothesis that applied land policies, especially after the Revolution of 1952, and their consequent land regulations helped to create a confused, complicated and unclear system of land tenure and types of ownership. These consequences affected the operation of the land market as a whole. Coping with the legal requirements for obtaining a formal land subdivision seem to be impossible for many owners. Therefore, the only alternative was to subdivide their "privately owned" land illegally. On the other hand, squatters and early settlers of state land areas found an easy access to occupy parcels of land that did not have an explicit public owner or controller due to disputes or confusion of responsibilities between many governmental agencies concerning these lands.

Furthermore, policies of land subdivision, land use, and land tenure regulation have created a significant upward shift in the provision of illegal land subdivisions within that no specific land use was defined and no certain type of ownership was declared. As a result of such policies, a boom in the provision of informal land occurred in the last 30 years. The negatives obviously are consumptive impact on scarce agricultural land and irregular patterns of housing development that create environmental problems. Nevertheless, the positives are the provision of cheap and accessible land for housing construction and the reduction in the need for expensive municipal services because of self-organizing mechanisms.

Periodic governmental interventions in the performance of the informal land market proved to be either ineffective or inappropriate. Ways of securing tenure, by imposing fees and repurchasing the land from the authorities in exchange for a title, as

introduced in the Alexandria Governorate Decree of 1982, have led to increased levels of development, higher land prices, and more active land speculation within informal settlements. Land prices have been increased at a compound annual rate of 30 to 45% in the last decade. Increases in land costs led to increasing construction costs and consequently increased housing costs. Therefore, the success of the informal land market in providing “cheap” land is proved to be high when governmental interventions was low.

From the analysis undertaken in this chapter, land tenure varies from owners to squatters, however, having a formal title for the land does not seem to be a major concern for informal land owners. It is evident that the informal land market is functioning in a smooth way where land transactions are done in a satisfactory manner for both sellers and buyers. Land policies, in general, impacted the operation of the land market in Egypt as a whole and, undoubtedly, resulted in creating informal land market in Alexandria.

CHAPTER IX

FINDINGS AND POLICY IMPLICATIONS

In light of the empirical analysis described in the previous chapters on the characteristics of the informal housing sector in Alexandria, the determinants of its housing production, and the impact of land policies upon its land market, this chapter will attempt to summarize the major findings of the research and explore some of the relevant policy implications.

MAJOR FINDINGS

This study examined and analyzed the major issues and trends pertaining to the development process of the informal housing sector in Alexandria, Egypt. The discussed issues--analysis of macro-structures impacts on urbanization and housing, informal housing characteristics, informal housing demand and supply, and land policies' impact upon informal housing--are essential instruments in the formulation of policy options regarding informal housing. Some of the major findings of the research are addressed in the following sections.

Macro-Structures Impacts upon Informal Housing

Macro-economic, political, and social structures significantly affect both the urbanization process and the housing sector of Alexandria. It is evident that these macro-structures had a significant impact upon the creation of primate cities in Egypt--Alexandria included--and the foreseen urban-rural bias structure that resulted in increasing the need for housing and other services in major urban centers. Furthermore, these structures affected the performance of the housing market and resulted in the

market's failure to provide housing, especially for low and lower income groups, through both formal private and public sectors. Therefore, these factors created a need for informal access to both housing and land to meet increases in demand. Consequently, macro-structure factors helped to accelerate the emergence and the development of informal housing settlements within the city.

Informal Housing Development and Characteristics

Most informal housing settlements developed rapidly during and after times of economic and political crises in the country. The government itself played a role in initiating and expanding housing and other activities over peripheral agricultural lands which, in turn, accelerated levels of informal development activities--housing and others--over these lands. Informal settlements are heterogeneous with respect to all social, economic, demographic, and physical characteristics. It is not evident that informal housing is synonymous with marginal and poor quality housing occupied by poor residents. With ample evidence that different socioeconomic groups are residents of informal housing units, it can not be argued that informal housing has been developed exclusively to meet the needs of the urban poor. Nevertheless, low income and lower income groups composed a major share of those who have found access to housing through the informal sector.

Households within informal housing settlements are engaged in different types of self-employment, salaried employment, and a mixture of both. Households that work within informal sector employment activities are providing channels to the wider "formal" economic sector. These channels proved to be integrated between both "formal" and "informal" sectors.

Informal settlements have low levels of public utilities and infrastructure. Households have found other "private" ways to connect their dwellings for these utilities, mainly water and electricity, however. Political desires and considerations, along with

private connections between residents and people in charge, affect decisions to extend infrastructure and other services to informal settlements.

Informal Housing Demand and Satisfaction

The empirical analysis of the housing demand variations among informal households generally indicates that income, household size, age of household head, and tenure status are the major variables which could explain different patterns of housing consumption and expenditure. The ability to consume higher levels of housing services is enhanced by increases in household income, life cycle stage of household head, and tenure status as being "owner." Therefore, owners consume more housing than renters, but renters pay higher proportions of their income for housing than owners pay. Furthermore, high income renters pay lower rent-to-income ratios than low income renters.

The probability of being an owner increases as the household's economic ability (income) increases, along with increases in household size and the head of household's age, but this probability decreases with availability of public "municipal" water connection. Having a legal title for the unit does not hinder the possibility of ownership in the informal sector. The implication is that neither the provision of public services nor the legal title of housing are obstacles to informal housing demand, which means that other factors, such as housing prices, are the greater determinants of demand for housing and location.

The analysis of residents' mobility verified the hypothesis that the majority of inhabitants of informal settlements moved from other areas of the city rather than being migrants or newcomers to Alexandria. Factors such as density, physical characteristics of settlements, and proximity to workplace prove not to have a great impact on residential location choices. Housing costs, for both owners and renters, and the ability to own are the alternative explanatory factors behind demand for housing and location. This was

manifested in the movements of households where recent movers are mostly owners.

The fact that owners have more freedom to choose housing and move to units which could satisfy their demand for housing is evidently supported by the analysis of housing satisfaction. Owners tend to express higher levels of satisfaction for both units and neighborhoods than renters. Both owners and renters express higher levels of satisfaction with neighborhoods than with housing units. Moreover, physical characteristics of both housing units and neighborhoods--units' gross area, water and sewer connections to units, garbage collection--are variables which most affect housing and neighborhood satisfaction. Nevertheless, both renters and owners express a willingness to pay for upgrading current services in their neighborhoods.

Informal Housing Production and Finance

The determinants of informal housing production proved to be in a dynamic process of change, which has been manifested in the vigorous processes of housing production through consolidation, conversion, transformation, expansion, and new construction. The general conditions of the overall housing market which affect construction costs and, consequently housing costs, appear to impact informal housing in similar ways. The general increase in construction material prices, the shortage of material supplies, the unavailability of skilled labor, the increase in labor wages, the enormous increase in land prices are all factors which have led to increased building and construction costs. Construction costs have doubled in the last ten years (1981-1991). Most of the units were added to the stock 15 to 20 years ago. Furthermore, increasing construction cost results in increasing housing costs. Increasing housing costs hinder the ability of many households to enter the market for the first time, or to change their place of residence, or to become owners.

Informal housing is not self-built, as the self-help approach implies. Rather, it is self-organized, mainly by owners of this type of housing. The housing delivery system is

market oriented and exists in all of the settlements studied. In many cases, owners organized this process of housing delivery system. Providers (mainly owners) use building materials obtained from suppliers (distributors), hired petty producers (contractors and/or builders) and professionals (technicians and sometimes architects/engineers) to produce this type of housing for rental or owner-occupied consumption. These providers are middle to lower-upper income households and are petty investors who have surplus capital to be invested in housing.

Informal housing finance depends upon small scale and incremental savings and is mostly privately financed. There is no governmental or institutional participation in the informal financing process. Owners mobilize their savings, over time or at once, to produce or purchase different types of housing units. Remittances and “other” savings played a major role in financing land and property purchases. Renters finance their access to housing units mainly through saving clubs “*Gamiyya*” which are informal saving institutions.

Land Policies Impacts Upon Informal Housing

The government policies on land subdivision, land use, and land tenure regulation have created a significant upward shift in the provision of illegal land subdivisions within which no specific land use was defined and no certain type of ownership was declared. As a result of such policies, a boom in the provision of informal land occurred in the last 30 years. The negatives are, obviously, consumptive impact on scarce agricultural land and irregular patterns of housing development which create environmental problems. Nevertheless, the positives are the provision of cheap and accessible land for housing construction and the reduction in the need for expensive municipal services because of its self-organizing mechanisms.

Periodic governmental interventions in the performance of the informal land market proved to be either ineffective or inappropriate. Ways of securing tenure, by the

de jure procedure of imposing fees and repurchasing the land from the authorities (e.g., the State Land Protection Agency) in exchange for a title, have led to increased levels of development, land prices, and land speculation within informal settlements. Land prices have increased at a compound annual rate of 30 to 45% in the last decade. Increases in land costs led to increased construction costs and consequently to increased housing cost.

Having illustrated some of the research major findings. Some implications for policies and ways of interventions will be pointed out.

POLICY IMPLICATIONS

Throughout the research, three major features of Alexandria's informal housing sector were revealed:

1. The different groups of the urban population who access housing through informal sectors did so because of major restrictions imposed upon the provision of housing through the formal sector such as rent control, land regulations, prices, etc.
2. The issue of "legality" with the "institutional" perception and standards is neither a major concern for inhabitants of informal settlements nor an obstacle to the development processes of such settlements.
3. The type of housing produced through this "informal" delivery system is not that far below the "conventional" standards, although it creates potential health and safety hazards, due to excessive horizontal and vertical expansions.

Having these features in mind, the policy challenge which arises is how to deal with such "informal" development--whether to control it or guide it and how to reduce some of the negative impacts associated with current development patterns. Both questions require that officials, professional planners, and bureaucrats recognize and deal with informal housing.

Guiding Future Development of Informal Housing

The restrictions imposed by the government so far, such as controls for rent, unrealistic regulations and standards for both building construction and land subdivision, have restricted the performance of the formal private sector in the housing market (El Araby, 1992b). Furthermore, the government failed to provide housing for all and to conceal the created gaps between the supply and demand for housing. These factors accelerate the need for informal access to housing and consequently land. A policy option is, therefore, to eliminate these restrictions upon the supply of rental units in the market bearing in mind that most inhabitants of informal sectors are renters.

Another possible intervention of the government in the housing sector, instead of being a provider of “ineffective and inefficient” public housing projects, can be done through the following:

1. formulating policies regarding control over land
2. facilitating the supply of infrastructure, services, materials and other supplies
3. expanding technical provision and skills upgrading educational programs
4. easing current central control and centralized building standards, regulations, and permissions
5. initiating housing finance programs

In sum, a vigorous combination of policies on both the supply and demand sides of housing, land, infrastructure, and finance markets is urgently needed in order to guide future expansion and development of informal housing.

Controlling and prohibiting the development of informal housing is neither a realistic nor a feasible option for policy makers and planners. Consequently, increasing enforcement against informal housing per se, which proved to be unwarranted, will create more distortions and severe damages in the housing market. Simply, informal housing that is bulldozed in a given area will eventually appear in another area. However, the

policy question is how urban planners can direct development towards desired areas and initiate a “sustained” development process. Assuming that national government will succeed in the modification of current policies and accomplish the formulation of development policies which have previously influenced the phenomenal growth of the informal sector, then urban planners and local officials could effectively start this “sustained” development process. After answering questions such as for whom do we want to develop, for what purpose, what are the targeted objectives, what are the alternatives, and how this potential plan would be implemented and monitored, a realistic approach for guiding “informal” development could be achieved.

For example, a progressive system of property taxation can help in reducing levels of development within the undesired areas. Such a system can, meanwhile, draw income for local governments which could be used in assisting different schemes to make other “desirable” areas more accessible. Furthermore, local governments could provide “planned” desert lands on a 99 year lease or even rent free to those who can develop it. This process could reduce land speculation to a minimum. Middle income groups--who have proved to be capable of providing housing--should be the target of such development schemes. Other low and lower income groups must be a target for other subsidy schemes. Using a system of positive incentives for investors who could provide rental units in the desired areas--tax waivers, tax reductions, soft loans, and facilitation of “commercial” financing--should encourage these investors to locate there. Most importantly, these “desired” areas must be developed with a gradual and adaptable enforcement of the law. Prescribed, flexible and locally developed laws and regulations are highly desirable.

It is anticipated that such development will take place in peripheral areas where land could be available. Therefore, the use of peripheral lands for that purpose will necessitate:

1. The rationalization of existing transportation systems and roads
2. The allowance of informal economic activities within those areas
3. The provision of incentive systems to small workshops and small industries to locate there in order to increase employment opportunities
4. The supply of realistic systems of infrastructure, social services, and communications. In an effort to reduce the cost of providing services and infrastructure, services can be made available to these areas using more realistic technical standards of supply

Informal housing proved to be self-organized--not self-built in the conventional meaning. Therefore, developing a system of community control, as introduced by Turner (1990), by establishing non-governmental organizations and community-based organizations, would create mediators capable of acting between government and people as well as being community developers in their own right.

Managing Current Informal Housing Development

Having explored some options of guiding future informal development, then, the question of maintaining and upgrading current informal settlements can be approached in several ways. The increased demand for housing within informal settlements has resulted in the continuing pressures for excessive vertical expansion and economizing on building materials. This practice may overstress existing structures and may lead to structural disintegration and collapse.

Technical assistance and technical training for both builders and construction workers in informal areas should be considered so as to teach these builders and workers the minimum essential safety requirements. Thus, the whole body of current building standards, that set high safety and sometimes unrealistic requirements, has to be realistically reviewed and reformulated in order to meet the needs of low income people.

A vital need for infrastructure is observed, especially for sanitary systems in the

informal areas. Nevertheless, levels of infrastructure within informal settlements are well below the average general levels of infrastructure within the city as a whole. Many residents in informal areas cited their need for infrastructure, for which they expressed a willingness to pay. However, the rationale for connecting an informal area with infrastructure or not relies on political will, or the existence of political pressure to serve that area and the availability of funds for the execution of the project--mainly through foreign funds and foreign donors such as US AID. The policy issue here, which has to be addressed, is the rationale for serving any area with infrastructure that is not to be dependent on the above factors. Rather, it has to be based on balance between costs and benefits and on a balance between efficiency and equity issues.

A theoretical argument suggests that securing land tenure will lead to improve housing and settlements conditions (Doebele, 1987 and Turner, 1977). However, securing land tenure by means of imposing fees and down payments--as introduced in Alexandria in 1982--resulted in increasing speculation over "public" land, land prices, rent charges, and, surprisingly, levels of development within informal settlements. In order to avoid that, insecurity of tenure can be dealt with in three separate ways.

1. Lots can be transferred to squatters using a sliding scale of sale price based on length of occupancy.
2. Lots can be leased to squatters so as to regularize tenure.
3. The institutional requirements regarding the system of titles and deed can be made more flexible by recognition of de facto occupancy as representative of all legal rights to certain parcels of land as appropriate.

Informal housing has been constructed, improved, and upgraded over time according to the economic status of a household. Thus, injecting commercial finance into the process of delivering shelter in the informal settlements, though it might inflate overall housing prices, will ease the upgrading process of these settlements. Then, the

question is how to inject commercial financing for increasing opportunities to both finance and upgrade housing without this accompanied “inflationary” character. This aim could be achieved through a set of policy mechanisms to provide small scale soft loans (according to gross income) for those who want to enter the rental market for the first time or provide subsidies to target group households by means of rent supplements, direct payments towards rent, or direct cash payments to those households. In an effort to increase the pool of money available to the people in the established settlements for the purpose of completing or upgrading their units and settlements, there is the need to identify grass roots organizations which can serve as bridging institutions between the residents of those areas and the financial commercial sector.

Understanding the way in which governmental actions and attitudes towards housing, in general, and informal housing, in particular, makes the call for redirecting and modifying current policy tools and perceptions of a great importance. The challenges for policy makers and planners, as displayed in the preceding chapter, are the need to regulate and guide future “informal” development and to upgrade and maintain current “informal” housing stock and settlements.

The experience gained from this research revealed the need for more research and inquiry about the informal housing sector not only in Alexandria but in other Egyptian settings as well. The success story of informal housing, as elaborated throughout this study, in providing shelter despite current prohibitions and obstacles in the provision of shelter in Egypt has to be positively recognized. The progress of development within informal settlements and the sheer determinants of inhabitants to move forward--to survive and to hope in the future-- all must be appreciated and admired.

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APPENDIX A

THE HOUSEHOLD SURVEY

INTRODUCTION

In the context of the informal housing sector in Alexandria, Egypt, there was virtually no reliable, current data about both the size, demographic characteristics, social indicators, and economic activity of the population and the housing, and units characteristics in the informal housing settlements in Alexandria region. In the context of this study, the informal housing settlements are the administrative areas *Manateks*, according to the census of 1986, that are clearly identified by boundaries, names, and informal housing activities. As previously elaborated, Chapter III provides a detailed definition about the informal housing and illustrates the criteria that used, in this study, to define and select informal housing settlements. The last census figures of 1986 published results about population in Alexandria as whole and crude numbers about major statistical indicators according to administrative districts *Qisms* and sub-administrative districts *Shiakhat*. However, there is no available data about the administrative areas *Manateks*--each sub-administrative district contains administrative areas. The census data never provided a breakdown of population characteristics according to the type of housing, i.e., formal and informal, people lived in. Furthermore, the census did not cover information about income, expenditure, detailed housing characteristics, residential mobility, and types of employment on either block or area level. Current information about all of the former aspects was needed. The only way to collect all of the needed information is a household survey within the settlements under study.

The objective of the household survey is the identification of major social, economic and physical parameters of the informal housing sector that can be used to describe the process of mobilization factors that formulate the informal housing in Alexandria. The collected data was used to analyze aspects of housing physical and social characteristics, economic characteristics, housing construction, and housing finance.

QUESTIONNAIRE DESIGN

On the basis of an intensive questions determination and phrasing process, reviewing other questionnaires and tools employed in previous studies, previous field testing and observations, and revision of an earlier draft questionnaire (which was prepared in 1988) the final household survey questionnaire was established (in an Arabic version) and employed in the study areas (Appendix B).

This household survey questionnaire served to recover information needed in this research regarding seven topics of :

1. Building Characteristics
2. Housing and Units Characteristics
3. Housing Tenure
4. Household Characteristics
5. Residential Mobility
6. Housing Satisfaction
7. Household's Income and Expenditure

The first section included information about the observed type of structure and building, use, number of floors in the building, and general condition of the building. Second, the housing and units section provided information about the size of the unit, the attached or available utilities, services and amenities, the number of rooms, bathrooms and kitchen available for the household, use of the unit, and the changes which occurred in the building since the household moved in. Third, the housing tenure section recovered information about tenant and owners-occupied housing. The tenant occupied section provided information about rent, access to units, and ways of finance. The owner-occupied section provided information about the ownership type, the owners who built on

vacant lands or made major additions or changes to their units or buildings, methods of housing, construction and finance, land and building acquisition, and housing costs. Fourth, the household characteristics section recovered information regarding household data on age, marital status, educational status and type of training, household head place of birth, employment status and principle occupation, place of work or study and modes of transportation, and ownership of vehicles and domestic appliances for the household. Fifth, the residential mobility section provided information about duration of residence and intentions to move and location of previous residence. Sixth, the housing satisfaction section revealed household's level of satisfaction with both housing units and residential neighborhoods. Finally, the last section of the questionnaire recovered information about household income and expenditure .

DATA COLLECTION AND PILOT STUDY

Prior to the actual survey, a pilot study was carried out in a random selection of dwellings within the survey areas, the pilot study is valuable because it assess any field problems or obstacles, to be solved before the actual survey; estimates the time needed and approximate cost of the actual survey; and drives public attention about the study as an introductory step ahead of the actual survey.

In addition, a cover letter and a letter of reference were distributed to all selected units regarding the purpose and the nature of the study. These letters urged people to participate and answer the questionnaire, assuring them that all their answers would be confidential, and thanked them for their collaboration and support (Appendix II).

The pilot survey took place from Monday, September 30, 1991 to Sunday, October 6, 1991. Forty one interviews were carried out by myself, 21 in Danna (area 1), 9 in Abu Soliman (area 2), 6 in Nadi El Sid (area 3), and 5 in Allam (area 4).

The actual household survey took place from Saturday, October 19, 1991 to Thursday, October 31, 1991. Data was collected by myself, two other controllers (supervisors), and 8 trained interviewers (part time census employees and students from the Faculty of the Social Services in Alexandria). Training was provided to the interviewers through a set of seminars, field visits, and informal meetings with the working team. Prior to the actual survey, all of the interviewers become very familiar with the questionnaire and major features of the areas under study.

Transportation facility via minibus was provided to all the working team, including myself and the supervisors, to go and return from the designated study area. Aerial maps of 1977 and 1986 were used, and a detailed map marked with the location of the selected blocks on a daily basis according to the progress of the work. Each interviewer was given a different colored mark to indicate the blocks he/she was responsible for. During the process of data collection each supervisor had a specific area to be controlled. The supervisors' duties included the supervision of a group of four interviewers to assure that each of them would go to the selected blocks and units, solve any urgent problem or conflict, monitor the process of data collection and collect the finished questionnaires immediately after finishing the interview. A selected landmark within each zone (sub-area) was selected to start and finish our working day. Meetings were held regularly after each two days of field work. Data was collected between 4:00 PM to 8:00 PM in order to find most household's head in the time of interviewing.

Each interview ran from 45 minutes to an hour. Approximately three completed questionnaires were finished by each interviewer per day of work, however due to some climatic conditions, i.e., rain, some working days were canceled. A total of 280 household questionnaires were completed, and then reorganized, according to area, for the process of data manipulation and data analysis.

SAMPLING PROCEDURE

The household survey is a simple random sample from an enumerated sample-frame that has been developed using a scanning survey for areas under study. The areas under study were divided into 18 zones, "sub-areas". The areas boundaries were defined in Chapter V, and were the major streets that surround the areas. The boundaries for the zones were usually manmade features (such as inner roads and streets), natural features (such as hill sides) in the areas under study, Figure 32.

As far as possible the 18 zones were selected to compromise equal number of blocks with areas as equal as possible. Each zone was further divided into survey blocks to facilitate convenient coverage and to aid in the management of the survey (MPDO, 1984). The limits of the blocks were the actual built up areas that were been determined by inner streets, and internal spaces within the sub-areas--the zones. An effort was made to demarcate a block so that it could contain an equal number of dwelling units according to the area. This hierarchical subdivision resulted in 539 blocks in 18 zones within the 4 areas under study.

The number of blocks in each zone depended on the number of dwellings, the density of development and the gross area of the zone. To control the selection procedure, the boundaries of each block were marked on the map, and each block was given a seven-digit serial number (adopted from MPDO, 1984). The first two digits identified the area, the next three digits assigned the zone, and the last two specified the block. The code number 0301219 meant the block number 19 in the zone 12 in area 3. It was possible to identify the block even without the area number because the zone numbers in the total area were assigned continuously. Blocks were numbered within each zone (this coding procedure is following the procedure employed in the MPDO study, 1984).

The 1977 aerial maps were used for *Ezbet Danna* and *Abu Soliman* (area 1 and 2), the 1986 aerial maps were used for *Ezbet Nadi El Sid* (area 3), and *Ezbet Allam* (area 4). No major problem was encountered by interviewers to find blocks. A visit to the selected blocks was made by myself few days before the actual survey and all changes that has occurred, were added to a detailed map for each zone within each area.

The basic unit of the survey was the household, but for this selection procedure, the sample the basic unit was the dwelling. All households in the selected dwelling were interviewed. However, if the pre-selected unit turned out to be occupied by different households-- those who occupied a single "separate" room as a place of residence--all households in this particular units were interviewed. A household is defined, according to the census definition in 1986, as one or more persons living together in the same dwelling and having common arrangements for the provision of food and other living essentials (CAPMAS, 1987a). Servants, friends and visitors staying with the household were included, while family members working abroad or who were away from home for studies, military service, or and those who worked on airplanes, ships were excluded if they do have another residing place (CAPMAS, 1987a). The dwelling unit is defined, also according to the census, as being the place that is originally prepared for human habitation, such as the flat, one separate room, number of rooms, rural house or villa (CAPMAS, 1987a).

A 280 sample size of all dwellings represented all residential dwellings and their households in the areas under study. From the total of 539 blocks, a 119 block sample was randomly selected with proportion to block size. Between 2 and 3 dwelling units were chosen from each block; within each block a starting randomly number was selected by the author, on the office, and then every 15th dwelling unit was selected, on the site, on a systematic basis. Table LIII presents selected blocks and sample size by area.

Figure 32. Major Sampling Zones for the Areas under Study.

TABLE LIII
SELECTED BLOCKS AND SAMPLE SIZE
BY AREA

Code	Area	Number of zones	Total number of blocks	Average number of units/block	Number of selected blocks	Number of selected units/block	Total area sample
01	Danna	8	312	46	69	2	140
02	Abu Soliman	3	100	67	22	3	67
03	Nadi El Sid	3	50	69	13	3	41
04	Allam	4	68	40	15	2	32
Total Sample		18	539		119		280

A random sample of all the blocks was the basis for the scanning survey that helped to estimate the average size of blocks within each zone in all the areas under study. A total of 58 blocks were randomly selected; 26 in Danna, 12 in Abu Soliman, 10 in Nadi El Sid and further 10 in Allam. An observation block sheet was employed (section VII, Appendix B) to collect data about the total number of dwelling units, total households, gross area, number of residential buildings, physical characteristics of the buildings in the block and physical condition of the zone "neighborhood" in which each block was located. This process helped to estimate total number of dwelling units and total households in areas under study along with the average gross area for dwelling units as presented in Chapter III; and Chapter VII.

Supervisors and interviewers were instructed to start working from a defined corner of each block, that was marked on maps, and supervisors were helped in identifying that corner on site prior to start work. The first dwelling to be interviewed was selected by a random select number by the writer and then every 15th dwelling was selected until the proposed number of interviews was met. Interviewers then start the interview at the selected dwelling, however, in case of refusal, a vacant unit, or an absent household head, the dwelling next to the previously selected one was chosen and interviewed. This procedure was employed in the Abt Associates study in 1982, and for this study, it was very useful in reducing the refusal rate to a minimum or virtually nil.

DATA PROCESSING AND ESTABLISHING VARIABLES

All questionnaires were thoroughly edited in order to identify any omissions, inconsistencies or other errors. A total of 8 uncompleted questionnaires were omitted due to major absent values, and a total of 272 questionnaires were sent to the Computer Department, Alexandria University where the data were transferred to Excel sheets and verified. A double check was made to assure that the entry of each column lay within the valid range and was consistent with comparable entries in the columns. Most of the errors were corrected by inspecting the original questionnaire.

Upon further data manipulation, the needed variables for this research were established to include (in a random order):

1. Housing characteristics, including
 - structure type
 - structure condition
 - number of floors
 - number of dwelling units in building
 - type of dwelling unit
 - number of rooms in the unit

- number of persons in the unit
- dwelling unit condition
- tenure status
- housing unit rent per month, where applicable
- built / bought status
- cost of purchase, where applicable
- cost of land, where applicable
- cost of having access for land, building and unit
- satisfaction in current residence
- 2. Settlement conditions, to include
 - number of units attached to public services
 - number of public schools, medical, social, fire, and police centers
 - satisfaction with current conditions
- 3. Households characteristics, to include
 - type of household (e.g., single person, female headed household, etc.)
 - household head age and age group
 - household head marital status
 - household head employment status
 - household head employment skills
 - household head sector of employment
 - household head place of work
 - household head and members educational status
 - household head origin
 - household expenditure and income
- 4. Residential mobility, to include
 - reasons to move to Alexandria, if any
 - previous household location
 - reasons to move to this area from the previous residence
 - intention to future move
 - number of years in Alexandria
 - number of years in current location, and in current house
 - modes of transportation
 - journey to work time
- 5. Households' willingness to pay for,
 - improvements in the settlements
 - improvements in the building
 - improvements in the unit
- 6. Determinants of housing production, including
 - types of materials used
 - sources of materials
 - participation in the construction
 - designer
 - contractor
 - permission
 - time of construction
 - date of completion
 - reasons for incompleteness, if possible
 - modification since completion
 - construction finance
 - construction cost
- 7. Land acquisition process, including
 - access to land, and area purchased

original owner
original use
process of acquiring land
process of subdivision
land cost in the time of purchase
estimated current land value
participation in the SLPP

All of the above variables were the potential parameters to examine the research hypotheses by different means of data analysis. Then, findings for this research were extracted, and illustrated as shown throughout this study.

APPENDIX B

THE QUESTIONNAIRE

The questionnaire version presented here is a translation to the actual questionnaire which was administrated in Arabic. Here, the questionnaire is not presented in the same format of the Arabic version.

THE HOUSEHOLD SURVEY
Questionnaire Serial No.

District Number: Surveyor ID.
Sub-District Number: Controller ID.
Area Number:
Block Number:
Selected Unit Number:

Interview

Date: Starting Time: Ending Time:

If a household refused to be interviewed or the unit is vacant, then answer the first seven questions, after that start a new interview--use a new form.

PART I
BUILDING CHARACTERISTICS

1. Type of Building
 - Old, customary building
 - Legal (licensed) building
 - Under (early) construction
 - Under (final) construction
 - About to collapse
2. Description of Building Construction
 - Kiosk, tin, wood
 - Brick and any type of roof
 - Brick and concrete roof
 - Brick, concrete columns and roof
 - Other (specify)
3. External walls
 - Brick
 - Stone
 - Plaster
 - Mud brick
 - Wood
 - Clay
 - Other (specify)
4. Building Characteristics
 - Number of floors
 - Number of apartments
 - Number of shops
 - Number of separate rooms
 - Number of furnished apartments
(from total apartments)
 - Number of temporary apartments
(from total apartments)
5. Use of the Building
 - Residential
 - Work - industrial
 - Residential and work
 - Vacant

Other

6. Condition of the Building
 - V. Good
 - Good
 - Average
 - Bad
 - About to collapse
7. Age of the Building (*approximate estimation*)
 - Before 1960
 - 1960- 1970
 - 1971- 1980
 - After 1980

STARTING THE INTERVIEW

PART II
RESIDENTIAL CONDITIONS

8. The Respondent is

Household Head	Spouse
Other, specify	
9. How many persons are living in this household?
10. How many (total) rooms are there in this residence?

Rooms specifically used by the household
11. How many rooms are for your family's use only?
12. How many of these rooms are used for sleeping?
13. How many baths (or toilets and baths in one room) are in your house?
14. Are these toilets
 - For private use
 - For shared use
 - There are none
 If shared, with how many families?
15. How many are for your family's use only?
16. Is the kitchen used
 - Privately
 - Cooperatively
 - There is none
 If shared, with how many families?

17. Type of residence
 House
 A floor in a building
 An apartment or more in an apartment building
 Part of an apartment
 Separate room or more
 Furnished apartment
 Rural house
 Temporary unit (palm reeds/ tin shack tent/ kiosk)
 Other

18. Is your residence used for
 Residence only
 Residence and professional work
 Residence and commercial work
 Residence and agricultural work (storage or agricultural materials, etc.)

19. When do you think that this building was erected?

20. How long have you been in this unit?

21. Has there been any changes in this building since you moved in?
 Yes
 No
 No change/Do not know

If there is a change (increase or decrease) has occurred in the number of units

22. What changes were they?
 Building one or more apartments
 Building one or more rooms
 Dividing some apartments into smaller ones
 Dividing some apartments into separate rooms
 Combining some apartments
 Combining some rooms into apartments
 Converting shops into apartments or rooms
 Converting some apartments or rooms into shops or garages
 Other (specify)

23. What are the public services connected to this unit?

Water	Electricity	
Sewerage	Phone	Other

If there is no service available

24. What is the service you need most?

25. What is the source of pure water?
 Private connections

Public connection to the unit
 Public faucet outside the building
 There is no pure water

In cases of no pure water

26. Do you get water from:
 Private pumps in the building
 Public pumps outside the building
 Private pumps for the dwelling
 Wells and springs
 Other (specify)

27. How much do you pay per month for water ?
 LE Piasters

28. What type of sewer is there ?
 Public sewer
 Cesspool
 Septic tank
 Pit latrine
 None
 Other (specify)

29. Do you pay anything for sewage disposal?
 (connection charges, maintenance charges, or pumping out tanks)
 Yes
 No

If yes

30. How much do you pay per month/year ?
Note: If an advance payment periodic payment are made, note both.
 per year / or
 per month

31. Does the dwelling have electricity ?
 Yes
 No

If yes

32. How much do you pay each month for electricity?
 LE Piasters

33. How do you dispose of garbage ?
 Carried away by garbage ?
 Take it to the garbage dump
 Throw it in the street
 Other (specify)

If collected by garbage collectors

34. How much do you pay the garbage collector monthly?

**PART III
HOUSING TENURE**

35. Do you own or rent this unit?
Own go to 60
Rent

DATA ON RENTERS

36. Do you have a contract with the owner?
Yes
No
37. Who owns your dwelling?
Central government
Local government
Public sector
Awkaf
Real estate company/Cooperative
Relative/Friend
Private owner
Other
38. What is your rent now?
39. What are your rent when you moved in?
40. Who decide the rent value?
Owner
The Rent Determination Committee
Other (specify)
41. Is this apartment furnished or unfurnished ?
Furnished
Unfurnished
42. Does a renter live in one or more rooms in your dwelling ?
43. If yes, how much do they pay per month ?
44. Does the owner live in the building ?
Yes
No
45. Did you pay anything as an advance before you moved in ?
Yes
No
- If yes*
46. How much did you pay to: (Amount in LE)
Previous tenant
Owner
Broker
Other (specify)

47. What are the sources of money which you used for pay for your dwelling?
Savings from gamiyya
Savings from bank account
Other savings
Payment from incoming tenant
Sale of land
Sale of jewelry
Gift from family or friends
Loan from bank or savings organization
Loan from family or friends
Other (specify)

48. How did you know about the place?
Advertisement
Personal search
Real estate agent/broker
Relative/friend
Other

49. Has the building condition improved or declined since you have been here?
No change
Improved
Declined

If there has been improvement

50. What have been the most important improvements?

If there has been decline

51. What have been the most important declines?

52. Who does the required repairs and maintenance in your dwelling ?
Myself
Owner himself
Friend or relative
Specialized workers
Contractor
Other (specify)

53. Who paid for these repairs?
At my expense
At owner's expense
Me and owner

54. How much did you spend ?

55. Is the building properly maintained ?
Yes
No

If no

56. In your opinion, why is that?

57. Are there vacant units in this area?

Yes

No / Do not know

If yes

58. In your opinion, why is that?

59. If you wanted to rent a new place similar to yours, about how much do you think it would cost you?

DATA ON OWNERS

General data on all owners

60. Do you own all or only part of the building?

Only the dwelling unit

The dwelling unit and part of the building

The dwelling unit and all of the building

61. Do you own all or part of the land on which the building is situated?

Yes

No

62. About how much land is this building situated on ?

Areas in square meters:

63. Supposing your dwelling was rented how much monthly rent could you get for it?

64. What is the total price of this unit at the time of purchase?

65. Suppose you wanted to sell your dwelling, how much could you get for it?

66. When was this building erected?

67. What was the purchase price of the land and the property, or the purchase price of the property?

68. What sources of money did you see to buy this?

Didn't pay anything

Savings in gamiya

Savings in bank/ credit union

Other savings

Key money from former dwelling

Sale of property

Sale of jewelry

Gift from friends / relatives

Inheritance

Loan from bank/ credit union

Loan from family/ friends

Other (specify)

69. What was the condition of the dwelling or building when you took possession ?

Built on vacant land

Acquired the dwelling or building but made major additions

or changes

Acquired the building or dwelling in the current condition

In case of no major additions or changes

70. Why haven't you made additions or changes ?

What is the most important reason

Not enough money

Can't get building materials

Can't get technical help/ labor

Can't get government approval

Afraid the government might make me move

Building not worth it

Other (specify)

Data for builders on vacant land only

71. How did you acquire the land ?

Bought from previous owner

Rented from previous owner, then bought

Wakf/Hekr

Inherited

Other (specify)

72. What year did you acquire it?

73. What was the most important reason for choosing this piece of land?

74. How did you find the lot?

Friends or relatives

Broker

Advertisement

Looked for it myself

other (specify)

75. When you got the land, was it specified as a building lot ?

Yes

No

Don't know

76. If no, what was it specified as ?

Agricultural land

Desert

Other (specify)

77. Who was the previous owner ?

Government

Private individual
Wakf
Union/ Organization/ cooperative
Don't know
Other (specify)

78. Have you registered the land ?
Yes *If yes, skip to 93*
No

If no

79. Why haven't you done so?

80. If not registered, has it caused you any worry or anxiety?
Yes
No

81. If yes, what is the cause of your concern ?

82. Is this a state "public" land?
Yes
No *If no, skip to 95*

83. Did you pay the downpayment for the pre-registration?
Yes *If yes, go to 85*
No

If no

84. Why haven't you done so?

85. How much did you pay?

86. What was the main reason for you to pay?
Future security
Raise the land value
Possibility to have permission and title
Possibility to be connected to public utilities
Fear from governmental actions
Other (specify)

87. Do you think that paying this payment has raised the land value?

88. How much you think it has been raised?
in percent %

89. What are the services you received since paid?
Water Electricity
Sewer No service
Other

If you paid to the State Land Agency (SLA) and there were units existed on the land

90. Do you think that paying the downpayment has raised the units' value?

91. How much you think it has been raised?
in percent %

92. Did the SLA take any steps towards registering your land?

93. Did you have trouble registering the land ?
Yes
No

If yes

94. What were the most important difficulties ?

95. In your opinion, how much does the average person know about the rules and regulations of building on vacant land ?
Knows all or most of them
Knows some of them
Knows a few of them
Doesn't know anything at all

96. Do you think that most who build are ignorant about these laws ?
Yes
No
Don't know

97. How much did you pay for the land ?

98. What is the original land area of the lot ?
Area in m2

99. Have you sold any of the land which you initially got?
Yes
No

If yes

100. What is the land area of the land which you sold ? (Area in m2)

101. Who did the subdivision?
Myself
Gradual subdivision according to need
Previous owner
Friends/relatives
Government
Architect/planner
Other

102. Did you registered the subdivision?
Yes
No

103. If no, why not?

104. Of the land you now own, about how much would you say a similar piece would sell for today? (Price of m2 in LE)

The Construction Process

To be filled out by owners who built or who made major modifications

105. Where did you live while you were building or modifying your house?

- On a temporary site near the building
- With friends or relatives in their dwelling
- In a rented room
- In a rented apartment
- In another place which I own
- In the same dwelling
- Other (specify)

106. Did you get a building permit from the appropriate authorities to build or make additions to the dwelling?

- Yes
- No

If no

107. Why didn't you get one ?

If yes

108. Was the permit for building or for making additions?

- Building or rebuilding the property
- For additions

109. How long did it take from requesting to receiving the permit ?

Period: Year Month

110. What building materials were allocated to you with the permit ?

111. Who designed your dwelling or building ?

- Myself
- Friend / relative
- Building contractor
- Architect / engineer
- Government
- Other (specify)

112. Who actually carried out the construction or renovations ?

- Contractor (responsible for building and supervision)
- Relatives (in their spare time)

Head of household

Group of workmen (various construction teams supervised by the owner)

Other (specify)

113. What problems did you encounter during the construction or renovation ?

- Shortage of skilled labor
- Getting labor to the construction site
- Shortage of building materials
- Transporting materials
- Getting water to the construction site
- Transporting workers to the construction site
- Shortage of money
- Obtaining permit
- Hassled by authorities
- Other (specify)

114. Do you think that many owners deviate from the specifications on building permits ?

- Yes
- No / Don't know

115. Do you think that many owners in the area have built without permits?

- Yes
- No

116. From where you get the building materials?

- Nearby supplier on area
- Nearby supplier in adjacent area
- Outside supplier
- Other

117. Did you buy most of the materials in

- Free market prices
- Regulated prices
- Subsidized prices
- Black market prices
- Other

118. Did you use any second hand building materials?

119. If yes, what were they?

- Reinforced steel bars
- Gravel's
- Doors/windows
- Floor lumber
- Brick (any type)
- Glass
- Toilets
- Sink
- Other (specify)

120. Did you or your contractor use any mechanical equipments during construction?

121. If yes, mention type and use of equipment?

122. When did you finish your construction or addition?

123. How much did the total construction cost you at time of completion?

PART IV HOUSEHOLD DATA

The following table is to be filled out for all members of the family who are permanent residents of the household

124. Is the household head?

Married
Divorced
Widow
Separated
Single

Questions 125 to 127

START with the household head, then ask about age? sex? relationship to household head?

128. What is your educational status?

Illiterate
Read or write
Finished Primary
Finished Preparatory
Finished General Secondary
Finished Secondary - Arts
Finished a degree higher than secondary but less than University
University Degree (includes post graduate degrees)
Other (specify)

129. What is your employment status?

Employed
Unemployed

If employed

130. What is your primary occupation?
I work for myself and don't employ anyone
I work for myself and I employ others
I work in the family without payment
Employee / private sector
Employee / public sector

131. What is the type of work you do (or did), or what is your main profession?

132. What is your monthly income?

If unemployed

133. Are you then

Student
Housewife
Retired
Elderly - not able to work
Handicapped - not able to work
Newly unemployed
Don't want to work
Worked before but not able to find job

If respondent answered newly unemployed or not able to find job

134. What is your education or training background?

135. For how long are you unemployed?

136. How can you get the money to cover living expenses?

137. Does the household head own any type of vehicle? specify?

138. How do you usually get to work?
(means of transportation for those who answered to be employed)

Public bus
Taxi
Collective Taxi
Train
Bus or car provided by place of work
Private car
Motorcycle
Bicycle
By foot
Other (animal/ boat/ carriage)

139. How long does it take to go to work (for those who work) ?

Hours Minutes

140. Which of the following appliances do you have ?

Butagaz stove
Electric stove
Butagaz or electric water heater
Electric washer
Refrigerator
Television
Air conditioner
Private telephone

**PART V
RESIDENTIAL MOBILITY**

141. Where the household head was born?
Governorate:
City:
Village:
Type of place (urban/ rural)
142. Where did you spend most of your life -- or where have you been since you were 16? (was this in a city or village?)
Governorate:
City:
Village:
Abroad:
- If lived in a place other than Alexandria*
143. When did you move to Alexandria?
144. What were your reasons for moving to the city?
Looking for a job
Starting work for the first time
Job transfer
Changing type of job
Education (for respondent head of household)
Education (for children)
Education (for other family members)
Marriage
Divorce
Widowhood
To live with or near family
Displacement
Health reasons
Improved living conditions
Eviction
Return from abroad
Retirement
Other (specify)
145. When did you move to this area?
146. Did you live in another dwelling before you lived here?
Yes
No

If yes

147. With regard to the dwelling which you lived in right before you moved here, were you:
A renter
An owner of the dwelling and the land
An owner of the dwelling only
Living with your family or relatives

Living with friends
Other (specify)

148. What is the most important reason to move to this unit?
To become an owner
To own a new space
To rent a new space
For new household formation/ as owner
For new household formation/ as renter
To have more space
To be near work
To be near relatives/friends
Other
149. Of the following reasons, which would cause you to think of moving ?
Change place of work
Lower family income
Higher family income
Change in family size and housing needs
Change to move into government housing
Forced to evacuate dwelling
Housing cost rises
Other (specify)
150. What is the most important reason to select this unit?
Price/Rent
Availability
Nice neighborhood
Low density area
Near services/amenities
Near work
Other
151. Do you prefer to be owner or renter?
152. Do you plan to move in the next five years?
Yes
No
Do not know

153. If no or don't know, why?

**PART VI
HOUSING SATISFACTION**

Regarding the dwelling

154. How satisfied are you with your dwelling ?
Very satisfied
Satisfied
Some what satisfied
Some what not satisfied
Not satisfied

In case of satisfaction

155. What do you like about your dwelling--in what order of importance?

- Sufficient number of rooms
- Healthy dwelling
- Social environment of the neighborhood
- The neighborhood is quiet and clean
- Rent is cheap
- Close to transportation
- Close to schools
- Close to work place
- Close to family friends
- Owner
- Other (specify)

In case of non-satisfaction

156. What don't you like about your dwelling ?

- Number of rooms is not sufficient
- Dwelling not healthy
- The social environment is
- The neighborhood is noisy and not clean
- Rent is expensive
- Far from transport
- Far from Schools
- Far from work place
- Far from family and friend
- Other (specify)

Regarding the area in which you live

157. How satisfied are you with this area ?

- Very Satisfied
- Satisfied
- Somewhat satisfied
- Somewhat not satisfied
- Not satisfied

158. What do you like about this area ?

- The area is healthy
- The social environment is appropriate
- Quiet and clean
- Means of transport are sufficient
- Schools
- Stores and shops close by
- Health services close by
- Other (specify)

159. What don't you like about your area ?

- Garbage in the streets
- Garbage in the canals and ditches
- Rats
- Flies and insects
- Overflowing sewers
- Air pollution
- Lack of pure water
- Lack of sewers
- Lack of adequate health facilities

Lack of electricity

Lack of sufficient transport

Lack of schools

A lot of power outages

A lot of water outages and the water doesn't get to the higher floors

Lots of workshops and noise

The social environment is not appropriate

Other

160. In your opinion, what change has taken place in the area in recent years?

- No change
- Gotten better
- Gotten worse
- Don't know

161. What changes have occurred in order of importance ?

- Streets paved
- Electricity connected
- Pure water connected
- Sewers connected
- Schools put in
- Health facilities put in
- Transport improved
- Shops moved in
- Control of flies and insects
- Streets cleaned and garbage collected
- The governments prevents
- Overflowing sewers
- Rising social class
- Other (explain)

162. In your opinion, what conditions have declined in order of importance ?

- A lot of garbage and dirty streets
- Overflowing sewers
- A lot of flies and insects
- A lot of mud in the streets
- A lot of water outages and no water pressure
- A lot of power outages
- A lot of workshops and noise
- Air pollution
- Drop in social class
- Other (specify)

163. What improvements in the area should be done?

- Nothing needs to be done
- Water connections to the area
- Electricity connections to the area
- Sewer connections to the area
- Famed streets
- Street repairs

Regular street cleaning
 Regular garbage collection
 Health care center
 Day care center
 Public school
 Sufficient transport
 Church/ mosque
 Eradicate rats
 Eradicate flies and insects
 Other (specify)

164. And would you be willing to participate in paying for them?
 Yes
 No
 Don't know

PART VII ECONOMIC CONDITIONS

Expenditure

165. About how much does the household spend monthly for the following: Food, Transportation, Recreation, Cigarettes/ tobacco, Gamiyya, Loan repayments, Monthly rent, Monthly payments for housing Insurance payments, Water, Electricity, Clothing Medical and health services, Education, Gift, Other installments, Butagaz and kerosene, and Other (specify)
166. Have you ever borrowed or gotten money from the following sources ?
 Gamiyya
 Bank/ Credit Union
 Sale of jewelry or gold
 Sale of land or property
 Other (specify)
167. What sources of money you use for the purchase or having an access to this unit?
 Savings in gamiya
 Savings in bank
 Other savings
 Sale of land or property
 Sale of jewelry
 Gift from friends/relatives
 Inheritance
 Loan from bank
 Loan from friends/relatives
 Other (specify)

Income

168. Considering your income and expenditures, do you consider your family:
 Unable to get by (make ends meet) most of the time
 Just barely able to get by
 Able to get by most of the time
 Reasonably comfortable
 Wealthy
169. What is your average monthly income and the sources of that income?
 Earning of main job (for employees)
 Earning from other jobs
 Incentives
 Own business/ trade
 Agriculture
 Rent
 Investment
 Pension
 Other (specify)

170. In addition to your income, how much do you get from your wife's, children's, and other individuals' income ?
 Wife LE
 Children LE
 Others LE
171. Do you receive payments from relatives working abroad?
 Yes
 No

If Yes

172. How much do you receive?
 (Amount in LE)

Thank you for your time, we appreciate your collaboration. If you do have any questions or comments or if you want to be informed with the results of this research please contact the project manager:

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TO THE SURVEYOR
 DELIVER THE COMPLETED FORM TO AREA
 CONTROLLER BEFORE STARTING A NEW
 INTERVIEW-THANKS