# Housing satisfaction, housing quality and method of dwelling acquisition in Oaxaca de Juarez, Mexico

by

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# CHAPTER I. INTRODUCTION AND LITERATURE REVIEW

## Purpose

The purpose of this thesis is to examine the determinants and consequences of the method of dwelling acquisition utilized by home owners in the city of Oaxaca de Juarez, Oaxaca, Mexico. In Oaxaca, as in many Latin American cities, households acquire land with the dwelling already on it or acquire the land and then build the dwelling. Often the process of building takes several years, and, in fact, may never be viewed by some families as "completed." The purpose of this study is to assess the impact of the manner in which housing is acquired on housing quality, a self-assessment of housing adequacy and housing satisfaction.

Like many Latin American cities, Oaxaca de Juarez has experienced a great deal of migration during the past forty years. Such in-migration coupled with longer life expectancies has led to housing problems characterized by a limited housing supply that is often of inferior quality.

Due to lack of funds and resources, the city, state and national governments have been ineffectual in dealing with the problem. Thus, much of the housing in

the city has been constructed by the residents themselves. Some of the dwellings were originally built as a part of squatter settlement areas of the city in which households illegally erected dwellings on land they did not own. Such settlements are almost a thing of the past in Oaxaca today, however, as most families enjoy legal title to their land and the dwelling. Constructing the dwelling oneself is still very much a part of the housing activity in the city, however, with households living in dwellings in various stages of construction.

This study will examine the ongoing nature of housing activity by examining housing quality, a self-reported assessment of housing adequacy, and housing satisfaction among three different groups of home owners: 1) those who acquired the land with the dwelling (through purchase, a gift or inheritance); 2) those who acquired their land and then constructed the dwelling and who view the construction process as complete; and 3) those who acquired the land and constructed a dwelling that is far enough along to live in, but is, nevertheless, viewed as incomplete.

# Oaxaca de Juarez, Mexico

## Geography

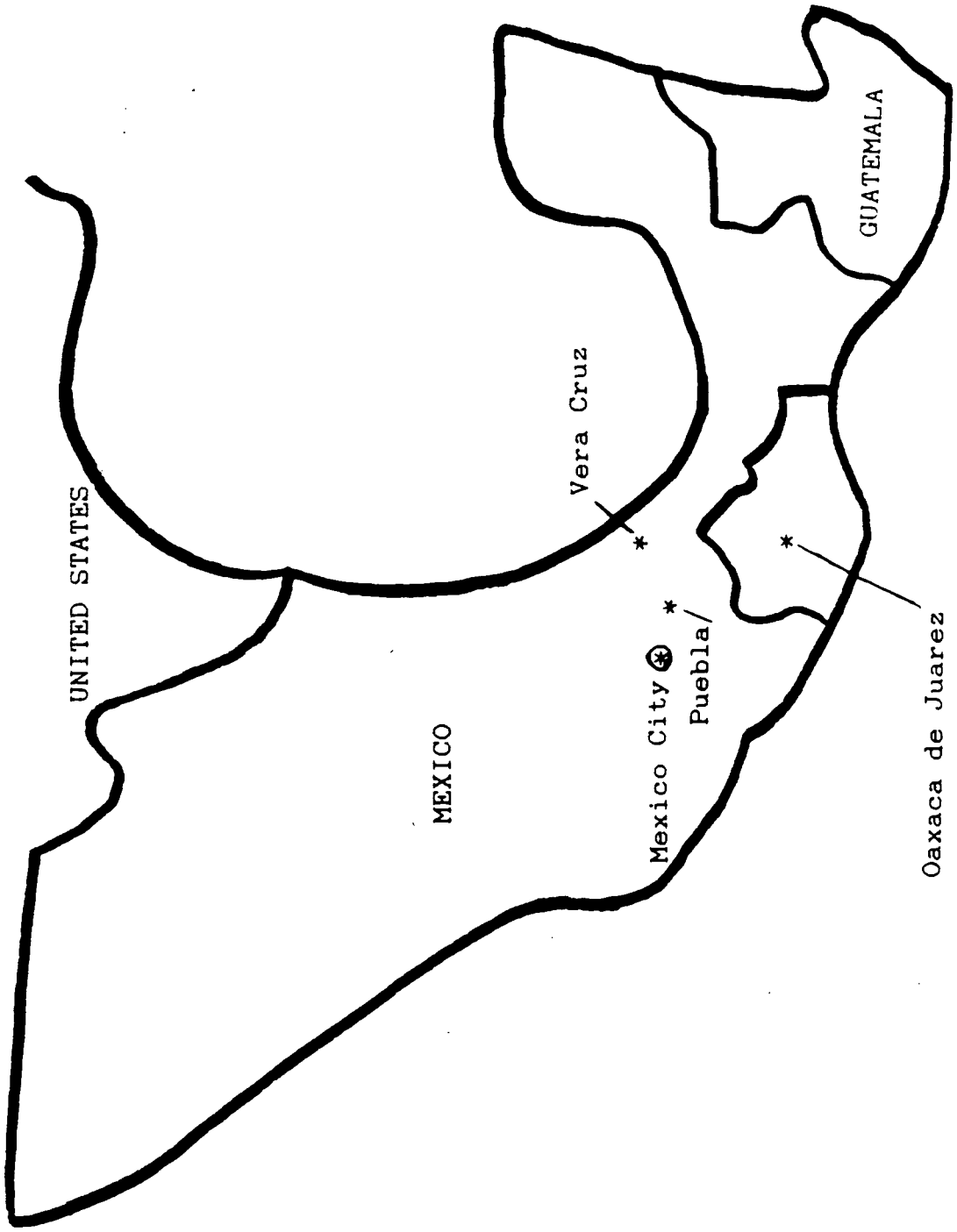
Oaxaca de Juarez is the capital of the state of Oaxaca in southern Mexico. The valley of Oaxaca is an alluvial plain which extends approximately 700 square kilometers between the eastern and western cordilleras {mountain ranges} (Chance, 1978). The city of Oaxaca sits at an altitude of 1,546 meters above sea level and is 531 km from Mexico City and 413 km from Puebla (Brooks, 1983).

It takes about eight hours to travel from Mexico City to Oaxaca de Juarez by car. The flying time is approximately one hour. Physically, Oaxaca is isolated from the rest of the nation because of the mountains which surround the valley.

## History

The valley of Oaxaca has been continuously inhabited since 8,000 B. C. and is home to at least 15 linguistically distinct groups of Indians (Chance, 1978; Levy and Szekely, 1989). Today one is still very cognizant of the large Indian population. On the streets of Oaxaca de Juarez one sees people still

Map of Mexico. From Let's go 1989: the budget guide to Mexico. Slater, Glenn E. (Editor). (1989). St. Martin's Press, New York.


UNITED STATES
MEXICO
Vera Cruz
Mexico City
Puebla
Oaxaca de Juarez
GUATEMALA

wearing distinctive indigenous clothing, and the market places are filled with the sounds of various Indian languages. The indigenous population decreased markedly following the Spanish conquest due to various epidemics and miscegenation with Spanish colonists. Growth of the indigenous population has been rapid during the post-conquest period (Chance, 1978; Levy and Szekely, 1987; Murphy and Stepick, 1989).

The indigenous population was initially exploited by the Spaniards and forced, by debt peonage, into subservient positions within Oaxacan society. Since the Spanish conquest, Oaxaca's indigenous population has remained at the lower end of the class structure (Chance, 1978).

With the exception of a brief period of industrial and economic prosperity in the 17th century, when the textile and cochineal dye industries flourished, Oaxaca has been a city without major industries to support its large population (Chance, 1978; Murphy and Stepick, 1989; Quirk, 1971). In the latter part of the 19th century, the state governor, Benito Juarez, calmed the state's political atmosphere and encouraged economic development. The Porfiriato followed Juarez (1876-

1910) and saw marked improvements in infrastructure, increased economic activity and foreign investment. Railroad lines from Mexico City to Oaxaca were established to allow easy access for nonlocal goods into the state (Murphy and Stepick, 1989).
The Pan American highway is Oaxaca's only quality road link to Mexico City; other roads lead northeast to Vera Cruz or south to the Pacific Coast (Murphy and Stepick, 1989; Park, 1988).

Demographic characteristics

In 1987 the population was approximately 310,000. The annual growth rate has been about 8 percent (Park, 1988). The number of men to women (sex ratio) of the city is 97.6. There are slightly more women (50.6 % of the population) than men. Women are slightly older than men. Oaxacan households are typically relatively large, (between three and seven members) in nuclear families that are headed by an adult couple. The size of Oaxacan households is above the national average of five members. In 1979 Oaxaca de Juarez's mean household size was 5.3 members whereas today the average is 6.0 members (Murphy and Stepick, 1989; Park, 1988).

Eighty-three percent of the adults are married. In the city, only one-third of the household heads are natives of Oaxaca de Juarez. Over one-third of the households have owned their land for over ten years, and 85 percent of the heads of households have lived in the city for ten or more years (Murphy and Stepick, 1989).

Economic and social characteristics

Oaxaca is one of the poorest states in Mexico and the city Oaxaca de Juarez is one of Mexico's many secondary or intermediate-sized cities (Murphy and Stepick, 1989; Park, 1988; and Quirk, 1971). As a state capital, Oaxaca de Juarez is at the bottom of the socioeconomic scale for the nation (Murphy and Stepick, 1989; Park, 1988; Preston, 1987).

The city's relative isolation from the rest of the country, and limited natural resources fail to attract new industries (Murphy and Stepick, 1989; Preston, 1987; and Quirk, 1971).

# Literature Review

The literature review is divided into two main sections. In the first section, Oaxaca's housing problems are placed in the larger context of the process of housing acquisition and improvement in developing countries. The second section focuses on housing issues as viewed from the perspective of the household. The purpose of that section is to review the literature on the factors that affect housing quality and housing satisfaction.

## Mexico's housing problems

Mexico has a housing deficit of about 4 million units. A housing deficit that large means that about 30 percent of the households in the population are in need of housing. With town and/or city agencies unable to house everyone, urban populations have to house themselves (Cubitt, 1988).

Temporary shelters are constructed out of whatever materials are available. Gradually, over time the dwelling is upgraded and enlarged with more durable materials. Thirty or forty years ago the vast majority of such dwellings were done without proper consent from city officials, and the dwellings thus lacked urban

facilities such as electricity, water and sewage systems (Murphy, personal communication, 1990). Today city dwellers, including Oaxaquenos, have legal title to their land but often still lack amenities. As the dweller's economic situation improves, so does his/her housing. Most move up within the stratified structure of the economy by educating themselves and acquiring skilled jobs (Cubitt, 1988; Murphy and Stepick, 1989).

Mexico, like many Latin American countries, has a legal stipulation to its constitution that if a family is able to live on land successfully (or in the dwelling built upon land of questionable title) for ten years or more, the family may file for full legal title as long as they can show proof of how long they have been there (Murphy and Stepick, 1989; Pacheco et al., 1989). In one sense by not evicting the paralegal dwellers, the government is indirectly providing a type of assistance to people who otherwise would be homeless (Murphy and Stepick, 1989).

## The stair-step process of housing acquisition and improvement

When low income families and recent migrants acquire housing, many are forced to use the stair-step process of acquisition and improvement. This process

of housing improvement has been examined in developing countries by Cornelius in Mexico (1975), Cubitt in Chile, Mexico and Peru (1988) and Lobo in Peru (1982). Much of their work has been observation of the process of migrants moving from rural areas in these Latin America countries to various urban centers.

According to these researchers the housing improvement process occurs in approximately five stages. The early stages generally do not last long (some are five years or less) and have been purposefully disguised by the participants in order to keep from attracting the attention of local housing authorities for fear of reprisal. These five stages happen so quickly and intermingle with one another so thoroughly that an outside observer might not be able to distinguish all five stages.

The typical first stage of the housing process begins once the dweller constructs and/or purchases his/her own first single family dwelling. Usually the first dwelling is one that is hastily constructed with improvised building materials collected from the surrounding environment (Gilbert, 1982; Murphy and Stepick, 1989).

The first dwelling is hastily constructed because the owner-builder constructs the dwelling on weekends, holidays or in the evenings. The speed with which it is constructed depends upon the owner(s)' network of relatives and friends who are able to help with the construction (Lloyd, 1979; Lobo, 1982; Patton, 1988).

The second stage starts shortly after the first has been successfully completed. Little by little the owner-builder replaces sections of the improvised dwelling with more durable materials such as cement blocks, wood, corrugated metal, etc. Most of the labor in this stage, as was the case in the first stage, is provided by the owner-builder, his/her family and friends and other networks that may include some contracted labor (Cornelius, 1975). Within a span of as little as five years, houses in this stage may have electricity (which is easy enough to pirate from legitimate lines directed to accommodate paying utility customers) but generally are lacking in other urban amenities.

The better houses are those seen in the third stage. Dwellings in this stage are at least 10 years old or older. Such houses may have concrete roofs and floors. The walls are constructed of brick

and the windows have either wood or glass coverings. Depending upon one's financial situation, dwellings at this stage tend to have more bedrooms than houses in the earlier stages of housing improvement. They also often have an additional story (Lobo, 1982).

Once a dwelling has reached this point, there is not much to distinguish it from dwellings that did not start out as a temporary shelter. The dwellings look virtually the same as those found elsewhere in the city (Gilbert, 1982).

Most people who have moved to the provincial towns or cities first establish themselves on the periphery of the urban center, retaining a somewhat rural lifestyle. Living on the periphery often means living in marginal or submarginal housing, which is representative of people at the first step of the housing model. The longer one is able to live in the city, the more kin and fictive-kin networks one is able to establish (Lloyd, 1979; McAusian, 1985).

Within three to five years these networks in turn have helped to improve one's physical dwelling and place within society; the family's housing is now at the second level (Lobo, 1982; Payne, 1977). Between the fifth and tenth year of residence (the third

level), the family has put a lot of time, energy and money into their dwelling. The longer they stay, the more likely they are to acquire constitutional rights that protect the title to the land they have been living on (Patton, 1988). Once the land title is no longer in question, the land owners are free to sell their property and move closer to the center of the town or city (Gwynne, 1985; Payne, 1977).

Stages 4 and 5 are subtle changes within the interior of the dwelling regarding use of space. In stage 4 the dwelling may have 2 or 3 bedrooms, a livingroom which also doubles as a dining room and/or bedroom, and a kitchen. By the fifth stage rooms are no longer multipurpose (livingroom by day and additional bedroom at night) but rather have individual functions which are separate from one another. Generally the number of bedrooms has increased proportionate to the size of the family, water and sewage hook-ups have been made and sometimes an extra room is built to take in boarders (United Nations, 1964).

Generally, but not always, houses at these two stages are located closer towards the center of the city. By the time the household is living closer to

the center of the city, they have moved into an area which is more likely to have or acquire water, plumbing and electrical hook-ups. Once the family is living in a permanent dwelling, it is more likely to make further improvements as opposed to moving again (Morris, Winter and Murphy, 1988; Murphy and Stepick, 1989).

Dwelling acquisition and improvement in Oaxaca

There are basically two methods of acquiring a dwelling in Oaxaca: acquiring the dwelling with the land or building it. Generally speaking those who purchase the dwelling are of higher socioeconomic status than those who build their dwellings. However, not all home builders are of the lower socioeconomic status.

Basically the builders in Oaxaca encompass two types of people: 1. those with the financial means to hire a contractor to build the dwelling they desire, and 2. those who will build the dwelling themselves gradually over a long period of time due to availability of funds. The stairstep housing process in Oaxaca pertains to the latter group. The develop-

ment of housing in Oaxaca's colonias populares (popular neighborhoods) can be described as occurring in stages (Riley, 1990; Murphy and Stepick, 1989; Pacheco et al., 1989; Morris, Winter and Murphy, 1988).

In Oaxaca's case, the first and the fifth stages are the easiest to detect as they represent the respective beginning and ending of the housing improvement process, respectively. Stages two, three and four are harder to distinguish from one another. By looking at the individual dwellings these middle stages may be viewed simultaneously by the presence of a pile of bricks, stack of wood or other building materials (as described as representative of any one or more stages) inside or nearby a dwelling reported as incomplete (Murphy and Stepick, 1989).

A great deal of housing activities take place in the colonias populares which generally (but not always) are at, or near the periphery of the city. It is in these neighborhoods that newly formed households (people who are recently married and/or with one or more children) establish their first, single detached dwelling. Examples of the various stages of the housing improvement process can be seen intermingled

throughout the colonias populares (Morris, Winter and 1988; Pacheco et al., 1989).

Regardless of one's current stage in the process, home builders in Oaxaca may be unable to reach stages 4 and 5 because of poor municipal water and sewage disposal systems. In the colonias populares people find the roads to be adequate but the water and sewage disposal systems are not. The municipal water system of Oaxaca de Juarez was originally designed in 1930. At that time it was designed for a population of 25,000 people. Presently the population is more than ten times that (310,000) and few governmental attempts have been made to update the system. The water table has fallen dramatically since the 1970s and the sewage system is only able to serve residents in the central portion of the city (Murphy and Stepick, 1989; Riley, 1990).

Stages of housing improvement are conceptual; they are difficult to measure empirically. Dwellings that are incomplete are less than stage five and those that are completed are greater than stage one but they may not be at stage five.

The method of dwelling acquisition (acquiring the dwelling with the land, constructing the dwelling and

viewing it as complete, and constructing the dwelling and viewing the dwelling as incomplete) is a rough indicator of the stages of housing improvement. The objective of this study is to test the general hypothesis that being at something other than the final stage causes lower housing quality and lower levels of housing satisfaction.

## Housing quality and housing satisfaction

The purpose of this study is to assess the influence of the method of dwelling acquisition on housing quality and housing satisfaction. Literature is reviewed that examines issues of measurement and details factors affecting both housing quality and housing satisfaction. The purpose of the latter discussion is to ascertain key variables that will need to be controlled if the effect of the method of dwelling acquisition on housing quality and housing satisfaction is to be assessed.

## Housing quality

According to Patton (1988), rapid urbanization negatively affects the standard of living in developing countries because it means individuals, by moving away from the less developed rural areas, to the more developed urban areas, are acting alone to solve their

housing problems. Instead of collectively working together to affect policy changes which would get at the root of poor quality housing (lack of water, sewage disposal and basic infrastructure in rural areas), people are putting their own needs above those of the collective whole or those of future generations (Cubitt, 1988; Patton, 1988; Van den Akker et al., 1979).

According to Morris and Winter (1975; 1978), in order to define and measure housing quality, one must view housing quality as it relates to objective and subjective measurement. The objective attributes contribute to a dwelling's quality through subjective reactions of families to those attributes.

Definition In the early 1970s researchers did not agree on the definition and measurement of housing quality. These deficiencies were brought to light by Turner and Fichter's (1972) controversial book, Freedom to Build: Dweller Control of the Housing Process. The two argue that people with lower income levels are making more demands for housing and have a greater will to invest their money into their dwellings than those of moderate to higher incomes.

This argument implies that people of lower income levels seek high quality housing just the same as

people of other income levels. It also indicates that their desire and actual ability to obtain high quality housing takes longer than it does for people of higher income levels. Deferred completion of a dwelling means, over the long-run, demands remain unmet for prolonged periods of time.

Turner recommended that the quality of a dwelling be determined by its use-value and not in the things which make-up the dwelling (Turner, 1976; Turner and Fichter, 1972). According to Van den Akker et al. (1979), housing quality depends on the materials and labor used for construction. In further discussion Van den Akker et al. go on to say that the occupant should regain the freedom to design and build the dwelling the way he/she wants it.

Morris and Winter (1978) define housing quality by using a desirability equation. In this equation consumer behavior and demand for consumer goods are based on the extent to which the goods fill needs or wants of the consumer. Housing quality represents a combination of certain characteristics and the importance of the characteristics to the family.

Housing quality consists of at least three dimensions. The first deals with structural quality or

the durability of the dwelling shell. The second dimension pertains to services ranging from kinds of equipment and facilities and the types of conveniences the dwelling provides. The third dimension is how well the dwelling is cared for and its overall state of maintenance (Morris et al., 1972).

Objective measurement Interior and exterior indexes have been developed that have been shown to be valid measures of housing quality. Interior indexes include the availability of plumbing facilities, structural quality and other services (cooking equipment, refrigeration, lighting). Exterior indexes include cleanliness and order of the lot, the furniture is in good repair and that the house is in good order. The quality of one's neighborhood has been used as a test of validity (Morris and Winter, 1978).

Kain and Quigley (1970) used market value of a dwelling to assess its quality. They assessed market value as related to the physical condition of the neighborhood and dwelling, amount of land in the neighborhood used other than for residential use, the age of the structure and the number of rooms in the dwelling.

Harris (1976) developed a single index to measure housing and neighborhood quality. The index incorporates a series of individual items which are added together and summed to allow for greater variations in scores of the item being measured.

Subjective measurement Subjective measures of housing quality entail individual internal assessments of one's own housing. The resident takes an individual perspective in evaluating the quality of his/her own dwelling. Morris and Winter (1978) found that the assessment is a product of one's life situation and the internal standards used to evaluate the housing. Generally such internal standards are based on past experience and observation.

Factors affecting housing quality An individual's socioeconomic status (particularly the income component) influences the quality of housing he/she can afford. The higher the family income, the better quality the family housing and the higher the family rating of its housing. The market value of a dwelling is often a surrogate for housing quality and is influenced by geographical location and the physical surroundings of the neighborhood (Morris and Winter, 1975).

## Housing satisfaction

Definition Researchers have come to define housing satisfaction as an individual's subjective assessment of whether or not his/her needs are being met (Danes and Morris, 1986; Morris and Winter, 1975; Park, 1988).

Measurement Generally speaking, satisfaction can be measured on two levels. The first level is overall housing satisfaction and the second is based on various levels of satisfaction with various components of the dwelling. Satisfaction is measured subjectively by asking general questions about how the household head likes the dwelling's space, tenure, etc. Further questions are also asked about the structure of the dwelling and other characteristics.

When a person reports that a need is not being met, it can be expected that his/her reported level of satisfaction will also be low. Satisfaction indexes can be self-weighting; this means the individual considers the housing attributes deemed necessary for the type of ideal housing he/she would like to have. Then the individual compares his/her ideal to his/her actual housing and weighs both in his/her mind to determine overall satisfaction based upon how well

housing needs and aspirations are being met (Morris and Winter, 1978).

Morris et al. (1976) and Park (1988) found housing satisfaction to be a good predictor of housing adjustment behavior. The personalities of the members of the household and how they interact together within the dwelling, their social class and stage in the life cycle influence housing satisfaction (Morris et al., 1976).

Factors affecting housing satisfaction Although there are numerous factors that influence housing satisfaction, this literature review focuses on the following four factors: age, education, household size and housing quality. A family's place in the life cycle helps them to ascertain (at that moment in time) what their housing needs, preferences and aspirations are (Michelson, 1977; Morris et al., 1976; Park, 1988). Unlike the temporary life cycle influences, one's socioeconomic status plays a much longer, more consistent influence on one's assessment of housing needs, preferences and aspirations.

Age Studies across age groups have shown that housing satisfaction is related to age; older people

report higher levels of satisfaction (Garcia et al., 1989; Harris, 1976; Morris and Winter, 1978; Park, 1988). Some of the differences reported in satisfaction levels have been attributed to changes in the internal perception of one's life situation (Morris and Winter, 1978).

According to Kinsey and Lane (1983) higher degrees of housing satisfaction among middle-aged and older household heads can be explained by their willingness to adjust their expectations to conform to the reality of their resources, and to personal and societal constraints. When an individual knows that the existing constraints will not change (any time in the near future), he or she adjusts the way of thinking so less focus is placed on the hope that these constraints will change and more energy is placed on appreciating what one has.

Education Thomas (1970) found that structure type of the dwelling is related to the educational level and age of the household head. Older people with higher levels of education are more likely to live in single family dwellings than those with lower levels of education or age. Those with lower levels of education

and age being more likely to live in mobile homes or apartments than people with higher education levels and/or ages. Slow construction of a dwelling often occurs when primitive building methods and tools are used (Solow, 1950).

Household size Studies have shown a negative relationship between household size and housing satisfaction (Harris, 1976; Park, 1988). The larger one's family, the greater its space demands and the less likely they are to be met.

Housing quality Danes and Morris (1986) found that a ceiling exists on housing quality assessment. They found that this ceiling in turn influences housing satisfaction. Once a family has reached high levels of housing quality, they derive little additional satisfaction from further increases in housing quality.

High quality and large dwellings produce high housing satisfaction (Morris, Winter and Murphy, 1988). The higher the family's income, the higher the satisfaction with their dwelling (Morris et al., 1976; Park, 1988).

Winter et al. (1988), and Winter and Morris (1978) discovered that the subjective assessments of a

condition influence satisfaction. Winter and Morris examined the influence of reported adequacy of the domains of housing, financial situation, education and leisure time on satisfaction with the domain. Their findings support the notion that reported adequacy is one of the most important predictors of satisfaction regardless of the domain. Individuals who report adequate conditions are more likely to be satisfied than individuals who view their conditions as inadequate.

Winter et al. (1988) found further support for the relationship between subjective ratings of a given condition and reported satisfaction with the condition. In their study of rural households in the North Central region, they found that satisfaction with one's financial situation was a function of the reported rating of the situation.

## Conceptual Model

Figure 1 shows the conceptual model for this study. The overall hypotheses are:

1. Socioeconomic and demographic factors influence the method of dwelling acquisition.

2. With selected socioeconomic and demographic factors controlled, the stage of dwelling acquisition influences objective housing quality.
3. With selected socioeconomic and demographic factors and stage of dwelling acquisition controlled, objective housing quality influences subjective housing quality.
4. With selected socioeconomic and demographic factors, stage of dwelling acquisition, and objective housing quality controlled, subjective housing quality influences housing satisfaction.

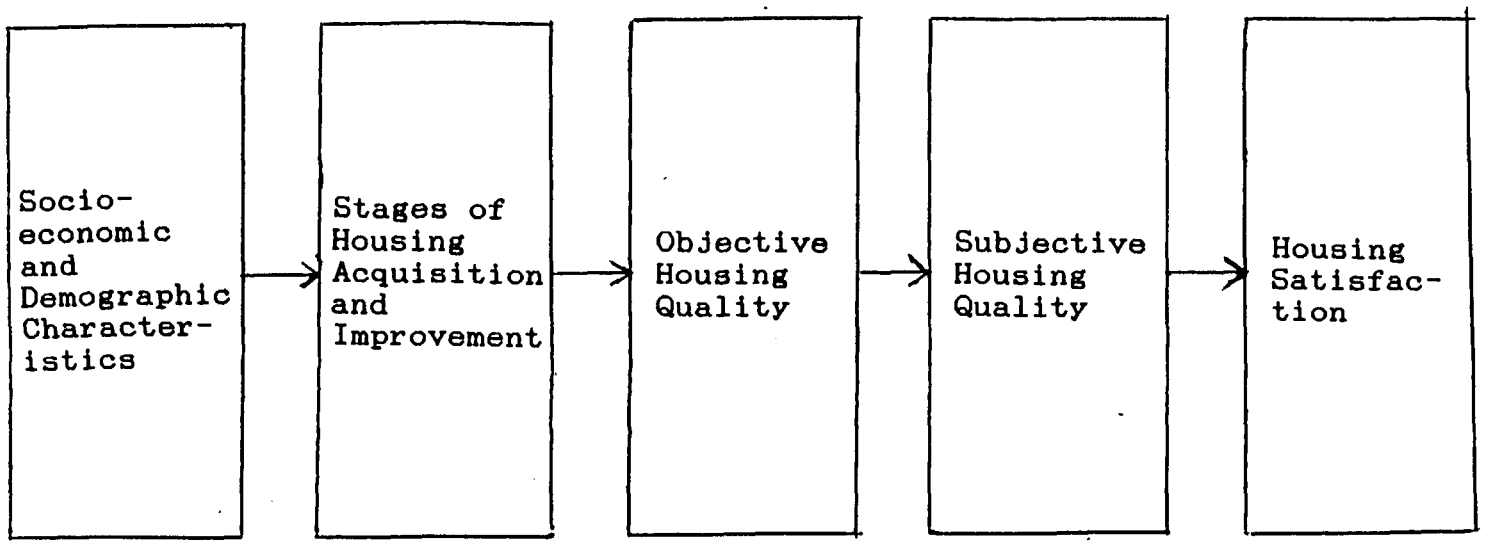



Figure 1. Conceptual model of relationship between stages of housing improvement and housing satisfaction

# CHAPTER II. PROCEDURES

This chapter describes the data set and the variables. It closes with a discussion of the analysis.

## The Data

The data for this study are part of a project entitled "A Decade of Change in Oaxaca, 1977-1987," funded by the National Science Foundation. The data were collected from a two-stage cluster sample of the city over a five-month period from January to May 1987 in the city of Oaxaca de Juarez, Oaxaca, Mexico.

The first stage consisted of a random sample of the blocks within each of the 54 fiscal sectors of the city. The second stage was a systematic sample of the 3600 households living on the blocks selected.

Approximately 800 of the households were selected to be interviewed. After receiving 10 hours of training, a team of Mexican interviewers conducted interviews with the female household heads (the sole head in female-headed household or the female head in a couple-headed household) and with her male partner if he was available.

Each interview lasted about one hour. The final data set contains information for 630 females and 404 males. Only households who owned their dwellings and the land are included in the analysis. There are 395 such cases in the sample. The analysis is limited to data obtained through the interviews with the females.

## The Variables

### The control variables

Four socioeconomic and demographic characteristics of the household are used as controls in the regression analyses. These four were chosen as they have been shown to influence housing quality and satisfaction. The variables are age, household size, education and marital status of the female head of household.

Age of the female The age of the female head of the household is her age in years on January 1, 1987. The age ranges from 16 to 97 years and the mean is 42.72 with median age of 41 and a standard deviation of 13.31. The percentage of women younger than 35 is 29.9, 37.7 percent are between 35 and 49 years, and 32.4 percent are in the highest age group of 50 and above.

Household size Household size is defined as the number of persons who were currently living in the dwelling and those persons who were temporarily absent on January 1, 1987 but who otherwise usually live in the household. Household size ranges from 1 to 16 persons. The mean household size is 5.87 with median of 6 people and a standard deviation of .803.

About one-third of the households (31.6%) have from 1 to 4 persons; another third (35.7%) have 5 to 6 persons, and the remainder have 7 or more persons.

Education of the female The education of the female head of household is the number of years of schooling completed at the time the interview was conducted. The number of years ranges from 0 to 21 and the mean is 5.19 with median of 5.00 years and standard deviation of.854.

One third of the sample (33.2%) has less than 3 years, another third (39.2%) have completed the first six grades, and the remainder (27.6%) have 7 years or more.

Marital status Initially there were five categories that were used to describe the marital status of the women interviewed. These five were single, free union, married, divorced or separated, and widowed. For the purpose of analysis these groups were divided into two categories, those who (at the time of the interview) were married or living in a free union and those who were not.

"Free union" refers to those couples who live together in much the same way as married couples do. The only basic distinction between the two is that those who are married have either a civil or religious contract of marriage that binds them to one another legally; the "free union" couple does not. In this study, "free union" status is considered and treated the same as married.

Those who were either married or in a free union were coded 1; those who were divorced, separated or widowed or never married were considered to be not married and coded 0. The majority, 84 percent, of the women interviewed are either in free-union relationships or are married.

The independent variable: method of dwelling acquisition

In the initial analysis of how owners in Oaxaca acquired their current dwelling, there were seven categories of responses to the question of "Was the dwelling already built when you bought the land or did you buy the land and then build the dwelling?" The responses are grouped into just two categories: those who acquired the land with the house already on it (24.2%) and those who acquired the land and then constructed the house (75.9%).

Further subdivision of the latter category was made to differentiate between those who had finished construction of their dwellings (38.7%) and those who view their dwelling construction as incomplete (37.2%). Three dummy variables were created from this variable, one for purchasing the dwelling, one for having constructed the dwelling, and one for living in a dwelling that is under construction. The latter is the omitted variable in the regression equations. The three categories of this variable are referred to as "purchased the dwelling," even though the dwelling may have been inherited or received as a gift, "constructed

the dwelling" and "building the dwelling" in the remainder of the study.

## The dependent variables

Housing quality The quality of the respondent's dwelling was measured by using a variable that consists of eleven questions assessing the materials used in construction of their dwelling and the various types of facilities available in them.

Responses to individual questions were coded, with 2 indicating the best quality, 1 indicating intermediate quality, and 0 indicating poor quality.

The responses for type(s) of bathroom facilities were: none, and latrine or communal bath, coded 0; private bathroom outside of the main dwelling, coded 1; and inside bathroom, coded 2. Less than half (43%) of the respondents do not have modern bathroom facilities. Those with private facilities outside of the house or inside bathrooms comprise 24.1 and 32.9 percent of the sample respectively.

Responses regarding the kind of kitchen facilities indicated that two percent of the respondents do not

have any kitchen facilities or that they share them with another household, coded as 0; two-fifths of those interviewed (40.5%) said they have their kitchen in a separate building, coded as 1; and, 57.5% of the respondents said they have their kitchen inside of the main dwelling, coded as 2.

The principal source of fuel for cooking was divided into three categories: 13.2 percent of those interviewed said they use wood or charcoal; coded as 0; 1.3 percent use kerosene and were coded as 1; the remainder (85.6%) use gas or electricity, coded as 2.

There are six categories of responses to the question, "What kind of water facilities do you have?" none, or water is brought from elsewhere; a well on the lot, piped water to the lot but not the house, or piped to the house but not into the kitchen; and, water piped to the kitchen.

Those six categories were grouped into three groups: those without water facilities or who have water brought in from elsewhere constituted 14.2 percent of the respondents and were coded 0. The largest group of respondents (56.7%) either have a well on the lot, have water piped to their lot, or have water piped into the house but not the kitchen; this

group was coded 1. The remaining 29.1% have water piped directly into their kitchens, coded 2.

The principal materials used in constructing the walls of the dwelling are divided into three groups: 1) less than 5 percent (4.8%) reported their walls made of plastic, cardboard, tin, untreated wood, wattle and daub, coded 0, 2) almost one-fourth (25.8%) reported walls of adobe, treated wood or sheet metal, coded 1, and 3) just over three-fourths (82.2%) indicated block or poured concrete or brick, coded 2.

The sixth item used to measure housing quality is, "What is the principal material used in the roof?" Less than one percent (.5%) indicated plastic, carboard, tin or thatch, coded 0. There were two-fifths (42.3%) who used corrugated metal or asbestos, coded 1. The remainder (57.2%) used concrete tile, or boveda, an arched roof of wood and brick, and were coded 2.

Next the respondents were asked, "What is the principal material in the floors?" Less than one-sixth (13.2%) had dirt floors, coded 0; less than three percent (2.8%) had wood, brick or concrete floors, coded 1. The vast majority, (84.0%) had polished concrete or tile, coded 2.

When asked the principal material used in constructing the doors, two percent said they either did not have anything for a door, or that they used cardboard, plastic or reeds as a door. These responses were coded 0. Less than one-sixth (13.7%) had sheet metal or wire screen doors, coded 1, while four- fifths (84.3%) had doors that were metal framed glass, wood or were made of metal, coded 2.

The ninth item in the housing quality scale was "What is the principal material used in the windows?" There were slightly more than one-eighth (14.7%) who either had no windows, used nothing over them, or covered them with either cardboard, plastic or reeds; these responses were coded 0. The second group contained more than twelve percent (12.7%) who had a little better protection over their windows in that they used either wire screen, wood or sheet metal over them; this group received a code of 1. The last group, and majority, (72.7%) had quality window coverings; either glass in metal or wood frames, and were coded 2.

On the initial questionnaire, respondents were asked two separate questions about the presence of a water heater. The first question asked if the heater

was either gas or electric. The second asked if the water heater was wood-fueled. The majority (69.6%) had neither type of water heater, coded 0, while 30.1 percent did have one or more, coded 1.

The final question of the quality variable asked the respondents how many showers they had. There were more who did not possess a shower (55.4%) than had one. Those without showers were coded 0 and those with showers were coded 1.

The summed housing quality scale ranges from 3 to 22 with 3 being poor quality and 22 being good quality. The mean is 14.815, the median 15.000 and the standard deviation is 4.855. The alpha coefficient for reliability is .878, which is quite high.

Reported housing adequacy The respondent's view of the dwelling's adequacy was measured by handing her a card with a drawing of stairs. The bottom step had "0" on it, while the top step had a "10" on it. The individual steps in between were numbered 1 through 9. She was asked "Where would you put your household's housing on the ladder?" This question is an adaptation of Cantril's (1965) self-anchoring scale.

Almost thirty percent (29.9) of the respondents rate their housing situation on the first through the fourth steps. Persons ranking themselves on the fifth and sixth steps comprise 38.7 percent of the group and the remaining respondents (31.4 %) place themselves on the seventh through tenth steps. The mean is 5.44; the median 5.00 and standard deviation 1.987.

Housing satisfaction The satisfaction with one's overall housing situation was measured by asking the respondents to indicate a response to "How satisfied or dissatisfied are you with the overall housing situation of you and members of your household?" Responses to this question ranged from 1 to 5 with 1 being very dissatisfied and 5 being very satisfied. The mean is 3.71, the median 4.0 and the standard deviation .863.

Slightly less than one-third (32.9%) indicated they were dissatisfied or had mixed feelings with their overall housing situation. Almost half of the respondents (52.2%) reported being satisfied with their overall housing situation. Less than one-sixth (14.9%) of the respondents reported being very satisfied with their overall housing situation.

## Model to be Tested and Specific Hypotheses

The specific hypotheses to be tested in this study (Figure 2) are:

1. Method of dwelling acquisition is influenced by age of the woman, household size, her education, and her marital status.

   Specifically:

   a. The younger the woman, the more likely that her household is living in a dwelling that is incomplete;

   b. The larger the household, the more likely that the household is living in a dwelling that is incomplete;

   c. Women with higher levels of education are more likely than those with lower education to have acquired the dwelling with the land;

   d. Women not currently married are more likely than those who are married to live in a dwelling that is incomplete.

2. With age, household size, education, and marital status controlled, households who are still building their dwelling have lower quality housing than those who acquired their dwelling with the land or those who have completed the construction process.

3. With age, household size, education, marital status and method of dwelling acquisition controlled, those with higher levels of housing quality are more likely to report that their housing is adequate than those with lower levels of housing quality.

4. With age, household size, education, marital status, method of dwelling acquisition, and housing quality controlled, those who report higher levels of housing adequacy are more likely to report higher levels of housing satisfaction than those reporting lower levels of housing adequacy.

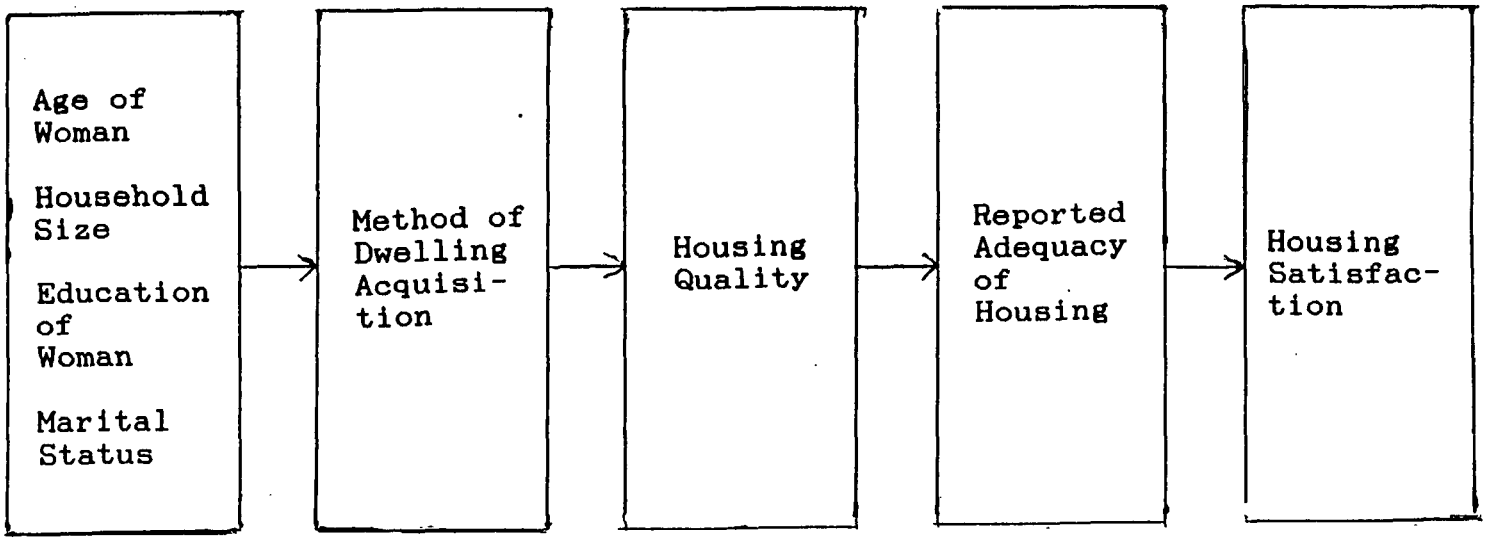



Figure 2. Model tested of relationship between dwelling acquisition and housing satisfaction

## Data Analysis

The preliminary analyses consist of frequency distributions, cross-tabulations, and the computation of a Pearson product-moment correlation matrix (Table 1). The final analysis consists of six regression equations. The first three predict the method of dwelling acquisition, the fourth and fifth predict the objective and subjective assessment of housing quality, and the sixth predicts one's overall satisfaction with the dwelling. Cross-tabulations are also reviewed in an attempt to explain some of the results of the regression analysis.

Standard regression coefficients (betas) and t-value are used to evaluate the regressions. Beta indicates the relative importance of each independent variable. The Beta shows how much, and what type (either positive or negative) of change takes place in the dependent variable in response to standardized changes in the independent variable, given that the other variables are controlled. Beta is significant when the t-value exceeds the criterion set for the t-value.

# CHAPTER III. DATA ANALYSIS AND INTERPRETATION

This chapter reports the results of the data analysis. The Pearson-product moment correlation coefficients are reported first, followed by the six regression tables.

## Correlation Coefficients

The correlation matrix (Table 1) includes all the exogenous and endogenous variables in the model. The exogenous variables include the female's age, household size, female's education, and her marital status. The endogenous variables include method of dwelling acquisition, housing quality, reported adequacy of housing and satisfaction with one's overall housing situation. Only coefficients significant at $P < .05$ (two-tailed) are discussed.

The correlations range from .00 to -.61. Only two of the correlations are above (+/-) .50 and those correlations are: 1) between quality of housing and education (.51) and 2) between constructed the dwelling and building the dwelling (-.61).

The first can be attributed to the fact that those with more human resources, a result of higher levels of

Table 1. A matrix of Pearson Product-moment correlation coefficients

| | 1 | 2 | 3 |
|---|---|---|---|
| 1) Female's age | - | .046 | -.334* |
| 2) No. of household members | | - | -.121 |
| 3) Female's education | | | - |
| 4) Marital status | | | |
| 5) Purchased the dwelling | | | |
| 6) Constructed the dwelling | | | |
| 7) Building the dwelling | | | |
| 8) Quality of housing | | | |
| 9) Reported adequacy of housing | | | |
| 10) Housing satisfaction | | | |

*Significant at P< .05

| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|
| -.357* | -.076 | .167* | -.101 | .001 | -.053 | .016 |
| .101 | -.097 | .031 | .054 | -.074 | -.088 | -.091 |
| .127* | .227* | -.072 | -.129* | .514* | .243* | .045 |
| - | -.050 | -.052 | .098 | .088 | -.010 | .088 |
| | - | -.452* | -.429* | .373* | .126* | .080 |
| | | - | -.612* | -.055 | -.071 | .193* |
| | | | - | -.276* | -.040 | -.267* |
| | | | | - | .321* | .226* |
| | | | | | - | .034 |
| | | | | | | - |

education, would be more likely to be able to afford better housing. Although the present investigation did not examine the correlation between education and socioeconomic status as measured by level of living scale, other studies, including one conducted among a similar population in Oaxaca de Juarez, have shown a very strong correlation between these variables (cf. Whiteford, 1990). The latter correlation is the result of the way in which the three dummy variables to assess method of dwelling acquisition were constructed.

Older women have less education and are less likely to be married than younger women. The latter finding and the fact that older women are more likely than younger women to live in dwellings which they view as completed is probably the result of changes in the life cycle associated with aging.

Women with higher levels of education are more likely to be married and are more likely to have purchased their dwellings than those with lower levels of education. Conversely, the lower the education level, the more likely the woman is to report an incomplete dwelling. Women with more education possess better quality housing than those with less education.

Those who report high levels of housing adequacy are women with high levels of education.

The variables, purchased the dwelling, completed the dwelling and building the dwelling are highly correlated with another because they are mutually exclusive categories of the same variable. People who purchased their dwellings report better quality housing than those who did not purchase their dwellings. Home owners who bought their dwellings ranked the adequacy of their dwellings higher on the scale of adequacy than those who utilized one of the other two forms of dwelling acquisition.

Households who have completed the construction of their dwellings report higher levels of overall satisfaction than either those who purchased their dwelling or those who have yet to complete construction. Households that are still building their dwellings reported poorer quality dwellings and lower levels of satisfaction with their overall housing situation than those who either purchased or completed construction of their dwellings.

Respondents with high quality dwellings report higher levels of adequacy of those dwellings and higher

ratings of overall satisfaction than those who have poorer quality dwellings.

The only surprises in the correlation matrix are the absence of a significant correlation between having completed dwelling construction and housing quality and between reported adequacy of housing and housing satisfaction. The absence of a relationship between constructed the dwelling and housing quality, as well as the absence of a relationship beteen education and having completed the construction of the dwelling probably reflects the fact that there are two groups of people who build their own dwellings: those who follow the stair-step model of housing improvement and those who pay others to build their dwellings so that they can obtain exactly the type of housing that they want.

## Multiple Regression

The purpose of this analysis is to test empirically the causal relationships among the variables in a multivariate format. There are six regressions in this analysis. The first three predict the method of dwelling acquisition. The fourth regression uses housing quality as the dependent

variable, the fifth regression has reported adequacy of housing as the dependent variable while the final regression has housing satisfaction as the dependent variable.

Method of dwelling acquisition

Purchased the dwelling The results of the analysis of whether or not the dwelling was purchased on the exogenous variables, are given in Table 2. The R2 (.063) indicates that 6.3 percent of the variance in purchasing the dwelling is explained by the exogenous variables. The R2, although small, is statistically significant.

Only one variable, the female's level of education, is statistically significant. The positive relationship means that those with more education are more likely to have purchased their dwellings than those with lower levels of education. This finding indicates that households with more human resources at their disposal (for example education and income-generating abilities) the more likely they are to acquire land with a dwelling rather than to bother building the dwelling. Those with lower levels of

Table 2. Regression of purchased the dwelling on exogenous variables

| Variables | Beta | t-value |
|---|---|---|
| Female's age | -.030 | -.536 |
| No. of household members | -.061 | -1.215 |
| Female's education | .221 | 4.213* |
| Marital status | -.083 | -1.564 |
| Intercept | .319 | |
| R2 | .063 | |
| Adjusted R2 | .053 | |
| df | 4 & 390 | |
| F-ratio | 6.495 | |
| P value | .0001 | |

*Significant at p<.05.

education are more likely to purchase the land and then build the dwelling than people with higher levels of education.

Constructed the dwelling The regression of the dummy variable representing having completed construction of the dwelling (Table 3) shows slightly different results than the first regression table. The R2 is .029 which means only 2.9 percent of the variance in whether a dwelling is completed can be explained by the exogenous variables. The R2 is very small but is statistically significant at $p< .05$. The female's age is the only determinant of building one's dwelling and having completed construction.

Households with older female heads are more likely to have completed dwellings than households with younger women. This finding simply means that, by virtue of age, a woman is likely to have lived through the construction process by the time of the interview.

Construction is incomplete The regression of on-going dwelling construction (Table 4) shows an R2 of .045 which means 4.5 percent of its variance is explained by the exogenous variables. The female's education (Beta= -.179 and T= -3.39) and age (Beta= -.138 and T= -2.47) are both determinants of incomplete

Table 3. Regression of constructed the dwelling on the exogenous variables

| Variables | Beta | t-value |
|---|---|---|
| Female's age | .162 | 2.878* |
| No. of household members | .021 | .420 |
| Female's education | -.016 | -.303 |
| Marital status | .005 | .101 |
| Intercept | .116 | |
| R2 | .029 | |
| Adjusted R2 | .019 | |
| df | 4 & 390 | |
| F-ratio | 2.863 | |
| P value | .0232 | |

*Significant at p<.05.

Table 4. Regression of building the dwelling on exogenous variables

| Variables | Beta | t-value |
|---|---|---|
| Female's age | -.138 | -2.471* |
| No. of household members | .032 | .639 |
| Female's education | -.179 | -3.392* |
| Marital status | .068 | 1.271 |
| Intercept | .564 | |
| R2 | .045 | |
| Adjusted R2 | .036 | |
| df | 4 & 390 | |
| F-Ratio | 4.625 | |
| P value | .0012 | |

*Significant at p<.05.

construction of the dwelling. The passage of time, as measured by the woman's age, could be expected to increase the likelihood that the dwelling would near completion. The household simply has more time in an absolute sense to devote to the completion of the dwelling. Therefore households headed by a young woman (in relative terms) are more likely to report that construction is not yet complete.

As the stairstep model of housing acquisition and improvement suggests, completing one's dwelling gradually is most common among people with low levels of education, an indication of low levels of human resources. Those who have the resources either purchase their dwelling or, if they do their own construction, they are able to complete the construction more or less rapidly.

Housing quality

In Table 5, housing quality is regressed on the exogenous variables. The R2 of .388 means that 38.8 percent of the variance can be explained by these variables. Five out of the six variables have significant effects on housing quality. Of these the

Table 5. Regression of quality of housing on method of dwelling acquisition and exogenous variables

| Variables | Beta | t-value |
|---|---|---|
| Female's age | .224 | 4.953* |
| No. of household members | -.008 | -.188 |
| Female's education | .505 | 11.604* |
| Marital status | .127 | 2.944* |
| Purchased the dwelling | .326 | 7.074* |
| Completed the dwelling | .098 | 2.174* |

| | |
|---|---|
| Intercept | 5.979 |
| R2 | .388 |
| Adjusted R2 | .379 |
| df | 6 & 388 |
| F-ratio | 41.016 |
| P value | .0001 |

*Significant at p<.05.

female's education is the strongest. It is followed by having purchased the dwelling, the female's age and her marital status, and having completed construction of the dwelling.

Households headed by women with higher levels of education have dwellings of better quality. The explanation for this finding may be that there are more people in the labor force and those who are working are at more advanced levels than in previous years because of higher levels of education. Therefore, their incomes would likely be higher. In addition, increasing one's education is a way to develop one's human capabilities and income generating power. Such resources enable one to spend more on the dwelling and its maintenance.

Married women are more likely to have higher quality housing than women who are not married. There are three potential explanations for this relationship. First, this finding may occur because a couple-headed household would probably have a higher income and thus more money to apply towards housing. Or it might mean that the woman working in or around the house would have more time available to work on the family's dwelling.

Finally, the structural upkeep of the dwelling is traditionally the male's responsibility. Thus, having a spouse helps to ensure that certain degrees of quality will be maintained.

The fact that age is significant means that older people are more likely to have achieved higher levels of housing quality because of the passage of time, regardless of the amount of material resources available. The passage of time acts in favor of higher quality in that time affords people more opportunities to make improvements. Time also allows the city to make some of the necessary improvements in the potable water and sewage disposal systems. Longer residence in the city of Oaxaca de Juarez, only possible if one is older, also increases the probability that one's dwelling is in an older neighborhood, toward the center of the city, where functional water and sewage hook-ups are already in use.

Purchasing the dwelling with the land was the second strongest, determinant of housing quality. By virtue of the purchase alone, households acquire higher levels of quality than would be possible if they bought the land and then built the dwelling.

Purchasing the land and completing construction of the dwelling is the weakest of the five positive determinants of housing quality, but it is significant. Additional analyses (not shown) revealed that there is also a significant difference between having purchased the dwelling and building the dwelling and having it finished.

Those who built and have completed their dwelling, have lower housing quality than those who purchased their dwellings, but also have higher quality housing than those who have not finished building the dwelling (the omitted category). The relationship of the three categories of the method of dwelling acquisition to housing quality is logical.

Those who have the resources to acquire the dwelling with the land have the highest quality housing followed by those who built their own dwelling and it is completed. Those who are still building their dwelling live in the poorest housing.

Reported adequacy of housing

Regression results of the ranking of housing adequacy on the exogenous variables are in Table 6. The R2 is .121, meaning that 12.1 percent of the variance can be explained by these variables. Only housing quality is a significant determinant of housing assessment. This finding indicates that one's ranking on the housing scale is clearly related to the quality of the dwelling. People living in high quality housing report higher levels of adequacy.

Housing satisfaction

In Table 7 regression results of housing satisfaction on the exogenous variables show an R2 of .129. This means 12.9 percent of the variance can be explained by these variables. Those who have not completed their dwelling, the omitted variable, report lower levels of housing satisfaction than either those who purchased their dwelling or those who have completed its construction. Living in a dwelling that is viewed as unfinished is simply less satisfactory than living in one that is complete, a finding that is not particularly surprising. In addition to not having the dwelling as one wants it, there may be tangible

Table 6. Regression of reported adequacy of housing on housing quality, method of dwelling acquisition and exogenous variables

| Variables | Beta | t-value |
|---|---|---|
| Female's age | -.034 | -.615 |
| No. of household members | -.050 | -1.039 |
| Female's education | .089 | 1.468 |
| Marital status | -.059 | -1.128 |
| Purchased the dwelling | -.041 | -.701 |
| Constructed the dwelling | -.063 | -1.161 |
| Quality of housing | .288 | 4.739* |
| Intercept | 4.176 | |
| R2 | .121 | |
| Adjusted R2 | .105 | |
| df | 7 & 387 | |
| F-ratio | 7.579 | |
| P value | .0001 | |

*Significant at $p<.05$.

Table 7. Regression of housing satisfaction on reported adequacy of housing, housing quality, method of dwelling acquision and exogenous variables

| Variables | Beta | t-value |
|---|---|---|
| Female's age | -.016 | -.279 |
| No. of household members | -.094 | -1.951 |
| Female's education | -.115 | -1.892 |
| Marital status | .107 | 2.045* |
| Purchased dwelling | .136 | 2.331* |
| Completed the dwelling | .270 | 4.941* |
| Quality of housing | .239 | 3.823* |
| Reported adequacy of housing | -.021 | -.408 |
| Intercept | 3.007 | |
| R2 | .129 | |
| Adjusted R2 | .111 | |
| df | 8 & 386 | |
| F-ratio | 7.137 | |
| P value | .0001 | |

*Significant at p<.05.

evidence of ongoing construction; piles of bricks, mortar, and the like.

It is also not surprising that housing quality is related to housing satisfaction, with those living in better housing being more satisfied than those living in poorer quality housing. The absence of a relationship between education and satisfaction indicates that the influence of education is indirect, through housing quality.

It is somewhat surprising that marital status is a significant predictor of housing satisfaction. This finding might result from the fact that, in general, all aspects of life, including housing, are likely to be more satisfactory to a woman who is married than a woman who is not married. The married woman in Mexico, simply by virtue of the fact that she is married, enjoys a higher status than a woman who is not married.

What is surprising is that reported adequacy of housing is not a significant predictor of housing satisfaction. To better understand why this is so, two cross-tabulations were done: the first between reported adequacy of housing and each of the eleven components of the housing quality variable (Table 8)

and the second between housing satisfaction and each of the eleven components of the quality variable (Table 9).

TABLE 8. Cross-tabulations of reported adequacy of housing on the eleven components of the housing quality variable

| Variables | Gammas[a] |
|---|---|
| The number of showers | 0.47 |
| Type(s) of bathroom facilities | 0.46 |
| The number of water heaters | 0.46 |
| Principal material of the floors | 0.43 |
| The kind of water facilities | 0.36 |
| Principal material of the doors | 0.36 |
| Principal material of the windows | 0.35 |
| Principal fuel for cooking | 0.30 |
| The kind(s) of kitchen facilities | 0.28 |
| Principal material in the roof | 0.25 |
| Principal material in the walls | 0.24 |

[a]Gammas in descending order.

It is clear from Table 8 that the components of the housing quality scale that have the strongest relationship to reported adequacy are those over which the home owner has little or no control. The presence of a shower, the type of bathroom facility, the presence of a water heater, and the kind of water facilities are all related to the presence of water piped into the dwelling. Without water, housing is viewed as inadequate. The presence of water, however, is beyond the control of the individual home owner.

Such services rest with the city, and there is little that the household can do to improve the situation.

Satisfaction, on the other hand, is more likely to be related to the type of materials used in the construction (Table 9), something which is within the control of the individual household. The respondent may be rationalizing, to some degree, in her response regarding satisfaction. She reports high levels of satisfaction if the materials in the dwelling are of high quality. The fact that there may not be an adequate water supply is irrelevant to satisfaction because nothing can be done about that aspect of quality. Therefore, high levels of satisfaction occur in the absence of high levels of reported adequacy.

TABLE 9. Cross-tabulations of housing satisfaction on the eleven components of the housing quality variable

| Variables | Gammas[a] |
|---|---|
| The number of water heaters | 0.41 |
| Principal material in the windows | 0.34 |
| Principal material in the roof | 0.31 |
| Principal material in the walls | 0.31 |
| The number of showers | 0.31 |
| Principal material of the floor(s) | 0.29 |
| Principal fuel for cooking | 0.28 |
| The kind of water facilities | 0.26 |
| Principal material of the door(s) | 0.22 |
| Type(s) of bathroom facilities | 0.21 |
| The kind(s) of kitchen facilities | 0.08 |

[a]Gammas in descending order.

# CHAPTER IV. SUMMARY AND CONCLUSIONS

## Purpose and Summary

The purpose of this study is to examine the determinants and consequences of the method of dwelling acquisition among home owners in Oaxaca de Juarez, Mexico. This study probes the on-going nature of housing activity in the city by investigating housing quality and housing satisfaction among three different groups of home owners: 1) those who acquired the land (through purchase, a gift or inheritance) with a dwelling; 2) those who acquired their land and then constructed the dwelling and view the construction process as complete; and 3) those who acquired the land and constructed a dwelling that is far enough along to live in, but nevertheless, viewed as incomplete. The purpose was accomplished through the use of multiple regression analysis of a sample of data of 395 homeowners from the city of Oaxaca de Juarez, Mexico.

## Major Findings

The method of dwelling acquisition does affect housing quality and housing satisfaction with the

purchased and completed construction categories creating very similar influences. Those who purchased or are done building their dwellings have higher quality housing and are more satisfied with their dwellings than those who have not finished building.

Results from this study indicate that reported adequacy of one's dwelling does not influence the amount of satisfaction one derives from the dwelling. What does influence satisfaction is the quality of the dwelling, with the higher the quality leading to greater satisfaction.

## Testing the hypotheses

Hypotheses rejected In the second chapter, seven hypotheses were proposed. After testing these seven, three were rejected and four were not. The first hypothesis to be rejected is the larger the household, the more likely that the household is living in a dwelling that is incomplete. In this study household size had no significant influence on any one of the three methods of dwelling acquisition studied.

The second hypothesis rejected is: Women not currently married are more likely than those who are married to live in a dwelling that is incomplete. The

relationship is not significant and therefore is rejected.

The third and final hypothesis to be rejected is: With age, household size, education, marital status, method of dwelling acquisition, and housing quality controlled, those who report higher levels of housing adequacy are more likely to report higher levels of housing satisfaction than those reporting lower levels of housing adequacy. This hypothesis was rejected because when the above variables were controlled, reported adequacy of housing was shown not to be a significant predictor of housing satisfaction.

Hypotheses not rejected The first hypothesis that is not rejected is that of a younger woman's household being more likely to live in a dwelling that is incomplete than that of an older woman. Age was positively related to having completed construction and negatively related to living in an incomplete dwelling.

The second hypothesis that is not rejected is: Women with higher levels of education are more likely than those with lower education to have acquired the dwelling with the land. This finding suggests that education as a measurement of one's human resources

influences the method of dwelling acquisition and more specifically that those persons with more education are more likely to purchase their dwellings than people with less education.

The third hypothesis that was not rejected is: With age, household size, education, and marital status controlled, households who are still building their dwelling have lower quality housing than those who acquired their dwelling with the land or those who have completed the construction process. The findings that purchasing the dwelling and having completed construction of the dwelling are determinants of housing quality suggest that purchasing one's dwelling is viewed as the most favorable of the three methods in order to obtain quality housing. It is followed by building the dwelling and the dwelling is completed and lastly building the dwelling and it is incomplete.

The fourth and final hypothesis not rejected is: With age, household size, education, marital status and method of dwelling acquisition controlled, those with higher levels of housing quality will be more likely to report that their housing is adequate than those with lower levels of housing quality. This hypothesis was not rejected because housing quality was not only

positively related to housing adequacy, it was also the only determinant of reported housing adequacy.

## Implications

The majority of Oaxaqueños (76%) build their own dwellings; thus any attempts to improve the quality of their housing or that of future dwellings must be focused on the individual owner/builder level. City, state and national governments need to implement housing projects which either lend money to individuals for longer periods of time, with low interest rates, or seek outside sponsorship of such projects, through not-for-profit organizations. Funds are needed to help finance the various building expenses that occur throughout the steps of the housing acquisition process (at least a 10-to-15-year time span).

In Mexico, city, state and national budgets are limited and the amount of funds needed to implement housing projects, potable water and sewage disposal renovations is excessively high. The greatest insurmountable housing problems/obstacles Oaxaqueños face are those that occur on a daily basis; inadequate potable water and sewage disposal for all sectors of the city. Without first correcting these two major

problems Oaxaqueños will never truly be able to attain quality housing or satisfaction.

Objective measures of housing quality and reported adequacy of dwellings are important ways of maintaining minimal standards for housing quality but they can not exist within a vacuum. In intermediate-sized cities, such as Oaxaca de Juarez, people are doing the best they can to provide quality housing for their families but they are trying to do so on limited budgets from unstable sources of income and in sections of the city which have inadequate water supplies and sewage disposal to begin with.

This study has drawn attention to at least two types of people who opt for building their own dwellings: 1) those who have resources and are able to pay for the construction of the dwelling they want, and 2) people of limited resources who build their own dwellings over an extended period of time which has been likened to the stair-step model of housing improvement. With these two groups of home builders making up the majority of people acquiring housing in Oaxaca it is especially important that their needs are given greater attention in the future.

Oaxaca it is especially important that their needs are given greater attention in the future.

People in the latter group not only need housing projects which allow for individual construction of one's dwelling at an individualized pace, but also more jobs and secure incomes. Loans can not be obtained unless incomes can be secured for the families requesting them.

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