The State of Mexico's Housing

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Preface

This report is modeled after the "State of the Nation's Housing" reports produced by the Joint Center for Housing Studies since the early 1980s. These reports provide a comprehensive overview of housing issues in the U.S. which are used by policy makers and businesses to assess current and future housing market conditions and to raise awareness among the broader public about the need to address the nation's most pressing housing problems. It is hoped that "The State of Mexico's Housing" report will serve a similar purpose in Mexico.

A further goal of this report is to help identify areas where the collection of additional information would be particularly helpful. In this regard, the report may be as notable for the issues it cannot address, as much as for the ones it does. While there have been many improvements in the quality and quantity of information collected, as well as in the range of forms in which data is made available, there are still many questions which cannot be answered with existing data. Improved information on housing conditions and market dynamics would be extremely useful both for identifying current and future housing needs and to assess the effectiveness of housing policies.

It is important to note that the goal of the report is not to endorse specific policies, but rather to provide an unbiased, factual assessment of housing market conditions which can be used as a basis for debate. In the U.S. the report has been sponsored by a broad spectrum of organizations with very different perspectives and concerns in the housing arena. The impetus that brought these groups together was the need to end debates regarding factual issues so they could move on to the more important debate about what ought to be done to address the nation's housing needs. As one sponsor of the U.S. report commented, "with this report we may not all be singing the same song, but at least we are all using the same songbook." We hope this report helps to develop such a songbook for Mexico.

Acknowledgments

The authors would like to thank the following people and organizations for generously contributing their time and expertise to the development our understanding of the housing situation in Mexico. Without their assistance it would not have been possible to undertake this project. Of course, whatever errors remain are solely the responsibility of the authors.

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Executive Summary

Demographics and Housing Demand

Household growth, and hence housing demand, has been rising sharply in Mexico during the 1990s as those born during the population boom of the 1960s and 1970s enter the peak years of household formation. Given continued rapid growth in the population over age 30, household growth will continue rising through the first decade of the next century, with the number of households increasing by nearly 800,000 per year by 2010. The most rapid population and household growth rates are in middle-sized cities of between 100,000 and 500,000 in population and in states along the U.S. border and on the Yucatan Peninsula. However, much of the country's household growth will continue to occur in heavily populated states in the center of the country.

While the level of housing demand is rising, the composition of demand has changed little. Most households are comprised of nuclear or extended families and the share of households in these categories has changed little in recent years. Household size, however, has been declining steadily for several decades and is likely to continue declining along with fertility rates.

Prior to the recent economic crisis, household incomes generally kept pace with inflation during the 1980s and early 1990s at the low-end of the income distribution, although households at the upper end experienced rapid growth in real income. Thus, while there has not been any erosion in household purchasing power, neither has there been much improvement for those with low incomes.

Housing Conditions

Mexico's housing stock has greatly improved in quality in recent years. Homes have greatly increased in size, urban services are now available in a large majority of homes, and the use of more solid and durable materials to construct homes has significantly increased. However, despite these improvements, as of 1990 a sizable share of the housing stock was in need of replacement or significant improvement. Based on an analysis of ten key indicators of housing quality, 2.7 million units were arguably in need of replacement, and an additional 3.5 million units were in need of significant upgrading. The problem of inadequate housing is very heavily concentrated in rural areas where 82% of the housing stock fell into one of these categories. With large shares of families living in low quality housing there is also a great need for investment in the existing housing stock, particularly in rural areas.

The Housing Construction Sector

Housing construction occurs in two overlapping markets - the formal and the informal. Construction in formal construction markets follows the required legal procedures and produces housing that complies with building ordinances, has clear legal title and at least basic services, are registered in the local cadaster for tax purposes, and often are purchased with long-term financing. Informal housing is produced outside of formal legal channels, generally does not have clear legal title, is often deficient in basic services, may not comply with building ordinances, does not pay taxes, and is not eligible for conventional long-term financing.

While the informal construction market has provided an important safety value, producing a great deal of housing for low-income families, there are a variety of reasons why this market may not be the most efficient way to provide housing. While tolerating, and to some extent aiding, this market outside of its formal control, the Mexican government has been taking steps to increase the share of housing produced in the formal sector. These steps have included reforms of laws controlling the sale of ejidal land, efforts to improve land use planning, an acceleration of the process of regularizing informal developments, and programs to aid the self-help housing sector. During the 1990s the formal sector has increased its share of total new construction, rising from an estimated share of 40% during the 1980s to 47% in the first half of this decade, with most of the increase coming from an expansion of the financing of progressive housing and lots with services.

Housing Finance

The housing finance system has experienced profound changes during the 1990s. To begin with, the privatization and deregulation of commercial banks greatly increased the volume of funds available. Public sector housing finance has also changed significantly as the pension funds devoted to housing have shifted from developers to financiers of housing and greatly changed the systems used to allocate credits to both developers and home buyers. FOVI has also modified its operations to both create a more efficient allocation of its credits and to adapt its role in light of bank deregulation that removed requirements for lending to social interest housing. As a result of these changes, as well as increased lending by other federal organizations, the housing finance system has increased the scope of housing loans, broadening the income groups served to more closely match the distribution of housing demand.

The recent economic crisis hit the housing sector particularly hard as the drop in housing production was more severe than in other sectors of the economy. Mortgage loans experienced very high rates of default, causing the federal government to intervene several times to shore up the market. Despite these problems, there are still reasons to be optimistic about the future of housing finance. The crisis did not completely erase the gains made in the early 1990s, as mortgage lending as a share of GDP remains well above levels experienced prior to the surge in commercial bank lending. With a return to economic growth there is reason to believe that mortgage lending will increase again. In addition, a variety of efforts to increase the efficiency of the mortgage market have continued during the crisis. These efforts – including developing the primary mortgage market infrastructure and laying the groundwork for the development of a secondary market – will ultimately help increase the flow of funds available for housing while also helping to lower real mortgage interest rates.

The Challenge Ahead

Continued progress in improving the housing market will be necessary to meet the great and growing challenge of providing decent and sanitary housing for all Mexicans. One key challenge will be in improving land use planning and regulation to ensure that sufficient land and urban services are available to meet the housing needs of Mexicans of all income levels. The other principal challenge will be to expand the capacity of the housing finance system to accommodate the large and growing demand for housing. The savings provided by the new public pension system have the potential to be an important source of capital for housing. As the housing finance system continues to evolve it will be important to take steps to ensure that the nation's many low-income households are also served.

Demographics and Housing Demand

Shifts in Mexico's demographic profile have important implications for housing demand. Even as Mexico's total population growth continues to slow, the large cohort of people born during the 1960s and 1970s are now evident in rapid increases in the population in their twenties and thirties. This aging of Mexico's population is evident in the dramatic increase in household growth during the 1990s, as these young households enter the housing market for the first time. The geographic location of housing demand is also beginning to shift, with the most rapid growth along the northern border and on the Yucatan Peninsula, rather than in the largest metropolitan areas where growth has been concentrated prior to the 1980s. While household incomes have generally kept pace with inflation, at least prior to the economic crisis, a large share of Mexican households continue to have very low incomes. The rapid increase in demand presents a great challenge for Mexico to expand the supply of housing for all income levels.

Population Growth Trends

In 1995 Mexico's population reached 91.1 million, having more than tripled in size from a population of 25.8 million in 1950 (Exhibit 1). The population boom was brought about by rapidly falling mortality rates combined with persistently high fertility rates.[1] However, since reaching a peak of 3.5% annually during the 1960s, the population growth rate has dropped substantially as declines in mortality rates have slowed and fertility rates have fallen considerably. During the 1970s population growth fell to 3.1% annually, while during the 1980s and early 1990s the population has grown by only 2.0% per year.[2] These population growth rates are net of emigration from Mexico, which has increased in the last two decades, reaching 0.3% annually during the 1980s.[3] Given current trends in fertility, mortality, and migration rates, the decline in population growth is expected to continue, reaching as low as 1.1% per year by 2010.

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[1] CONAPO, Programa Nacional de Poblacion: 1995-2000; 1995.

[2] The figures shown in Exhibit 1 suggest that the rate of population growth did not decline during the 1990s. However, CONAPO representatives have indicated that the 1990 Census is estimated to have undercount the total population by 2%, while the 1995 Population Count is estimated to have undercount the population by 1%. Taking these different undercounts into consideration would increase the annual population growth during the 1980s to 2.2%, while leaving population growth during 1990-95 at 2.0%, or slightly lower than the 1980s rate. Nonetheless, the 2.0% growth rate is slightly higher than the 1.9% annual growth rate previously projected by CONAPO, indicating that population growth may not be slowing as much projected.

[3] CONAPO, Programa Nacional de Poblacion: 1995-2000; 1995; and El Colegio de la Frontera Norte, Las Ciudades Medias Y el Fenomeno Migratorio, 1994.

While growth rates have slowed, absolute population growth has remained high. Population increases reached a peak of 1.8 million per year during the 1970s, and then declined to an average of 1.4 million per year during the 1980s.[4] The decennial census and 1995 population count indicate that absolute population growth increased somewhat during the early 1990s to 1.7 million per year, only slightly lower than growth during the 1970s. Current projections call for population growth to average 1.5 million annually during the last half of the 1990s, and then to continue falling to 1.2 million per year by the end of the next decade, which would represent a substantial slowdown from the population increases of the previous two decades.

Exhibit 1
Population Trends

Year	Population	Annual Average Absolute Growth	Annual Percent Growth
Historical Trends			
1950	25,779	613	2.8%
1960	34,923	914	3.1%
1970	49,050	1,413	3.5%
1980	66,847	1,780	3.1%
1990	81,249	1,440	2.0%
1995	91,120	1,742	2.0%
Estimates and Forecast			
1995	91,606	1,624	1.9%
2000	99,199	1,518	1.6%
2005	105,900	1,340	1.3%
2010	111,684	1,157	1.1%

Source: Historical series from CONAPO, Evolucion de Las Ciudades en Mexico, 1994; Estimate and Forecast are from CONAPO, unpublished data.

The Age Structure of the Population and Household Growth

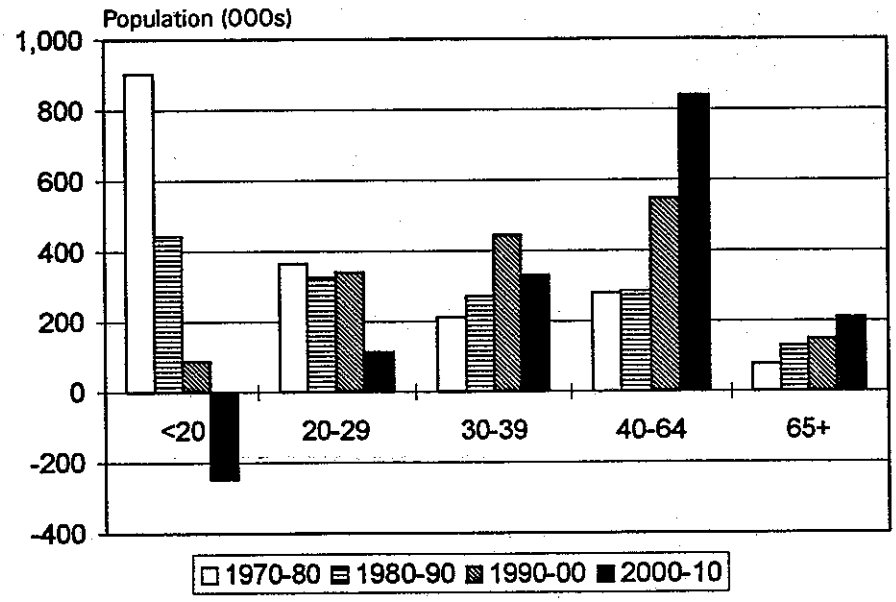
Since population growth largely results from an increase in births, the immediate effect of population growth on housing demand is to increase the size of a housing unit needed to accommodate a growing family. However, the most significant impact of population growth on housing demand is when children grow up, form an independent household and demand their own housing unit. Thus, in analyzing the impact of population trends on housing demand, the age structure of the population is an extremely important consideration.

[4] If the 1990 Census population count is increased by 2% to adjust for an undercount of the population, annual population growth during the 1980s would be 1.6 million per year, and thus not significantly different from growth during the 1970s and early 1990s.

As described above, Mexico's absolute population growth has leveled off and is projected to begin declining as fertility rates continue to fall. But population growth among older age groups is increasing rapidly, while among the youngest age groups growth is already declining. Reflecting the slowing of overall population growth, average annual growth in the population under age 20 has been falling since the 1970s, and this age group is actually projected to decline in size during the period from 2000 to 2010 (Exhibit 2). Meanwhile, the population age 20 to 29 has been increasing by about 350,000 persons per year

Exhibit 2

Annual Average Population Growth by Age



Source: Appendix Table D-1.

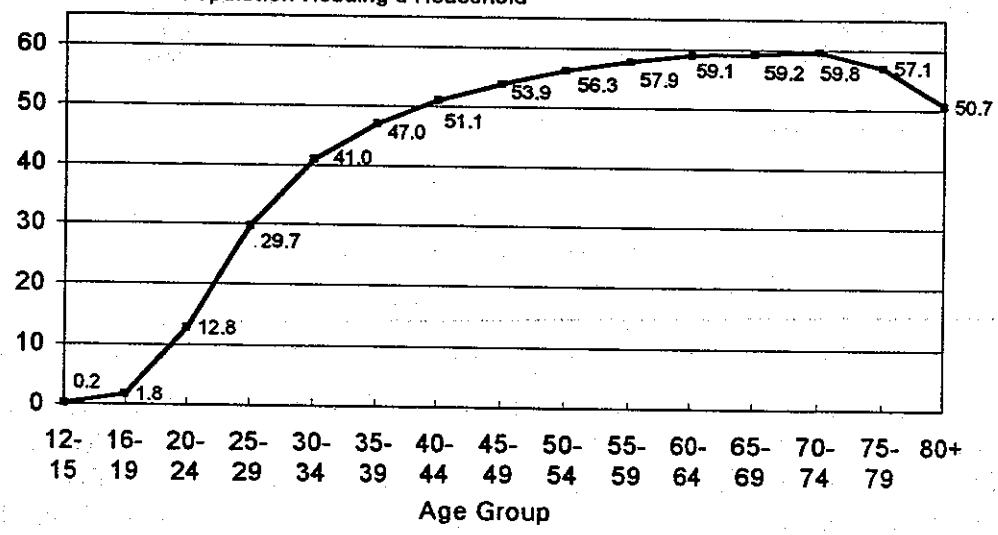
since the 1970s, but is expected to grow by only 112,000 per year during the next decade. At present the greatest increase in population is among the age groups 30 to 39 and 40 to 64, which will each increase by about 500,000 persons per year during the 1990s, representing a significant increase from the growth levels during the 1980s. During the period 2000 to 2010, growth in those age 30 to 39 will slow to about 330,000 per year, while growth in the population age 40 to 64 will surge to 840,000 per year. Finally, growth among those over age 65 has increased during each decade since the 1970s, and is projected to continue rising during the next decade, but will account for a much smaller share of population growth than those between 30 and 64.

One way to evaluate the relationship between the age structure of the population and housing demand is to estimate a headship rate, or the

percentage of people in a given group that head an independent household.[5] Exhibit 3 presents headship rates by age in 1990 to illustrate how different age groups contribute to housing demand.[6] As shown, headship rates for young age groups are fairly low, as most young people generally live with their parents into their twenties. For those under age 20 fewer than 2% head a household. In the early twenties, most people continue to live in households headed by others, but the process of forming independent households begins to increase, with 12.8% of those age 20 to 24 heading a household. Household formation accelerates in the late twenties, with headship rates rising to 29.7% for those age 25 to 29, and then continues to rise sharply for those in their early thirties, with headship rates reaching 41.0% for those age 30 to 34. Of people in their late thirties, 47.0% head their own household. From the early forties until the early seventies, headship rates continue to rise gradually, reaching a maximum of around 60%. Above age 70, headship rates begin to decline as people either move in with relatives or into a group care situation.

Exhibit 3

Headship Rate by Age



Source: Joint Center tabulations of 1% Sample of 1990 Census of Population and Housing.

[5] The headship rate is simply the number of household heads of a given age divided by the total population of that age. It should be noted that in the case of a married couple, only one member of the pair is considered the head.

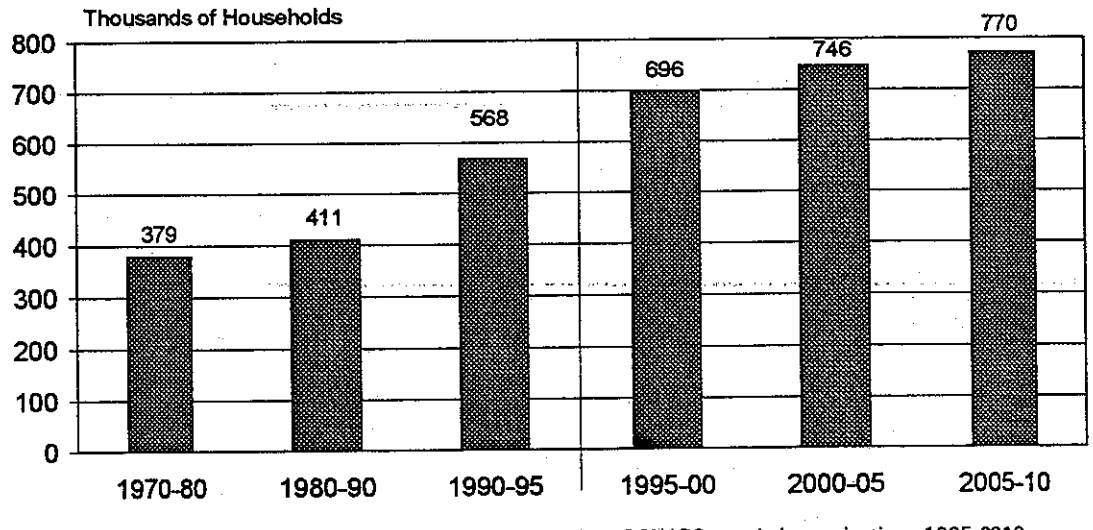
[6] It should be noted that in some cases more than one household will share a housing unit. If two or more groups of individuals live in the same housing unit, but do not prepare meals together, they are considered to be separate households. In the headship rates presented, the head of the secondary household is not considered as a household head since they do not demand a separate housing unit. These types of arrangements are relatively rare, however. The 1990 Census identified only 320,000 households that shared a housing unit with another household.

The effect of the changing age structure of the population on housing demand is evident in recent trends in household growth (Exhibit 4). During the 1970s the number of households grew by an average of 379,000 new households annually.[7] During the 1980s, while total population growth was slowing, household growth increased only slightly to 396,000 per year. The relative stability in household growth is reflected in the relative stability of population growth in age cohorts between age 20 and 64. However, between 1990 and 1995 household growth, and thus housing demand, increased sharply, rising to 594,000 net new households per year.[8] Corresponding to this sharp increase in household growth is the sharp increase in the population age 30 to 39 and 40 to 64. Thus, this 50% increase in household growth is linked to the sharp increase in the population over age 30 where headship rates are highest.

As shown in Exhibit 4, based on 1990 headship rates and projections of the population by age to the year 2010, household growth is projected to continue to rise gradually over the next fifteen years.[9] Given the age structure of the

Exhibit 4

Historical and Projected
Annual Average Household Growth



Source: INEGI, 1970-1995; Joint Center estimates based on CONAPO population projections 1995-2010.

population, household growth is projected to be nearly 700,000 per year during

[7] "Households" as used here refers to occupied "viviendas particulares." This definition excludes households that are doubled up in housing units and persons living in collective housing situations.

[8] Annual household growth data is derived from the number of households reported by INEGI in the 1970, 1980, and 1990 Census of Population and Housing, and the 1995 Population Count.

[9] See Appendix A for a detailed discussion of the methodology used to make this household forecast.

the period from 1990 to 1995, or about 20% higher than during the first half of the 1990s. Household growth is then expected to continue to increase through the end of the next decade, reaching 770,000 new household per year by 2010. Thus, even as growth in the population age 20 to 29 and 30 to 39 slows, household growth will continue to rise because of the tremendous increase in households between the ages of 40 and 65.

Of course, the accuracy of these forecasts depends on what happens to headship rates in the coming years. Household growth may well be below the current projection of 700,000 households per year as the recent economic crisis may have depressed headship rates by making it difficult to find affordable housing options. As a result, actual household growth may fall short of this forecast for the next several years while household income levels recover ground lost during the economic crisis. Household growth may then exceed the projected levels in later years as individuals who have delayed forming a household finally do obtain their own home. It is also possible that a period of prolonged economic growth may boost household growth beyond these forecasts by enabling higher rates of household formation than was evident in 1990. But whatever course the economy takes, it is certainly true that the growth of the population in older age groups will increase housing demand significantly for the next few decades.

Families and Households

In evaluating the demand for housing it is also important to consider not only the number of households, but also their size and type. The size of households will effect housing demand as, all else equal, larger households tend to demand larger housing units. In addition, different types of households, may well prefer different types of housing units as well as different locations within a market area.

In Mexico, families account for almost all households (Exhibit 5). In 1994, 93.7% of all households were family households, including 69.9% that were nuclear families (consisting of married couples, either with children or alone, or single parents with children), 23.0% that were extended families (consisting of nuclear families with some other relative present or other groups of related individuals), and 0.8% that were a mix of family and

Exhibit 5
Household Type Distribution

	1984	1989	1994
Families	94.2%	95.2%	93.7%
Nuclear	70.4%	70.8%	69.9%
Extended	23.2%	23.4%	23.0%
Mixed	0.7%	1.1%	0.8%
Non-family	5.8%	4.8%	6.3%
Single Person	5.6%	4.5%	6.2%
Co-Residents	0.1%	0.3%	0.1%

Sources: INEGI: 1984, 1989, and 1994 ENIGH.

non-related individuals.[10] Non-family households account for the remaining 6.3% of households, almost all of which are single person households which account for 6.2% of all households. Non-related individuals sharing a home account for only a very small share (0.1%) of all households.

There has been relatively little change in the distribution of households by type in Mexico in recent years. Exhibit 8 also shows the household type distribution from the 1984 and 1989. The mix of household types has been very stable over this period. During the ten year period from 1984 to 1994 the share of households of any given type varied by less than 2%, with most of this variation likely due to sampling error.

A projection of households by type, based on the rates at which people in different age groups head different types of households, indicates that there is not likely to be any significant shift in the share of households by type in the near future – at least not as a result of changes in the age structure of the population (See Appendix A). Between 1990 and 2010 the share of nuclear families is projected to decline by about 1%, with offsetting increases mainly in extended families and, to a lessor extent, in single person households.

While household types have not changed much, there has been a steady decline in the average size of households. Mirroring the trends in fertility rates, average household size has declined steadily since 1970, from to 5.5 persons per housing unit to 4.7 in 1995.[11] If fertility rates continue to decline as expected, household sizes should also continue to decline. With smaller household sizes the size of housing units needed to adequately accommodate households will also decline.

Household Income Levels and Trends

Income is obviously an important determinant of housing demand, determining both the quality and quantity of housing demanded. While there are many ways to measure income, income per household is the most appropriate measure to use in assessing housing demand since the total income of all persons who share a home is generally available to pay for housing expenses. Exhibit 5 presents average household income for all households, as well as households at different points in the income distribution, for 1984, 1989 and 1994 in constant 1995 pesos.

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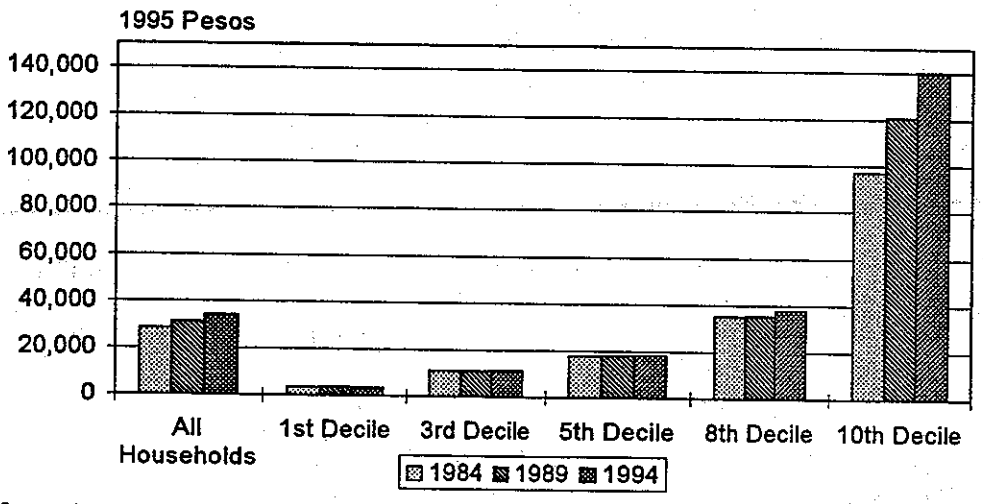
[10] Servants who live with the household are not considered in defining household types. Thus, a nuclear family with a servant present is classified as a nuclear family and not a mixed household.

[11] Data on average household size from INEGI, Census of Population and Housing 1970, 1980 and 1990 and for 1995 from INEGI, Conteo 1995 de Poblacion Y Vivienda.

Exhibit 6

Average Annual Household Income at Selected Deciles



Source: Appendix Table D-3

Household incomes have generally kept pace with inflation, although most households have experienced little real growth in income. While average household incomes increased by 20% between 1984 and 1994, virtually all of the growth in income occurred among the richest households. While average incomes increased by about 2% or less for households in the lower half of the income distribution, income among the highest decile rose sharply over this period, increasing by 44% between 1984 and 1994. As a result, the income distribution in Mexico widened over the last decade.

It is also important to note that there is an enormous difference in income levels between urban and rural areas. In 1994, average annual income of households in urban areas was N$40,200, or almost three times the average household income in rural areas of N$14,800 (Appendix Table D-3). Disparities of similar magnitudes are evident throughout the income distribution, although they are largest among the wealthiest households. Part of this disparity in income levels reflects the fact that a higher share of income in rural areas comes from non-monetary sources. But even when total income, including non-monetary income, is considered, average household income in urban areas is still two and a half times higher than average incomes in rural areas.

Unfortunately, data showing the effect of the recent economic crisis on income levels is not yet available. However, given that Mexico's gross domestic product declined by 6.2% in real terms in 1995, household incomes obviously declined substantially. The economy resumed solid growth during the latter half of 1996, however, and by the fourth quarter had regained previous levels of

economic output.[12] What is not known is whether the fall in incomes and subsequent recovery has had a disproportionate impact on households in different parts of the income distribution. Certainly, the magnitude of the crisis was such that virtually all Mexicans were affected.

Geographic Location of Population and Household Growth

Since 1950 Mexico has undergone a dramatic transformation from a largely rural country to a largely urban one.[13] In 1940, 70% of Mexico's population lived in rural areas, with the remaining 30% in urban areas. By 1990 the shares were reversed, with 30% of the population in rural areas and 70% in urban areas. This dramatic shift in population from rural to urban areas has increased the demand for housing in urban areas even more than the rapid national population growth rates would suggest.

Exhibit 7
Location of Urban Growth: 1950-90

Year	Mexico City Metro Area	Other Large Metro Areas	Other Urban	Total Urban	Total Nation
Population (000s)					
1950	2,872	957	7,320	11,149	25,779
1960	5,409	1,821	10,805	18,035	34,923
1970	8,904	3,334	17,173	29,411	49,050
1980	13,879	5,331	25,090	44,300	66,847
1990	15,048	7,086	35,826	57,960	81,250
Population Growth Rates					
1950-60	6.5%	6.6%	4.0%	4.9%	3.1%
1960-70	5.1%	6.2%	4.7%	5.0%	3.5%
1970-80	4.5%	4.8%	3.9%	4.2%	3.1%
1980-90	0.8%	2.9%	3.6%	2.7%	2.0%

Note: "Other Large Metro Areas" include Guadalajara, Monterrey, and Puebla.

Source: CONAPO: "Evolucion de Las Ciudades en Mexico," 1994.

[12] Data from INEGI, Producto Bruto Interna en Precios Constantes de 1993.
[13] In this report rural areas are defined as municipalities with a population of less than 2,500

The Mexico City metropolitan area, along with Guadalajara, Monterrey, and Puebla, have long been the predominant urban areas in Mexico.[14] From 1950 to 1980, these areas grew more rapidly than both the nation as a whole and remaining urban areas (Exhibit 7). But during the 1980s, population growth in the largest metro areas slowed, particularly the Mexico City area. Since 1980 the most rapid population growth in Mexico has been in urban areas outside of the four largest metro areas. These other urban areas grew by 3.6% annually between 1980 and 1990, compared to 2.7% for all urban areas. In fact, during the 1980s these areas captured three-quarters of the nation's population growth.

The diffusion of population growth to a large number of urban centers in Mexico is evident in the growing number of municipalities with sizable populations. In 1970 there were 32 cities with population over 100,000, including three that were over 500,000. By 1995, there were 157 municipalities in Mexico with a population greater than 100,000, including 7 that exceeded a million, 21 that exceed 500,000, and 80 middle-sized municipalities with population between 100,000 and 500,000 in population.[15]

This trend toward a more balanced distribution of population growth among a large number of cities, rather than having growth concentrated in a few areas, may make it easier to meet the demand for housing in Mexico. When growth is concentrated in a few areas, it can be difficult to provide sufficient land and urban infrastructure to accommodate this growth, often resulting in high land costs, poor housing conditions and an overburdened urban infrastructure system. In order to encourage the process of decentralized growth, the Secretaria de Desarrollo Social (SEDESOL) initiated the 100 Cities Program to develop incentives for growth to be targeted to middle-sized cities and to help these areas undertake the planning necessary to accommodate this growth. The 100 Cities Program attempts to coordinate the activities of the three levels of government with the private and non-profit sectors in the areas of land use planning and regulation, transportation management, environmental protection, and urban revitalization.

The diffusion of population growth within Mexico is also evident in the pattern of population growth at the state level. Between 1990 and 1995 fast growing states were found along the northern border with the United States, particularly in Baja California (4.3%), on the Yucatan peninsula, particularly in Quintana Roo (6.5%) and Campeche (3.3%), and in the center of the country in the states of Mexico (3.2%) and Morelos (3.4%) (Exhibit 8). The rapid growth of

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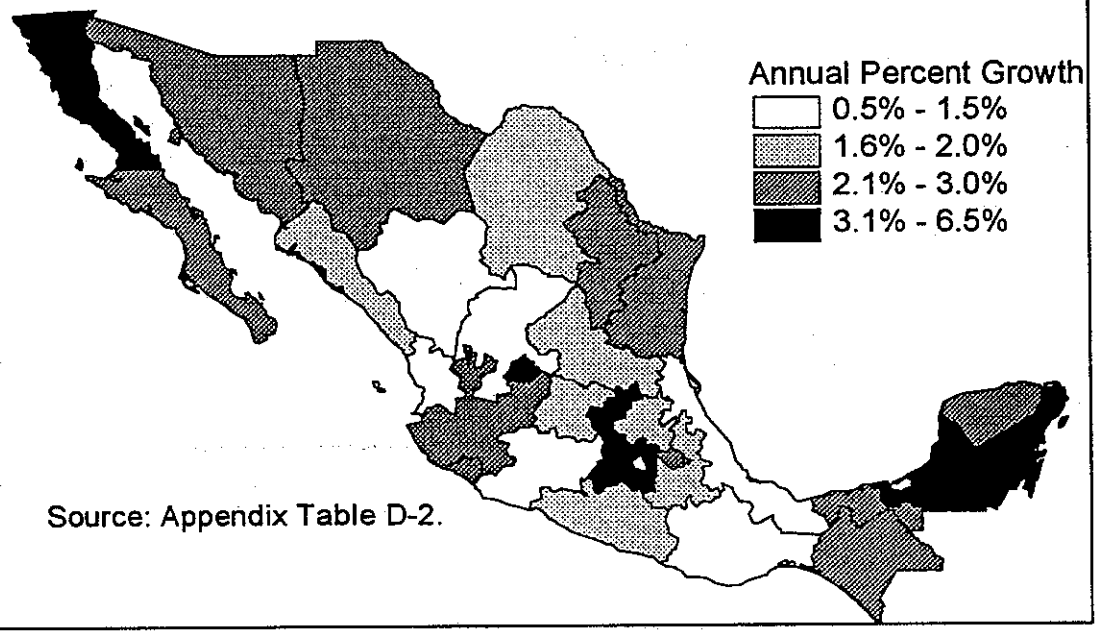
people.

[14] Four metropolitan areas have been defined in Mexico: Mexico City, Guadalajara, Puebla, and Monterrey. These areas consist of the named city plus surrounding municipalities.

[15] SEDESOL, "Programa de 100 Ciudades: Indicadores Sociodemograficos Y Economicos," 1993; and INEGI, Conteo de Poblacion Y Vivienda 1995: Resultados Definitivos," 1996.

these states occurred in large part as a result of migration out of the Federal District, which had the lowest population growth in the nation (0.5%). Other slow growing states include Zacatecas (0.8%) and Durango (1.0%) in the north central region and Oaxaca (1.2%) in the south.

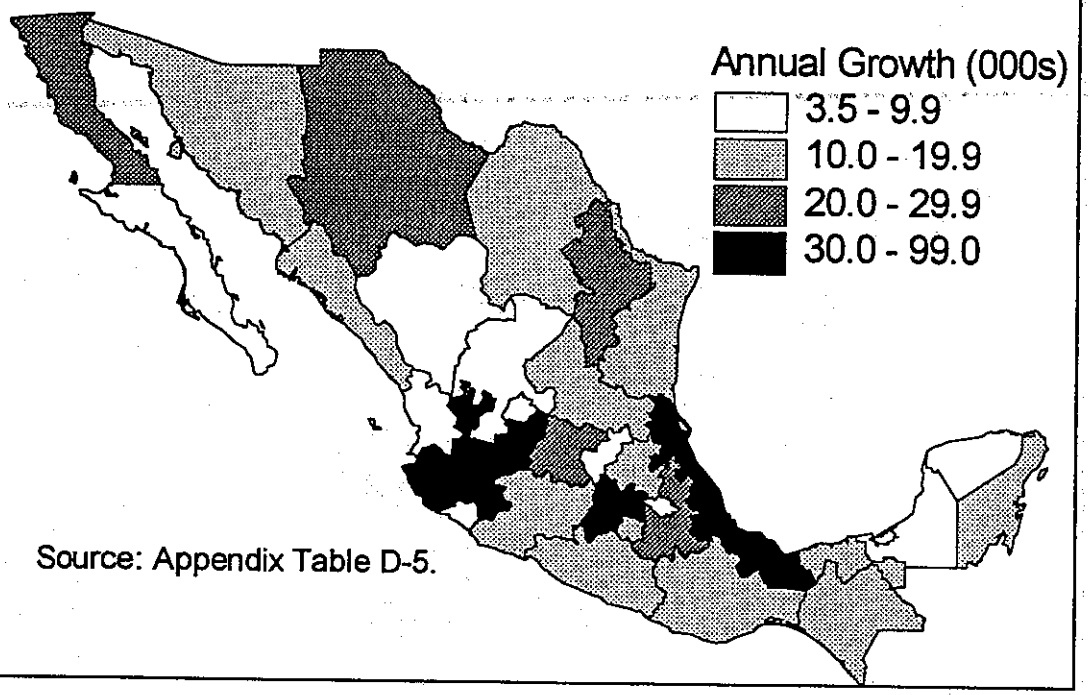
Exhibit 8
Population Growth 1990-1995



Source: Appendix Table D-2.

The states with the highest rates of population growth are also the areas with the highest rate of household growth. Rapid growth rates indicate areas where the supply of housing will need to expand quickly to accommodate increasing demand. Nevertheless, much of the demand for new housing will still be concentrated in the nation's largest states even if these areas do not boast the highest rates of growth. The fast growing State of Mexico had the largest increase in households over the period from 1990 to 1995, adding almost 100,000 households per year (Exhibit 9). But the next three highest levels of growth were in large, slow growing states including the Federal District (37,400), Jalisco (34,700), and Veracruz (34,200).

Exhibit 9
Household Growth 1990-1995



Source: Appendix Table D-5.

Summary

Household growth, and hence housing demand, has been rising sharply in Mexico during the 1990s as those born during the population boom of the 1960s and 1970s enter the peak years of household formation. Given continued rapid growth in the population over age 30, household growth will continue rising through the first decade of the next century, increasing to nearly 800,000 per year by 2010. The most rapid population and household growth rates are in middle-sized cities of between 100,000 and 500,000 in population and in states along the U.S. border and on the Yucatan Peninsula. However, much of the country's household growth will continue to occur in heavily populated states in the center of the country.

While the level of housing demand is rising, the composition of demand has changed little. Most households are comprised of nuclear or extended families and the share of households in these categories has changed little in

recent years. Household size, however, has been declining steadily for several decades and is likely to continue declining along with fertility rates.

Prior to the recent economic crisis, household incomes generally kept pace with inflation during the 1980s and early 1990s at the low-end of the income distribution, although households at the upper end experienced rapid growth in real income. Thus, while there has not been any erosion in household purchasing power, neither has there been much improvement for those with low incomes.

Understanding the dynamics of Mexico's population and household formation is aided by a number of rich sources of demographic information at the national level from the Instituto Nacional de Estadistica, Geografia E Informatica (INEGI), including the decennial census and a variety of regularly conducted surveys, such as the Encuesta Nacional de Ingresos y Gastos de Los Hogares (ENIGH). The release of these surveys in formats which allow researchers to undertake their own tabulations and analysis has greatly increased the usefulness of this information for a wide variety of investigations.

Housing Conditions

Housing conditions, including the size and quality of homes and the availability of urban services, are a critical determinant of a nation's well-being. With rapid growth in households, many of whom have very low-incomes, Mexico has faced a significant challenge in providing decent and sanitary housing for its citizens. Yet, over the last few decades, housing conditions have improved significantly, with impressive increases in the size and quality of homes and the availability of urban services. But while the nation has made notable progress in improving housing conditions, much still remains to be done as a sizable share of the nation's housing units, particularly in rural areas, are deficient in important respects.

This section provides information on the characteristics of the housing stock and how the stock has changed in recent decades. The principal source of information on the housing stock is the decennial census, which collects information on the number and type of rooms in the house, the availability of urban services, and the types of materials used to construct the walls, roof and floor of the home. The 1995 Count of Population and Housing collected essentially the same information for a large sample of housing units, providing an important mid-decade assessment of how housing conditions have changed during the first half of the 1990s. The information collected does not provide an ideal indication of housing conditions, as the data does not allow for an assessment of the quality of construction or urban services, for example. Nevertheless, changes in these gross measures of housing quality do illuminate broad improvements in housing quality. As Mexico's housing stock continues to improve in quality, finer measures of housing conditions may be necessary to identify continued progress.

Overview of the Housing Stock

In response to rising demand for housing, the housing stock has been growing rapidly during the 1990s. As of 1995, there were 19.4 million housing units in Mexico, representing an increase of 3.4 million units since the 1990 Census (Exhibit 10). This increase is almost as large as the increase in housing units during the entire decade of the 1980s when the housing stock increased by 4.0 million units. Because of strong construction activity over the past few decades, most homes in Mexico are fairly young. The majority of homes have been built since 1970 as the housing stock has more than doubled since that time. A large majority of housing units in 1990 were single family homes (84%), with most of the remaining units in multifamily structures. With such a high

share of the housing stock in single family units, housing development is generally very low density.

The vast majority of homes in Mexico are owner-occupied, with 80.1% of all homes owned in 1995. Homeownership has been rising rapidly in recent years, having risen by nearly 10% during the 1980s, from 68.0% to 77.9% in 1990 (Exhibit 10). The decline in the rental housing market is even greater than the rise in the homeownership rate would imply. Recent censuses and the 1995 enumeration identified three categories of tenure -- owned, rented and "other," which includes homes that are occupied without paying cash rent. While the overall housing stock grew by 4.0 million units during the 1980s, the number of rental units actually declined by 180,000 and the share of homes that were rented declined from 20.9% to 14.6%. Between 1990 and 1995 the number of rented homes increased by 132,000 units, but the rate of growth was much slower than for other types of tenure so the share of homes rented declined to 12.8%. This decline in rental housing is even more notable since it occurred during a period when young households, who have the highest rates of renting, were increasing sharply. The decline of the rental market may be a cause for concern to the extent that fewer viable rental options are available for households who would prefer to rent.

Exhibit 10

Housing Stock by Tenure

(Thousands of housing units)

	1970	1980	1990	1995
Total Housing Units	8,286	12,075	16,035	19,403
Owned	5,471	8,214	12,487	15,544
Not Owned	2,815	3,861	3,548	3,859
Rented	NA	2,527	2,347	2,480
Other	NA	923	1,099	1,362
Not Specified	NA	410	102	17
Ownership Rate (%)	66.0	68.0	77.9	80.1

Note: In 1995 the number of housing units is estimated by applying the reported percent of units in each tenure category to the total number of occupied housing units.

Source: INEGI, Census of Population and Housing 1970-1990, and 1995 Count of Population and Housing.

Size of Housing Units

A simple, but important, indicator of the adequacy of the housing stock is the size of homes compared to the number of occupants. The size of housing units has been increasing steadily over the last several decades. In 1970, the most common size home consisted of a single room, and two-thirds of all homes had two rooms or less (Exhibit 11). By 1995, the most common size home had four rooms, and the proportion of homes with 4 rooms or more had increased from

17.2% to 50.6%. Nevertheless, there is still a sizable share of small housing units, with slightly more than a quarter of all homes in 1995 consisting of one or two rooms.[1]

With the size of homes increasing and average household sizes decreasing from 5.8 in 1970 to 4.7 in 1995, the number of persons per room has been declining steadily. In 1970 the average housing unit had 2.57 persons per room, but by 1995 this figure had declined by a third to only 1.64 persons per room.

Exhibit 11

Size of Homes

(Percent of total units)

	1970	1980	1990	1995
Number of Rooms				
One	40.1	29.9	10.5	8.9
Two	28.9	28.7	23.5	19.3
Three	13.8	17.6	23.2	21.4
Four and Five	11.6	14.8	31.2	37.0
Six or More	5.6	4.7	11.1	13.6
Persons Per Room	2.57	2.24	1.93	1.64
Rooms Available:				
Kitchen*	73.7	68.0	74.2	88.8
Bathroom	31.8	51.9	74.8	82.9

Note: Kitchen available refers to homes with a room that is used exclusively as a kitchen and not also as a bedroom.

Source: INEGI, Census of Population and Housing 1970-1990; and 1995 Conteo de Poblacion Y Vivienda.

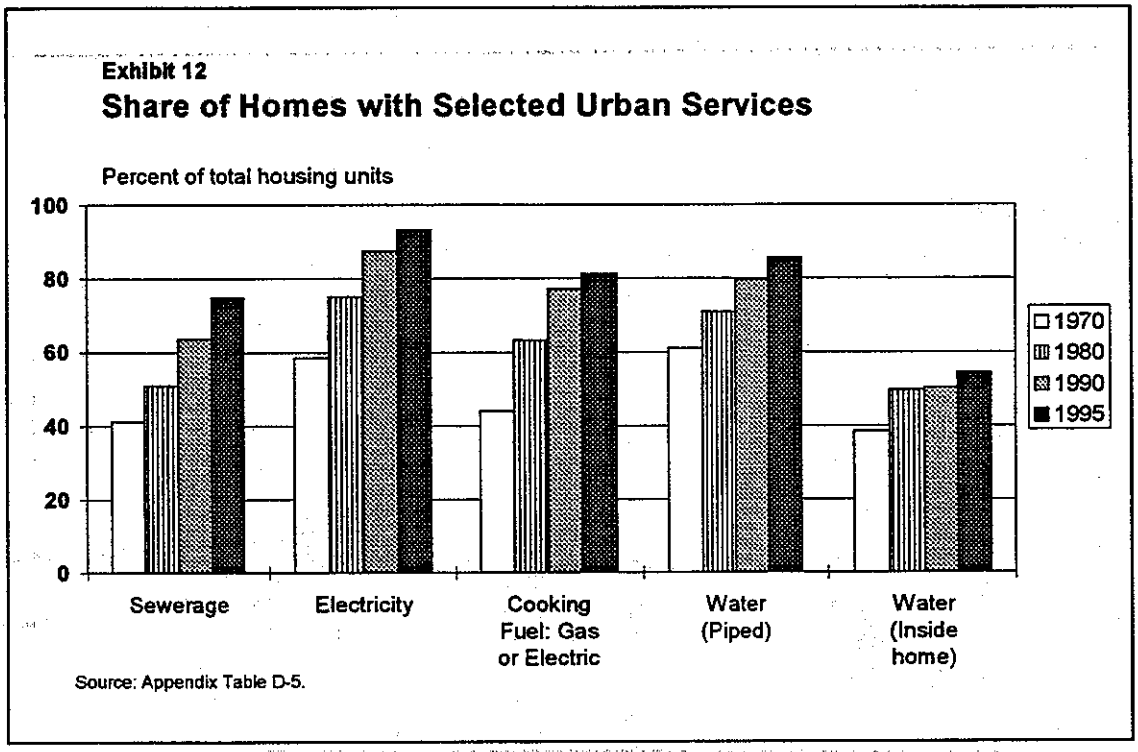
In addition to the total number of rooms, another indicator of the amount of living space provided by a home is whether there is a room used exclusively as a kitchen (rather than also being used as a bedroom) and whether the home has a bathroom. The share of homes with a kitchen increased significantly between 1990 and 1995 to 88.8% of all homes after having remained fairly stable since 1970. Close to three-quarters of homes reported a separate kitchen in both the 1970 and 1990 Censuses. The share of homes with a bathroom rose steadily over the period, however, from just under a third of homes in 1970 to 82.9% by 1995.

Urban Services

An important indicator of housing conditions is the availability of urban services, including water, sewerage, electricity, and gas for cooking, which are necessary to provide for a household's basic needs and sanitary living

[1] It should be noted that while Census data indicates that the size of homes is increasing, the size of homes built through government programs has been declining. It is not clear what the cause of this discrepancy is, but it may be due to declines in the magnitude of subsidies which is shrinking the purchasing power of participants in these programs.

environment. Between 1970 and 1995 there has been a significant improvement in the availability of all of these services (Exhibit 12). In 1970, 41% of homes had sewerage, 44% used gas for cooking, 58% had electricity, and 61% had piped water available. Over time steady progress has been made in extending services to more homes so that by 1995 more than three-quarter of homes could count on all of these services. Electricity had become almost ubiquitous, with 93% of homes having this service. A large majority of homes (86%) also had access to piped water. However, many fewer homes had water available inside



their home (54%), a relatively small increase over the 1980 proportion of 50%. A sewerage connection, either to a public system or to a septic tank, remains the service that is least prevalent, but 75% of homes now have one of these connections. Gas fuel for cooking is also very widely available, found in 81% of homes.

Of course, the simple availability of these services does not indicate the quality or reliability of the service, so the high share of homes with services should not be taken to indicate that there is not room for improvement in the quality of the services. Nevertheless, the significant increase in service availability over the last 25 years does represent significant progress in Mexican housing conditions. However, as the level of service availability approaches 100% there will be a need to collect more detailed information on service quality in order to monitor further improvements in urban services.

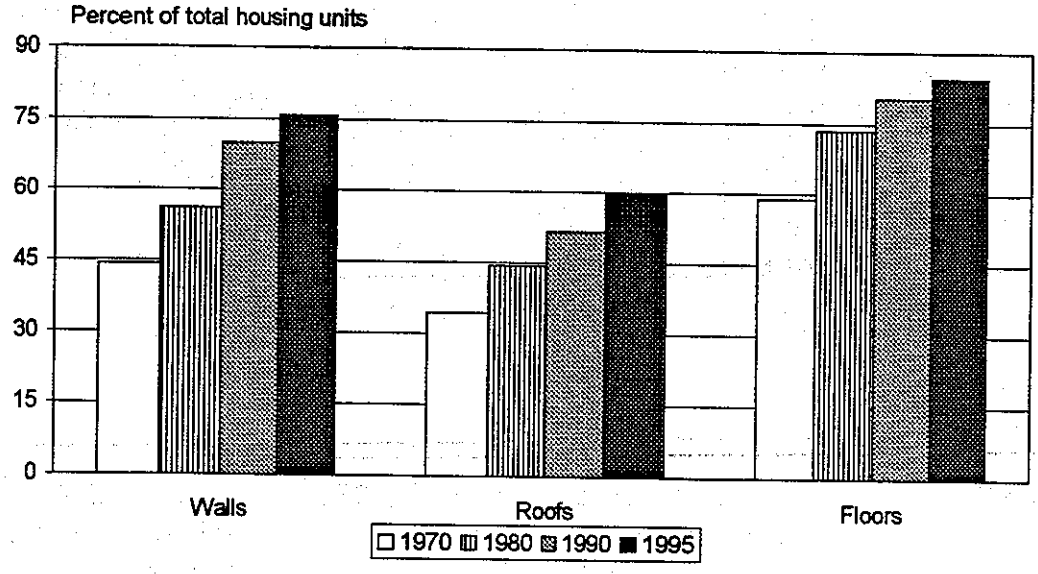
Construction Materials

A final indicator of housing quality available from census data is the materials used to construct the house. This information is a somewhat crude indicator of housing quality since it does not indicate whether the home is structurally sound, well-maintained or provides adequate protection from the elements. In general, however, the use of solid, manufactured materials, such as bricks or cement blocks, are taken as being of higher quality.[2]

Over time there has been a significant increase in the use of solid materials in home construction (Exhibit 13). In 1970 less than half of homes had walls

Exhibit 13

Share of Homes Constructed From Solid Materials



Source: Appedix Table D-5.

made of blocks, bricks or stone. By 1995 76% of homes were made of these materials. The use of concrete or other solid materials for roofs has also increased substantially. In 1970, 34% of homes had roofs made from solid materials. By 1995, the proportion had nearly doubled to 60%. Finally, the use

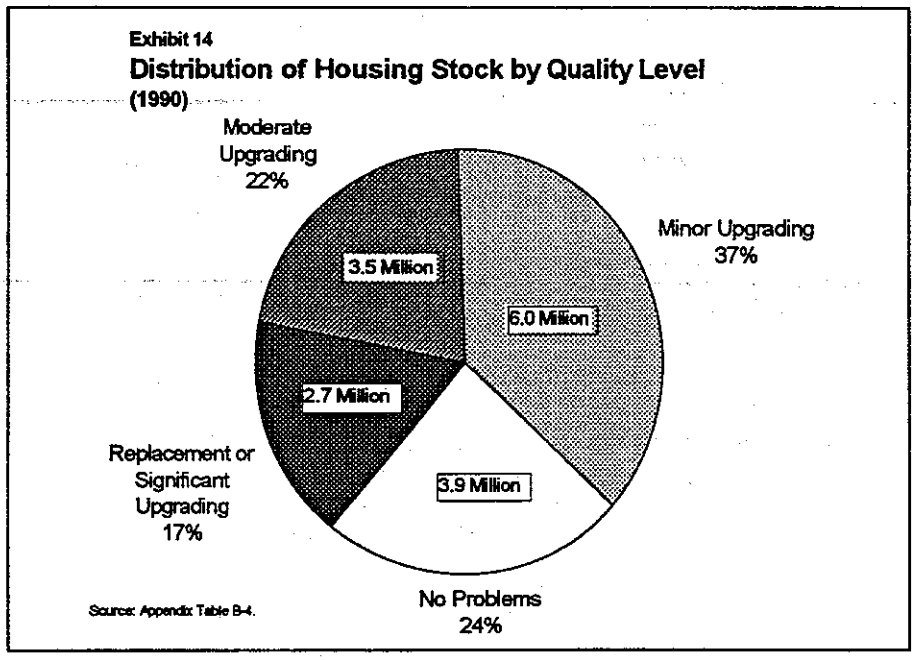
[2] See for example, Schteingart and Solis (INEGI, 1994) for a discussion of the issue of inferring housing quality from information on the materials used to construct the home. Of course structures made from these manufactured materials may in some cases be of lower quality or provide less suitable shelter in some climates compared to buildings made of natural materials. Nevertheless, without any additional information available it seems reasonable to assume that more solid materials will provide a more secure structure and greater protection from the elements.

of materials to create a floor increased substantially from 1970 to 1995. In 1970, 59% of homes had non-dirt floors, but by 1995 this proportion had risen to 85%.

Overall Housing Quality

Using the 1% Sample of the 1990 Census of Population and Housing, it is possible to construct a comprehensive measure of housing quality combining information on the size of the home, the urban services available, and the types of materials from which the home is constructed to identify how many homes are deficient in none, a few, or many of these different dimensions of housing quality. This measure of quality can be used to categorize homes into four groups: those in need of replacement or significant upgrading, those requiring a moderate amount of upgrading, those in need of minor improvements, and those with no shortcomings. Appendix B describes in detail the methodology used to create an index of housing quality based on ten housing characteristics that is then used to categorize the housing stock into these different quality categories.

Exhibit 14 graphically displays the number of homes falling into each of the above defined categories. As of 1990 there were 2.7 million housing units, or 16% of the housing stock, that were in need of replacement or significant upgrading because of deficiencies in seven or more characteristics. A large majority of these homes lacked almost all services, were made from non-durable materials, and provided limited living space for the families living there.



There were an additional 3.5 million homes, or 21% of the stock, that were in need of moderate improvement with deficiencies in four to six characteristics. These homes generally had floors made from durable materials and had access

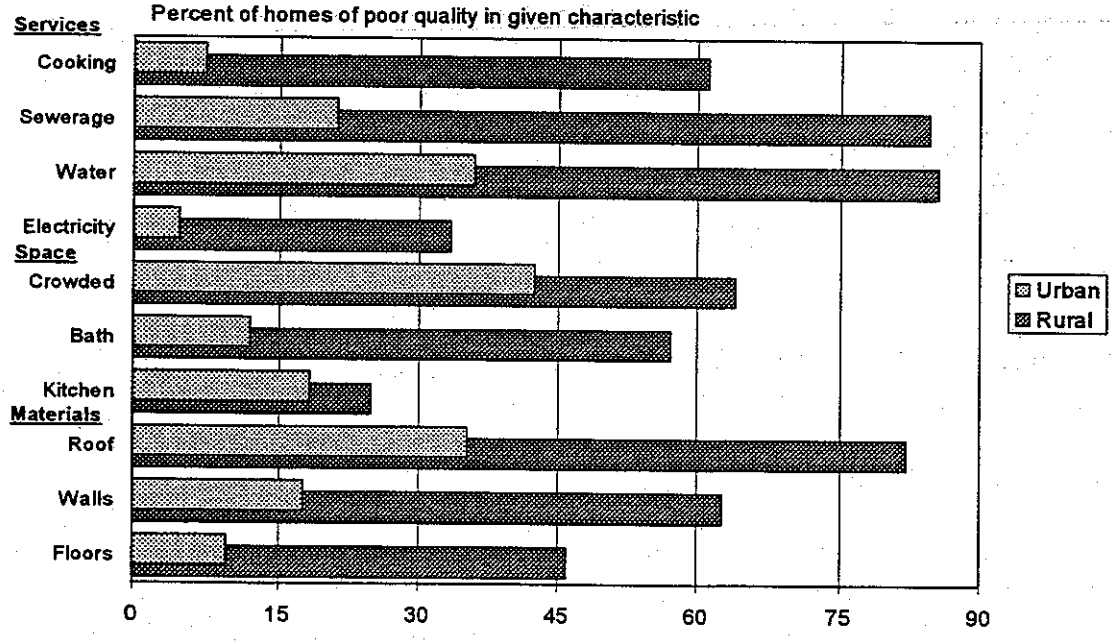
to electricity and gas for cooking. But most of these homes had roofs made from non-durable materials, did not have water inside the home or a sewerage connection, and were crowded. In addition, many of these units had additional deficiencies such as having walls made of non-durable materials and lacked a bathroom or kitchen. While these homes generally provided basic shelter, the structures were generally in need of improvement and there was a lack of basic services, in particular sewerage, necessary for a healthy environment.

The largest group of homes were those requiring minor improvements, which had deficiencies in only one to three categories. This category included 6.0 million housing units or 38% of the stock. These homes were generally constructed from durable materials, had access to electricity and sewerage, and had kitchens and bathrooms. The most frequent problems among these homes were crowding, a lack of water in the unit, or roofs made from less durable materials. Finally, a quarter of the housing stock, or 3.9 million units, was sound in all dimensions.

Housing Conditions in Urban and Rural Areas

There is a significant difference in the quality of housing units in urban and rural areas. While the ranking of housing problems is similar in urban and rural

Exhibit 15
Comparison of Housing Quality in Individual Characteristics in Urban and Rural Areas



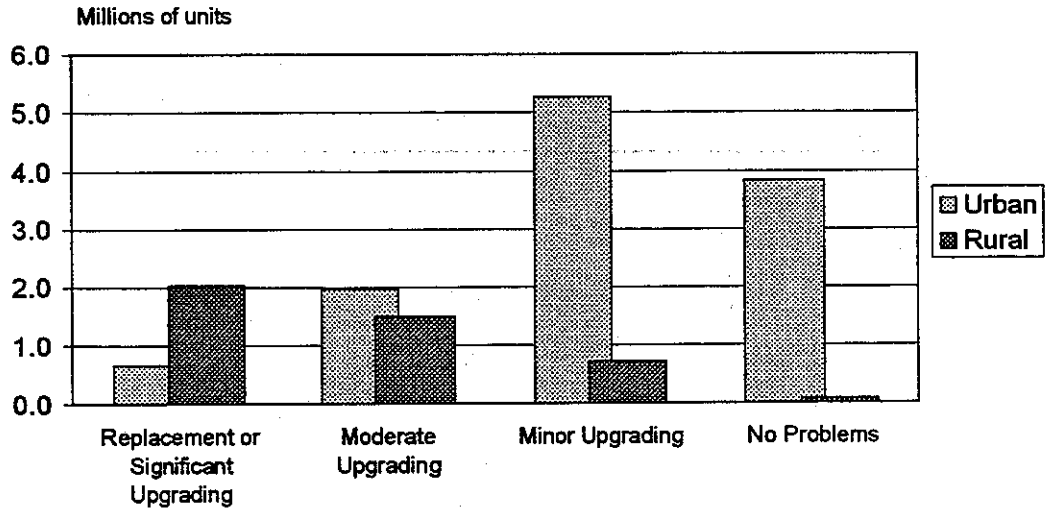
Source: Appendix Table B-1.

areas, homes in rural areas are much more likely to be of poor quality in all dimensions compared to urban homes (Exhibit 15). The greatest difference is with regard to the availability of urban services. While six out of seven rural homes do not have water available inside the home or a sewerage connection, in urban areas only a fifth to a third of homes have these deficiencies. Rural homes are also much less likely to use gas or electricity for cooking, with 61% of rural homes using other fuels compared to only 7% in urban areas. Electricity is the most widely available service in rural areas, but nonetheless a third of homes do not have electricity, compared to only 5% in urban areas.

There are also significant differences between urban and rural areas in the durability of materials used to construct homes. In rural areas, walls and roofs are much less likely to be constructed from concrete and much more likely to rely on natural materials. Slightly less than half of homes in rural areas also have earthen floors, whereas most homes in urban areas have solid flooring. While natural materials prevalent in rural areas may often provide good shelter, in general these materials are less durable and may provide less resistance to the elements.

Exhibit 16

Estimate of Housing Replacement and Upgrading Needs (1990)



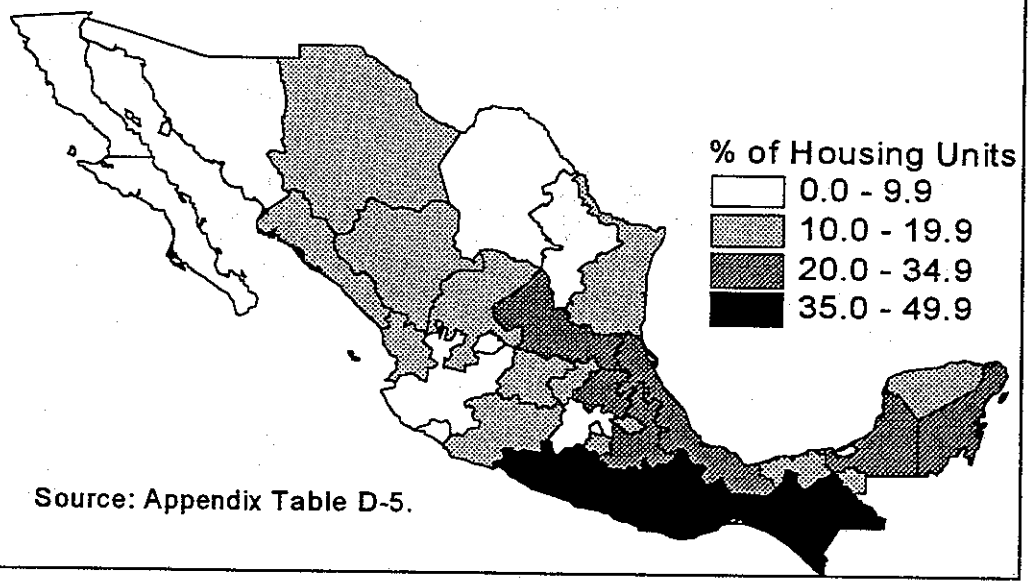
Note: See Appendix B for definitions of quality categories.

Source: Appendix Table B-4.

There is less difference between urban and rural areas in the amount of living space provided. Homes in both areas are about as likely to have a kitchen. Crowding is also high in both urban and rural areas, with slightly less than half of urban homes and nearly two-thirds of rural homes having more than 2.5 persons per bedroom. Rural homes, however, are much less likely than urban homes to have a bathroom, with 57% of rural homes lacking this amenity compared to only 12% in urban areas.

Given the differences on these individual measures of housing quality, it is not surprising to find that much of the country's inadequate housing is found in rural areas (Exhibit 16). Of the 2.7 million units deemed to be in need of replacement or significant upgrading, 2.0 million are in rural areas, representing 47% of all rural homes. Such significant problems are relatively rare in urban areas, with only 0.7 million homes, or 6% of all urban homes, falling in this category. Of the 3.5 million homes in need of moderate upgrading, the majority (2.0 million) are in urban areas, but there are also 1.5 million rural units in this category, representing 35% of all rural units. Thus, 82% of all rural units were in need of replacement or significant upgrading as of 1990. While in comparison, only 23% of urban homes fall into these two categories. Most urban homes are generally of good quality, with 45% requiring minor improvements, and a third having no deficiencies at all, whereas only 18% of rural homes fall into these two categories.

Exhibit 17
Share of Housing Stock in Need of Replacement or Significant Upgrading (1990)



Source: Appendix Table D-5.

Reflecting differences in the degree of urbanization, there is great variation among states in the share of housing units of low quality. Exhibit 17 presents the share of housing units in need of replacement as of 1990. As shown, the states of Guerrero, Oaxaca, and Chiapas, which are among the most rural states in Mexico, each had more than 40% of their housing stock in need of replacement. States along the Gulf Coast and on the Yucatan Peninsula also have fairly high levels of poor quality housing, with between 20% and 35% of homes in this region in need of replacement. The highest quality housing is found along the northwest and northeast sections of the U.S. border and around the Federal District, where less than 10% of the housing stock was in need of replacement.

Summary

Mexico's housing stock has greatly improved in quality in recent years. Homes have greatly increased in size, urban services are now available in a large majority of homes, and the use of more solid and durable materials to construct homes has significantly increased. However, despite these improvements as of 1990 a sizable share of the housing stock was in need of replacement or significant improvement. Based on an analysis of ten key indicators of housing quality, 2.7 million units were arguably in need of replacement, and an additional 3.5 million units were in need of significant upgrading. The problem of inadequate housing is very heavily concentrated in rural areas where 82% of the housing stock fell into one of these categories. Poor housing quality was also extremely high in southern states, particularly the southern pacific region encompassing Guerrero, Oaxaca and Chiapas. With rapid increases in household growth, the need for investment in new housing is great. But with large shares of families living in low quality housing there is also a great need for investment in the existing housing stock, particularly in rural areas.

The Housing Construction Sector

With sharply rising demand for housing, Mexico has a great need to expand the volume of new housing constructed. In fact, housing construction has risen sharply in recent years, enabling household growth to double in the first half of the 1990s. Slightly more than half of new housing has been produced in the informal sector, outside of formal government regulatory channels. While the informal sector has played a vital role in meeting Mexico's housing needs, there are a variety of inefficiencies associated with development in this sector. Through a variety of programs and legal reforms, the federal government has tried to improve the efficiency of housing construction markets. As a result of these efforts and an expansion of housing finance resources, the share of housing produced in the formal construction market has increased in recent years. But a great deal remains to be done to ensure that an adequate supply of new housing can be provided to meet the nation's growing need for housing.

This section will provide a general description of the housing construction sector in Mexico and outline some government policies that have been undertaken to improve the operation of the market. Unfortunately, very little data is available on housing construction, in large part because such a large share of construction occurs outside of formal government channels. It is likely that a sizable share of new construction will continue to take place in the informal sector in the years to come, which will continue to hamper the collection of construction information. Absent direct data on construction levels, the collection of information on such factors as vacancy levels, the age of housing units, and changes in the use of units would provide a better understanding of housing stock dynamics that could be used to evaluate past changes in the housing stock and future needs for new housing.

Formal and Informal Construction Markets

Housing construction in Mexico is divided into two distinct, yet overlapping markets, the formal and the informal.[1] In the formal sector, housing is developed under government regulation, generally following a sequence whereby a developer acquires titled land, installs infrastructure and services,

[1] For a discussion of the informal housing market in Mexico see for example: William Siembieda, "Urban Land Transformation in Mexico: How the Irregular Sector Operates," October 1996; and Alan Gilbert and Peter M. Ward, Housing, the State and the Poor: Policy and Practice in Three Latin American Cities, Cambridge University Press, Great Britain, 1985; and Alan Gilbert, Housing and Land in Urban Mexico, Center of US-Mexican Studies, University of California, San Diego, 1989.

constructs a home and sells it to a buyer, who often receives financing either through a commercial bank or one of the public sector lending programs. Thus, formal sector housing is built on titled land, is registered in the local cadaster for taxation purposes, usually has adequate service provision, and is often purchased with long-term government or private sector financing.

In contrast, housing construction in the informal, or irregular, sector does not follow a "formal" legal processes, taking place without some or all government approvals. A common characteristic of the informal sector is that homeowners do not have clear, legal title to their land. Land for irregular settlements may be obtained in a variety of ways. In some cases, land is subdivided and sold by the legal owners, although the sale is not legally registered, either so the seller can avoid taxes and other government fees, or because the property is not legally eligible for sale. Alternatively, land may be occupied by organized groups who then enter into negotiations with the owner to purchase or, in the case of government-owned land, to be given the occupied area. These forced sales may also take place outside of formal legal channels. Land may also be squatted on, with ownership granted after the land has been occupied for a sufficiently long period of time.

Since irregular developments are not undertaken by well-capitalized developers, and occur outside of formal government planning processes, there is generally no provision of urban infrastructure such as water, sewerage, electricity or paved roads, nor is land set aside for public uses such as schools, parks or transportation corridors. However, it is not unusual for irregular developments to obtain water by tapping into nearby water mains or, more commonly, electricity by accessing nearby power lines. In many cases the provision of urban services occurs only after an informal development has been "regularized," in which clear legal titles are obtained, the development is brought into the municipal cadaster and tax revenues are generated to help pay for the needed improvements. At times, however, organized informal settlements will convince municipal governments to provide these improvements before regularization has occurred. During the Salinas administration large investments for basic residential services were made in the irregular sector through the federal government program PRONASOL.

Most housing in the informal sector is "self-help" housing, where households construct their own home, initially building a simple structure to provide basic shelter, and then expanding and improving this structure as time and finances permit.[2] For most low-income households, self-help housing is the only affordable source of new housing supply. This process lowers the monetary cost of obtaining housing by making use of the household's own labor,

[2] It should be noted, however, that self-help housing can also occur in the formal sector in cases where a household holds clear, legal title to the land and conforms with local building regulations, yet constructs their own home.

using land which does not have urban services (and so the cost of providing those services), and by allowing the household to occupy a simple structure until resources are accumulated to improve the home, thus avoiding finance charges. Besides providing some cost savings, the pay-as-you-go nature of self-help housing may also be a necessity, as housing on land without clear legal title will not qualify for a conventional loan to pay for housing construction.

It is important to emphasize that a continuum exists between the informal and formal construction sectors. At one extreme are homes that provide a bare minimum of shelter, lack urban services, are built on land that is not owned by the occupants, and do not pay taxes for municipal services. But informal sector housing may also include well-built homes with adequate services that are nonetheless deficient in some way, such as having been built without the appropriate permits, lack a clear title, or are not registered in the local cadaster. Meanwhile self-help homes may be considered part of the formal market to the extent that the household has clear legal title to the land and has complied with all legal requirements regarding construction standards and the obligation to pay taxes.

But whether the problems are severe or simple, legal and physical deficiencies in irregular settlements are generally addressed over time and the developments are ultimately brought into the formal market. It is also worth noting that the use of the term "informal" should not be interpreted as indicating that these markets are not organized. Given the enormous volume of housing that is produced in this sector it is clear that these markets are well organized with rules governing how transactions are structured and enforced. In fact, both developers and government programs participate in the sector.

With significant demand for housing by very low-income households, the informal sector has played a vital role in providing housing for many Mexicans. For this reason, the government has generally tolerated the development of housing outside of formal regulatory channels. However, there are many reasons why housing production in the informal sector may not be efficient. To begin with, since irregular developments occur outside of the urban planning process, they are not necessarily located in areas where urban services, including water, sewerage, electricity and transportation systems, can be provided at the lowest cost. Without government control, development may also occur in ecologically sensitive areas. Furthermore, self-help construction may not be the most efficient way to construct homes, both because this type of production does not realize any economies of scale and because the average household may not have the experience to construct the home as efficiently as possible. In addition, the pay-as-you-go nature of self-help housing means that households live in fairly poor housing conditions while they accumulate resources to improve their housing. But if long-term financing were available,

which requires clear legal title to the home, their current income might be adequate to pay for a better home immediately.

As mentioned, informal developments are eventually brought into the formal sector. But it may not be possible to rectify all deficiencies in these developments, and regularizing them after the fact may impose unnecessary costs. For example, there may be little that can be done to provide areas for parks and schools or to adjust street layouts and widths to provide adequate transportation corridors after development has occurred. Unnecessary costs include the time consuming and cumbersome process of verifying the past sales and the more difficult construction process to install infrastructure after homes have been constructed. Finally, it may be more costly to bring existing homes into conformity with building codes, which is generally necessary to qualify for housing finance, than to simply construct them properly the first time. For all these reasons, increasing the supply of homes built in the formal sector is an important goal.

Construction Levels in the Formal and Informal Sectors

With a large share of construction occurring outside of formal government channels, data on the overall volume of construction is not available. However, the level of housing construction over time can be approximated by the change in the number of occupied housing units identified in the Census of Population and Housing and other national surveys. Based on the change in the number of occupied housing units, housing construction increased sharply during the first half of the 1990s (Exhibit 18). During the 1980s, the occupied housing stock increased by nearly 400,000 units per year, while between 1990 and 1995 the stock grew by nearly 600,000 units per year, an increase of 50%.

The actual level of new construction is no doubt even higher than these figures indicate since the change in the occupied housing stock is the sum of housing units added by new construction less units lost due to replacement, demolition, fires, or natural disasters. Thus, new construction is needed not just to accommodate growth in households, but also to replace some of the existing housing stock. Given the large number of housing units of poor quality, the rate of housing replacement may be quite high and add significantly to the volume of construction. For example, if a quarter of one percent of the existing housing stock of 19.4 million homes are replaced in a year, then new construction would be about 50,000 units higher than the rate suggested by the change in the occupied housing stock.[3] Other changes in the housing stock may further add to – or subtract from –the volume of housing construction needed to accommodate

[3] The rate of 0.25% is roughly the rate at which existing housing in the U.S. housing stock is currently being lost due to demolition, fire, or natural disasters.

household growth. If housing vacancy rates have changed little or risen, new construction will be higher than the net change in the occupied housing stock indicates, since the absolute number of vacant units will have risen as well. On the other hand, a sharp fall in vacancy rates would mean lower construction levels were necessary to satisfy household growth. Also, conversion of buildings to and from non-residential use, and the subdivision of homes into additional units or the merger of homes into fewer units should also be taken into account in estimating the level of new construction. This type of information is not currently available, but would be quite valuable in evaluating past trends in construction as well as projecting future construction needs.

One way to estimate the share of new construction in the formal and informal sectors is to compare the number of new housing units financed (including finished housing, progressive[4] housing, and lots with services) to the estimated total construction volumes based on changes in the occupied housing stock. The use of housing finance generally requires clear legal title and conformity with building codes (although structures built on lots with services may not). As shown in Exhibit 18, this methodology suggests that during the 1980s the formal sector accounted for 40 percent of new construction, including 34% that were finished houses, 4% that were progressive houses, and 2% that were lots with services. This leaves 60% of new housing to be produced in the informal sector.

Exhibit 18
Average Annual Growth in Housing Stock and Number of New Housing Units Financed

	1980-1990		1990-1995	
	Units (000s)	Percent of Total	Units (000s)	Percent of Total
Total Growth in Occupied Housing	396	100%	594	100%
New Housing Units Financed	160	40%	278	47%
Finished Housing	136	34%	205	35%
Progressive Housing	14	4%	43	7%
Lots with Services	10	2%	30	5%

Note: Data on number of housing units financed by type available only for 1990-94.

Source: Housing Stock from INEGI, Census of Population and Housing 1980 and 1990, and 1995 Count of Population and Housing.
Housing units financed from SEDESOL, as reported by CNBV.

The same estimation for the years from 1990 to 1994, indicates that the number of housing units built in the formal sector increased by 74%, from 160,000 units to 278,000 units annually. But with the total volume of housing construction increasing by 50%, the share of housing units built in the formal sector only increased to 47%. Almost all of this rise is accounted for by much greater volumes of progressive housing and lots with services, which accounted for 7% and 5%, respectively, of

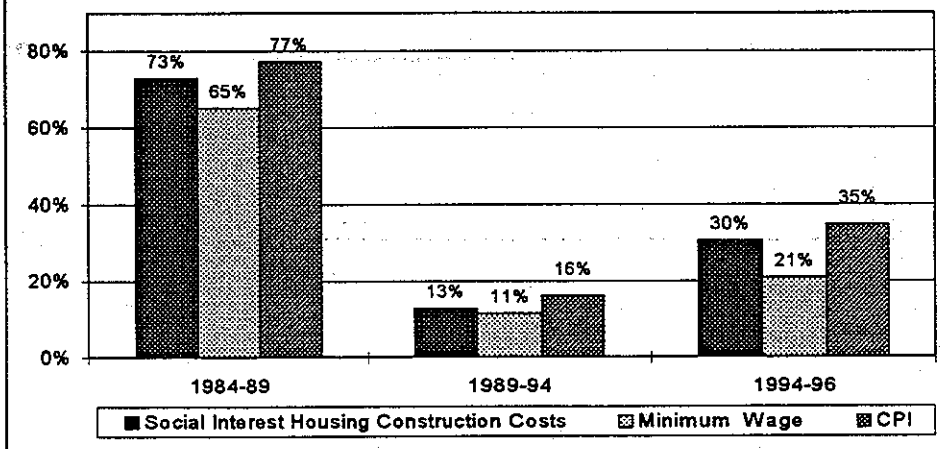
[4] "Progressive" housing refers to the construction of a very simple structure which is intended to be expanded and finished over time by the household as time and funds are available. It is an affordable option for very low income households which provides legal title and basic services.

the net homes. Finished housing accounted for 35% of new homes, almost the same as during the 1980s Thus, while the formal sector grew significantly in the 1990s, a majority of new housing was still built in the informal sector.

Trends in Housing Construction Costs

The principal information on housing construction costs is the index of the cost of constructing social interest housing. This index covers the cost of materials and labor used to build social interest housing structures, but does not include the cost of land, infrastructure, financing, government permits or other indirect costs. As shown in Exhibit 19, since the 1980s construction costs have consistently increased faster than the minimum wage, so for households at a given income level measured in terms of the minimum wage, new housing has become increasingly less affordable. However, while the official minimum wage has not kept pace with inflation, household incomes have – at least up to 1994 (See Exhibit 6). As shown in Exhibit 19, construction costs have been rising less slowly than overall price levels. So to the extent that household incomes have

Exhibit 19
Annual Percent Increase in Construction Cost of Social Interest Housing and Other Selected Cost Indexes



Source: INEGI, Banco de Mexico.

kept pace with inflation, construction costs have been falling relative to income. Of course, without information on trends in household income since 1994, it is not known whether rises in construction costs have outstripped growth in income since the crisis.

Since this index only covers the cost of constructing the housing structure, it is difficult to fully evaluate trends in the cost of new housing based of this measure. Other costs, including land, infrastructure, and indirect costs,

account for a significant share of total construction costs. Data from INFONAVIT for the period 1989 to 1992 indicates that these other costs accounted for 38% of the total construction cost.[5] While trends in the cost of constructing infrastructure are likely to mirror other construction costs, it is possible that the price of land or indirect costs have been rising sharply in real terms even if the cost of building the structure has not.

It is extremely difficult to make generalizations regarding land prices due to regional variation and the fact that such a significant portion of property transactions fall outside the formal market. But studies of the formal land market have conclude that, while land values have followed a broadly cyclical pattern -- rising steadily in the 1970's, peaking in the early 80's and declining sharply thereafter -- overall, from 1974 to 1990, land prices did not witnessed a dramatic increase.[6] Even in the rapidly expanding petroleum economies of the south and the metropolitan Mexico City area, land prices increased little over this period. The large-scale economic reforms of the 1980's, including the inflation control measures from 1982 to 1988 depressed property values. The current contraction of the economy has also slowed rises in land value.

A significant issue related to the indirect cost of providing new housing has been the costs associated with permitting and registering a property. As of 1990 the costs associated with obtaining building permits, paying construction fees and taxes, securing utility service rights, and titling a new home ranged from 7% to 25% to the cost of the home.[7] Since that time SEDESOL, along with FOVI and the finance ministry, have worked with state governments and the National Association of Notaries to reduce the regulatory burden on housing. In November of 1995 SEDESOL reported that the average cost of regulation had been reduced to 4.9%.[8] There is some dispute about the degree to which these indirect costs have fallen as reviews of indirect costs by industry groups such as the Camara Nacional de La Construccion (CNIC) have found regulatory costs to be higher than those reported by SEDESOL. Nonetheless, while regulatory costs remain high in certain states, the government has certainly made progress in reducing these costs.

In sum, available information suggest that construction costs have been falling relative to income, at least prior to the recent economic crisis. However, a

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[5] INFONAVIT: "Indicadores De La Industria De La Construccion Y De La Vivienda De Interes Social," Deciembre de 1994.

[6] Land price trends from Peter Ward, Edith Jimenez and Gareth Jones, "Measuring Residential land-price changes and affordability," in Methodology for Land and Housing Market Analysis, edited by Gareth Jones and Peter Ward, Lincoln Institute of Land Policy, Cambridge, MA, USA, 1994.

[7] Thomas Lee Zearley, "Creating an Enabling Environment for Housing: Recent Reforms in Mexico," Housing Policy Debate, Volume 4(2), 1993.

[8] SEDESOL: "Costos Indirectos de Naturaleza Estatal Y Municipal Asociados Con La Produccion Y Titulacion De Vivienda de Interes Social," Noviembre 25, 1995.

complete evaluation of trends in the cost of providing new housing is difficult because of limited data on the complete cost of new housing. A better measure of housing costs would be helpful as an indicator of trends in housing affordability and to evaluate the success of efforts to reduce housing costs. Current efforts by FOVI to develop a new house price index may help fill this void in the existing data on housing market conditions.

Improving the Efficiency of New Housing Development

In order to improve the efficiency of new housing development, the federal government has instituted a variety of policies aimed at improving the functioning of land markets, land use planning, and the pace at which informal developments are regularized. In addition, the government has also taken a number of steps to provide assistance to the self-help housing sector.

One significant legal reform took place in 1992 and altered the legal basis for agrarian tenure. This involved modifying Article 27 of the constitution to allow privatization of ejido lands. Ejido land holdings, which account for 55% of all land in Mexico, were established in the 1917 Constitution as part of agrarian reform. These lands are community owned and managed for primarily agricultural use, with community members given the right to use part of the land by the ejidal commission. It has been estimated that between 1995 and 2000 urban areas of Mexico will require a total of 150,000 hectares of land to satisfy the growth of cities, with about 35 percent of this, or 52,500 hectares, needed for housing. Approximately 65 percent of the total land needed for urban development is expected to come from property that is now ejidal land on the urban fringe of metropolitan areas.[9]

Prior to the Constitutional reform in 1992, the transformation of ejidal land into private land eligible for urban development was a difficult process, requiring the exchange of ejidal land for other land for agricultural use. For this reason, and others, ejidal land was generally sold for urban development in the irregular sector.[10] These sales were either made directly to those interested in building on the land or to intermediaries who subdivided larger parcels and then sold individual lots. With ejidal land providing much of the land for new development, this process resulted in high shares of new development occurring in the irregular sector.

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[9] Data on estimated land needs for 1995 to 2000 from the "Programa Nacional de Desarrollo Urbano 1995-2000," page 53.

[10] See William Siembieda, "Urban Land Transformation in Mexico: How the Irregular Sector Operates," October 1996.

Following the 1992 reform, ejido societies can now sell land for urban development if two-thirds of the ejido votes in favor of its sale. Ejidos can also enter into joint venture with private business, form cooperative associations such as civil or merchant societies, and use their land as collateral for loans. These options aimed to open up the ejidos to outside investment for residential development.

But despite these legal reforms there has been little privatization of ejido land through this formal process. Ejidos do not appear to be aggressively marketing their lands nor are developers buying up ejidos in the path of urban expansion.[11] One explanation for the limited use of the new law may be that privatization remains costly and time consuming, perhaps in part due to high levels of fees or taxes. But it may also be that it will take time for ejidos and developers to understand the risks and rewards afforded by the new law. The fact that the Constitutional reforms were in place for only two years prior to the onset of the economic crisis may have also hindered the development of a more active market for ejidal land.

With regard to land use planning, since the early 1980s the federal government has been attempting to strengthen the control of municipal governments over the regulation and taxing of land in order to foster local solutions to the great need for land and infrastructure for urban development. A revision of Article 115 of the constitution in 1983 fortified the authority of the municipalities to do zoning and licensing and gave municipalities regulatory control over urban land and territorial reserves, which are government owned lands reserved for development. The revision also devolved the responsibility for elaborating an urban development plan from the state governments to the municipalities, giving them control over the cadastral registry and property tax collection.

More recently, the 100 Cities Program was begun in January of 1993 by the Secretariat of Social Development (SEDESOL) to foster efficient land use both nationally, through a more balanced distribution of population and economic activities within the national territory, and locally, by improving land use planning and fiscal management. The program focuses on 116 municipalities that make up a network of second-tier, medium-size cities across the nation. The program aims to encourage more orderly and sustainable growth by encouraging investment in the medium size cities as opposed to the four major metropolitan areas of Mexico City, Guadalajara, Monterey and Puebla. Central goals of the program include improved land use planning, increased regularization of informal settlements, extension of territorial reserves for planned development of residential housing, and increased investment in infrastructure.

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[11] Siembieda, October 1996

In developing these land use plans a significant challenge for local governments is to include a realistic allotment of land for residential use by low-income households. Including this use in land use plans is a challenge for several reasons. To begin with, much of the expansion of urban areas will occur on ejidal land which is not currently part of the municipal area. But in addition, including these low-income residential areas in municipal plans makes explicit the degree of investment in infrastructure that will be required to accommodate future growth – which also makes explicit the degree to which available funding is insufficient to meet these needs. Yet, it is only by making realistic plans that solutions can be devised to address these needs. The alternative is to let low-income development occur without planning which all too frequently is in areas that will ultimately be more expensive to serve or where low-income households will be exposed to significant hazards of environmental pollution or natural disasters.

But even with a greatly improved land market, there will still be the need to bring existing informal developments into the formal market. Various levels of government have also been working to improve the process by which informal developments are regularized. When irregular settlements exist on ejido land, the *Comision para la Regularizacion de la Tenencia de la Tierra* (CORETT) or special state level organizations are responsible for initiating the process of regularization. Once a settlement is regularized it becomes part of the municipal territory and receives the same administrative status as other neighborhoods. For land to be brought fully into the formal market system it must have a clear title, be subdivided with services and utilities provided, and it must not be located in a state- or federally-designated ecologically protected area. In recent years both federal and state level governments have been working to accelerate this process. Between 1983 and 1988 18,500 hectares of land was regularized. Between 1989 and 1994 the volume of land regularized more than tripled to 65,893 hectares, comprising 2.12 million plots.[12]

The federal government, primarily through SEDESOL, has initiated a number of efforts to provide support for the self-help housing sector. These efforts include educational outreach to provide information on efficient and affordable construction techniques and building materials. In addition, the government has undertaken a variety of efforts to support material banks where building materials are purchased in bulk to help lower costs. Perhaps the most significant effort in this area was the "Prestamo a La Palabra" program where households were allowed to purchase materials on credit, based on their promise to repay.

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[12] Programa Nacional de Desarrollo Urbana, page 52; and Ann Varley, "Clientism or Technocracy: The Politics of Urban Regularization," in Mexico: Dilemmas of Transition, University of London and British Academic Press, London, 1996, page 214.

Summary

Housing construction occurs in two overlapping markets - the formal and the informal. Construction in formal construction markets follows required legal procedures producing housing that complies with building ordinances, has clear legal title and at least basic services, is registered in the local cadaster for tax purposes, and is often purchased with long-term financing. In contrast, informal housing is produced outside of formal legal channels, generally does not have clear legal title, is often deficient in basic services, may not comply with building ordinances, does not pay taxes, and is not eligible for conventional long-term financing.

While the informal construction market has provided an important safety value, producing a great deal of housing for low-income families, there are a variety of reasons why this market may not be the most efficient way to provide housing. While tolerating, and to some extent aiding, the informal market, the Mexican government has been taking steps to increase the share of housing produced in the formal sector. These steps have included reforms of laws controlling the sale of ejidal land, efforts to improve land use planning, an acceleration of the process of regularizing informal developments, and programs to aid the self-help housing sector.

During the 1990s the formal sector has increased its share of total new construction, rising from an estimated share of 40% during the 1980s to 47% in the first half of this decade, with most of the increase coming from an expansion of the financing of progressive housing and lots with services. As discussed more fully in the next section, continued growth in the housing finance sector will be important to further expand the share of housing produced in the formal sector.

Data on the cost of housing construction suggests that construction costs have been rising less slowly than incomes, at least prior to the economic crisis. However, complete information on the cost of construction is not available, as the index of the cost of constructing social interest housing includes only costs associated with building the structure, excluding land, infrastructure and indirect costs. Gathering better information on the full cost of new housing would be helpful in evaluating whether bottlenecks in the supply of housing are affecting housing costs. Better information is also needed to better understand changes in the housing stock to evaluate past trends in housing supply and future needs for new housing.

Housing Finance

Housing finance plays a critical role in enabling households to acquire a good quality home. A home is the largest investment that most households ever make, generally costing several times a family's annual income. Without long-term financing, households are forced to live in inferior situations while they accumulate the savings necessary to purchase and improve their home. As described in the previous section, a majority of new housing is constructed in Mexico without long-term financing. But the level of funding for housing finance rose sharply in the 1990s, as the housing finance system has undergone dramatic change. Commercial banks were privatized and deregulated, with the result that the volume of housing loans issued by these firms increased more than five fold after 1991. The principal public sector finance organizations also significantly changed their operations to increase the efficiency with which finance is made available to low and moderate income households. While the economic crisis that followed the devaluation of the peso hit the housing sector particularly hard, there is reason to believe that the reforms that have been instituted in housing finance, as well as changes in the public pension system, have laid the groundwork for continued growth and improvement of the housing finance system.

This section will present an overview of housing finance in Mexico, including a description of the principal finance organizations, the income segments served by these different organizations, trends in the number and value of loans made, and recent developments in the housing finance sector. The analysis of trends in the availability of housing finance is greatly aided by SEDESOL's publication of detailed data on housing lending. There are several areas where further data collection and dissemination would be of value. For example, further analysis of the distribution of housing finance resources among the nation's households would be aided by identification of the source and cost of housing finance in household surveys conducted by INEGI. In addition, in order to attract investment in housing loans, either in a secondary market or mortgage backed securities, information on the historical performance of loan portfolios will be needed.

Housing Finance Organizations

During the 1980s, government organizations were the principal source of housing finance, although in the 1990s commercial banks have emerged as an

important source of lending.[1] Four agencies operating on a nation-wide basis have been the principal public sector institutions involved in housing finance: INFONAVIT, FOVISSSTE, FOVI and FONHAPO (see Appendix C for more detail on these agencies).

The first two of these, INFONAVIT and FOVISSSTE, along with a smaller agency FOVIMI, are pension funds for salaried employees which invest solely in housing for the beneficiaries of the fund. Funding for these organizations comes from a mandatory contribution by employers of an amount equal to 5% of an employee's salary. INFONAVIT serves private sector employees, while FOVISSSTE and FOVIMI serve employees in the public sector and the military, respectively. The other two major public sector hosing agencies, FOVI and FONHAPO, receive funds from the federal government and international aid organizations which are channeled to housing through intermediaries. FOVI is a housing trust fund of the central bank, a second tier bank that provides funds and guarantees to banks for loans to low-income finished housing, primarily owner-occupied, but also for a small amount of rental housing. FONHAPO was originally a special housing fund within the development bank, BANOBRAS, which became independent in 1981. FONHAPO offers lines of credit to community groups and local government agencies for housing improvements and progressive construction. In addition to these lenders, there are a number of smaller federal programs and state level organizations which financing newly constructed housing as well as progressive housing, building lots with services and housing improvement.

To illustrate the relative importance of these different lenders, Exhibit 20 shows the share of housing loans by type issued by these organizations in 1992 (the latest year for which detailed data on the type of loans issued by lender is available). Following deregulation and privatization during the Salinas administration, commercial banks have emerged as the principal source of housing financing, accounting for 30% of all loans issued in 1992. Four-fifths of these loans were used to purchase newly constructed finished housing, with the remaining fifth used to acquire existing homes. INFONAVIT was the single largest lender, accounting for a fifth of all loans issued, of which two-thirds were used to purchase new housing with most of the remaining used to acquire existing housing. After the commercial banks and INFONAVIT, FOVI was the next largest lender for finished housing, although its total share of loans was only 6%. Prior to 1989, FOVI accounted for a much larger share of housing loans as commercial banks were required to devote a portion of their resources to loans for social interest[2] housing through FOVI.

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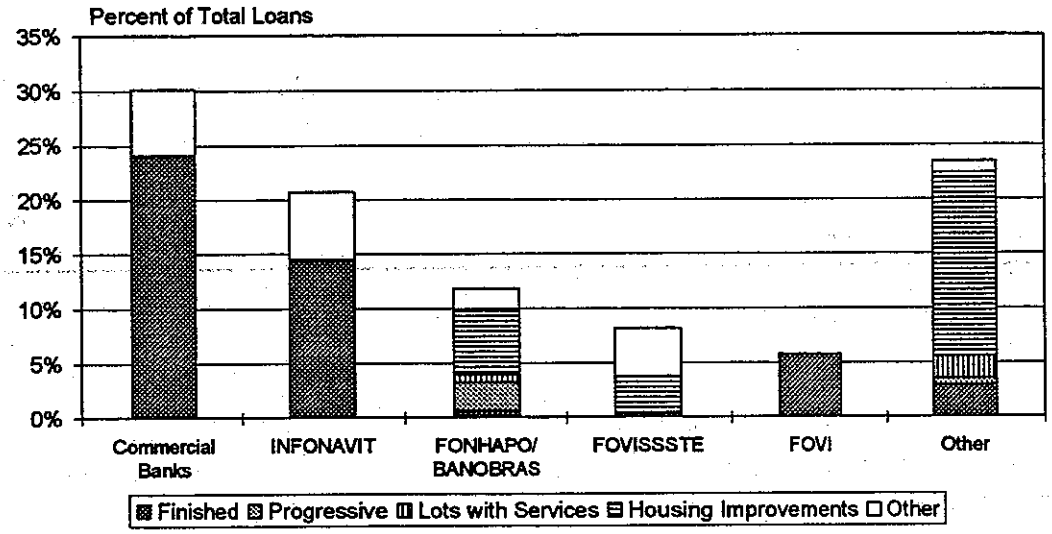
[1] For a thorough discussion of the history of housing finance in Mexico see Juan Ignacio Barragan, 100 Anos de Vivienda en Mexico: Historia de la Vivienda en una optica economica y social, Urbis Internacional S.A.de C.V., 1994.

[2] The term "social interest" is used to refer to housing loans made through government organizations which are targeted at low and moderate income households.

Exhibit 20

Distribution of Housing Loans by Lender and Type: 1992



Source: Appendix Table D-7.

The remaining sources of housing finance primarily devoted their resources to other types of loans, rather than for new finished housing. FONHAPO, which accounted for 12% of all housing loans in 1992, was the primary source of funding for progressive housing and also issued nearly a quarter of all loans for housing improvement. FOVISSSTE, which issued 8% of all loans, devoted about half of its resources to housing improvement with the other half used for other loans, most of which was for co-financing. Finally, organizations other than these four primary lenders accounted for nearly a quarter of all loans, with a large majority of these loans were for the improvement of existing housing.

Market Segmentation

Lending by FOVI, INFONAVIT and the other pensions funds is generally targeted at households with income above two times the minimum wage, while FONHAPO and other lending organizations have targeted the segment of the population with income below this level, including non-salaried workers in the informal economy. Lending by the commercial banks is concentrated on upper income households not served by the public lenders.

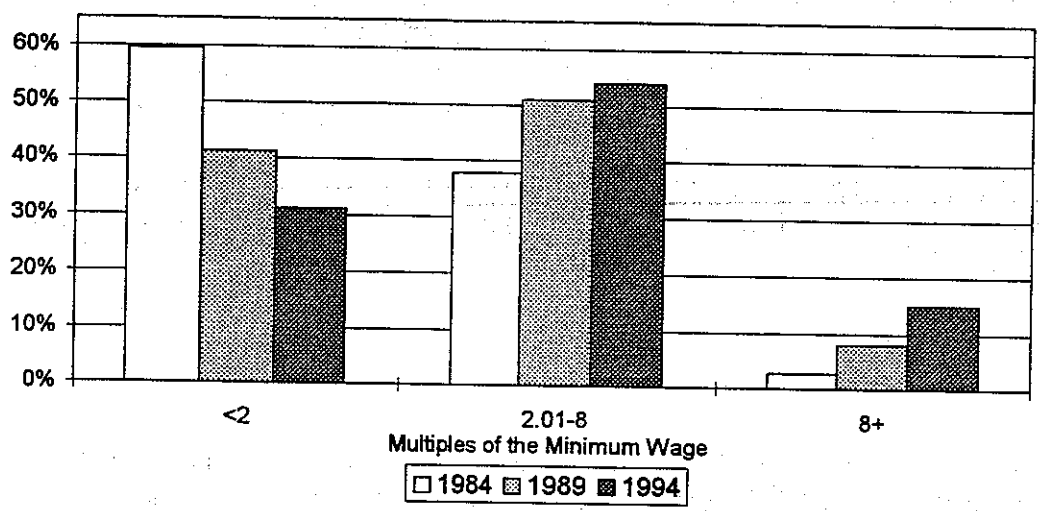
To illustrate the share of households served by these different lenders, Exhibit 21 provides figures on the distribution of households by income in multiples of the minimum wage between 1984 and 1994. In 1994 households

with income below two minimum wages accounted for 31% of households.[3] These households are primarily served by FONHAPO and state level organizations. Households with income between two and eight times the minimum wage, who are served by the pension funds and FOVI, account for roughly half of all households (54%). Finally, households with income above eight times the minimum wage, who are primarily served by the commercial banks, account for the remaining 15% of households.

It is important to note that while actual household incomes have generally been keeping pace with inflation (as described in the first section of the report), the minimum wage has not. One result of the real fall in the minimum wage is that the share of households encompassed by different income ranges has changed over time. Between 1984 and 1994, the percent of households with income less than two times the minimum wage, served by FONHAPO and state-level organizations, declined from 60% to 31% of households. In contrast, the share of households between two and eight times the minimum wage has risen from 38% to 54%. As a result, the segment of the population served by the

Exhibit 21

Distribution of Household Income in Multiples of the Minimum Wage



Source: Appendix Table D-4.

[3] It is important to note that there are significant differences in the income distribution based on the survey of consumer income and expenditures (ENIGH), which is shown in Exhibit 21, and the decennial census. Specifically, the questions asked by the census exclude certain categories of income which results in a much heavier concentration of households with income below two minimum wages than is found by the ENIGH. See "El Ingreso de Los

pension funds and FOVI has increased over time.

One implication of the erosion in the real value of the minimum wage is that FONHAPO is increasingly targeting the poorest of the poor, while the pension funds and FOVI are also seeking to serve an ever lower income population. For example, in 1984 the average annual real household income for those earning between one and two times the minimum wage, at the upper end of the income distribution served by FONHAPO, was N$18,110. By 1994 the average income for households in this salary range had fallen to N$9,994, reflecting a nearly 50% decline in the real purchasing power of the minimum wage. Similarly, households earning between two and three times the minimum wage, at the bottom of the range served by FOVI and the pension funds, had real income fall from N$30,168 to N$16,355 over this same period. Providing finished housing for this ever lower income group has been a significant challenge for these lenders.

Exhibit 22

Estimated Affordable House Cost by Income Level and Average Loan Amounts by Type of Loan

Income Range (Multiples of the Minimum Wage	Share of Total Households	Affordable House Cost (1995 Pesos)	Corresponding Average Loan	
			Amount	Type of Loan
0.00 - 1.0	11.9%	12,853	12,000	Lots with Services
1.01 - 2.0	19.2%	32,981	34,200	Progressive Housing
2.01 - 3.0	17.8%	53,971		
3.01 - 4.0	13.5%	76,222		
4.01 - 5.0	8.2%	98,009	104,400	Finished House, Government Program
5.01 - 6.0	6.5%	120,930		
6.01 - 7.0	4.3%	143,294		
7.01 - 8.0	3.7%	166,130		
8+	15.0%	375,361	205,000	Finished House, Commercial Bank

Notes: "Affordable House Cost" assumes household can afford a house equal to 3.3 times its income. Average loan amount is average loan per unit by loan type for period 1983-1992 converted to 1995 pesos. Commercial bank loan amount based only on period 1989-1992; for period 1983-1988 commercial banks included with FOVI loans in government programs.

Source: Income data from INEGI, ENIGH 1994. Loan data from SEDESOL.

In order to place household income levels in perspective relative to housing costs, Exhibit 22 presents estimates of the housing cost affordable for

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Hogares," Fernando Cortes Caceres and Rosa Ma. Rubalcava Ramos, INEGI, 1994 for a detailed discussion of this issue.

households at different income levels. These figures make use of an estimate that households can afford a house costing 3.3 times their income.[4] To relate these affordable levels to actual housing costs, Exhibit 22 also shows average loan amounts for different housing types for the period from 1983 to 1992.

As shown, the housing cost affordable to households with income below one minimum wage corresponds to the average loan amount for a building lot with services. In 1994, 12% of households fell into this income category. While the household is still left with the need to construct a structure, this type of loan nevertheless provides secure ownership of the land and the necessary basic services for these very low income households. Similarly, housing affordable to households with income between one and two minimum wages, which accounted for 19% of all households, corresponds to the average loan amount for progressive housing.

Above these income levels there is a fairly large segment of the population that is potentially covered by public sector lenders for finished housing, with incomes ranging from two to eight times the minimum wage, covering 54% of all households. Obviously, the wide variation in income among this group suggests a wide variation in the size and quality of homes. The average loan amount for finished housing in government programs prior to 1993 was N$107,700 (in 1995 pesos), which is an amount roughly affordable for households with income between four and five times the minimum wage. But this average obviously masks significant variation in loan amounts for finished housing. For example, some very simple finished homes financed through FOVI have sold for N$50,000, an amount corresponding to a level affordable for households with income between two and three times the minimum wage.[5] Finally, the average commercial bank loan for finished housing during the period from 1989 to 1992 was N$205,000, which roughly corresponds to households with income above eight times the minimum wage, which included 15% of all households.

Trends in Housing Finance

Exhibit 23 shows the trend in the number of housing loans issued by each of the primary lenders between 1983 and 1994. The dominance of the market by INFONAVIT and FOVI was quite pronounced at the beginning of the period,

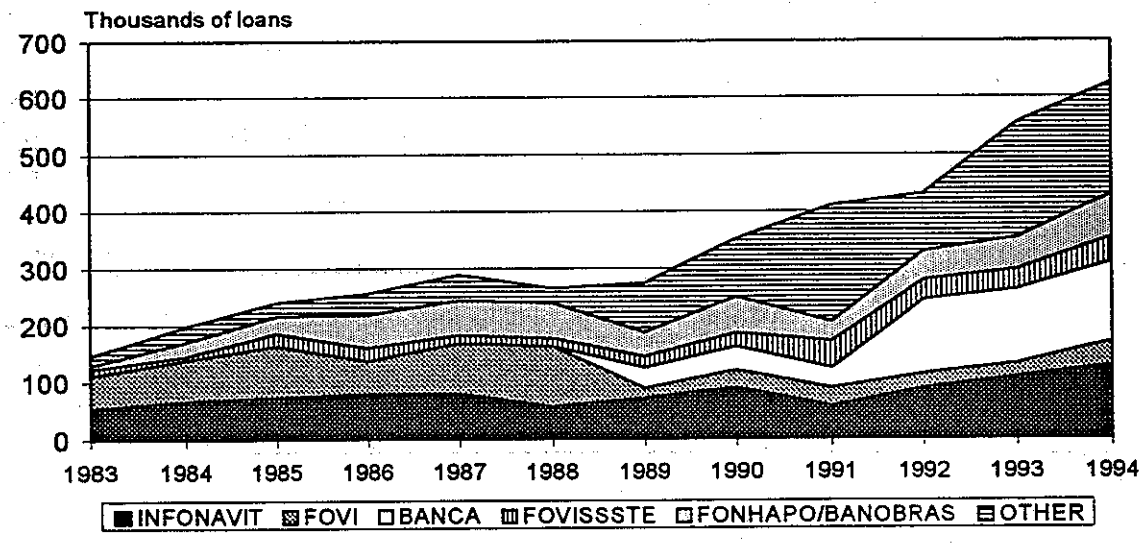
[4] This figure is a World Bank estimate of the ratio of house cost to income based on housing consumption by middle income households corresponding to FOVI loans. While the ratio is not directly applicable to households outside of this income range, it is nonetheless suggestive of the amount of housing affordable under similar terms for households at different points in the income distribution.

[5] Examples of such homes financed by Su Casita and FOVI in 1995 are given in Su Casita, "Challenges and Opportunities in Providing Affordable Housing in Mexico," August 1996.

when these organizations accounted for more than three-quarters of all loans issued. During the early 1980s other organizations, most notably FONHAPO, increased their lending activity, but as late as 1988 INFONAVIT and FOVI still accounted for a majority of housing loans. However, beginning in 1989 several significant changes occurred. First, the government began the liberalization of the banking sector, eliminating requirements for banks to invest in social interest housing which had been done through FOVI. As a result, FOVI's lending declined sharply, while commercial banks began lending to higher income households with a resulting decline in the total number of loans issued by these organizations. Then, after the full privatization of commercial banks in 1991, lending by private firms nearly quadrupled, with banks issuing about 130,000 loans a year between 1992 and 1994.

Exhibit 23

Total Housing Loans by Lender: 1983-1994

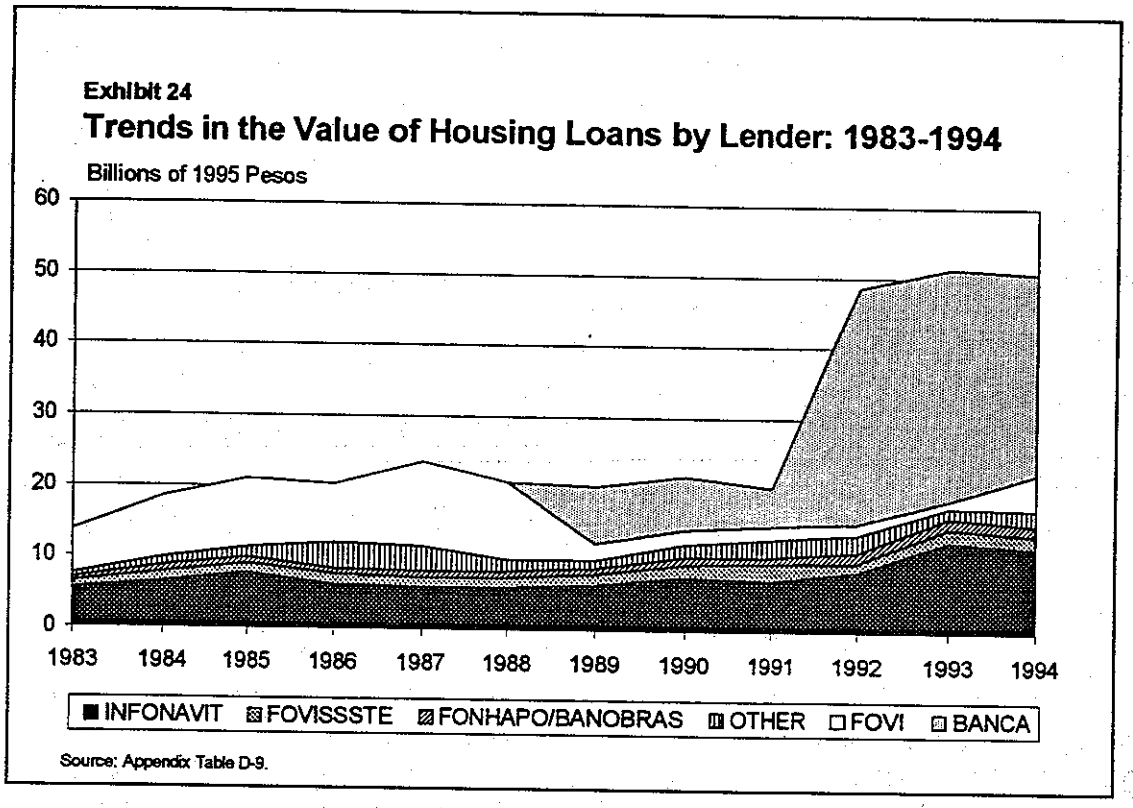


Source: Appendix Table D-7.

Another significant development beginning in 1989 was the sharp rise in lending by organizations other than the principal public housing finance organizations, including state housing finance organizations, FIVIDESU, and Pronasol. Total lending by these organizations increased from 26,115 loans in 1988 to nearly 200,000 loans annually in 1991, 1993 and 1994. Lending by INFONAVIT and FOVISSSTE also rose during the early 1990s, with INFONAVIT's loans reaching a peak of 128,000 in 1994 and FOVISSSTE issuing an average of over 40,000 loans annually from 1991 to 1994. The rise in lending by these organizations offset the declines in lending by FOVI so that by 1994 lending to social interest housing had regained the levels obtained prior to

bank deregulation. As a result of all these developments, the total number of housing loans increased dramatically between 1988 and 1994, more than doubling from 264,449 to 625,436.

When trends in the peso value of all loans is considered a somewhat different picture emerges (Exhibit 24). The sharp increase in lending by organizations other than the four principal lenders, which is quite striking in terms of the number of loans issued, is barely evident in terms of the value of loans. As this disparity illustrates, the significant increase in lending by these organizations is not due to a significant increase in resources devoted to housing, but rather a shift in the use of resources to smaller loans that benefit a greater number of households. In comparison, the surge in lending by commercial banks is even more dramatic when the value of loans is considered. Following privatization in 1991, the value of commercial bank housing loans increased more than five fold, increasing the value of total housing lending by two and a half times. The much sharper rise in the value of commercial bank



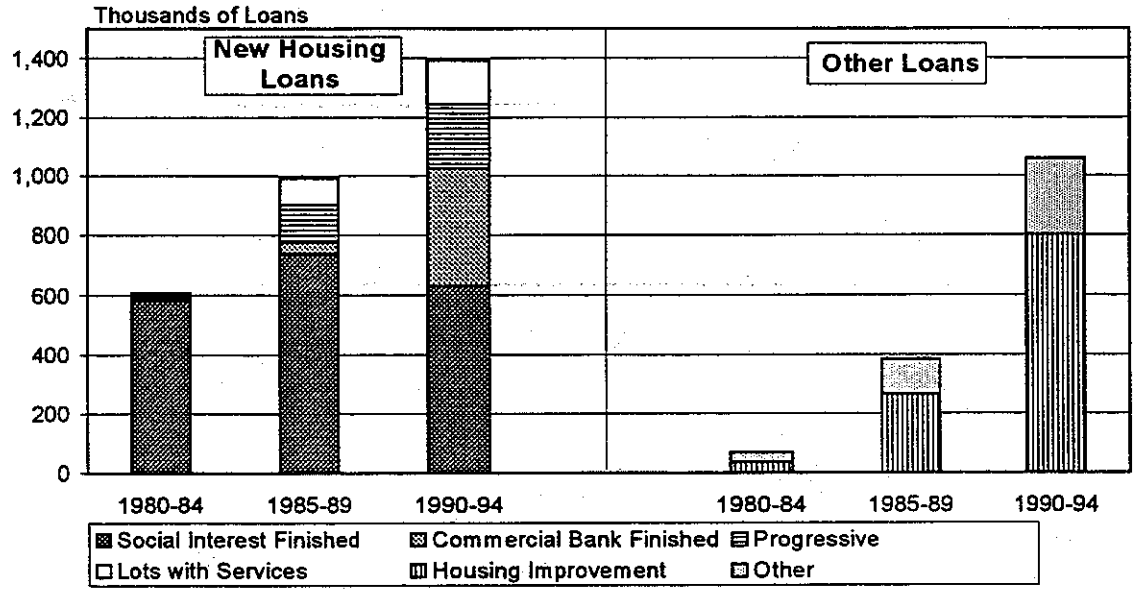
loans than in the number of loans issued illustrates the concentration of these firms in much higher valued housing. The other significant trends that are apparent in Exhibit 24 are the sharp rise in lending by INFONAVIT after 1992, when the total value of its lending increased by nearly 50%, and by FOVI in 1994, when the value of its lending increased by four fold.

To evaluate how well the distribution of housing finance resources has matched the demand for housing of different types, Exhibit 25 shows trends in the number of loans by type during the 1980s and the first half of the 1990s. In the first half of the 1980s loans for new housing were heavily concentrated in loans for finished homes for low and moderate income households, accounting for 96% of loans for new housing. But since the mid 1980s there has been increasing diversification in the types of new housing financed. By the late 1980s the share of loans for social interest finished housing declined to 75%, while the share for progressive housing rose to 13%, lots with services increased their share to 9%, and commercial bank lending to upper income households accounted for the remaining 4%.

The primary shift during the first half of the 1990s has been the sharp increase in the proportion of new housing financed by commercial banks, rising to 28% of all new housing loans. The share of loans for progressive housing and lots with services rose modestly, accounting for 16% and 11% of all loans respectively, while the share of loans for social interest housing declined sharply

Exhibit 25

Distribution of Housing Loans by Type



Source: Appendix Table D-10.

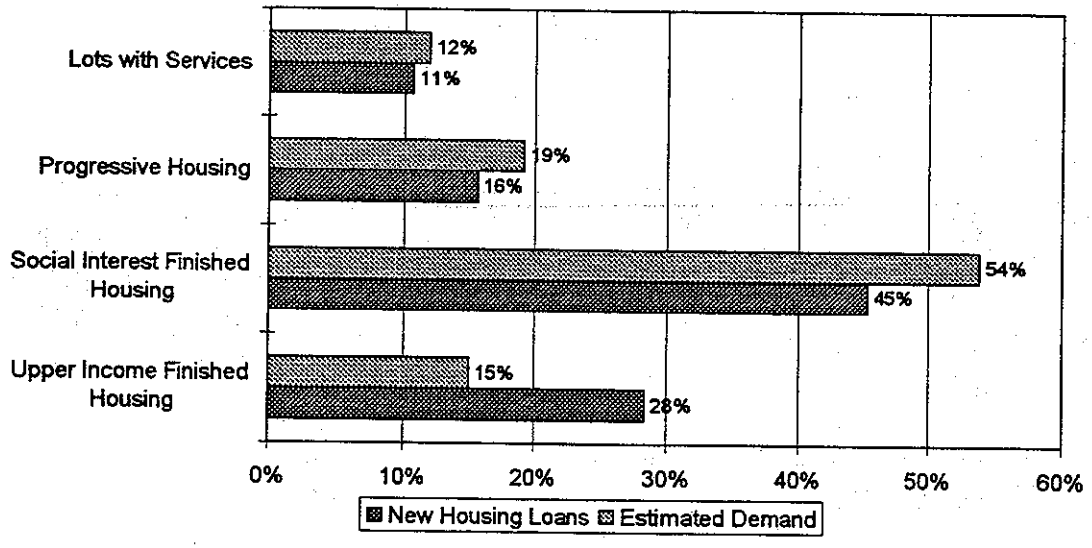
to 45%. However, it should be noted that despite this sharp drop in share, because the total amount of lending for new housing was increased significantly during this period, the number of social interest housing units financed only declined from 742,000 to 631,000.

The share of new housing units financed during the first half of the 1990s actually corresponds fairly closely to the estimated demand for housing of different types as shown in Exhibit 26. The share of loans for progressive housing and lots with services is only slightly lower than the estimated share of demand. The share of loans for social interest, finished housing is somewhat lower than estimated demand, accounting for 45% of loans made, compared to 54% of estimated demand. The share of loans for upper income housing is most over represented, with 28% of loans made compared to an estimated share of demand of only 15%. The concentration of lending in this income strata is not surprising, given both the greater resources of these households and the fact that there may have been significant pent up demand since little lending had been available for upper income housing during the 1980s.

Exhibit 25 also shows that a large number of loans have been issued for housing improvement. Of the large public lenders, FONHAPO and, to a lesser extent FOVISSSTE, issued a significant number of these loans. But a majority of the loans for housing improvement were issued through other federal housing programs, most notably PRONASOL, during the period from 1989 to 1992.

Exhibit 26

Comparison of Lending for New Housing by Type with Estimated Demand for Housing by Type



Notes: Estimated demand based on household income distribution in 1994 as shown in Exhibit 22.
Source: Appendix Table D-10 and Exhibit 22.

While the average loan amount was fairly small, these loans addressed the important concern of improving the existing housing stock. The number of loans of this type is still fairly small relative to the need. As discussed in Chapter Two, 2.7 million housing units in 1990 were in need of replacement or significant improvement and an additional 3.5 million homes were in need of moderate

improvement. While the 802,000 loans made for home improvement between 1990 and 1994 represent a significant commitment to address this issue, these loans only serve 13% of the 6.2 million units in need of significant improvement.

The small share of loans to purchase existing housing, which account for more than two-thirds of loans in the "other" category, is also quite notable. The owner-occupied housing stock consisted of 12.5 million homes in 1990. Yet between 1990 and 1994 only 185,685 loans were issued to purchase an existing home – or 1.5 loans for every thousand homes existing in 1990. A lack of credit for the purchase of an existing home may impose a number of significant distortions in the housing market. Without financing to facilitate home sales, it will be difficult for households to change housing to respond to employment opportunities or to upgrade their housing by moving. The lack of financing for existing home purchases may also depress prices for existing homes by limiting demand for these homes. While it may be sensible to target limited housing finance resources on new homes given the growing need for new housing, over time it will be important to expand resources for the re-sale housing market to improve the ability of the market to match housing demand with the existing housing stock.

Exhibit 27
Share of Homeowners with Financing

Year	Total Homeowners	Without Financing	With Financing	Share Financed
1984	9,700	9,064	636	6.6%
1989	11,858	11,040	817	6.9%
1992	13,653	12,751	902	6.6%
1995	15,544	13,983	1,561	10.0%

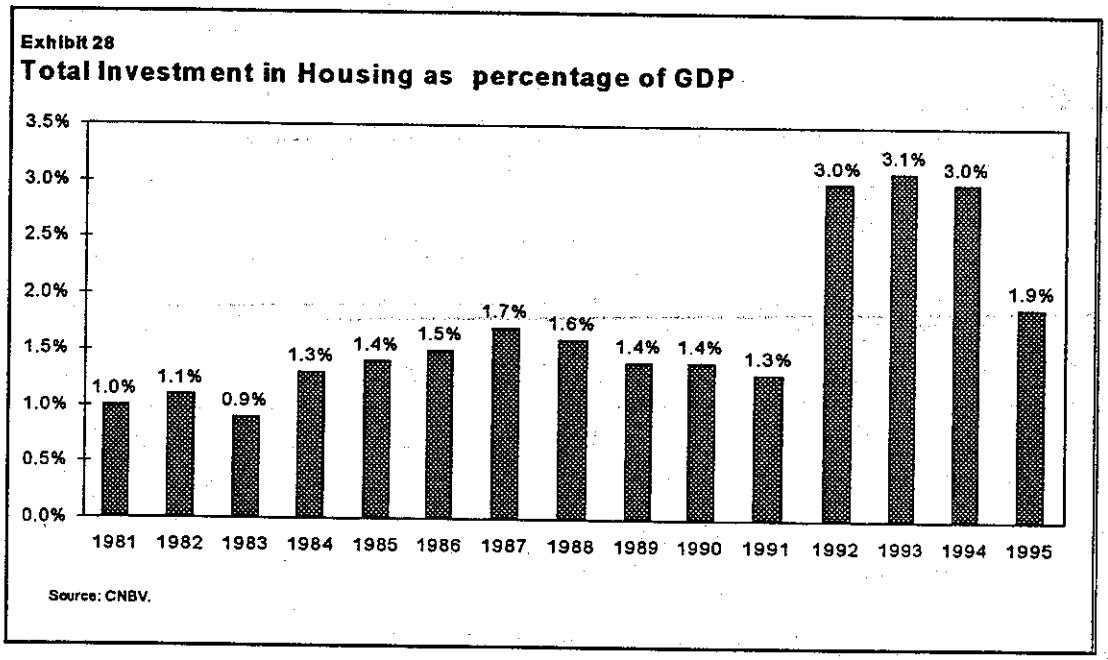
Source: JCHS tabulations of 1982, 1989, and 1992 ENIGH and 1995 Conteo de Poblacion Y Vivienda, Resultados Definitivos

Note: Number of households estimated for 1995 based on percentage of housing units owned and with

Overall, despite the increases in the volume of housing finance during the 1990s, the share of homes with financing remains a small share of the total stock. Of the estimated 9.7 million homeowners in 1984, 0.64 million, or 6.6%, reported they were currently were making some kind of payments for their home (Exhibit 27). By 1992 the share of homeowners with financing remained unchanged, with 6.6% of the estimated 13.7 million homeowners currently paying for financing. The sharp rise in the number of housing loans issued beginning in 1992 was evident in the number of homeowners with financing in 1995, which had risen to 10.0% of homeowners. Nevertheless, it is still the case that 90% of homes are not financed.

Impact of the Economic Crisis on Housing Lending

Housing finance suffered a severe shock following the devaluation of the peso in December of 1994, experiencing a much greater decline in activity than the economy as a whole. With the rise in mortgage lending by commercial banks in 1992, loans for housing rose from 1.3% of GDP in the previous year to 3.0% of gross domestic product (GDP) (Exhibit 28). In 1995 GDP fell by 6.2% in



real terms, but housing lending fell much more dramatically, with its share of GDP falling to only 1.9%. Yet, despite this sharp fall, housing's share of GDP was still nearly 50% higher than it had been prior to 1992.

The fall in housing lending was evident in all types of loans, although some types of loans experienced sharper declines than others (Exhibit 29). The total value of housing lending fell 42% in real terms. Loans for finished housing

and progressive housing fell less sharply than other loan types, with declines of 35% and 34% respectively. The sharpest decline was among other loans, which mostly consists of loans for the purchase of existing housing, which fell by 97%. Loans for building lots with services also fell sharply, declining 88% from the 1994 level, although lending in 1994 was much higher than in previous years. Finally, home improvement loans fell by 48%. It is also notable that a much greater share of lending in 1995 was accounted for by government organizations as commercial banks drastically cut back on making new mortgages.

The default rate on mortgage loans has been extremely high in the wake of the economic crisis, with more than 30% of commercial bank loans in default.[6] With high rates of job loss, sharp declines in real income, and falling real property values high default rates are to be expected. But the severity of the crisis in the housing sector may also have been exacerbated by the rapid expansion of lending prior to the crisis that outstripped the organizational capacity of banks to adequately underwrite and service loans in such volumes.

Exhibit 29

Value of Housing Loans by Type: 1992-1995

(Millions of 1995 Pesos)

Type of Loan	1992	1993	1994	1995	% Change 1994-95
Total	48,599	50,944	50,743	29,339	-42%
Finished	36,758	42,861	42,773	27,972	-35%
Progressive	553	918	831	550	-34%
Lots	120	106	579	68	-88%
Improvements	545	4,569	1,070	561	-48%
Other	10,623	2,490	5,491	188	-97%

Source: CNBV, Compilation of SEDESOL data.

With regard to loan underwriting, consumer credit reporting agencies, which provide comprehensive information of a borrowers credit history, did not exist in the early 1990s, making it difficult to adequately evaluate a borrower's credit risk. In addition, information on home sales was difficult to obtain as no multiple listing service exists and property registries were often outdated or incomplete as high fees for title registration deter use, making property appraisals problematic.

Loan servicing, including payment collection and default management, was also inadequate for the volume of lending. With the postal system considered by many to be unreliable, mortgage payments are generally made in person, which required borrowers to stand in long lines to make mortgage

[6] "Restarting Housing Finance in Mexico," Michael J. Lea, Cardiff Consulting Services, 1996.

payments. The calculation of mortgage payments was also often done manually, making it difficult for borrowers to get accurate information about loan payments and balances. In some instances, borrowers wishing to make partial payments were not allowed to do so as bank servicing systems could not handle partial payments.

A final issue which may have contributed to the high level of delinquencies is the structure of the dual-indexed mortgage used by commercial banks. In the mid-1980s FOVI and Banamex introduced the dual-index mortgage (DIM) to address problems associated with the use of either traditional fixed or adjustable rate mortgages in times of high inflation. With sharply rising inflation, fixed rate mortgages create large financial losses for lenders as payments fall sharply in real terms. Adjustable rate loans, on the other hand, avoid these losses by having payments rise with inflation, but will result in high default rates if borrowers incomes fail to keep pace with inflation. The DIM solved this dilemma with the use of two indexes – one for the amortization or accrual rate of the loan which provides lenders with a reasonable real return on their loan, and one for the payment made by borrowers which increases at a rate that is intended to follow growth in their income. In times of high inflation the outstanding loan balance will grow sharply in nominal terms, but decline in real terms as payments cover the real interest payments of the outstanding real balance.[7]

The original DIM indexed payments to the minimum wage. However, as the minimum wage did not keep pace with inflation, the use of this index resulted in rapid growth in accrued interest in the early years of the loan, which for banks was taxable income To address this issue, a new form of the DIM was adopted, modeled on the Espacio loan developed by Banamex, which indexed loan payments to inflation, rather than the minimum wage. These loans were made attractive to borrowers through lower initial payment rates, lower margins and longer terms. However, during the economic crisis incomes did not keep pace with inflation, so indexing payments to inflation resulted in many borrowers being unable to pay their rising mortgage payments.

The federal government has intervened several times to provide financial support for existing mortgage loans. These interventions have involved restructuring delinquent mortgage loans so that balances and payments are indexed to inflation, denominated in Unidades de Inversion (UDIs) which are adjusted daily with the CPI, so that loans amortize at a fixed real interest rate. However, even after restructuring, mortgage loans were still indexed to inflation, so that payments increased faster than consumer incomes, leading to continued

[7] For a complete discussion of the structure and performance of the DIM see "Credit Recovery Through Payments Related to Borrower Income in Unstable Economies: The Mexican Experience, 1984-1989," by Jose Manuel Agudo Roldan and Manuel Campos Spoor, in Housing Policy Debate, 3(1):157-175, (1992).

high rates of default. To address the continuing inability of borrowers to meet payments that increase with inflation, the government later offered a 30% discount on loan payments to be phased out over five years. While the DIM has been an important innovation enabling the expansion of the mortgage market, the experience with loan default during the crisis suggests that further innovation may be necessary to provide an appropriate balancing of inflation risk between lenders and borrowers.

Future Directions in Mortgage Finance

Certainly, a return to economic stability will do a great deal to solve many of the current problems in the housing finance sector. But beyond Mexico's macroeconomic problems, there are a number of areas where the housing finance system needs improvement. The shortcomings of the primary mortgage market infrastructure are well known, and even as the economic crisis has unfolded the government and private sector enterprises have been making progress to improve the functioning of the market. In addition, however, there is a tremendous need to expand the amount of financing available for housing to meet the large and growing demand for homes. In this regard, it is hoped that the new public pension system that is being implemented this year will develop into an important source of funds for housing finance.

Since the economic crisis, the government organizations INFONAVIT and FOVI have accounted for a large share of mortgage lending as commercial bank lending came to a halt. These organizations have been undergoing profound reform over the last decade and their roles and operations are continuing to evolve. Given their importance in the mortgage market, changes in these organizations have important implications for the mortgage market as a whole.

INFONAVIT experienced a number of significant changes in its operations in 1992.[8] Prior to that time the organization had acted as both developer and financier of owner-occupied housing. But beginning in 1992, INFONAVIT ceased developing housing and became solely a housing finance organization. A point system was also introduced to allocate mortgage finance to workers based on factors such as age, family size, and seniority, where previously the allocation had been made through labor unions. INFONAVIT also gave its beneficiaries broader choices in the housing market by offering financing for the purchase of new and existing homes as well as to improve homes already owned, where previously workers were assigned a unit developed by INFONAVIT. However, INFONAVIT does continue to provide construction financing for new housing developments as well, which is awarded through an auction process to provide incentives for lower cost development.

[8] See Appendix C for a description of INFONAVITs history.

Since its inception in the 1970s, INFONAVIT has experienced several significant financial crises, in part due to the use of fixed-payment loans in a highly inflationary environment. In 1982 the commitment to provide workers with a pension based on their contributions to INFONAVIT was rescinded in light of the organization's financial woes. Since 1987, outstanding loan balances have been indexed to the minimum wage to provide some relief from the effects of inflation on the return on its mortgage loans – although growth in the minimum wage has consistently trailed the inflation rate. In addition, prior to 1992 the amount of mortgage financing provided was not linked to the ability of the borrower to pay the loan, which meant that loan payments would not necessarily fully repay loans. With the advent of the Sistema de Ahorro Para el Retiro (SAR) in 1992, INFONAVIT is now required to keep individual accounts for each worker. If the worker does not receive a housing loan from INFONAVIT, the worker is entitled to receive an amount equal to the accumulated payments plus a return equal to the rate of inflation during the period the worker contributed. This obligation will require INFONAVIT to be more efficient in its operations.

At the same time that INFONAVIT has been required to more prudently manage its resources, it has also been under increasing pressure to provide more financing to respond to the growing demand for housing and the virtual withdrawal of the private sector from mortgage lending since the economic crisis. INFONAVIT has responded by introducing several innovations in its programs to better leverage its resources. In 1996, the Institute introduced a program in cooperation with corporations along the US-Mexican boarder whereby workers accrue a downpayment for a house by voluntary deductions from their pay over the course of one to three years. When the worker meets the savings goal, the employer provides a match toward the downpayment (which is forgiven over time) while INFONAVIT issues the mortgage for the balance of the house cost. INFONAVIT has extended this program to workers who do not work for participating corporations. These programs extend the Institutes resources by decreasing the amount of financing needed for each loan and may reduce credit risk by identifying workers who can consistently meet a savings goal.

As of July 1997 there are several additional changes to INFONAVIT's operations which are potentially quite important. To begin with, INFONAVIT will now be allowed to enter into co-financing arrangements with commercial banks. Banks benefit from INFONAVIT's collection of payments by direct deductions from pay checks as well as from INFONAVIT's absorption of administrative costs. The share of the total mortgage financed by INFONAVIT can vary from nearly 0% to nearly 100%, allowing INFONAVIT to devote only as much of its resources as needed to make the loan affordable. This program may allow INFONAVIT to serve a much larger share of its potential beneficiaries.

Another potentially important innovation is that a worker can now use their accumulated funds in INFONAVIT as a guarantee on loans made by banks or

other lending organizations. If the worker is unable to meet his mortgage obligation due to the loss of his job, the accumulated funds can be used to make the payments. Again, this new program will allow INFONAVIT to serve a much larger share of its beneficiaries and will lower the risk faced by other lending institutions.

FOVI has also undergone some significant changes since the 1980s. For example, in an attempt to increase the efficiency with which scarce mortgage funds were allocated to middle-income households, FOVI introduced the use of auctions in 1989 to allocate commitments for mortgage funding to developers via the commercial banks. One of the most significant developments was the removal of requirements for commercial banks to make loans for social interest housing in 1989, causing lending through FOVI to decline sharply. FOVI attempted to entice banks to participate in loans for social interest housing by incrementally lowering the capital that banks were required to maintain to support these loans from 8% to 4% and finally in 1994 to 2.4%. Despite these inducements banks were still reluctant to participate because of the higher profits available on loans for upper income households.

As a result, new private sector financial intermediaries, the *Sociedades Financieras de Objecto Limitado* (SOFOLES) have become the most important channel for the origination and servicing of FOVI loans. SOFOLES were created in 1994 and began mortgage lending in mid-1995. The SOFOLs are non-bank financial institutions that do not take deposits, but rather fund their lending through a combination of FOVI funds, investor's equity, and bank loans. There are more than a dozen SOFOLs in existence authorized to do mortgage lending. With limited sources of capital, many of these firms have come to rely heavily on FOVI's funds for their low-income mortgage lending. SOFOLs have received over 40,000 FOVI loan commitments and represent 23 percent of FOVI's program.[9] With the advent of the SOFOLES, FOVI's lending volume increased notably in 1995 and 1996. While SOFOLES have been important partners for FOVI in recent years, to the extent that commercial banks do become attracted to FOVI's programs, SOFOLES may have a difficult time competing because they have much higher capital requirements than banks, making it difficult for them to yield as high returns. However, the SOFOLES have introduced very rigorous underwriting and servicing processes to reduce the credit risk of their loans in the hopes of producing lower default rates and higher returns.

A new FOVI program designed to both serve a lower income population and to stretch the organizations resources is the Prosavi program introduced in March of 1997. Like the INFONAVIT program, the Prosavi program requires potential borrowers to save a downpayment for their house. Workers bid for mortgage financing on the basis of the amount of downpayment they have for

[9] See Su Casita, "Challenges and Opportunities in Providing Affordable Housing in Mexico," August 1996.

home purchase, with a minimum downpayment of 10% required. The winning bidders are given an additional grant from FOVI toward the purchase price along with a mortgage for the remaining balance at favorable interest rates. This program is initially intended to provide loans and grants for 50,000 households.

FOVI is about to undergo perhaps its most profound change. Historically FOVI has been funded by the federal government through the Banco de Mexico and funds from international aid organizations such as the World Bank. In the future, however, FOVI will no longer receive funding from the federal government, but rather will have to raise money in the capital markets. This new structure will require that FOVI provide a rate of return on its investments that will attract investors. The challenge for FOVI will be to somehow balance its mission of providing housing for lower-income households with the need to provide a competitive inflation-adjusted return. Currently FOVI loans bear a real interest rate of 5%. It may be necessary to offer investors a higher return, in which case FOVI will either have to reduce the subsidies inherent in its loans or have this subsidy made explicit by contributions from the federal government. The form of FOVI's mortgages may also present a problem as the payments on FOVI mortgages are indexed to the minimum wage, while its payments to investors will have to be indexed to inflation. FOVI will have to carefully structure its operations in order to bridge the potentially sizable gap between its income and debt obligations. In meeting this challenge FOVI will be aided by a federal government guarantee.

While the government lenders are an important part of the mortgage market, much of the astounding growth in lending during the early 1990s was due to commercial banks. However, since the economic crisis, banks have issued few new loans. If the volume of mortgage finance is going to reach the levels needed to serve the country's demand for new housing, it is vitally important that banks become active mortgage lenders again.

Some of the problems that helped produce the high rates of loan defaults that have plagued banks have been addressed. As discussed above, the organizational capacity to underwrite and service mortgage loans was probably not adequate for the volume of loans issued beginning in 1992. However, since that time progress has been made in the development of consumer credit reporting agencies and banks have reportedly upgraded their systems for information management and loan servicing.[10] Still, much remains to be done to improve the information available to underwrite loans and to develop systems to adequately service loans.

An additional cause of the high rate of mortgage defaults was the form of the mortgage used by banks. With consumer payments indexed to inflation,

[10] "Restarting Housing Finance in Mexico," Michael J. Lea, Cardiff Consulting Services, 1996.

borrowers bore a great deal of the risk associated with inflation. In the end, however, the federal government absorbed much of the cost of the economic shock by providing bailouts for banks and borrowers. Obviously, a return to stable and low levels of inflation may give banks and borrowers the confidence needed to once again enter into loan agreements. However, in order for the mortgage market to function, it may be necessary for the government to explicitly bear the risk of such economic shocks through some form of insurance.

Perhaps the greatest impediment to resumed mortgage lending by banks is a lack of capital to make loans. Bank capital was greatly depleted during the crisis, limiting their ability to make new loans. In addition, many of the largest banks have very high shares of their assets in mortgages. As a result, they cannot increase lending any faster than the growth in their overall assets. If banks are to greatly increase their housing lending they are going to require greater access to capital.

It is hoped that the newly instituted public pension system will develop as an important source of funding for housing. A mandatory contribution to a retirement pension fund equal to 2% of wages was begun in 1992. Up until 1997 these funds were managed by the government. Beginning in 1997 individuals will be able to choose investment management firms (Administradora de Fondos para el Retiro or AFORES) and specific funds managed by these firms. The National Commission for the Retirement Saving System (CONSAR) will regulate these organizations, including specifying the types of eligible investments. While regulations have not yet been released, it is understood that the investments will have to be predominantly in debt that is indexed to inflation, will have to receive high ratings by internationally recognized rating agencies, and cannot be invested outside of Mexico. Given these characteristics, properly structured mortgage loans may be well suited as investments for the AFORES.

The attractiveness of mortgages as investments for these funds may provide a strong impetus for the development of a secondary market for housing mortgages. The development of secondary market for housing mortgages has received great attention in recent years as a way to increase the amount of capital available for housing. In addition, by integrating the housing finance sector with the broader capital markets, a secondary market may also help lower real mortgage interest rates, which are quite high by international standards.[11]

However, there are a number of significant issues that must be resolved before a fully functioning secondary market can be established. To begin with improvements are needed in the primary mortgage market infrastructure to provide improved and standardized loan underwriting and servicing. In addition,

[11] See "The Structure of Mortgage Markets in Mexico and Prospects for Their Securitization," by Christopher B. Barry, Gonzalo Castaneda, and Joseph B. Lipscomb, Journal of Housing Research 5(2):173-204, 1994.

there is also a need for data on the historical performance of mortgages in Mexico which can be used to evaluate the risks and returns associated with these investments. There are also a number of legal and regulatory barriers that may hamper the functioning of a secondary market that need to be resolved, such as the process for transferring ownership of mortgages and capital adequacy requirements for banks.[12]

Progress is being made in laying the groundwork for the development of a secondary market. A variety of work is being done to assess existing barriers to the development of a secondary market.[13] The federal government has continued the hard work of fostering the legal and regulatory reforms necessary for a secondary market to function. This process may also be aided by the efforts of the SOFOLES, who have adopted standard underwriting guidelines modeled after Fannie Mae applications used in the U.S. and are using a common servicing system. These steps have begun the process of loan standardization that will be necessary to create pools of mortgages. The restructuring of loans in UDIs in the wake of the economic crisis may also help in this regard by standardizing the structure of mortgage loans.[14]

There are also several large policy issues that will have to be addressed. One is the issue of whether government guarantees will have to be provided to compensate for the poor performance of mortgage portfolios in the past. While the government is reluctant to provide such guarantees in recognition of the poor incentives this provides lenders to undertake diligent underwriting and servicing, some form of guarantee may be necessary to attract investors. Another significant policy question is whether a secondary market institution will be created and, if so, what specific roles and responsibilities it will have, such as a liquidity provider, a portfolio investor, or a guarantor.

Summary

The housing finance system has experienced profound changes during the 1990s. To begin with, the privatization and deregulation of commercial banks greatly increased the volume of funds available. Public sector housing

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[12] As a way to speed the introduction of some of these needed reforms in state laws, before a state is eligible to participate in FOVI's Prosavi program, state governments must remove laws requiring that borrowers be notified of any sales of the mortgage on their home which complicates the functioning of a secondary market.

[13] See for example, "Bursatilizacion de Hipotecas en Mexico: Sistema de Servicios y Derechos Requeridos," by Dr. M. Maydon G. and Dr. R. Yesin T., Banco de Mexico, and "Legal and Regulatory Obstacles to Securitization in Mexico: An Analysis," by Jed S.W. Schaefer, Schaefer Asociados, S.C..

[14] See Lea, "Restarting Housing Finance in Mexico," page 15 and Schaefer, "Legal and Regulatory Obstacles to Securitization in Mexico: An Analysis," page 15.

finance has also changed significantly as the pension funds devoted to housing have shifted from developers to financiers of housing and greatly changed the systems used to allocate credits to both developers and home buyers. FOVI has also modified its operations to both create a more efficient allocation of its credits and to adapt its role in light of bank deregulation that removed requirements for lending to social interest housing. As a result of these changes, as well as increased lending by other federal organizations, the housing finance system has increased the scope of housing loans, broadening the income groups served to more closely match the distribution of housing demand.

The recent economic crisis hit the housing sector particularly hard as the drop in housing production was more severe than in other sectors of the economy. Mortgage loans experienced very high rates of default, causing the federal government to intervene several times to shore up the market. Despite these problems, there are still reasons to be optimistic about the future of housing finance. The crisis did not completely erase the gains made in the early 1990s, as mortgage lending as a share of GDP remains well above levels experienced prior to the surge in commercial bank lending. With a return to economic growth there is reason to believe that mortgage lending will increase again. In addition, a variety of efforts to increase the efficiency of the mortgage market have continued during the crisis. These efforts – including developing the primary mortgage market infrastructure and laying the groundwork for the development of a secondary market – will ultimately help increase the flow of funds available for housing while also helping to lower real mortgage interest rates.

The Challenge Ahead

Through a variety of reforms, primarily in housing finance and land use regulation, Mexico has made great strides in the last decade in improving the housing market. These efforts have resulted in a great increase in the volume of housing lending and continued improvement in the quality of the nation's homes. But while the gains have been impressive, the growth in the nation's housing needs have been equally as striking. Household growth, and hence demand for new housing, doubled between the 1980s and the early 1990s, and is expected to continue growing through the first decade of the next century. In addition, a sizable share of existing homes, particularly in rural areas, continue to be in need of significant improvement or replacement. Continued progress in improving the housing market will be necessary to meet the great and growing challenge of providing decent and sanitary housing for all Mexicans.[1]

One important goal will be to increase the share of housing produced in accordance with government regulations in the formal sector. While the informal sector has been a vital source of housing, there are a variety of reasons why this form of production may not be efficient. To begin with, the skirting of government land use regulations may raise the ultimate cost of providing clear legal titles and infrastructure, provide inadequate space for schools, parks, and transportation corridors, and damage ecologically sensitive areas. In addition, inclusion of developed areas in municipal cadasters will help generate revenue to finance the infrastructure to provide needed urban services. If improvements in housing finance do succeed in increasing the availability of capital for housing, having homes with clear legal titles that are built to legal standards will facilitate the extension of long-term financing for the improvement and sales of existing homes.

It is also important to recognize that even with significant increases in formal sector housing production, the informal sector will continue to be an important source of new housing. As a result, the government will also need to continue efforts to aid self-help housing and to facilitate the more rapid integration of informal developments into the formal sector.

Continued improvement in land use planning and regulation will be particularly important in increasing development in the formal sector. With high and increasing levels of housing demand, there is also a great need to ensure that sufficient land is available to avoid rapid escalation in land costs. The 1992 Constitutional reforms that were designed to provide greater freedom for ejidos

[1] For a thorough discussion of critical housing issues and the government's strategies to address these concerns see "Programa de Vivienda: 1995-2000," SEDESOL, 1996.

to develop their land were an important step to increase the supply of land. However, to date there appears to have been relatively little use of the new land use powers granted ejidos. Further study may be needed to understand how the land market is functioning to further modify land use laws to provide sufficient incentives to make land available in the formal market.

Renewed growth in the availability of housing finance will also help expand the share of housing produced in the formal housing sector. Improvements in the primary mortgage market, which are actively being pursued by both the public and private sectors, will ultimately help lower costs for borrowers and lay the groundwork for a secondary market that will help expand funding for housing. The new public pension system should provide an important source of long-term investment capital that will fuel an expansion of the housing finance system.

Over the last decade there has also been a great expansion in the scope of housing lending. Whereas a decade ago most housing loans were for finished housing for moderate income households, in recent years a great share of loans have been made for progressive housing, building lots with services, and housing improvements, as well as for upper income finished housing through the commercial banks. As the finance system continues to develop, the government should continue to be mindful of the need for a range of housing finance products to meet the need for new housing for households of all income levels and to improve the quality of existing homes. For example, given the pressure on INFONAVIT and FOVI to increase the amount of housing they finance, a significant challenge will be to continue to serve the lowest income households who comprise much of the nation's housing demand but who also provide greater credit risks and require larger subsidies.

Finally, there is also a need for the collection of more detailed data on housing market conditions. While information on demographics and the number and type of housing loans made is notably rich, very little information is available on housing construction, costs, conditions, or housing stock dynamics. In addition to identifying areas where progress has been made – as well as areas where further progress is needed – more complete information in these areas would enable a better understanding of how the housing market operates which would be extremely valuable in designing housing policies to meet the challenge ahead.

Appendix A:

Projecting Household Growth Using Headship Rates

The effect of changes in the age structure of the population on future household growth can be estimated by applying headship rates to projections of the population by age. Estimates of the total number of households is derived by multiplying the number of persons in a given age range by the headship rates for that age group and then summing over all age groups to yield an estimate of total households. Household growth is simply the change in the total number of households over time.

Of the two parts of these estimation process, the population over age twenty can be forecast fairly accurately for periods of several decades since this population has already been born and mortality and net migration rates generally change slowly. Headship rates, however, are more likely to vary over time. The propensity of the population to form independent households is in part a function of cultural factors – such as the age at which people marry, whether unmarried individuals seek to form independent households, and the extent of household dissolution due to divorce or separation – all of which evolve over time. In addition, economic conditions are also an important determinant of headship rates, affecting how many individuals or couples can afford to obtain their own home given prevailing income levels and housing costs.

The projection of future household growth was made by applying headship rates prevailing in 1990 for men and women to estimates of the population by age and sex to the year 2010, thus making the simplifying assumption that headship rates will not change over this period. Ideally, a household forecast would include a forecast of headship rates based on trends in the cultural and economic factors that determine these rates. Unfortunately, there is little historical data available in Mexico at present to allow for an analysis of trends in headship rates over time. The 1% sample of the 1990 Census provides a rich source of information on headship rates by age for that year. But a similar data set is not available from the 1980 Census to allow a comparison of changes in headship rates over time. The sample data associated with the 1995 Count of Population and Housing will provide very important information on headship rates at a different point in time, particularly in the wake of the economic crisis that began in December of 1994, which will make it possible to incorporate an understanding of trends in headship rates into this type of analysis.

To evaluate the reasonableness of using constant headship rates from 1990, the analysis was also be applied to historical data on the population

distribution from 1980 to 1995 to evaluate how closely this projection methodology matches actual household growth during this period. The estimate of household growth for 1980 to 1990 closely approximates actual household growth during this period . According to the decennial censuses of 1980 and 1990, household growth during the 1980s averaged 396,000 households per year.[1] The estimate based on the application of headship rates to the age distribution of the population is 384,000 households per year, or 3.0% lower than actual levels. For the period 1990 to 1995 the estimate of annual household growth is 623,000 new households per year, compared to actual growth of 594,000 per year based on data from the 1995 Population and Housing Count. For this latter period the estimate is 4.8% higher than actual.

The errors in the estimation suggest that headship rates may have been declining between 1980 and 1995. Higher headship rates during the 1980s would produce higher household growth than that predicted by 1990 headship rates. Similarly, lower headship rates in 1995 would result in lower actual household growth than predicted. The rapid rise in housing demand in the late 1980s and 1990s may be contributing to falling headship rates as increased competition for housing has made it more difficult for young households to obtain housing.

A projection of households by type was also estimated by disaggregating the total headship rate into rates by household type (Table A-1). These headship rates were then multiplied by the population projected to be in each age group for the period up to 2010. The resulting household distribution is shown in Table A-2. As shown, there is very little change expected in the distribution of household types over the next fifteen years. Since the large majority of households under age 50 are nuclear families, this household type is expected to predominate as long as a large share of the population is under 50. The prevalence of extended families and single person households begins to rise after age 50, so as Mexico's population continues to age after the year 2010 these household types will become more common. Of course, economic and cultural shifts may also occur in the meantime to change the distribution of households by type.

[1] The analysis of headship rates is based on households occupying "viviendas particulares" and so does not include collective housing or refuges. Actual household growth is also based on growth in occupied "viviendas particulares."

Appendix Table A-1

Headship Rates by Type of Household: 1990

(Percent of Age Group Heading Household of Given Type)

Age	Household Type						Non-Head
	Family			Non-Family			
	Nuclear	Extended	Mixed	Single Person	Co-Residents	Not Specified	
12-14	0.1	0.0	0.0	0.0	0.0	0.0	99.9
15-19	0.9	0.3	0.0	0.2	0.1	0.0	98.6
20-24	9.6	1.7	0.3	0.6	0.2	0.2	87.4
25-29	24.3	3.5	0.5	0.8	0.2	0.2	70.7
30-34	34.2	4.5	0.8	0.9	0.1	0.2	59.4
35-39	38.9	5.6	0.9	0.9	0.1	0.1	53.5
40-49	40.3	8.4	1.2	1.3	0.1	0.2	48.5
50-59	37.2	13.6	1.6	2.6	0.2	0.3	44.5
60-69	33.3	16.3	1.7	5.6	0.4	0.4	42.4
70-79	30.8	15.1	1.5	9.1	0.6	0.4	42.6
80+	24.7	10.7	1.3	9.3	0.7	0.5	52.9

Source: Joint Center tabulations of 1990 Census of Population and Housing.

Appendix Table A-2

Forecast of Household Type Distribution

(Percent of all households)

Year	Nuclear	Extended	Mixed	Single Person	Co-Residents	Not Specified
1990	74.7	17.3	2.3	4.7	0.5	0.5
1995	74.8	17.3	2.3	4.6	0.5	0.5
2000	74.7	17.3	2.3	4.7	0.5	0.5
2005	74.4	17.5	2.3	4.7	0.5	0.5
2010	73.9	17.9	2.4	4.8	0.5	0.5

Source: Joint Center Estimates based on tabulations of INEGI, 1990 Census of Population and Housing, and CONAPO, unpublished forecasts of population by age.

Appendix B:

Measuring Housing Quality Using the 1990 Census

In order to develop a measure of the number of inadequate housing units, indicators of housing quality developed in a recent study of the 1990 Census are used.[1] With regard to services, homes are defined to be of good quality if electricity and water are available in the unit, there is a sewerage connection to a public system or septic tank, and either gas or electricity is used for cooking. Similarly, housing materials are of good quality if walls are constructed from brick, block, stone or cement, the unit has non-dirt floors, and the roof is made of concrete, brick or "tabique."[2] Finally, in terms of the living space provided, if a home has a kitchen that is not also used as a bedroom, a bathroom and 2.5 or fewer people for each bedroom, it is considered to be of good quality. Conversely, units are of poor quality if they do not meet the above criteria for good quality units.

Exhibit B-1 presents the share of units that are of poor quality based on each of these measures. The most common deficiencies are a lack of water inside the housing unit, roofs made from less durable materials, and crowding, each of which is found in nearly half of the nation's housing units. Lack of a sewerage connection is the next most prevalent problem, being found in slightly more than a third of homes, while dirt floors are found in 29% of homes. Walls made of less durable materials, a kitchen that is also used as a bedroom, and a lack of gas for cooking, and no bathroom are found in about a fifth of homes. The least common problem is a lack of electricity, with only 12% of homes lacking this service.

The simplest way to combine these measures into an overall index of housing quality is to sum the total number of the ten characteristics that are of good quality. The result is an index that ranges from 0 to 10, with 0 indicating a housing unit that is of poor quality on all measures, and a 10 corresponding to housing units that are of good quality in all dimensions. Exhibit B-2 shows the share of housing units in each quality category. Overall, most homes in Mexico are of good quality based on this measure. Two out of five homes have an index value of 9 or 10, and little more than 60% have an index value of at least 7. At

[1] M. Schteingart and M. Solis, Vivienda Y Familia en Mexico: Un Enfoque Socio-Espacia, INEGI, 1994.

[2] As the authors of the INEGI study note, these definition of which materials represent good quality materials is somewhat arbitrary as other natural materials may provide adequate shelter, while the use of more solid materials does not necessarily imply good quality construction. Given the lack of additional data, however, using more durable materials in construction is the best indicator of quality available.

Appendix Table B-1
Share of Housing Units of Poor Quality
(Percent of total housing units)

Category	Characteristic	Total	Urban	Rural
Materials	Floors	19	9	46
	Walls	29	18	63
	Roof	47	35	82
Space	Kitchen	20	18	25
	Bath	23	12	57
	Crowded	48	42	64
Services	Electricity	12	5	34
	Water	49	36	85
	Sewerage	37	21	84
	Cooking	21	7	61

Notes:
1. Shares estimated on housing units for which all information is available and so vary slightly from shares for the entire housing stock.
2. Poor Quality defined following classfications in "Vivienda Y Familia en Mexico: Un Enfoque Socio-Espacial" by Martha Schteingart and Marlene Solis, INEGI, 1994, as follows:

Floors:	Dirt
Walls:	Materials other than cement, block, brick, stone, or tabique.
Roofs:	Materials other than concrete, brick, or tabique.
Kitchen:	Lacks a kitchen or kitchen also used as bedroom.
Bathroom:	Lacks a bathroom.
Crowded:	More than 2.5 persons per bedroom.
Electricity:	Not available.
Water:	Not available inside unit.
Sewerage:	Not connected to public system or septic tank.
Cooking:	Gas used for cooking.

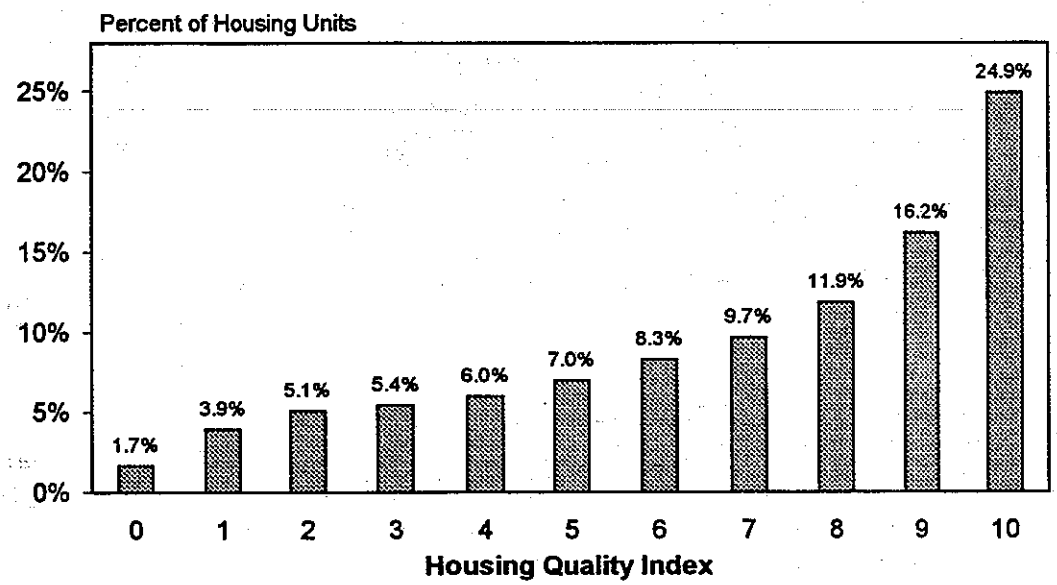
Source: Joint Center tabulations of 1% Sample of 1990 Census of Population and Housing, INEGI.

the other end of the quality spectrum, less than 2% of homes are deficient in all dimensions, 4% are deficient in all but one dimension, 10% are deficient in all but two or three dimensions. About a fifth of all homes fall somewhere between these two extremes, with index values between 4 and 6.

In order to address the issue of how many housing units are in need of being replaced or upgraded, Exhibit B-3 shows the percentage of homes in each quality category that are deficient in each of the ten categories. For example, all homes with a quality index of 0 are of poor quality in each of the 10 dimensions. On Exhibit B-3 this is indicated by the fact that 100% of homes are deficient in each category. Similarly, homes with a quality index of 1 are deficient in most areas, as shown by the high percentage deficient in each of the ten categories.

Appendix Exhibit B-2

Distribution of Housing Units by Quality Level



Source: See text and Appendix Table B-1 for definition of Quality Index.

Homes with index values of 3 or lower stand out as having large majorities of homes that lacked most services, were made from non-durable materials, and provided limited living space for the families residing there. With such extensive shortcomings, these homes, which totaled 2.7 million units in 1990, were in need of replacement or significant upgrading (see Exhibit B-4 for number of units by category).

Homes with index values of between 4 and 6 generally have walls made from durable materials, have electricity, and gas for cooking. Yet, a large majority of these homes have roofs made from non-durable materials and do not have water or sewerage, while significant shares also have dirt floors, are crowded, and do not have kitchens or baths. Thus, these homes, which account for an additional 3.5 million units, are in need of upgrading, mostly in the area of services, but also in the size of the home and in the quality of floors and roofs.

Appendix Table B-3

Percent of Housing Units with Deficiency in Individual Characteristics by Housing Quality Index Value

Category	Characteristic	Housing Quality Index										
		0	1	2	3	4	5	6	7	8	9	10
Materials	Floors	100	97	86	62	38	21	11	5	2	0	0
	Walls	100	97	91	77	62	46	32	23	18	5	0
	Roof	100	100	99	97	92	83	73	61	44	17	0
Space	Kitchen	100	52	35	36	36	35	31	23	15	9	0
	Bath	100	92	79	63	53	43	29	14	4	1	0
	Crowded	100	67	76	75	73	71	68	63	52	46	0
Services	Electricity	100	80	51	32	19	11	5	3	1	0	0
	Water	100	99	98	95	90	86	80	67	45	17	0
	Sewerage	100	100	98	95	88	76	58	35	16	4	0
	Cooking Fuel	100	96	86	69	50	29	15	6	2	1	0

Notes: See text and Appendix Table B-1 for description of deficiency in each characteristic.
Shading indicates instances where a majority of housing units are deficient in given characteristics.

Source: JCHS tabulations of the 1% Sample of 1990 Census of Population and Housing, INEGI.

Homes with index values of between 7 and 9 are generally of good quality, with the most frequent problems being crowding, a lack of water in the unit, and roofs made from less durable materials. These homes, which accounted for 6.0 million units in 1990, are in need of more minor improvements. Finally, 3.9 million units in 1990 did not have any problems.

Appendix Table B-4

Estimate of Housing Replacement and Upgrading Needs By Urban and Rural Status (1990)

(Millions of Housing Units)

	Total	Urban	Rural
Replacement	2.7	0.7	2.0
Significant Upgrading	3.5	2.0	1.5
Minor Upgrading	6.0	5.3	0.7
No Problems	3.9	3.8	0.1
Total	16.0	11.7	4.3

Note: See text for definition of categories.

Source: JCHS tabulations of 1% Sample of 1990 Census of Population and Housing, INEGI.

APPENDIX C:

Description of Principal Housing Finance Organizations

INFONAVIT

The *Instituto del Fondo Nacional de la Vivienda para los Trabajadores* was created in 1972 to fund housing for salaried workers in the private sector. This is the largest housing fund currently in Mexico. INFONAVIT obtains its funds from the mandatory contribution employers make, 5 percent of base wages, on behave of their workers. During the 1970s, INFONAVIT acted as both developer and constructor of very large scale developments, including public services such as schools and clinics. Then during the 1980s INFONAVIT ceased its construction operations, but continued to act as a developer, contracting out the actual construction process. By 1992 INFONAVIT had ceased its housing development operations and became solely a housing finance organization, although it does provide construction financing for developers. Workers also were now able to use INFONAVIT's financing to purchase new homes that were not developed with INFONAVIT financing, as well as to purchase existing housing or to improve a home they already own.

In 1992, reforms were also undertaken to assure greater transparency in the Institute's operations, including the allocation of mortgage finance based on a point system that takes into account the worker's salary, age, total contribution to the fund, number of years worked and number of dependents. In addition, in conjunction with the introduction of the new public pension fund in 1992, workers' contributions are now held in separate accounts with a guaranteed return of the contributions plus inflation upon retirement for those who do not obtain financing from INFONAVIT.

INFONAVIT loans bear a fixed interest rate of between 4% and 8% depending on the income level of the borrower. In order to account for inflation, the loan balance is indexed to the minimum wage. Payments are made by automatic deductions of 25% of the workers salary along with the 5% contribution of the employer. The funds accumulated in the workers account at the time of purchase are applied as a downpayment.

FOVISSSTE

The *Fondo de Vivienda para los Trabajadores al Servicio del Estado* was also created in 1972. It is the second larges housing "pension fund" serving public sector employees. FOVISSSTE evolved out of the earlier program, ISSSTE which provided rental housing for state employees. FOVISSSTE now operates

in a similar fashion as INFONAVIT, however, its lending programs have placed more emphasis on housing improvements and progressive housing.

FONHAPO

The *Fideicomiso del Fondo Nacional de Habitaciones Populates* was formed in 1954 as a trusts fund within the national development bank, *Banco Nacional Hipotecario y de Obras Publicas* (BANOBRAS). It became independent in 1981. FONHAPO directs its funds to the lowest-income groups. It has designed several strategies for accomplishing this. All of FONHAPO's funds are channeled through state housing institutions and other organizations involved in housing at the local level. It encourages "self-help" construction by providing resources to state and local programs that lend to community groups that wish to build their own homes. It has decentralized its operations so as to cover the entire national territory utilizing 10 regional delegations. Approximately 80 percent of its resources have gone to urban areas, particularly the medium size cities, and the remaining portion goes to rural communities. In the 1990s it has reduced the percentage of its assistance for housing improvements and lots with services and has instead emphasized lending to progressive housing. During this period they have also initiated the program *Credito a la Palabra*, "Credit by One's Word" to help overcome the difficulties that low income-families have in obtaining credit due to their inability to provide formal proof of income. FONHAPO funding has come through the federal government, the World Bank and its own lending operations.

FOVI

The *Fondo de Operacion y Descuento Bancario para la Vivienda* is a public sector fund for housing that operates in conjunction with commercial banks. Originally established in 1963 as a trust fund within the Banco de Mexico, its purpose is to act as a second-tier bank that channels resources to low-cost housing, through the commercial banks. It was formed in an effort to bridge the institutional gap between those public sector agencies assisting the lowest-income groups and the commercial banks providing mortgages to upper income households who could obtain loans without government assistance. It offers lines of credit to banks for lending to low-cost housing as well as loan guarantees. Currently it receives resources from the Banco de Mexico and the World Bank. Until 1989 the high demand for FOVI funds created difficulties in allocating resources fairly. This problem was solved by creating a system of public auctions. Several times a year FOVI announces a request for bids for a given amount of mortgage money. Commercial Banks submit bids on behalf of home builders who are proposing to build a certain number of housing units priced to sell to low-income households with mortgage financing. The highest

bidder receives funding and pays its bid to FOVI at the time the house is sold. The home buyer then holds a FOVI mortgage at the established interest rate for social interest loans and the commercial bank acts as the service conduit for the loan. FOVI was instrumental in the development of the dual index mortgage in the 1980s. The loan accrues at a fixed real interest rate (generally 5%), while loan payments increase at the rate of increases in the minimum wage. FOVI also provides partial guarantees, between 40 and 60 percent, against borrower default. After 1995 a large portion of FOVI's funds began to be channeled through the new mortgages lenders, the SOFOLES.

Appendix D:

Supplemental Tables

Appendix Table D-1
Average Annual Growth in Population by Age
(Thousands)

Age	1970-80	1980-90	1990-00	2000-10
0-4	118	85	-33	-134
5-9	256	28	7	-93
10-14	270	129	33	-28
15-19	260	201	81	9
20-24	212	167	149	33
25-29	154	160	191	79
30-34	124	155	218	144
35-39	90	117	227	187
40-49	149	141	325	436
50-64	132	145	223	403
65+	77	131	150	211
Total	**1,843**	**1,460**	**1,571**	**1,249**

Source: 1970-90, INEGI, Census of Population and Housing; 1990-2010, CONAPO.

Appendix Table D-2

Population and Households by State: 1990-95

(Thousands)

State	Population			Households			
	1990	1995	Annual % Change 1990-95	1990	1995	Annual % Change 1990-95	Annual Average Growth
Aguascalientes	720	862	3.2%	131	173	5.1%	7.4
Baja Califomia Norte	1,661	2,108	4.3%	373	504	5.4%	23.1
Baja Califomia Sur	318	375	3.0%	68	88	4.6%	3.5
Campeche	535	642	3.3%	110	138	4.0%	4.8
Coahuila	1,972	2,172	1.7%	408	487	3.2%	13.9
Colima	429	487	2.3%	90	110	3.7%	3.6
Chiapas	3,210	3,607	2.1%	597	697	2.8%	17.7
Chihuahua	2,442	2,793	2.4%	541	665	3.7%	21.9
Distrito Federal	8,236	8,484	0.5%	1,798	2,010	2.0%	37.4
Durango	1,349	1,431	1.0%	263	300	2.3%	6.5
Guanajuato	3,983	4,393	1.7%	701	831	3.1%	23.0
Guerrero	2,621	2,915	1.9%	512	589	2.5%	13.7
Hidalgo	1,888	2,112	2.0%	367	428	2.8%	10.8
Jalisco	5,303	5,990	2.2%	1,043	1,240	3.1%	34.7
Mexico	9,816	11,705	3.2%	1,882	2,443	4.7%	99.0
Michoacan	3,548	3,869	1.5%	676	781	2.6%	18.4
Morelos	1,195	1,443	3.4%	246	322	4.8%	13.3
Nayarit	825	896	1.5%	171	199	2.7%	4.9
Nuevo Leon	3,099	3,549	2.4%	647	792	3.6%	25.5
Oaxaca	3,020	3,224	1.2%	589	652	1.8%	11.1
Puebla	4,126	4,624	2.0%	775	921	3.1%	25.8
Queretaro	1,051	1,249	3.1%	195	251	4.5%	9.8
Quintana Roo	493	703	6.5%	106	164	8.0%	10.2
San Luis Potosi	2,003	2,192	1.6%	382	441	2.6%	10.4
Sinaloa	2,204	2,425	1.7%	426	510	3.2%	14.8
Sonora	1,824	2,084	2.4%	383	474	3.9%	16.2
Tabasco	1,502	1,749	2.7%	286	355	3.9%	12.2
Tamaulipas	2,250	2,526	2.1%	494	596	3.4%	17.9
Tlaxcala	761	884	2.7%	137	172	4.0%	6.1
Veracruz	6,228	6,735	1.4%	1,270	1,464	2.5%	34.2
Yucatan	1,363	1,556	2.4%	275	330	3.3%	9.7
Zacatecas	1,276	1,336	0.8%	240	273	2.3%	5.9
Mexico	**81,250**	**91,120**	**2.0%**	**16,183**	**19,399**	**3.3%**	**567.6**

Source: INEGI: 1990 Census of Population and Housing and 1995 Conteo de Populacion Y Vivienda, Resultadas
Preliminares.

Appendix Table D-3

Average Annual Household Income by Decile

(1995 Pesos)

Decile	Total			Urban			Rural		
	1984	1989	1994	1984	1989	1994	1984	1989	1994
1	3,371	3,691	3,435	5,303	6,249	5,678	2,378	2,306	2,003
2	7,539	7,747	7,696	11,276	11,420	10,921	5,140	4,893	4,087
3	10,945	10,963	11,095	14,972	14,956	14,557	7,199	6,856	5,659
4	14,186	14,161	14,456	18,212	18,708	18,082	9,033	8,646	7,254
5	17,721	17,877	18,152	22,058	22,994	22,064	11,033	10,922	9,171
6	21,705	22,383	22,642	27,229	27,908	27,048	13,521	13,608	11,351
7	27,413	27,984	28,609	33,712	33,954	34,326	17,369	17,176	13,995
8	35,181	35,404	37,986	41,885	43,471	44,961	21,991	22,171	18,219
9	48,135	49,348	55,305	57,535	58,629	64,975	29,813	30,183	25,296
10	97,030	120,749	139,941	109,815	146,976	159,126	59,645	59,764	50,808
Average	28,323	31,031	33,932	34,200	38,527	40,174	17,712	17,652	14,784

Notes: Income is Current Monetary Income.
In 1984 and 1989 "Urban" refers to High Density areas and "Rural" refers to low density areas as reported in the ENIGH.
Deciles are constructed by ordering households in terms of income and then dividing into 10 equal groups. Thus, the 1st decile contains the poorest 10% of all households while the 10th decile contains the wealthiest 10% of all households.

Source: INEGI, 1984, 1989 and 1994 ENIGH adjusted by Banco de Mexico, Consumer Price Index.

Appendix Table D-4
Household Income Distribution in Multiples of the Minimum Salary

Multiple of Minimum Wage	Percent of Households			Average Income (1995 Pesos)		
	1984	1989	1994	1984	1989	1994
0.00 - 1	31.6%	18.5%	11.9%	7,699	5,376	3,895
1.01 - 2	27.9%	22.6%	19.2%	18,110	12,562	9,994
2.01 - 3	17.8%	18.5%	17.8%	30,168	20,356	16,355
3.01 - 4	9.1%	12.8%	13.5%	42,737	28,780	23,098
4.01 - 5	4.9%	8.1%	8.2%	55,943	36,775	29,700
5.01 - 6	3.0%	5.2%	6.5%	70,700	46,146	36,646
6.01 - 7	2.0%	3.9%	4.3%	85,658	53,787	43,423
7.01 - 8	0.9%	2.4%	3.7%	98,534	62,434	50,342
8+	2.7%	8.0%	15.0%	148,680	134,635	113,746

Source: 1994 ENIGH, INEGI. Incomes converted to 1995 pesos using CPI.

Appendix Table D-5
Share of Housing Units by Selected Characteristics

Characteristic	1970	1980	1990	1995
Services				
Sewerage Connection	41.1	51.0	63.6	74.7
Electricity Available	58.3	74.9	87.5	93.2
Gas Used as Cooking Fuel	44.0	63.3	77.0	81.3
Water (entubada)	61.0	70.7	79.4	85.6
Water (inside unit)	38.4	49.7	50.3	54.4
Wall Materials				
Block, Brick or Stone	44.2	56.1	69.9	75.7
Adobe	30.1	21.3	14.7	NA
Wood	15.9	9.4	8.2	NA
Other	9.8	13.2	7.2	24.3
Roof Materials				
Concrete or Tabique	34.2	44.4	51.7	59.8
Teja or Palma	55.5	24.4	18.2	NA
Laminated Metal or Asbestos	NA	16.8	17.9	NA
Laminated Cardboard	NA	11.6	8.5	NA
Other	10.3	2.9	3.7	40.2
Floors				
Dirt	41.1	26.5	19.6	15.4
Other	58.9	73.5	80.4	84.6

Source: INEGI, 1970-90 Census of Population and Housing, and 1995 Count of Population and Housing.

Appendix Table D-6

Estimate of Housing Replacement and Upgrading Needs By State: 1990

(Percent of Housing Units)

State	Replacement or Significant Upgrading	Moderate Upgrading	Minor Upgrading	No Problems
Aguascalientes	2.9	11.5	43.7	41.9
Baja California Norte	6.8	25.3	52.5	15.3
Baja California Sur	9.4	20.3	43.8	26.6
Campeche	25.7	29.3	29.5	15.4
Coahuila	5.0	21.7	43.4	29.9
Colima	8.0	18.8	50.3	22.9
Chiapas	47.4	22.8	22.8	6.9
Chihuahua	10.8	24.2	45.7	19.3
Distrito Federal	0.7	8.7	44.5	46.1
Durango	16.9	30.3	31.7	21.1
Guanajuato	13.2	25.7	37.4	23.7
Guerrero	44.2	22.8	24.2	8.9
Hidalgo	29.1	26.5	29.5	14.9
Jalisco	5.2	12.5	45.8	36.4
Mexico	8.6	18.8	45.4	27.2
Michoacan	18.9	26.6	36.1	18.4
Morelos	11.1	25.7	41.6	21.6
Nayarit	12.6	23.3	47.6	16.6
Nuevo Leon	3.7	13.3	36.9	46.1
Oaxaca	47.1	27.0	20.1	5.9
Puebla	25.1	26.8	29.4	18.7
Queretaro	14.8	23.7	31.7	29.8
Quintana Roo	22.6	28.1	31.0	18.3
San Luis Potosi	26.4	21.4	26.9	25.2
Sinaloa	12.8	20.7	43.4	23.1
Sonora	8.9	20.2	48.1	22.7
Tabasco	17.6	32.7	36.7	13.0
Tamaulipas	12.0	27.3	36.7	24.1
Tlaxcala	12.8	32.8	40.9	13.5
Veracruz	30.8	25.3	29.2	14.7
Yucatan	18.6	29.6	27.7	24.0
Zacatecas	16.4	36.0	32.8	14.8

Note: See Appendix B for definition of categories.

Source: JCHS tabulations of 1990 Census of Population and Housing.

Appendix Table D-7
Number of Housing Loans by Lender and Type: 1992

	INFONAVIT	FOVI	Commercial Banks	FONHAPO/ BANOBRAS	FOVISSSTE	Other Government Programs	Total
Finished	61,676	24,638	103,490	2,783	1,587	12,249	206,423
Owner Occupied	*61,676*	*23,403*	*103,490*	*2,783*	*1,500*	*8,948*	*201,800*
Rental	*0*	*1,235*	*0*	*0*	*87*	*3,301*	*4,623*
Progressive	0	0	0	11,140	0	3,076	14,216
Lots with Services	0	0	0	3,038	0	8,600	11,638
Housing Improvements	658	0	0	25,986	14,659	72,255	113,558
Other	26,699	0	25,872	8,006	18,731	4,725	84,033
Aquisition of Existing Housing	*25,450*	*0*	*25,872*	*41*	*6,180*	*4,725*	*62,268*
Construction on Own Land	*1,094*	*0*	*0*	*0*	*1,331*	*0*	*2,425*
Re-Financing	*155*	*0*	*0*	*0*	*76*	*0*	*231*
Co-Financing	*0*	*0*	*0*	*7,965*	*11,144*	*0*	*19,109*
Total	89,033	24,638	129,362	50,953	34,977	100,905	429,868

Notes: Other government programs include: Pemex, CFE, FIVIDESU, FICAPRO, FIDELAC, FIDACA, Incobusa, S.A. de C.V., Pralm, Pronasol, and state organizations.

Source: SEDESOL.

Appendix Table D-8

Total Housing Loans by Lender: 1983-1994

(Thousands of Loans)

	INFONAVIT	FOVISSSTE	FOVI	FONHAPO/ BANOBRAS	Commercial Banks	OTHER	TOTAL
1983	55,246	11,561	56,216	7,467	0	16,500	146,990
1984	67,151	6,374	71,894	27,002	0	25,768	198,189
1985	74,777	22,256	88,813	30,535	0	24,550	240,931
1986	79,281	23,045	58,230	58,898	0	37,042	256,496
1987	80,247	14,499	88,581	60,162	0	44,647	288,136
1988	57,504	14,923	104,903	61,004	0	26,115	264,449
1989	71,925	19,848	17,121	42,834	35,883	86,147	273,758
1990	89,536	24,986	30,720	62,326	41,557	102,501	351,626
1991	57,338	48,178	30,772	33,555	35,056	204,795	409,694
1992	89,033	34,977	24,638	50,953	129,362	100,905	429,868
1993	107,507	35,231	23,900	55,270	130,280	202,362	554,550
1994	128,000	44,000	42,721	75,571	138,839	196,305	625,436

Note: Prior to 1989 all the commercial bank lending was from FOVI as the banks were nationalized.

Source: SEDESOL.

Appendix Table D-9
Value of Housing Loans by Lender: 1983-1994
(Thousands of 1995 Pesos)

	INFONAVIT	FOVISSSTE	FOVI	FONHAPO/ BANOBRAS	Commercial Banks	OTHER	TOTAL
1983	5,446,703	921,198	6,169,260	427,631	0	687,053	13,651,845
1984	6,462,557	1,289,129	8,701,919	857,640	0	1,199,479	18,510,723
1985	7,717,172	1,289,990	9,728,028	948,750	0	1,387,125	21,071,064
1986	6,187,811	1,450,169	8,266,748	726,384	0	3,712,352	20,343,464
1987	5,888,584	1,295,328	12,096,989	929,554	0	3,464,554	23,675,009
1988	5,976,535	1,310,752	11,046,560	889,387	0	1,647,047	20,870,281
1989	6,357,172	1,440,065	2,270,047	861,125	8,155,036	1,181,208	20,264,654
1990	7,571,390	1,671,230	2,088,827	1,132,827	7,541,779	1,775,068	21,781,120
1991	7,107,600	2,422,849	1,941,848	941,546	5,396,574	2,478,112	20,288,530
1992	8,403,620	1,335,891	1,610,912	1,362,843	33,256,736	2,629,136	48,599,137
1993	12,730,121	1,939,002	1,041,245	1,513,173	32,750,602	1,451,156	50,943,543
1994	11,851,656	1,846,219	4,994,889	1,396,274	28,349,369	2,304,399	50,742,805

Note: Prior to 1989 all the commercial bank lending was from FOVI as the banks were nationalized.

Source: SEDESOL.

Appendix Table D-10
Number of Loans by Type: 1980-1994
(Thousands of Loans)

	Years			
	80-84	85-89	90-94	Total
New Housing	610	991	1391	2992
Commercial Bank Finished	0	36	395	431
Government Program Finished	584	742	631	1956
Progressive Housing	15	126	217	358
Lots with Services	11	88	148	246
Other Loans	68	384	1060	1512
Housing Improvements	37	265	802	1105
Other	31	119	257	407
Total	679	1375	2450	4504

Source: CNBV, compilation of data from SEDESOL.