Housing Affordability in the United States: Trends, Interpretations, and Outlook

a report prepared for the
Millennial Housing Commission
by

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Executive Summary

Housing affordability ranks among the most pervasive and persistent of national issues. Housing is one of the biggest expense items in the budgets of most families and individuals. For this reason, and because of government's many influences on housing affordability, it has long been prominent on the agendas of policy makers at all levels of government.

The definition, measurement, and interpretation of housing affordability are ultimately subjective. There is no single correct answer to the question of how much households of different incomes can "afford" to spend on housing, how spending or income should be measured, or on the housing quality standard that should be set. Nonetheless, for purposes of housing program design and implementation, it has been necessary to adopt specific definitions that are quantifiable with data available for local areas nationwide.

This paper does not attempt to resolve these long-standing issues regarding affordability measurement and interpretation. Instead, the paper addresses easier questions: Has housing been getting more or less affordable? For whom? And why? Even those who do not agree on the definition and assessment of housing affordability may be able to agree on whether affordability is increasing or decreasing and on the reasons for those changes.

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The analysis looks at changes in housing costs and incomes between 1985 and 1999, a period long enough to minimize the effects of short term market fluctuations and data errors on the estimated trends. Renters and owners are examined separately, because of the many differences between these two markets. The focus is on lower income households.

renter affordability trends

As measured by the ratio of housing costs (rent plus utilities) to income, housing affordability for the typical renter did not change appreciably between 1985 and 1999. The median ratio of cost to income for renters nationwide was 0.27 in both years. Utilities expenses rose less rapidly than did contract rent over this period and held down the ratio. Rents increased only slightly more than did the Consumer Price Index's rent component, suggesting that the average quality of rental housing was little changed over this period.

The similarity in rental housing affordability in 1985 and 1999 among renters overall masks an increase in the cost to income ratio among renters in the lowest 20 percent of the renter income distribution. The increase in their ratio resulted from both above-average increases in housing expenses and below-average income growth. Their below-average income growth appears largely a result of a siphoning of some low-income renters – but not the poorest of the poor – into home ownership.

The increased housing expense of low-income renters results in part from a shift in occupancy between 1985 and 1999. In 1999, these households were more likely than in 1985 to occupy units higher in the rent distribution. Higher income households, in turn, were more likely in 1999 than in 1985 to occupy units near the bottom of the rental distribution. Abstracting from issues of occupancy, the distribution of the stock of rental housing by inflation-adjusted monthly housing costs did not change much between 1985 and 1999, suggesting that low-cost units were not more likely than others to drop out of the stock or "filter" into a higher rent range. This pattern depends, however, on the definition of housing costs: Excluding utilities expenses, low-rent units were less prevalent in the stock in 1999 than in 1985.

owner affordability trends

The costs of homeownership are more difficult to measure and interpret than are the costs of renting, because the tax and investment elements of homeownership weaken the relationship between ongoing cash outlays and housing expense in a true economic sense. Nonetheless, appropriately interpreted, various measures of homeownership expenses can shed some light on changes in affordability.

House price increases between 1985 and 1999 exceeded the increases in both prices overall and household incomes. The ratio of house prices to incomes rose among all owners and also among recent home buyers. Despite the increase in this ratio, cash flow affordability – which measures the mortgage payments on a typical house relative to the income of a typical home buyer – improved between 1985 and 1999 due to reductions in mortgage interest rates.

Unlike in the rental market, low income homeowners do not seem to have been on a substantially less favorable affordability path than higher income owners. Income and house value growth show no large and consistent differences by income group, and changes in cash flow affordability for first-time (and presumably lower average income) home buyers have generally paralleled those of higher income home owners. Perhaps the strongest indicator of steady or improved home ownership affordability for low-income households is the rising home ownership rate among households in the bottom 20 percent of the income distribution.

More generally, homeownership affordability in each income group may have been increasing relative to rental affordability, judging from the rising homeownership rates. But this interpretation cannot be definitive, because the ownership rate depends on factors other than the relative cost of owning and renting.

reasons for changes in affordability

Housing affordability is a measure of housing costs relative to incomes. The causes of changes in affordability therefore are the same as the causes of changes in housing costs and incomes.

Housing costs are determined in a market setting, but one that is subject to various government influences. Some government incentives and restrictions promote affordability, and others deter it. But all of these government influences ultimately affect housing affordability by altering housing demand, housing supply, or both.

Housing demand has increased for the nation overall and in most locales and market segments since 1985, putting upward pressure on housing costs. The income gains that have contributed to these rising costs have at the same time improved households' ability to pay for housing. Governments' influence on housing demand and demand related cost pressures has not changed much over the past 15 years: The number of assisted renter households has increased more rapidly than the rental market overall, but assisted rental units remain a small percentage of the overall rental housing stock. By far the biggest government demand-side subsidy continues to be the tax advantages bestowed upon upper-income owner-occupied housing.

Regarding housing supply influences on affordability, since 1985 the input factors for production and operation of housing have, with the possible exception of land costs, been supportive of housing affordability, in the sense that these costs have generally risen less than the overall rate of inflation. The government's influence is more mixed. Major federal assistance programs for producing rental housing have expanded (as measured by assisted households) more rapidly than the overall rental housing market, although the proportion of households assisted remains low. Local governments' direct supportive role through their own and their sponsored non-profits' housing assistance programs may have been more than offset by local governments' land use and tax policies.

These demand and supply, market and government, influences have together resulted in the observed changes in housing affordability since 1985. Of all the income and tenure groups examined, low-income renters are the only group whose affordability problems have clearly worsened. Their above-average increase in housing expenditures by this group seems unlikely to have been discretionary, given their already high allocation of income to housing in 1985. The more likely explanation is increased competition for low-rent units from higher income households, combined with land use and building code constraints on the amount of lower quality housing that can be built and retained in the stock.

new construction and affordability

Some analysts and commentators have alluded to the "low" level of multifamily construction during the 1990s as a contributor to rising rental housing costs. But from a market perspective the volume of multifamily housing production during the 1990s was at a level consistent with long run demographic growth in multifamily demand and the need to replace units demolished or otherwise lost from the multifamily rental stock.

It is intuitive to think of new construction as a tool for increasing the stock of housing affordable to low- and moderate income households. In practice, however, market realities and government restrictions make it extremely unlikely that for-profit development will occur at "affordable" rents absent incentives or requirements from government, as illustrated by a model of production of affordable housing developed in an appendix to the paper.

outlook

The past offers some clues about the outlook for housing affordability. On the demand side, aggregate growth in the number of households and gradual long-run increases in average real incomes seem highly likely, bringing increased purchasing power but also pressures on housing prices faced by both renters and owners. These effects will continue to vary enormously by location. Home ownership affordability is unlikely to gain from reductions in mortgage rates as it has in the past, if only because interest rates can go only so low. Regarding

government influence on housing demand, the baseline assumption of continuation of current levels of cash assistance to renters implies a declining proportional impact on low-income rental demand, while unchanged tax policy will bring an increasing annual subsidy to homeowners, especially those of higher incomes.

On the supply side, land seems likely to increase in real price, if only because it is fixed in supply. But the other input factors to housing production and operation will continue to increase in cost at rates averaging no greater than economywide inflation, if history is any guide.

Regarding government influences on housing supply, production subsidy programs will continue to play a role in promoting affordability. But a larger influence will be that of local governments, which through land use regulations and building codes have a controlling influence over both assisted and market rate housing. Additionally, though "smart growth' has many dimensions, housing affordability seems unlikely to be enhanced by new initiatives to control land use.

Overall, under a baseline scenario, it seem likely that the future will see both changes and some constants. Renters overall seem most likely to show little change, but those at the low end likely face constraints on housing supply that will boost their housing costs and force them to consume more housing than they would prefer, given their incomes. Among owners, further gains in cash flow affordability from reduced financing costs seem unlikely, and the responsibility will fall on improved income growth or lower house price inflation if cash flow affordability is to improve much more.

alternative futures

Several market and government variables are significant swing factors in the outlook for housing costs and affordability. Among demand influences, the volume and composition of immigration from abroad will have considerable impacts on housing demand and pricing in the metro areas and neighborhoods where immigrants first cluster. More generally, any shifts in migration and local mobility patterns are likely to increase housing costs in the places where population begins to grow more rapidly, and reduce housing cost hikes (at least initially) in places where population growth decelerates or turns negative. For prospective home buyers, spikes in mortgage interest rates would have large and immediate influences on the cash flow affordability of home purchase; this interest rate effect would likely be only partially offset by resulting reductions in house prices.

Compared to demand variables, private market supply determinants of housing costs seem less likely to offer future surprises, although breakthroughs in building technology or large changes in utilities costs would have significant effects on housing costs.

Direct government influences on affordability through subsidy programs seem confined by politics and fiscal realities to a fairly narrow band around current levels, at least in the near-term future. The same probably can be said about the federal tax treatment of owner-occupied housing.

Perhaps the most important near-term changes in government influences on housing affordability, especially among low-income renters, can occur at the state and local level. The higher property tax rate typically applied to multifamily rental housing compared to single-family housing is not widely known but has a major influence on the rents that must be charged for apartments to remain in the housing stock. More generally, the land use and building code practices and policies of state and local governments have direct effects on what housing can be built and retained in the stock and the rents that must be charged to cover construction and operating costs. For local government to change its practices, there must be a push from the citizenry, which in many jurisdictions are predominantly single-family home owners. Changing those citizen attitudes may be the biggest challenge of all.

I. Introduction

Few national issues are as persistent and pervasive as housing affordability. Housing costs are one of the biggest, if not biggest, expense items in the budgets of almost all families and individuals. Because of housing affordability's importance to the citizenry, and because government actions affect affordability in many ways, housing affordability has long been high on the agenda of policy makers at all levels of government.

Housing affordability among low- and moderate income households is a particular focus of public policy. Part of the reason is the general attention of government, reflecting the wishes of the electorate, toward lower income households. But, in addition, housing has a key feature not common to other basic needs such as nutrition and transportation: Housing consumption has a minimum. People who are poor can reduce the quality and quantity of their food, but building codes and occupancy standards can preclude reductions in housing consumption. At some point, the choice becomes to pay up or be homeless.

Housing affordability is prominent on the agenda of the Millennial Housing Commission. Its legislative mandate and mission statement highlight the importance of increasing the availability of housing that is both decent and affordable.

The purpose of this report is to provide an overview of trends in housing affordability and an interpretation of those trends from both a market perspective and a public policy orientation. The focus is on the part of the housing market serving low income households. Specifically, the report

- tracks changes in housing affordability since 1985, with an emphasis on affordability for low income households;

- discusses the reasons for those changes, both housing market reasons and public policy and program influences;

- speculates on future changes in affordability under alternative economic and public policy assumptions;

These are ambitious goals for any analysis, especially one conducted and reported in four weeks. It is important to say at the outset what the report does not attempt to do: generate new definitions or detailed data tabulations; capture the local and regional diversity in housing market conditions; assess changes in the housing cost/ commuting tradeoff; or evaluate specific government programs.

More generally, the intent here is not to attempt to do something "better" than the product of the hundreds of researchers and policy analysts who have been studying housing affordability for the past 40 years at least. The research on

this topic is vast. The approach here is to acknowledge, without citing individual studies, the vast research done by government agencies, policy research institutions, industry, and academia, including major studies and conferences in the past few years. Some of the recent studies and other sources consulted during this research appear in a bibliography at the end. Those studies have in many ways shaped the analysis presented here.

What then is new and different about this report? It is intended to provide a "big picture" view of housing affordability trends from the perspective of an economist who is a long time analyst of housing but who has not previously focused on affordability issues. The report tries to step back from the programmatic focus of much of the previous work on housing affordability and talk rather about housing market influences and broad policy interventions. The report is written expressly for the Millennial Housing Commission members and staff to assist them in forming their recommendations to the Congress by providing definitive summary statistics on trends in housing affordability and reasoned interpretations of their causes and implications. The goal here is to provide facts and interpretations that are straightforward, yet comprehensive, current, and accurate.

The report has three sections. First is a presentation of statistical evidence on trends in affordability. Second is an interpretation of the causes of those trends. Third are some ideas about the what the past can tell us about the future.

II. Research Approach

A. Time Period

The focus is on trends in affordability between 1985 and 1999. This decision is partly driven by data availability, as detailed housing statistics for 2000 are not yet available from Census 2000 or other sources, and data availability and comparability deteriorate when the study period is pushed back before 1985. The period 1985-99 covers a range of macroeconomic and housing policy environments and is long enough to minimize the effects of short term market events and data errors on the estimated trends. The beginning year for the analysis,1985, was a period of moderate economic growth and declining unemployment. For a closer look at the more recent past, a period of strong economic expansion and historically low unemployment, some statistics are also presented for the subperiod 1995 to 1999.

B. Data Sources

The analysis uses data from several publicly available and widely accepted sources. Many of the statistics in this report are derived from the American Housing Survey (AHS), a biennial national survey fielded by the U.S. Census Bureau with financial support from the U.S. Department of Housing and Urban Development. This survey is unmatched in its detailed housing and

demographic information and the quality of its national sampling. Of particular value for this study is the general comparability of survey results from one fielding to another, improving our confidence that any differences from one survey to another reflect time trends in housing conditions. Another attraction is that the data set is publicly available, so that results can be replicated and approaches modified by other analysts if they should so choose. Because of changes in AHS questions and survey procedures over time, the data needs to be compiled and interpreted cautiously. This analysis avoids most of the statistics likely to be affected those changes, and comments on others as they are presented in the text.

C. Measuring Affordability

No consensus exists on the definition of affordable housing. Opinions vary on the maximum percentage of income that households of different sizes, compositions, and incomes should be expected to have to pay for housing, or whether it even makes sense to specify a maximum, in light of the role that personal preferences play in housing choice and other consumer decisions.

The appropriate income measure is also a question mark. For some households current income is a good indicator of long-term earnings prospects, but for others it is not. To the extent that housing decisions in part reflect these long-run prospects, rent/income ratios may give a misleading indicator of a household's financial commitment to housing. Economists sometimes use education, age, current income and other variables to construct a long-run, or "permanent" income measure, but this approach has not been applied in recent studies of housing affordability.

Similarly, there is no consensus on the quantity and quality of housing that should be used as the standard for pricing what household have to pay. What is the appropriate standard of minimally "safe and sanitary" housing? Should it vary from place to place, depending on community norms and local housing conditions? What about standards for middle- and upper-income households who can afford more than basic housing?

Ultimately the definition and specification of affordability thresholds are value judgments on which reasonable people can and do differ. Nonetheless, for purposes of program implementation at HUD and elsewhere, it has been necessary to define affordable housing in terms that can be operationalized. Some differences exist across programs and agencies, but the most common standard is housing costs (rent and utilities) of 30 percent of household income. [2] The bundle of housing services being priced is less definitive, but through the

[2] In this paper, "housing costs" generally refers to "expenditures," but in some contexts indicates the price paid for a fixed bundle of housing attributes, similar to a price index.

Fair Market Rent and other vehicles it is effectively set at a slightly above the average priced unit of appropriate size for the household's size.

Affordability is even more difficult to measure and interpret for homeowners than for renters. The tax and investment elements of homeownership weaken the relationship between ongoing cash outlays and housing expense in a true economic sense. Nonetheless, appropriately interpreted, various measures of homeownership expenses can shed some light on affordability.

It is apparent, however, that simple ratios of housing costs to incomes cannot be relied on as measures of affordability. These ratios control for neither the quality of housing being obtained nor the overall purchasing power of a household's nominal income. Even as high allocations of income to housing costs are a necessity for some households, especially those of moderate means, for others higher in the income distribution these substantial allocations to housing are freely chosen.

This paper will not attempt to resolve these long-standing issues regarding affordability measurement and interpretation. Instead, the paper addresses easier questions: Has housing been getting more or less affordable? For whom? And why? Even those who do not agree on the definition and assessment of housing affordability may be able to agree on whether affordability is increasing or decreasing and on the reasons for those changes.

D. Renters and Owners

The approach here is to examine the rental housing market separately from the market for owner-occupancy. The two markets differ in structure types and locations, resident characteristics, financing, market dynamics, and public policy issues.

Clearly, the two markets are related and interact. Local areas experiencing strong demand for owner-occupied housing tend to also have strong demand for rental housing, Places with high costs for building owner-occupied (usually single family) housing also have high costs for construction of rental (usually multifamily) housing.

The nation's homeownership rate increased over the period 1985-1999, especially in the most recent years. From 63.9 percent in 1985, the proportion of households that were owner-occupants rose to 64.8 percent by 1995 but then jumped to 66.8 percent by 1999.[3] Most analysts believe that the increase

[3] Early data from Census 2000 provide an ownership estimate of 66.2 percent, suggesting that the increase in homeownership may have been somewhat less than indicated by the Census Bureau's quarterly Housing Vacancy Survey, source of the ownership estimates between

resulted from a combination of demographic, economic, and public policy influences.

The moderate growth in the home ownership rate masks much greater gross movement of individual households between owning and renting. Among recent movers in 1999, just over half of all home owners were pre-move renters, and about one in five renters were pre-move owners, according to the American Housing Survey.

While the analysis here discusses both renters and owners, emphasis will be on renters, since they have lower incomes on average than owners and consequently face greater challenges in the housing market. Despite a growing number of higher income renters, renters as a group have a median household income only 53 percent that for homeowners. Renters account for only 33 percent of all households nationwide, but in the bottom 20 percent of the income distribution, renters account for over half (54 percent) of the total.[4] In addition, housing policy and programs for rental housing are more numerous, interactive and complicated than policy and programs for owner-occupied housing. Much of the government intervention in the owner-occupied market is through the Federal and state tax codes; furthermore, the private sector is more broadly involved in the owner-occupant market because of its larger size and the higher average incomes of owners compared to renters.

III. Changes in Housing Affordability Since 1985

A. Rental Affordability Trends

At first glance, changes in rental housing affordability since 1985 have been minimal, as renters' housing costs and their incomes have increased about proportionately. Looking first at housing costs, rents as measured by the Consumer Price Index (CPI) have risen an average 3.3 percent annually since 1985 (Exhibit 1). A second CPI rental index, "owners' equivalent rent," measures changes in rents of units similar to those occupied by owner-occupants and thus captures costs for generally bigger and higher quality housing; that index rose at a higher 3.8 percent annual rate over this period. Both of these rent measures decelerated during the four years 1995-1999.

Rents increased slightly more than overall consumer prices during this 14 year period, according to the CPI. However, overall rental housing cost increases were moderated by relatively small increases in utilities costs for water,

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decennial censuses. The numbers cited here also vary slightly from AHS-based estimates referred to later in this report.

[4] Source: Author's tabulations from the March 2000 Current Population Survey public use file.

electricity, and heating/cooking fuel, which rose less rapidly than contract rents, according to the CPI.

The CPI is intended to measure the rent of a "constant quality" housing unit, so the fact that actual rent (shown in Exhibit 1 by the AHS-based median rent estimate) has increased slightly more rapidly than CPI rent suggests that rental units have increased in quality slightly or shifted to more expensive markets. However, the differences between actual rents and the CPI index are small, for the period overall and also for the most recent four years, and may be reflecting only statistical error. Consistent with the CPI, renters housing costs inclusive of utilities rose less rapidly than did contract rents.[5]

[5] Data notes: This report uses medians as measures of central tendency whenever possible because medians are less sensitive than are means, or averages, to extreme outliers. With medians, differences over time or across subgroups observed in survey data are more likely than means to reflect broad-based changes in the population.

The rent and housing cost estimates from the American Housing Survey refer to expenses incurred by the resident. If a portion of the rent or utilities cost is paid directly by a government entity or other organization, that is not included in these figures. Because of changes over time in proportions of rental units that include utilities in contract rent, total housing costs is a more consistent measure over time than are contract rent payments.

"Non-cash renters" are excluded from most of the tabulations of rental housing costs. Non-cash renters are households that occupy rental housing but do not pay cash rent. They account for 5 to 6 percent of all renters in the 1985, 1995, and 1999 American Housing Surveys.

Exhibit 1: Rental Housing Costs and Renter Income

	Average Annual Percentage Change	
	1985-99	1995-99
CPI Rent Index	3.3%	2.9%
CPI Owners Equiv. Rent Index	3.8%	3.0%
CPI Hsehld Fuels/Utilities Index	1.4%	1.0%
CPI total (CPI-U)	3.1%	2.2%
Fair Market Rent (2 bdrm, nat'l)	3.0%	2.1%
Median Rent	3.9%	3.1%
Median Renter Housing Costs	3.3%	2.8%
Renters' Median Household Income		
AHS version	3.5%	3.0%
CPS version	n/a	4.3%
Wage Rate	3.1%	3.7%

	Level		
	1985	1995	1999
Median rent/income	0.213	0.24	0.236
Median cost/income	0.269	0.273	0.266

Sources: author's tabulations from the American Housing Survey, Current Population Survey, Bureau of Labor Statistics CPI and wage data, and HUD FMR data.

Notes: Wage rate is hourly compensation for non-supervisory workers; housing costs defined as rent plus resident-paid utilities; cash renters only.
In 1985 the Fair Market Rent was set at the 45th percentile of the rent distribution of qualifying units, and in 1995 and 1999 the FMR was set at the 40th percentile; absent this percentile shift, the average annual increase between 1985 and 1999 would have been approximately 3.2 percent, according to the author's tabulations from unpublished HUD data.

Income changes of renters have about matched, in percentage terms, the rent increases, at least as measured by the AHS. The Current Population Survey (CPS) reports a somewhat higher growth rate during the recent 1995-99 period, as shown in Exhibit 1.[6] Household income reflects changes over time in the

[6] The income estimates from the American Housing Survey are generally lower than those from other sources, and the statisticians responsible for the AHS have alerted users of the data to possible errors in the income figures. Both the levels of income reported in the AHS, and income changes over time, may be subject to error. Compared to the Current Population Survey, for example, AHS median household income among renters was 9 percent lower in 1999; and CPS-

number of workers per household and their hours worked, so it is useful to compare its growth against that of hourly wages. Wage growth was less than household income growth since 1985, according to the AHS income estimates, but about matched CPI rent and renters' median housing cost increases over the that 14 year period.

The similarity of the percentage changes in rents and incomes between 1985 and 1999 result in a median housing cost/income ratio that was essentially the same at the end of the period as at the beginning. The ratio of rent to income did rise slightly, but the comparatively small increase in utility costs held down the increase in total housing costs.

-- Differences by Income Group: Three Approaches

The picture of stability in overall rental housing affordability painted by the national average figures applies to all but one income group among renters. This finding holds in each of three approaches to disaggregating the rental housing market.

Exhibit 2 disaggregates renters into income quintiles; that is, in each year 1985, 1995 and 1999, renter households are ranked by income and then divided into five groups of equal size.[7] Looking first at the median cost/income ratios in each group, at the bottom of the table, it can be seen that lower income renters spend a much greater proportion of their current income on housing than do higher income households. That pattern is consistent over all three years. Furthermore, the cost/income ratio changes little within group over time. For example, among households in the top 20 percent of all renters by income, the median cost/income ratio was 0.15 in 1985 and 1995 and then edged down to 0.14 in 1999. Similar stability is shared by all the other income groups.

Except one. Renters in the bottom 20 percent of the renter income distribution saw their cost/income ratio increase from a median of 0.69 to 0.76 over this period.[8] Also in contrast to other income groups, the lowest income renters' ratio

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based income growth for renters during 1995-99 averaged 4.3 percent, compared to only 3.0 percent in the AHS. Comparable income figures from the CPS in 1985 are obtained only through special request to the Census Bureau and could not be acquired in the compressed time period of this study.

[7] The AHS-based income statistics for 1999 are from an estimated 34.0 million renter households with income maximums for each quintile as follows: lowest quintile, $10,000; second quintile , $19,276; third quintile, $30,000; and fourth quintile, $45,400.

[8] The 0.76 value for this ratio hints of consumers who are borrowing or are drawing down savings and likely are in an unsustainable situation. Or there could be systematic under-reporting of income or over-reporting of housing costs by this lowest income group. According to the CPS, renters in the bottom quintile of renters' income distribution in 1999 had a median annual income of $6965. A 76 percent income allocation to housing implies an average monthly housing outlay of $441 and only $139 available monthly for all non-housing expenses.

Exhibit 2: Rental Housing Costs and Incomes, by Income Group

	Average Annual Percentage Change	
	1985-99	1995-99
Median Housing Costs of Cash Renters		
Income Quintile Among Renters		
lowest	4.2%	6.1%
second	3.5%	3.6%
third	3.3%	2.3%
fourth	3.2%	2.4%
highest	3.1%	2.3%
Renters' Median Household Incomes		
Income Quintile Among Renters		
AHS data		
lowest	2.9%	3.1%
second	3.6%	5.2%
third	3.5%	3.6%
fourth	3.2%	3.4%
highest	3.4%	3.5%
CPS data		
lowest	n/a	3.0%
second	n/a	4.6%
third	n/a	4.5%
fourth	n/a	4.0%
highest	n/a	4.6%

	Year		
	1985	1995	1999
Median Ratio of Housing Costs to Renters' Household Income			
Income Quintile Among Renters			
lowest	0.69	0.71	0.76
second	0.39	0.41	0.39
third	0.27	0.29	0.28
fourth	0.21	0.22	0.21
highest	0.15	0.15	0.14

Source: author's tabulations from the American Housing Survey and Current Population Survey; AHS figures on housing costs are for cash renters only. CPS income data for 1985 are avaiable only by special order to the Census Bureau and could not be obtained in time for this analysis.

increased during the late 1990s, a period of overall economic growth. The other figures in Exhibit 2 show that this rising ratio resulted not only from lagging income growth among those at the bottom, but also from housing costs that increased more rapidly than those in any other income group, especially toward

the end of the 14-year period.[9] Because of the problems with the AHS income estimates, mentioned earlier, it is noteworthy that the CPS income figures corroborate those from the AHS in indicating that the bottom income quintile had the slowest income growth during those four years. As will be described later, at least part of the lagging income growth of the lowest quintile of renters is attributable to "cream skimming" of low-income renters into homeownership during this period.

Another perspective on the increases in costs at the low end of the rental market is provided by the distribution of all rental housing units by rent and utilities. Exhibit 3 provides these estimates, in which all rents have been adjusted, using the CPI rent index, to 1999 equivalents. The changes in the distribution are not dramatic, but consistent with the figures above, there are small reductions in the percentage of units in the two lowest rent categories.

Exhibit 3: Distribution of Occupied Rental Housing by Inflation-Adjusted Housing Costs

cost range (1999$)	Percentage Distribution of Rental Units 1985	1995	1999
<300	13%	13%	12%
300-399	11%	10%	10%
400-499	14%	14%	15%
500-599	16%	16%	17%
600-699	14%	13%	14%
700-799	10%	11%	11%
800-899	7%	8%	7%
900+	14%	15%	15%
Total	100%	100%	100%
# of units (millions)	30.2	32.1	32.2

Source: author's tabulations from the American Housing Survey; figures are for total housing costs for units occupied by cash renters.

The figures in Exhibit 3 appear at odds with those of other analysts who have found sharp reductions in the share of the rental stock available at low rents. The difference apparently arises from utilities expenses billed separately from rent, which are included in Exhibit 3 but may not have been in some previous analyses. These utilities expenses have risen less rapidly than rents, as mentioned previously. In 1985, rent was 83 percent of total housing costs for

[9] The finding that low income renters had the biggest increase in housing expenditures holds for "contract rent" as well as for the utility-inclusive "housing cost" measure shown in Exhibit 2.

the median cash renter, but by 1999 rent was up to 90 percent of the total cost, despite the fact that electricity and natural gas were more likely to be paid for separately in 1999 than in 1985. When Exhibit 3 is produced for contract rent only, the percentage of units below $300 in constant dollars goes from 25 percent in 1985 down to 15 percent in 1999. Inclusion of utility expenses in renters' housing costs seems the more appropriate practice for analyzing affordability.

A third approach to disaggregating the rental market by income relates the costs of rental housing, and the incomes of renters, to the local area's median income (AMI). This approach is common in policy analysis, for example in HUD's "Worst Case Needs" reports, in part because eligibility for major housing assistance programs is set by household income relative to median incomes in the local area. "Local area" is defined as a metropolitan area or non-metropolitan county. Specifically, a household's maximum allowable income for program eligibility is often set as a percentage of the AMI. In addition, the stock of housing in a local area is often characterized by its "affordability" by comparing rents to AMI and estimating, for example, the percentage of the rental housing stock that can be rented by households with 60 percent of the area median income without them spending more than 30 percent of their income on rent plus utilities. The distribution of the housing stock by rent relative to AMI is the result of both demand and supply influences on rents. Similarly to housing units, households can be categorized by their incomes relative to the AMI. Unlike the stock distribution, the distribution of households by income is purely a demand indicator. Comparing the distribution of the stock by rent to the distribution of renter households by income provides a market level indication of the affordability match between the incomes of rental housing consumers and current pricing in the local rental housing market.

Area median income has both advantages and disadvantages as a metric for measuring housing demand, supply, and affordability. Its main advantage is its sensitivity to local area differences in incomes and family size. Among its weaknesses, AMI does not adjust for geographic differences in the cost of living (most importantly, the cost of housing). Higher income areas in general have higher consumer prices, but the relationship is far from precise. In addition, the choice of appropriate geography for AMI calculations is subjective, and AMI can be difficult to estimate accurately for all local areas in the country every year. Ad hoc adjustments and definitional changes over time further weaken AMI for purposes of affordability tracking.

A final cautionary note in interpreting the AMI-based statistics described below is that, although the local area AMIs used for 1995 are close approximations to the actual values used in HUD program operations, the AMI values in the AHS data base for 1985 and 1999 are estimates derived by adjusting the 1995 values down and up by the national CPI. The implications of this procedure are that local and regional variation in income growth between 1985 and 1999 is not

captured by the estimates, and that inflating by the CPI will understate AMI in periods when incomes have been rising faster than prices, which was the case especially between 1995 and 1999, when median household income for the nation rose 19.0 percent and consumer prices rose only 9.3 percent.

Keeping all these measurement issues in mind, we turn now to some AMI based affordability indicators for rental housing. For the nation as a whole, the distribution of the stock of rental housing by rent relative to AMI has not changed much since 1985, as shown in the top panel of Exhibit 4. [10] The largest change is the three percentage point drop in the share of units in the lowest AMI category. The percentage of renter households in this lowest AMI category also declined during this period, leaving the ratio of renters to units little changed with about 30 percent more renters than housing units in this lowest category.

Rental housing affordability for families with children, especially larger families, is a particular challenge in many local markets, according to anecdotal accounts. It is surprising therefore to see in the second panel of numbers in Exhibit 4 that the proportion of 3+ bedroom units affordable to households with less than 30% of AMI actually exceeds the corresponding proportion for the entire stock. Many of the occupants of these large, low cost units tend to be higher income households, judging from the low ratio of renters to units in the lower AMI categories. In interpreting these figures on renter characteristics in large units, remember that many of these residents are smaller households that just want more space.

[10] The statistics in Exhibits 4 and 5 are similar to tabulations appearing in HUD's Worst Case Needs reports and other analyses. However, due to recent corrections to the AHS data and AMI estimates, the figures in these two exhibits will not match those available elsewhere.

Exhibit 4: Rental Housing Units and Renter Households, by Area Median Income (AMI) Category

National Totals	Rental Units (including vacant)			Renter Housholds (top category is 100.1%+ AMI)			Ratio of Renters to Units (top category is 100.1%+ AMI)		
	1985	1995	1999	1985	1995	1999	1985	1995	1999
LTE 30.0%AMI	19%	18%	16%	26%	25%	23%	1.30	1.33	1.31
30.1-50% AMI	28%	26%	25%	17%	17%	17%	0.54	0.62	0.64
50.1-60% AMI	17%	18%	18%	8%	8%	8%	0.45	0.39	0.39
60.1-80% AMI	24%	26%	26%	12%	13%	13%	0.47	0.48	0.46
80.1-100% AMI	9%	9%	9%	17%	16%	17%	1.73	1.66	1.61
100.1-120% AMI	3%	3%	3%	20%	20%	23%	4.91	4.78	3.19
120.1%+ AMI	1%	1%	4%						
Total Percent	100%	100%	100%	100%	100%	100%	0.92	0.92	0.91
Total Number (mill.)	35.1	36.9	37.4	32.3	34.1	34			
Large Units (3+ bedrooms) only									
LTE 30.0%AMI	26%	26%	22%	23%	22%	20%	0.85	0.82	0.84
30.1-50% AMI	26%	24%	23%	16%	16%	15%	0.56	0.63	0.63
50.1-60% AMI	13%	13%	15%	9%	7%	7%	0.64	0.54	0.47
60.1-80% AMI	20%	23%	21%	12%	13%	12%	0.57	0.56	0.55
80.1-100% AMI	11%	11%	10%	17%	18%	18%	1.55	1.54	1.71
100.1-120% AMI	3%	3%	4%	23%	23%	26%	5.33	5.91	2.90
120.1%+ AMI	1%	1%	5%						
Total Percent	100%	100%	100%	100%	100%	100%	0.94	0.95	0.94
Total Number (mill.)	8.2	9.0	8.7	7.8	8.5	8.2			
Central City Locations									
LTE 30.0%AMI	17%	17%	14%	32%	30%	26%	1.69	1.67	1.68
30.1-50% AMI	30%	28%	27%	16%	17%	19%	0.50	0.56	0.63
50.1-60% AMI	18%	18%	18%	8%	7%	7%	0.42	0.35	0.37
60.1-80% AMI	23%	24%	25%	12%	13%	12%	0.45	0.48	0.45
80.1-100% AMI	8%	9%	8%	14%	15%	15%	1.68	1.56	1.60
100.1-120% AMI	3%	3%	3%	18%	18%	21%	4.14	3.86	2.74
120.1%+ AMI	1%	2%	4%						
Total Percent	100%	100%	100%	100%	100%	100%	0.92	0.92	0.91
Total Number (mill.)	16.7	16.8	17.2	15.3	15.4	15.6			
Suburban Ring Locations									
LTE 30.0%AMI	15%	14%	13%	19%	20%	19%	1.20	1.31	1.36
30.1-50% AMI	24%	22%	21%	16%	17%	16%	0.61	0.72	0.70
50.1-60% AMI	17%	19%	19%	8%	8%	8%	0.44	0.41	0.39
60.1-80% AMI	29%	31%	30%	12%	14%	13%	0.40	0.42	0.40
80.1-100% AMI	12%	11%	11%	21%	18%	19%	1.67	1.63	1.59
100.1-120% AMI	3%	3%	3%	23%	22%	25%	5.41	5.73	3.39
120.1%+ AMI	1%	1%	4%						
Total Percent	100%	100%	100%	100%	100%	100%	0.92	0.93	0.92
Total Number (mill.)	12.5	13.9	13.8	11.5	13.0	12.8			
Non-Metro Locations									
LTE 30.0%AMI	30%	27%	26%	26%	24%	21%	0.80	0.80	0.72
30.1-50% AMI	32%	29%	28%	19%	19%	17%	0.54	0.59	0.54
50.1-60% AMI	13%	16%	15%	8%	8%	8%	0.54	0.47	0.46
60.1-80% AMI	17%	18%	19%	14%	14%	15%	0.77	0.72	0.66
80.1-100% AMI	6%	7%	8%	14%	16%	15%	2.18	2.16	1.73
100.1-120% AMI	2%	2%	2%	19%	20%	24%	6.47	5.87	4.24
120.1%+ AMI	1%	1%	2%						
Total Percent	100%	100%	100%	100%	100%	100%	0.92	0.92	0.87
Total Number (mill.)	6.0	6.2	6.5	5.4	5.7	5.6			

Source: tabulations of AHS and median income data by HUD, Millennial Housing Commission, and author.

Affordability has evolved somewhat differently in central cities, suburbs, and non-metro areas. In both cities and suburbs, the proportions of rental units in the two lowest AMI categories have declined over time, but the changes in the incomes of renters have been mixed. As a result, the ratios of renters to units in the lowest AMI categories have increased. Compared to metro areas, in non-metro areas incomes are higher relative to housing costs, and as a result the renter/unit ratios are lower in the low AMI categories than what is found within metro areas. And the reduction in the non-metro, low-AMI ratios over time indicates than non-metro renter incomes continue to rise relative to their housing costs. By this measure, affordability is considerably greater outside of metro areas than within, and that advantage has been increasing over time. The city/suburb/non-metro disaggregation in the table only hints at the geographic variation in housing conditions. Changes in affordability across states is a focus of research being done for the Millennial Housing Commission by George Masnick.

Comparisons of the rent distributions of units with the income distributions of renters gives a useful overview of the rental market and changes over time, but these comparisons do not match individual units and households. For example, some of the occupants of housing in one of the AMI categories will be households in higher or lower AMI categories. This fact has been used by some analysts in developing the concept of "available" housing, which is defined as units in an AMI category that are not being occupied by households from a higher AMI category. While a helpful additional indicator of affordability, this "availability" measure places even more weight on the unavoidably arbitrary and oversimplified 30 percent of income "rule" for housing affordability. The available-units measure also implies an absolute restriction on access to units by renters if those units are occupied by higher-income households, whereas in fact higher bid rents could secure those units for the lower-income households, admittedly through a higher income allocation to housing. Despite these shortcomings, changes in "availability" over time can provide an additional perspective on affordability trends. Consistent with the statistics in Exhibits 2 through 4, this tabulation (Exhibit 5) indicates some reduction in "availability" of rental housing between 1985 and 1999 to renter households below 50 percent of AMI, with almost all of the reduction occurring between 1995 and 1999.

An alternative method of matching rental units and households is to divide the occupied rental stock into rent quintiles cross-tabulated by occupant household income quintiles. This approach avoids some of the uncertainties regarding the estimates of AMI described above. These tabulations (results not shown) also indicate some change in occupancy between 1985 and 1999. For example, in 1985 fifty percent of the rental units in the bottom fifth of the rent distribution were occupied by households in the bottom fifth of the renter income distribution. The rest were occupied by renters with higher incomes. In 1999 only 45 percent of the low rent units were occupied by low income households. These results, which are similar within each of the four regions, provide additional evidence of

the changing matching of households and rental housing between 1985 and 1999.

Exhibit 5: Rental Housing "Availability" by AMI Category

	Percentage of Rental Units Not Occupied by a Household in a Higher AMI Category		
	Year		
	1985	1995	1999
LTE 30.0%AMI	61	61	54
30.1-50% AMI	63	62	60
50.1-60% AMI	56	59	57
60.1-80% AMI	59	61	60
80.1-100% AMI	59	59	61
100.1-120% AMI	62	59	61
120.1%+ AMI	100	100	100

Source: tabulations of AHS and median income data by HUD, Millennial Housing Commission, and author.

To summarize these rental market developments, there has been little overall change in rental housing affordability since 1985. Average rents and incomes have increased about proportionally, and rents relative to the CPI suggest that rental housing quality overall is little changed.

The exception to this story is the lowest fifth of the rental market (as measured by renters' income), where above average housing cost increases and below average income increases have combined to raise rent/income ratios. This different performance at the very bottom of the rental market shows through with a variety of analytic approaches.

The national numbers average across very diverse local markets. There are metro areas housing costs have risen more rapidly than incomes, not only for poor renters but for the rental market overall. But the national figures suggest that for every local market where affordability has deteriorated, there is another where affordability has improved.

One cautionary note is that a single data resource – the American Housing Survey – has provided the data for most of the detailed national tracking of renters' housing conditions during the 1990s, not just in this paper but throughout the research literature. Like any survey, it is subject to a variety of potential errors, despite the care with which it has been designed and fielded. It will be important to corroborate the AHS picture of rental housing affordability with the rent and income data from Census 2000 when it becomes available next year.

B. Homeowner Affordability Trends

Homeownership affordability is much more difficult to measure and interpret than is rental affordability, because of tax, capital gains, and transaction cost considerations that significantly affect the cost of homeownership. While the after-tax economic cost of housing for renters is closely approximated by their monthly cash outlay, that equivalence is rarely the case for owner-occupants.

Different indicators and measures of homeownership costs are appropriate for different purposes. House prices and monthly cash outlays are elements of homeownership costs, and because they are readily available, these indicators are the most commonly used. One popular approach for tracking "cash flow affordability" compares the mortgage payments for a typical house to the income of a typical household. Economists and mortgage lenders consider both the downpayment, or wealth, constraint on home purchase and also the cash flow, or income, constraint. But only a comprehensive measure of home ownership costs that includes tax considerations, capital gains and losses, and the transactions costs of getting into and out of a house (sales commissions, recording fees, transfer taxes, etc.) can capture the true economic cost of home ownership.

Furthermore, whether a household is a prospective home buyer or already an owner-occupant has implications for analysis of ownership affordability. The issues pertaining to "qualifying" for a mortgage for home purchase are different from those facing homeowners whose incomes or mortgage payments change during their period of ownership.

With these cautions in place, this section offers some indicators of trends in homeownership affordability, beginning with house prices.

House price increases have, on average, exceeded overall consumer price increases since 1985 and also for the recent period 1995-1999. That finding holds for a variety of house price measures shown in Exhibit 6: owners' estimates of house value, sales prices of new and existing homes, and price indexes that adjust for changes over time in the mix of houses sold. Home owners on average overestimate the value of their houses, but the bias may not have changed much over time, in which case the change measures used here are more reliable. More generally, no one of these price measures is ideal for all purposes, but as a group they provide strong evidence that house prices have outpaced inflation.

House price increases have generally exceed homeowners' income gains as well, although the differences here are generally smaller and, for 1995-1999, depend on the source of the income estimates. Consistent with these growth trends, the median ratio of house value to income for home owners has increased slightly over time, as shown in the bottom panel of Exhibit 6.

House prices and incomes among recent home buyers present a more focused look at market conditions, because the all-owner numbers reflect income and house price changes that occurred subsequent to the purchase, as well as those at the time of purchase. As shown in the middle and bottom panels of Exhibit 6, house values of recent home buyers have exceed the income gains of that group of owners, and the ratio of house value to income has risen in recent years to a level close to that for all owners.

Changes in house prices and incomes across income groups show few clear patterns (Exhibit 7). As estimated by their owners, house values increased at somewhat increased at somewhat different rates by market segment and time period. Similarly, income growth show no persistent pattern by income. The ratio of house values to income rose over the period for all but the highest income group.

Exhibit 6: House Prices and Homeowner Income

	Average Annual Percentage Change 1985-99	1995-99
All Owners		
median house value	3.6%	2.6%
median sales price:		
existing house	4.1%	4.7%
new house	4.7%	5.3%
OFHEO Price Index	4.1%	4.5%
New Home Price Index	3.2%	3.0%
CPI total (CPI-U)	3.1%	2.2%
median income (AHS)	3.7%	3.4%
median income (CPS)	n/a	4.5%
Recent Buyers		
median house value	4.3%	5.5%
median income	3.5%	3.5%

Ratio of House Value to Owners' Household Income

	Year 1985	1995	1999
all home owners	2.08	2.19	2.17
recent buyers	1.89	2.01	2.15

Sources: author's tabulations from the American Housing Surveys and Current Population Surveys; Office of Federal Enterprise Oversight; U.S. Bureau of the Census

Notes: Recent Buyers are those who reported moving in to their owner-occupied home in the year prior to the AHS.

Unlike house prices, cash flow measures of homeownership costs explicitly consider the debt financing costs of home purchase, which is an important consideration since over 90 percent of all home purchases use mortgage financing, and the loan-to-value ratio on these purchases have averaged roughly 70 percent since 1985.

Exhibit 7: House Values, Value/Income Ratios, and Home Ownership Rates by Income Group

	Average Annual Percentage Change	
	1985-99	1995-99
Median House Values of Owner-Occupants		
Income Quintile Among Owners		
lowest	4.7%	3.9%
second	4.1%	4.0%
third	4.3%	5.0%
fourth	4.1%	3.6%
highest	3.6%	2.6%
total	3.6%	2.6%
Owners' Median Household Income		
Income Quintile Among Owners		
lowest	3.6%	4.4/4.1%
second	3.4%	3.7/4.1%
third	3.7%	3.6/4.4%
fourth	3.9%	4.0/4.8%
highest	4.3%	4.3/5.0%
note: the two percentages for 1995-99 above are the AHS- and CPS-based estimates.		

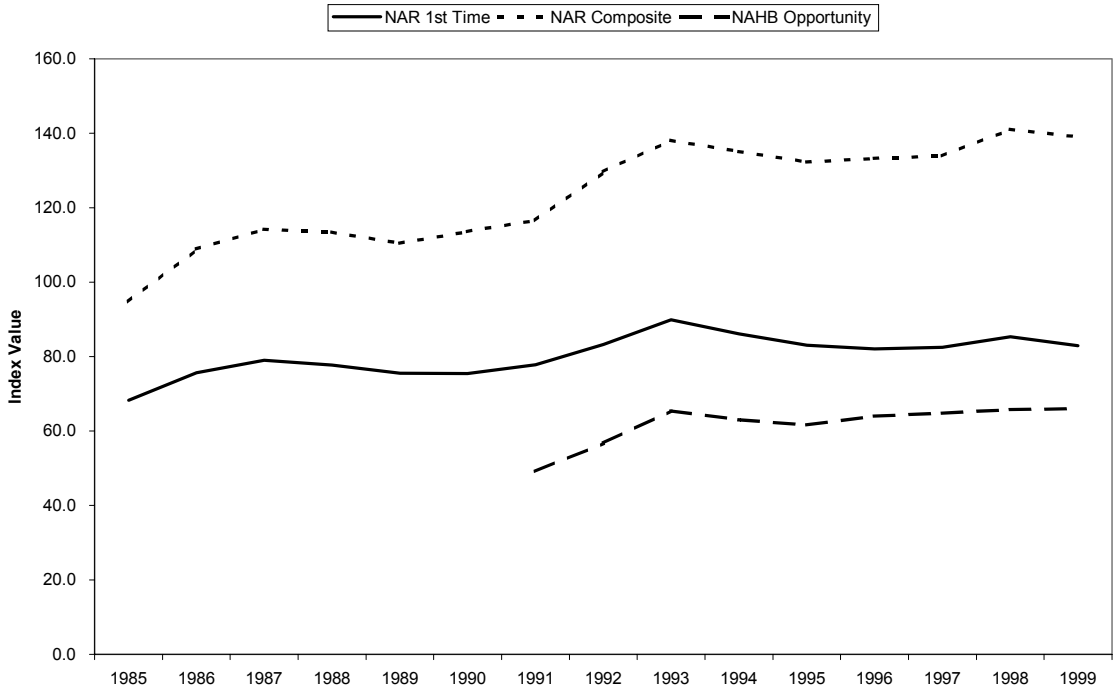
	Year		
	1985	1995	1999
Ratio of House Value to Owners' Household Income			
Income Quintile Among Owners			
lowest	2.50	2.99	2.93
second	2.33	2.56	2.59
third	2.20	2.27	2.40
fourth	2.13	2.20	2.16
highest	2.31	2.25	2.10
Home Ownership Rates by Income Quintile			
lowest fifth	42.5%	44.7%	48.5%
second	53.5%	54.5%	55.2%
third	63.1%	63.2%	64.1%
fourth	73.5%	74.6%	77.8%
highest fifth	85.6%	88.8%	89.4%
total	63.5%	65.0%	66.9%

Source: author's tabulations from the American Housing Survey.
Note: income quintiles for home ownership rates are computed from all households.

Indexes of cash flow affordability of house purchase have been developed by a number of researchers, including those at the national Association of Realtors (NAR) and the National Association of Home Builders (NAHB). In general these indexes compare the monthly mortgage payments on a house purchased during a given period with the incomes of prospective home buyers during that period. The indexes have been generated for specific market segments, notably first time home buyers, and also for different areas of the country.

Three of these indexes are shown in Exhibit 8. The computational details will not be reviewed here but are available at the Web sites of the source organizations. What is noticeable in the chart is that all three indexes showed increases in affordability between 1985 and 1993, and little change since then. This improvement came during a period in which, as shown earlier, the rate of increase in house prices exceeded that of incomes. The affordability gains are the result of sharp declines in mortgage interest rates during this period. The interest rate on long-term fixed rate mortgages, for example, dropped 450 basis points (four and a half percentage points) between 1985 and 1995, and an additional 50 basis points between 1995 and 1999.

Exhibit 8: Cash Flow Affordability of Home Buying



Comprehensive measures of ownership costs include not just these cash flow considerations, but also taxes, capital gains, and the transactions costs of house

purchase and sale. Clearly it became easier to buy into homeownership between 1985 and 1999; whether it became less costly from a comprehensive cost perspective is a question the answer to which depends very much on time and place, because of the dominant role of house price changes subsequent to purchase in the comprehensive cost calculation and the widely varying house price trends from place to place during the past 15 years.

Unlike in the rental market, low income homeowners do not seem to have been on a substantially less favorable affordability path than higher income owners. Income and house value growth show no large and consistent differences by income group, and changes in cash flow affordability for first-time (and presumably lower average income) home buyers have generally paralleled those of higher income home owners. Perhaps the strongest indicator of steady or improved home ownership affordability for low-income households is the rising home ownership rate among households in the bottom 20 percent of the income distribution.[11]

More generally, judging from homeownership rates, homeownership affordability may have been increasing relative to rental affordability. Homeownership increased between 1985 and 1999 in each of the income groups (refer back to the bottom panel in Exhibit 7). But this interpretation cannot be definitive, because the ownership rate depends on factors other than the relative cost of owning and renting. One in particular is the aging of the population. Home ownership becomes a more appropriate housing choice as mobility requirements related to employment and family size changes subside and as savings are accumulated for downpayments.

IV. Reasons for the Changes in Affordability

Housing affordability is a measure of housing costs relative to incomes. Changes in affordability since 1985 are the result of changes in both costs and incomes. The causes of changes in affordability therefore are the same as the causes of changes in housing costs and incomes. Here the focus will be on the reasons for housing cost changes. Changes in the level and distribution of incomes are broader macroeconomic and public policy issues outside the scope of this analysis.

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[11] The increase in homeownership among low-income households helps explain the below-average income growth in the lowest quintile of renters. Those low income renters who shifted to home ownership were probably not the poorest of the poor. Supporting evidence comes from changes in the median income of the lowest quintile of renters relative to the median of the lowest quintile of owners. In 1985 the renters' median was 55 percent of the owners' median but by 1999 the figure had dropped to 50 percent. This selection effect on the income growth of the lowest quintile of renters may account for most of the shortfall in the group's income growth below that of other households, because income growth for the lowest quintile of all households (combining owners and renters) averaged only a tenth of a percent below the all household figure of 3.6 percent over this period

Income is, however, a determinant of housing costs, in as much as aggregate income in a local market affects housing demand and, absent fully elastic supply, will influence housing costs. More generally, rents and homeownership costs are set in markets by both demand and supply factors.

Housing costs are determined in a market setting, but one that is subject to various government influences. Much has been written about the effects of various government policies and programs on housing, including housing affordability. The roles of government in influencing housing affordability differ by the level of government. In general,

- the federal government is the program designer and financier;

- state governments are the gate keepers who provide legislative authority to local jurisdictions and allocate funds from some federal and state revenues; and

- local governments are the enablers/implementers that run or oversee programs and control development through zoning and building codes.

Some government incentives and restrictions promote affordability, and others deter it. But all of these government influences ultimately affect housing affordability by altering housing demand, housing supply, or both.

A. Demand Influences on Housing Costs

Housing demand obviously has grown since 1985. Calibrated in terms of perhaps the two most fundamental demand determinants, the number of U.S. household grew 19 percent between 1985 and 1999, and their median inflation-adjusted incomes rose 8 percent.

The magnitude of the increase in housing demand has varied enormously by geography and market segment, as has been amply documented by many studies of migration and changes in household composition. The only point to note here is that the local area effects on housing costs can be substantial. For example, in slow-growing Pittsburgh, rents increased 46 percent between 1985 and 1999, according the CPI, whereas fast-growing Atlanta saw rents rise 61 percent over that period. Weak housing demand, while not generally a positive economic or social indicator, can enhance housing affordability by reducing the market price of housing. But even this price advantage is at least partially offset by the lower incomes implied by the weak housing demand and, over time, by less new construction.

For homeowners, the cost of mortgage finance is an important component of overall housing costs, Homeowner costs have benefited from reductions in mortgage interest rates mentioned above.

The most visible government influence on housing demand is in the rental market and comes through direct cash assistance to renters through the Section 8 program and other programs in which government pays part of the household's rent. "Tenant-based" Section 8 assistance doubled in the number of assisted households between 1985 and 1999, reaching about 1.6 million by 1999. "Project-based" Section 8, with the subsidy tied to a specific project, grew far less over the period, increasing 15 percent in number of assisted households to about 1.4 million in 1999. With other Federal direct assistance programs either shrinking or holding steady in number of assisted households, Section 8 accounts for all of the net growth in rental units eligible for assistance through major HUD-administered programs. Edgar Olsen estimates that this count increased from 4.1 million units in 1985 to 4.8 million in 1999, an increase of 16 percent during a period in which the number of rental housing units nationwide increased about 7 percent to 37.4 million.

Although not the most visible, by far the biggest injection of subsidy to housing demand comes from the preferred Federal tax treatment of owner-occupied housing. That tax treatment is viewed as a subsidy by economists because it permits some major expenses of ownership to be deducted from taxable income as if ownership were a business without taxing the value of services received (the implicit rent) by the homeowner or the capital gains on the resale of the house. As measured by lost tax revenues, this demand subsidy has grown an inflation-adjusted 90 percent between 1985 and 1999, according to IRS statistics. Most of this subsidy goes to higher income households.

B. Supply Influences on Housing Costs

The stock of housing today, and its cost to consumers, is partly the result of production, renovation, and maintenance decisions made by housing suppliers since 1985. These decisions in turn have depended in part on the cost of building and operating that housing.

Construction and operating expenses for rental housing appear to have increased less than prices in general since 1985. Compared to the CPI's annual average increase of 3.1 percent, construction materials prices rose at a 2.0 percent rate according to the Producer Price Index, and construction wages rose at 2.4 percent. The Census Bureau's construction cost index rose at a 3.1 percent rate, and the building cost index of the Engineering News Record rose at a 2.5 percent rate.

Financing cost reductions have benefited producers of housing, just as they have homebuyers. Construction loans and permanent financings of multifamily rental

properties were available at lower interest rates in 1999 than in 1985, although qualification standards have tightened.

Operating costs too were fairly well constrained over this period. As mentioned earlier, utilities' expenses rose much less than prices in general, and the wages of service workers rose at a 3.8 percent annual rate, slightly above overall inflation. Technological advances in telecommunications and elsewhere have also contributed to cost savings and improved service quality in the housing industry as they have in most other sectors of the economy.

Land costs are an important but hard-to-measure component of total housing development costs. For single-family detached housing, land typically accounts for 20-to-40 percent of total development cost, and a lower percentage is applicable to higher density multifamily development. As the one factor of production that is fixed in supply, land costs have risen more rapidly than other costs of producing and operating housing in many local areas, but national estimates are unavailable.

Government influences on housing supply and costs take several forms. Of programs providing direct production subsidies, the Low Income Housing Tax Credit Program has been the biggest since the late 1980s and has provided financing on about 20 percent of all multifamily rental production since the early 1990s. If all of the LIHTC-financed units built since the program's 1986 inception through 1999 are still in the housing stock, they total about 690 thousand units, or just under 2 percent of the nation's rental units. Another supply side government influence comes through mortgage interest subsidies that are provided to both owner-occupants and rental housing providers through tax exempt mortgage revenue bond issuance and certain FHA programs.

Local government is often overlooked in discussions of government's impact on housing affordability. But through various supply-side channels, local government may have the greatest impact of all. Zoning, building code enforcement, and property tax rates are all set by local governments and are major determinants of what can get built and how much it will cost. It is unclear whether local government policy overall has become more or less supportive of affordable housing since 1985, and the story undoubtedly varies from place to place.

To summarize this discussion of supply side factors, since 1985 the input factors for production and operation of housing have, with the possible exception of land costs, been supportive of housing affordability, in the sense that these costs have generally risen less than the overall rate of inflation. The government's net influence is less clear. Major federal assistance programs for producing rental housing have expanded (as measured by assisted households) more rapidly than the overall rental housing market, although the proportion of households assisted remains low. And local governments' direct supportive role through their

own and their sponsored non-profits' housing assistance programs may have been more than offset by their land use and tax policies.

C. Construction of Affordable Housing

It is intuitive to think of new construction as a tool for increasing the stock of housing affordable to low- and moderate income households. In practice, however, market realities and government restrictions make it extremely unlikely that for-profit development will occur at "affordable" rents absent incentives or requirements from government. A model of production of affordable housing, developed in the appendix, illustrates the extremely narrow window for market-rate construction of moderate quality housing available at below average rents.

Some analysts and commentators have alluded to the "low" level of multifamily construction during the 1990s as a contributor to rising rental housing costs. But from a market perspective the volume of multifamily housing production during the 1990s – about halfway in between the tax-induced and S&L-enabled overbuilding of the 1980s and the credit-crunch-aggravated recessionary lows at the beginning of the 1990s -- was at a level consistent with long run demographic growth in multifamily demand and the need to replace units demolished or otherwise lost from the multifamily rental stock. In this sense, multifamily production was just about "right." Additional evidence that production for the nation overall was about "right" from a market perspective comes from rent increases and occupancy rates of the late 1990s, which did not suggest severe market tightening or supply shortages or, for that matter, any general overbuilding.

Furthermore, the multifamily rental construction of the 1990s came at all rent levels despite significant skewing toward the top end. (See the last exhibit in the appendix for the rent distribution of units completed in 2000). Production at the moderate rent range targeting households at about 60 percent of median income was boosted by production subsidies from the Low Income Housing Tax Credit Program, which as mentioned has accounted for about 20 percent of total multifamily rental construction in recent years.

D. Summary Interpretations

Housing demand has increased for the nation overall and in most locales and market segments since 1985, putting upward pressure on housing costs. The income gains that have contributed to these rising costs have at the same time improved households' ability to pay for, or afford, housing. Governments' influence on housing demand and demand related cost pressures has not changed much over the past 15 years: The number of assisted renter households has increased more rapidly than the rental market overall, but assisted rental units remain a small percentage of the overall rental housing

stock. By far the biggest government demand-side subsidy continues to be the tax advantages bestowed upon upper-income owner-occupied housing.

Government features more prominently in supply-side influences on housing affordability. Since the mid-1980s, the LIHTC program has been the biggest production subsidy program. But offsetting this and other production subsidy programs of federal, state, and local governments have been land use and building code constraints on housing that can be built and retained in the stock and the price at which it can be offered. It is unclear whether these constraints have tightened in recent years for the nation overall, but even if they have not, growing housing demand has made them more binding.

These demand and supply, market and government, influences have together resulted in the observed changes in housing affordability. Of all the income and tenure groups examined, low-income renters are the only group whose affordability problems have clearly worsened. The deterioration has resulted from the group's above average increase in housing expenditures since 1985 combined with the group's below average growth in income. Their above-average increase in housing expenditures by this group seems unlikely to have been discretionary, given their already high allocation of income to housing in 1985. The more likely explanation is increased competition for low-rent units from higher income households, combined with land use and building code constraints on the amount of lower quality housing that can be built and retained in the stock.

III. The Future

What can be said about the outlook for housing affordability? The past offers some clues, although the ideas in this section are offered as nothing more than speculations based on that historical record, previous research, and the author's intuition. The discussion begins with a baseline case that assumes continuation of past trends in housing demand and supply and generally unchanged government policy. Following that are some speculations about affordability under alternative future economic and policy conditions.

A. Baseline Case

On the demand side, aggregate growth in the number of households and gradual long-run increases in average real incomes seem highly likely. Almost all observers expect household growth to average between 0.5 and 1.5 percent annually, and smoothing through economic booms and recessions, real

household income growth of roughly 0.5 percent annually seems a reasonable expectation in light of past experience.

The more detailed the disaggregation of the population, the more difficult it becomes to confidently predict a future. But there is no obvious reason to doubt that the population will continue to grow older on average, with smaller household sizes, and a geographic distribution that continues to shift toward the sunbelt. It is less obvious whether large or small metropolitan areas will grow more rapidly. Within metros, continued suburban expansion seems a certainty, although deceleration of periphery growth and new pockets of in-town vitality seem quite likely to occur as well. Demographic projection produced for the Millennial Housing Commission by George Masnick highlight the importance of minority households in the future growth of both the rental and owner-occupant markets.

Future changes in the income distribution will be important for the course of affordability. Whether income growth will continue to lag among low-income renters is uncertain, and how that income translates into after-tax purchasing power will depend in part on fiscal policy.

Mortgage finance has been a major contributor to improved cash flow affordability of home purchase since 1985, mostly through lower interest rates but also through more efficient underwriting. Most of those gains may now be behind us, if only because interest rates can go only so low.

The baseline assumption of continuation of current levels of cash assistance to renters implies a declining proportional impact on low-income rental demand, while unchanged tax policy will bring an increasing annual subsidy to homeowners, especially those of higher incomes.

On the supply side, land seems likely to increase in real price, if only because it is fixed in supply. But the other input factors to housing production and operation will continue to increase in cost at rates averaging no greater than economywide inflation, if history is any guide.

Regarding government influences on housing supply, production subsidy programs will continue to play a role in promoting affordability. But a larger influence will be that of local governments, which through land use regulations and building codes have a controlling influence over both assisted and market rate housing. Additionally, though "smart growth' has many dimensions, housing affordability seems unlikely to be enhanced by new initiatives to control land use.

Overall, under a baseline scenario, it seem likely that the future will see both changes and some constants. Renters overall seem most likely to show little change, but those at the low end likely face building code and land use constraints on housing supply that will boost their housing costs and force them

to consume more housing than they would prefer. Among owners, further gains in cash flow affordability from reduced financing costs seem unlikely, and the responsibility will fall on improved income growth or lower house price inflation if cash flow affordability is to improve much more.

Lastly, the tradeoff between housing costs and commuting burdens will likely become more severe. Housing costs generally decline with distance from employment centers. With urban and suburban transportation networks increasingly stressed in many metropolitan areas, the challenge of finding affordable housing within a tolerable commuting time and cost will not get easier.

B. Alternative Futures

Several market and government variables are significant swing factors in the outlook for housing costs and affordability. Among demand influences, the volume and composition of immigration from abroad will have considerable impacts on housing demand and pricing in the metro areas and neighborhoods where immigrants first cluster. More generally, any shifts in migration and local mobility patterns are likely to increase housing costs in the places where population begins to grow more rapidly, and reduce housing cost hikes (at least initially) in places where population growth decelerates or turns negative. For prospective home buyers, spikes in mortgage interest rates would have large and immediate influences on the cash flow affordability of home purchase; this interest rate effect would likely be only partially offset by resulting reductions in house prices.

Compared to demand variables, private market supply determinants of housing costs seem less likely to offer future surprises, although breakthroughs in building technology or large changes in utilities costs would have significant effects on housing costs.

Direct government influences on affordability through subsidy programs seem confined by politics and fiscal realities to a fairly narrow band around current levels, at least in the near-term future. The same probably can be said about the federal tax treatment of owner-occupied housing. In the more distant future, the range of possibilities of course broadens.

In the near term, however, perhaps the most important changes in government influences on housing affordability, especially among low-income renters, can occur at the state and local level. The higher property tax rate typically applied to multifamily rental housing compared to single-family housing has a major influence on the rents that must be charged for apartments to remain in the housing stock. More generally, the land use and building code practices and policies of state and local governments have direct effects on what housing can be built and retained in the stock and the rents that must be charged to cover construction and operating costs. For local government to change its practices,

there must be a push from the citizenry, which in many jurisdictions are predominantly single-family home owners. Changing those citizen attitudes may be the biggest challenge of all.

Regardless of how the population, economy, and public policy evolve, housing affordability seems certain to remain prominent on the list of national issues. Housing will continue to be a major expense for most Americans, and government policy will continue to influence housing costs.

Selected Bibliography of Recent Studies of Housing Affordability

Dolbeare, Cushing N., "Perspectives on Renter Income and Affordable Units," memorandum posted on Millennial Housing Commission Web site, www.mhc.gov, September 2001.

Fannie Mae Foundation, *Reframing the Affordable Housing Challenge,* Annual Housing Conference Proceedings*, October, 2001.*

Lipman, Barbara J. et al., *Paycheck to Paycheck: Working Families and the Cost of Housing in America*, Center for Housing Policy / National Housing Conference, June 2001.

Nelson, Kathryn P. "What Do We Know About Shortages of Affordable Rental Housing?" testimony before the House Committee on Financial Services, Subcommittee of Housing and Community Opportunity, May 3, 2001

Nelson, Kathryn P. "Whose Shortage of Affordable Housing?" *Housing Policy Debate* Volume 5, Issue 4, 1994.

Olsen, Edgar O. "Housing Programs for Low-Income Households," National Bureau of Economic Research, Working Paper, April 2001.

Stegman, Michael A. *State and Local Affordable Housing Programs: A Rich Tapestry* Urban Land Institute, 1999.

U.S. Department of Housing and Urban Development*, Worst Case Housing Needs*: (annual reports to the Congress), www.huduser.org/publications/affhsg

About the Author

Jack Goodman is president of Hartrey Advisors, a provider of economic and demographic research to the real estate industry. He previously was Chief Economist at the National Multi Housing Council and has served on the research staffs of the Federal Reserve Board and Urban Institute and on the economics faculty at the University of Virginia. He has consulted overseas for the World Bank and USAID and has chaired the Planning and Housing Commissions of Arlington County, Virginia.

A Housing Market Model of Production of Affordable Housing

appendix to
"Housing Affordability in the United States:
Trends, Interpretations, Outlook"
by Jack Goodman
revised November 21, 2001

Market forces and regulatory constraints combine to severely limit the situations in which production of new housing affordable to low and moderate income households will occur without government intervention in the form of subsidies or mandates.

This reality can be illustrated by a model that captures features of the housing market that are particularly important for production of new housing:

- the importance of location in determining the costs and revenues of any development;

- the developer's decision to target the low-, middle-, or upper-income segment of the housing market; and

- the role of government in restricting and inducing production of affordable housing.

The model presented here uses specifics from the multifamily rental market, but the basic approach is equally applicable to the single-family owner-occupant market. It is a model of individual developer decision making in a metropolitan housing market where that developer has no control over market rents, land prices, or construction wages and materials costs.

Developer Decision Making

For-profit developers attempt to maximize profits. Profitability can be measured in different ways, all involving projections of the revenues and expenses of a project and a conversion of those future financial flows to their present values. For a multifamily rental property, the revenues are the rents, and the expenses are the construction costs (including site acquisition) and ongoing operating costs of the property. The Net Present Value (NPV) of a project, for example, is the discounted present value of the revenues of a project, less the discounted present value of the costs. A related measure of profitability, the internal rate of return (IRR), is the interest rate that equates the present value of the stream of

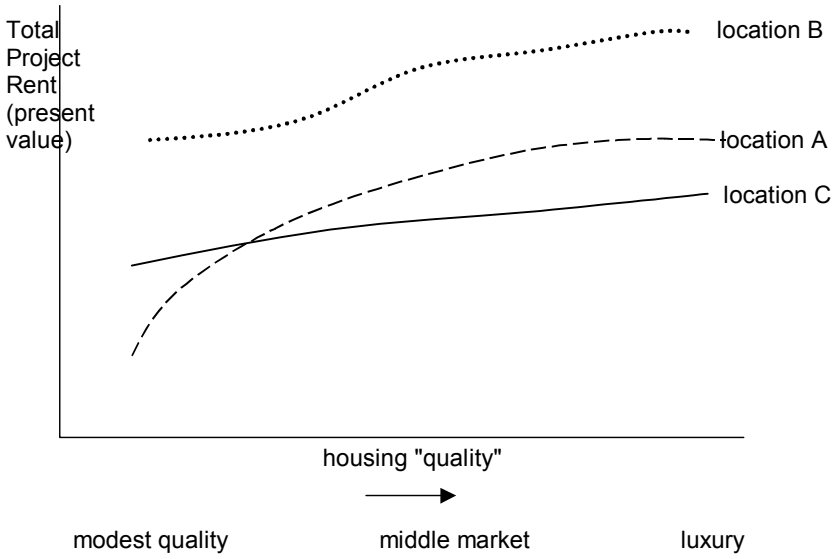
revenues from a development project with the present value of the costs over the expected useful life of that project.

While developers attempt to maximize profitability, they also have minimum requirements for profitability, set at any time by alternative investment opportunities for the capital the developer has at his disposal. When profitability is measured by IRR or some other percentage return, this minimum is referred to as the hurdle rate. If development at a site cannot provide a return meeting this hurdle rate, development will not proceed.

-- quality, location, and rent

The rent that apartments can command in the market depends on the characteristics of the apartment and its building, and also on the building's location. In Exhibit A-1 below, the three lines indicate the market rents for apartments at three different sites. Rents are shown here is the discounted present value ("pv") of rental revenues over the life of the project for all of the apartments in the project. (For simplicity, assume that every project discussed this appendix has 100 apartments.) The horizontal axis measures the "quality" of the apartments, a composite of unit size, construction and architectural quality, and amenities. In terms of market segments, this scale could be viewed as ranging from basic safe and sanitary housing through the middle market and up to the "luxury" market.

Exhibit A-1: Rent per Unit and Total Project Rent Vary with Quality and Location



Even within a metropolitan area, apartments of identical size and quality command widely varying rents, depending on the property's location. Accessibility to employment centers, recreational amenities, and transportation are determinants, as are municipal services and neighborhood prestige. And at a location, the sensitivity of rent to housing quality (indicated by the slopes of the lines in Exhibit A-1) will depend on the neighborhood balance of demand and supply of housing at different quality levels or market segments.

At site location A, rents increase rapidly with housing quality in the moderate range, but then the rent gains from further quality improvements diminish and nearly flatten, indicating that there is a maximum to the rent that people will pay for housing at location A, regardless of how luxurious that apartment and building may be.

Location B, more desirable to consumers because of neighborhood amenities or accessibility, commands higher rents than location A for any quality level, although the differential declines with further increases in quality. Finally, location C can get higher rents than location A for modest quality housing, but not for higher quality housing.

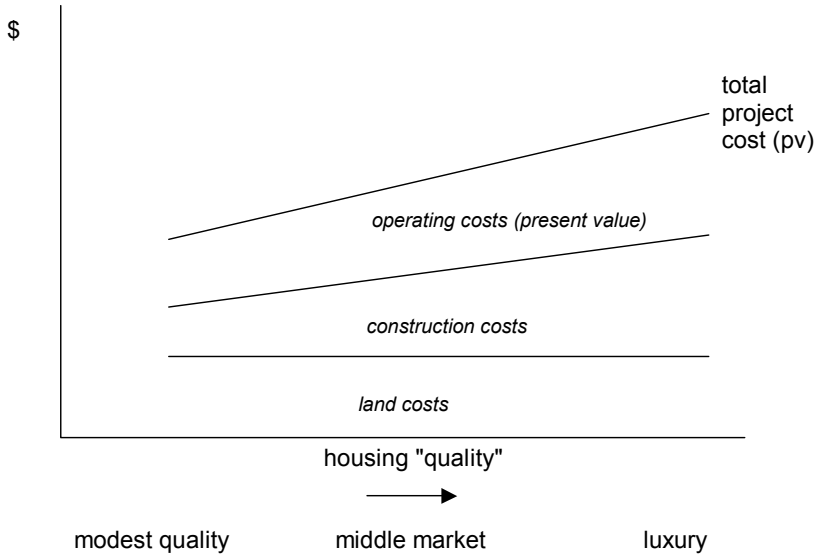
Exhibit A-1 illustrates how rent varies with both housing quality and location. The exhibit does not, however, show anything definitive about affordability, which is determined by rents relative to renters' incomes in the local market.

-- costs and profitability

Just as revenues vary with apartment quality and location, so do most costs. The first cost, however, varies only with location. That is the cost of the site. The land owner sets a price for the site based on the maximum the market will allow, and usually doesn't care who gets the site or what the buyer does with it. Land cost is then a flat line in Exhibit A-2 below. Although fixed at any site, land costs will be higher at more "desirable" sites.

Unlike land costs, construction and operating costs both will increase with housing quality. It costs more to build bigger and better apartments, and doormen and swimming pool maintenance are only two examples of how operating costs are higher at properties with more features and amenities. As with rents, costs are presented in the chart as present values; and they are stacked, so that the top line represents the total cost of building and operating the property. Total project costs will vary with both location and quality, similarly to rents.

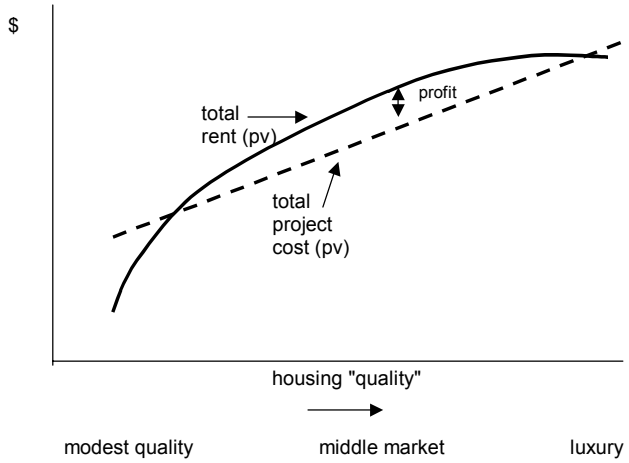
Exhibit A-2: Some Project Costs Increase with Housing Quality



The profitability of projects of different quality levels can be illustrated by combining the revenue and total cost lines from these two exhibits into one chart, Exhibit A-3. The total rent line in Exhibit A-3 approximates that of location A in Exhibit A-1, but could be drawn for any location. Profits, measured by the NPV, is simply the vertical difference between the revenue and expense lines, where both of these are shown as their present value (pv) equivalents. Rents and costs both increase with housing quality, but not necessarily at the same rate. Developers will build to the quality level that maximizes profits. (The model as presented assumes that the same number of apartment will be built at a site regardless of quality. If the number of units built declines as unit quality and size increase because of zoning constraints on total floor area buildable on the site, the project and site economics are as described here, but the per unit calculations have to be adjusted.)

The location in Exhibit A-3 depicts a common situation. At this site, apartment buildings do not cover their expenses unless they are built to at least a middle quality level, and an upper middle level is profit maximizing.

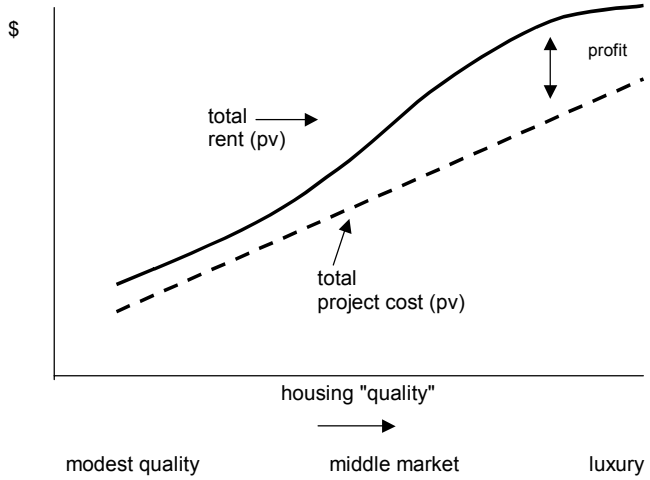
Exhibit A-3: Profit Varies with the Quality Level of the Development



-- what "The Market" will build

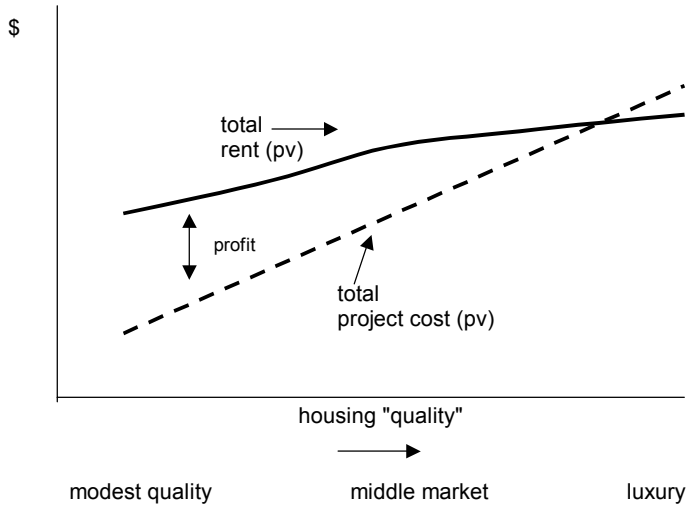
The model is useful for highlighting that properties of any quality may be profit maximizing, and which one is depends entirely on location as it affects both costs and revenues. Exhibit A-4 shows a site where costs can be covered at a moderate quality level, but profits are much higher at a luxury level, despite the higher project costs. Only at a third site, illustrated in Exhibit A-5, are the rent and expense profiles such that moderate quality housing can be expected to occur without government intervention. Even in Exhibit A-5, however, whether that moderate quality housing is affordable will depend on the rents charged relative to incomes of low- and moderate income households.

Exhibit A-4: Profit at Moderate Quality, More for Luxury Development



The developer may not build at all. There are many sites, perhaps most, for which no quality level has rents that exceed costs. Even if there are quality levels that will achieve this, the return may be inadequate to surpass the developer's "hurdle" or threshold level of profitability to proceed. Translated into the NPV measure, the hurdle rate is the minimum ratio of rent (pv) to cost (pv) that is acceptable to the developer.

Exhibit A-5: A Site Where Modest Quality Housing Development is Feasible and Profit Maximizing



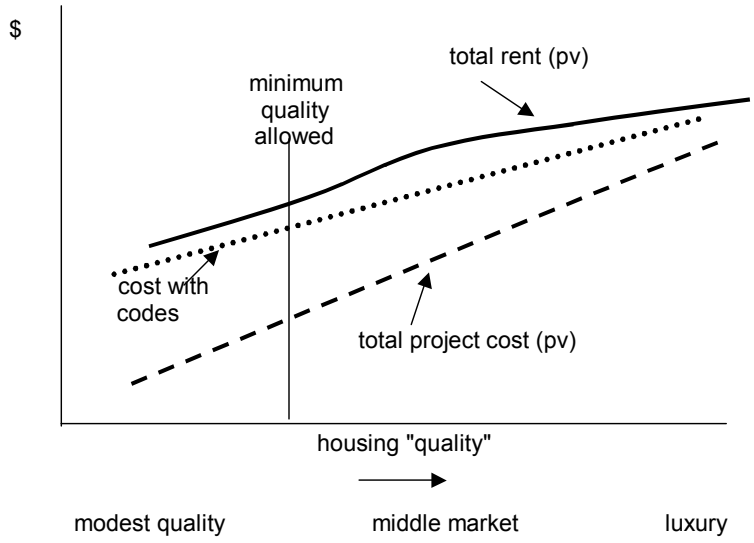
Indirect Government Influences

Government influences on production of affordable housing are both indirect and also project specific. The two biggest indirect influences are building codes and land use regulations. Building codes influence both the minimal quality level that can be built as well as its cost. Absent any regulation, lower quality housing could be built on any site, and the lines in the chart would extent further to the left. Codes that exceed what is required for safe and sanitary housing unnecessarily truncate the lower level of the quality spectrum Similarly, building codes increase the costs of providing housing of a given quality, and because the codes generally do not vary with market segment, the proportional effect on construction costs is greater at the low end of the quality range.

Land use regulations, most notably zoning ordinances, may drive up the cost of sites developable as multifamily housing, by restricting the supply. In terms of the charts here, government actions influence the height of the land cost line and therefore shift the total cost line up or down.

These government influences are illustrated in Exhibit A-6, where the solid and dashed lines are the rent and cost lines from Exhibit A-5, the dotted "cost with codes" lines shows the total cost line if building codes should be made more restrictive, and the horizontal "minimum quality allowed" line shows the lowest quality housing the local jurisdiction allows to be built. Note that in this case the developer is no longer permitted to build to modest quality – it is below the minimum allowed. But even if he could build to that quality, the building code-related costs have increased total project costs disproportionally for lower quality housing and the profit maximizing quality level has moved up.

Exhibit A-6: Government Building Codes Constrain What Can be Built and Alter the Profit-Maximizing Quality of Housing Construction



Government actions to "lower" building codes or increase the supply of land will not necessarily increase production of moderate quality housing. The profit maximizing quality level, and rents, may remain in the middle or upper range, although renters of these units might benefit from somewhat lower rents once the market fully responds to the reduction in construction or land costs.

Project-Specific Government Influences

Absent any direct government intervention in the project, the developer will build to the quality level that maximizes profits.

If government wants to change that outcome, it has three basic tools at its disposal. First, government (usually the local government) can mandate that specific sites must include affordable housing. The government can specify, usually through its zoning ordinance, the percentage of units that must be affordable if the property is developed as residential and the level of affordability

that must be provided. In our charts, this action typically would be a forcing of the average quality level to the left of the profit maximizing level, or just a shift down in the rent curve in response to the below-market rents that must be charged for the affordable units.

One problem with this approach are that local governments may not have the authority from their state to enact such zoning. But even where legal, the affordable housing requirement, if too financially exacting, may prevent any development of the site or steer the site's development to a non-residential use.

Cash assistance is the second basic tool available to government to promote development of affordable housing. The cash can augment demand or reduce supply costs. If provided on the demand side, the assistance increases the ability of households to pay for housing of a certain quality level. In terms of the model, demand side assistance essentially puts a spike in the rent line in the modest quality segment of the market and links that above-market rent to a single location and property, turning that modest quality development into the profit-maximizing use of the site. The subsidy required to induce the developer to build to a certain quality or rent level depends on the economic "distance" of the target from the profit maximizing segment of the market.

Or the cash assistance can be on the supply side, by reducing the costs faced by a developer at a location, Subsidized interest rates on affordable multifamily developments are an example, as are deed transfers of government owned land to developers of affordable housing. Typically these supply assistance agreements include requirements that households not be charged more than a certain rent, to preclude the developer from retaining all of the profit derived from the subsidy of the costs.

If those constraints on rents pull them much below market, then the developer needs to calculate whether the reduction in development costs more than offsets the reduction in rents from the development. The Low Income Housing Tax Credit program is an example of a program that both subsidizes costs and constrains revenues. The subsidy to construction costs provided by proceeds from the sale of the tax credits must be balanced against the reduction in rents imposed by the requirement that units be rented to households at no more than 60 percent of median income, who can be required to pay no more than 30 percent of their income for housing. In some jurisdictions incomes and market rents are not high enough relative to construction costs for production to proceed even with tax credit support.

A third basic tool, which can work in some jurisdictions, permits developers to build something at a site outside of the usual bounds. As it's name implies, "bonus density" is an incentive that offers additional floor space on a site if the developer is willing to meet certain requirements, in this instance provision of some or all of the additional density as affordable housing units. The additional

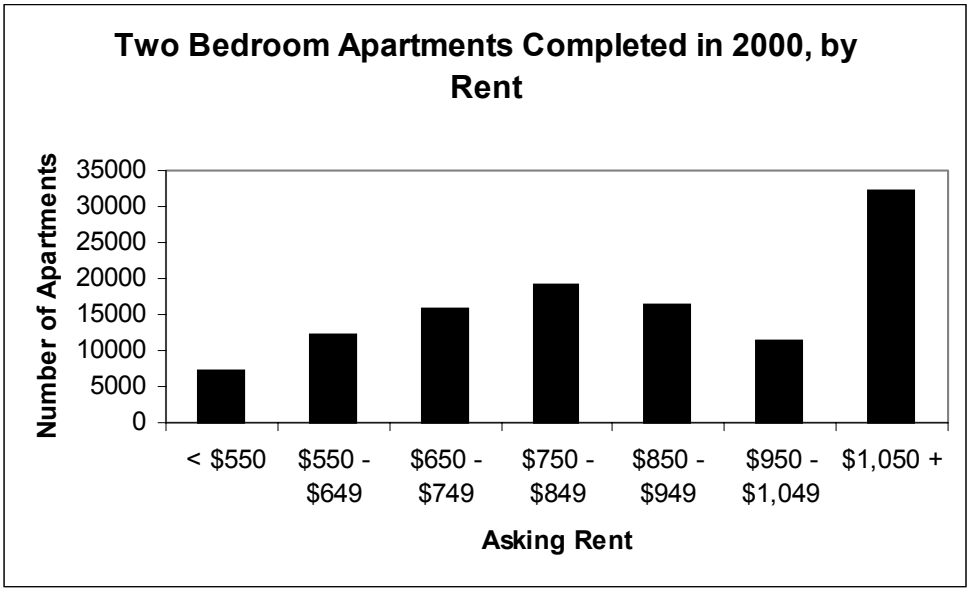
apartments boost the rent (pv) line above where it would be otherwise, and also increases the construction cost. Again, the balance of increased revenue against increased cost will determine if developers accept the bonus offer.

Numbers

The model above suggests that the window is narrow indeed for private market production of moderate quality housing affordable to households with below average incomes. In most instances, profit maximization and government regulation combine to steer housing production to a higher quality level, if it occurs at all. The planets and moons must all be perfectly aligned for "market rate" housing production to add directly to the stock of affordable, moderate quality housing.

Available statistics indicate that the planets and moons are rarely in perfect alignment. Most rental apartments are built to sell at rents well above affordable levels. This is illustrated in Exhibit A-7 below. Of 2-bedroom rental apartments completed in 2000, the median rent was $867. Only 31 percent of these apartments rented for less than $750. (These figures include apartments built with LIHTC support and state and local government assistance, but exclude those built under HUD's Section 202 program for elderly housing.) Some of the spread in rents reflects aggregation across geographic markets with different price levels, but even with regions the average rents are high and the rent distribution is skewed toward the top.

Exhibit A-7



To put these rents in context, the median income of renter households in 2000 was $27,550. Assuming $75 for monthly utilities and a 30 percent "affordable' income allocation to housing costs, a median income renter household could afford a monthly rent of $614, or about 13 percent of the newly produced apartments (abstracting from geographic differences in rents relative to incomes). Another quantification comes from looking at percentages of the median income for all households, as is done for most program eligibility tests. The national median household income in 2000 was $42,024, and the 60 percent of this median was $25,214, implying that rents of $555 and just 7 percent of new multifamily rental housing production were affordable to households at 60 percent of median income.

Project-specific financials provide more evidence of the improbability of the market producing affordable housing without government intervention. Work done for the Millennial Housing Commission by Charles Wilkins of the Compass Group LLC shows that real world numbers on development costs, operating expenses, and rents more often than not generate a "funds gap" in rental housing projects intended for low- or moderate income households and that a funds gap will often be encountered for properties designed for households with incomes as high as 70-80 percent of the area median. This "funds gap" In terms of our model is a total project cost (pv) in excess of total rental revenues (pv).