# Understanding National and Regional Housing Trends

*Leonard Mills\**

As the recession unwinds, housing starts will rebound from their current low levels. But over time, cyclical influences on housing starts will be overshadowed by the demographic factors that largely determine the trend in housing starts. The slowdown in adult population growth in the 1990s is a key factor in forecasts of a lower future level of housing starts.

This slowdown in population growth, however, won't be uniform across all regions; indeed, in some areas, it is expected to be quite pronounced. And so, given the strong link between population and housing, it is reasonable to expect the decline in the number of housing starts to affect some regions more than others.

Undoubtedly, there will be cyclical swings in housing in the years ahead, and these swings will affect regions differently. But policymakers, builders, and others concerned about the housing outlook should keep an eye on the slower population growth and its effect in lowering the number of housing starts.

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## LINKING POPULATION AND HOUSING

Housing researchers usually analyze the link between the adult population and the number of housing units in terms of two ratios: 1) the *vacancy rate*, the number of vacant houses divided by the total number of houses; and 2) the *headship rate*, the number of households divided by the adult population. These two components are affected by different economic and sociological factors.

Vacancy rates are partly affected by business-cycle conditions. For example, when income growth slows during a recession, people are less willing or able to afford the higher mortgage payments associated with new homes. To the extent that the recession is unanticipated by builders, the inventory of new homes—which are vacant homes—rises. The same is true for apartments; more of them become vacant during recessions.

The vacancy rate is also subject to long-term structural changes, such as laws that affect the cost of carrying a vacant housing unit. For example, any tax law change that accelerates depreciation deductions will lower the after-tax cost of carrying a vacant unit; stretching the deductions out over more years will raise the cost.[1] Any shifts in the vacancy rate due to tax law changes—or other structural changes—generally last longer than those due to the business cycle because tax laws change relatively infrequently.[2]

The other factor affecting the link between population and housing is the headship rate. The headship rate measures adults' tendencies to form households. For example, two adults could choose to live together to form one household and reside in the same housing unit. For these two adults, the headship rate would be 0.5. Alternatively, they could choose to live in two separate housing units. In this case, two households would be formed and the headship rate for the two adults would be 1.

Like vacancy rates, headship rates are subject to both business-cycle changes and long-term changes. When incomes are low during a recession, adults are more likely to join together to form a single household because they may be unable to afford living alone.[3] Thus, the headship rate has a tendency to fall during recessions. Longer-term changes in the headship rate include such factors as a fall in marriage rates or an increase in divorce rates, both of which decrease the tendency for adults to get together and form households.

The link between population and housing can be summarized by combining these two components. Specifically, the number of housing units per adult (HPA) can be computed as follows:

$$\frac{\text{Headship Rate}}{(1 - \text{Vacancy Rate})} = \text{Housing Units Per Adult (HPA)}$$

For example, the average U.S. vacancy rate for housing units since 1973 has been 3.2 percent,

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[1]In 1981, depreciation deductions were accelerated, but five years later the depreciable life of residential real estate was lengthened. For a discussion of these tax law changes, see Stephen A. Meyer, "Tax Cuts: Reality or Illusion?" this *Business Review* (July/August 1983), and Theodore Crone, "Housing Costs After Tax Reform," this *Business Review* (March/April 1987).

[2]For a discussion of some other factors affecting the natural vacancy rate in rental housing units, see Stuart A. Gabriel and Frank E. Nothaft, "Rental Housing Markets and the Natural Vacancy Rate," *Journal of the American Real Estate and Urban Economics Association* 16 (1988), pp. 419-29.

[3]For a discussion of the effect of income and other factors on household formation decisions, see Lawrence B. Smith et al., "The Demand for Housing, Household Headship Rates, and Household Formation: An International Analysis," *Urban Studies* 21 (1984), pp. 407-14. Also see Patric H. Hendershott and Mark Smith, "Household Formations," in *The Level and Composition of Household Saving*, Patric H. Hendershott, ed. (1985).

and the headship rate—for the population 21 and over—has averaged 53.8 percent.[4] (See *Components of Housing Unit Per Adult*.) These two components lead to the calculation of 0.556 housing units per adult [0.538 ÷ (1-.032)]. In other words, there have been about 1.8 (1 ÷ 0.556) adults living in each housing unit.

Given that the number of housing units per adult has averaged 0.556 and that the 21-and-

over population has increased by 39 million since 1973, the trend increase in the housing stock has been 22 million units (0.556 x 39 million). Meanwhile, the actual increase in the housing stock was 23 million units, a level close to the trend.

In summary, then, HPA is simply the link that allows one to translate population growth into housing growth.

**The Link Between Population and Housing Has Been Stable.** The arithmetic shown above is simple enough, but there is a complication: the link between population and housing may not be stable. The HPA will change whenever one of its two components changes.

[4]In this article, total housing units are defined as the sum of owner-occupied units, renter-occupied units, units for sale, and units for rent. Thus, units rented or sold but not occupied, units held for occasional use, and other vacancies are excluded from this analysis.

## Components of Housing Unit Per Adult

### For Total Housing Stock

|                                          | Nation    | Northeast | Midwest   | South     | West      |
|------------------------------------------|-----------|-----------|-----------|-----------|-----------|
| **Averages (1973-87)**                   |           |           |           |           |           |
| Vacancy Rate                             | .032      | .025      | .030      | .038      | .033      |
| Headship Rate                            | .538      | .521      | .541      | .539      | .554      |
| Housing Units Per Adult                  | .556      | .534      | .558      | .559      | .573      |
| **Ranges for Housing Units Per Adult**   |           |           |           |           |           |
| High (year)                              | .562 (87) | .542 (85) | .570 (81) | .576 (87) | .589 (78) |
| Low (year)                               | .550 (80) | .525 (73) | .548 (73) | .542 (83) | .560 (83) |

### For Owner-Occupied Housing Stock

|                                          | Nation    | Northeast | Midwest   | South     | West      |
|------------------------------------------|-----------|-----------|-----------|-----------|-----------|
| **Averages (1973-87)**                   |           |           |           |           |           |
| Vacancy Rate                             | .015      | .011      | .014      | .017      | .016      |
| Headship Rate                            | .602      | .580      | .609      | .604      | .619      |
| Homeowner Rate                           | .646      | .603      | .689      | .669      | .600      |
| Housing Units Per Adult                  | .395      | .354      | .426      | .411      | .377      |
| **Ranges for Housing Units Per Adult**   |           |           |           |           |           |
| High (year)                              | .405 (81) | .366 (81) | .444 (81) | .421 (79) | .393 (76) |
| Low (year)                               | .388 (87) | .339 (73) | .408 (87) | .402 (83) | .357 (87) |

An increase in the vacancy rate means that there are relatively more houses with no one living in them, which raises the number of houses per adult. HPA will also vary with the headship rate. A higher headship rate is associated with a higher number of housing units per adult, and a lower headship rate is associated with a lower number of units per adult. Because both the vacancy and headship rates depend on a variety of economic and sociological factors that can change over time, the HPA can also change over time. Accordingly, a constant HPA, such as the historical average used above, might not provide an accurate assessment of population-related trends in housing.

In fact, the HPA has varied only slightly since 1973, ranging from a high of 0.562 in 1980 to a low of 0.550 in 1987. Thus, the high and the low for HPA are only about 1 percent from the historical average of 0.556. More important, there has been no noticeable trend in the HPA since 1973.

Since the link between housing and population seems fairly stable, the trend in housing can be reliably computed by multiplying the average HPA by the 21- and-over population. This population-driven trend in housing is interpreted as the number of houses required by the size of the adult population (Figure 1). Of course, the actual housing stock has differed from this long-term trend. This difference occurs whenever HPA differs

from its long-term average. For example, because the headship rate tends to fall during a recession, HPA tends to fall below its historical average and consequently the housing stock falls below its trend line.[5] In other words, any deviations in the actual housing stock from its population-driven trend line appear as temporary cyclical deviations.[6]

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[5]The tendency for the residential vacancy rate to rise during a recession will raise the HPA, which offsets the effect of the declining headship rate during the recession. However, even though vacancy rates are subject to more cyclical variability than headship rates, the effect of the vacancy rate variability on HPA is generally smaller because the vacancy rate is so low.

[6]For statistical evidence on the use of the historical average HPA in projecting housing trends, see Theodore Crone and Leonard Mills, "Forecasting Trends in the Housing Stock Using Age-Specific Demographic Projections," *Journal of Housing Research* 2 (1991), pp. 1-20. This study found that, over the 1965-89 period, the HPA-based trend was more precise for owner-occupied units than for total units.



FIGURE 1
U.S. Housing Stock
(1973-2000)
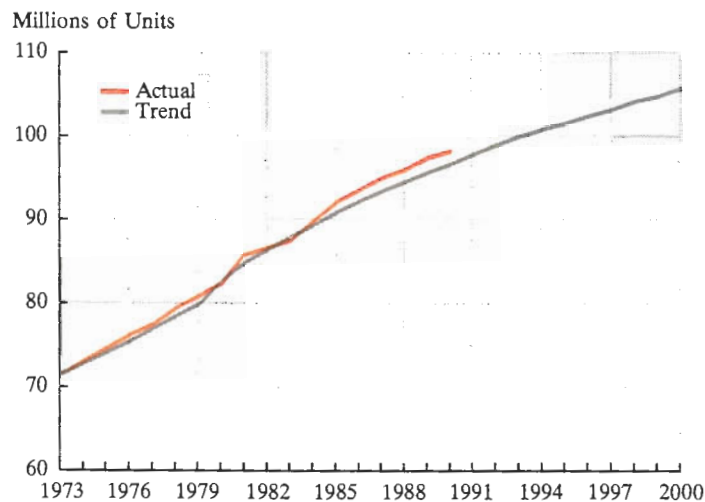
## PROJECTING THE FUTURE HOUSING STOCK

By making some assumptions about the future size of the adult population and HPA, we can project the future housing stock. Since the bulk of the people who will make up the adult population have already been born, adult population projections for the next 10 to 20 years are considered very reliable. The Census Bureau regularly projects the future adult population by making assumptions about other determinants of the adult population, such as immigration and deaths.[7]

These other determinants are relatively easy to project over a span as short as a decade. For HPA, a useful baseline is to assume that the link between population and housing will remain as it has been. On the basis of historical evidence, using the average HPA has provided a reliable housing trend. For the 1990s, then, the trend growth in the housing stock is projected to slow because the adult population is projected to grow more slowly. The lower trend growth tells us that fewer houses will need to be added to the housing stock.

**Less Need for Additional Housing Stock Means Lower Housing Starts.** Changes in the housing stock occur when new housing units are built or old units are removed. Net additions to the housing stock are defined as the number of new housing starts minus the number of removals. In other words, in any given year, the number of housing starts must equal net additions to the stock plus removals.[8]

For the 1990s, the net additions required to accommodate the number of new households should average about 900,000 units per year. Adding the historical average of 300,000 removals per year results in an annual average of about 1.2 million housing starts in the 1990s. This is substantially below the annual level of housing starts in the 1970s and 1980s (Figure 2).

Trend, as opposed to actual, housing starts are expected to fall from about 1.4 million in 1991

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[7]Both the regional and national population projections used in this study are provided by the Census Bureau. The national projections are consistent with the "middle" (intermediate) series of the Census Bureau.



**FIGURE 2**
**Housing Starts**
**Annual Averages**

Thousands of Units

* Actual
** Trend

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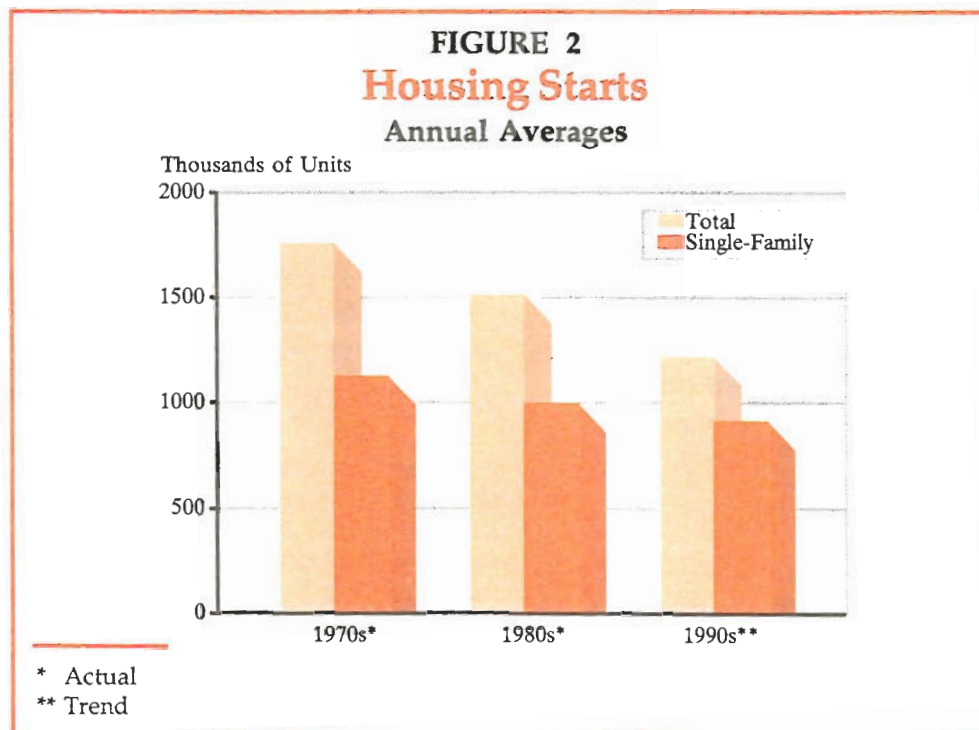
[8]Housing starts are measured directly, but removals must be measured indirectly by subtracting the number of housing starts in a given year from the actual change in the housing stock. Since 1973, removals have averaged about 300,000 units per year. Removals were higher in the 1960s because of the large number of urban renewal programs.

to about 1.1 million by the mid-decade.[9]

**Single-Family Starts Are an Important Component.** About two-thirds of the nation's households own their homes. Moreover, the owner-occupied segment of the housing stock is generally regarded as more stable because it seems less susceptible to waves of speculative investment. In addition, tax laws for owner-occupied housing have changed less frequently than those for rental housing. For these and other reasons, the owner-occupied segment of the housing market is often analyzed separately.

Because there is less turnover in the owner-occupied housing market, the vacancy rate is naturally lower than that for renter-occupied units. The owner-occupied vacancy rate has averaged 1.5 percent since 1973. Moreover, a very large proportion of home owners are in the 25-and-over age category, so that is the most relevant population segment for calculating the headship rate for owner-occupied units. Since 1973, the headship rate for the population 25 and over has averaged 60.2 percent.

In addition to headship and vacancy rates, the home-ownership rate is a necessary factor in analyzing the owner-occupied segment. The home-ownership rate is the number of home-owning households divided by the total number of households. The historical average for the home-ownership rate has been 64.6 percent. Multiplying the headship rate by the home-ownership rate, and dividing by 1 minus the vacancy rate, determines the number of owner-occupied houses per adult. Since 1973, the average has been 0.395, varying little.

A projection for single-family housing starts can be obtained by following the procedure outlined above for total housing starts.[10] First, multiply the change in the projected 25-and-over population by the average number of owner-occupied houses per adult, 0.395. Then add the historical average number of removals for the owner-occupied housing units (about 200,000).

On the basis of this calculation, single-family starts are also projected to decline in the 1990s. The trend in single-family starts falls to an annual average of 875,200 in the 1990s, compared to 1 million in the 1980s. The trend level of single-family starts falls from about 1 million in 1991 to slightly more than 740,000 by the end of the decade.

The population cohort born during the "birth dearth" period between 1972 and 1978 will, of course, enter the 21-and-over population before it enters the 25-and-over population. Consequently, the drop in the trend for single-family starts occurs later in the 1990s than the drop in the trend for total starts. In fact, the decline in the population-driven trend for single-family starts is not expected to be noticeable until 1996, while the decline in total starts will begin in 1993.[11]

**Other Housing Market Aspects Are More Difficult to Predict.** Even though the number of housing starts is expected to fall in the 1990s, that does not imply that the residential construction sector of the U.S. economy will decline. Although new housing measured in *physical units* (housing starts) will decline, each housing unit may be larger or more elaborate. And larger, more elaborate housing units are generally more expensive to build. Thus, new

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[9]With the recession, actual housing starts through the first half of 1991 averaged only 956,000 at an annual rate. That the trend level of starts in 1991 is so much higher is one reason why many forecasters expect a rebound in housing activity once the recession ends.

[10]Single-family starts and additions to owner-occupied units are closely related because most occupied single-family units are owner occupied (85 percent in 1985) and few single-family units are built as rentals.

[11]For a broader discussion of the economic impact of the birth-dearth generation, see Theodore Crone, "The Aging of America: Impacts on the Marketplace and Workplace," this *Business Review* (May/June 1990).

housing measured in *dollar units* (residential investment) may not decline as much as housing starts. So residential construction workers and suppliers of residential building materials may not experience as large a drop in their business activity.

In addition, the trend in the size of the adult population tells us nothing about the long-term price of each housing unit.[12] Of course, a temporary overabundance of housing units relative to the population-driven trend, either regionally or nationally, will depress housing prices temporarily. Similarly, if the housing stock falls below the population-driven trend, there will be a tendency for house prices to be bid up. But these effects are only temporary because eventually the housing stock does return to its long-term trend. The long-term price of a housing unit appears to be determined not so much by changes in housing demand due to population trends, but by such factors as the cost of land, materials, and labor.[13]

## HOUSING PROJECTIONS DIFFER BY REGION

The average HPA varies across different regions of the country. For the total housing stock, the Northeast has the lowest average HPA and the West has the highest. An implication of this regional difference in HPA is that even if the Northeast and West experience identical increases in their adult populations, more houses would have to be built in the West.

The regional differences in owner-occupied houses per adult are larger than those for the total housing stock because home-ownership rates also differ across regions. The Northeast also has the lowest average number of owner-occupied houses per adult. But the Midwest has the highest average number of owner-occupied houses per adult, primarily because it has the highest home-ownership rate.

Even if we consider only the adult segment of the population, regional populations are more difficult to project than the national population because we must also make assumptions about internal migration within the country. Using one set of Census Bureau assumptions regarding internal migration and assuming the number of houses per adult in each region equals its historical average, we can use regional population projections to predict the trend in housing starts by region.[14] Under this set of assumptions, the Midwest will experience the largest percentage decline in total housing starts, followed by the Northeast. This regional pattern holds for single-family starts as well, with the drop occurring later in all regions. (See *Projected Trends in Housing Starts*, p. 22.)

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[12]This is the consensus among housing analysts. However, for an argument that population trends have a large impact on housing prices, see N. Gregory Mankiw and David N. Weil, "The Baby Boom, the Baby Bust, and the Housing Market," *Regional Science and Urban Economics* 19 (1989), pp. 235-58. Arguments against any impact of population trends on housing prices are more prevalent. For example, see Denise DiPasquale and William Wheaton, "Housing Market Dynamics and the Future of Housing Prices," Joint Center for Housing Studies of Harvard University, Working Paper W90-3; A. Steven Holland, "The Baby Boom and the Housing Market: Another Look at the Evidence," *Regional Science and Urban Economics* (forthcoming); and "Will Home Prices Collapse?" various special reports compiled by the National Association of Home Builders (1990).

[13]See James R. Follian, "The Price Elasticity of the Long-Run Supply of New Housing," *Land Economics* (1979), pp. 190-99.

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[14]The Census Bureau's "Series A" for regional population projections is used in the housing projections. For a description of the assumptions underlying these projections, and alternative projections, see Signe I. Wetrogan, "Projections of Population of States by Age, Sex, and Race, 1989 to 2010," *Current Population Reports: Population Estimates and Projections,* Series P-25, No. 1053 (1990). Of course, regional housing projections will differ under different migration assumptions.

# Projected Trends in Housing Starts
## (Thousands)

### Total Housing Starts

|      | Nation | Northeast | Midwest | South | West |
|------|--------|-----------|---------|-------|------|
| 1991 | 1415   | 158       | 167     | 621   | 470  |
| 1992 | 1438   | 164       | 168     | 642   | 465  |
| 1993 | 1259   | 127       | 113     | 594   | 425  |
| 1994 | 1138   | 105       | 78      | 554   | 401  |
| 1995 | 1072   | 95        | 61      | 528   | 387  |
| 1996 | 1107   | 104       | 70      | 537   | 395  |
| 1997 | 1062   | 99        | 58      | 519   | 385  |
| 1998 | 1126   | 111       | 73      | 543   | 398  |
| 1999 | 1131   | 115       | 75      | 545   | 395  |
| 2000 | 1186   | 126       | 88      | 565   | 407  |

### Single-Family Housing Starts

|      | Nation | Northeast | Midwest | South | West |
|------|--------|-----------|---------|-------|------|
| 1991 | 1000   | 123       | 145     | 449   | 283  |
| 1992 | 950    | 115       | 126     | 433   | 276  |
| 1993 | 914    | 108       | 111     | 423   | 272  |
| 1994 | 928    | 107       | 111     | 432   | 277  |
| 1995 | 942    | 109       | 112     | 441   | 279  |
| 1996 | 968    | 112       | 118     | 457   | 280  |
| 1997 | 838    | 87        | 80      | 419   | 252  |
| 1998 | 753    | 72        | 57      | 389   | 236  |
| 1999 | 716    | 67        | 46      | 373   | 229  |
| 2000 | 743    | 72        | 54      | 382   | 234  |

Note: The sum of the regions may not add up to the nation because of rounding.

## COULD THESE HOUSING PROJECTIONS BE WRONG?

By simply analyzing trends in the size of the adult population, we can construct a historically reliable baseline for the number of houses to be built in the 1990s. Inevitably, the projections will differ from the number of houses actually built, for a variety of reasons. Housing starts have a large cyclical component, which leads to deviations from trend. For example, housing starts so far in 1991 have been substantially below their trend level of 1.4 million units, partly because of the recession. And adjustments to these cyclical deviations may take some time to correct themselves. But over time, history leads us to believe that housing will return to its population-driven trend.

However, it *is* possible that the population-driven trend itself may change. First, national population projections must make some as-

sumptions about immigration and other factors affecting the adult population. And regional projections must make additional assumptions about internal migration within the country. The assumptions underlying the population projections may turn out to be inaccurate, which in turn would make the housing projections inaccurate.

Second, long-term changes in headship, vacancy, and home-ownership rates may also occur, and such changes would alter the link between population and housing. For example, some analysts think the headship rate may rise slightly in the 1990s as the baby-boom generation ages further.[15] They argue that, historically, headship rates have continued to rise as people grow older, even though the increase after age 25 is very gradual. Since a higher headship rate would raise the HPA, the trend in housing starts may be higher in the 1990s. This argument assumes that the baby-boom generation will have the same tendencies to form

households as their parents did. However, an alternative assumption is that each generation, including the baby-boomers, behaves uniquely and therefore long-term changes in headship rates are difficult to predict.

In any case, prospective changes in the vacancy, headship, and home-ownership rates will have very little impact on the trend in housing starts compared to the effect of the slower population growth. For example, even if headship rates were to rise by 10 percent—a figure far greater than any analyst expects—the annual average for total housing starts would rise only by 90,000, to about 1.3 million, still far below the level of starts in the 1970s and 1980s.[16] Thus, housing analysts, though they may disagree on the precise numbers, are unanimous in their belief that housing starts will decline substantially in the 1990s. Consequently, builders will build fewer houses in this decade, and policymakers and others concerned with the housing outlook should not be surprised by the lower number of starts.

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[15]See, for example, Gretchen A. Armijo et al., "Demographic and Economic Trends," *Journal of Housing Research* 1 (1990), pp. 21-42.

[16]This calculation continues to assume that the vacancy rate and level of removals remain unchanged.