Moving Up: Trends in Homeownership and Mortgage Indebtedness

BY WENLI LI

Since the mid-1980s, important developments have taken place in the housing finance system. In the 1990s, the U.S. economy experienced the longest expansion in its history, marked by substantial growth in household income and wealth. In addition, Congress passed the Tax Reform Act of 1986 and the Taxpayer Relief Act of 1997, two laws favorable to homeowners. Therefore, it's not surprising that homeownership rates and the mortgage indebtedness of American families have also changed significantly. In this article, Wenli Li uses the University of Michigan's Panel Study of Income Dynamics to examine the effects of these changes and how they vary across households.

The U.S. residential housing market has gone through important changes since the mid-1980s. Most noticeably, significant developments have taken place in the housing finance system. Continuous improvements in information technology have improved lenders' ability to assess risk, tailor products to different population segments, and develop new products. As a result, down payment requirements and transaction costs — e.g., the time, effort, legal costs, and brokerage costs — associated with mortgage applications have come down substantially, making it easier for families to qualify for a mortgage or to refinance their existing mortgages.

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At the same time, the U.S. economy experienced the longest expansion in its history, marked by substantial growth in household income and wealth in the 1990s. Monetary policy was accommodative from 1990 to 1994, and mortgage interest rates fell to consecutive historical lows between 1990 and 1999.

Finally, on the regulatory front, Congress passed two laws favorable to homeowners: the Tax Reform Act of 1986 and the Taxpayer Relief Act of 1997.

Given these developments, it is not surprising that homeownership rates and the mortgage indebtedness of American families have changed in significant ways. We will see how significant the changes are by using the Panel Study of Income Dynamics (PSID), a longitudinal survey from the University of Michigan that has followed a nationally representative random sample of families and their extensions since 1968.[1] First, though, let us look at why and how households make decisions about housing and mortgages.

WHAT IS UNIQUE ABOUT OWNER-OCCUPIED HOUSING?

For most homeowners, their house is the single most important consumption good[2] and, at the same time, the dominant asset in their portfolios. For instance, the 2001 Survey of Consumer Finances shows that about two-thirds of U.S. households own their primary residence. Home value accounts for 55 percent of total assets for an average homeowner and more than 80 percent for over half of homeowners.

Similar to other durable consumption goods, such as cars or televisions, houses have a minimum size. For

[1] The PSID has been used widely in analyzing, among other things, household wealth dynamics, occupational choice, and labor supply decisions. For a complete reference, see the PSID web site: http://psidonline.isr.umich.edu/Publications/Bibliography/Biblio.html.

[2] Housing belongs to the category of durable consumption goods defined as those that may be used repeatedly or continuously over a period of more than a year, assuming a normal or average rate of physical usage.

most people, their house will be the most expensive purchase of their lives. Even the least expensive house typically requires a sizable down payment. Housing adjustment — that is, buying or selling a house — is also much more costly than that of other durable goods, with sales commissions often amounting to 6 percent of the house value.

Despite the sizable down payment and sales commissions, compared with other financial assets like stocks or bonds, housing investment is often highly leveraged and relatively illiquid. Many home buyers, especially first-time buyers, borrow over 80 percent of the house value. In addition, households borrow over a much longer time horizon for house purchases than for other consumer durables, with mortgages often lasting as long as 30 years. Average tenure in a house — five to seven years — is small compared with the remaining life of the house; thus, like stocks, but unlike short-term bonds or deposits, the value of a home matters even when the mortgage has been paid off. All of these factors suggest that when a household purchases a home the investment it has made is not as risk-free as it may think.

HOW DO HOUSEHOLDS MAKE HOUSING AND MORTGAGE DECISIONS?

Like the value of any useful asset, a house's value fluctuates over time. Indeed, the record shows that although house prices are not as volatile as stock prices, they are perhaps more volatile than most people have realized. For instance, real house prices — house prices adjusted for the rate of inflation — dropped more than 2 percent in 1990, then rose more than 4 percent in 2001.[3] The fluctuation is much bigger if we consider regional changes in house prices. In San Jose, California, between 1990 and 1995 house prices tumbled 29 percent. Between 1996 and 2001, however, house prices skyrocketed 84 percent, largely boosted by the stock market riches of the high-tech and dot-com industries. Then from 2001 to 2002, during the Internet bust and technology slump, house prices in San Jose dropped almost 2 percent in one year.

[3] These numbers are calculated using the house price index constructed by the Office of Federal Housing Enterprise Oversight (OFHEO).

A potential homeowner weighs the economic benefits and costs when deciding whether to buy a house and whether and how much to borrow to finance the purchase.

The risk borne by homeowners is magnified, since house prices and salaries and benefits, the major source of income for most households, are positively correlated. This means that changes in house prices and changes in household income in a given area often move in the same direction, that is, one rises as the other rises or falls as the other falls.[4]

To see why this is true, remember that the purchase of a house requires a large down payment and a commitment to regular mortgage payments for a lengthy period. Thus, fluctuations in income can have a big impact on both the demand for and the supply of housing. For example, imagine a region that has experienced mass layoffs due to the closing of a local plant. As a result, many homeowners may put their houses on the market because of financial distress caused by lost income or because they are moving their families to regions with better employment prospects. At the same time, those households that had planned to purchase homes put their plans on hold either because they also got laid off or because they became pessimistic about their future earnings potential. The increased supply of and reduced demand for housing will obviously put downward pressure on local house prices and cause them to decline.

The volatility in house prices means that although houses provide comfort and shelter, homeownership brings with it substantial financial risks. These financial risks are worse in bad times when both house prices and labor income decline, and they will be felt most painfully by homeowners who have borrowed heavily to buy their houses.

A potential homeowner weighs the economic benefits and costs when deciding whether to buy a house and whether and how much to borrow to finance the purchase. Consider two households living in the same area. One is a young commercial artist in his early to mid-twenties, and the other is headed by a computer programmer and a physician both in their early forties. As is typical for his age group, the young artist is not married and has little wealth. Though his income potential may be higher than his current income, it is also more uncertain. In contrast, the middle-aged couple has children, stable jobs, and relatively more savings.

In this case, the young household is more likely to rent and the middle-aged one is more likely to own a house. In the event that both households

[4] See, for example, the article by Joao Cocco.

become homeowners, the young artist is likely to borrow more relative to his house value and his current income. The reason is threefold. First, since the young artist's income is likely to rise over his lifetime, he will buy a house that reflects future expected income. The alternative — purchasing a series of larger houses as his income increases — is too expensive because of the transaction costs of buying and selling. The middle-aged household expects that its income is at its peak; thus, its house primarily reflects current income.

Second, lenders typically require down payments to reduce the risk of borrowers' defaulting on their mortgage loans. In fact, the agencies that dominate the secondary market for mortgages, Fannie Mae and Freddie Mac, follow the traditional practice and require mortgage insurance before they purchase any loan on a property whose mortgage exceeds 80 percent of its value. The limited net worth of the young artist makes it less likely that he can meet this down payment requirement. If he does meet the requirement, he will likely have to borrow more of the rest of the money for the purchase.

Third, the young artist's income is likely to fluctuate more than the middle-aged household's, and it may be necessary for him to access his wealth to cover expenses when income is low. Having a large amount of equity relative to his net worth tied up in a house is risky because of the transaction costs in accessing home equity through either refinancing the mortgage or selling the house. Although taking out a home equity loan is relatively cheap compared with selling, home equity loans that carry an attractive rate often require payment over a much shorter time frame — say, two to five years — and the rate typically floats. Also, a homeowner with an outstanding home equity loan will find it more difficult to refinance or sell. For example, if the household refinances the first mortgage before the home equity loan is paid off, the new lender often requires the consent of the home equity lender. So, if he has wealth over and above the required down payment, the artist will hold more of it in liquid form than in home equity and borrow more relative to his house value and his income.

As we can see, the decisions to buy a house and to take on mortgages are complex. Family demographics, lifetime expected income, current wealth, and house prices all play important roles.

RECENT TRENDS IN HOMEOWNERSHIP RATES AND MORTGAGE INDEBTEDNESS OF AMERICAN FAMILIES

Empirical studies have found that age and income are two of the most important factors in house-purchase and mortgage-finance decisions.[5] Using PSID data from 1984 to 2001, I have charted average homeownership rates and mortgage indebtedness of all homeowners (Figures 1 and 2) and by age and by income (Figures 3 and 4).[6] The age of the household is that of the head, and household income includes labor earnings, unemployment insurance, and welfare transfers. Transfers include unemployment and Social Security income. The degree of homeowners' mortgage indebtedness is captured by two different measures: mortgage loan-to-value (LTV) ratios and debt-service ratios (DSR). The LTV ratio is defined as the ratio of mortgage principal outstanding to the current house value. The DSR is defined as the ratio of mortgage payment — principal and interest, plus property tax — to family income.

Mortgage LTV ratios and DSRs are important because they give an indication of the potential risks lenders face should the price of houses fall or should the borrowers/homeowners suffer a decline in income. Accordingly, lenders use mortgage LTV ratios and DSRs to estimate the borrower's default risk and to decide whether to fund the mortgage and what rate to charge. These ratios also affect the underwriting standards of the major purchasers of mortgages. For instance, as mentioned earlier, Fannie Mae and Freddie Mac require mortgage insurance before they purchase any loan on a property with an LTV ratio greater than 80 percent.[7]

Empirical Observations. As we can see from the figures, homeownership rates were essentially flat at around 60 percent from 1984 to the early 1990s, but subsequently rose sharply. By 2001, more than 65 percent of households owned their homes.

Mortgage indebtedness for homeowners increased steadily between 1984 and 2001, according to mortgage LTV ratios. While the average mortgage LTV was 26 percent in 1984, by 2001, it had increased to more than 35 percent. The contrast is more striking when we look at changes in median LTV, which increased from 15 percent in 1984 to over 35 percent in 2001. The median DSR paints a similar

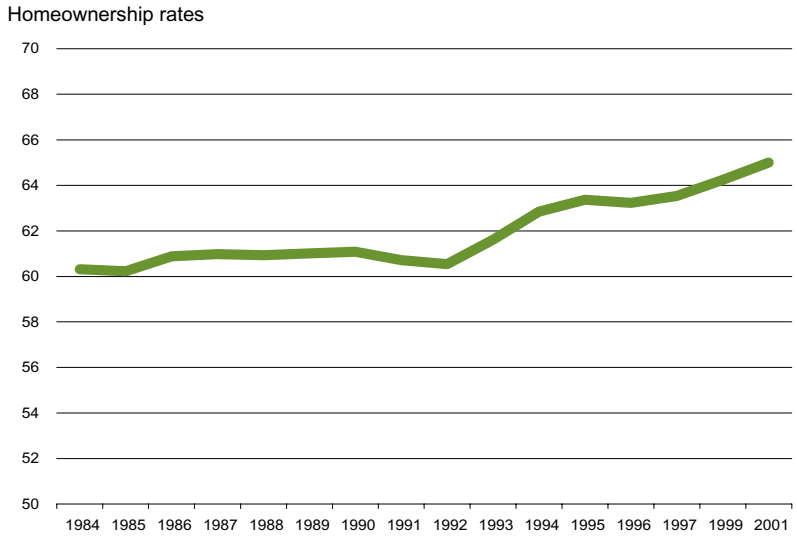
[5] Joseph Gyourko (2001) provides an excellent overview of the factors that affect housing decisions.

[6] Some readers may worry whether PSID data are representative. A preliminary comparison with census data shows that both data sets tell much the same story.

[7] High LTV ratios are associated with greater risk of the household's defaulting provided one is very careful in controlling for borrowers' creditworthiness, that is, holding fixed other factors that affect household risk of default, for example, age or income.

FIGURE 1

Recent Trends in Homeownership Rates*

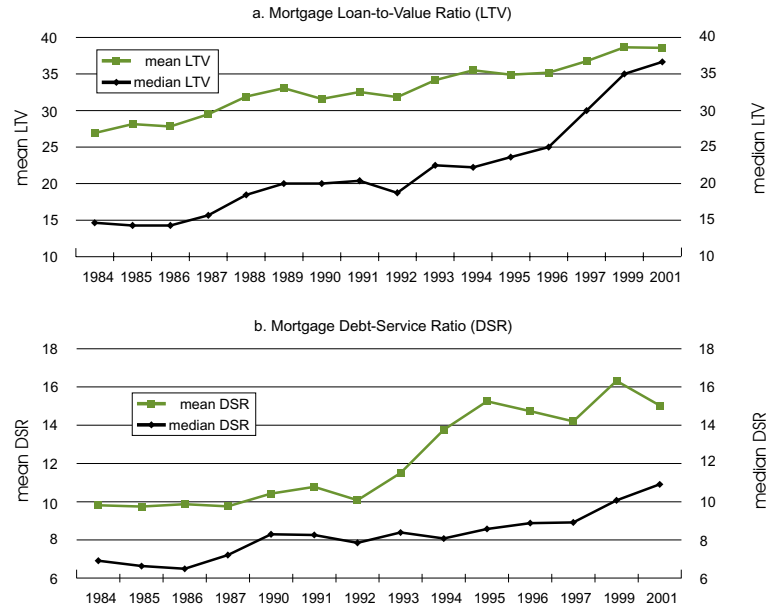


*Homeownership rates are measured as percent of households that own their primary residences.

Note: PSID data were collected annually through 1997, then bi-annually after that.

FIGURE 2

Recent Trends in Mortgage Indebtedness of Homeowners*



*Mortgage LTV = Principal Outstanding/Current House Value
Mortgage DSR = Mortgage Payment/Family Income. Mortgage payment data are not available for 1988 and 1989.

Note: PSID data were collected annually through 1997, then bi-annually after that.

picture. According to the mean DSR, however, homeowners' mortgage indebtedness was flat from 1984 to 1992, then increased appreciably after 1992.

Middle-aged households — those whose heads of household are between 35 and 54 years of age — are generally viewed as being at the peak of their earnings profile and family size. As a result, middle-aged households are more likely to own homes than households in other age groups.[8] Surprisingly, the middle-aged group experienced a slight decline in homeownership rates, while households in the other age groups all had either modest or substantial gains.[9] In particular, homeownership rates for households between ages 35 and 44 dropped from 71 percent in 1984 to about 63 percent in 2001 and homeownership rates for households between ages 45 and 54 dropped from 77 percent to 75 percent.

The other thing that jumps out from these figures is that low-income households have experienced a disproportionately larger increase in both homeownership rates and mortgage indebtedness. Specifically, between 1984 and 2001, when average homeownership rates increased 4.6 percentage points, households in the 0 to 20th percentile of income experienced an increase of almost 5 percentage points, and households in the 20th to 39th percentile experienced an increase of 8.4 percentage points. When looked at in terms of growth rates, that is, percent changes, the increases are even larger.

Furthermore, while households increased their mean mortgage LTV ratio 43 percent, on average, between

[8] This is evident in the inverted-U shape of average homeownership rates over the life-cycle.

[9] A similar result is found using the Survey of Consumer Finances.

1984 and 2001, households in the lowest 20 percentiles had the largest increase of 68 percent. One might think this is driven by the households whose heads have retired. They are typically wealthier than other low-income households and have bought a house during their economically active years. But the result remains true even after we drop from the group families with heads 65 and older.

FACTORS THAT HELP EXPLAIN THE TRENDS

As I stressed earlier, the decisions to own a home and the amount to borrow to finance the purchase are governed by a number of factors, including household income, the presence of children, and the cost in obtaining and financing mortgages. Each of these factors has changed over the past decade in ways that could help explain the generally increased rate of homeownership and the increased mortgage leverage for homeowners. These factors can be grouped into three broad categories: macroeconomic conditions, the housing finance system, and the regulatory environment.

Macroeconomic Conditions. The most important factor is almost certainly the favorable economic climate of the 1990s. Between 1991 and 2001, the U.S. economy had the longest expansion in postwar history. The huge increase in household income, the general decline in the unemployment rate, and persistently low mortgage rates not only made homes more affordable but also led to more optimism among households about their future income streams, making them more likely to buy big items such as houses.

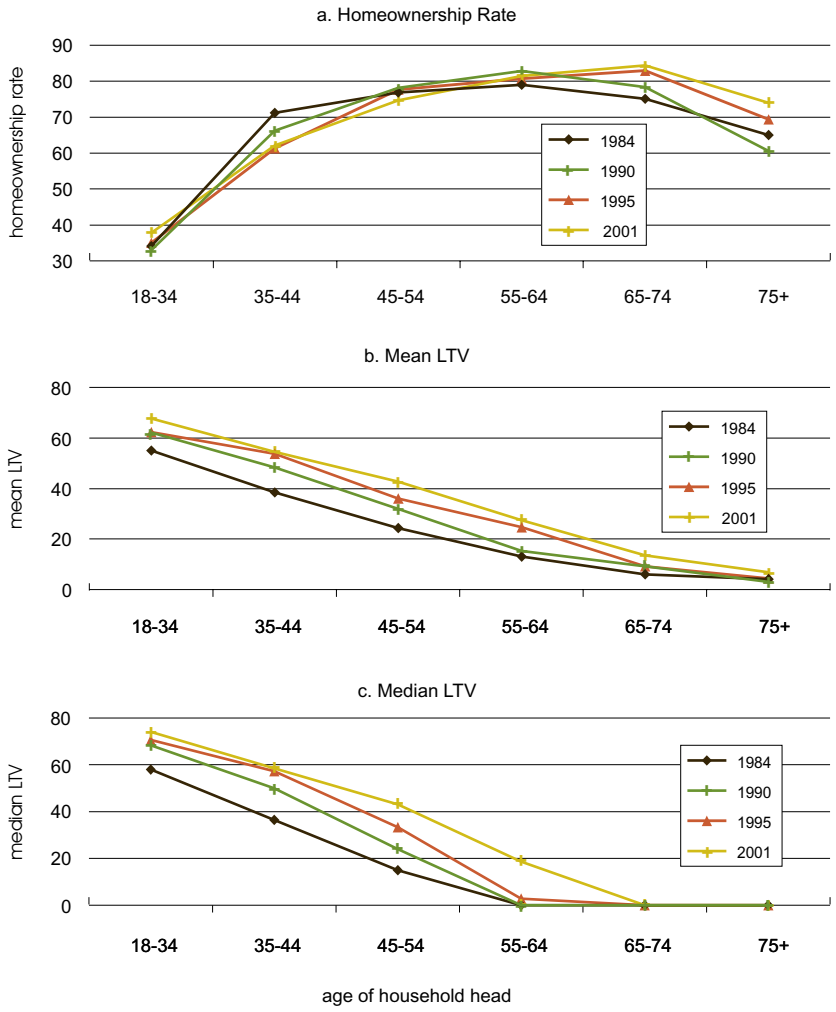
Inflation-adjusted average household income rose 37 percent between 1984 and 2001, from $27,552 (in 1984 dollars) to $37,705, for households in our sample, contributing to the run-up in overall homeownership rates. Income changes, however, are quite uneven across age groups. In particular, although real household income went up for all age groups, the middle-aged households, especially those between ages 35 and 44, had the smallest growth in family income. This appears to be an important factor leading to the reduction in homeownership rates of this group of households.

The rise in income occurred against the backdrop of rising employment. The national unemployment rate trended down over this period, from a high of almost 7 percent to around 5 percent. This should boost the number of home buyers, especially low-income households, who cannot qualify for mortgages without jobs.

Rates on 30-year fixed mortgages, as reported by Freddie Mac, remained

FIGURE 3

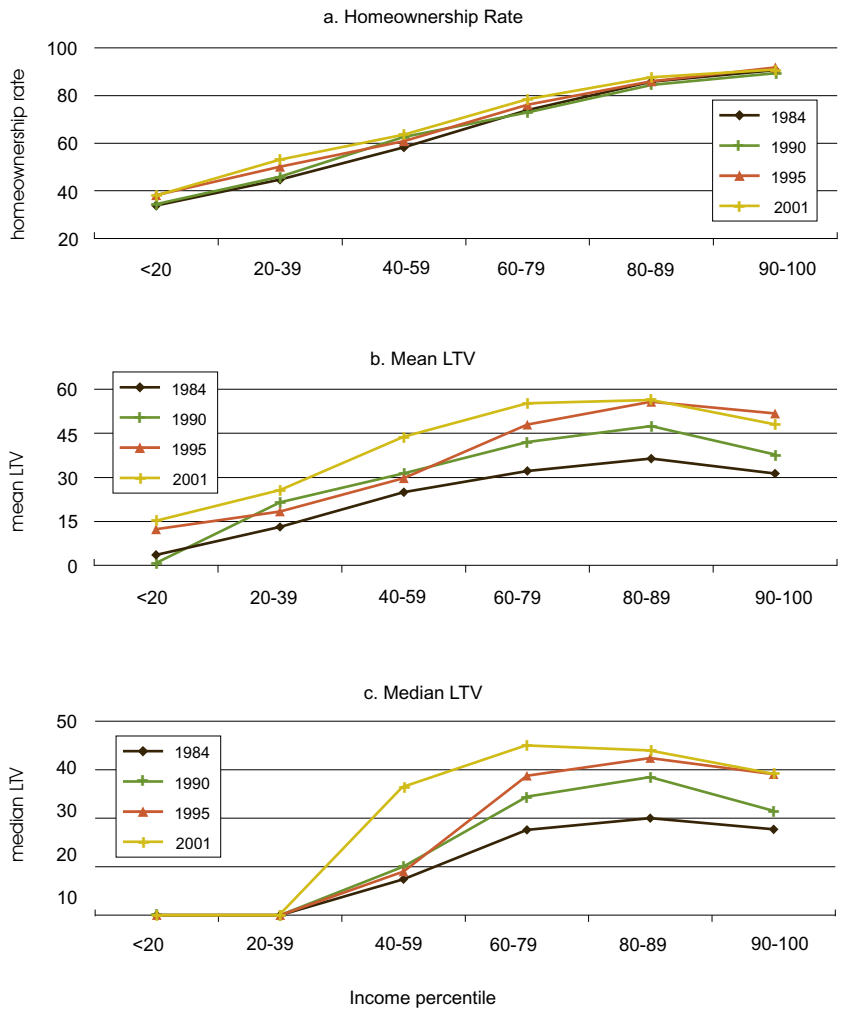
Homeownership Rates and Mortgage Indebtedness by Household Age*



*Household age is the age of the head of the household

FIGURE 4

Homeownership Rates and Mortgage Indebtedness by Income Percentile*



*Percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. For example, in 2001, the average income of a household in the 20th to 39th percentile was $27,931 in 2001 current dollars, or $16,221 inflation adjusted.

below 8 percent for most of the period between 1996 and 2001. The low mortgage rates reduce the monthly payment for a given mortgage and, therefore, make houses more affordable. This should help drive up the average homeownership rates for all age and income groups. The other effect of low mortgage rates is that households may choose to borrow more, relative to the house value, without increasing their monthly payments. This would obviously lead to a higher mortgage LTV ratio among homeowners.

Innovations in Mortgage Markets. In the credit markets, technological developments have automated many stages of the lending process. For example, credit scoring is now commonly used by many lenders, thus reducing the costs of evaluating borrowers and increasing competition in mortgage markets. As a result, mortgages have become cheaper and easier to obtain.

The required down payment for home purchases is now lower than before the 1990s. Nowadays, homeowners need not have a 20 percent down payment to qualify for a mortgage, and in some instances, lenders may not ask for any down payment at all.[10] In addition, both the financial and non-financial transaction costs associated with obtaining a mortgage have come down. We've seen a continued decline in average points and fees on conventional loans closed — from 2.5 percent of the average loan amount in 1983 to around 1 percent at the end of 1995 and 0.5 percent in 2004.[11] Lower down payments and the decline in fees and charges associated with mortgages gave rise to an increasing volume of both mortgage-purchase and mortgage-refinance applications, especially in the presence of declining mortgage rates.[12] The development of home equity lending also made housing a more liquid asset. From 1990 to 2001, home equity loans as a share of total mortgages increased from 10 percent to 14 percent according to flow of funds data from

[10] Of course, the borrowers may have to pay a higher rate or purchase private mortgage insurance. According to Bruskin, Sanders, and Sykes' 2001 article, by 1994, lenders had started programs that allowed qualified households to borrow more than the value of a home, effectively creating a negative down payment that could be applied to closing costs. These innovations enabled some previously ineligible households to purchase a house and provided many others with increased buying power given their wealth.

[11] These statistics come from a study by Paul Bennett, Richard Peach, and Stavros Peristiani, and publications from the Federal Housing Finance Board.

[12] For example, when the 30-year fixed mortgage interest rate dropped from 8.57 percent to 5.10 percent between May 2000 and January 2003, the mortgage refinancing index constructed by the Mortgage Bankers Association surged from 319.3 to 8753.3, a 27-fold increase.

the Board of Governors. Together, these developments increased households' access to mortgage credit and thus increased homeownership among all families, particularly low-income families.

Low-income households also got an extra push from the development of subprime lending (nonprime or credit rated below "A"), designed for those unable to meet the underwriting criteria of Fannie Mae or Freddie Mac. According to an article by Neal Walters and Sharon Hermanson, the subprime mortgage lending industry has grown significantly in recent years, expanding from a $35 billion industry in 1994 to a $140 billion industry in 2000. Additionally, subprime mortgages currently represent 13 percent of total mortgage originations, an increase from 4 percent in 1994. Consequently, those households with not-so-perfect credit records are more likely to own and to borrow more relative to their house value and to their income now than in earlier years.

Changes in Tax Policies. Before the Tax Relief Act of 1986 (TRA-86), households could deduct interest paid on all types of household debt from their pre-tax income. In 1986, Congress changed the law to phase out the deductibility of consumer interest (interest paid on consumer loans not secured by a residence) over a five-year period while leaving the deductibility of mortgage interest intact.

The passage of TRA-86 encouraged mortgage borrowing as households reshuffled their portfolios from other consumer debt into second mortgages and home-equity debt.[13] As a result, mortgage LTV ratios took off immediately after 1986. The effect of TRA-86 on homeownership rates seemed muted. One reason is that TRA-86 also reduced marginal tax rates, especially for high-income households. As a result, the value of tax-exempt imputed income for high-income homeowners was also reduced, offsetting some of the benefits of homeownership associated with the mortgage-interest deduction. Another, perhaps more plausible, reason is that a significant number of households may have been unable to put together the down payment required to buy a house. Put simply, those households that do not qualify for a mortgage will not be helped by the passage of TRA-86.

The Taxpayer Relief Act of 1997 (TRA-97) relaxed the previous requirements for home sellers by exempting more of the profits from the sale of a house from capital gains taxes. The new law allows people to deduct a larger amount of capital gains from the sale of their houses even if they have not stayed in the house for two years as long as the move is due to a job change or a change in family structure (e.g., a death in the family). The passage of TRA-97 obviously provided additional benefits for homeownership, especially for young households. Because young households are more likely to move as part of a change in jobs, the risk of buying and being forced to move within two years is higher for them.

Stronger Enforcement of Fair Lending Laws. Although the federal government has put in place a number of fair lending laws, both policymakers and economic researchers have expressed broad concerns about discrimination in credit markets, especially the mortgage market. Many studies have documented that minority loan applicants have significantly higher rejection rates than majority applicants with the same observable characteristics.[14] Although it is debatable whether the higher rejection rates necessarily indicate discrimination, these studies raised concerns about the enforcement of these laws.[15]

In 1990, two prominent fair-lending laws — the Community Reinvestment Act and the Home Mortgage Disclosure Act — were refocused to better ensure compliance with the law. The Community Reinvestment Act is intended to encourage depository institutions, such as banks, to help meet the credit needs of the communities in which they operate, including low- and moderate-income neighborhoods. The Home Mortgage Disclosure Act provides data that are used to determine whether financial institutions are serving the housing needs of their communities and to identify possible discriminatory lending patterns. The refocusing of these two laws benefited minority and low-income households and helped increase their homeownership rates and mortgage borrowing.[16]

HOUSING AND THE RECENT ECONOMIC DOWNTURN

Housing wealth fluctuates over time, and more and more American families own homes and more and more of them are holding large mortgages relative to their house value and income. Under such circumstances, we would expect such fluctuations to have

[13] See the article by James Poterba and the one by Dean Maki.

[14] See, for example, recent works by Alicia Munnell, Geoffrey Tootell, Lynn Browne, and James McEneaney, and by David Blanchflower, Phillip Levine, and David Zimmerman.

[15] See the article by John Walter for a review of the enforcement of some of the fair lending laws.

[16] Raphael Bostic and Breck Robinison argue that the effectiveness of CRA agreements in increasing lending activity is ultimately determined by the persistence and sophistication of community groups in monitoring compliance with CRA agreements. For discussions on other related housing policies, see the *Business Review* article by Satyajit Chatterjee and the one by N. Edward Coulson and the papers cited in those articles.

a large impact on consumption. For example, policymakers and academics widely believe that the steady increase in house value was the driving force behind increases in consumption expenditures during the economic softening and downturn between 1999 and 2001, when output growth slowed and the stock market plummeted.[17]

Using aggregate data on consumption and wealth, researchers have found that households' willingness to increase consumption when their wealth permanently increases is about the same whether the wealth increase is the result of owning stocks or housing: between 4 and 10 cents for each dollar of increased wealth.[18] Given the nearly $5000 billion drop in stock market wealth held by households and nonprofit organizations and the nearly $2000 billion increase in housing wealth as reported in the Federal Reserve Board's flow of funds,[19] we can conclude that increases in housing wealth offset close to half of the hit to consumption from declining stock market wealth between 1999 and 2001.[20] That is, increased housing wealth raised consumption by approximately $100 billion during this period.[21]

Since one important way for households to transform higher housing wealth into consumption is to extract home equity through selling the house, refinancing the mortgage, or taking out a home equity loan, it is not surprising that we observed an increase in mortgage LTV ratios from 1999 to 2001. Having said this, we should note that the calculations relating changes in consumption to changes in wealth refer to long-run effects. In the short run, one would imagine consumption may adjust more sluggishly to changes in wealth, especially to those in housing wealth. The numbers we present almost surely overestimate the positive effect of housing wealth on consumption in the short run.

Before concluding, it is worth pointing out that the investigations here were conducted on primary residences only. Anecdotal evidence suggests that important changes had also occurred in ownership of second homes, such as vacation homes, during the same period.

SUMMARY

During the last decade or so, more American families have become homeowners, homeowners have become more leveraged in financing their purchases, and the changes are uneven across households of different ages and incomes. Three primary factors help explain this observed trend: improvement in housing finance systems, an accommodating economic climate, and regulatory changes. Of course, more formal analyses are needed to quantify exactly the contribution of changes in each factor to the observed trends and to model the exact channel through which housing wealth has affected consumption.

The importance of these trends is underscored by looking at the role of housing in the recent economic slowdown and recovery. The stock market declines in 2000-2002 might have suggested a large decline in consumer spending. But instead of falling as consumer spending usually does during recessions, it continued to rise (albeit at a slower rate). This no doubt reflected the effects of stimulative monetary and fiscal policies, but as we discussed here, housing wealth may have also played a role by providing a cushion for many homeowners.

[17] In their recent study, Erik Hurst and Frank Stafford found that as mortgage rates plummeted between 1991 and 1994, cash-out refinancing produced an estimated expenditure stimulus of at least $28 billion. Speaking at the 2003 Philadelphia Fed Policy Forum, Frank Stafford also pointed out that people who paid premium rates to refinance in the late 1990s often subsequently got into financial distress and pulled back spending. As a result, policymakers cannot expect to use the mortgage refinancing channel recurrently over short periods. (For a more complete summary of Stafford's remarks at the Policy Forum, see Loretta Mester's article in the *Business Review*, Third Quarter 2004.)

[18] See the articles by Morris Davis and Michael Palumbo; Wenli Li; and Sydney Ludvigson and Charles Steindel. In a separate paper, however, Martin Lettau and Sydney Ludvigson argued that households increase spending by only 60 cents for a $100 increase in wealth, since individuals view most of the change in wealth as transitory. See the summary by Loretta Mester.

[19] The numbers are inflation adjusted using chained core PCE, with 2000 as the base year.

[20] Here I am treating the house price movement as independent of stock price changes. There are obvious reasons to believe that part of the housing boom is due to households' redirecting their investment from the stock market to housing.

[21] This assumes a marginal propensity to consume out of wealth of 0.05, that is, a $5 increase in consumption for each $100 increase in wealth.

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