Housing Affordability 1991 Methodology

Introduction

The purpose of this appendix is to explain the methodology used to measure homeownership affordability in this report. The approach taken is the same for each of the three years for which data are presented (1984, 1988, and 1991). Although the basic methodology is the same, changes in interest rates, fees and charges, and Federal National Mortgage Association (FNMA) and Federal Housing Administration (FHA) regulations did occur between the three survey years, and do affect the affordability calculations. These changes are noted below.

In addition, there are two significant differences in the methodology used in this report and the one used in an earlier Who Can Afford to Buy a House? report. Those two differences and their effects are also discussed below.

Criteria for measuring affordability. In this report, two primary approaches are used to provide a measure of homeownership affordability:

1. For each family and unrelated individual, a calculation is made using data on income, assets, and debt to determine the maximum-priced home the family or individual can afford.
2. For each family and unrelated individual, calculations are made using data on income, assets, and debt to determine if the family or individual can afford to purchase the criterion home in the area where it lives. Several criterion homes are used to measure affordability - a median-priced home, a modestly priced home, a low-priced home, a new single-family home, a price-adjusted home, and a condominium. For an explanation of these terms, see appendix B. For the values of each of these criterion homes, see appendix E.

Primary variables used in affordability calculations. The following key variables are used to calculate homeownership affordability:

- Mortgage type. Affordability calculations are made using two types of mortgage loans: (1) conventional fixed rate 30- year loans; and (2) Federal Housing Administration (FHA)- insured 30-year loans.
- Interest rates. For conventional fixed rate 30-year loans the interest rate used is the average contract interest rate on conventional loans closed during the survey period, determined from the Federal Housing Finance Board's (FHFB) Monthly Interest Rate Survey (MIRS). The rate for these loans was estimated at 9.51 percent in 1991, 9.79 percent in 1988, and 12.91 percent in 1984.
- For FHA-insured loans, the rate was determined based on information from the Department of Housing and Urban Development's (HUD) report on Average Prices for FHA-Insured Home Mortgages (Section 203), during the survey period. This assessment estimated that FHA-insured loans were 9.50 percent in 1991, 9.67 percent in 1988, and 13.00 percent in 1984.

- Criterion home. The criterion home is the value of the home used to determine affordability status. Six different criterion homes are used in the calculations. See appendix B for a definition of each criterion home, and appendix E for the actual value of each home.
- Income. "Available" money family income is used in all the affordability calculations. It is the income of the husband and wife only in a married-couple family, and the male or female only in a family with a male or female householder. The income data were collected during the 4-month reference period for each survey and converted to an annual amount by multiplying by 3. "Available" money family income includes income from:
    - Wages, salaries, tips, bonuses, etc.
    - Own business, farm, etc. after expenses
    - Social Security payments
    - U.S. Government Railroad Retirement pay
    - Veterans compensation or pensions
    - Black lung payments
    - Payments from a purchased sickness, accident, or disability insurance policy
    - Child support or alimony payments
    - Pension payments from a company or union
    - Federal Civil Service or other Federal civilian employee pensions
    - U.S. military, National Guard, or Reserve Forces retirement pay
    - State or local government pensions
    - Paid-up life insurance policies or annuities
    - Estates or trusts
    - Other payments for retirement, disability, or survivor
    - National Guard or Reserve pay
    - Mortgages
    - Royalties
    - Other permanent cash income not included elsewhere

  "Available" money family income excludes temporary and noncash income (including government transfers) from:

    - Federal or State Supplemental Security Income (SSI)
    - State unemployment compensation
    - Supplemental Unemployment Benefits
    - Other unemployment compensation
    - Worker's compensation
    - State, employer, or union temporary sickness or disability benefits
    - Aid to Families with Dependent Children (AFDC)
    - General assistance or General relief
    - Indian, Cuban, or Refugee Assistance
    - Foster child care payments
    - Women, Infants, and Children Nutrition Progam Food stamps
    - Other welfare
    - G.I. Bill and other VA educational assistance
    - Relatives or friends

- Lump sum payments
- Roomers or boarders
- A charitable group
- Incidental or casual earnings

Also excluded is income from rental property and income from interest or dividends from regular passbook savings accounts in a bank, savings and loan, or credit union; money market deposit accounts; certificates of deposit or other savings certificates; interest-earning checking accounts; money market funds; U.S. government securities; municipal or corporate bonds; stocks or mutual funds; and other interest- earning assets. Income from these sources is not included because the assets generating this income can be sold to provide cash to increase the initial downpayment to purchase the home.

Real estate taxes. Real estate taxes are estimated for each region based on data from the American Housing Survey (AHS). The following were used for each region for each year:

Tax Per $1,000 Value

	1991	1988	1984
Northeast	$13	$13	$16
Midwest	$14	$14	$14
South	$ 8	$ 7	$ 7
West	$ 8	$ 8	$ 7

Property insurance. Property insurance is estimated at $3 per $1,000 value for homes in all areas in each year based on guidelines set forth in the "Guide to Residential Financing".

Closing costs. Closing costs include costs for transfer taxes, title fees, and appraisal fees; and prepayment items such as real estate taxes and property insurance. Although they can vary from area to area, for conventional loans in this report they are estimated to be 3 percent of the total value of the property based on guidelines in the "Guide to Residential Financing". For conventional fixed rate mortgages these fees must be paid "up-front" and they cannot be financed. For FHA-insured loans, the administrative part of the closing costs (transfer taxes, title fees, etc.), as well as the loan origination fee can be financed (based on Department of Housing and Urban Development studies, the administrative closing costs are estimated to be 1.2 percent of the purchase price of the home).

Fees and charges. Fees and charges include all fees, commissions, discounts, and "points" paid by the borrower or seller in order to obtain a loan. They exclude charges for mortgage credit, life or property insurance, transfer taxes, and title fees. Fees and charges were estimated for

conventional loans based on data for conventional loans closed during the survey period, determined from the FHFB's MIRS. This estimate produced fees and charges of 1.62 percent of the mortgage amount in 1991, 1.98 percent in 1988, and 2.58 percent in 1984. For FHA-insured loans, fees and charges were estimated from HUD's report on Average Prices for FHA-Insured Home Mortgages (Section 203). They were estimated at 1.63 percent of the mortgage amount in 1991, 2.00 in 1988, and 2.90 in 1984. For FHA-insured loans, the discount part of the fees and charges must be paid "up-front". The remaining part - the loan origination fee - can be financed.

Down payment. The down payment is the cash portion of the price of the house that the buyer must pay from his/her own funds. The minimum down payment needed for conventional loans is 5 percent of the purchase price of the home and the amount cannot be financed.

For FHA-insured loans, the administrative part of the closing costs and the loan origination fee are added to the purchase price of the home to derive "total acquisition costs". The homebuyer is required to pay 3 percent of the first $25,000 of the total acquisition costs and 5 percent of the amount over $25,000.

Assets. Assets include all cash available in savings accounts, money market deposit accounts, certificate of deposits, money market funds, government securities, bonds, checking accounts and the net value of stock and mutual funds. The net value of stock is the gross asset value of the stock portfolio minus the amount borrowed on stocks in a margin account.

Assets also include the net equity available, after selling costs and discounts are subtracted, in rental income property owned, non-rental income property owned, debt owed from businesses owned, and mortgages owned; as well as the equity available in any currently owned home. The following discounts were applied:

- Equity in owned home and from sale of rental income property (10 percent) - Typical selling costs include brokerage fees of 7 percent and fix-up and transfer costs of 3 percent.
- Non-rental income property (15 percent) - This includes property such as vacation homes and undeveloped lots. Typical selling costs include brokerage fees of 10 percent and fix-up and transfer costs of 5 percent.
- Owned mortgages and debt from the sale of owned businesses (25 percent) - Both of these are debt instruments that are not very liquid. Typically they are sold to investors who require high rates of return on their investments.

Debts. Debt is the amount owed on credit cards, automobile loans, bank loans, outstanding home mortgages, and all other loans.

Total allowable debt. Under Federal National Mortgage Association (FNMA) guidelines for a conventional loan, total allowable debt for a family or unrelated individual is 8 percent of "available" monthly family income for consumer debt and 28 percent for mortgage debt. For an FHA-insured loan the total allowable debt is 41 percent for consumer and mortgage debt, with a maximum of 29 percent allowed for mortgage debt.

Total monthly payment on outstanding debts. Monthly debt payments are estimated at 3 percent of total outstanding debt (2 percent principal, 1 percent interest), a typical minimum payment required of consumers.

Excess debt. A family or unrelated individual has excess debt if the monthly payment on outstanding debts is greater than the total allowable debt. This excess debt must be paid down to the total allowable debt level using available cash in order to qualify for a mortgage.

Calculation to determine affordability level versus criterion home in area. There are two principal determinants of whether a family or unrelated individual can afford a criterion home: (1) does it have the necessary cash available to pay the minimum down payment, closing costs, excess debt, if any, and fees and charges associated with purchasing the home; and (2) after all available cash has been exhausted, does it have the necessary income needed to make the required monthly mortgage payments. If the answer to either question is "no", then they cannot afford the criterion home.

Conventional loans. The following specific steps go into the calculation of homeownership affordability for each family or unrelated individual for conventional loans:

1. Total "available" money family income, assets (transformed into available cash), debt level, and excess debt, if any, are determinded.
2. If there is excess consumer debt (over 8 percent of "available" monthly family income), the excess debt is paid down using available cash. If the available cash is not enough to pay the excess debt down to an acceptable level, the family or unrelated individual is not able to afford the criterion home.
3. The total amount needed for the minimum down payment, closing costs, fees and charges (including points) on the criterion home is determined. This amount is compared to the total remaining available cash (after any excess debt was paid down). If the available cash is not equal to or greater than the amount required, the family or unrelated individual is not able to afford the criterion home.
4. Any available cash still remaining is added to the minimum down payment to reduce the amount of the criterion home that has to be financed.
5. The mortgage needed to purchase the criterion home after all available cash is applied to the down payment is determined. The total mortgage needed is transformed into monthly payments of principal and interest based on the average interest rate for a conventional, 30-year, fixed payment mortgage.
6. Monthly payments for real estate taxes, property insurance, private mortgage insurance (if the down payment is less than 20 percent of the criterion home) are determined. These amounts plus the amount for principal and interest become the total monthly mortgage payment required.
7. According to FNMA guidelines, the maximum amount of income that can be allocated to mortgage payments is 28 percent. If the total monthly mortgage payment required exceeds 28 percent, then the family or unrelated individual is not able to afford the criterion home.

FHA-insured loans. The specific steps involved in the calculation of affordability for FHA-insured loans are identical to those for conventional loans except for the following:

1. For FHA-insured loans, the excess debt that must be paid down is debt greater than 41 percent of "available" monthly family income for consumer and mortgage debt combined, with a maximum of 29 percent allocated to mortgage debt.
2. The total amount needed for the minimum down payment, closing costs, fees and charges (including points) on the criterion home is determined. For FHA-insured loans, the homebuyer is required to pay "up-front" 3 percent of the first $25,000 of total acquisition costs (purchase price, plus the administrative part of the closing costs, plus the loan origination fee), and 5 percent of the amount over $25,000. In addition, the buyer is required to pay pre-paid items and any discount points. If the available cash is not equal to or greater than the amount required, the family or unrelated individual is not able to afford the criterion home using an FHA-insured loan. In 1984, the maximum allowable FHA-insured mortgage for high-cost areas was $90,000. In 1988 and 1991, the maximum allowable FHA-insured mortgage for these areas was $124,875. If the required mortgage for the criterion home was above this amount, the homebuyer would have to pay the difference between the required mortgage and the maximum allowable mortgage from available cash.
3. The monthly payments of principal and interest are based on the interest rates for an FHA-insured, 30-year fixed payment mortgage for each of the three survey periods. This rate was estimated to be 9.50 percent in 1991, 9.67 percent in 1988, and 13.00 percent in 1984.
4. The total monthly mortgage payment includes payments for principal and interest, real estate taxes, property insurance, and FHA mortgage insurance premium (regardless of the amount of the down payment).
5. For FHA-insured loans, the maximum amount of income that can be allocated to mortgage payments is 29 percent. Note: There were several changes in the FHA regulations in 1991. In February 1991, FHA implemented a new maximum loan- to-value ratio of 97.75 percent for properties appraised at $50,000 or more, and a ratio of 98.75 percent for properties appraised at less than $50,000. This change is implemented in the analysis of affordability for 1991 in this report. In July 1991, FHA implemented two other changes in policy. They added an annual mortgage insurance premium of 50 basis points, and limited the amount of closing costs that could be financed to 57 percent of the total. Since these changes occured after data was collected in 1991 (February to May), and since the approach used in this analysis was to use the underwriting policy in effect at the time the data was collected, these two changes are not reflected in this report.

Calculation of the maximum-priced home a family or unrelated individual can afford. The maximum-priced home that a family or unrelated individual can afford was calculated using the following steps for both conventional and FHA-insured loans:

1. Based on total "available" money family income and FNMA and FHA guidelines, the maximum allowable mortgage for a family or unrelated individual is determined.
2. Total available cash is added to the maximum allowable mortgage to establish the total funds available.

3. Amounts for closing costs, fees and charges, minimum down payment, mortgage insurance premiums, property insurance, and real estate taxes are deducted from total funds available. The remaining amount is the potential maximum- priced house that the family or unrelated individual can afford.
4. The amount of cash required to purchase the potential maximum-priced house is determined. For conventional loans, this amount includes a minimum down payment of 5 percent, closing costs, and fees and charges (for FHA-insured loans the cash required is 3 percent of the first $25,000 of total acquisition costs and 5 percent of the amount over $25,000, plus pre-paid items, plus any discount points).
5. If the total available cash is less than the amount of cash required, the potential maximum priced house is lowered based on the available cash and the amount of cash required for the potential maximum-priced house, until the maximum priced house is determined. This lowered figure becomes the maximum priced house that the family or unrelated individual can afford.
6. If the family or unrelated individual has no available cash they cannot afford any house, regardless of their income.

Comparability with earlier report. There are two significant changes in the methodology used to determine homeownership affordability in this report compared to an earlier Who Can Afford to Buy a House? report published in June 1991.

Income. In the earlier report, only income data from the last month of the 4-month reference period were used. These data were converted to annual income by multiplying by 12. In this report, income data for all three survey years are based on information collected during the entire 4-month reference period and converted to annual income by multiplying by 3. The purpose of this change is to minimize the effect of wide monthly fluctuations in income, and to reduce the number of families and unrelated individuals with no income or an income loss. "Available" money family income for 1988, using both methods is shown below.

Income (in 000's)	Based on 1-Month	Based on 4-Months
Total families and		
unrelated individuals	100,593	100,593
No income or loss	7,874	6,404
$1 to $4,999	6,564	7,315
$5,000 to $9,999	13,309	13,651
$10,000 to $14,999	13,144	13,026
$15,000 to $19,999	11,598	11,993
$20,000 to $24,999	10,103	9,747
$25,000 to $29,999	7,418	7,643
$30,000 to $34,999	6,699	6,717

$35,000 to $39,999	5,695	5,911
$40,000 to $44,999	3,867	4,128
$45,000 to $49,999	3,604	3,472
$50,000 to $59,999	4,047	4,127
$60,000 or more	6,672	6,457
Median	$19,000	$19,100

In this report, the United States is divided into 27 areas and the value of several criterion homes - median-priced, modestly priced, low-priced, and price adjusted - are determined for each of the 27 areas (the values for two criterion homes - new single-family and condominium - are determined within census division and region, respectively). Each family's affordability status is determined based on which of the 27 areas they live in, and if they can qualify to purchase the criterion home in that area. Using the earlier example, the affordability status of the family living in rural Wyoming would be based on the median-priced home outside metropolitan areas in the Mountain Division ($58,000), while for the family in Marin County, California it would be based on the median-priced home in the suburbs in the Pacific Division ($127,000).

The effect of these two methodological changes on the affordability status of families and unrelated individuals using a conventional fixed-rate 30-year mortgage is shown in Table C-1 below (the effects are similar for FHA-insured mortgages). The table shows the effect of the income change only and the cumulative effect of both changes. In all cases the differences between the original methodology and the new methodology are not statisitically significant.

Table C-1. Effects of Methodological Changes on Affordability

Status: 1988

	Cannot afford median-priced home 1/		
	Original methodology	With change in income only	With all methological changes
Using conventional fixed-rate, 30-year financing			

TOTAL			
Families and unrelated			
individuals......................	56.6	56.5	57.3
Families........................	47.9	47.8	48.6
Married couple................	39.3	39.1	39.7
Male householder..............	66.5	66.1	68.8
Female householder............	79.5	79.5	80.8
Unrelated individuals...........	74.6	74.8	75.5
CURRENT OWNERS			
Families and unrelated			
individuals......................	36.0	35.9	37.1
Families........................	30.9	30.8	31.8
Married couple................	25.5	25.4	26.1
Male householder..............	49.9	49.3	54.3
Female householder............	61.0	61.0	62.9
Unrelated individuals...........	53.0	53.2	54.9
CURRENT RENTERS			
Families and unrelated			
individuals......................	91.0	90.9	91.1
Families........................	90.4	90.1	90.5
Married couple................	86.5	86.0	86.4
Male householder..............	93.0	93.1	92.1
Female householder............	97.2	97.2	97.9
Unrelated individuals...........	91.6	91.7	91.8

1/ Differences are not statistically significant