

NAHB Priced-Out Estimates for 2020

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This article announces NAHB's "priced out estimates" for 2020, showing how higher home prices and interest rates affect housing affordability. The 2020 US estimates indicate that a \$1,000 increase in the median new home price (\$344,652¹) would price 158,857 U.S. households out of the market. In other words, 158,857 households would qualify for the new home mortgage before the change, but not afterwards. More households are priced out this way in 2020 than were in 2019, because lower interest rates combined with relatively strong income growth have put the median-priced new within range of more households, so there are more of them to price out.

Other NAHB estimates for 2020 show that 25 basis points added to the mortgage rate at 30-year fixed rate of 3.75% would price out around 1.3 million households. In addition to the national numbers, NAHB once again is providing priced out estimates for individual states and more than 300 metropolitan areas.

The Priced-Out Methodology and Data

NAHB priced-out model uses the ability to qualify a mortgage to measure housing affordability, because most home buyers finance their new home purchase with conventional loans, and because convenient underwriting standards for these loans exist. The standard NAHB adopts for its priced-out estimates is that the sum of the mortgage payment (including the principal amount, loan interest, property tax, homeowners' property and private mortgage insurance premiums (PITI), is no more than 28 percent of monthly gross household income.

As a result, the number of households that qualify for mortgages for a certain priced home depends on the household income distribution in an area and the mortgage interest rate at that

¹ The 2020 US median new home price is estimated by projecting the 2018 median new home price using the NAHB forecast of the Case-Shiller Home Price Index.

time. The most recent detailed household income distributions for all states and metro areas are from the 2018 American Community Survey (ACS). NAHB adjusts the income distributions to reflect the income and population changes that may happen from 2018 to 2020. The income distribution is adjusted for inflation using the 2019 median family income at the state² and metro³ levels, and then extrapolated it into 2020. The number of households in 2020 is projected by the growth rate of households from 2017 to 2018.

Other assumptions of the priced-out calculation include a 10% down payment, and a 30-year fixed rate mortgage at an interest rate of 3.75% with zero points. For a loan with this down payment, private mortgage insurance is required by lenders and thus included as part of PITI. The typical private mortgage insurance annual premium is 73 basis points⁴, based on the standard assumption of national median credit score of 738⁵ and 10% down payment and 30-year fixed mortgage rate. Effective local property tax rates are calculated using data from the 2018 American Community Survey (ACS) summary files. Homeowner's insurance rates are constructed from the 2016 ACS Public Use Microdata Sample (PUMS)⁶. For the US as a whole, the property tax is \$11 per \$1,000 of property value and the homeowner insurance is \$4 per \$1,000 property value.

Under these assumptions, 44.0 million (about 35%) of the 124.5 million US households could afford to buy a new median priced home at \$345,908 in 2020. A \$1,000 home price increase thus will price 158,857 households out of the market for this home. These are the households that can qualify for a mortgage before a \$1,000 increase but not afterwards, as shown in Table 1 below.

² The state median family income is published by Department of Housing and Urban Development (HUD).

³ The MSA median family income is calculated by HUD and published by Federal Financial Institutions Examination Council (FFIEC).

⁴ Private mortgage insurance premium (PMI) is obtained from the PMI Cost Calculator(<https://www.hsh.com/calcpmionly.html>)

⁵ Median credit score information is shown in the article "Four ways today's high home prices affect the larger economy" October 2018 Urban Institute <https://www.urban.org/urban-wire/four-ways-todays-high-home-prices-affect-larger-economy>

⁶ Producing metro level estimates from the ACS PUMS involves aggregating Public Use Microdata Area (PUMA) level data according to the latest definitions of metropolitan areas. Due to complexity of these procedures and since metro level insurance rates tend to remain stable over time, NAHB revises these estimates only periodically.

US Households Priced Out of the Market by Increases in House Prices, 2020

Area	Mortgage Rate	House Price	Monthly Mortgage Payment	Taxes and Insurance	Minimum Income Needed	Households That Can Afford House
United States	3.75%	\$344,652	\$1,568	\$428	\$85,533	44,176,242
United States	3.75%	\$345,652	\$1,573	\$429	\$85,781	44,017,385
Difference		\$1,000	\$5	\$1	\$248	-158,857

Calculations assume a 10% down payment and a 73 basis point fee for private mortgage insurance.

A Household Qualifies for a Mortgage if Mortgage Payments, Taxes, and Insurance are 28% of Income

US Household Income Distribution for 2020				
Income Range:		Households	Cumulative	
\$0	to \$9,765	7,784,259	7,784,259	
\$9,766	to \$14,647	5,395,994	13,180,252	
\$14,648	to \$19,530	5,369,213	18,549,466	
\$19,531	to \$24,413	5,834,752	24,384,218	
\$24,414	to \$29,296	5,350,547	29,734,765	
\$29,297	to \$34,178	5,699,130	35,433,895	
\$34,179	to \$39,061	5,277,566	40,711,461	
\$39,062	to \$43,944	5,302,642	46,014,103	
\$43,945	to \$48,827	4,816,518	50,830,621	
\$48,828	to \$58,592	9,281,263	60,111,884	
\$58,593	to \$73,240	12,331,980	72,443,864	
\$73,241	to \$97,654	15,627,456	88,071,320	
\$97,655	to \$122,068	11,401,858	99,473,177	
\$122,069	to \$146,482	7,278,430	106,751,608	
\$146,483	to \$195,310	8,229,548	114,981,156	
\$195,311	to More	9,507,033	124,488,189	

State and Local Estimates

The number of priced out households varies across both states and metropolitan areas, largely affected by the sizes of local population and the affordability of new homes. The 2020 priced-out estimates for all states and the District of Columbia are shown in Table 2 (available in the Additional Resources box), which presents the projected 2020 median new home price estimates and the amount of income needed to qualify the mortgage, and the number of households could be priced out if price goes up by \$1,000. Among all the states, Texas registered the largest number of households priced out of the market by a \$1,000 increase in the median-priced home in the state (14,143), followed by Florida (10,274), and California (8,870).

Table 3, which is available in the Additional Resources box, shows the 2020 priced-out estimates for 381 metropolitan statistical areas. The metropolitan area with the largest priced out effect, in terms of absolute numbers, is New York-Newark-Jersey City, NY-NJ-PA, where 6,172 households will be disqualified for a new median-priced home if price goes up by \$1,000. This is largely because New York metro area, where the median-priced new home is only affordable to 13.4% of households, is the largest metro area by population size with 7.4 million households. Chicago-Naperville-Elgin, IL-IN-WI metro area register the second largest number of priced-out households (4,964), followed by Houston-The Woodlands-Sugar Land, TX metro area (4,479). Compared to New York, the median priced homes in Chicago or Houston metro areas are relatively more affordable to begin with. Around 41.6% of households in Chicago and 45.0% households in Houston metro area are capable of buying new median-priced homes there.

Interest Rates

NAHB 2020 priced-out estimates also present how interest rates affect the number of households would be priced out of the new home market. If mortgage interest rate goes up, the monthly mortgage payments will increase as well and therefore higher household income thresholds to qualify a mortgage loan. Table 4 shows the number of households priced out of the market for a new median priced home at \$344,652 by each 25 basis-point increase in interest rate from 1.75% to 9.75%. When interest rates go up from 1.75% to 2.00%, around 1.47 million households could no longer afford buying median-priced new homes. An increase from 3.75% to 4.00% could price approximately 1.3 million households out of the market. However, about 738,000 households would be squeezed out of the market if interest rate goes up to 9.75% from 9.5%. This diminishing effect happen because only a few households at the thinner end of household income distribution will be affected. On the contrary, when interest rates are relatively low, 25 basis-point increase would affect a larger number of households at the thicker part of income distribution.

U.S. Households Priced Out of the Market by an Increase in Interest Rates, 2020

Mortgage Rate	Median New House Price	Monthly Mortgage Payment	Taxes and Insurance	Minimum Income Needed	Households That Can Afford House	Change in Households	Cumulative Change
1.75%	\$344,652	\$1,222	\$428	\$70,722	54,165,407		
2.00%	\$344,652	\$1,263	\$428	\$72,464	52,699,223	-1,466,184	-1,466,184
2.25%	\$344,652	\$1,304	\$428	\$74,237	51,406,811	-1,292,412	-2,758,596
2.50%	\$344,652	\$1,347	\$428	\$76,043	50,250,957	-1,155,854	-3,914,450
2.75%	\$344,652	\$1,389	\$428	\$77,880	49,074,991	-1,175,966	-5,090,416
3.00%	\$344,652	\$1,433	\$428	\$79,748	47,879,212	-1,195,779	-6,286,195
3.25%	\$344,652	\$1,477	\$428	\$81,647	46,663,938	-1,215,274	-7,501,469
3.50%	\$344,652	\$1,522	\$428	\$83,575	45,429,499	-1,234,439	-8,735,908
3.75%	\$344,652	\$1,568	\$428	\$85,533	44,176,242	-1,253,257	-9,989,165
4.00%	\$344,652	\$1,614	\$428	\$87,520	42,904,524	-1,271,718	-11,260,883
4.25%	\$344,652	\$1,661	\$428	\$89,535	41,614,713	-1,289,811	-12,550,694
4.50%	\$344,652	\$1,709	\$428	\$91,578	40,307,190	-1,307,523	-13,858,217
4.75%	\$344,652	\$1,757	\$428	\$93,647	38,982,343	-1,324,847	-15,183,064
5.00%	\$344,652	\$1,806	\$428	\$95,744	37,640,568	-1,341,775	-16,524,839
5.25%	\$344,652	\$1,856	\$428	\$97,866	36,318,663	-1,321,905	-17,846,744
5.50%	\$344,652	\$1,906	\$428	\$100,013	35,315,883	-1,002,780	-18,849,524
5.75%	\$344,652	\$1,957	\$428	\$102,184	34,301,646	-1,014,237	-19,863,761
6.00%	\$344,652	\$2,008	\$428	\$104,380	33,276,256	-1,025,390	-20,889,151
6.25%	\$344,652	\$2,060	\$428	\$106,599	32,240,018	-1,036,238	-21,925,389
6.50%	\$344,652	\$2,112	\$428	\$108,840	31,193,240	-1,046,778	-22,972,167
6.75%	\$344,652	\$2,165	\$428	\$111,104	30,136,227	-1,057,013	-24,029,180
7.00%	\$344,652	\$2,218	\$428	\$113,388	29,069,287	-1,066,940	-25,096,120
7.25%	\$344,652	\$2,272	\$428	\$115,693	27,992,725	-1,076,562	-26,172,682
7.50%	\$344,652	\$2,326	\$428	\$118,018	26,906,844	-1,085,881	-27,258,563
7.75%	\$344,652	\$2,381	\$428	\$120,363	25,811,946	-1,094,898	-28,353,461
8.00%	\$344,652	\$2,436	\$428	\$122,726	24,819,240	-992,706	-29,346,167
8.25%	\$344,652	\$2,491	\$428	\$125,107	24,109,365	-709,875	-30,056,042
8.50%	\$344,652	\$2,547	\$428	\$127,505	23,394,299	-715,066	-30,771,108
8.75%	\$344,652	\$2,604	\$428	\$129,921	22,674,225	-720,074	-31,491,182
9.00%	\$344,652	\$2,660	\$428	\$132,352	21,949,326	-724,899	-32,216,081
9.25%	\$344,652	\$2,718	\$428	\$134,799	21,219,777	-729,549	-32,945,630
9.50%	\$344,652	\$2,775	\$428	\$137,261	20,485,753	-734,024	-33,679,654
9.75%	\$344,652	\$2,833	\$428	\$139,738	19,747,424	-738,329	-34,417,983