



The Homeowners Cost of Living (HCOL)

A White Paper

INTRODUCTION..... 3

THE CPI PROBLEM 3

DYNAMIC ASPECTS OF HCOL 5

 INFLATIONARY PRESSURES 5

 DEFLATIONARY PRESSURES 5

MEANS VERSUS MEDIANS..... 6

OUTLIERS AND TOP-CODING 7

LOAN & TAX AMOUNT RECENCY 7

SAMPLE SIZES: HCOL VERSUS CPI 8

MAY 2023 HCOL DATA & INFLATION..... 9

IMPACT ON THE CPI 10

SMR’S CALCULATION METHODOLOGIES 11

 SOURCE DATA..... 11

 SOLUTIONS..... 11

 CALCULATING MONTHLY PAYMENTS 12

 ABOUT ADJUSTABLE-RATE MORTGAGES 13

 ONE-TIME REFINANCING COSTS 14

ABOUT THE CREDIT RISK DATA 15

 DOES RISK STILL EXIST? 15

 WHAT WE MEASURE 16

HOME VALUE CHANGES 17

SUMMARY 18

ABOUT SMR RESEARCH..... 18

Introduction

SMR Research's Homeowners Cost of Living (HCOL) measures monthly spending on mortgages and property taxes by U.S. homeowners who live in the houses they own (owner-occupied).

Additional data and spreadsheets track homeowner credit risks and changes in home values, with national totals and details for the largest urban counties.

The primary purpose of the HCOL is to supplement and correct the monthly Consumer Price Index (CPI) created by the U.S. Bureau of Labor Statistics (BLS). The CPI measures spending and prices on most products and services but not on home mortgages or property taxes.

We measure monthly mortgage and property tax payments for more than 50 million owner-occupied households each month. These are a majority of all owner-occupied homes in the nation.

Raw data are sourced from local tax assessors and county recorders.

The CPI Problem

CPI is the key monthly measure of U.S. price inflation.

In most cases, the BLS goes to great lengths to gather data on actual amounts spent – and at what price – for hundreds of consumer goods and services. But the system breaks down on a category called “shelter costs.”

In the CPI, “Shelter” costs are the single most heavily weighted item, accounting for more than one-third of the entire CPI number. BLS looks at two groups in the Shelter category: renters and homeowners.

For renters, BLS measures the amounts they pay in rent in any time period.

But the same is not true for homeowners, by far the larger of the two groups. Homeowner shelter costs are weighted to account for fully one-fourth of the entire CPI.

When looking at homeowners, the BLS economists note that amounts paid monthly for mortgage loans, home equity loans, and property taxes are not really “spending.” They are investments in an asset (the real property).

The problem this creates is that there is no “shelter” cost left to measure for homeowners. Payments for utilities, repairs, furnishings, and insurance are measured elsewhere in the CPI.

Debt payments and property taxes are the main expenses, and if you are not going to count them, you're stuck. You know that homeowner shelter cost is critically important, but you have no way to measure it.

BLS chooses to solve this dilemma by simply applying the renters' rate of inflation to homeowners. They say that if homeowners were renters, that is the experience they would be having.

In our opinion, this is like saying that if all dogs were cats, they would stop barking. Yes, they would – but dogs are not cats, and homeowners are not renters.

Three facts instantly underscore how renters and homeowners differ on their vulnerability to inflation:

1. Virtually all renters must pay rent. Rents often increase.
2. According to both the Census Bureau and our own data, 37% of homeowners own their houses debt-free. Their mortgage payments cannot rise – because they do not have mortgages.
3. Of homeowners who do have mortgage debt, most of the loans are 30-year or 15-year fixed-rate loans. On these, the monthly payments stay the same year after year, defying inflation.

This is not to suggest that home ownership is inflation-proof. In any community, there are events that can increase the community's aggregate HCOL. Still, the HCOL is generally more stable than renter costs.

We agree with BLS that mortgage and property tax payments are investments in an asset, but they certainly are part of every homeowner's cost of living.

The semantic difference between the “spending” that BLS wants to measure and the “cost of living” that our data measures is an ephemeral technicality. A homeowner struggling to pay the mortgage would be astonished to hear that this cost is not part of his cost of living.

The peculiar BLS inflation method for homeowners has a huge, distorting influence on the reported total rate of inflation.

For the month of May, 2023, the BLS-reported annual rate of inflation in the entire U.S. was 4.0%.

If we were instead to use the median increase in actual homeowner shelter costs, the inflation rate of 4.0% would have been only 2.7818% – meaning the Federal Reserve’s battle against inflation was nearly won.

Dynamic Aspects of HCOL

Inflationary Pressures

The HCOL data do reflect inflationary trends, merely more muted than changes can be in renter costs.

Although the HCOL tends to be less volatile than renter costs, there are events that change monthly aggregate results.

Home buyers are a key influence. Buyers usually pay more for the house than the sellers paid. And as of the first half of 2023, their mortgages are often at a higher rate of interest. So, in most cases, a modest monthly payment becomes a much larger one.

This is a key driver of HCOL inflation in any community, but the impact is often modest because new home buyers in any year are a small minority of total homeowners. The home buyer influence is greatest in locales where population is growing fast.

Inflationary pressure also comes, typically, from rising property taxes. There are places where property taxes actually decline year-over-year, but most of the time, they rise a little on a regular basis.

Deflationary Pressures

Downward influences to aggregate HCOL also can occur.

In any given time period, some homeowners will pay off their mortgages and achieve debt-free status. Property taxes can also decline, sometimes as a result of taxpayer revolts, and periods of low or falling mortgage interest rates can encourage mortgage loan refinancing.

Some refinance into smaller loans, or at lower interest rates, causing their monthly payments to fall. Others may refinance into larger mortgages (so-called cashout loans), muting the overall downward push typically associated with refinancing.

When rates decline, there also are refinances from existing 30-year mortgages into 15-year mortgages. In these cases, monthly payments usually increase – a tradeoff for the homeowner against much lower lifetime interest charges.

Nevertheless, refinancings are important. In many years, they greatly outnumber home purchases. But the only way to judge the impact of them on shelter costs is to do the math on each homeowner, calculate the post-refi monthly payment, and aggregate the results.

Means Versus Medians

In the HCOL, we determine both a mean average year-over-year change in costs, and also a median year-over-year change.

While both are important, we give highest priority to the median values, since they represent the midpoint number of any series rather than arithmetic averages, which can be heavily influenced by outliers. In this case, the median represents the most typical homeowner household.

For example, there are some jurisdictions (often rural) where a slight majority of homeowners are debt-free. In these places, the median (most typical) mortgage payment is zero, but the mean payment is a lot more.

There are mean versus median differences in property tax costs, too. Many states have programs that discount tax amounts for people of limited means. Often, these are called “homestead” tax rates. The result of these programs is to bunch up numbers of homeowners paying lower-than-average taxes, while others may be paying far more – which leaves differences in cost changes measured by medians versus means.

So, there can be great individual extremes in homeowner cost inflation. A homeowner with no mortgage or a long-term fixed-rate mortgage, who also lives in a place with no change in property taxes, will have zero shelter inflation. But a homeowner who moves from a modest home to a more expensive one in a rising interest-rate period may experience vast shelter inflation, perhaps even doubling their prior monthly costs.

The challenge in our system is to aggregate these often disparate realities and compute a mean and median experience – nationally or by state or county.

Outliers and Top-Coding

We believe HCOL medians are most important because shelter cost “outliers” can be extreme and can skew mean average results.

When you look at a gallon of gasoline, the cost is fairly similar everywhere. But home prices in Silicon Valley, CA, are more than 10 times higher than in Cleveland, thus mortgage monthly payments can be similarly different.

Looking at property taxes, one also sees dramatic differences by locale, with New Jersey being most expensive and Alabama being dramatically lower.

“Top-coding” is an expression used often by the Census Bureau. It refers to a decision not to use a number that goes beyond some reasonable limit – the purpose being to exclude the outliers.

We exclude from our universe any homeowner record where the mortgage amount exceeds \$15 million. Property taxes are top-coded at \$100,000 per year.

Other outliers can represent errors. There are 108 million total house records in our database, all sourced from local tax assessors and county recorders that document these items by hand, making the data susceptible to errors.

To combat this, we ignore records where the data suggest a probable error. We ignore records where an originated mortgage amount is less than \$3,000. We also ignore data when the property tax amount is less than \$50 per year or is missing in the homeowner record.

We also compare the originated mortgage amount to the home’s estimated market value. If the loan amount is more than three times greater than the market value, it’s highly unlikely that any lender would agree to such a deal, so we skip the record.

Loan & Tax Amount Recency

SMR receives raw loan and property data from a major national vendor with whom we have worked with since 2004.

The vendor is a trustworthy and reliable source of information, yet little can be done to change the habits of local government officials. Some county recorders do not get around to posting loan and home purchase events to public

records for months at a time. Allegheny County, PA (Pittsburgh) is a notorious example.

We do not use data from counties where our algorithms show the loan data is too old. We also skip data from counties where property tax amounts have not been updated from a prior year.

Fortunately, nearly all of the largest U.S. counties do not have these recency problems.

After exclusions due to individual outlier records and inadequate county data, we are able to utilize (in May 2023) 53.2 million owner-occupied homes.

Sample Sizes: HCOL Versus CPI

To compute rent costs, the BLS collects data from about 50,000 residences, with costs for a portion of this sample updated every six months. Recently, this method was explained by BLS on the following web page:

<https://www.brookings.edu/blog/up-front/2022/05/18/how-does-the-consumer-price-index-account-for-the-cost-of-housing/>

BLS then makes the assumption that homeowner costs have changed the same as costs for renters – without any proof or even investigation.

By contrast, SMR made hard counts of monthly mortgage and property tax payments for 53.2 million owner-occupied homes in May 2023, versus a similar 52.9 million in May of 2022.

Thus, our sample size is more than 1,000 times larger than that used by BLS – and we are actually measuring homeowners instead of making unwarranted assumptions about them.

May 2023 HCOL Data & Inflation

According to the Census Bureau's American Community Survey, there recently were 82.8 million owner-occupied homes in the U.S. at the end of 2020. Thus, the universe we measured was a 64% sampling of the entire country.

The Census Bureau further reports that 63% of owner-occupied homes had mortgages; 37% owned their homes free and clear of housing debt. Those with zero mortgage debt are often older people who have managed to pay off prior debt.

In our own data, in 2023, 36.42% of homeowners had no home-secured debt, down very slightly from 36.44% in the 2022 period. **Our debt-free numbers thus were nearly identical to the Census findings.**

Means

Aggregate mortgage payments in May of 2023 were \$46.9 billion, up 6.54% from \$44.05 billion in May 2022.

The mean mortgage payment for all homes with home debt was \$1,387, up 5.88% from \$1,310 in May 2022. The mean mortgage payment for all owner-occupied homes, including those with no debt, was \$882, also up 5.88% from \$833 in May 2022.

Monthly amounts for property taxes had a mean average of \$366 in May 2023, up 3.68% from \$353 in May 2022.

On a mean average basis, the sum of mortgage and tax payments for all homeowners was up 5.23% from 2022.

Medians

Median changes were lower than means.

The median mortgage payment for all homeowners was up 3.00% from May 2022 to \$721. This median includes those with no mortgage.

The median tax payment, per month, rose 3.70% to \$308.

The median total cost of both debt payments and taxes was \$1,029 in May 2023, up 3.21% from \$997 in April 2022.

Impact on the CPI

In May, 2023, the BLS-published shelter cost for owner-occupied homeowners was up 8.0% from the same period in 2022. This was the BLS assuming, without evidence, that renters' and homeowners' shelter costs are the same.

However, in our study of actual monthly aggregate cost changes for homeowners, their shelter costs only rose 5.23% on a mean basis and 3.21% on a median basis. **So, the CPI number was dramatically too high.**

If we swapped in the median actual year-over-year change in debt payments and taxes, replacing the 8.0% figure, it would have greatly altered the overall rate of inflation that BLS has published.

That overall figure was a 4.0% U.S. inflation rate in the year ended May, 2023. But, from our study, which considers the 25% weighting of this shelter cost and the median cost of monthly debt and tax payments, the rate of U.S. inflation only was 2.7818%.

SMR's Calculation Methodologies

Source Data

There are only a few large vendors of tax assessor and county recorder data in the United States. SMR obtains its data from one of them.

These data are well-known to contain imperfections, primarily of four kinds:

- 1) In some counties (usually rural and low-populated) no one is gathering the loan data even when they are gathering the tax assessor data on home ownership and structure.
- 2) Loan data in some places are out of date, as noted earlier.
- 3) Loan amounts can be erroneously typed into the public records and may appear in error despite editing and proofreading. For instance, a loan of \$120,000 might appear as \$120,000,000 – a rare occurrence, but possible.
- 4) Property taxes are reported as annual sums, and, like the loan data, may contain errors. At present, there is a tax amount problem in the data we have received in Maryland. Therefore, we have temporarily excluded Maryland from our HCOL results – although Maryland data on home values and credit risks is valid.

Solutions

We exclude some counties from our sampling due to the problems with loan and tax data recency. We also exclude some individual home records due to possible errors or top-coding, as described earlier.

Fortunately, the larger a county is in population, the more reliable the public records often are, certainly including loan data recency.

Our data are consistently reliable in counties that include the cities of Los Angeles, Chicago, San Diego, Houston, Phoenix, Philadelphia, Seattle, Dallas, Miami, Detroit, Tampa, Columbus, San Antonio, and most other major population centers.

By using county-level data, we measure not only center-cities but also most suburbs.

New York City is a special case. Unlike the rest of the USA, most New York residents are renters instead of homeowners. Also, our home structure data for co-op apartments sometimes refers to the entire building rather than

individual units. As a result, we have reliable data in only one of the New York City boroughs (Staten Island), but we do have coverage in several other parts of New York state (including populous Nassau County on Long Island).

We also compare our aggregated data at the county level to numbers from the Census Bureau's American Community Survey, 5-year averages as of 2021.

Specifically, we look at numbers of homeowners with mortgage debt in our data against ACS data, and we exclude the use of a county's records if it appears our percentage with debt is significantly too low (meaning we might have missed some loans).

We are encouraged by the fact that we end out with almost exactly the same national number for debt-free homeowners as reported by the Census.

Regarding homes by type, we include all 1-4 unit houses that are owner-occupied, including condominiums and mobile homes, but excluding timeshares. A large majority of homes by type are single-family residences.

Calculating Monthly Payments

Loan data from the county recorders does come with a date, an amount, a term (number of years for the mortgage), and a rate of interest.

Dates and amounts are always populated, term is nearly always populated, and the interest rate is usually, but not always, populated.

In cases where the interest rate is not available in the public data, SMR Research uses a statistical model to estimate the rate.

We look up the average mortgage interest rate in the same week as a loan's origination (as published in the Freddie Mac lender survey). Then, we adjust that rate based on the loan-to-value ratio and other details.

Freddie's weekly lender survey goes back to 1971.

There is a standard amortization formula that's been in place for many years to calculate a monthly payment amount for principal and interest, based on loan size, term, and interest rate. That's what we use per homeowner record.

Home equity loans must be estimated in terms of a monthly payment obligation. Nationally, using regulatory data on quarterly results of U.S. banks, we can see that the average outstanding amount on a home equity line of credit is almost exactly 50% of the line amount.

Data we receive on these lines almost always refer to credit lines, so we look at half the line and compute the monthly payment on that amount.

However, there are instances where home equity loans are produced simultaneously with first-lien mortgages – usually to buy a house and avoid paying private mortgage insurance when one loan exceeds 80% of the home purchase price. These so-called “piggyback” loans are less common today than they were in the early 2000s, but some still occur. When they do, we calculate the payment at 95% of the home equity line amount instead of 50%.

Payments required on home equity loans comprise the least certain estimates in our process. However, fewer than 10% of homes have such loans, mitigating the problem to some extent.

About Adjustable-Rate Mortgages

Adjustable-rate mortgages are a small problem in our HCOL process.

In a period of rising interest rates, mortgages with adjustable rates (ARMs) would have an upward impact on HCOL annual change – and the reverse during a period of falling rates.

Also, when rates are rising and home prices are high, as is true today, ARMs become more popular with borrowers. Still, they recently were only around 10% of all loans produced in a given month.

In the distant past, ARMs once reached as high as roughly 30% of all new loans. But today, looking at all of the existing loans in the country, ARMs are less than 5% of that total. Starting in about 2007, ARMs fell out of favor and nearly all new loans had fixed payments.

Unfortunately, we cannot incorporate the impact of ARMs in the HCOL method. One reason is that not all loans with ARM terms are clearly disclosed in the public records.

In addition, ARM loan types have changed. Previously, nearly all ARMs had an annual rate adjustment occurring once per year with a maximum annual and lifetime cap on the amount of the potential increase or decrease. This is no longer the case for most new ARMs.

Today, ARMs typically start out as fixed-rate loans and then convert to adjustable payments later on. The change may occur after 5 years, 7 years, or 10 years. In addition, the rate change that might occur when the changeover takes place may be according to any of several formulas.

We are not getting the changeover periods or the rate change formulas on all the ARMs, therefore we cannot possibly calculate what their impact would be or when it would occur on HCOL totals.

Because ARMs are still a very small minority of total existing loans – and because their rate changes may be quite a long time after loan origination – we are not overly concerned about leaving ARMs out of our summations.

One-Time Refinancing Costs

Refinancings of mortgages often do lower monthly payments, but there are costs associated with these loans: a variety of points and closing costs, just as if the loan were being done on a new home purchase.

As is true with ARMs, we do not have data on the exact total closing costs of each refinancing loan.

Using the data that is available, we consider only monthly debt payments and a monthly incremental amount to pay property taxes.

Over time, and despite up-front costs, refinancings logically would lower the HCOL. Even when someone with a 30-year loan refinances into a 15-year loan, raising monthly payment costs, the decision ultimately would mean paying off the loan sooner, resulting in a monthly payment reduction to zero.

In any case, concern about inflation mainly exists during periods when interest rates are rising. These times are when refinancing ebbs, making one-time refinancing costs a lesser issue.

About the Credit Risk Data

Does Risk Still Exist?

In our monthly subscription reports, we include a measurement of several homeowner numbers pertinent to credit risk.

It was homeowner credit risk in 2006 and 2007 that brought on the Great Recession and a worldwide financial panic.

Things are different today in some respects (notably the disappearance of most pure-play subprime lenders). But in other respects, not much has changed.

The entire mortgage lending system still rewards participants if a loan is approved, not if it is denied. This sets up the temptation to take inordinate risks.

Realty brokers and agents earn commissions only if a home is sold. The commission is a percentage of the selling price, so agents are incentivized to steer prospective buyers to the most expensive homes they could possibly afford.

Meanwhile, mortgage loan officers still often earn commissions if a loan applicant is approved, and no commissions on loans denied. The temptation is to manipulate applicant data on incomes, jobs, and property values.

Mortgage companies employing the loan officers also typically sell the loans they produce to Fannie Mae or Freddie Mac, or package loans into Ginnie Mae securities. If a loan applicant is denied, the company has nothing to sell, so the temptation is to always approve.

Appraisal firms also have pressure. A firm that often squelches a deal by providing a low property value estimate risks alienating the lenders who hire them. Anger the lenders and you may have a serious problem.

Meantime, military veterans still can get VA-sponsored home purchase mortgages with no downpayment, so they have no equity in the home when moving in. It takes years to build meaningful equity, and foreclosures always have correlated with owner equity.

It's also important to consider FHA loans, which were set up to provide mortgages to applicants with modest incomes or a somewhat tainted credit history.

In our sampling, recently spanning 35.3 million homes with mortgages, about 20% had either FHA, VA, or personal loans. The personal loans are usually

seller-financing, made available to a borrower when the seller has trouble finding a buyer (who in turn can't get a conventional mortgage).

The 20% level we see is probably an understatement. Our most reliable data pertains to larger and more populous places with somewhat higher-than-normal home prices. Less expensive venues would often have more of the risky loans.

What We Measure

SMR is not a credit bureau, therefore we do not have credit scores on individual borrowers.

However, in the horrifying 2006-2007 startup of the mortgage crisis, credit scores were not the prime determinant of risk. The #1 predictor of trouble was a homeowner's combined loan to value (CLTV) ratio.

The CLTV is a combination of mortgage and any home equity loan balances owed as a percent of the home's market value. When CLTV is 100% or more, the borrower is called "under water," owing more than the home is worth.

We can measure this using estimated CLTV, and we do so at the 95%-plus level. At 95%, if a homeowner wanted to sell his home, the costs to sell would still mean he was under water. In 2005 and 2006, our data on average CLTV by lender almost perfectly forecast which lenders would soon go bankrupt.

We also measure the percent of borrowers with FHA, VA, and personal loans. And we can count those who have defaulted in the past in the same home, or who have a history of subprime borrowing – which we define as having obtained a loan with an interest rate at least 200 basis points higher than the norm in the same week or having obtained a loan from one of the subprime lending specialists.

SMR has used these and other variables in a multivariate regression model to develop a foreclosure score. The higher the score, the more likely a foreclosure will occur. Using this score, we can count the number of borrowers whose scores are at least twice the average.

We do not supply any of this data to any lender for making a decision on any loan applicant. We merely use it to understand risk levels for lenders, in large geographic areas, or at the national level.

Home Value Changes

Home values are another important topic, covered separately in the HCOL monthly series.

Values and risks are highly correlated. If values fall, under-water borrowers instantly increase.

SMR is not the only firm evaluating home value trends. It's an old practice.

The Federal Housing Finance Agency operates several home price indexes with quarterly updates.

The well-known Case-Shiller Index uses a repeat sales method, but this limits results to only huge metro areas. The National Association of Realtors measures local selling prices by quarter, not by month.

Our goal was to provide new data monthly, and without repeating any of these other methods. We computed home market values per square foot of building area in current and prior month time periods.

The main limitation of the other methods is that there are usually not enough homes sold to make conclusions each month and in any locale. We instead turned to automated valuation model (AVM) values.

These are AVM dollar amounts, which are estimates built largely from sales comparables. New home sale prices ripple through all the other homes in the same vicinity, changing their AVM values.

In our method, we select a home with a current AVM value and building square footage and then look up the same home in the prior month. The square footage must be the same, but then how have the AVM values changed? We do this for more than 50 million homes monthly.

At the national level, a month-over-month change in home value per square foot is often very small. At the county level, however, one often can see where values are declining or rising.

As of May 2023, values were declining in much of California, for example. They were still rising in southeast Florida. This is illustrated further in the subscription data.

Summary

We created the HCOL data package because we believed that otherwise, no one had access to key information that economists and government officials badly needed.

No one was actually measuring the changing cost of home ownership nationwide – a strange fact in the midst of grave general concern about inflation.

Also, we are at a time when home prices could be in jeopardy for multiple reasons. They've grown far faster than incomes for at least 10 years, causing poor affordability – and now rising interest rates are another threat to prices.

If prices fall as they did from late 2006 through 2011, will we be in for another Great Recession? Will foreclosures skyrocket?

No one knows, and one reason for that is that no one is tracking risk indicators in the entire pool of homeowners. So, in our HCOL product, we have included tracking of several key risk elements.

Finally, there's the matter of home values. We see multiple (and differing) versions of where home prices have been headed: the data from the National Association of Realtors, from the Case-Shiller index, and from the Federal Housing Finance Agency, to name three.

Our own method is to look not merely at recent sales, but how those sales and any other events have changed the AVM values of all homes. Doing it this way allows us to view so many properties that we can see what's happening month by month instead of quarterly.

We hope you find these new data sets worthwhile. Thank you for your interest.

About SMR Research

SMR Research, based in Hackettstown, NJ, is a producer of real estate, loan, and company data. Founded in 1984, SMR is the longest-tenured U.S. research firm specializing in housing and lending events, trends, and risks.

Web: www.smrresearch.com

Email: info@smrresearch.com

Phone: 908-852-7677