Chicago Fed Letter

Homeowners insurance and climate change

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Over the past 25 years, the U.S. has experienced a sharp increase in climate-related disasters totaling billions of dollars in damages.[1] For those whose homes are destroyed, the financial impact can be devastating. Fortunately, many have some of their losses covered by homeowners insurance. In 2017—a particularly costly year in terms of weather-related damages—insurers reported around $68 billion[2] in losses from homeowners insurance claims. Still, with the number and intensity of climate-related disasters on the rise, it is important for us to understand the degree to which homes are underinsured, either through having no coverage or not enough coverage.

In this *Chicago Fed Letter*, we use data from the *American Housing Survey* (AHS) to provide new insights into how insurance coverage is distributed among homeowners in the United States and what that implies for the potential impact of climate change on homeowners. Unlike car insurance, homeowners insurance is not required by law. Rather, homeowners are generally required to have insurance as a condition for mortgage financing. However, individuals who own a home without a mortgage (e.g., those who have paid off their mortgages) have a choice about whether to purchase insurance, and we know little about the factors influencing that choice.

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Between 2007 and 2017, we estimate that about 6% of all U.S. homeowners lacked insurance on their property. Our estimates suggest that Black and Hispanic homeowners are most likely to be in the uninsured group. Years of education, income, and home value are all positively correlated with having homeowners insurance. We also find some tendency for people to drop insurance coverage shortly after paying off their mortgage when they are free to do so—especially among Black and Hispanic homeowners, even after we control for education, income, and home value.

Overall, our results highlight that while homeowners insurance is common, it is not universal, which means that some homeowners are exposed to a significant level of financial risk from climate change.

Why is homeowners insurance important?

Using data from the AHS spanning every other year between 2007 and 2017, we show in figure 1 that on average, close to 70% of U.S. households are homeowners (see box 1 for more on the survey). For many of these households, particularly those close to retirement age, a disproportionate share of their wealth is tied up in their home (2016 *Survey of Consumer Finances*; Apgar and Zhu, 2005).

Box 1. The *American Housing Survey*

For our analysis, we use data from the *American Housing Survey*. These data are uniquely suited to providing a broad overview of homeowners insurance coverage in the United States as the survey contains demographic data as well as housing cost data. The data are collected by the U.S. Census Bureau along with the U.S. Department of Housing and Urban Development (HUD). The survey is conducted every two years for the same housing units, but not necessarily the same households, and gathers data on topics including, e.g., the physical attributes of a home and the race and ethnicity, income, and education level of its current inhabitants. The public use files do not contain disaggregated information on the geographic location of respondents; thus, we focus on national estimates. For our primary analysis, we exclude the roughly 1% of homes from our analysis that are mortgaged but report no premiums as this discrepancy is likely due to reporting errors.

NOTE: In 2015, the AHS underwent a major overhaul that included a new sample of households, so it is not possible to compare data prior to 2013 to data from 2015 onward.

1. Homeowners in the *American Housing Survey*, 2007–17

	2007	2009	2011	2013	2015	2017
Percentage of population who are homeowners	0.70	0.69	0.67	0.66	0.64	0.65
Percentage of homeowners with mortgages	0.60	0.61	0.62	0.60	0.59	0.59
Percentage with homeowners insurance	0.94	0.95	0.94	0.94	0.93	0.93
Observations	38,386	44,361	51,154	59,210	59,544	57,213

NOTES: All means are weighted to be representative of national averages. Overall sample is conditioned on respondents being present for an interview and those who either own or rent a housing unit.
SOURCES: Data from U.S. Census Bureau, 2007–17 *American Housing Survey* Public Use Files; and authors' calculations.

Moreover, housing wealth has been linked to broader, beneficial economic outcomes such as retiring early (Farnham and Sevak, 2007) and increased consumption (Bostic, Gabriel, and Painter, 2009; Iacoviello, 2011). As such, with climate-related damage becoming more prevalent, homeowners insurance not only provides important protection against property damage, but it can also serve as a buffer against broader financial risks.

Figure 1 shows that on average, 94% of homeowners have homeowners insurance. While this share is high, a large portion is likely attributed to mortgaging rules that require insurance. Indeed, roughly 60% of homeowners are currently making mortgage payments. Next, we take a closer look at additional factors associated with having homeowners insurance.

Who has homeowners insurance?

While most homeowners are covered by insurance, a nontrivial number—on average, 12.3% of non-mortgaged homeowners—remain uninsured. In 2017, we estimate the value of uninsured owner-occupied housing was $626 billion. Given that mortgage financing generally requires insurance, we assume that almost all uninsured households do not hold mortgages. One reason for home-owners to be mortgage-free is simply that they finished making their payments. In addition, there are certain types of homes, such as mobile and manufactured homes, that may be financed outside of the traditional private-mortgage market. Moreover, small-dollar mortgages for single-family homes (e.g., under $70,000) can be difficult to secure. As such, certain homeowners may not be subject to a lending requirement to obtain insurance or the requirement might vary depending on the type of financing and/or lender involved.

Figure 2 provides summary statistics for homeowners in our data split by type of home (mobile versus nonmobile). The share of owners of mobile homes with a mortgage payment is much lower

2. Summary statistics for 2017 homeowners by type of home

(Percent, unless indicated otherwise)	Nonmobile home	Mobile home
Has a mortgage	61	27
Has homeowners insurance	95	66
Age group		
Less than 25	1	2
25–34	9	8
35–54	36	34
55–64	24	24
65+	45	32
Female	45	48
Income ($)	101,221	44,758
Median market value of home ($)	312,805	56,875
Education		
Less than high school	7	22
High school	23	38
Some college	15	16
College+	55	23
Race/ethnicity		
Asian	5	1
Black	9	8
Other	2	5
White	84	86
Hispanic (all races)	10	14
Weighted share	0.935	0.065
Unweighted N	32,540	1,972

Source: Data from U.S. Census Bureau, 2017 *American Housing Survey* Public Use Files.

than that for owners of nonmobile homes. Consistent with the strong relationship between mortgage lending and insurance, the figure also shows that owners of mobile homes are far less likely to have insurance. Gropper and Kuhnen (2021) find that people who own more-expensive homes and have higher than average incomes also have higher coverage limits in their homeowners insurance policies. This relationship also holds for mobile homes where the median market value is less than one-fifth that of nonmobile homes ($56,875 versus $312,805) and owners of mobile homes on average have lower incomes than owners of nonmobile homes (average of $44,758 annually versus $101,221).

In figure 3, we provide demographic characteristics of owners of nonmobile homes in our data grouped by those making mortgage payments and, among those without a payment, grouped by whether they have insurance. Homeowners without a mortgage payment are more likely to be older, to have completed fewer years of education, to have lower incomes, to be Black or Hispanic, and to have lower home values than those with mortgage payments.

What happens when a mortgage is paid off?

As seen in figures 2 and 3, some homeowners without mortgages choose not to purchase insurance. Among this group, however, there may be homeowners who had an insurance requirement in the past (e.g., those who had a mortgage but paid it off) and others who may have never had an insurance requirement (e.g., people who inherited their homes outright). One question that arises is to what extent does a previous insurance requirement have persistence even when it is no longer binding?

To explore the potential *change* in the probability of purchasing homeowners insurance, we link across different waves of the AHS between 2007 and 2017 to identify the same homeowner living in the same housing unit.[3] We then condition the sample on households who own their homes in

3. Summary statistics for 2017 owners of nonmobile homes, by insurance and mortgage status

(Percent, unless indicated otherwise)	No mortgage		Has mortgage
	Insured	Not insured	Insured
Age group			
Under 25	1	1	1
25–34	3	6	12
35–54	20	28	46
55–64	24	25	24
65+	52	39	18
Female	47	51	44
Income ($)	81,921	46,422	116,188
Median market value of home ($)	302,649	136,444	331,066
Education			
Less than high school	9	25	5
High school	27	31	19
Some college	15	15	15
College+	49	29	60
Race/ethnicity			
Asian	4	4	5
Black	8	17	9
Other	2	7	2
White	86	72	84
Hispanic (all races)	7	20	10
Weighted share	0.898	0.102	0.984
Unweighted N	10,955	1,246	19,986

NOTE: Group totals may not add to 100% due to rounding.
SOURCES: Data from U.S. Census Bureau, 2017 *American Housing Survey* Public Use Files; and authors' calculations.

two consecutive waves ($t-2$ and t) and were paying a mortgage in one wave, but switched to not paying a mortgage in the next wave. Our underlying assumption is that the house was paid off between the two waves. Finally, pooling across waves, we estimate whether there is a relationship between the probability of purchasing insurance coverage and different demographic characteristics after the household pays off their mortgage, while conditioning on year (to account for business cycle effects) and other characteristics like education, race and ethnicity, gender, and income.

We start by looking at total differences in insured rates when controlling only for homeowners' self-reported race and ethnicity (which are two separate questions in the survey). We find that Black homeowners are 8.3 percentage points less likely to have insurance than White (non-Hispanic) homeowners. The gap in the insured rate between Asian and White (non-Hispanic) homeowners is smaller at 1 percentage point but lacks statistical power to reject a difference of zero. Finally, the gap between all homeowners who identify as Hispanic (which can include homeowners of any race) and White (non-Hispanic) homeowners is 13.4 percentage points.

Next, we add controls to see the extent to which racial and ethnic disparities in insured rate are driven by differences in income, education, home value, and housing type. We find that relative to the omitted category of "less than high school," additional education has a positive and statistically significant effect on the probability of purchasing insurance after paying down one's mortgage. Owning a mobile home is associated with being 16.3 percentage points less likely to purchase insurance, while both income and housing wealth are positively correlated with purchasing insurance. Even when controlling for other demographic characteristics, the gap between Black and White (non-Hispanic) homeowners is 6.1 percentage points, and that between Hispanic homeowners and White (non-Hispanic) homeowners is 8.1 percentage points.

4. Changes in insurance coverage after mortgage by demographic group

	Regression 1	Regression 2
Black	−0.083*** (0.020)	−0.061*** (0.017)
Asian	−0.010 (0.017)	−0.032* (0.018)
Other	−0.065 (0.041)	−0.066 (0.042)
Hispanic	−0.134*** (0.023)	−0.081*** (0.022)
High school graduate and beyond		0.100*** (0.018)
Male		−0.001 (0.008)
Log income		0.025** (0.011)
Log home value		0.035*** (0.009)
Mobile home		−0.163*** (0.036)
Constant	0.949*** (0.004)	0.818*** (0.020)
Observations	5,359	5,359
R-squared	0.030	0.109

NOTES: Standard errors in parentheses. * Significant at 5% level; ** Significant at 1% level; *** Significant at 0.1% level. All regressions include year-fixed effects and controls for gender, log of house value, and log of income. Less than high school is the omitted category in regression 2 and White is the omitted race category in regression 3. Weighted regressions use weights from first wave in which a household appears to account for use of repeated household observations.
SOURCES: Data from U.S. Census Bureau, 2007–17 *American Housing Survey* Public Use Files; and authors' calculations.

One caveat to our results is that we lack sufficient power to track households beyond one additional wave. Thus, there may be households who immediately drop coverage but repurchase insurance in later years, which would imply our coefficients may overstate the change related to having a choice whether to purchase insurance. Alternatively, some households may drop their coverage in later years, which would push our estimates in the other direction. Nonetheless, the results suggest there are some gaps in coverage that could leave households exposed to financial risk. This finding is particularly important in the context of climate change, as it suggests there could be systematic differences for which households are more vulnerable to weather- and climate-related damages.

How might climate change impact the purchase of homeowners insurance?

Climate change poses a growing risk to consider when buying and insuring a home. As insurers adapt to these growing risks facing housing markets, in certain regions (e.g., areas prone to wildfires), homeowners insurance may become much more expensive or insurers may stop writing policies altogether. This could lead to some form of government intervention, such as what happened with flood insurance. In the 1920s, floods that caused major (insured) damage led insurers to stop protecting against flood damage. Eventually in 1968, to coordinate the government response to losses from flooding, the federal government created the National Flood Insurance Program (NFIP), which underwrites most flood insurance policies.

In the absence of a national program like the NFIP, as the risk of damage increases due to extreme weather events, the cost of homeowners insurance will likely climb. In fact, certain coastal areas have already seen changes in their pricing, which may affect demand for insurance among those

who are not required to own it. Our results suggest that when an insurance requirement is not in place, minority populations and those with less education are more likely to forgo homeowners insurance. Moving forward, it is important to determine the underlying causes for these differences. For example, have insurers incorporated climate change risk into their pricing, but consumers have yet to incorporate climate change into their willingness to pay? Is insurance more difficult to obtain in certain areas, particularly for those who are not required to purchase it? While determining the causes for gaps in insured rates across groups is beyond the scope of this study, our results highlight that certain communities may be more vulnerable to climate change risk.

Notes

[1] A climate disaster is declared by the President of the United States after evidence is presented by local authorities that an area affected by a climate event needs to be assisted by the federal government to rebuild the area (available online, https://www.fema.gov/disasters/how-declared). Data on costs associated with climate disasters are available online, https://www.ncdc.noaa.gov/billions/, and https://www.ncei.noaa.gov/access/metadata/landing-page/bin/iso?id=gov. noaa.nodc:0209268.

[2] Authors' calculations using data from S&P Global Statutory Filings.

[3] As noted above, there is no overlap between waves pre- and post-2015, thus we can only observe changes from 2015 to 2017 and changes between each wave until 2013.