Fleeing the Premium: Climate-Driven Insurance Affordability and U.S. Internal Migration

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Abstract

This paper provides the first national evidence that rising homeowners insurance premiums are a significant push factor in U.S. internal migration. Using county-level premium data between 2016 and 2023, we find that a one-standard-deviation widening of the origin-destination premium growth differential (about 10 percentage points) increases bilateral migration by approximately 1.3 persons per corridor-year. The effect is driven by origin-side premium growth, a push factor; destination-side growth exerts no significant pull. The response is about four times stronger in counties with a $3,000 premium bill than in counties with a $1,000 bill, which indicates an affordability threshold. The findings highlight an underappreciated channel of climate adaptation: not the physical destruction of homes, but the gradual erosion of housing affordability as climate risks are priced into insurance markets.

Keywords: homeowners insurance, climate change, internal migration, gravity model, insurance affordability

JEL Classification: G22, G52, R23, Q54, R31

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1. Introduction

Climate change is reshaping the geography of the United States. Rising temperatures, intensifying natural disasters, and sea-level rise are altering where Americans can afford to live, work, and own homes. For example, California has experienced several major wildfires since 2018, and the 2025 Los Angeles wildfires (the Palisades and Eaton Fires) became the costliest on record, generating approximately $40 billion in insured losses and severely disrupting insurance markets (Dixon, Anderson, and Morikawa, 2025). Those disasters also caused mass displacement. Los Angeles County recorded 260,000 wildfire-related displacements in January 2025, nearly half of the U.S. total for all disasters in 2024 (Internal Displacement Monitoring Centre [IDMC], 2025). A large literature documents migration responses to temperature extremes, agricultural productivity, and direct disaster damages. Far less is known about the relationship between homeowners insurance repricing and U.S. internal migration.

In this study, we examine whether and how changes in homeowners insurance premiums are associated with U.S. cross-county migration. Climate change has contributed to a growing crisis in the U.S. homeowners insurance market.

Between 2020 and 2024, average premiums increased by more than 40 percent, far outpacing general inflation, and in high-risk states the burden is far more severe. In response to mounting climate-driven losses, insurers are raising premiums, reducing coverage, and withdrawing from high-risk markets altogether (Hemmati, Gray, and Bowen, 2025). Testifying before the Senate Banking Committee in February 2025, then-Federal Reserve Chair Jerome Powell warned that if current trends continue, there will be regions of the country where households cannot obtain mortgages or insurance, fundamentally altering the geography of American housing.[1]

[1]Semiannual Monetary Policy Report to the Congress, testimony before the Committee on Banking,

This insurance market crisis may create a distinct financial channel of migration. Unlike one-time disaster damages, premium increases are recurring, predictable, and often mandatory financial burdens for U.S. homeowners. They affect both households that suffer from direct property damage and those in broader regions that insurers reprice due to common exposure to climate risk. Such regional spillovers are well documented in the homeowners insurance market (Oh, Sen, and Tenekedjieva, 2026a). When premiums become unaffordable, households may be forced to cut other expenditures, reduce coverage, or relocate. Housing-related considerations are consistently the leading reason Americans give for moving (U.S. Census Bureau, 2023, 2024), and insurance premiums are an increasingly salient component of the cost of staying.

As a preview of our findings, this paper provides the first national evidence that there is a positive association between homeowners insurance repricing and U.S. internal migration. We combine the county-level insurance premium dataset from Keys and Mulder (2024), constructed from CoreLogic mortgage escrow data, with county-to-county migration flows compiled by the Internal Revenue Service (IRS) from year-to-year changes in mailing addresses on individual tax returns. Our final sample contains 345,325 origin-destination-year observations, covering 60,448 corridors, 2,590 origin counties, and 2,582 destination counties between 2016 and 2023. Throughout the paper, we use the term corridor to denote a directional origin-destination pair of counties, and we use the two terms interchangeably.

Our baseline specification is a panel gravity model of bilateral migration flows with origin-destination pair fixed effects and year fixed effects, following Olney and Thompson (2024). Our preferred specification includes origin and destination premium growth separately because the key economic question concerns whether insurance repricing operates at the origin, the destination, or both. We also report the result using the percentage premium growth differential between origin and destination counties as a compact measure of relative repricing. We control for equilibrium premium levels at both ends of the corridor, origin and

Housing, and Urban Affairs, U.S. Senate, February 11, 2025; the remarks were made in response to questions from Senator Tina Smith. The full testimony is available at federalreserve.gov.

destination income, population, and a battery of additional county characteristics.

Our analysis yields three main findings. First, the positive relationship between homeowners insurance premium growth and U.S. internal migration is concentrated at the origin. In the baseline gravity model with corridor-level migration counts as the dependent variable and origin and destination premium growth as the key regressors, origin premium growth has a coefficient of 0.286 and is statistically significant at the 1 percent level. A one-standard-deviation increase in origin premium growth (about 7.77 percentage points) is associated with approximately 2.2 additional migrants per corridor-year, or about 1 percent (2.9 percent) of the mean (median) corridor flow of 230 (77) persons. In contrast, the estimated coefficient on destination premium growth is small and statistically indistinguishable from zero. Thus, faster repricing at the origin is associated with greater migration outflow from that origin; slower repricing at a destination is not similarly associated with inflow.

Second, there is a positive association between the origin-destination premium growth differential and bilateral migration (baseline coefficient 0.126, significant at the 5 percent level): a one-standard-deviation widening of the differential (about 10 percentage points) is associated with approximately 1.3 additional migrants per corridor-year, about 0.5 (1.7) percent of the mean (median) corridor flow of 230 (77) persons.

Third, the effect exhibits a pronounced affordability threshold: the interaction between the premium growth differential and the origin premium level is positive and significant, implying that the same percentage-point gap generates roughly four times the migration response in a county with a $3,000 decision-time premium as in a county with a $1,000 premium. Corridors originating in high-premium counties show the strongest response.

We conduct a battery of robustness exercises. Because state membership is constant within a corridor, the pair fixed effects intrinsically absorb all time-invariant state-level regulatory regimes, such as prior-approval rate systems, so no separate state fixed effects are required. Controlling for origin catastrophe losses, mortgage reliance, and origin and destination unemployment barely moves the premium growth coefficient. Restricting the sample

to non-contiguous county pairs, which reduces the correlation between premium shocks and shared local labor markets, yields an essentially identical estimate (0.134, significant at the 5 percent level). The results are likewise robust to estimating the model by Poisson pseudo-maximum likelihood, which accounts for the count nature of migration flows. Excluding California and Florida, the two states most affected by the insurance crisis, attenuates the constrained premium growth differential, since these markets supply much of its identifying variation, but the core mechanism still holds: origin-side premium growth remains a positive and statistically significant driver of out-migration across the rest of the country.

To address remaining endogeneity concerns, we implement an instrumental variables strategy. The instrument is the product of the annual change in the national reinsurance rate-on-line, measured by the Guy Carpenter Global Property Catastrophe Rate-on-Line Index, and the origin-destination differential in FEMA National Risk Index scores. We choose this instrument because it exploits variation in reinsurance costs that are priced in national and even global markets, thereby isolating premium variation that originates in reinsurance-market repricing rather than in local economic conditions or local migration pressures. The instrument satisfies the relevance condition because reinsurance rate increases pass through directly into homeowners insurance premiums, and this pass-through is stronger along corridors where the origin county is more hazard-exposed than the destination, generating substantial variation in premium growth differentials. The IV regression results confirm the positive relationship between the premium growth differential and cross-county migration, supporting a causal interpretation of the push effect.

This paper contributes to two strands of literature. First, we fill a gap at the intersection of climate adaptation and insurance market research by providing the first national evidence linking insurance premium dynamics to cross-county migration. Prior work emphasizes temperature extremes, sea-level rise, and direct disaster damages as drivers of relocation (Boustan, Kahn, and Rhode, 2012; Cattaneo and Peri, 2016; Beine and Parsons, 2015). We show that the recurring cost of insuring a home is associated with spatial adjustment even

when households have not necessarily suffered a loss.

Second, we contribute to the internal migration literature (Olney and Thompson, 2024) by identifying insurance repricing as a previously unexamined origin-side correlate of bilateral county flows. In particular, ours is the first to show that the effect operates primarily as an origin-side push: rising premiums drive households out, while slower premium growth elsewhere exerts no statistically significant pull. The premium-level gradient provides mechanism-consistent evidence: recent repricing is more strongly associated with migration where existing insurance costs are high.

The policy implications are immediate. States are beginning to adopt forward-looking insurance pricing that explicitly incorporates climate risk. For example, California's 2025 Sustainable Insurance Strategy permits insurers to use catastrophe models that include wildfire smoke damage. Under this new paradigm, regulators face a critical trade-off: more accurate risk-based pricing improves market sustainability, but it may also accelerate climate-driven population shifts out of precisely the regions where premiums rise fastest.

Our results speak to both sides of this trade-off. First, insurance-repricing-induced relocation is similar to adverse selection in the insurance market for natural catastrophes (Wagner, 2022). Sustained out-migration could then potentially erode the premium base of state insurance markets at the very time regulators rely on that base to fund residual-market backstops.[2] Even short of outright erosion, this sorting could alter the spatial composition of risk within the market, making the long-run sustainability of risk-based pricing harder to achieve. However, whether such erosion materializes depends on forces our bilateral gross flows cannot measure: the moves must be net departures from the state rather than within-state reallocations, and departing owners must not be replaced by new buyers taking out equivalent policies. Second, the results bear on household financial resilience. House-

[2]California, for example, imposes a one-year moratorium on policy non-renewals in areas affected by declared wildfire disasters (California Insurance Code Section 675.75), but no such moratorium applies to premium increases. State FAIR plans serve as insurers of last resort, and in several states these plans have grown so rapidly that their long-run sustainability is in question (Boomhower, Fowlie, Gellman, and Plantinga, 2024; Sastry, Sen, and Tenekedjieva, 2025).

holds that cannot or do not move must absorb premium increases through reduced coverage, depleted savings, or mortgage delinquency, so the migration margin we document likely understates the full financial strain of repricing. Understanding who moves, who stays, and how each group copes is essential for designing insurance regulation that remains sustainable as climate risk grows.

The remainder of the paper is organized as follows. Section 2 reviews the institutional background and related literature. Section 3 presents the empirical methodology and data. Section 4 reports the empirical results. Section 5 concludes.

2. Institutional Background and Related Literature

2.1 Homeowners Insurance and the Climate Crisis

The economic impact of climate-related natural catastrophes, including hurricanes and wildfires, has increased substantially in recent years. Wildfire losses on the West Coast have been particularly severe over the past decade. In California, rising premiums, policy nonrenewals, insurer withdrawals from high-risk areas, and growing reliance on the state FAIR Plan have raised concerns about the long-term sustainability of the homeowners insurance market. Proposed reforms include an independent authority that would combine public and private risk financing through reinsurance layering and statewide risk pooling (Kelly et al., 2025; Dixon et al., 2025).

Homeowners insurance prices reflect proprietary risk models, state regulation, and reinsurance costs. Insurers use catastrophe models to set rates, which are then filed with state insurance regulators (Sen, 2021; Oh, Sen, and Tenekedjieva, 2026a). Reinsurance markets, federal policy interventions, and cross-subsidization requirements also influence how climate risk passes through to household insurance costs (Fried, 2022; Wagner, 2022).

Keys and Mulder (2024) provide evidence on the magnitude and geographic distribution of premium increases. Using mortgage escrow data, they document an increase of roughly one-third in average homeowners insurance premiums between 2020 and 2023. The largest

increases occurred in counties exposed to wildfire and hurricane risk, and reinsurance cost pass-through explains a substantial share of the increase in areas with high catastrophe losses. We use their county-level premium index to study the relationship between insurance repricing and migration.

Climate-related losses can affect household finances beyond the insurance bill. Biswas, Hossain, and Zink (2023) find that damaged properties experience short-term financial stress, including increases of up to 4 percentage points in mortgage delinquency and up to 16 percentage points in prepayment. Insurance payouts and underinsurance contribute to these outcomes. Issler et al. (2024) find that house prices in burned areas can rise over time when insurance supports rebuilding to larger and more fire-resistant homes. Baylis and Boomhower (2025) show that California's wildfire building codes reduce property destruction by about 40 percent and limit fire spread to neighboring structures. Wildfire smoke and distant air pollution can also affect households whose homes do not burn. An, Gabriel, and Tzur-Ilan (2026) document higher credit card and personal loan delinquency after distant wildfire-attributed PM2.5 exposure, while Lopez and Tzur-Ilan (2025) and Lopez, Murphy, Tzur-Ilan, and Wilkoff (2025) study effects on rents, house prices, and municipal borrowing costs.

Climate risk also changes the way insurers price coverage. California's 2025 Sustainable Insurance Strategy permits insurers to use forward-looking wildfire catastrophe models that incorporate smoke damage, including soot, ash, and contamination, into expected losses. The reforms may increase premiums in high-risk areas while rewarding mitigation and reducing reliance on historical losses alone.

Regulation can slow adjustments in insurance prices. Insurers in highly regulated states adjust rates less frequently and by less than actuarially warranted after climate losses, partly compensating through higher rates in less regulated states. Over time, premiums can diverge from underlying risk, altering risk sharing across states and increasing insurer exit from heavily regulated markets (Oh, Sen, and Tenekedjieva, 2026a). Limits on insurers' risk management also affect repricing (Sen, 2021), while adverse selection can weaken risk pooling

(Wagner, 2022). These studies explain how climate risk reaches homeowners insurance prices. We examine whether changes in those prices are associated with household relocation.

2.2 Climate Adaptation and Internal Migration

Research on internal migration emphasizes differences in wages, housing costs, and amenities between origins and destinations. In a gravity model, flows between two places rise with their economic attractiveness and fall with the costs of moving between them (Anderson, 2011; Beine, Bertoli, and Moraga, 2016). Panel gravity models use origin-destination pair fixed effects to absorb persistent bilateral migration costs and examine changes in time-varying factors. This approach has been applied to U.S. county-to-county migration (Olney and Thompson, 2024), as well as internal migration in Spain (Maza et al., 2019) and Ecuador (Royuela and Ordonez, 2018). Olney and Thompson (2024) document a decline in U.S. internal migration and show that bilateral flows are related to wages and housing costs at both ends of a corridor.

A related literature examines how climate change affects where people live. Temperature changes, sea-level rise, and natural disasters alter local economic conditions and the costs of remaining in place (Boustan, Kahn, and Rhode, 2012; Cattaneo and Peri, 2016; Cattaneo et al., 2019). Natural hazard damages have been linked to international migration (Groschl and Steinwachs, 2017; Beine and Parsons, 2015). Using a gravity model estimated by Poisson pseudo-maximum likelihood, Coniglio and Pesce (2015) find that adverse climatic events at origins can affect out-migration. Flood risk affects long-run population projections (Shu et al., 2023). Survey evidence also indicates that many homeowners consider climate risk when evaluating whether to move (Kin, 2026).

Direct destruction can force households to leave damaged homes (Biswas, Hossain, and Zink, 2023; Issler et al., 2024). Insurance repricing may matter even without a realized loss. Premiums are a recurring component of housing costs, and a regional increase can affect policyholders who have never filed a claim. This distinction motivates our analysis of the relationship between changes in insurance costs and cross-county migration.

The two literatures point to an empirical question. Insurance costs have risen unevenly across counties, while migration responds to differences in local economic conditions and living costs. We examine whether premium growth at the origin and destination is associated with bilateral migration. If insurance affordability matters at the origin, faster origin premium growth should be associated with larger outward flows. We also expect the association to be stronger where the premium bill at the time of the migration decision is higher. Section 4 examines these predictions.

3. Empirical Methodology and Data

3.1 A Panel Gravity Model of Migration

The gravity model describes bilateral flows as a function of origin and destination characteristics and the costs of moving between them (Anderson, 2011; Beine, Bertoli, and Moraga, 2016). In a panel, origin-destination pair fixed effects absorb persistent bilateral factors, including distance, contiguity, and historical ties. Year fixed effects absorb shocks common to all corridors (Olney and Thompson, 2024). We estimate linear models of migration counts and use Poisson pseudo-maximum likelihood (PPML) as a robustness check for their count-valued, skewed distribution (Santos Silva and Tenreyro, 2006).

Let $P_{c,t}$ denote the average homeowners insurance premium in county c in year t. We define the lagged percentage changes at the origin and destination as

$$\Delta P_{o,t-1} = 100 \frac{P_{o,t-1} - P_{o,t-2}}{P_{o,t-2}},$$

$$\Delta P_{d,t-1} = 100 \frac{P_{d,t-1} - P_{d,t-2}}{P_{d,t-2}}.$$

The bilateral premium growth differential is $\Delta P_{od,t-1} = \Delta P_{o,t-1} - \Delta P_{d,t-1}$. A positive value indicates faster premium growth at the origin. We estimate the following specification:

$$M_{odt} = \alpha + \beta_1 \Delta P_{od,t-1} + \beta_2 \bar{P}_{o,t-1} + \beta_3 \bar{P}_{d,t-1} + \gamma_1 X_{o,t-1} + \gamma_2 X_{d,t-1} + \phi_{od} + \tau_t + \epsilon_{odt}.$$

Here M_{odt} is the recorded migration flow from origin county o to destination county d in year t; $\bar{P}_{o,t-1}$ and $\bar{P}_{d,t-1}$ are premium levels; and $X_{o,t-1}$ and $X_{d,t-1}$ are county characteristics. The differential is denoted O_D_DIFF in the tables. Percentage changes put counties with different premium levels on a common scale: a \$50 increase is 5 percent of a \$1,000 bill and about 1.7 percent of a \$3,000 bill. We include premium levels separately so that growth and the level of the insurance bill can enter the model at the same time. Because the decision-time premium level at $t-1$ is also the endpoint of growth from $t-2$ to $t-1$, the interaction in Table 5 measures heterogeneity by that level, rather than by a separately predetermined premium burden.

The vector X includes household income and population at the origin and destination. Extended specifications add origin and destination unemployment rates, origin catastrophe property damage per capita, and the origin share of owner-occupied units with a mortgage. All regressors are lagged one year to allow time for migration to respond to changes in local conditions (Olney and Thompson, 2024).

The corridor fixed effect ϕ_{od} absorbs time-invariant bilateral differences, including distance, contiguity, same-state membership, and historical ties. The year effect τ_t absorbs common national changes. Because a corridor's origin and destination states do not change over time, the pair fixed effects also absorb time-invariant state institutions, including prevailing rate regulation and residual-market arrangements. They do not absorb changes in state policy or other state-level conditions over time, which remain a limitation of the specification.

To examine whether the association is concentrated at the origin or destination, we enter the two growth rates separately:

$$M_{odt} = \alpha + \beta_o \Delta P_{o,t-1} + \beta_d \Delta P_{d,t-1} + \beta_2 \bar{P}_{o,t-1} + \beta_3 \bar{P}_{d,t-1} + \gamma_1 X_{o,t-1} + \gamma_2 X_{d,t-1} + \phi_{od} + \tau_t + \epsilon_{odt}.$$

An origin-side affordability association implies $\beta_o > 0$. The sign of β_d is less clear: lower

insurance costs could make a destination more attractive, but destination premium growth can also accompany stronger local housing demand and other amenities. This separate-growth specification is our preferred way to distinguish the two sides of the corridor.

Finally, we allow the relationship between the growth differential and migration to vary with the origin premium level:

$$M_{odt} = \alpha + \beta_1 \Delta P_{od,t-1} + \beta_2 (\Delta P_{od,t-1} \times \bar{P}_{o,t-1}) + \beta_3 \bar{P}_{o,t-1} + \beta_4 \bar{P}_{d,t-1} + \gamma_1 X_{o,t-1} + \gamma_2 X_{d,t-1} + \phi_{od} + \tau_t + \epsilon_{odt}.$$

A positive β_2 would indicate a stronger association between recent repricing and migration where the decision-time insurance bill is higher. Such a pattern would be consistent with an affordability mechanism, although county-level data do not identify the budgets of the households who move.

3.2 Identification

The analysis uses lagged premium growth to relate insurance costs measured in $t-1$ to migration in year t. Origin-destination pair fixed effects absorb stable bilateral migration costs, and year fixed effects absorb national changes common to all corridors. We control for income and population at both ends of the corridor and, in extended models, unemployment, origin catastrophe damage, and mortgage reliance. These features reduce several sources of confounding, but they do not rule out unobserved local changes that affect both premiums and migration.

We examine two additional comparisons. First, restricting the sample to non-contiguous counties reduces the role of shared local labor and housing markets. It does not, by itself, make origin premium changes exogenous to destination conditions. Second, controlling for measured origin catastrophe damage helps distinguish insurance repricing from realized property losses. Different estimated signs for these variables are consistent with different relationships to migration, although premium growth may still reflect expected hazards,

risk salience, housing-market changes, or other insurance-market disruptions that measured damage does not capture.

We also estimate an instrumental variables specification. The instrument interacts the annual change in the national property-catastrophe reinsurance rate-on-line (ROL) index with the time-invariant difference in FEMA National Risk Index (NRI) scores between the origin and destination:

$$\text{RENRI_D}_{odt} = \Delta\text{ROL}_t \times (\text{NRI}_o - \text{NRI}_d).$$

Reinsurance prices are determined in national and global markets. Higher reinsurance costs may pass through more strongly to premiums in hazard-exposed counties, so a rise in the national ROL index may be associated with a larger premium growth differential when the origin is riskier than the destination. Section 4.5 reports the first-stage relationship. The exclusion restriction requires the instrument to affect bilateral migration only through homeowners insurance premiums, conditional on the included fixed effects and controls. Year fixed effects absorb the common reinsurance cycle, and pair fixed effects absorb the time-invariant NRI differential. Their interaction could nevertheless be correlated with other time-varying responses to hazard exposure. We include origin catastrophe damage per capita in the IV specifications to address one such concern, while recognizing that the exclusion restriction cannot be tested directly.

We cluster robust standard errors by origin county to account for dependence in origin-specific shocks. The fixed-effects models use `reghdfe` (Correia, 2016), which implements the algorithm of Guimaraes and Portugal (2010); the IV models use its `ivreghdfe` extension.

3.3 Data Sources and Variable Construction

Bilateral migration flows come from the IRS Statistics of Income county-to-county migration files, which compare addresses reported on individual income tax returns in consecutive years. We construct annual flows among counties in the 50 states and the District

of Columbia. The count of personal exemptions approximates the number of individuals moving from origin o to destination d (Olney and Thompson, 2024). The published county-to-county data used here end in 2023. Under IRS disclosure rules, the smallest observed bilateral flow contains 20 recorded migrants.

County average homeowners insurance premiums come from Keys and Mulder (2024), who use CoreLogic LLMA mortgage escrow records to infer the insurance component of monthly payments after accounting for principal, interest, and property taxes. Their approach includes loan fixed effects, and county figures are housing-unit-weighted averages of ZIP-code values. The average county premium in these data rose from \$1,514 in 2014 to \$2,531 in 2024, with particularly large increases along the Gulf and Atlantic coasts and in California. From the county series, we calculate annual percentage premium growth at the origin (O_MCHG) and destination (D_MCHG) and their difference (O_D_DIFF).

The IV analysis uses the Guy Carpenter Global Property Catastrophe Rate-on-Line Index (Guy Carpenter, various years), which measures the price of catastrophe reinsurance relative to coverage limits, and FEMA's county-level National Risk Index, which measures expected annual losses from natural hazards. Their interaction, $RENRI_D$, varies with the annual national reinsurance cycle and the difference in risk scores between the counties in each corridor.

Household income and population are from the American Community Survey (ACS); unemployment rates are from the Bureau of Labor Statistics Local Area Unemployment Statistics. The ACS share of owner-occupied housing units with a mortgage ($O_MORTGAGE$) measures mortgage reliance at the origin and provides a county-level proxy for exposure to insurance purchase requirements. Origin property damage from natural hazards is from SHELDUS (Spatial Hazard Events and Losses Database for the United States). We divide property damage by county population and express it in thousands of dollars (O_DMGPC). Economic controls are lagged one year.

3.4 Sample and Descriptive Statistics

The final estimation sample contains 345,325 origin-destination-year observations covering 60,448 directional corridors, 2,590 origin counties, and 2,582 destination counties across the 50 states and the District of Columbia. The seven migration intervals run from 2016 to 2023. Premium data cover 2014–2024; constructing annual growth and lagging it for the migration model reduces the available period. IRS suppression of small flows leaves an unbalanced panel in which a corridor appears for about 5.7 of the seven intervals on average.

Table 1 reports the summary statistics. The mean bilateral flow is 230 recorded migrants per corridor-year, compared with a median of 77, a 95th percentile of 677, and a maximum of 49,355. Mean premium growth is 1.92 percent at origins and 1.99 percent at destinations, with a standard deviation of about 7.8 percentage points. The origin-destination growth differential is close to zero on average and has a standard deviation of 10.0 percentage points. Mean premium levels are about \$1,790 at origins and \$1,778 at destinations. Origin property damage is zero in more than three-quarters of corridor-years and reaches \$87,331 per capita at the maximum. Corridors average 551 miles in length; 19.1 percent connect contiguous counties, and 43.6 percent connect counties in the same state. Distance, contiguity, and same-state membership are absorbed by pair fixed effects.

4. Empirical Results

4.1 Baseline Gravity Model Estimates

Table 2 presents panel gravity estimates with directional origin-destination pair fixed effects and year fixed effects. Column (2), our preferred specification, enters origin and destination premium growth separately. The estimated coefficient on origin growth (O_MCHG) is 0.286 ($t = 3.122$), significant at the 1 percent level. A one-standard-deviation increase in origin premium growth, about 7.77 percentage points, is associated with approximately 2.2 additional recorded migrants per corridor-year, holding the included destination characteristics and other covariates fixed. For scale, 2.2 is about 1.0 percent of the mean observed

corridor flow of 230 and 2.9 percent of the median observed flow of 77. These percentages compare an estimated change in the conditional mean with observed sample flows; the median comparison is not a model-estimated percentage change for a median corridor. The destination-growth coefficient is small and statistically indistinguishable from zero (0.036, $t = 0.743$). Thus, the positive relationship between premium growth and outward migration is concentrated at the origin; we do not find a comparable association between destination premium growth and inflows.

Column (1) summarizes relative repricing with the origin-destination growth differential (O_D_DIFF). Its coefficient is 0.126 ($t = 2.068$), significant at the 5 percent level. A one-standard-deviation widening of 10 percentage points is associated with about 1.3 additional recorded migrants per corridor-year. This is about 0.5 percent of the mean observed flow; for scale, the rounded estimate is about 1.7 percent of the median observed flow. The differential result and the separate-growth result together indicate that the positive relationship with relative repricing is associated primarily with conditions at the origin. They are consistent with an origin-side affordability channel, although the regressions do not identify individual households' reasons for moving.

The control variables exhibit familiar gravity-model patterns. Population at the origin and destination is positively associated with migration flows. The origin premium level in Column (2) has a negative coefficient (-15.590, $t = -2.086$): conditional on premium growth and the other controls, higher-premium origins have lower outward flows along a given corridor. High premiums can coexist with amenities and incomes that affect migration, so the coefficient alone does not establish why those flows are smaller. Origin and destination income coefficients are negative in the reported specification. The interaction analysis in Section 4.3 considers how the relationship between growth and migration varies with the decision-time premium level; it answers a different question from the main effect of that level.

The pair fixed effects compare a corridor with itself over time, absorbing stable bilateral

factors such as distance, contiguity, same-state membership, and historical ties. Table 3 replaces these effects with separate origin and destination county fixed effects, while retaining year fixed effects. Under this alternative specification, the premium growth differential is close to zero and insignificant (0.008, $t = 0.19$). Entered separately, origin and destination growth are both positive and significant at the 5 percent level (0.117 and 0.103). The reported R^2 is 0.027, compared with 0.986 in the specification with pair fixed effects.

These specifications use different sources of variation. Separate county effects leave stable differences between pairs of counties in the residual variation. Premium growth at both ends can therefore be associated with the size of gross flows along high-demand corridors. With pair fixed effects, the within-corridor estimate is positive for origin growth and statistically insignificant for destination growth. We treat the pair fixed-effects specification as the principal comparison, while recognizing that time-varying corridor and state conditions may still affect the estimates.

4.2 Catastrophe Losses, Mortgage Reliance, and Labor Markets

Table 4 adds controls for realized catastrophe losses, labor markets, and mortgage reliance. Column (1) includes origin property damage per capita from SHELDUS (O_DMGPC). Its coefficient is -0.310 ($t = -2.148$), so a \$1,000 increase in measured damage per capita is associated with approximately 0.31 fewer recorded migrants per corridor-year. This negative association differs in sign from the positive premium-growth association. It is consistent with a possible immobilization mechanism: damaged property may be harder to sell, local employment can be disrupted, and households may postpone a registered move while pursuing claims, rebuilding, or disaster assistance (Deryugina, 2017; Billings, Gallagher, and Ricketts, 2022). The IRS address data do not capture temporary displacement in the same way as a change in tax-return address (Deryugina, Kawano, and Levitt, 2018). Moreover, the damage coefficient is imprecise under PPML in Table 6. We therefore treat the immobilization interpretation as suggestive rather than established. The different signs do not, on their own, show that insurance repricing and physical destruction produce opposite causal effects.

Column (2) adds origin and destination unemployment and the origin share of owner-occupied units with a mortgage ($O_MORTGAGE$). Destination unemployment has a negative coefficient (-1.284, $t = -1.868$), consistent with lower flows toward weaker labor markets. Mortgage share has a positive coefficient (0.562, $t = 2.140$): origins with greater mortgage reliance have higher recorded outward flows along a given corridor, conditional on the included controls. Because mortgage lenders generally require homeowners insurance, this association is consistent with insurance mandates being relevant to the setting. The model does not interact mortgage share with premium growth, however, and therefore does not establish that mortgage reliance amplifies the marginal premium-growth association. Column (3) includes all these controls; the differential coefficient is 0.127 ($t = 2.059$), origin damage is -0.314 ($t = -2.190$), and mortgage share is 0.564 ($t = 2.145$). The positive premium-growth differential estimate remains similar after these controls are added.

4.3 Non-Local Moves and the Affordability Threshold

Table 5 examines non-contiguous county pairs and heterogeneity by the origin premium level. Column (1) excludes adjacent counties, leaving 279,456 observations, or about 81 percent of the full sample. The differential coefficient is 0.134 ($t = 2.391$), slightly larger than the full-sample estimate and significant at the 5 percent level. The positive association is therefore also present among non-adjacent counties, where the two ends of a corridor are less likely to share a local labor and housing market. This restriction does not eliminate unobserved changes that could affect both counties.

Column (2) interacts the premium growth differential with the decision-time origin premium. The interaction coefficient is 0.092 ($t = 2.951$), significant at the 1 percent level; the main differential coefficient is -0.033 and statistically insignificant. Evaluated at an origin premium of \$1,000, a one-percentage-point widening of the growth differential is associated with approximately 0.06 additional recorded migrants per corridor-year. The corresponding estimates are 0.13 at the sample mean premium of \$1,790 and 0.24 at \$3,000, about four times the estimate at \$1,000. The positive premium-level gradient is consistent with insur-

ance affordability being more salient where the existing bill is high. The origin premium is measured at the end of the growth interval, so this interaction does not separately identify an effect of an ex ante premium burden. Because both premiums and migration are measured at the county level, we cannot determine which households move or whether the marginal movers are financially constrained homeowners, affluent owners, or renters.

4.4 Additional Robustness: PPML, Alternative Clustering, and Extreme Insurance Markets

We first estimate the gravity model by PPML to examine sensitivity to the count-valued, right-skewed outcome and the functional form of its conditional mean (Santos Silva and Tenreyro, 2006; Correia, Guimarães, and Zylkin, 2020). Table 6, Column (1), reports a positive differential coefficient of 0.000619 ($t = 2.547$). A one-percentage-point wider differential corresponds to approximately a 0.062 percent higher conditional expected flow. At the mean observed flow of 230, this percentage is equivalent to approximately 0.14 recorded migrants per corridor-year, close to the linear estimate of 0.126. In Column (2), origin growth is positive and significant (0.00112, $t = 3.304$), whereas destination growth is small and insignificant (-0.0001, $t = -0.580$). Column (3) retains a positive differential association after adding origin catastrophe damage, mortgage reliance, and unemployment. The damage coefficient is imprecise in the PPML model, limiting the evidence for a distinct disaster-damage interpretation. In addition, IRS suppression of bilateral flows below 20 means PPML is estimated on an observed sample truncated from below.

We next assess inference under two-way clustering by origin and destination county (Cameron, Gelbach, and Miller, 2011). The differential point estimate remains 0.126, while its standard error rises from 0.061 to 0.067 (Table 7, Column (1)). Its p-value is 0.062 under two-way clustering, compared with statistical significance at the 5 percent level under origin clustering. In the specification with separate origin and destination county fixed effects from Table 3, the corresponding growth coefficients have p-values of 0.059 and 0.053. These results show that the precision of some estimates depends on the clustering choice.

Finally, we exclude California and Florida, where premium changes and insurance-market disruptions have been particularly pronounced. The restricted sample contains 291,303 observations and 51,137 corridors. The differential estimate in Table 7, Column (2), remains positive but falls to 0.077 ($t = 1.19$) and is not statistically significant. The separate-growth estimates in Column (3) retain a positive origin coefficient (0.193, $t = 2.05$) and an insignificant destination coefficient (0.043, $t = 0.80$). Thus, the origin-side association is also present outside these two states, although their inclusion matters for the precision of the constrained differential estimate.

4.5 Instrumental Variables Estimates

As a further check on the premium-growth differential result, Table 8 uses an instrument that combines a national change in reinsurance prices with differences in hazard exposure across counties. Specifically, $RENRI_D$ is the annual change in the Guy Carpenter Global Property Catastrophe Rate-on-Line (ROL) Index multiplied by the origin-minus-destination difference in FEMA National Risk Index (NRI) scores. The ROL index measures the price of property-catastrophe reinsurance relative to the coverage purchased, while the NRI summarizes expected annual losses from natural hazards at the county level. The instrument is positive when national reinsurance prices rise and the origin has a higher NRI score than the destination. Year fixed effects absorb the national ROL change itself, and corridor fixed effects absorb the time-invariant difference in NRI scores. The remaining variation comes from the interaction of the common reinsurance price change with each corridor's relative hazard exposure.

The relevance condition requires this interaction to predict the origin-destination premium growth differential. Reinsurance is an input cost for homeowners insurers, and a national increase in its price may be passed through more strongly to retail premiums in counties with greater hazard exposure. When the origin is riskier than the destination, a rise in the ROL index should therefore be associated with faster origin premium growth relative to destination growth. State regulation and other features of insurance pricing may

limit or delay pass-through, so relevance is an empirical question rather than an assumption. The first-stage estimates below assess whether the predicted relationship is present in the data.

The exclusion restriction requires that, conditional on the fixed effects and included controls, the interaction affect bilateral migration only through homeowners insurance premiums. The common reinsurance cycle and the fixed NRI differential are absorbed separately, but this does not make their interaction independent of every time-varying determinant of migration. Reinsurance prices can rise after major catastrophes; in more hazard-exposed counties, such events could also affect migration through property damage, local employment, rebuilding, or housing markets. Time-varying state policies could likewise be correlated with a corridor's exposure to the national cycle. We include origin catastrophe property damage per capita (O_DMGPC) in both stages to address the measured physical-damage channel. This control does not capture every consequence of a disaster or verify the exclusion restriction. The IV estimate should therefore be interpreted subject to this condition.

The first-stage coefficient on the instrument is 0.142 ($t = 3.530$); the reported cluster-robust first-stage Kleibergen-Paap F-statistic is 12.44. It exceeds the conventional benchmark of 10, although the Stock-Yogo 10 percent maximal-size critical value of 16.38 applies to a different, homoskedastic Cragg-Donald statistic and is not directly comparable. In the second stage, the differential coefficient is 2.99 ($t = 1.950$), positive and significant at the 10 percent level. The damage coefficient is -0.116 ($t = -0.560$) and is statistically insignificant. The premium estimate is similar with and without the damage control, but that stability does not independently verify the exclusion restriction.

We also report weak-instrument-robust tests. The Anderson-Rubin Wald test ($p = 0.015$) and Stock-Wright LM test ($p = 0.008$) reject the null of a zero premium-growth differential coefficient at the 5 percent level. These tests support a positive IV relationship even when conventional inference may be sensitive to instrument strength. The IV point estimate exceeds the fixed-effects estimate. Measurement error in escrow-imputed premium growth is

one possible explanation, but the estimates alone do not establish why they differ. Given the instrument's moderate first-stage strength and the substantive exclusion restriction, we place more weight on the direction of the relationship than on the magnitude of the second-stage point estimate.

5. Conclusion

This paper examines the relationship between homeowners insurance repricing and U.S. cross-county migration. Combining county-level premiums inferred from mortgage escrow data (Keys and Mulder, 2024) with IRS bilateral migration flows, we estimate panel gravity models with origin-destination pair and year fixed effects. The positive premium-growth association is concentrated at the origin: a one-standard-deviation increase in origin premium growth, about 7.77 percentage points, is associated with approximately 2.2 additional recorded migrants per corridor-year. Destination premium growth is not statistically distinguishable from zero. In the specification using the origin-destination premium growth differential, a 10-percentage-point wider gap is associated with about 1.3 additional recorded migrants per corridor-year. The positive relationship remains after adding catastrophe damage, unemployment, and mortgage-share controls and in the sample of non-contiguous corridors.

The association between the premium growth differential and migration is stronger at origins with a high decision-time premium. Its estimated marginal association at a $3,000 origin premium is about four times that at a $1,000 premium, consistent with insurance affordability mattering more where bills are already high. Measured origin catastrophe damage has a negative coefficient in the linear models, a pattern consistent with possible delays or barriers to moving after a disaster, but this estimate is imprecise under PPML. Mortgage reliance has a positive additive association with outward migration; the analysis does not establish that mortgage reliance changes the response to premium growth. These patterns should be read as corridor-level evidence rather than as observations of household motives.

The findings have implications for insurance regulation as states adopt forward-looking pricing that incorporates environmental hazards, including wildfire smoke. More accurate risk-based pricing can improve market sustainability but may also be associated with migration away from regions where premiums rise most rapidly. Rate suppression, cross-subsidization, and residual-market expansion may preserve affordability in the short run while delaying adaptation; repricing without accompanying mitigation support may increase the burden on households in high-premium areas. The evidence does not show how many departures are net exits from a state, whether departing policyholders are replaced, or how the remaining households adjust coverage and spending. These distinctions matter for evaluating the consequences of insurance regulation for market risk pools and household financial resilience.

Several limitations guide the interpretation. Pair and year fixed effects do not absorb time-varying state-level policy or economic shocks. The IV estimates depend on an exclusion restriction that observed data cannot verify and have a larger, less precise point estimate than the fixed-effects estimates. County-average premiums and IRS corridor flows do not reveal whether a particular mover is a homeowner, whether that household experienced a premium increase, or why it moved. IRS data exclude non-filers and suppress small bilateral flows. Household-level data and designs centered on specific repricing events, insurer withdrawals, or FAIR Plan expansions would help distinguish the mechanisms underlying the county-level associations.

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Table 1. Summary statistics.

Variable	*N*	Mean	SD	Min	p5	p25	p50	p75	p95	Max
MIGRATION	345,325	230.217	891.416	20	34	49	77	154	677	49,355
O_D_DIFF (%)	345,325	−0.075	10.041	−137.264	−15.671	−5.000	−0.039	4.881	15.315	137.264
O_PREMIUM (1k)	345,325	1.791	0.627	0.745	1.098	1.387	1.677	2.030	2.822	7.151
D_PREMIUM (1k)	345,325	1.778	0.608	0.745	1.085	1.378	1.673	2.036	2.772	7.151
O_MCHG (%)	345,325	1.917	7.771	−54.270	−9.561	−1.950	1.607	5.553	13.442	129.781
D_MCHG (%)	345,325	1.993	7.702	−54.270	−9.271	−1.903	1.706	5.598	13.575	129.781
O_POPULATION (1m)	345,325	0.835	1.329	0.003	0.023	0.123	0.408	0.954	3.159	10.127
D_POPULATION (1m)	345,325	0.786	1.257	0.003	0.023	0.118	0.376	0.938	2.716	10.127
O_INCOME (100k)	345,325	0.783	0.215	0.241	0.507	0.631	0.736	0.893	1.198	1.873
D_INCOME (100k)	345,325	0.772	0.208	0.241	0.510	0.627	0.729	0.872	1.178	1.873
O_UNEMPLOYMENT (%)	345,325	4.963	1.942	1.300	2.700	3.600	4.500	5.800	8.700	24.600
D_UNEMPLOYMENT (%)	345,325	4.910	1.889	1.300	2.700	3.600	4.500	5.700	8.400	24.600
O_DMGPC (1k)	345,325	0.066	0.960	0.000	0.000	0.000	0.000	0.002	0.059	87.331
O_MORTGAGE (%)	345,325	64.163	9.177	18.320	46.590	59.114	65.890	70.790	75.874	88.735
DISTANCE (miles)	345,325	551.417	726.986	1.408	21.929	50.966	193.082	864.391	2,172.385	5,096.328
CONTI	345,325	0.191	0.393	0	0	0	0	0	1	1
SAMESTATE	345,325	0.436	0.496	0	0	0	0	1	1	1

Notes: This table reports summary statistics for the estimation sample of 345,325 corridor-year observations covering 60,448 bilateral corridors between 2,590 origin and 2,582 destination counties in the 50 states and the District of Columbia, with migration measured between 2016 and 2023. The unit of observation is an origin-destination-year triplet. *MIGRATION* is the number of migrants (IRS personal exemptions) moving from origin to destination. The key independent variable is *O_D_DIFF*, the origin-destination differential in annual homeowners insurance premium growth (percentage points); *O_MCHG* and *D_MCHG* are the origin and destination annual premium growth rates, and *O_PREMIUM* and *D_PREMIUM* are the origin and destination premium levels (thousands of dollars). Populations are in millions; income per capita is in hundreds of thousands of dollars; unemployment rates are in percent. *O_DMGPC* is origin catastrophe property damage per capita (thousands of dollars), and *O_MORTGAGE* is the origin share of owner-occupied units with a mortgage (percent). *DISTANCE* is in miles; *CONTI* and *SAMESTATE* are corridor dummies. Detailed variable definitions and sources are provided in Appendix A. All right-hand-side variables are lagged by one year.

Table 2. Baseline regression.

Dependent variable = *MIGRATION*	(1)	(2)
O_D_DIFF	0.126**	
	(2.068)	
O_MCHG		0.286***
		(3.122)
D_MCHG		0.036
		(0.743)
O_PREMIUM	−10.701	−15.590**
	(−1.559)	(−2.086)
D_PREMIUM	7.367**	2.356
	(2.034)	(0.699)
O_POPULATION	167.310***	166.704***
	(5.777)	(5.806)
D_POPULATION	31.732*	31.107*
	(1.687)	(1.657)
O_INCOME	−43.330***	−38.541***
	(−3.801)	(−3.348)
D_INCOME	−147.172***	−141.620***
	(−7.215)	(−7.140)
Constant	219.127***	229.130***
	(7.239)	(7.410)
Observations	345,325	345,325
R-squared	0.986	0.986
Year FE	YES	YES
Origin × Destination FE	YES	YES

Notes: This table reports the association between county-to-county migration and homeowners insurance premium growth at the origin and destination counties, using a sample of 345,325 corridor-year observations covering 60,448 bilateral corridors between 2,590 origin and 2,582 destination counties in the 50 states and the District of Columbia, with migration measured between 2016 and 2023. The dependent variable is *MIGRATION*, the number of migrants moving from origin to destination. The key independent variable in Column (1) is *O_D_DIFF*, the origin-destination differential in annual premium growth; Column (2) enters origin premium growth (*O_MCHG*) and destination premium growth (*D_MCHG*) separately to distinguish origin- and destination-side associations. All specifications include year fixed effects and origin × destination pair fixed effects. Detailed variable definitions and sources are provided in Appendix A. All right-hand-side variables are lagged by one year. T-statistics in parentheses, based on robust standard errors clustered at the origin county level. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Table 3. Gravity model with origin and destination county fixed effects.

Dependent variable = *MIGRATION*	(1)	(2)
O_D_DIFF	0.008	
	(0.193)	
O_MCHG		0.117**
		(2.271)
D_MCHG		0.103**
		(2.038)
O_PREMIUM	−1.458	−4.782
	(−0.361)	(−1.138)
D_PREMIUM	3.501	0.086
	(1.004)	(0.023)
O_POPULATION	87.937***	87.517***
	(2.832)	(2.872)
D_POPULATION	29.924	29.494
	(1.198)	(1.181)
O_INCOME	−100.395***	−97.152***
	(−7.588)	(−7.383)
D_INCOME	−92.776***	−88.978***
	(−5.085)	(−4.927)
Constant	279.817***	286.632***
	(8.718)	(8.968)
Observations	345,325	345,325
R-squared	0.027	0.027
Year FE	YES	YES
Origin County FE	YES	YES
Destination County FE	YES	YES

Notes: This table reports the standard gravity specification with separate origin and destination county fixed effects, using the same sample as Table 2. The dependent variable is *MIGRATION*. The key independent variable in Column (1) is *O_D_DIFF*, the origin-destination premium growth differential; Column (2) enters origin (*O_MCHG*) and destination (*D_MCHG*) premium growth separately. Both specifications include year fixed effects, origin county fixed effects (2,590 categories), and destination county fixed effects (2,582 categories), in place of the origin × destination pair fixed effects used elsewhere in the paper. Detailed variable definitions and sources are provided in Appendix A. All right-hand-side variables are lagged by one year. T-statistics in parentheses, based on robust standard errors clustered at the origin county level. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Table 4. Origin catastrophe loss, mortgage share, and unemployment.

Dependent variable = *MIGRATION*	(1)	(2)	(3)
O_D_DIFF	0.126**	0.127**	0.127**
	(2.064)	(2.063)	(2.059)
O_DMGPC	−0.310**		−0.314**
	(−2.148)		(−2.190)
O_MORTGAGE		0.562**	0.564**
		(2.140)	(2.145)
O_UNEMPLOYMENT		−0.334	−0.331
		(−0.618)	(−0.614)
D_UNEMPLOYMENT		−1.284*	−1.286*
		(−1.868)	(−1.870)
O_PREMIUM	−10.703	−10.687	−10.690
	(−1.559)	(−1.553)	(−1.554)
D_PREMIUM	7.353**	7.573**	7.558**
	(2.029)	(2.062)	(2.057)
O_POPULATION	167.196***	166.100***	165.992***
	(5.773)	(5.741)	(5.737)
D_POPULATION	31.703*	29.325	29.292
	(1.685)	(1.581)	(1.579)
O_INCOME	−43.376***	−39.577***	−39.637***
	(−3.805)	(−3.251)	(−3.256)
D_INCOME	−147.176***	−139.622***	−139.621***
	(−7.215)	(−7.084)	(−7.084)
Constant	219.333***	184.795***	184.868***
	(7.247)	(5.868)	(5.875)
Observations	345,325	345,325	345,325
R-squared	0.986	0.986	0.986
Year FE	YES	YES	YES
Origin × Destination FE	YES	YES	YES

Notes: This table reports the differential estimates augmented with controls for catastrophe losses, mortgage reliance, and local labor market conditions, using the same sample as Table 2. The dependent variable is *MIGRATION*. The key independent variable is *O_D_DIFF*, the origin-destination premium growth differential; the additional regressors are origin catastrophe property damage per capita (*O_DMGPC*, Column (1)), the origin share of owner-occupied housing units with a mortgage (*O_MORTGAGE*, Column (2)), and origin and destination unemployment rates (Column (3)). All specifications include year fixed effects and origin × destination pair fixed effects. Detailed variable definitions and sources are provided in Appendix A. All right-hand-side variables are lagged by one year. T-statistics in parentheses, based on robust standard errors clustered at the origin county level. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Table 5. Non-local moves and heterogeneous effects.

Dependent variable = *MIGRATION*	(1) Non-contiguous pairs	(2) Affordability threshold
O_D_DIFF	0.134**	−0.033
	(2.391)	(−0.655)
O_D_DIFF × *O_PREMIUM*		0.092***
		(2.951)
O_PREMIUM	−9.581	−12.939
	(−1.512)	(−1.564)
D_PREMIUM	7.477***	7.898**
	(3.368)	(2.080)
O_POPULATION	68.124***	165.504***
	(3.052)	(5.811)
D_POPULATION	−39.691***	31.932*
	(−4.493)	(1.696)
O_INCOME	33.589***	−42.263***
	(2.788)	(−3.688)
D_INCOME	−87.875***	−147.474***
	(−7.135)	(−7.225)
Constant	146.127***	222.904***
	(6.231)	(7.414)
Observations	279,456	345,325
R-squared	0.978	0.986
Year FE	YES	YES
Origin × Destination FE	YES	YES

Notes: This table reports estimates for non-local moves and for the premium-level gradient, using the same sample as Table 2. The dependent variable is *MIGRATION*. Column (1) restricts the sample to non-contiguous county pairs (279,456 corridor-year observations); the key independent variable is *O_D_DIFF*, the origin-destination premium growth differential. Column (2) returns to the full sample and interacts the premium growth differential with the origin premium level (*O_D_DIFF* × *O_PREMIUM*) to estimate whether the migration association is stronger where the decision-time premium burden is high. All specifications include year fixed effects and origin × destination pair fixed effects. Detailed variable definitions and sources are provided in Appendix A. All right-hand-side variables are lagged by one year. T-statistics in parentheses, based on robust standard errors clustered at the origin county level. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Table 6. Poisson pseudo-maximum likelihood estimates.

Dependent variable = *MIGRATION*	(1)	(2)	(3)
O_D_DIFF	0.000619**		0.000610**
	(2.547)		(2.552)
O_MCHG		0.00112***	
		(3.304)	
D_MCHG		−0.000099	
		(−0.580)	
O_PREMIUM	−0.0480**	−0.0620**	−0.0471**
	(−2.000)	(−2.441)	(−2.004)
D_PREMIUM	0.0279**	0.0130	0.0270**
	(2.180)	(1.215)	(2.109)
O_POPULATION	0.480***	0.478***	0.505***
	(3.137)	(3.064)	(3.607)
D_POPULATION	0.133***	0.132***	0.125***
	(3.694)	(3.687)	(3.834)
O_INCOME	0.221***	0.235***	0.209***
	(4.492)	(4.776)	(4.163)
D_INCOME	−0.437***	−0.421***	−0.446***
	(−11.939)	(−11.793)	(−12.528)
O_DMGPC			−0.000668
			(−1.119)
O_MORTGAGE			−0.00183
			(−1.151)
O_UNEMPLOYMENT			0.00518**
			(2.186)
D_UNEMPLOYMENT			−0.00245
			(−1.450)
Constant	6.230***	6.260***	6.330***
	(39.182)	(38.405)	(32.132)
Observations	345,325	345,325	345,325
Year FE	YES	YES	YES
Origin × Destination FE	YES	YES	YES

Notes: This table reports Poisson pseudo-maximum likelihood (PPML) estimates of the baseline model, using the same sample as Table 2. The dependent variable is *MIGRATION*. The key independent variable in Columns (1) and (3) is *O_D_DIFF*, the origin-destination premium growth differential; Column (2) enters origin (*O_MCHG*) and destination (*D_MCHG*) premium growth separately; Column (3) adds origin catastrophe damage per capita, the origin mortgage share, and origin and destination unemployment rates. All specifications include year fixed effects and origin × destination pair fixed effects. PPML coefficients are semi-elasticities. Detailed variable definitions and sources are provided in Appendix A. All right-hand-side variables are lagged by one year. T-statistics in parentheses, based on robust standard errors clustered at the origin county level. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Table 7. Two-way clustering and excluding California and Florida.

Dependent variable = *MIGRATION*	(1) Two-way SE	(2) Excl. CA/FL	(3) Excl. CA/FL
O_D_DIFF	0.126*	0.077	
	(1.869)	(1.188)	
O_MCHG			0.193**
			(2.054)
D_MCHG			0.043
			(0.799)
O_PREMIUM	−10.701	−13.117*	−16.785**
	(−1.512)	(−1.783)	(−2.100)
D_PREMIUM	7.367	6.623	2.865
	(1.633)	(1.612)	(0.740)
O_POPULATION	167.310***	156.525***	157.847***
	(6.078)	(4.094)	(4.104)
D_POPULATION	31.732	34.458*	34.136*
	(0.907)	(1.784)	(1.770)
O_INCOME	−43.330**	−34.661**	−30.641**
	(−2.071)	(−2.344)	(−2.129)
D_INCOME	−147.172***	−110.656***	−106.558***
	(−6.004)	(−6.886)	(−6.753)
Constant	219.127***	213.200***	218.866***
	(5.925)	(7.733)	(7.901)
Observations	345,325	291,303	291,303
R-squared	0.986	0.985	0.985
Corridors	60,448	51,137	51,137
Year FE	YES	YES	YES
Origin × Destination FE	YES	YES	YES

Notes: This table reports robustness to the clustering structure and to the exclusion of extreme insurance markets, using the same sample as Table 2. The dependent variable is *MIGRATION*. The key independent variable in Columns (1) and (2) is *O_D_DIFF*, the origin-destination premium growth differential; Column (3) enters origin (*O_MCHG*) and destination (*D_MCHG*) premium growth separately. Column (1) re-estimates Table 2, Column (1) with standard errors clustered two-way at the origin and destination county levels. Columns (2) and (3) exclude corridors involving California and Florida counties (291,303 corridor-year observations on 51,137 corridors; 2,467 origin counties remain); 9,101 singleton observations are dropped by the fixed-effects estimator. Detailed variable definitions and sources are provided in Appendix A. All right-hand-side variables are lagged by one year. T-statistics in parentheses: Column (1) is based on standard errors clustered two-way at the origin and destination county levels; Columns (2) and (3) on standard errors clustered at the origin county level. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Table 8. Instrumental variables estimates.

	(1) First stage	(2) Second stage
Dependent variable	*O_D_DIFF*	*MIGRATION*
RENRI_D (instrument)	0.142***	
	(3.530)	
O_D_DIFF		2.986*
		(1.950)
O_DMGPC	−0.067	−0.116
	(−1.630)	(−0.560)
O_PREMIUM	31.331***	−99.690**
	(13.030)	(−2.090)
D_PREMIUM	−31.694***	98.114**
	(−90.360)	(2.000)
O_POPULATION	3.961	154.385***
	(0.520)	(4.440)
D_POPULATION	−2.112**	41.871**
	(−2.470)	(2.190)
O_INCOME	−28.031***	32.027
	(−5.160)	(0.720)
D_INCOME	30.053***	−230.952***
	(22.380)	(−4.300)
First-stage F on excluded instrument	12.440	
Underidentification (Kleibergen-Paap rk LM)		12.498 (0.000)
Anderson-Rubin Wald F (p-value)		5.940 (0.015)
Stock-Wright LM (p-value)		7.070 (0.008)
Observations	340,619	340,619
Corridors	59,372	59,372
Year FE	YES	YES
Origin × Destination FE	YES	YES

Notes: Instrumental variables estimates on 340,619 corridor-year observations (59,372 corridors); 10,489 singletons are dropped. Column (1) is the first stage of *O_D_DIFF* on *RENRI_D*, the annual change in the Guy Carpenter Global Property Catastrophe Rate-on-Line Index interacted with the origin-minus-destination FEMA National Risk Index differential. Column (2) is the second stage. Both columns include origin catastrophe damage per capita. The Kleibergen-Paap rk LM statistic rejects underidentification ($p = 0.000$). The first-stage F is 12.440, below the Stock-Yogo 10 percent maximal-size critical value of 16.38. Anderson-Rubin and Stock-Wright tests reject a zero coefficient on *O_D_DIFF* at the 5 percent level. All regressors are lagged one year. T-statistics in parentheses, clustered at the origin county. ***, **, and * denote significance at the 1%, 5%, and 10% levels.

Appendix A. Variable definitions

Table A.1. Variable definitions and sources.

Variable	Definition and source
MIGRATION	Number of migrants, measured by personal tax exemptions claimed, moving from origin county to destination county in year t. The measure is based on year-to-year changes in mailing addresses reported on Form 1040. Source: IRS Statistics of Income county migration data.
O_D_DIFF	Origin-destination differential in annual homeowners insurance premium growth, in percentage points: *O_MCHG* minus *D_MCHG*. Source: authors' calculation from Keys and Mulder (2024).
O_MCHG / *D_MCHG*	One-year lagged annual percentage growth of the average homeowners insurance premium at the origin or destination: $(P_{c,t-1} - P_{c,t-2})/P_{c,t-2} \times 100$. Source: Keys and Mulder (2024).
O_PREMIUM / *D_PREMIUM*	One-year lagged county average homeowners insurance premium at the origin or destination, in thousands of dollars. Source: Keys and Mulder (2024), based on CoreLogic LLMA mortgage escrow data.
O_POPULATION / *D_POPULATION*	Origin or destination county population, in millions, lagged one year. Source: U.S. Census Bureau, American Community Survey.
O_INCOME / *D_INCOME*	Origin or destination county income per capita, in hundreds of thousands of dollars, lagged one year. Source: U.S. Census Bureau, American Community Survey.
O_UNEMPLOYMENT / *D_UNEMPLOYMENT*	Origin or destination county unemployment rate, in percent, lagged one year. Source: Bureau of Labor Statistics, Local Area Unemployment Statistics.
O_DMGPC	Origin county property damage from natural catastrophes per capita, in thousands of dollars, lagged one year. Source: SHELDUS, Center for Emergency Management and Homeland Security, Arizona State University.
O_MORTGAGE	Origin county share of owner-occupied housing units with a mortgage, in percent. Source: U.S. Census Bureau, American Community Survey.
DISTANCE	Great-circle distance between origin and destination county centroids, in miles. Source: NBER county distance database.
RENRI_D	Instrument for *O_D_DIFF*: annual change in the Guy Carpenter Global Property Catastrophe Rate-on-Line Index interacted with the origin-minus-destination differential in FEMA National Risk Index scores. Source: authors' calculation from Guy Carpenter (various years) and FEMA National Risk Index.

Notes: All right-hand-side variables used in the regressions are lagged by one year relative to the migration outcome.