Household Finance In Action

AEA-AFA Joint Luncheon Address

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Overview

- What we've learned: Households don't behave as finance professors think they ought to.
  - Large deviations across consequential decisions (pensions, insurance, mortgages, real estate, education financing). (Campbell, 2006; Guiso and Sodini, 2013).
- What we're learning: Reasons are complex and vary across households. Financial and cognitive constraints, non-neoclassical preferences, and non-standard beliefs.
  - Rich administrative data on search and choices, complemented with surveys. (Piazzesi et al., 2020; Malmendier, 2021; Gomes et al., 2021; Campbell and Ramadorai, 2025).
  - Vanguard of a broader trend in economics studying heterogeneity (Krusell and Smith, 2006; Chetty et al., 2014; Kaplan and Violante, 2018; DellaVigna, 2018; Moll, 2024).
- Household finance in action: Informing economic policy, financial regulation, and product design.
  - Lessons for more effective monetary and fiscal policy.
  - Lessons for financial regulatory design, with impacts on wealth inequality.

This Talk

- Monetary and fiscal policy could account better for household heterogeneity.
  - Potential for improved policy transmission.
  - Poses lower risk of exacerbating income, wealth, and regional disparities.
- Policymakers and regulators are slower to act than suppliers, who understand differences in households' financial management abilities all too well.
  - Suppliers cater to actual, not idealized demands; perverse product-design incentives.
  - Impacts on inequality: Financial sophistication is correlated with wealth and income.
- Insights from academic household finance can help to:
  - Focus energy on the biggest problems.
  - Parse contributions of financial and cognitive frictions, preferences, and beliefs.
  - Create simple indexes for policy decision support.
  - Sharpen financial regulation and product design through counterfactual analysis.

Roadmap

Monetary policy

Fiscal policy

Inequality

Fixing the system

Mortgage refinancing inaction

- Mortgage refinancing is an important channel for monetary policy transmission (Bernanke and Gertler, 1995; Garriga et al., 2017; Greenwald, 2018; Berger et al., 2021; Eichenbaum et al., 2022).
- Quick rate-cut transmission requires swift household response to beneficial incentives.
- In many countries, widespread inaction despite few formal impediments or upfront costs.
  - Denmark: Households free to refinance regardless of equity or credit standing.
- Household finance insights: Household refinancing inaction contributes to "long and variable lags" in monetary policy transmission and to the distributional effects of policy.
  - State-dependent inaction (high wealth and income households).
  - Time-dependent inaction (low wealth and income households).

Rational/monetary incentives cannot fully explain refinancing behavior

Andersen, Campbell, Meisner-Nielsen, and Ramadorai (AER, 2020)

- Rational incentive to refinance:

$$\mathrm{I} = (\mathrm{R}^{\mathrm{old}} - \mathrm{R}^{\mathrm{new}}) - \mathrm{OT}, \tag{1}$$

  where OT is the real options threshold (Chen and Ling, 1989; Agarwal et al., 2013).

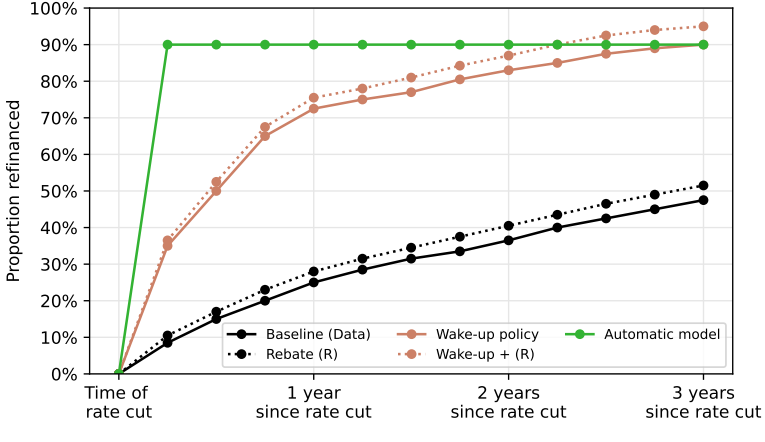
- Even four years after hitting a positive incentive, over 50% of mortgages fail to refinance.

- Cross-household differences in thresholds cannot fully explain this inaction. We see the same household refinancing at different thresholds at different times.

- Using rich demographics and a structural empirical model, we find that wealthy people have higher thresholds and "sleepiness" to incentives is mainly seen in poorer households.

How does mortgage refinancing respond to a rate cut?

- Consider a rate cut that should induce 90% of borrowers to refinance, easing their financial burden and stimulating consumption. Sleepiness is the main problem.



Note: Randomized "wake-up" study implemented in Ireland (Byrne et al., 2025).

Household finance lessons for monetary policy

1. The design of mortgage contracts can affect policy transmission.
   - Auto-refinancing mortgages could help. More broadly, contract features plus past rate history affect mortgage stock and thus, transmission. (Berger et al., 2021; Abel, 2024).
2. Rate cut path can create distributional effects.
   - A short and sharp rate cut induces refinancing by the state-dependent wealthy. Keeping rates low for long induces refinancing by the time-dependent poor.
3. Restructuring mortgage contracts can aid stimulus during recessions.
   - Cash flow and maturity adjustment (FRM to ARM/IO, extensions) can stabilize consumption and default in recessions. Mandatory takeup to combat inaction. (Eberly and Krishnamurthy, 2014; Guren et al., 2021; Campbell et al., 2021).
4. Easy-to-compute decision-support statistics: Share of mortgages with positive refinancing incentives and demographic variants. (Andersen et al., 2020); (Berger et al., 2021).

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Fiscal policy and the housing market

- Optimal fiscal policy trades off higher tax take against economic distortions.
- Absent frictions, land value taxes are recommended (Mirrlees et al., 2012).
  - Intuition: Land taxes may change prices but do not distort mobility decisions.
  - Preferred to transactions taxes (progressive, horizontal equity).
- In this frictionless world, house prices and volumes have independent drivers.
  - Prices immediately reflect shocks to valuation (such as land value taxes); volumes are driven by real motivations to move (job opportunities, family adjustments).
- Response of housing transactions volume to valuation shocks and tax changes thus reveals the extent of underlying frictions and tax-induced distortions.
  - Reduced volume can reflect foregone moves to opportunity and seller WTA-buyer WTP gaps. (Best and Kleven, 2018; Eerola et al., 2021; Han et al., 2023; Coven et al., 2024; Cho et al., 2024).

Behavioral and financial frictions in the housing market

- The housing market is far from the idealized frictionless environment:
  - Financial frictions: Homeowners need home equity for down payments; falling prices can mean downsizing, affecting gains from moving (Stein, 1995; Ortalo-Magne and Rady, 2006).
  - Behavioral frictions: House sellers insist on "getting at least what they paid," affecting their perceived gains from moving.
    (Genesove and Mayer, 2001; Bracke and Tenreyro, 2021);
    (Andersen et al., 2022; Badarinza et al., 2025).

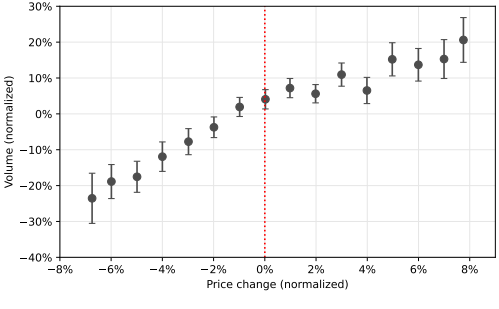
- Household finance insights: These frictions can affect equilibrium prices (tax take) and volumes (quantity distortions) with implications for tax policy.
  - Classic intuition on land taxes can be overturned.
  - Financial and behavioral frictions can interact with and modify one another, with implications for financial-fiscal policy coordination. (Andersen et al., 2022)

Prices and transaction volumes

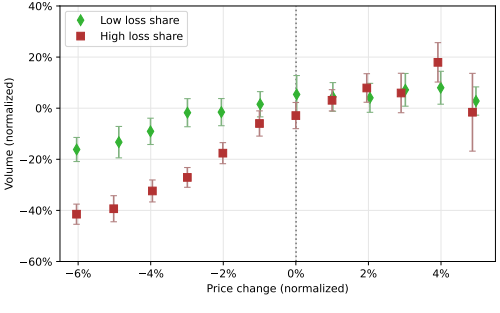
Badarinza, Ramadorai, Siljander, and Tripathy (2025)

(i) Prices and volumes are correlated; (ii) correlation is asymmetric; (iii) asymmetry varies with share of property owners facing paper losses (nominal price appreciation since purchase).

USA (Zillow)



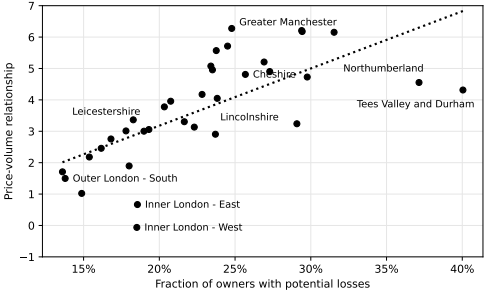
UK (Land Registry)



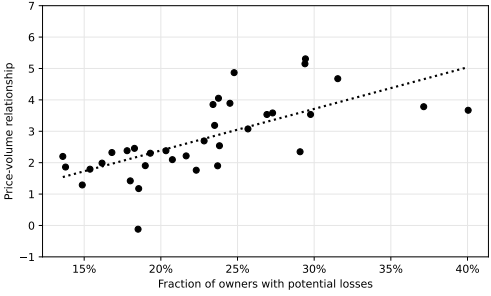
Note: Year-on-year price changes and volumes less location fixed effects. Considering top vs. bottom 25% loss shares. Data coverage: January 2010 to December 2024.

Price-volume comovement varies regionally with paper losses

Full sample



Non-mortgage sample



Note: The non-mortgage sample refers to transaction volumes, prices, and fractions of owners with potential losses computed using Land Registry transactions without a mortgage contract. We report coefficients from regressions of the realized monthly log transaction volume on the year-on-year price change within each ITL2 region of the UK.

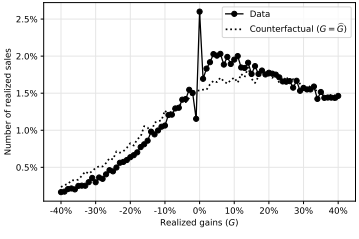
- Behavioral and financial frictions have distinct effects.

Model-free micro evidence of frictions

Realized nominal gains bunch at 0, consistent across markets.

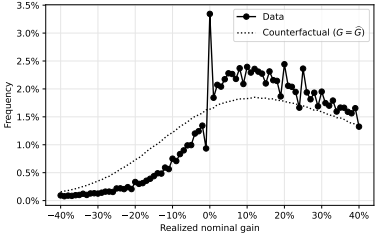
- Realized gain $\equiv \frac{\text{Transaction price}}{\text{Initial purchase price}} - 1.$ (Reference point $\equiv$ Initial purchase price).

Denmark

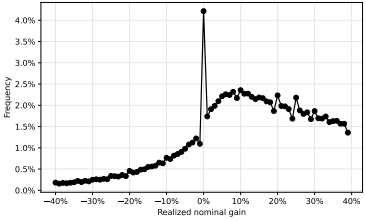


Andersen et al. (AER, 2022)

UK



USA



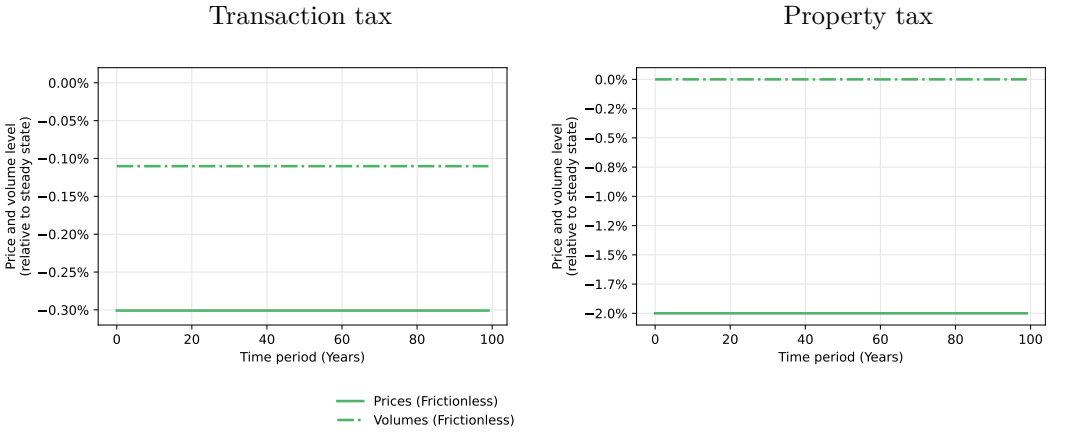
(Badarinza et al., 2026)

Structural search and matching model calibrated to micro data

- Dynamic equilibrium model of the housing market, with reference-dependent agents that face financial constraints.
  - Homeowners receive idiosyncratic mobility shocks that motivate them to sell.
  - Buyers receive idiosyncratic taste shocks when matched with properties.
  - Mortgages with down-payment constraint; amortization and interest rate schedules set at origination.
  - Reference price distribution evolves endogenously as transactions occur.
- Behavioral lock-in: Prices only partially reflect shocks because of behavioral rigidity: instead, volumes absorb shocks and vary.
  - In steady-state, reference prices adjust, so property taxes are non-distortionary.
  - On transition path (decades), property taxes can distort more than transactions taxes.
  - Interesting recent work on mortgage lock-in is distinct from the channel studied here. (Fonseca and Liu, 2024; Fonseca et al., 2024; Aladangady et al., 2025).

Fiscal policy with behavioral and financial frictions

Household frictions can alter classic intuition on property versus transactions taxes



Note: We consider a permanent doubling of the transaction tax from its current level, and a 10% increase in the council tax, expressed in units of utility. Agents in the model form rational expectations about how the economy evolves after the policy shock.

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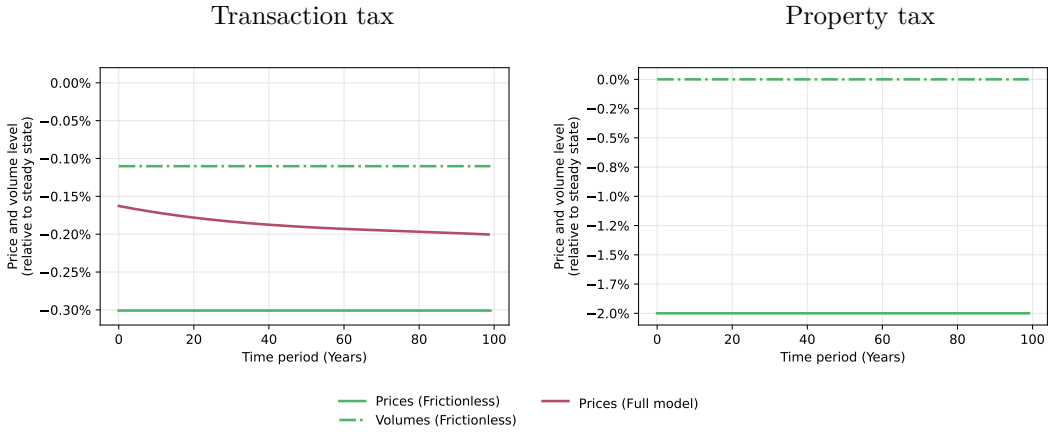

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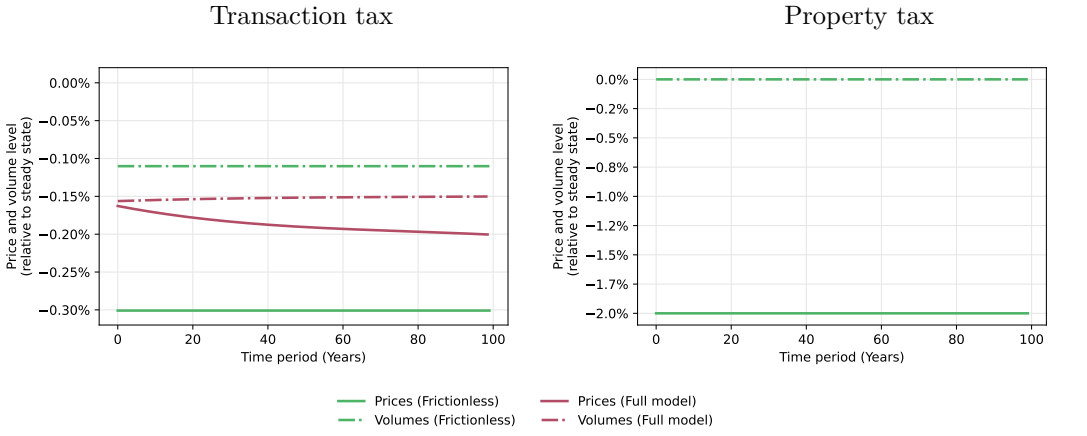

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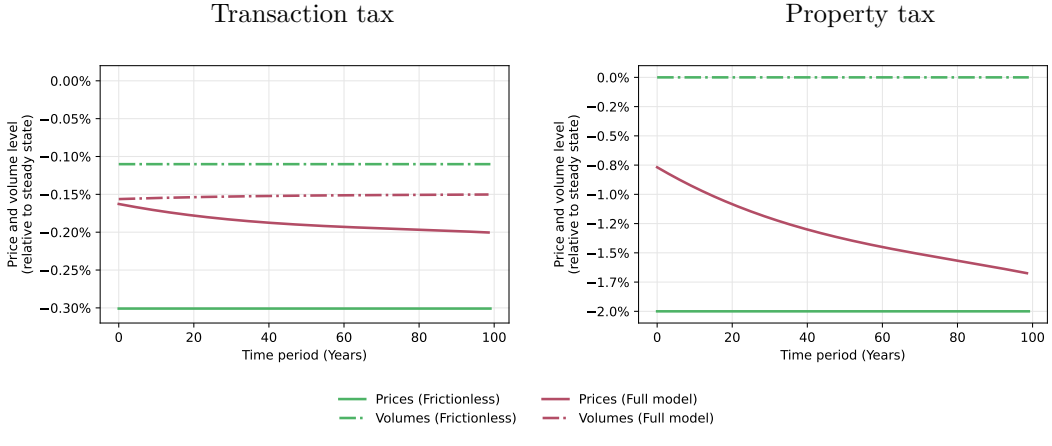

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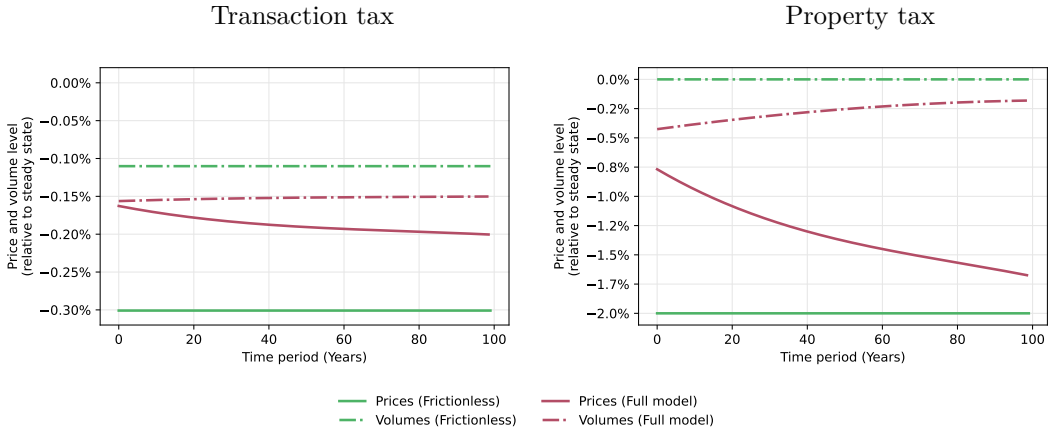

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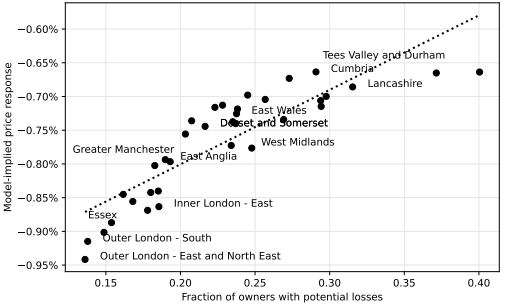
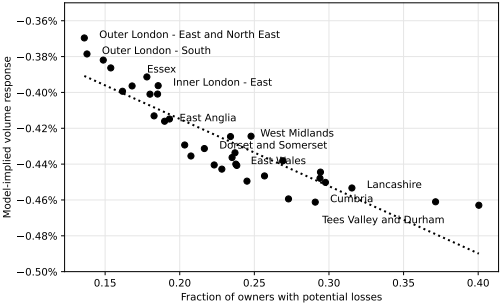
Model-implied tax elasticities across regions

Effect of property tax change depends on "paper loss share"

Prices



Volumes



Household finance lessons for housing market policy

1. Policy should account for regional heterogeneity in behavioral and financial frictions.
   - Reminiscent of post-GFC suggestions to incorporate spatial heterogeneity into mortgage modification and debt relief (Hurst et al., 2016; Piskorski and Seru, 2018).
2. Policy mix and timing should condition on the recent history of shocks.
   - Nominal anchors reset higher after positive shocks, building up fragility: behavioral hysteresis (Malmendier and Nagel, 2016; Bracke and Tenreyro, 2021); (Badarinza et al., 2025)
3. Behavioral and financial frictions can modulate or exacerbate each others' impacts.
   - If tighter financial frictions constrain behavioral urges, there are important complementarities in fiscal policy and mortgage regulation (Andersen et al., 2022).
4. Easy-to-compute decision support statistics: Share of homeowners facing paper losses; share of homeowners facing low home equity. Regional versions.
   - Expanded set of sufficient statistics; exact calculations depend on whether anchoring is a preference or a cognitive error (Chetty, 2009; Allcott et al., 2025; Reck and Seibold, 2025).

Roadmap

Monetary policy

Fiscal policy

Inequality

Fixing the system

Heterogeneity in financial management and inequality

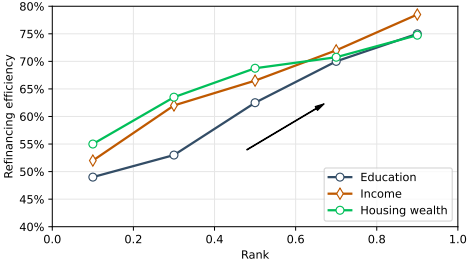
- Household heterogeneity affects monetary and fiscal policy transmission. It can also engender and perpetuate wealth inequality.
  - Inaction, attentiveness, and financial sophistication vary across the population, and are correlated with wealth and income. (Campbell et al., 2019); (Greenwald et al., 2021)
- Suppliers are far ahead of policymakers and regulators in accounting for these differences.
  - Growing literature on shrouded attributes, hidden fees, and cross-subsidies in household finance (Gabaix and Laibson, 2006; Gurun et al., 2016; Mahoney, 2025).
  - Example we will consider: "Teaser" rate structure in mortgage markets, similar to credit cards, mobile/internet and electricity plans (Armstrong and Vickers, 2012).

Unequal refinancing efficiency across households

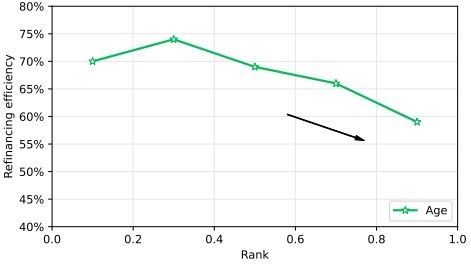
Evidence from Denmark (Andersen et al., 2020)

- Relative to rational benchmark, most households refinance inefficiently.
  - The rich, well-educated and young are substantially more efficient at refinancing.
- Hints at transfer from poor, less-educated, and old to the rich, educated, and young.

Education, Income & Wealth



Age



A simple illustration of cross-subsidization

- Consumers:
  - Endowed with base good at price p_l, defaulted into add-on good at price p_h.
  - Can substitute to base good at price p_l by paying k (same utility).
- Firms:
  - Sell base good (p_l) and add-on good ($p_h > p_l$), both prices positive.
- Costs and choices:
  - Assume household costs distributed uniformly $k \sim U(0, \bar{k})$.
  - Define threshold $k^* \equiv p_h - p_l$ (benefit of action)
  - Households with $k > k^*$ pay add-on price p_h, households with $k \leq k^*$ pay base price p_l.
- Consider single price p^* (no add-on pricing) under expected revenue equivalence:

$$\underbrace{p^*}_{\text{Revenues under single price}} = \underbrace{\frac{k^*}{\bar{k}} p_l + (1 - \frac{k^*}{\bar{k}}) p_h}_{\text{Revenues exp. under dual price}} \tag{2}$$

Quantifying the cross-subsidy

- Cross-subsidy (dual- vs. single-price) is transfer from high k to low k households:

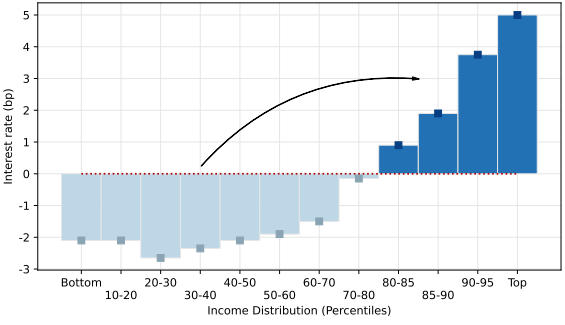
$$(1 - \frac{k^*}{\bar{k}})(p_h - p^*)$$

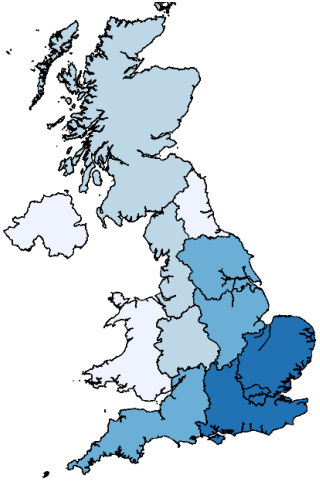
- Fisher et al. (2024): Evaluate this cross-subsidy using a richer dynamic structural model with heterogeneous costs (state-dependent inaction), cost shocks (time-dependent inaction) and heterogeneous valuations for housing.

- Use model to evaluate counterfactual in which all households pay single price p^*.
  - In the UK mortgage market, this means replacing the teaser rate structure with a single rate.
  - To make the invisible cross-subsidy visible, compare current with counterfactual outcomes across regional and income groups.

Quantifying the cross-subsidy

Fisher, Gavazza, Liu, Ramadorai, and Tripathy (JFE, 2024)





Structural estimation on administrative data covering UK mortgage stock.

Why does the cross-subsidy persist?

- Shouldn't a separating equilibrium develop here—and in many other related settings—to eliminate the cross-subsidy?
- Mortgage providers bid teaser rates for "high-k" inactive households but not enough.
  - Is inactivity/k unobservable? No—correlated with observables (age, income, education).
  - Does regulation make a separating equilibrium less likely? Perhaps—UK lenders prohibited from tailoring prices and credit limits, and cross-subsidies are high. (Matcham, 2025).
  - Inactive households could have high switching/search costs, making bidding futile.
    - Unsophisticated borrowers are less likely to shop around during mortgage origination. (Woodward and Hall, 2012; Bhutta et al., 2021).
    - "Encompassing inertia" could make cost of future inactive customer acquisition prohibitive (Abel, 2024).

Roadmap

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Inequality

Fixing the system

Can financial education eliminate cognitive frictions?

"Fixed" (with John Y. Campbell, PUP, 2025). Chapter 9: Shove!

- The importance of financial education is well established:
  - Return differences driven by educational inequality could account for up to 30-40% of the level of wealth inequality in the US (Lusardi et al., 2017).
  - Financial education can increase participation in risky assets and retirement savings plans (Haliassos et al., 2020), encourage people to shop more aggressively (Cota and Šterc, 2025), and avoid mistakes in managing financial products (Bianchi, 2018; Altmejd et al., 2024).
- But it is not a panacea:
  - Impact of direct intervention decays rapidly (Fernandes et al., 2014).
  - Cost effectiveness varies widely, and is difficult to predict (Kaiser et al., 2022; Balakina et al., 2025).
  - Unequal access to high-quality education and potentially, unequal returns to education.
  - Practical versus book learning and the problem of obsolescence.

Is technology the answer?

"Fixed" (with John Y. Campbell, PUP, 2025). Chapter 8: The Promise and Peril of Technology

- The Promise:
  - Lower fixed costs and easier access.
  - Customization.
  - Lower search costs.
- The Peril:
  - Targeting weaknesses; e.g., gamified trading.
  - Price discrimination using personal data.
  - Algorithmic discrimination in credit allocation (Fuster et al., 2022; Blattner et al., 2024).
  - Leaving people behind who need humans in the loop (Greig et al., 2024; Jiang et al., 2026, Forthcoming).
  - End run around regulation (DeFi, deposit insurance) (Makarov and Schoar, 2022).
- Realizing the promise whilst limiting the peril will require muscular regulatory intervention ("Shove!").

An important role for policymakers and financial regulators

- Competition on its own is unlikely to work, because suppliers compete for behavioral customers by exploiting errors, rather than competing on price and quality.
- Nudges can sometimes have small effects, and may have unintended consequences. (Handel, 2013; DellaVigna and Linos, 2022; Beshears et al., 2022).
- Must adapt financial regulation to suit households and be prepared to intervene.
  - Israeli 2021 mortgage reforms and Australian 2021 mortgage broker best interest duty.
- But: State capacity is an important constraint, and we are asking a lot of already stressed institutions. (Besley and Persson, 2009; Besley et al., 2022; Muralidharan, 2024)
- Complex issue: Regulation must confront the endogenous response of suppliers.

Regulating inaction: The case of price walking

Coen, Gavazza, Gottlieb, and Ramadorai (2025)

- "Price walking": Common practice of increasing prices for renewing customers every year, because they are unlikely to shop and switch.
  - "Loyalty penalty": tenure-based price discrimination to exploit inaction, prevalent in insurance, telecoms, energy contracts.
- Muscular regulatory intervention in the UK insurance market in 2022:
  - FCA ban—renewal prices must not exceed offers to equivalent new customers.
- Providers responded by:
  - Proliferating products, thus changing set of "equivalent" new consumers.
  - Lowering teaser discounts previously used to lure inert consumers.
- Model predicts and data confirms oscillating market shares (compete then exploit).
- Model predicts and data confirms gains from search do not decline post regulation, especially for groups that can least afford it (unemployed, disabled).

Concluding thoughts

- Households differ along multiple dimensions: financial frictions, cognitive constraints, preferences, beliefs.
  - These differences reflect in the quality of their financial decision-making.
  - Suppliers are all too aware of these differences, and seek to profit from them.
- Household finance in action: Rather than placing the entire burden on households to adapt, we need to translate this understanding into a better-designed system.
  - Easy-to-use indicators that can help monetary and fiscal policy transmission and distribution.
  - Re-engineering financial regulation to deal with regressive cross-subsidies.
- Getting there will require effort.
  - Harnessing technology to serve our purposes without exacerbating problems.
  - Confronting state capacity issues by translating academic insights into actionable policy.

Abel, Joshua, "Equilibrium Mortgage Design with Heterogeneous Borrowers," Technical Report, Working Paper 2024.

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