Mortgage Pricing and Monetary Policy:

By Matteo Benetton, Alessandro Gavazza, and Paolo Surico

Discussant: Dan Greenwald

MIT Sloan

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Overview

- **Question:** how does realistic mortgage pricing influence monetary policy transmission?
  - Motivation: prevalence of fees, multiple fee + rate combinations for same product.
- **Approach:** IO model of UK mortgage market with two-part pricing (rates + fees).
  - Main experiment: reaction to drop in bank funding costs.
- **Main Results:**
  - Borrowers less elastic to fees than rates, many borrowers make mistakes.
  - Two-part pricing important for lender profits, response to monetary policy.
- **My Evaluation:**
  - Great machinery for analyzing salient and under-studied phenomenon.
  - Main suggestion: interact two-part pricing with borrowing constraints.

Why Do Mortgage Fees Exist?

- Consider the following deals at your local grocery store:
  - Deal #1: Buy three bananas in exchange for one dollar.
  - Deal #2: Buy four bananas in exchange for one dollar + one banana.
- Strange/counterproductive to pay with the exact good you are trying to obtain.
- But this is exactly what mortgage fees are!
  - Mortgage #1: Obtain money today in exchange for repayments in the future.
  - Mortgage #2: Obtain money today in exchange for repayments in the future + money today (fee)
- Why do we observe this at equilibrium?

Two-Part Pricing

- Authors point out that fees can be used to segment the market and extract surplus.
  - Customers willing to pay fee given access to lower rates (r_L).
  - Customers who are highly fee averse stuck with higher rates (r_H).
- If debt amount not constrained, fee and no-fee contracts are **extremely substitutable**.
  - For borrower paying r_H, can simply increase debt balance q by size of fee f.
  - Pay zero today, future payments go from $r_H q$ to $r_L(q+f)$.
  - Aside: model borrowers **not indifferent** between these, even if payoffs identical.
- If all borrowers are rational, unconstrained, have same base loan demand q, this "arbitrage" makes it impossible to segment market or extract surplus.
  - Note this holds even if some borrowers are extremely impatient, etc.

Two-Part Pricing

- Market segmentation works better if base loan demand q varies across borrowers.
  - Benefits of rate cut proportional to loan size, but cost of fee is fixed.
  - Borrowers with larger loans choose higher fees, lower rates.
- Authors focus on this type of segmentation.
  - Optimal policy: choose loan with fee iff $q \geq q^*$.
  - Consider any deviation from this NPV-maximizing policy as "mistake."
- This makes sense, but I don't think it's the most interesting channel here.
  - Plausible that large-loan and small-loan populations differ.
  - But in practice borrower behavior does not line up strongly (lots of "mistakes").
  - Not clear at all to me why this should vary with monetary policy.

Alternative Segmentation: Borrowing Constraints

- What if fees instead segment borrowing-constrained vs. unconstrained population?
  - UK borrowers face caps on loan-to-income (LTI) and loan-to-value (LTV) ratios.
  - Populations likely quite different $\implies$ big gains from price discrimination.
  - Aside: could be strongly correlated with loan size margin authors focus on.
- First, imagine borrower who faces fixed loan cap $\bar{q}$ (e.g., LTI limit).
  - Breaks arbitrage between fee and no-fee contracts (can't increase q to offset f).
- However, I doubt this mechanism would be very quantitatively strong.
  - Could still offset fee by cutting housing consumption by f.
  - Typical fee is around 0.5% of the typical loan $\implies$ not a huge adjustment.

Alternative Segmentation: Borrowing Constraints

- Let's try again with **loan-to-value (LTV)** constraints.
  - Given house price p, can borrow up to θp, down payment at least $(1-\theta)p$.
  - Extremely salient for first-time buyers, usually implemented as rate jump instead of hard cap.
- For constrained household with available down payment x, limits are

$$\bar{p} = \frac{x}{1-\theta} \qquad \bar{q} = \left(\frac{\theta}{1-\theta}\right)x$$

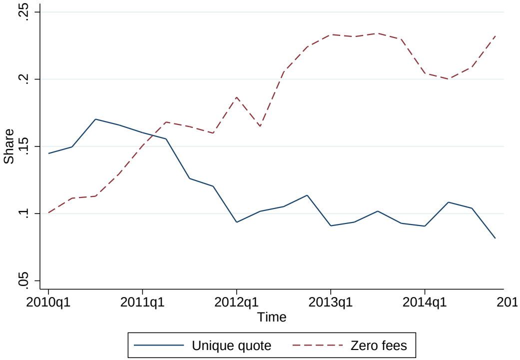
- Since fee reduces down payment, friction between the contracts is greatly amplified.
  - Paying fee f requires borrower to cut housing purchase by $f/(1-\theta)$.
  - At typical LTV ($\sim 80\%$), required adjustment is 5x fee. At high LTVs could be 10x, 20x or more.
- Strong frictions $\Longrightarrow$ effective segmentation.
  - Possible to extract surplus from constrained households with strongest credit demand.

LTV Constraints and Monetary Policy

- How does this type of price discrimination link with monetary policy?
- My conjecture: when rates fall, loan demand goes up more for constrained than unconstrained households.
  - Constrained HHs likely hold few financial assets, discount rate less affected by policy rate.
  - Fall in interest rates can boost house prices, raising required loan amounts.
- If this is the case, increased gains from price discrimination imply
  - More fee/no-fee options.
  - Larger gaps in rates between fee/no-fee products.
  - Higher fees conditional on nonzero fees (to support rate gap).

LTV Constraints and Monetary Policy

- Conjecture fits the observed pattern pretty well.
- More generally, data seem consistent with increased price discrimination motive.
  - Seems important to explain this link to MP even if my constraint story rejected.



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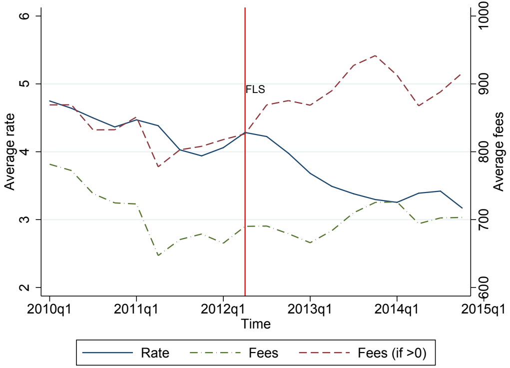

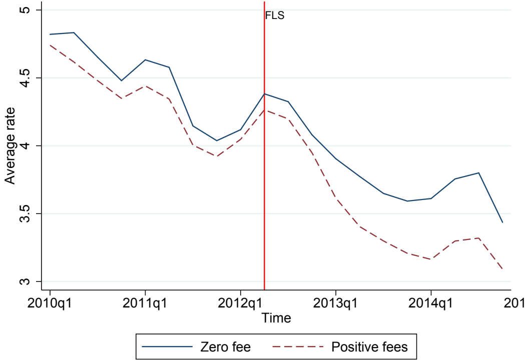

LTV Constraints and Monetary Policy

- Conjecture: segmentation by constraint **dampens transmission** into housing demand.
- Typical asset pricing equation for LTV-constrained borrower is

$$p_t = \frac{\text{service flow} + \text{discounted future price}}{1 - \mu_t \theta}.$$

where μ_t is shadow value of relaxing borrowing limit (**latent credit demand**).

- In model without fees, μ_t increases substantially when mortgage rates fall.
  - But if lenders extract surplus from constrained borrowers, μ_t should rise by less.
  - Constrained households likely have most sensitive demand $\implies$ price discrimination should dampen effect of rates on housing demand, house prices.
- Smaller movements in housing demand, house prices, reduces construction and equity extraction, important elements of monetary transmission.

Suggestions

- Compare fee choice for LTV-constrained vs. unconstrained households in data.
  - Effect should be stronger, no-fee options more popular, at LTV cutoffs (esp. in high-LTV bins).
  - Effect should be weaker for repeat buyers (less likely to be down-payment constrained).
  - Do LTV constraints explain market variation in loan demand elasticity to fees?
- Adapt model to capture LTV "leverage" effect.
  - Model has nice feature from Benetton (2018) restricting by LTV limit.
  - Could make max LTV depend on down payment, fees as well as house price?
  - Set up model so that if unconstrained, fee vs. rate arbitrage leaves borrower indifferent.
- Compute "total" pass-through combining rates and fees.
  - Check conjecture of lower total pass-through to constrained (zero-fee) market.

Conclusions

- Authors estimate rich quantitative model with interesting and understudied mechanism.
  - Great motivating evidence for price discrimination, market segmentation.
  - Next push: who is being segmented and why it matters for MP.
- Main suggestion: look at segmentation by LTV constraint.
  - Should allow fees to provide strongest friction for segmentation.
  - Theoretically motivated link to monetary policy.
  - Could be important factor dampening house price, credit response!
- Aside: fees/points in US market could be even more interesting due to prepayment.