More Tax, Less Refi?
The Mortgage Interest Deduction and Monetary Policy Pass-Through

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Disclaimer

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Motivation

- Monetary policy stimulates consumption via the refinancing channel.
- Frictions to this transmission channel are important for monetary policy, financial stability, and borrower welfare.
- We document a previously unstudied factor in the refinancing channel: the mortgage interest deduction (MID)
Why would the MID affect monetary pass-through?

- Households can deduct mortgage interest from their taxes (“itemize”)

- For portion of mortgage above standard deduction:
  1. Reduces mortgage rate from $r$ to $r \times (1 - t)$
  2. Refinancing yields $(1 - t) \times (r_0 - r_t)$ rather than $(r_0 - r_t)$

- MID may reduce sensitivity of consumption to mortgage rates, conditional on refinance (hard to measure)

- Refinancing requires (pre-tax) fixed costs ($\delta$)
  - Not “in the money” until benefit from refinancing $> \delta$

- By reducing benefits from refinance, MID may reduce sensitivity of refinancing to mortgage rates (easier to measure)
What we do

- Quantify the effect of the MID on refinance probabilities.

- **Issue 1: Endogeneity.** Observable and unobservable factors may drive both tax and refinance probabilities
  
  ➤ Exploit **TCJA:** changed MID uptake and value.
  
  ➤ Novel approach to estimating borrower-level MID subsidy and itemization status.
  
  ➤ Diff-in-diff: Compare borrowers with different effective pre-TCJA MID subsidies before and after TCJA.

- **Issue 2: Offsetting saving incentives** The MID also reduces the return to paying down mortgage debt, maybe increasing saving vs consumption (also interesting for stability reasons)
  
  ➤ Use same approach to look at debt paydown.
What we find

- Refinancing increases following the TCJA: for most affected borrowers, **19 bps** subsidy loss → 0.5 ppt ↑ in refi (25% increase)
- Magnitude of the effect is increasing in size of subsidy loss
- Effect concentrated among borrowers most sensitive to rates
- Gap in refinancing appears only post-TCJA and not before
- No effect of losing the interest subsidy on de-leveraging

*Mortgage interest deduction meaningfully dampens the refinancing channel of monetary policy pass through*
Overview of TCJA

- **Tax Cut and Jobs Act (TCJA)** changed itemizing decision.
  - **Before** the TCJA, a household could deduct:
    1. Mortgage interest on mortgages up to $1,000,000
    2. State and local taxes (SALT)
  - **After** the TCJA (signed into law December 2017):
    1. Mortgage interest deduction (new mortgages) capped at mortgage size of $750,000
    2. SALT deductions capped at $10,000
    3. Standard deduction doubled
  - → ~ 50% decline in itemizing
Data

- Two main challenges: guess itemization status and predict refinance incentive.
- Predict itemization status from 3 biggest components of deductions: mortgage interest, property tax, state income tax.
- Predict available refinance rate using recent originations in Optimal Blue.
- 10% sample from Hmda-McDash-CRISM data (2016-2020)
  - Calculate state and federal tax rates on TAXSIM
  - Proxy property tax using escrow payments.
  - Pull interest payments/rate from McDash.
  - Distinguish between prepay types using CRISM.
Structure of MID Rate Subsidy

\[ p = \text{fraction of mortgage interest above standard deduction} \]

\[ \text{Subsidyrate} = \begin{cases} 
0 & \text{if deduction} < \text{standard deduction} \\
 tp & \text{if deduction} > \text{standard deduction} 
\end{cases} \]

after-tax mortgage rate = \( r \times (1 - \text{subsidyrate}) \)
Motivating empirical patterns

- After TCJA, refi slope steepens for those who lose the interest subsidy
- Refinances increase the most for those with biggest change in subsidy
- Potential savings from refinancing unchanged
Empirical Strategy

\[ Pr(\text{Refi}_{i,t}) = \beta_1 \times \text{Post}_t \times \text{SubsidyChange}_{i} \times \text{RefiIncentive}_{i,t} + \rho X_{i,t} + \psi_{i,t} + \varepsilon_{i,t} \]

- \text{Post}_t: dummy for following TCJA (December 2017)
- \(X_{i,t}\) controls for loan characteristics: e.g. ltv, dti, credit score, age
- \(\psi_{i,t}\) nonparametric controls for determinants of subsidy loss interacted with quarter FE; zipcode \(\times\) time FE
- Linear probability model, cluster by zipcode.

Three takes on difference-in-difference:
- Cross-sectional by deduction bin.
- Cross-sectional by rate gap.
- Time-series, comparing affected and unaffected mortgage borrowers.
Approach 1: Change in Refinancing by Deduction Bin

- Refis increase post-TCJA with size of subsidy loss.
- For bins 22-26, **19 bps** subsidy loss $\rightarrow$ 0.5 ppt $\uparrow$ in refi propensity (**25%** increase).
Approach 2: Change in Refi by Rate Gap x Subsidy Loss

coefficient on post x subsidy loss x rate gap bin

- Refi increase strongest for rate gaps 0.5-1.5, most rate sensitive.
Approach 3: Parallel Trends before TCJA

\[ Pr(\text{Refi}_{i,t}) = \sum_{\tau} \delta_t \beta_{\tau} \text{ItemizerType}_{i,t} \text{In The Money Cat}_{i,t} + \rho X_{i,t} + \psi_{i,t} + \varepsilon_{i,t} \]

Rate-term refinancing over time
Marginal return on mortgage paydown = $F \times r$

\[ F = \begin{cases} 
1 & \text{if deduction} < \text{standard} \\
1 - t & \text{if deduction} > \text{standard}
\end{cases} \]
Excess Debt Paydown Little Changed After TCJA

The % of balance paid-off in cash-in rate-term refi little changed
% Δ current LTV at cash-out little changed
→ loss of MID did not cause significant deleveraging
Conclusion

- Loss of the MID due to TCJA increased sensitivity of refi to rates
  - For most affected borrowers, 19 bps subsidy loss → 0.5 ppt ↑ in refi propensity (25% increase)
  - Effect is strongest for households who see the largest reduction in MID
  - Increase in refinancing driven by borrowers on the margin of being in-the-money (rate gap of 0.5-1.5 ppt), typically the most rate-responsive group.
  - Gap in refinancing appears only post-TCJA and not before
  - The loss of the MID does not affect deleveraging
    - → effect of MID on debt operates primarily at time of origination

*MID dampens the pass-through of monetary policy via refinancing channel*