MORTGAGE LENDING STANDARDS: IMPLICATIONS FOR CONSUMPTION DYNAMICS

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**THIS PAPER**

**Question:** To what extent do stricter mortgage lending standards affect consumption responses to unexpected shocks?

**What we do:** Dissect consumption responses (MPC) to shocks in a heterogeneous-agent model

- **Model:** Bewley-Huggett-Aiyagari model with housing, mortgages, and credit constraints
- **Shock:** one-period negative shock to liquid wealth (income)
- **Lending requirements:** loan-to-value (LTV) and payment-to-income (PTI)
- **Policies:** permanent and one-period temporary changes of lending requirements
- **Our focus:** immediate demand response
What we find

Permanently stricter LTV and PTI requirements do not materially affect consumption dynamics

- Aggregate consumption, and its dynamics, remain very similar
- Even the distribution of MPCs is unchanged
- Why?
  - Households desire for self-insurance is driven by deep parameters
  - Households adjust their behavior to the new constraints

Temporary stricter LTV and PTI requirements do affect aggregate consumption dynamics

- Dampens consumption fluctuations significantly
- Can be welfare improving on average, but only under very particular circumstances
**Model**

- Bewley-Huggett-Aiyagari life-cycle model, with overlapping generations

- Preferences: Households derive utility from non-durable consumption $c$ and housing services $s$

- Assets: Houses $h$, liquid bonds $b$, and mortgages $m$

- Mortgage features: Long-term (non-defaultable) mortgages
  - Payment schedule with minimum payment $\chi_j m$
  - Household who stays in a house can deviate from the schedule, but incurs a fixed refinance cost $\varsigma^r$
  - When taking up a new mortgage, the household must abide by two constraints:

\[
\begin{align*}
    m' & \leq (1 - \theta) p_h h' & & \text{LTV requirement} \\
    \left( \frac{\chi_{j+1} m' + (\tau^h + \varsigma^I) p_h h'}{z} \right) & \leq \psi & & \text{PTI requirement}
\end{align*}
\]
MPC in a housing model

- The model creates significant heterogeneity in consumption responses
- Credit constraints matter - generates wealthy hand-to-mouth consumers

(A) MPC distribution

(B) MPC across liquid savings-to-earnings ratio

- Unconstrained owners
- Constrained owners
- Renters
Can permanently stricter borrowing standards alter consumption dynamics?

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Stricter LTV</th>
<th>Stricter PTI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max LTV</td>
<td>0.90</td>
<td>0.70</td>
<td>0.90</td>
</tr>
<tr>
<td>Max PTI</td>
<td>0.28</td>
<td>0.28</td>
<td>0.18</td>
</tr>
<tr>
<td>House price</td>
<td>1</td>
<td>0.965</td>
<td>0.959</td>
</tr>
<tr>
<td>Rent</td>
<td>0.086</td>
<td>0.086</td>
<td>0.086</td>
</tr>
<tr>
<td>Homeownership rate</td>
<td>0.674</td>
<td>0.605</td>
<td>0.647</td>
</tr>
<tr>
<td>Median house-to-earnings ratio</td>
<td>2.259</td>
<td>2.164</td>
<td>2.134</td>
</tr>
<tr>
<td>Mean net worth age 75 over 50</td>
<td>1.637</td>
<td>1.401</td>
<td>1.633</td>
</tr>
<tr>
<td>Median loan-to-value ratio</td>
<td>0.339</td>
<td>0.147</td>
<td>0.250</td>
</tr>
<tr>
<td>Mean net worth, over mean earnings</td>
<td>1.381</td>
<td>1.477</td>
<td>1.379</td>
</tr>
<tr>
<td>Mean liquid savings-to-earnings</td>
<td>0.752</td>
<td>0.765</td>
<td>0.765</td>
</tr>
</tbody>
</table>

(A) Mean MPC over time

(B) Distribution of MPCs in $t = 1$
Why are permanent policies ineffective?

Precautionary savings:

- Driven by the desire to insure against negative income shocks
- Largely governed by deep parameters (e.g., $\sigma$) rather than the regulatory environment

$\Rightarrow$ Households alter portfolio such that they are (on average) equally well insured

- Results are robust to changing the sign and magnitude of the shock
- Results are robust to stricter policies
Can temporarily stricter borrowing standards alter consumption dynamics?

Experiment: Tighten credit in $t = 1$, let households experience a negative shock in $t = 2$

- A temporarily tighter policy lowers consumption and increases savings in $t = 1$ compared to the baseline
- As a result, the fall in consumption is smaller than the baseline, both in $t = 2$ when the shock occurs and all subsequent periods
Concluding remarks

Permanently stricter LTV and PTI constraints do not materially affect the:

- Aggregate consumption dynamics
- Distribution of MPCs

Intuition: households’ motive to self-insure is unchanged

Temporary stricter lending standards do alter consumption dynamics

- Tighter credit leads to more savings
- More savings make households better insured