Comments on

Loan Loss Provisions and the Mortgage Market

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Microdata and economic research at central banks
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Questions

- What impact did Chile's 2016 provisioning requirement affect the distribution of mortgage LTVs?
- How can we use theory to understand these effects?

Features of the regulation

- Loan loss provisioning, implicit cost.
- Kicks in if:
  - Loan goes into arrears, *and*
  - LTV exceeds certain thresholds (80% and 90%).
  - Also depends on amount of time in arrears.

My comments

- Observations and questions on the empirics.
- A dumbed-down model.

Empirical method

- Treatment = 2016, post regulation.
- Control = 2012–14, pre-regulation.
- CEM used to create "artificial" control group with similar characteristics.
- Comparison of means, distributions.

Potential problem

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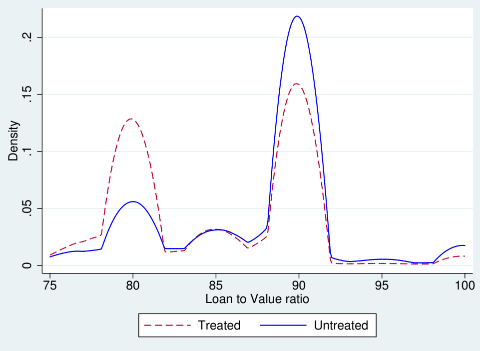
- . . . but *not* year effects.
- Did something change from 2012-14 to 2016 that affected all banks/borrowers? Interest rates? Business cycle?

Empirical results

- Fewer high-LTV loans: share exceeding 80% went from 0.69 to 0.54.
- More loans were clustered around the 80% threshold.
- Roughly 6% of borrowers were unable to obtain a mortgage.

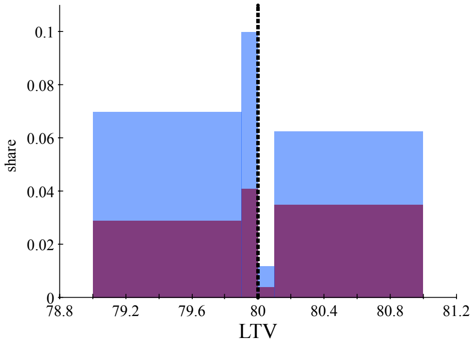
Figure 6 (almost) captures it



- Mass moves from 90% to 80%.
- Symmetric around thresholds (Epanechnikov kernel).

Why the *pre*-regulation modes at 80% and 90%?

A subtlety missed by Figure 6



- Regression reveals discontinuity at 80%.
- Same shape post-regulation, higher overall.

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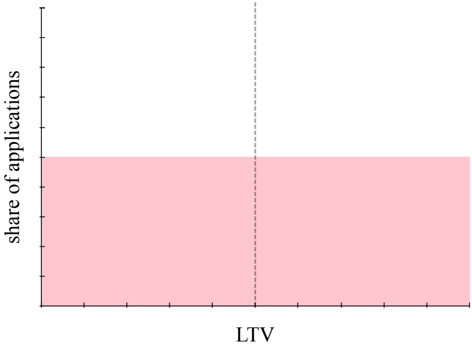
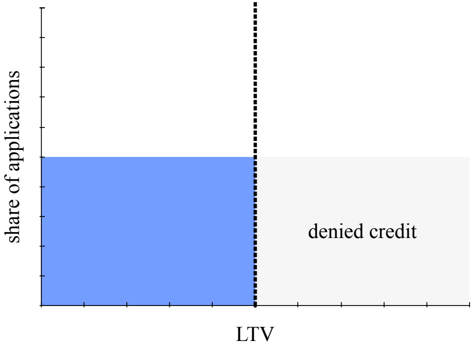
- Regulation $\rightarrow$ costs on high-LTV loans...
- ...how could these higher costs *not* cause LTVs to fall?

No regulation



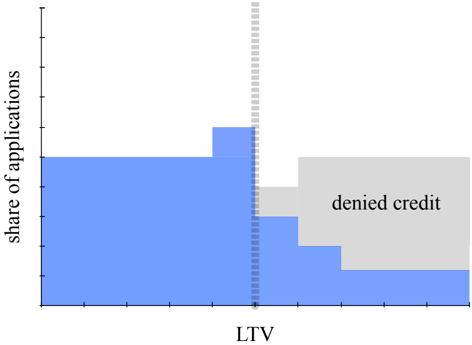
- No regulation.

A hard LTV constraint (exogenous)



- Regulation prohibits any LTV in excess of Ψ.
- Hard constraint.

Endogenous LTV



- Regulation imposes costs on loans with LTV $> \Psi$.
- Observed LTV results from bank's optimization.

Sketch of paper's theory

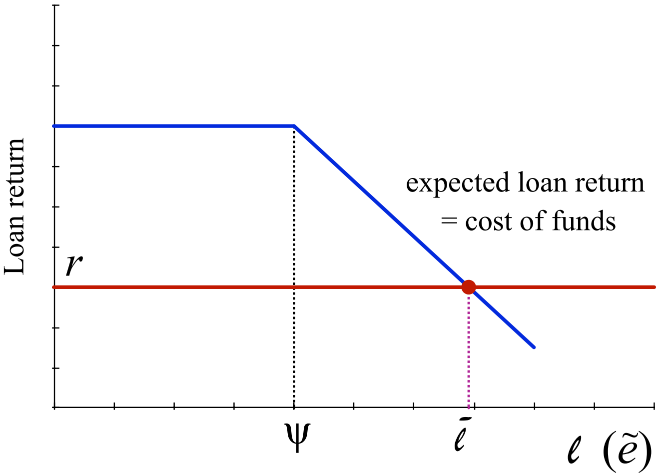
- Infinite horizon.
- *No default!* The only cost is from provisioning. (Footnote 6.)
- Borrower sends $\tilde{e}$ quality signal.
- Loan amount, $L = (1 - \tilde{e})P$
- Penalty applies if loan is in arrears and $\ell > \Psi$.
- Cutoff $\bar{e}$ from π maximization, $\bar{e} \rightarrow \bar{\ell}$.

A dumbed-down generic model

- Two periods. Loan rate $\hat{r}$, cost of funds r.
- Cost of arrears/default/workout, $C(\ell)$, $C' \geq 0$.
- Probability of default, $\Phi(\ell)$, $\Phi' \geq 0$.
- Bank's problem:

$$\max_{\ell} \hat{r} - r - C(\ell)\Phi(\ell)$$

The dumbed-down model graphically



Mapping into paper's model

- Signaling model motivates $\Phi(\ell)$, $\rho = 1 \to \Phi' = 0$.
- Chilean regulation $\to C(\ell)$ is a step function.
- (Banks choose $\bar{e}$, equivalent to $\bar{\ell}$.)
- Similar implications (I think).

Other theory issues

- The signaling model is more applicable to a debt-service-to-income criterion.
- Does the model imply asymmetries, e.g. the discontinuity at 80%?
- What if borrowers can choose P?
- Can the data distinguish signaling from alternative models?

Conclusions

- Great question. Nice use of microdata. Good application of CEM method.
- Can't distinguish effects of regulation from other factors affecting all banks.
- Signaling model is very specific—likely not the only explanation for the observed effects of Chile's regulation.