Estimating the Information Component in Switching Costs: A Structural Approach

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Motivation

- Information frictions affect the ability of consumers to switch between institutions
  - loan characteristics are often hidden and displayed in a non-standard manner
  - consumers are not always efficient when choosing among contracts (Handel 2013)
  - this is especially true for financial products (Hortacsu 2004, Palmer 2016)

- Yet information frictions are only one component of switching costs
  - empirical and theoretical barriers make it difficult to disentangle the informational component of switching costs

- How important are information frictions for consumer welfare?

Why is this a challenging question?

- Data
  - most studies have used aggregate bank-level market shares to estimate switching costs (Kim, Klieger and Vale 2003)
    - net flows might not fully capture consumers' switches
  - for a subset of institutions

- Experimental setting
  - ideally we would need a policy change that exogenously varies informational frictions without changing other components of switching costs

- Model
  - dynamic model of consumer choice
  - that can incorporate banks strategic behaviour
  - can exploit exogenous variation to recover the informational parameter of structural model

This paper

- Data
  - we have administrative loan-level data from the Chilean banking regulator which reports universe of matches between consumers and banks

- We exploit a policy change in Chile that explicitly attempted to reduce the information friction as consumers no longer had to:
  - a) analyze fine print to find relevant fees
  - b) calculate an APR

- We develop a framework that combines the advantages of reduced form estimation and structural modeling:
  - we use reduced-form regressions to recover the fundamental parameters of our structural model
  - allows us to exploit policy change to disentangle information friction component
  - which we then incorporate into a dynamic structural model to asses changes in welfare and long-term market equilibrium

Main findings

- We find that the introduction of a standardized loan contract reduced information frictions by 10 percent
- According to our dynamic structural model, this leads to:
  - a reduction in average interest rates of 180 basis points (as consumers switch to banks that provide lower interest rates)
  - a reduction in the standard deviation of rates
  - an increase in welfare of around 15 percent in the long-run.

Transparency shock: Law 20.555

- In March 2012 the Chilean congress passes law 20.555
  - aimed to protect consumers in credit markets by regulating and standardizing how relevant information should be presented to consumers
  - specifically introduces an APR (called CAE) for both credit contracts and credit quotes
  - to be displayed on a standardized summary page

- The law also strengthened the National Consumer Protection Agency (SERNAC)
  - giving more resources and powers to enable the agency to monitor and enforce compliance with the law

General set-up

- Dynamic model
- Consumers:
  - each period are required to borrow one unit of money
  - search across different banks for the best "offer"
  - frictions explain why not all consumers get the lowest price available in the market
- Banks:
  - each period maximize profits
  - face an (endogenous) downward sloping demand curve
  - they charge an interest rate which is a markup over their cost of funding

We estimate each part of the model separately

- we use gross switches between consumers and banks to identify the consumer information friction.
  - While net flows have traditionally been used to derive changes in market power, they are not ideal to identify changes in consumer behavior.

- We use market share data (net flow) to identify our market power parameter (Berry 1994)
  - This specification of the model allows us to have a different market power for each lender and for each market.

- Finally, in this stage we:
  - use different sources of variation to independently identify each parameter.
  - use gross switching flows of clients between institution. It allow us recover the sensitivity of consumer to relative price and how this changes the partial equilibrium

Estimation

- Estimating equation for consumers:

$$log(m_t^{ij}) - log(m_t^{ii}) - \beta(log(m_{t+1}^{ij}) - log(m_{t+1}^{ii})) = \frac{-(1-\beta)}{\nu} C^{ij} + (\beta/\nu)(\rho r_{t+1}^{j} - \rho r_{t+1}^{i}) + \upsilon_{t+1}$$

- Estimating equation for banks:

$$log(\hat{s}_j) = C + \beta X_j - \rho r_j + \epsilon_j$$

- Cost shifters:
  - daily interbank interest rate
  - current and expected inflation
  - banks' monthly ratio between financial interest expenses and equity

Estimation

- Estimating equation for consumers:
  - For β=0,9, volatility of 3,13 and informational friction parameter = 10,93
  - using point estimates in swtching cost of around 10 percent. We see a drop between 8 and 15 percent (in a CI).

- Estimating equation for banks:
  - For *rho*=0,04, transalte into a mean price elasticity of 0,77

Information friction parameter I

- We would like to decompose what fraction of a switching cost are driven by information frictions
- To do so we will evaluate how the switching cost C changes before and after the policy shock
- Our identifying assumption here is that for a narrow time window around the policy change, any change in this parameter can be solely attributed to the change in transparency in the market induced by the government policy.
- We consider switches within a seven month window before and after the policy change to estimate C.

Steady state and dynamic effect of policy shock I

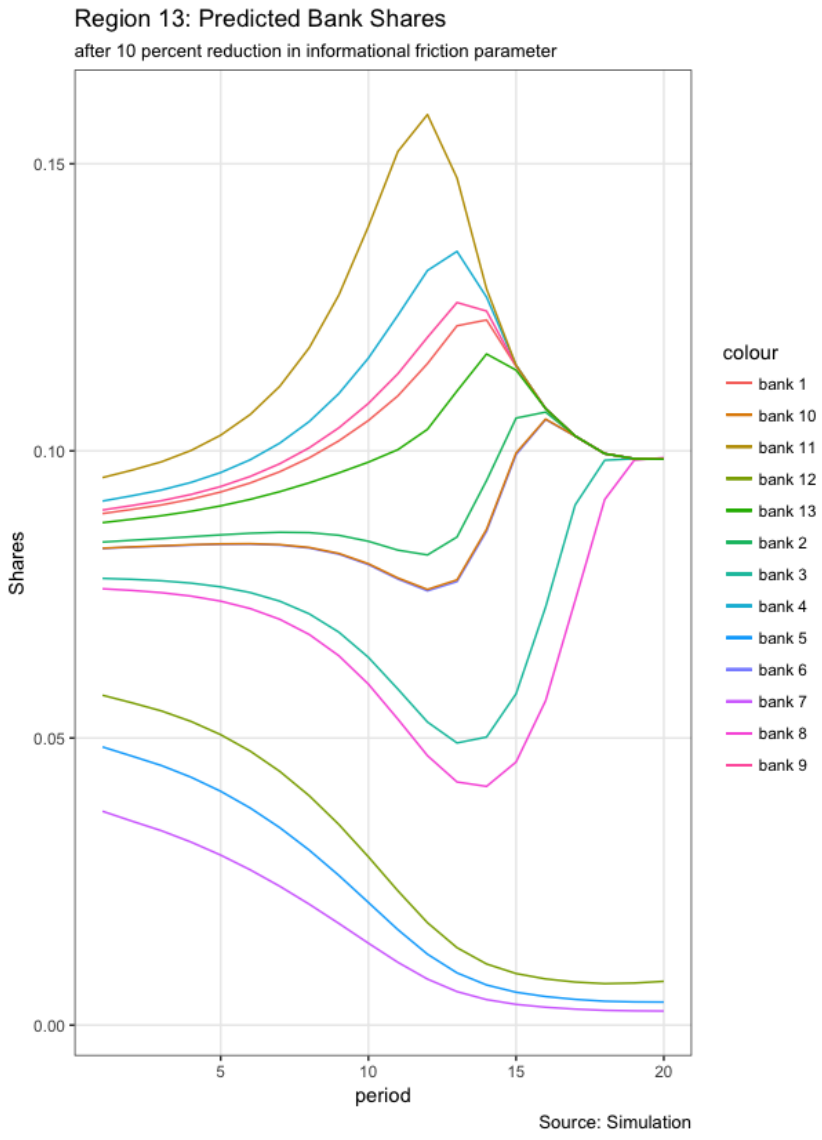
- We compute the steady state:
  - equilibrium provides a system of non-linear equations that we solve numerically

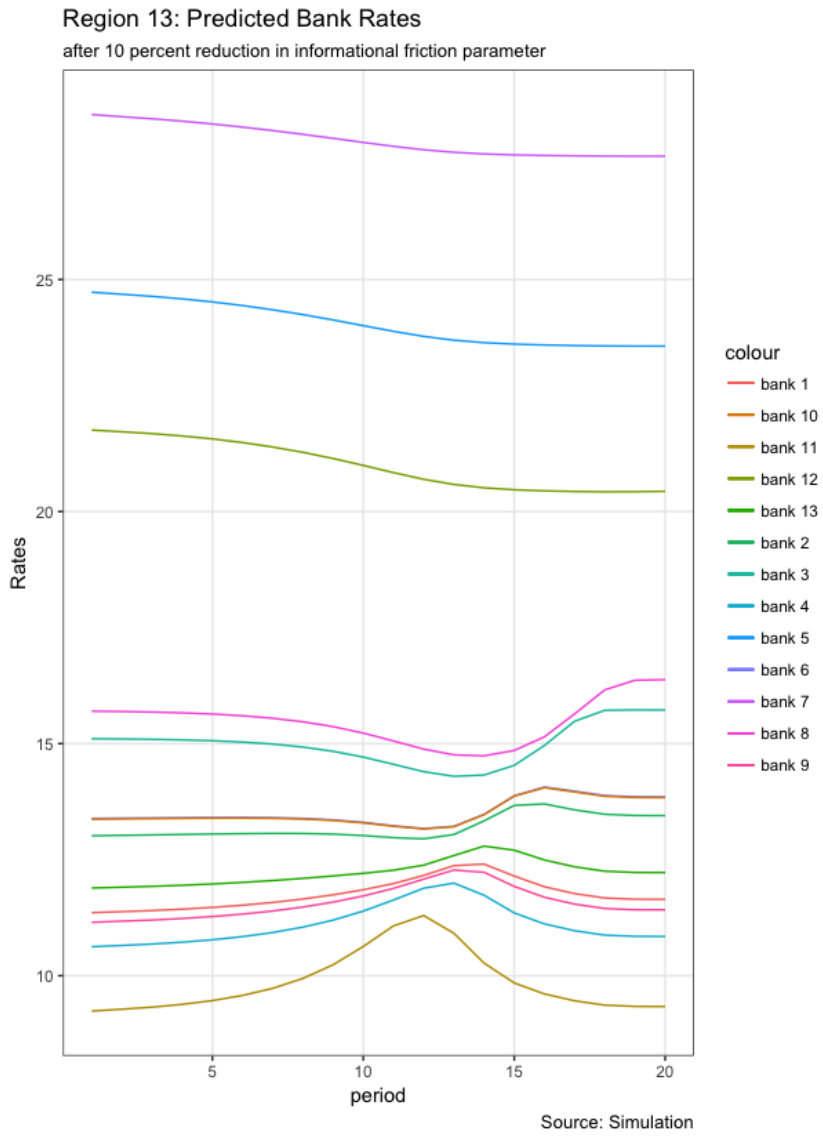
- We evaluate what would be the dynamic consequences from a 10 percent fall in information frictions:
  - we then "shock" the steady state by decreasing the switching cost parameter in 10 percent
  - as we have a law of motion for consumers, and a closed-form solution for interest rates we can recursively compute the equilibrium of this economy

- Welfare effects: Employing the Envelope Theorem repeatedly, the effect of a change in switching costs for a worker in bank i can be written as:

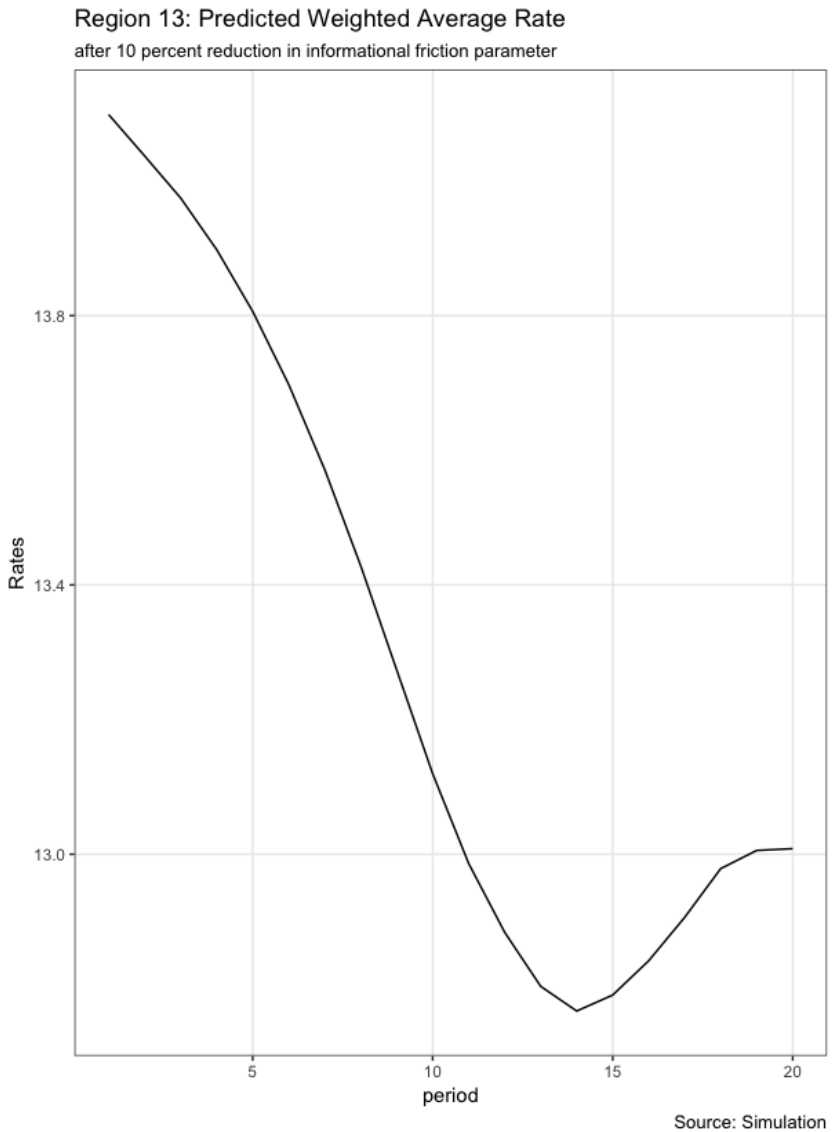
$$\frac{\partial V^i}{\partial C} = \sum_{t=0}^{\infty} \sum_{j=1}^{J} \beta^t m_t^{ij} \rho \frac{\partial r^i}{\partial C} \sim \sum_{t=0}^{\infty} \sum_{j=1}^{J} \beta^t m_t^{ij} \rho \frac{\triangle r_t^i}{\triangle C}$$

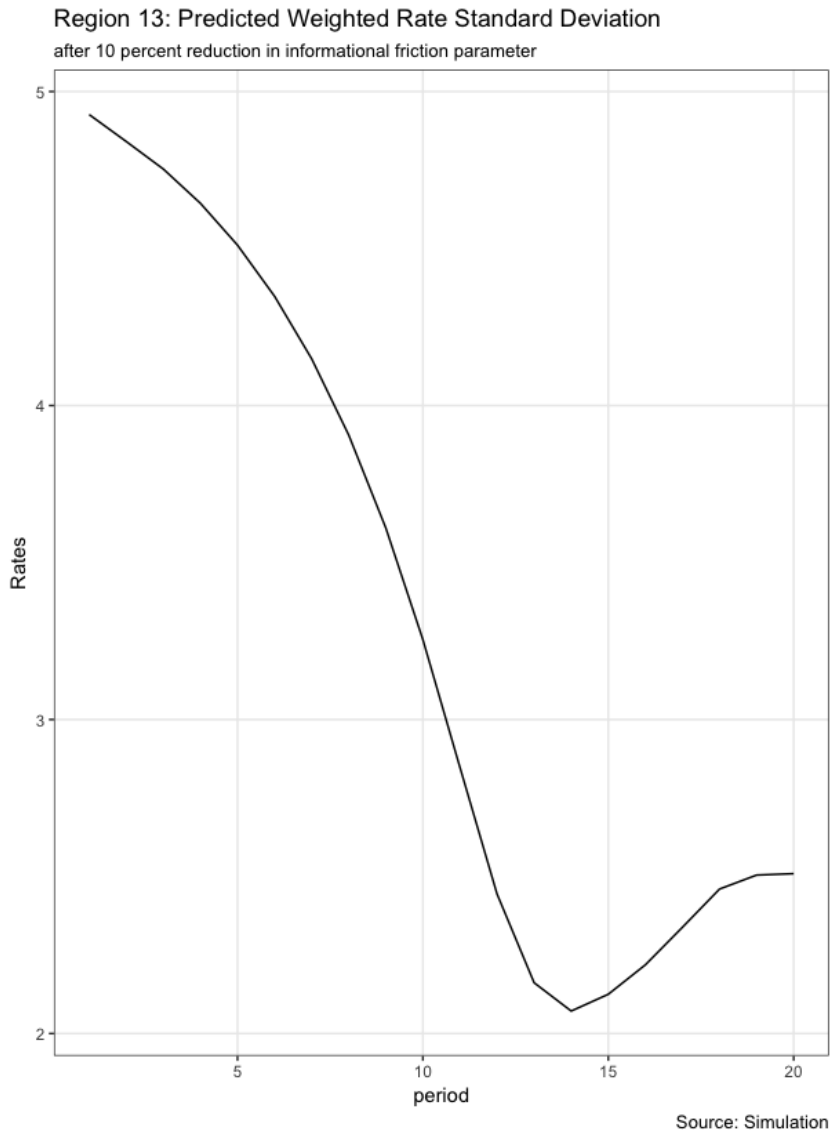
Steady state and dynamic effect of policy shock II





Steady state and dynamic effect of policy shock III





Steady state and dynamic effect of policy shock IV

- Banks with a higher cost of funding see their market shares decrease
- Banks strategically react to consumer switching in two ways:
  - banks that are losing market power, reduce their interest rates to be more competitive
  - banks where consumers are switching to, increase interest rates as they gain market power
- In the long run, a ten percent drop in information frictions implies a long-term rate reduction of around 180 basis points
- Consumer welfare improves 15 percent
  - Benefits accrue mainly to consumers that decided to switch banks (distributive effects?)
  - Welfare gains are higher in regions with more competitive banking
  - Market power can reduce the economic gains from consumers switching

Conclusion

- We exploit a policy change in Chile that reduced the informational friction component of switching costs for consumers
- Using administrative loan-level data in combination with a dynamic structural model, we find that:
  - this policy reduces average interest rates by 180 basis points in the long run
  - we observe a reduction in standard deviation of rates
  - these rate decreases are attenuated for non-switchers and for consumers in regions that have less competitive banking sectors
- Overall, consumers enjoyed an increase in welfare of 15 percent

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