The Geographic Flow of Bank Funding and Access to Credit: Branch Networks and Local-Market Competition

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October 2017

Overview

Extent to which deposits and loans are geographically segregated

Branch Banking

Empirical questions

1. How do branch networks contribute to the flow of credit
2. How important is the home bias in lending/ local economies of scope
3. Contribution of local market power

Data/Methodology

Data:

1. Deposit Data: Summary of Deposits
2. Loan Data: HMDA
3. Demographics: US Census

Methodology

1. Estimate a structural model of loan and deposit supply/demand
2. Discrete choice for deposits and loans, economies of scale/scope

Counterfactuals

1. No interstate banking
2. Eliminate home bias: remove economies of scope
3. Eliminate local market power
4. Tax on deposits
5. Aggregate shocks

Key Findings

- Majority of banks exhibit a strong home bias
- Economies of scope between total deposits and lending
- Strong economies of scope at the local level between deposits and lending
- Local market power limits the difusion of credit

Comments

1. Overall, fascinating paper
2. Model Specification
3. Estimation and Identification
4. Results and Counterfactuals

Indirect utility for deposits is

$$u_{jm}^{d} = x_{jm}^{d}\beta^{d} - \alpha^{d} p_{jm}^{d} + \xi_{jm}^{d} + \varepsilon_{jm}$$

where

$$x_{jm}^{d}\beta^{d} = z_m\beta_0^{d} + \beta_n^{d} h(n_{jm}) + \beta_l^{d} s_{jm} + \beta_Q^{d} \ln Q_j^{d}$$

Depositors get utility from a bank's

- Supply of loans in the market: $\beta_l^{d} s_{jm}$
- Total deposits: $\beta_Q^{d} \ln Q_j^{d}$
- Why? One-stop banking, safety?

Authors employ a similar framework for loans

Simultaneous equations: demand and supply

$$Q_i^D = \alpha p_i + X\beta + \varepsilon^D$$

$$Q^S = \gamma p + X\theta + \varepsilon^S$$

Typically interested in estimating supply and demand
Instead, the authors estimate the reduced form

$$Q = \frac{X(\beta - \theta) + \varepsilon^D - \varepsilon_S}{\gamma - \alpha}\alpha + X\beta + \varepsilon_D = X\left(\frac{\beta\gamma - \theta\alpha}{\gamma - \alpha}\right) + \frac{\varepsilon_D\gamma - \alpha\varepsilon^S}{\gamma - \alpha}$$

Limitation

- Difficult to interpret the parameter estimates
- Limited counterfactuals

Estimating demand for deposits in this setting is straightforward

- Dick (2007); Egan, Hortaçsu, and Matvos (2017); Egan Lewellen and Sunderam (2017), Xiao (2017)
- Use average deposit expense data which is publicly available

$$\ln(s_{jmt}) = x^d_{jm}\beta^d - \alpha^d p^d_{jm} + \varsigma^d_{jt} + \varepsilon^d_{jmt}$$

	(1)	(2)
Deposit Rate	20.33	18.19**
No. of Branches (County Level)		0.184***
County×Year Fixed Effects	X	X
Bank Fixed Effects	X	X
Observations	260,881	260,881
R-squared	0.659	0.779

Estimating mortgage demand is also relatively straightforward (Corbae et al 2017)

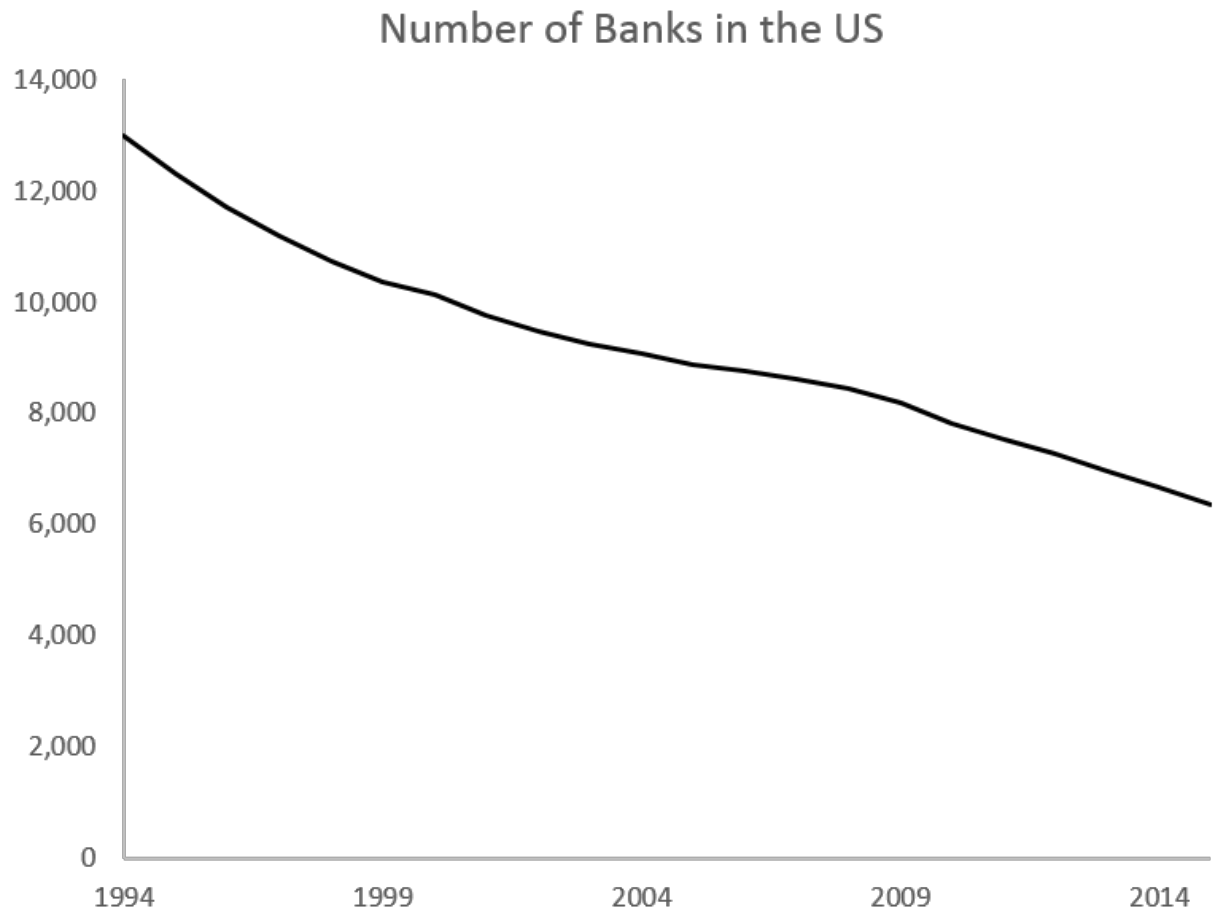
Outside Good

- Assume that market size is proportional to population
- Introduces measurement error in market shares that is correlated county characteristics
- Could actually do a fair amount without defining the outside good in the estimation stage
- Mortgage market closely related to home prices

Endogeneity:

- Instrument for $\{s^l_{jmt}, s^d_{jmt}, n_{jmt}\}$ using:
  - Lagged values of $\{s^l_{jmt}, s^d_{jmt}, n_{jmt}\}$ and lagged county competitors'
- Instrument for $\ln Q^D_{jt}$
  - Socioeconomic characteristics in other markets $(z_{jm't} \, \forall m' \neq m \, m' \in \mathscr{M})$
  - Same idea as Gilje et al. (2016) and others

Most of the variation in the instrument comes from changes in $\mathscr{M}_{jt}^{d}$ not z_{mjt}

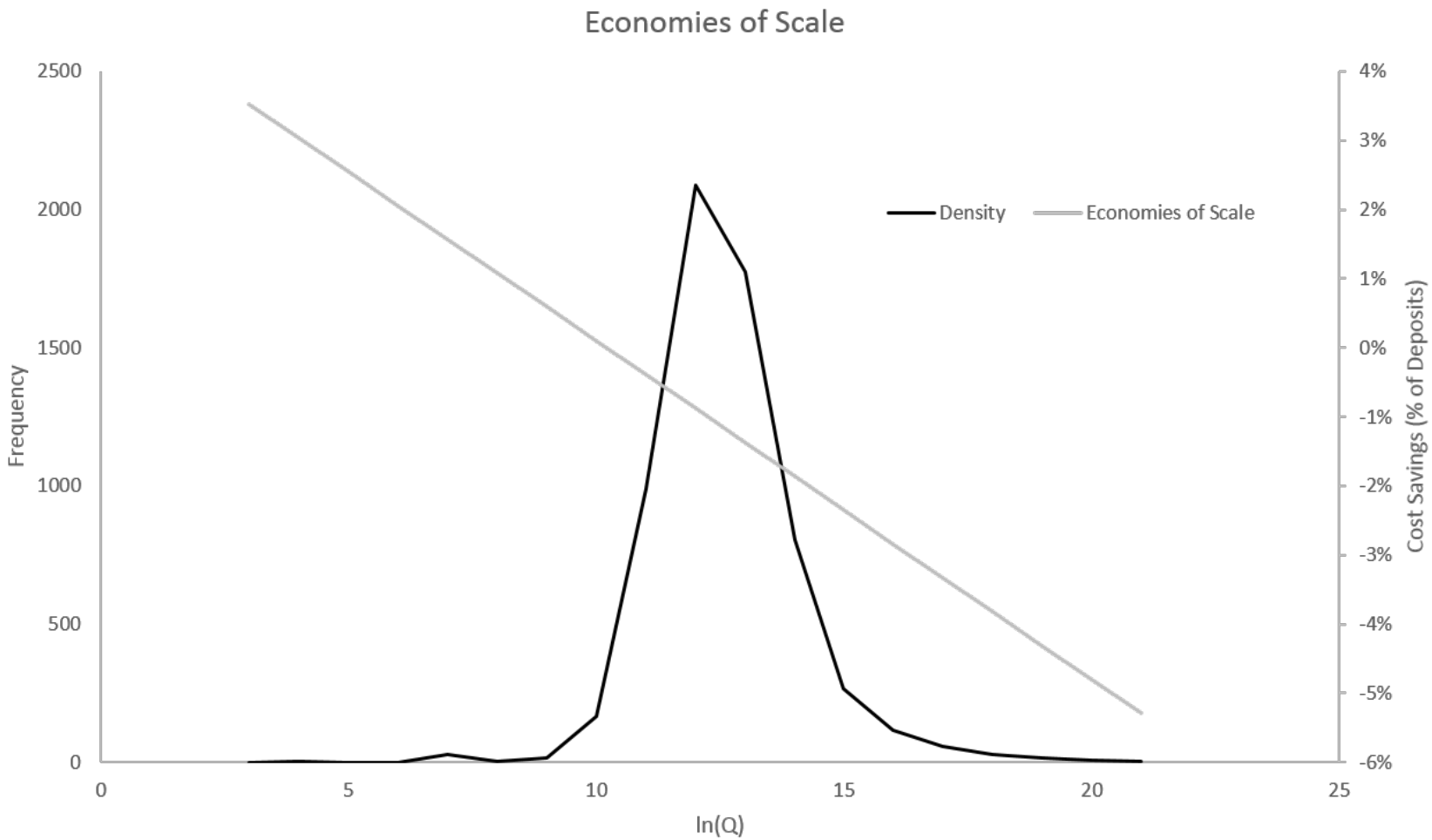


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Examine within bank variation in market characteristics faced by a bank $\bar{z}_{jt}$

Compare variance of $\bar{z}_{jt}$ with the variance of $\bar{z}_{jt}$ keeping market locations fixed as of 1998

- 84% of the variation in population explained by mergers/changing locations
- 47% of the variation in income is explained by mergers/changing locations



Suppose $\alpha = 20$ and $\beta_Q^D = 0$,

New branch: increases markup on deposits by 2-4pp.

Final Thoughts

- Great paper
- Interesting empirical facts with a nice structural model
- Suggestions:
  - Useful to estimate demand parameters
    - Data and estimation are relatively straightforward
    - Can then interpret estimates, consumers surplus etc.
    - Supply vs. demand scope/scale
  - Counterfactuals
    - More details and motivation
    - Spillovers of local shocks