Does Banking Competition Really Increase Credit for All?

The Effect of Bank Branching Deregulation on Small Business Credit

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Motivation and Main Questions

- Large literature on the positive effects of geographic banking deregulation (see below)
  - **Does increased banking competition always positively impact all sectors of an economy?**
- Small businesses rely, predominantly, on relationship loans for funding
  - **How can disruptions in the credit supplied to small firms affect their operations and survival?**

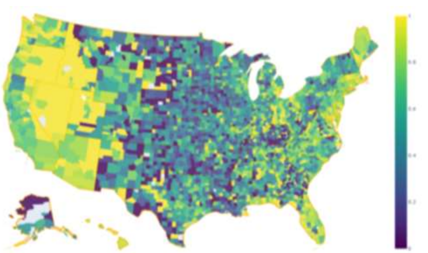
Unambiguous Success of Banking Deregulation

- Increases the market share of better performing banks:
  - **1st order effects:** higher efficiency, decreases in the rents of banks in previously regulated local markets, and lower interest rates (e.g., Jayaratne and Strahan, 1998; Black and Strahan, 2001; Stiroh and Strahan, 2003).
  - **2nd order effects:** increase in credit supply → more innovation and productivity (e.g., Black and Strahan, 2002; Amore, Schneider, and Zaldokas, 2013; Chava, Oettl, Subramanian, and Subramanian, 2013; Krishnan, Nandy, and Puri, 2015; Bai, Carvalho, and Phillips, 2018).
  - **3rd order effects:** greater "creative destruction" or churn among small firms (e.g., Guiso, Sapienza, and Zingales, 2004; Bertrand, Schoar, and Thesmar, 2007; Kerr and Nanda, 2009).
  - **Lastly:** greater state per-capita income and income growth rates as well as decreases in state growth volatility (Jayaratne and Strahan, 1996; Morgan, Rime, and Strahan, 2004)

Literature Based on 1st Wave of Deregulation

- 1978-1993
- Expansion was limited to out-of-state (OoS) bank holding companies (BHCs) acquiring incumbent banks
- NO de novo branching across borders
- NO merging acquisition's assets into their own operations
- **Gradual expansion, limited targets. Best BHCs outbidding others driving deregulation benefits**

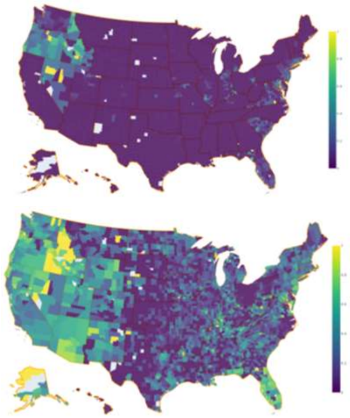
Percent of county branches affiliated with a multi-state bank holding company (1994)



2nd Wave of Banking Deregulation

- Commenced with the passage of the Interstate Banking and Branching Efficiency Act (or IBBEA) in 1994 (1995 – 2005)
- **Allowed for more hasty expansion**
- 1994: 62 OoS branches existed
- 2005: 24,728 OoS branches
- States could restrict by passing certain laws = Banking Restrictiveness Index (BRI)
- Ranges from 0 to 4, with 4 indicating that the state imposed all 4 restrictions to slow interstate banking/branching.

Out-of-State Branches by County (1996 vs. 2006)



Identification

- **Main Identification:** Generalized diff-in-diff, triple-diff, and local projection methods

$$Y_{c,t} = \beta_1 BRI_{s,t-1} + \beta_2 X_{s,t} + \beta_3 X_{c,t} + \phi_c + \gamma_t + \epsilon_{c,t} \quad (County)$$

$$\ln y_{f,s,t} = \beta_2 BRI_{s,t-1} \times \alpha_f + \alpha_f + \phi_s \times \gamma_t + \epsilon_{f,s,t} \quad (State, Employment)$$

$$\ln wage_{i,d,f,s,t} = \beta_2 BRI_{s,t-1} \times \alpha_f + \beta_3 X_{i,t} + \alpha_f + \phi_{d,s,t} + \epsilon_{i,d,f,s,t} \quad (State, Wage)$$

$$Estimate \left\{\beta_1^{(i)}\right\}_{i=0,1,\ldots T} for\ Y_{c,t+i} = \beta_1^{(i)} BRI_{s,t-1} + \beta_2 X_{s,t} + \beta_3 X_{c,t} + \phi_c + \gamma_t + \epsilon_{c,t} \quad (Dynamics)$$

Effects on Local Markets (Branching & Credit)

Branching effects

- 24.7% increase in out-of-state branch births for 3 years (12.4% increase in CRA branches for 4 years)
- Permanent increase in branches of 4.9%

Small business credit supply

- 5.4% decrease in amount of small business loans outstanding ($3,400 per small business)
- **Decrease in credit supply is greater in areas with higher housing prices and more deposits**

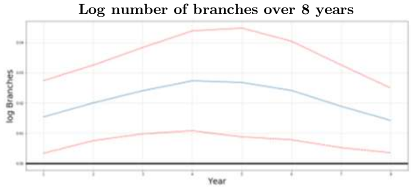
	(1) log Amt SBL	(2) log Amt SBL
BRI_{t-1}	-0.4117***	-0.2352**
	(0.148)	(0.094)
log Housing $Price_{t-1}$ × BRI_{t-1}	0.0371***	
	(0.013)	
log total deposits × BRI_{t-1}		0.0126**
		(0.005)
log $Population_{t-1}$	0.3237	0.3109
	(0.207)	(0.212)
log $Employment_{t-1}$	0.1424	0.1239
	(0.107)	(0.107)
log Prop. $Income_{t-1}$	-0.0192	-0.0206
	(0.013)	(0.013)
log Agg. Wages/$Salaries_{t-1}$	-0.0684	-0.0603
	(0.092)	(0.092)
log Housing $Price_{t-1}$	-0.044	0.0562
	(0.084)	(0.067)
log # Small $Firms_{t-1}$	0.5019***	0.4910***
	(0.083)	(0.081)
log Total Deposits	0.1681**	0.1359*
	(0.071)	(0.071)
Lagged Dependent Variable	No	No
Other Regulations	Yes	Yes
County FE	Yes	Yes
Year FE	Yes	Yes
Adjusted R-squared	0.9839	0.9839
N	21945	21945

Standard errors in parentheses
* p<0.10 ** p<0.05 *** p<0.010

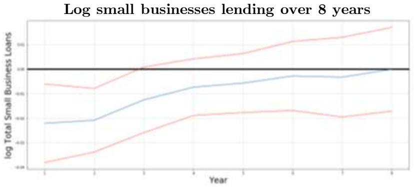
Permanent Change in Branches, Temporary Lending Shock

- Use Jorda (2005) local projection method
- **One-unit decrease in the BRI is associated with a persistent increase in the number of county branches**
- **One-unit decrease in the BRI is associated with a statistically significant decrease in lending for about 3 years then recovers.**

Log number of branches over 8 years



Log small businesses lending over 8 years



Effects on Firm Survival and Operations

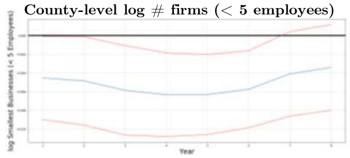
Firm Survival

- Slight decrease for smallest businesses (<5 employees)
- Small and temporary decrease about 5 years after treatment (<=500 employees)

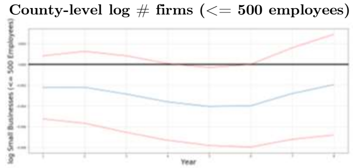
Firm Operations

- Firms with fewer than 51 employees reduced their fulltime worker employment levels by 4.5% and full-time workers' hours by 5% per unit of the BRI directly after deregulation
- Contemporary increase in part-time hours worked at larger firms
- Hours worked remained permanently lower despite temporary credit shock

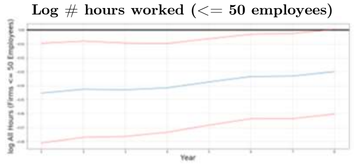
County-level log # firms (< 5 employees)



County-level log # firms (<= 500 employees)



Log # hours worked (<= 50 employees)



Conclusion

- How banking deregulation is implemented matters
- The ability of larger, out-of-state banks to quickly enter new markets in order to chase deposits and originate mortgages disrupted the supply of relationship loans from existing banks
- Small firms were, generally, able to survive but saw a decrease in their operations, evidenced by decreased demand for labor
- Precipitated a shift of labor from smaller firms to larger ones