Finance and Intergenerational Mobility: Evidence from US Banking Reforms

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Intergenerational mobility or economic mobility is the ability of an individual, family or some other groups to improve (or lower) their economic status between generations .

- If children's chances for economic prosperity are driven by the ***"birth lottery"***, this disturbs the ***societies' fairness*** that promote further social and economic inequality.

- If talented children are ***less likely to evolve and use their inherited skills due to their parents' economic frictions***, this is an impediment for economic growth.

- Differences in intergenerational mobility (at the local level) affect immigration. Young people tend to ***immigrate due to the lack of fair chances*** in labour markets.

- Neighbourhood's ***social environment*** seem to have a causal effect on children's intergenerational mobility.
- For instance, Chetty and Hendren (2018) suggest an array of social neighbourhood characteristics that exert a significant and positive effect on intergenerational mobility.
- These include low ***segregation by income and race, low levels of income inequality, better schools, low rates of violent crime, large share of two-parent households, and lower proportion of African-American population***.

- **If young adults are affected by the social environment they live in, why not by the financial? And if this is the case, how does it happen?**

- In order to find the effect of finance at the local level on intergenerational mobility we use the bank reform of ***interstate deregulation after 1994*** in the United States. This staggered interstate banking deregulation permitted each state to establish bank branches in other states, thus enhancing local competition.

- The ***Interstate Banking and Branching Efficiency Act*** (IBBEA) eliminated previous restrictions on interstate banking and branching that could have decreased credit constraints for disadvantaged young people.

- **Indeed, results validate this hypothesis.**

Effects finance (banking reform) on real economy

- Quantity as well as the quality of innovation activities (Cornaggia et al., 2015; Amore et al., 2013).
- Business cycles (Morgan et al., 2004).
- Interstate trade (Michalski and Ors, 2012).
- Bank's equity values and agency problems (Brook et al., 2002).
- Labour markets (Kneer, 2013).
- Real estate (Favara and Imbs, 2015).
- Performance of small firms (Rice and Strahan, 2010).
- Inequality (Beck et al., 2010).

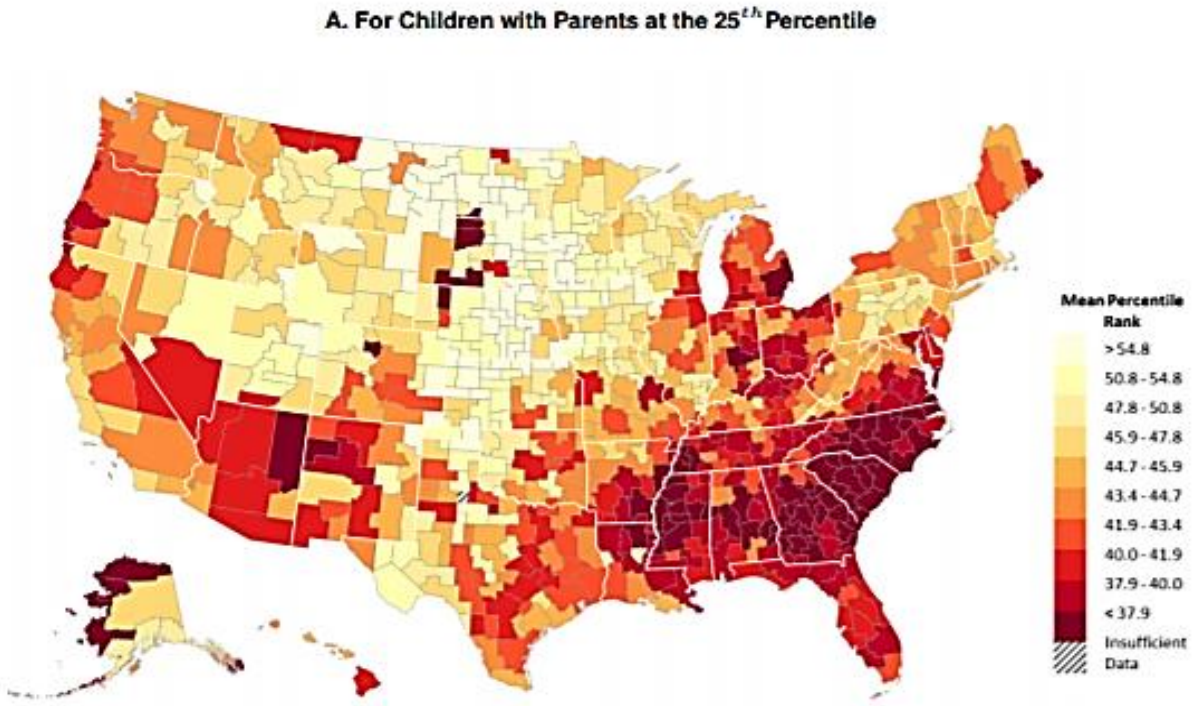
The effects of credit constraints on young people's economic outcomes

- Parental income has been a quite significant factor for their children's income after 1990s (Ellwood and Kane, 2000).
- More recent cohorts' college attendance is strongly related to parental income (Belley et al.,2014).
- Banking reforms may increase credit supply (parents' access to finance), raise college attendance about 5% (Teng Sun and Yannelis, 2016).

Data on Local Finance in the United States

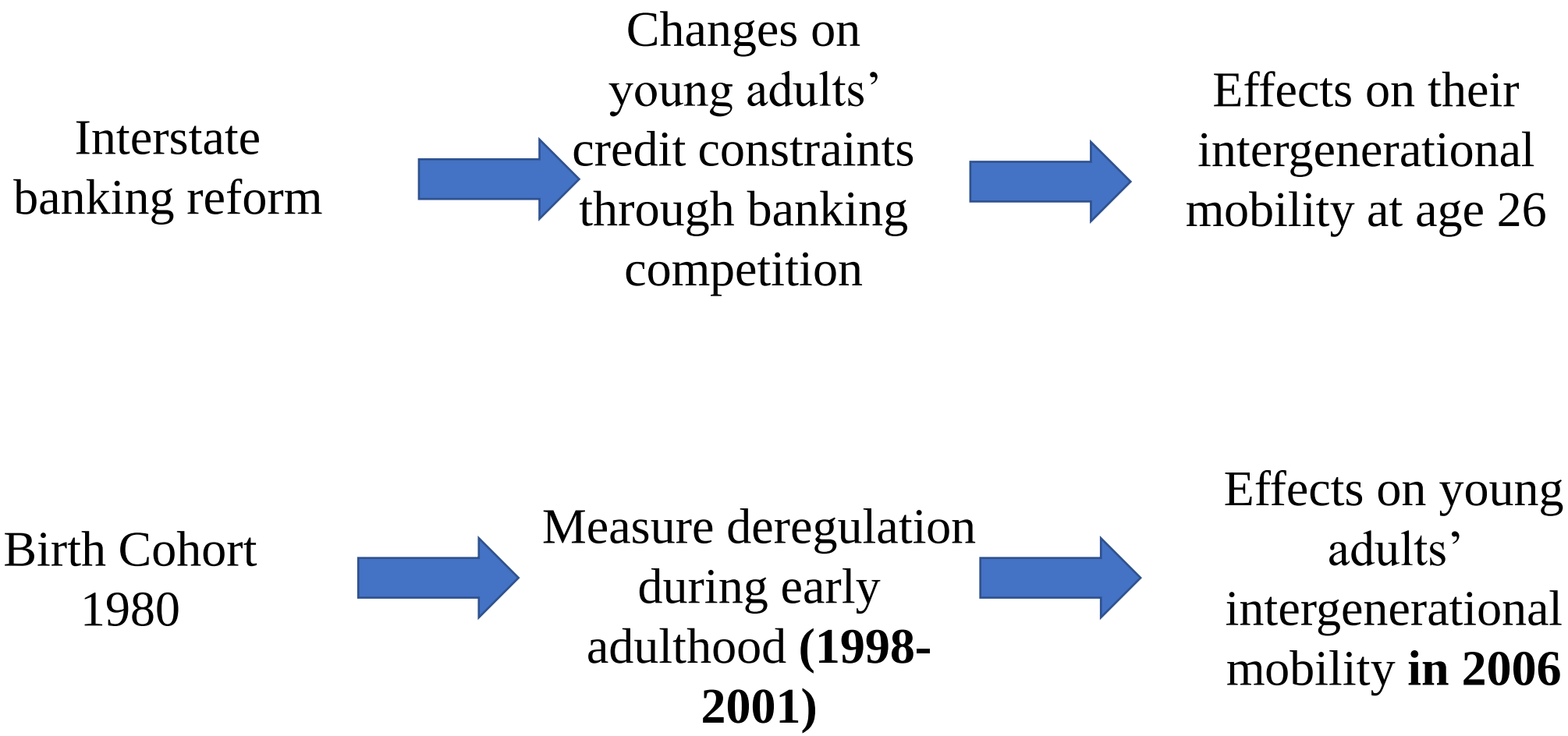
- Data on finance at the local level are from Rice & Strahan (2010) & Berger (2023).
- Based on interstate banking deregulation in the United States after 1994, Rice & Strahan (2010) construct a ***dummy variable which gets 0 to 4*** depending on how ***"deregulated/open" each State is to out-of-state*** bank expansion.
- Our measure is the ***mean "deregulation" index*** when birth cohorts from 1980 to 1986 are teenagers (14-17 years old), young adults (18-21 years old), and older adults (22-25 years old)

- Our measure is the value of intergenerational mobility at the local level when birth cohorts from 1980 to 1986 are 26 years old. For instance, for cohort 1980 we use economic mobility rates in 2006.



Source: Chetty et al. (2014)

Summary of hypothesis and example



$$Mobility_{c,s,t} = \delta DREG_{18-21,s,t} + \beta X_{c,s,t} + \alpha_{c,t} + \gamma_t \, \varepsilon_{c,s,t}$$

- $DREG_{18-21,s,t}$ denotes the average value of the deregulation index for each birth cohort in state s during early adulthood (18-21 years old).
- $Mobility_{c,s,t}$ intergenerational mobility measure of each county c when birth cohort t is 26 years old (from parents who belong at the 25th percentile in the national income distribution).
- $X_{c,s,t}$ are socio-demographic control variables for county i and birth cohort t.
- $\boldsymbol{a_c}$ is county-year (cohort) fixed effects.
- $\boldsymbol{\varepsilon_{c,s,t}}$ is the stochastic term.

Main Results

Banking Deregulation and Intergenerational Mobility

	The dependent variable is intergenerational mobility				
	(1)	(2)	(3)	(4)	(5)
$\overline{DREG}_{18-21}$	0.3634***	0.3621***	0.3437***	0.3740***	0.3612***
	(0.0930)	(0.0930)	(0.0929)	(0.0944)	(0.0940)
Income		-0.0153			0.0323
		(0.0320)			(0.0328)
Poverty		-0.0049			0.0467
		(0.0524)			(0.0519)
Less than high school			-0.3858***		-0.3458***
			(0.0638)		(0.0756)
Crime			-0.8319**		-0.8885**
			(0.3970)		(0.4055)
Blacks %				0.0155	0.0430
				(0.0578)	(0.0582)
Hispanics %				-0.2484***	-0.1428**
				(0.0566)	(0.0614)
County FEs	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes
R-sq.	0.888	0.888	0.889	0.888	0.889
Observations	9388	9388	9388	9388	9388

Robustness check: different groups

Banking Deregulation and Intergenerational Mobility

	The dependent variable is intergenerational mobility		
	(1)	(2)	(3)
$\overline{DREG}_{18-21}$	0.3626***	0.3768***	0.3769***
	(0.0943)	(0.0943)	(0.0943)
$\overline{DREG}_{14-17}$	0.0358		0.0187
	(0.0502)		(0.0508)
$\overline{DREG}_{22-25}$		-0.1504	-0.1435
		(0.0935)	(0.0949)
Controls 18-21	Yes	Yes	Yes
Controls 14-17	Yes	No	Yes
Controls 22-25	No	Yes	Yes
County FEs	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes
R-sq.	0.889	0.889	0.889
Observations	9388	9388	9388

Robustness check: Placebos

Banking Deregulation and Intergenerational Mobility

	The dependent variable is intergenerational mobility	
	(1)	(2)
	Deregulation variable reallocation	States reallocation
$\overline{DREG}_{(PLACEBO)}$	0.0610	0.0223
	(0.0398)	(0.0702)
Income	0.0285	0.0286
	(0.0330)	(0.0331)
Poverty	0.0416	0.0434
	(0.0517)	(0.0519)
Less than high school	-0.3535***	-0.3667***
	(0.0758)	(0.0757)
Crime	-0.7433*	-0.7481*
	(0.4010)	(0.4026)
Blacks %	0.0157	0.0222
	(0.0576)	(0.0571)
Hispanics %	-0.1392**	-0.1296**
	(0.0629)	(0.0620)
County FEs	Yes	Yes
Year FEs	Yes	Yes
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Observations	9388	9388

Robustness check: Placebos (Omitted Variables)

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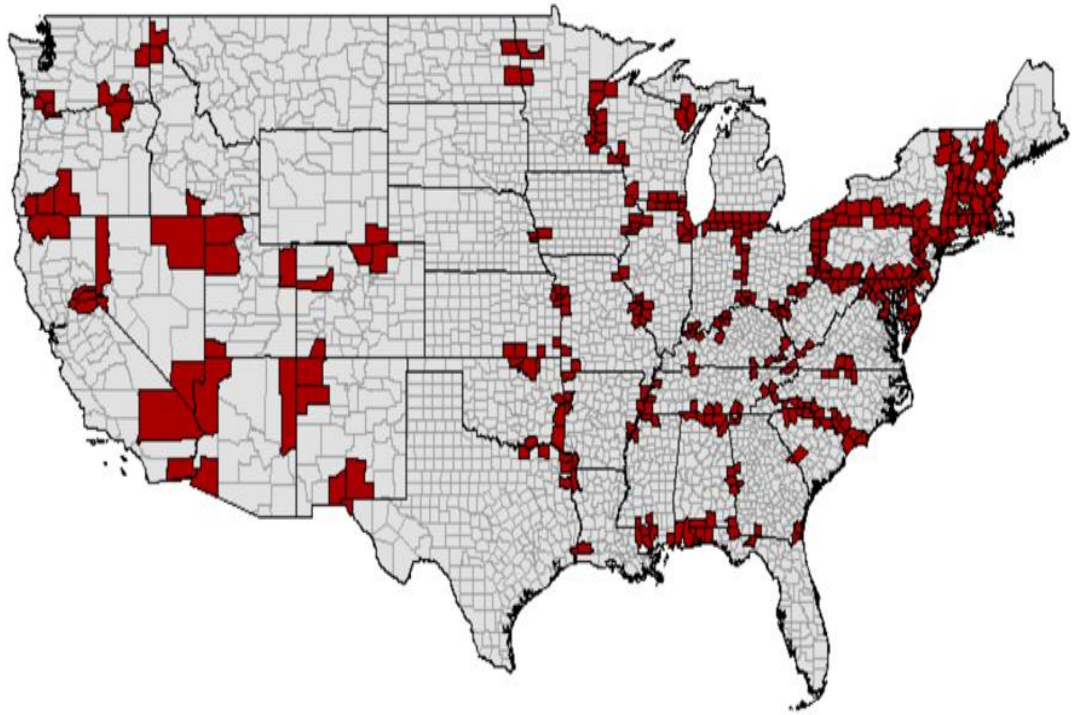
Robustness check: Contiguous-Counties (Omitted Variables)

$$Mobility_{i(a),j(b),t} = \delta \overline{DREG}_{(CONT)18-21,i(a),j(b),t} + \beta \bar{X}_{i(a),j(b),t} + \gamma \bar{W}_{i(a),j(b),t} + \lambda \bar{Z}_{,t} + \varepsilon_{i(a),j(b),t}$$

Banking Deregulation and Intergenerational Mobility

	The dependent variable is upward economic mobility			
	(1)	(2)	(3)	(4)
		Pair distance<150km	Pair distance<50km	MSAs
$\overline{DREG}_{(CONT)}$	0.3281**	0.3275**	0.4183**	0.4667**
	(0.1588)	(0.1621)	(0.1731)	(0.1871)
Income	-0.0569**	-0.0501**	-0.0414	-0.0444
	(0.0245)	(0.0245)	(0.0283)	(0.0295)
Poverty	-0.4556***	-0.4432***	-0.4923***	-0.4182***
	(0.0648)	(0.0623)	(0.0749)	(0.1301)
Education	50.2480***	53.6859***	55.4304***	46.7999**
	(10.5752)	(9.8055)	(11.3919)	(19.6292)
Crime	-0.7732	-0.8329	-0.9018	0.6603
	(0.6259)	(0.6262)	(0.8059)	(0.7436)
Blacks %	-0.1573***	-0.1608***	-0.1441***	-0.2091***
	(0.0261)	(0.0254)	(0.0291)	(0.0431)
Hispanics %	-0.1357***	-0.1571***	-0.1604***	-0.0974*
	(0.0378)	(0.0373)	(0.0435)	(0.0504)
Year FEs	Yes	Yes	Yes	Yes
Pair FEs	Yes	Yes	Yes	Yes
MSA FEs	x	x	x	Yes
R-sq	0.789	0.788	0.797	0.842
Observations	4655	4529	2831	1332



- To investigate whether banking deregulation affects education rates for birth cohorts covering the period 1980 through 1986, we estimate the following model-Panel Study of Income Dynamics (PSID):

$$Education_{i,s,t} = \delta\overline{DREG}_{(EDUC)s,t} + \beta\bar{X}_{i,s,t} + L_s + Y_t + \varepsilon_{i,t}$$

- We test whether banking industry deregulation after 1993 affected entrepreneurship via the following model-Survey of Income and Program Participation (SIPP):

$$Entrepreneurship_{i,s,t} = \delta\overline{DREG}_{(ENTR)s,t} + \beta\bar{X}_{i,s,t} + L_s + Y_t + \varepsilon_{i,t}$$

Underlying Mechanisms

Banking Deregulation and the Intergenerational Mobility-Education Channel (Less than 25% household income)

	The dependent variable is educational level						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	<=19	<=20	<=21	<=22	<=23	<=24	<=25
$\overline{DREG}_{(EDUC)}$	0.0877**	0.0704**	0.0723**	0.1004***	0.0858***	0.0811***	0.0578**
	(0.0405)	(0.0288)	(0.0303)	(0.0263)	(0.0262)	(0.0243)	(0.0276)
Age	0.4734***	0.3524***	0.3157***	0.2473***	0.2175***	0.1699***	0.1387***
	(0.0556)	(0.0294)	(0.0197)	(0.0143)	(0.0165)	(0.0124)	(0.0108)
Sex	-0.2874***	-0.2687***	-0.2368***	-0.1906***	-0.1719***	-0.1346**	-0.1449**
	(0.0851)	(0.0696)	(0.0620)	(0.0526)	(0.0531)	(0.0542)	(0.0546)
Marital Status	0.2570**	0.3324***	0.3066***	0.3119**	0.3588***	0.3708***	0.3617***
	(0.1002)	(0.1066)	(0.1080)	(0.1166)	(0.1024)	(0.1052)	(0.0903)
Family Income	0.0192***	0.0229***	0.0226***	0.0252***	0.0279***	0.0311***	0.0323***
	(0.0061)	(0.0054)	(0.0047)	(0.0047)	(0.0046)	(0.0042)	(0.0042)
Race of Head	0.1241*	0.2247***	0.3298***	0.3717***	0.4343***	0.4000***	0.3883***
	(0.0730)	(0.0772)	(0.0642)	(0.0706)	(0.0749)	(0.0761)	(0.0809)
House Value	-0.0142	-0.0043	0.0077	0.0164	0.0140	0.0113	0.0117
	(0.0149)	(0.0131)	(0.0147)	(0.0137)	(0.0128)	(0.0146)	(0.0116)
Year FEs	0.135	0.142	0.155	0.147	0.150	0.139	0.127
State FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-sq.	0.140	0.143	0.156	0.148	0.150	0.139	0.127
Observations	1792	2725	3697	4596	5495	6307	6994

Underlying Mechanisms

Banking Deregulation and Intergenerational Mobility-Entrepreneurship Channel

	The dependent variable is	
	Business Debt	Business equity
	(1)	(2)
$\overline{DREG}_{(ENTR)}$	0.0027**	0.0023**
	(0.0010)	(0.0011)
Wealth	-0.0498	0.0998**
	(0.0432)	(0.0411)
Permanent Wealth	-1.1502***	-1.1281***
	(0.1165)	(0.0992)
Debt	0.2285***	0.3249***
	(0.0342)	(0.0288)
Number of Vehicles	0.0086***	0.0143***
	(0.0012)	(0.0014)
Number of HH persons	0.0002	0.0017*
	(0.0006)	(0.0010)
Sex	-0.0066***	-0.0122***
	(0.0012)	(0.0017)
Education	0.0034	0.0090***
	(0.0030)	(0.0030)
Hispanic Household	-0.0035*	-0.0071**
	(0.0021)	(0.0033)
Race	-0.0065***	-0.0118***
	(0.0016)	(0.0023)
Marital Status	-0.0055***	-0.0090***
	(0.0018)	(0.0022)
Year FEs	Yes	Yes
State FEs	Yes	Yes
R-sq	0.078	0.057
Observations	83546	83546

Conclusions

- For much of the 19th and 20th century, the United States was characterised as the land of opportunity
- Prior evidence suggests that various socio-economic and locational factors play an important role in driving intergenerational mobility
- However, to date, there is a paucity of evidence regarding the role of the financial system. In this paper, we fill this important evidence gap to investigate the importance of the local financial environment on intergenerational mobility
- In order to test our hypothesis that a change in state level bank competition (following geographic deregulation) affects the intergenerational mobility of individuals born to (poorer) families at the lower end of the income distribution, we estimate the effects of interstate banking on intergenerational mobility
- We find evidence on the above effects
- Potential mechanisms are education and entrepreneurship