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# WHY DOES FINANCIAL DEVELOPMENT MATTER? THE UNITED STATES FROM 1900 TO 1940

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# MAIN CONTENTS

- Examine the effect of **state-level banking** regulation on financial development and economic growth in the United States from 1900 to 1940
- Examine the pathways through which financial development can affect growth; in particular, the impact of these laws on a range of **farm, manufacturing, and human capital outcomes**
- **Not all forms** of financial development have a positive effect on economic growth

# INTRODUCTION

- The financial expansion induced by **bank branching** accelerated the mechanization of agriculture, **spurred growth in manufacturing** and decreased child labor.
- By contrast, financial expansions induced by **state deposit insurance** had negative consequences for the agricultural and manufacturing sectors.
- Focus on **institutions** leading to financial development and on pathways of growth

# INTRODUCTION

- From 1900 to 1940, **state banks** constituted a large fraction of all financial intermediaries.
- Banking regulation - state-bank branching and state deposit insurance
- There were 54 changes in branching and 16 changes in state deposit insurance
  
- Economic theory predicts that **branching has a positive effect** on credit and thus on growth, whereas **deposit insurance** can reduce banks' cost of lending and increase credit, but it also creates a moral hazard problem.

## WHY BANKING LAWS WERE ADOPTED

- Large state banking sector is significantly associated with branching and deposit insurance, and that states with large manufacturing establishments were more likely to adopt branching.
- No evidence that the size of state banks mattered, or that the size of farms mattered. Or that the party composition of the state legislature mattered.

## THE EFFECTS OF BANKING LAWS

- Examine the effect of deposit insurance and branching on a range of farming, manufacturing, and child labor outcomes, as well as estimates of personal income at the state level.
- include time and year fixed effects
- agricultural crisis as an exogenous negative shock
- control for possible sources of self-selection and endogeneity
- Financial development through branching contributed to a consolidation of the farming and an expansion of manufacturing activity. In contrast, deposit insurance led to a decrease in agricultural and manufacturing output.

# INSTITUTIONS AND FINANCIAL DEVELOPMENT

- By operating across different geographic locations, a bank can **diversify the risk** from idiosyncratic local shocks
- Branching also allows banks to exploit **economies of scale** in banking services.
- Branching increases the efficiency of banks by **facilitating entry**.
  
- Deposit insurance creates a strong **moral hazard** problem.
- Banks in states with deposit insurance **extended credit indiscriminately**.
- large expansions in credit and economic activity in times of economic growth but also sharper declines in credit and growth in times of recession

# BRANCHING AND DEPOSIT INSURANCE LAWS

Figure 1: The Evolution of Branching and State Deposit Insurance Laws

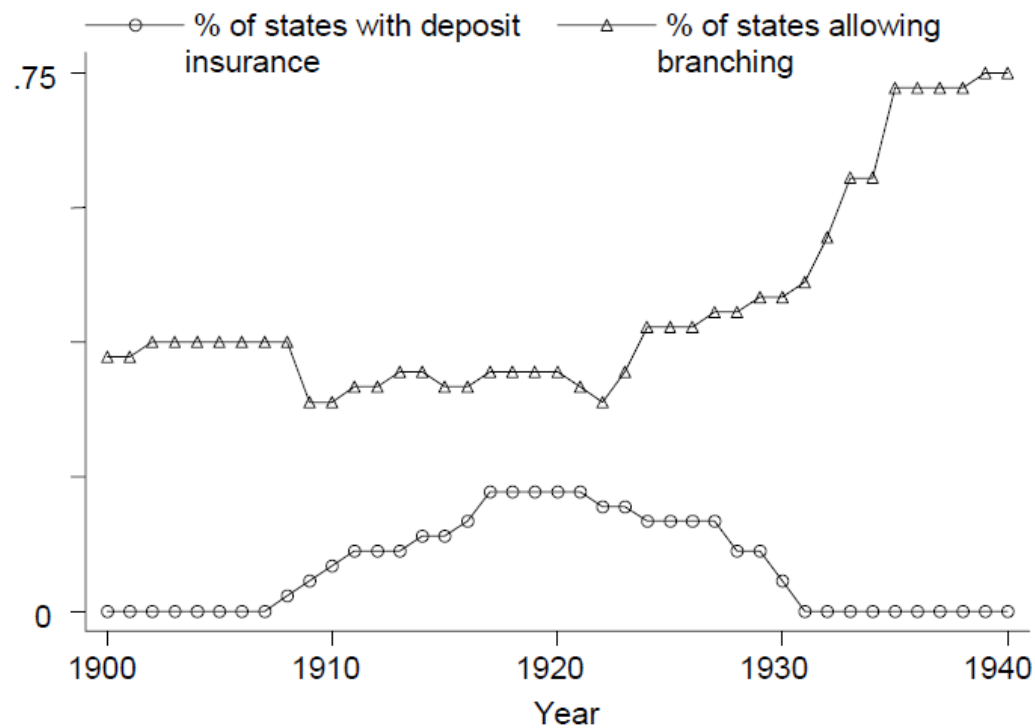
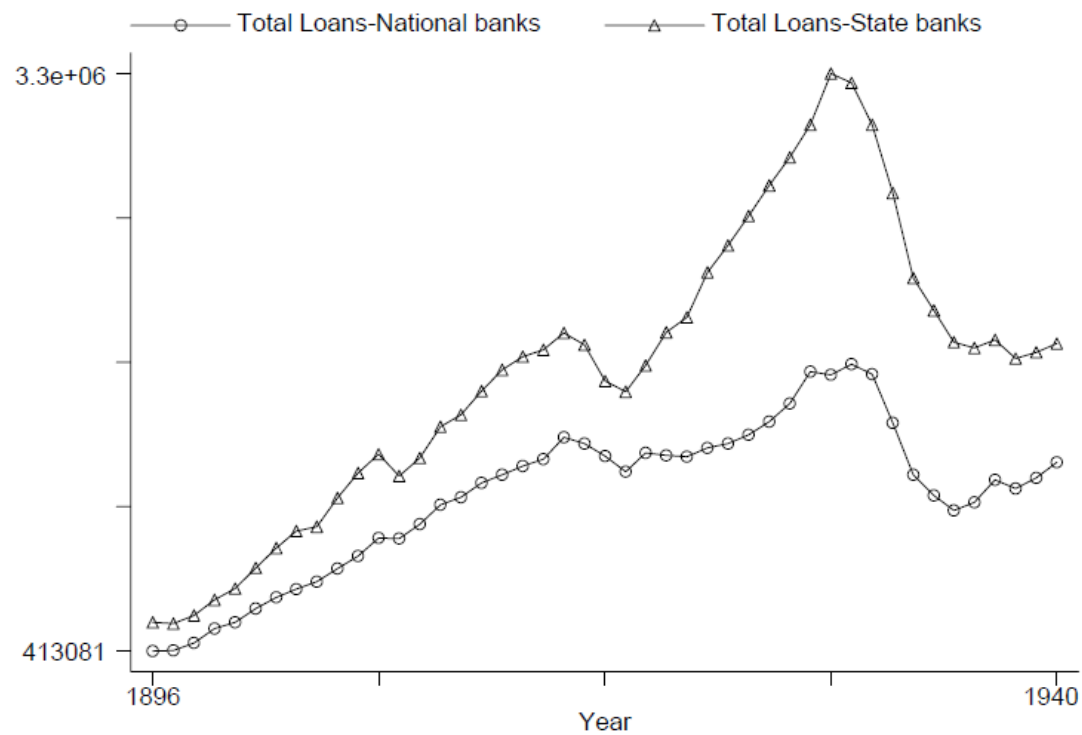


Figure 2: Evolution of Loans, National and State banks.





## EMPIRICAL STRATEGY AND DATA

$$\text{Outcome}_{sy} = \beta_1 \text{Insurance}_{sy} + \beta_2 \text{Insurance}^*(\text{year} > 1920)_{sy} + \beta_3 \text{Branching}_{sy} + \gamma X_{sy} + e_{sy}$$

We predict that  $\beta_1 > 0$ ,  $\beta_2 < 0$ , and  $\beta_3 > 0$ .

# DATA

**Table 2: Descriptive Statistics: State-Level Data**

Variable	Obs	Mean	Std. Dev.	Min	Max
<u>Banking Laws (1900-1940)</u>					
State has deposit insurance	1968	0.062	0.241	0.000	1.000
State has deposit insurance in 1920s	1968	0.033	0.177	0.000	1.000
State allows branching	1968	0.429	0.495	0.000	1.000
<u>Bank Outcomes, All Bank Statistics (1900-1940)</u>					
Total loans, national banks (in thousands)	1968	207770	397107	656	4362453
Total loans, state banks (in thousands)	1968	322152	881035	922	10800000
Growth rate of assets, national banks	1968	0.045	0.123	-1.138	0.948
Growth rate of assets, state banks	1968	0.037	0.148	-1.863	0.788
Growth rate of loans, national banks	1968	0.032	0.154	-1.508	0.906
Growth rate of loans, state banks	1968	0.026	0.177	-2.290	0.798
Deposits per state bank (in thousands)	1968	1938	4099	51.1	50977
Banks per square mile	1968	0.009	0.008	0.000036	0.044
Banks per million residents	1968	192.96	164.34	16.02	1111.85
Indicator for credit contractions <sup>(1)</sup>	1968	0.25	0.43	0	1
Proportion of state banks <sup>(2)</sup>	1968	0.69	0.13	0.22	0.95
Ratio of state to national bank capital-asset ratios	1968	1.07	0.44	0.026	2.74

# DATA

## Bank Branch Data, Banking and Monetary Statistics (1900, 1910, 1920, 1925, 1930, 1933, 1937)

Branches per million residents	336	11.30	18.71	0	132.6
Banks per million residents	336	177.30	155.42	18.78	1109.96
Banks that branch per million residents	336	4.42	6.79	0	43.3

## Census of Agricultural data (1900, 1910, 1920, 1925, 1930, 1935, 1940)

Number of Farms	336	131160	103215	2184	501017
Acres agricultural land	336	19918	19412	222	137683
Value of machinery and implements per acre devoted to agriculture	288	3423	2808	259	17826
Value of all crops per farm (in millions)	237	0.002	0.008	0.000	0.100
Value of cash receipts per farm (thsds 1935, 1940)	192	2.066	1.184	0.459	6.245
Lagged farm size <sup>(3)</sup>	1920*	0.22	0.25	0.055	1.82

## Census of Manufactures data (1899, 1904, 1908, 1914, 1919, 1921, 1923, 1925, 1927, 1929, 1931, 1933, 1935, 1937, 1939)

Employment per establishment	672	34.53	20.43	1	117.68
Annual wage earnings per worker	672	5675	2837	391	11151
Value added per capita	672	0.156	0.115	0.013	0.534
Lagged growth in value added per establishment	1968*	0.034	0.18	-2.53	3.67
Lagged firm size	1968*	30.0	18.8	1.00	118

## HISTORICAL VIEW

- Large urban banks favored branching, since it would allow them to expand within and beyond the urban centers in which they operated. Given their (larger) size, they could offer banking services to smaller communities, and compete with unit banks.
- Large banks oppose deposit insurance.
- States with smaller, more fragmented state banks would oppose branching and favor deposit insurance.
- National banks would oppose branching (since branching would allow state banks to expand and compete for market share) and deposit insurance (since it would lower the cost of loans of their competitors).

**Table 3: Predicting Passage of Branching and Insurance Laws, Linear Probability Models**

Dependent Variable:	Branching	Insurance	Branching	Insurance	Branching	Insurance	Branching	Insurance	Branching	Insurance	Branching	Insurance
percent urban population	0.46 (0.31)	-0.31** (0.14)	-0.99** (0.46)	0.064 (0.21)	0.050 (0.98)	-0.63 (0.43)	-0.59 (0.85)	-0.88* (0.47)	-0.43 (0.86)	-0.72* (0.40)	-0.18 (0.97)	-0.65 (0.44)
Population in millions	0.0256 (0.0188)	0.00438 (0.00737)	-0.0183 (0.0160)	0.0114 (0.008.32)	-0.004.05 (0.0767)	0.00534 (0.0123)	-0.00541 (0.0597)	0.00805 (0.0117)	-0.0275 (0.0672)	-0.0004.6 (0.00958)	0.0153 (0.0734)	0.00449 (0.0130)
log lagged deposits per state bank			0.35*** (0.059)	-0.072* (0.044)	-0.001 (0.16)	0.16*** (0.064)					-0.054 (0.15)	0.15*** (0.063)
Lagged banks per square mile			-4.45 (6.22)	-0.88 (2.18)	2.96 (12.7)	-9.08 (6.92)					5.65 (13.0)	-7.80 (6.47)
Indicator for credit contractions			0.022 (0.025)	0.009 (0.009)	-0.039 (0.026)	0.037*** (0.015)					-0.045* (0.026)	0.036*** (0.015)
Proportion of state banks					1.28* (0.66)	1.29** (0.60)					1.04* (0.61)	1.25** (0.59)
Ratio of state to national bank capital-asset ratios					0.007 (0.13)	0.020 (0.048)					0.021 (0.11)	0.025 (0.049)
Lagged growth of value added per firm							-0.086*** (0.034)	-0.013 (0.019)			-0.082** (0.037)	-0.003 (0.020)
Lagged employment per firm							0.008** (0.003)	0.002*** (9.50E-04)			0.007** (0.003)	0.001 (7.13E-04)
Lagged farm size							0.28 (0.39)	-0.084 (0.26)			0.34 (0.38)	-0.037 (0.20)
Indicator of Democratic control									0.018 (0.064)	0.050 (0.031)	0.044 (0.057)	0.050 (0.030)
Governor and legislature controlled									-0.012 (0.042)	-0.001 (0.013)	-0.016 (0.038)	-0.005 (0.012)
N	1968	1968	1920	1920	1920	1920	1920	1920	1968	1968	1920	1920
R <sup>2</sup>	0.12	0.06	0.35	0.11	0.67	0.53	0.68	0.48	0.66	0.46	0.69	0.53

# MAIN RESULTS

**Table 4a: Effect on banking laws on Banking outcomes**  
Fixed Effects Results, No Controls

Dependent variable:	Number of Branches per million residents	Number of Banks that branch per million residents	Number of Branches per million residents	Number of Banks that branch per million residents	Growth rate of loans	Growth rate of loans
Sample	States that never repealed		States that repealed		All	Drop outliers
Branching passed	10.1*** (3.22)	4.27*** (1.81)				
Branching allowed	14.6*** (4.40)	6.28** (2.74)				
Branching repealed			-19.5** (9.85)	-4.88*** (0.77)		
Branching not allowed			-10.8 (8.31)	-2.88 (2.37)		
Deposit insurance before 1920					0.037*** (0.015)	0.033*** (0.010)
Deposit insurance after 1920					-0.14*** (0.028)	-0.12*** (0.020)
Branching					0.021** (0.011)	0.022*** (0.009)



# MAIN RESULTS

**Table 4b:** Effect on banking laws on economic outcomes  
Fixed Effects Results, No Controls

	Deposit Insurance before 1920	Deposit Insurance after 1920	Branching	Number of observations	Within- state R <sup>2</sup>
<u>Agricultural outcomes</u>					
Log number of farms	-0.046 (0.061)	0.044 (0.051)	-0.054 (0.040)	336	0.21
Log acres agricultural land	-0.14*** (0.041)	0.082*** (0.034)	-0.057** (0.029)	336	0.09
Value of machines per acre	1354*** (413)	-642*** (271)	462 (552)	288	0.56
Value of crops per farm	-2.57e-04*** (1.05e-04)	-1.52e-04 (2.91e-04)	6.13e-05 (1.01e-04)	237	0.10
Cash receipts per farm			0.49*** (0.12)	96	0.60
<u>Manufacturing outcomes</u>					
Employment per establishment	8.35*** (2.67)	-4.71** (2.08)	5.44*** (2.30)	672	0.48
Log of real annual wage earnings per worker	0.051 (0.033)	-0.056* (0.030)	0.030** (0.015)	672	0.99
Value added per capita	0.025*** (0.007)	-0.049*** (0.010)	0.027*** (0.009)	672	0.50
<u>Human capital outcomes<sup>(1)</sup></u>					
percent male age 10-15 working and not in school	0.013*** (0.004)	-0.002** (8.28e-04)	-0.013*** (0.005)	240	0.61
percent female age 10-15 working and not in school	0.005 (0.003)	-0.001* (6.70e-04)	-0.005 (0.004)	240	0.37

# CONTROL FOR ECONOMIC CONDITIONS

Table 5: Fixed Effects Results with National Bank Controls, 1930 and Earlier

	Deposit Insurance before 1920	Deposit Insurance after 1920	Branching	Number of observations	Within- state R <sup>2</sup>
<u>Bank outcomes</u>					
Growth of national bank loans	-0.003 (0.008)	-0.020 (0.016)	0.007 (0.010)	1488	0.59
Growth of state bank loans	0.029* (0.016)	-0.14*** (0.026)	0.031*** (0.010)	1488	0.62
<u>Agricultural outcomes</u>					
Log number of farms	-0.006 (0.050)	0.051 (0.053)	-0.12*** (0.024)	240	0.34
Log acres agricultural land	-0.051* (0.030)	0.085** (0.036)	-0.12*** (0.024)	240	0.18
Value of machines per acre	748*** (287)	-708*** (275)	562 (567)	240	0.63
Value of crops per farm	-2.27E-04 (1.55E-04)	-1.51E-04 (3.12E-04)	1.26E-04 (1.68E-04)	189	0.15
Cash receipts per farm			0.37*** (0.15)	96	0.28
<u>Manufacturing outcomes</u>					
Employment per establishment	2.38 (2.28)	-4.90** (2.23)	6.26*** (1.73)	432	0.53
Log of real annual wage earnings per worker	-0.004 (0.016)	-0.060* (0.034)	0.044*** (0.018)	432	0.99
Value added per capita	0.019* (0.011)	-0.050*** (0.011)	0.026** (0.013)	432	0.56



# STATE PERSONAL INCOME

**Table 7:** Effect of banking laws on the annual growth rate of state-level personal income

Dependent variable:	Growth rate
Deposit Insurance	-0.160*** (0.0386)
Branching	0.0628*** (0.0239)
State and year fixed effects	Yes
Mean and standard deviation of dependent variable	0.041 (0.226)
Observations	624
R-squared	0.59

# CONCLUSION

- Most of the results suggest that the overall impact of deposit insurance was negative.
- In contrast, the effect of branching is much more uniform. For farms, in the post-1930 period there was a robustly positive effect on farm cash receipts and for all manufacturing outcomes the effect of branching was uniformly and significantly positive.
- Financial development can contribute to growth, the choice of institutional mechanism to induce financial development matters.