The Political Economy of Financial Regulation: Evidence from U.S. State Usury Laws in the 19th Century

EFRAIM BENMELECH and TOBIAS J. MOSKOWITZ*

ABSTRACT

Financial regulation was as hotly debated a political issue in the 19th century as it is today. We study the political economy of state usury laws in 19th century America. Exploiting the wide variation in regulation, enforcement, and economic conditions across states and time, we find that usury laws when binding reduce credit and economic activity, especially for smaller firms. We examine the motives of regulation and find that usury laws coincide with other economic and political policies favoring wealthy political incumbents, particularly when they have more voting power. The evidence suggests financial regulation is driven by private interests capturing rents from others rather than public interests protecting the underserved.

WE EXAMINE THE MOTIVES and consequences of financial regulation to better understand the implications of regulation for financial development and economic growth. While the current global financial crisis has reinvigorated the debate on financial regulation's effects and motives, there is a long history of financial regulation and development we can examine to shed light on these issues.

Specifically, we study the political economy of financial regulation and its consequences through the lens of usury laws in 19th century America. Usury laws are arguably the oldest form of financial regulation—mentioned in both the Bible and the Koran and dating back to ancient Rome—having long been

the subject of religious and political debate. The rich political and economic landscape of the 19th century United States provides a useful laboratory to investigate the motives and consequences of financial regulation during a critical point of U.S. economic development. The emerging U.S. state economies of the 19th century provide ample variation in regulation, enforcement, financial crises, and political and economic activity across states and time to help identify the relations between regulation, economic incentives, and development. Understanding the economic motivation and impact of financial regulation in this setting may aid understanding of regulation and development today.

Our investigation entails explaining who and what determines regulation and who benefits and loses from it. To interpret our empirical evidence, we examine usury laws through the guidance of two competing theories: public versus private interests. Do usury laws serve as a social insurance mechanism that transfers wealth across states of the world and across households in the public interest of social welfare? Or, do private interests with political power impose usury laws to benefit themselves at the expense of others by impeding competition?

We find evidence consistent with financial regulation being used by incumbents with political power for their own private interests—controlling entry and competition while lowering their own cost of capital. By limiting the maximum legal interest rate, usury laws cause credit rationing that increases the cost of entry in the market. Since wealthy incumbents already have access to capital via their reputation, relationships, creditworthiness, and collateral, they are relatively immune to such restrictions.[1] However, since motives are inherently difficult to measure, a more benign interpretation of our results is that regulation designed to serve the politically and financially weak has the unintended consequence of exacerbating their plight. Either interpretation suggests that financial regulation can do more harm than good.

We begin by arguing that usury laws have financial and economic impact. We show that binding rate ceilings from usury laws constrain some borrowers at certain times and affect lending activity in the state. We further show that changes in these laws are associated with future economic growth and, importantly, that the impact on growth is predominantly concentrated among the smallest borrowers in the economy.

Next, we investigate the determinants of financial regulation. Naturally, use of regulation varies with its cost. States impose tighter usury laws (lower maximum rates *and* stiffer penalties) when it is less costly to do so. Conversely, when the cost is high, such as current market interest rates exceeding the rate ceiling or during times of financial crisis, states relax restrictions by raising the rate ceiling. When market rates fall or the crisis abates, ceilings are reimposed or tightened. States hit hardest by financial crises are even more likely to follow this pattern. We also show that usury laws respond to neighboring-state

---

[1] Artificially lowering the cost of capital may even encourage more investment from those who can obtain credit at low rates (e.g., large, collateralized borrowers with established reputations), while causing even further credit rationing among riskier borrowers (e.g., new entrants with little capital and no local reputation).

competition for capital flows (particularly foreign capital during the period of interest). These results suggest that usury laws have real (or at least perceived) impact, otherwise why bother to change them?

To distinguish between the private and public interest motives for regulation we measure the extent of incumbent political power in a state and its relation to usury laws. State suffrage laws that restrict who can vote based on land ownership and tax payments (not race or gender) keep political power in the hands of wealthy incumbents. We find that such wealth-based voting restrictions are highly correlated with financial restrictions. Economic historians argue that wealth-based suffrage laws are primarily driven by private interests (Engerman and Sokoloff (1997, 2005), Engerman, Haber, and Sokoloff (2000), and Sokoloff and Engerman (2000)) and are less affected by general economic conditions, making it an effectual proxy for incumbent interests. Consistent with this view, we find that wealth-based suffrage laws are *not* affected by financial crises. We also find that after a financial crisis abates, states with stronger wealth-based voting restrictions are even more likely to reimpose tighter usury laws.

As further corroboration of private interests, we find a positive relation between wealth-based suffrage restrictions and other forms of economic regulation designed to exclude certain groups, such as general incorporation laws that permit free entry of firms. Usury laws are tighter when incorporation restrictions are also tight. The combination of these two policies restricts free entry further and implies that financial regulation is adopted in conjunction with other exclusionary policies designed to limit access to outsiders. This evidence seems to conflict with the public interest motivation, which is supposed to include or help underserved or disadvantaged groups rather than limit access. Furthermore, when the cost of financial regulation becomes high (e.g., during a financial crisis), usury laws are loosened but incorporation restrictions remain intact. Since incorporation restrictions do not constrain established incumbent corporations, incumbents maintain these restrictions to entry at no cost to themselves but lift rate ceilings, which become costly to them during a credit crisis, to loosen their own borrowing constraints.

We also consider whose private interests, those of the financial or nonfinancial sector, are best served by these policies. We find that the combination of policies most correlated with usury laws fits nonfinancial incumbent interests best, and we find no relation between other measures of bank market or political power and usury laws.

Examining the extent to which public interests may influence usury laws, we analyze the relation between financial regulation and policies designed to protect the poor, such as bankruptcy stay and debt moratoria laws, newspaper circulation, and the prevalence of political and corruption coverage as proxies for heightened public interests, that test the social insurance motive of Glaeser and Scheinkman (1998). We find little evidence that these public interest proxies are linked to usury laws. We also consider alternative explanations for the variation in usury laws related to government bureaucratic costs and religious motives and find no consistent evidence in favor of these hypotheses.

Our results support the literature on the political economy of financial regulation[2] and relate to the broader literature on financial development and economic growth (Jayaratne and Strahan (1996), Rajan and Zingales (1998), Bekaert, Harvey, and Lundblad (2005), and Levine and Zervos (1998)), which argues that financial development fosters growth. An outstanding puzzle from this literature is that if finance is beneficial to growth, then why do some economies choose to remain less financially developed? The tension between private and public interests, where incumbent groups make themselves better off at the expense of the rest of the economy, provides a partial explanation, highlighting the endogenous relation between financial development and growth. As an alternative to aggregate measures of financial development used in other studies, such as market capitalization or credit divided by gross domestic product (GDP), usury laws provide a direct policy instrument for the mechanism of financial regulation to be identified. In addition, our within-country analysis rules out explanations based on national interests, legal systems, or growth at the national level that may be important confounding factors in cross-country studies.

The rest of the paper is organized as follows. Section I develops the theoretical framework and testable hypotheses on financial regulation from private and public interests. Section II describes the data on state usury laws, their variation, and their evolution in the United States during the 19th century. Section III analyzes whether usury laws have financial and real impact during this time. Section IV examines the determinants of usury laws, focusing on market conditions and the tension between private and public interests. Section V concludes.

I. Theoretical Framework and Testable Hypotheses

In this section, we lay out the hypotheses to be tested on financial regulation from two competing views: public and private interests as they pertain to usury laws.

The premise underlying both the public and private interest theories is that financial regulation, as proxied by usury laws, impacts financial development, and growth.

PREDICTION 1: Tighter usury laws generate lower lending activity and slower economic growth, particularly for small, risky borrowers.

---

[2] Peltzman (1965) and Kroszner and Strahan (1999) argue that financial regulation is determined by private interests. Bekaert, Harvey, and Lumsdaine (2002) study the effects of regulatory changes on growth in emerging capital markets. Grossman (2007) shows that state lawmakers were motivated by fear and greed in their adoption of bank liability laws. Rajan and Zingales (2003) propose an interest group theory of financial development, where both incumbent financiers and industrialists oppose financial development because it breeds competition. Braun and Raddatz (2008) show that the relative strength of interest groups determines the level of financial system sophistication. Feijen and Perotti (2006) show that weak democratic institutions allow incumbent interest groups to capture financial regulation and Perotti and Volpin (2006) provide evidence that entry in financially dependent sectors is higher in countries with better investor protection.

The first part of this prediction arises naturally from a simple supply side story of credit. A cap on the price of capital will reduce quantities lent. Furthermore, if financial access facilitates growth, then economic activity will also be affected, particularly for small, risky borrowers who are likely the first to be credit rationed.

A. The Private Interest Group Hypothesis

The private interest theory views regulation as a process in which specific groups use the coercive power of the state to extract rents at the expense of other groups. The following predictions emerge from applying the private interest theory to usury laws.

Well-organized and powerful incumbent groups impose interest rate ceilings to credit ration potential competition and capture rents. Established incumbents can finance new projects either out of earnings, or by accessing external credit markets as they already have an established reputation in the credit market and pledgeable collateral, and thus are not bound by the maximum legal rate. Incumbents can therefore benefit from usury laws if the laws discourage entry from others who cannot access finance as easily. The notion that access to finance can be used as a barrier to entry is a central theme in Rajan and Zingales (2003, 2004).

Incumbents weigh the marginal costs and benefits of financial regulation. When the marginal cost of capital increases, usury laws are relaxed because they start to bind on incumbents themselves.

PREDICTION 2: Usury laws tighten (relax) when the cost of capital declines (rises), particularly for states that are more sensitive to capital shocks.

This prediction follows from Becker (1983). The loss of incumbent rents reduces the pressure for continued regulation of interest rates. When the benefits from credit competition outweigh the private benefits of surplus division, even incumbents will favor usury repeal. For instance, during periods characterized by high interest rates, intense competition for capital, and financial crises, it is likely that the benefits from increased capital outweigh those from surplus division and thus usury ceilings are lifted. Conversely, when the financial crisis abates and market interest rates subside, private benefits of surplus division once again dominate and usury ceilings will be reinstated.

Prediction 2 is also consistent with the competing public interest theory. Without private interests there is no tension between credit competition and surplus division, and hence usury laws simply follow market interest rates.

We also predict that the ability of incumbent private interests to dictate financial regulation depends on their relative political power within the state.

PREDICTION 3: Usury laws are more strict when incumbents have more political power.

This general prediction emerges from Stigler (1971), Peltzman (1976), Becker (1983), and Rajan and Zingales (2004).[3] States respond less to economic forces when incumbents exert their political influence to protect their own interests because incumbents do not need financial development to ensure financial access.

PREDICTION 4: Usury laws coexist with other policies designed to exclude new entrants when incumbents have political power.

Finally, we argue that if usury laws are used by incumbents to exclude new entry, then other exclusionary policies are likely to be simultaneously adopted by the state to further protect incumbent interests. Financial restrictions are merely one way to hamper competition, and more direct restrictions on new entry are also likely to be taken to protect incumbent private interests.

B. The Public Interest Hypothesis

According to the public interest theory, the government intervenes to correct market inefficiencies to maximize social welfare. The public interest view argues that usury laws protect borrowers from creditor market power.

PREDICTION 5: Usury laws are more strict when credit markets are less competitive.

Further, since the public interest view argues for the protection of borrowers who face creditor market power, usury laws should coexist with other policies designed to assist the disadvantaged.

PREDICTION 6: Usury laws will coexist with other policies designed to protect the poor.

Finally, during periods of intense public scrutiny, demand for public policy to assist the general population may be greatest.

PREDICTION 7: Usury laws tighten when public interests are given more prominence.

C. A Case Study in Private versus Public Interests

Before proceeding to the empirical analysis, we present a case study of the relation between usury laws and the tension between private and public

---

[3] Glaeser and Scheinkman (1998) also analyze a rent-seeking motive for usury laws. However, in their analysis, maximum legal rates *rise* with the political power of the wealthy since they want to charge higher interest rates to the poor, whereas we predict that maximum legal rates will be lower since the wealthy use finance as a capital-constraining barrier to entry and wish to lower their own cost of capital. Glaeser and Scheinkman (1998) model usury laws as a primitive means of social insurance. When banks have market power, financial regulation transfers income to states of the world where individuals have a high marginal utility of income from states of the world where they have a low marginal utility of income.

interests during the panic of 1819. This case study illustrates many of the themes in the paper.

According to Rothbard (1962), the panic of 1819 was America's first great economic crisis and depression. Prices of imported goods dropped with the influx of foreign goods during the peace years that followed the War of 1812. As a result, prices of exports of farm staples dropped when European demand declined in 1818. According to Wright (1949, pp. 384–385):

> The gathering storm broke in 1819. Within a few months cotton fell from 90 to 51 cents a bushel ... The most acute distress was felt in the Middle Atlantic states and in the Ohio Valley, though the cotton belt was also hard hit. In New York City in 1820 a tenth of the people was said to be receiving poor relief, and for the first time the country was forced to consider the serious problem of urban pauperism.... As always at such times, a widespread demand for relief arose, and varied measures to provide this were advocated. To protect debtors, stay and replevin laws were passed and the statutes governing imprisonment for debt modified.

The movement for debt relief and help for the poor arose from public interest. According to Bonelli (2003), during the depression of 1819 to 1820 private charity paralleled by public relief was part of a great philanthropic effort. President James Monroe advocated debt relief in his annual message of November, 1820 and a federal debtor relief bill was passed in the Senate on February 28, 1821. Further, many state legislatures passed debt moratoria laws known as "stay laws" that postponed foreclosure of property, and some states also passed minimum appraisal laws that prevented "fire sales" of properties below a certain minimum price. Ultimately, most states, especially the frontier states, adopted some form of debt relief legislation between 1818 and 1822 (Bolton and Rosenthal (2002) and Rothbard (1962)).

However, during this period of increased interest in debt relief, *none* of the states tightened their usury laws. Furthermore, 1820, the year following the crisis, five out of the nine frontier states that were passing stay laws aimed at helping the poor, also were *relaxing* rather than tightening their usury laws. In contrast, states not adopting pro-debtor laws at the time had more strict usury laws. Thus, in this case, usury laws did not coexist with policies aimed at helping the poor, contradicting the public interest view that tight rate ceilings are pro-debtor.[4]

The panic of 1819 also provides evidence in support of the hypothesis that incumbents oppose financial development because it breeds competition. The economic downturn also led to increased demand for a protective tariff for American industry. Domestic industry that had expanded during the War of 1812,

---

[4] Bolton and Rosenthal (2002) show that states with restricted suffrage laws are also less likely to pass debtor relief legislation. Stay laws and other forms of debt relief are more prevalent in the frontier states that do not have restricted suffrage laws, where debtors may have more political voice. Since these states also have more lax usury laws, this evidence further suggests that when debtors have political power they are more likely to adopt lax rather than strict usury laws, which is again inconsistent with the public interest view.

which virtually blocked foreign trade and imports of manufacturing goods, was hit by the impact of foreign competition in the postwar period. When the depression came in late 1819, the protectionists argued that free trade caused the depression, and that protection would bring prosperity. The industrialists also proposed that credit be curtailed in order to limit competition (Rothbard (1962) p. 176). The *New York Daily Advertiser* pointed out that "abolition [of credit] would help the large capitalists at the expense of the small, since it was the young and enterprising merchants who would be forced to abandon trade for lack of capital."

The above facts suggest that wealthy incumbents' private interests were driving a host of policies, including financial regulation, around the 1819 depression. We turn now to formal tests of the broader themes present in the 1819 financial crisis using data over the entire 19th century.

II. Usury Laws in the 19th Century United States

Usury laws regulate the maximum legal interest rate that can be charged on a loan and the penalties imposed on lenders for exceeding this rate. Usury laws in America date back to at least 1641 when Massachusetts set the maximum legal rate at 8%. The rest of the original 13 colonies enacted usury laws during the 18th century and the remaining 20 states we study adopted usury laws in the 19th century. By restricting the maximum legal rate irrespective of the interest rate's relation to risk, usury laws effectively make the financing of some risky, yet profitable, projects illegal. Usury laws apply to the location of the loan or borrower, regardless of the location of the lender. Hence, banks in a state without usury laws are subject to the usury laws of the state in which the borrower resides.

A. Data

Data for both maximum legal rates and penalties come from Holmes (1892). The penalty for usury typically makes a distinction between "loss" and "forfeiture." Lenders that violate the law can lose their legal interest and/or principal if the law denies their collection from the borrower. Moreover, in some states lenders are subject to forfeiture of up to triple the amount of the principal, or triple the illegal interest. We construct a qualitative index of the penalty.[5]

---

[5] The penalty index is constructed as follows. A state gets a score of 0.5 for loss of the illegal interest, 1 for loss of the entire interest, and 0 otherwise. Likewise, a state gets a score of 1 for loss of the principal and 0 otherwise. Since forfeiture is not limited to the nominal amounts of the principal or interest, a state gets a score of 1 for forfeiture of the nominal amount of the principal, 2 or 3 for forfeiture twice or triple the principal, and 0 otherwise. Similarly, a state gets 0.5 for forfeiture of only the illegal interest, 1 or 1.5 for forfeiture twice or triple the illegal interest, and 0 otherwise. An index of the severity of penalties is constructed as the sum of these measures across all dimensions of the usury penalty code. This index preserves the ranking of states on penalty severity, but may understate differences in the quantitative severity of the penalties. We have experimented with other ways to construct a penalty index that attempt to highlight the quantitative differences across states and found similar results.

B. Cross-sectional and Time-Series Variation

In 19th century America, there is substantial variation in usury laws across states and over time. Table I reports descriptive statistics that reveal the extent of heterogeneity in usury laws across the 33 states for which we have at least 40 years of data. In particular, states are sorted in ascending order by their time-series average maximum legal rate and summary statistics for both the maximum legal rate and the total penalty are reported. The first column reports the mean maximum legal rate for each state over the entire time period for which the state has usury laws on its books. The average legal maximum rate ranges from 5.7% in Virginia to no limit in California during the sample period. For the purpose of calculating means, if a state has no limit on the maximum legal rate in a given year, we employ 5% plus the maximum legal rate ceiling observed in that year across all states as the effective maximum rate.[6]

The second and third columns of Table I report the minimum and maximum legal rates over time and the fourth and fifth columns report the number of positive and negative changes, respectively, to the maximum legal rate for each state. More than half (17) of the states eventually lift the ceiling on rates and allow for no rate limit at some point during the sample period, while nearly half (16) of the states never repeal their usury laws. Many states change their rate limits multiple times and in multiple directions. Virginia, for instance, increases its rate ceiling twice and reduces it on three separate occasions. This fact begs the question: If usury laws do not matter (in reality or perception), why bother to change them?

The next five columns of Table I report similar summary statistics for the penalty on usury. There is substantial heterogeneity across states and over time in the penalties imposed for violating usury laws. Thus, states not only raise and lower the interest rate ceiling, but also alter the penalties for exceeding the ceiling. While rate ceilings may move with inflation or risk premia (something we address in the next section), penalties should not. This evidence indicates variation in enforcement as well. The last two rows of Table I report that the correlation between the maximum legal rate and the total penalty is −0.37 and the correlation between their changes (first differences) is −0.33. States with low rate ceilings adopt stiff penalties to enforce them and when states tighten their rates they also tighten the penalties for violation. We provide detailed evidence on the relation between rate ceilings and penalties, broken down by the specific provisions of the penalty code for each state in 1850, in an Internet Appendix.[7]

---

[6] We have also used a flat rate of 25%, which is 5% higher than the maximum rate observed across all years and states in the sample, and a flat rate of 20%, which is the maximum observed rate for any state-year with no rate limit. White (2001) finds that loan rates of 40% were not uncommon for the small, 19th-century private bank in California studied in his paper. In addition, we have employed censored regressions to handle states with no rate limit. Results in the paper are robust to these alternative specifications for coding states with no rate limit.

[7] An Internet Appendix for this article is online in the "Supplements and Datasets" section at http://www.afajof.org/supplements.asp.

Table I
Summary Statistics on Maximum Legal Interest Rate and Penalty for Usury

The table reports summary statistics for the maximum legal interest rate and the penalty for usury for each state from 1787 to 1891. The severity of the penalty is captured by the sum of all dimensions of the usury penalty code: forfeiture of principal and interest and loss of principal and interest. States are sorted in ascending order by their average maximum legal interest rate and then in descending order by their severity of penalty for usury. For the purposes of calculating means, if a state has no limit on the maximum legal rate, we employ a rate that is 5% higher than the maximum legal rate across all other states in that year as the maximum legal rate for the state.

| | Maximum Interest Rate (%) | | | | | Penalty for Usury | | | | | | Year of |
| | | | | #Changes | | | | | | #Changes | | |
State	Avg.	Min	Max.	+	−	Avg.	Min	Max.	+	−	Statehood
Virginia	5.7	5	12	2	3	3.7	0.5	4.0	1	1	1788
Delaware	6.0	6	6	0	0	0.6	0.5	1.0	0	2	1787
Maryland	6.0	6	6	0	0	1.5	1.5	1.5	0	0	1788
New Hampshire	6.0	6	6	0	0	2.0	2.0	2.0	0	0	1788
Vermont	6.0	6	6	0	0	4.3	0.5	5.0	0	1	1791
Tennessee	6.2	6	10	1	1	2.6	1.0	4.0	0	1	1796
Pennsylvania	6.2	6	8	1	1	0.9	0.5	1.0	0	1	1787
Kentucky	6.3	6	10	1	2	0.7	0.5	1.0	1	2	1792
North Carolina	6.3	6	8	1	0	3.6	1.0	4.0	1	2	1789
Ohio	6.5	6	8	1	0	1.0	0.5	2.0	2	2	1803
New Jersey	6.6	6	7	1	2	1.8	1.0	2.0	0	1	1787
New York	6.9	6	7	0	1	2.0	0.0	2.5	1	1	1788
Connecticut	7.2	6	None	2	1	2.5	0.0	3.0	0	2	1788
Massachusetts	7.8	6	None	1	0	1.8	0.0	3.0	1	2	1788
Alabama	7.8	6	None	1	1	2.1	0.5	4.0	1	2	1819
Indiana	7.9	6	None	2	3	1.0	0.0	2.5	2	2	1816
District of Columbia	8.1	6	10	1	0	1.5	1.0	2.0	0	1	1871
Georgia	8.1	7	None	2	3	2.9	0.0	5.0	2	4	1788
South Carolina	8.7	7	None	2	4	3.6	0.0	5.0	2	2	1788
Rhode Island	9.0	6	None	1	0	1.4	0.0	2.3	0	2	1790
Michigan	9.1	6	10	2	1	0.6	0.5	1.5	2	1	1837

(continued)

Table I—*Continued*

State	Maximum Interest Rate (%)			#Changes		Penalty for Usury			#Changes		Year of Statehood
	Avg.	Min	Max.	+	−	Avg.	Min	Max.	+	−	
Mississippi	9.3	6	None	4	2	0.8	0.0	1.0	2	3	1817
Missouri	9.5	6	10	1	2	1.0	1.0	1.0	0	0	1821
Illinois	9.7	6	12	1	3	1.6	1.0	3.0	0	2	1818
Maine	10.1	6	None	1	0	1.0	0.0	4.0	0	2	1820
Arkansas	10.7	10	None	1	1	1.5	0.0	2.0	2	1	1836
Wisconsin	10.9	7	None	2	3	2.4	0.0	3.5	1	2	1848
Iowa	11.1	8	None	1	3	1.2	0.0	1.5	1	2	1846
Texas	12.9	10	None	1	2	0.9	0.0	1.0	1	1	1845
Minnesota	13.1	10	None	0	2	1.7	0.0	4.0	2	0	1858
Louisiana	13.4	8	None	1	1	0.9	0.5	1.0	1	1	1812
Florida	13.5	8	None	2	3	0.7	0.0	2.0	1	2	1845
California	None	None	None	0	0	0.0	0.0	0.00	0	0	1850
Mean	7.6					2.2					
SD	2.6					1.8					

Correlation (max. rate, penalty) = −0.37

Correlation (Δmax. rate, Δpenalty) = −0.33

The evidence points to states adopting tougher penalties when the rate ceiling becomes more binding. If the penalties are innocuous or irrelevant, either because the maximum rate does not bind or is not enforced, why bother to change them as well?

C. Evolution of Usury Laws

The last column of Table I reports the year of statehood for each state (year when the state joins the union). States that join the union later tend to adopt higher maximum legal rates and less stringent penalties.[8] Older states may have tighter financial regulation than younger states for a number of reasons— life cycle growth patterns, greater need for usury protection, more developed banking systems, more bureaucratic capital, and perhaps greater presence of private interest groups with stronger political clout. We try to test each of these potential explanations.

While cross-sectionally older states are more regulatory, the general time trend in financial regulation is toward liberalization. Figure 1 plots the time-series evolution of usury laws in the United States by plotting the equal-weighted cross-state average of maximum legal rates and the penalty index annually. On average, states relax their usury laws as the 19th century comes to a close.

To control for both cross-sectional and time-series effects of age, we use state age as a regressor in all of our tests throughout the paper, which is equivalent to accounting for a state-specific linear time trend in all of our regressions. Since age may be correlated with private and/or public interests, this control may understate some of our findings.

Figure 1 also depicts the financial crises of 1819, 1837, 1857, 1873, and 1884 as well as the end of the Civil War (1865). Usury laws tend to relax following each of these episodes, both in terms of higher maximum rates and lower penalties. We investigate the relation between usury laws and financial crises more deeply in the following sections.

III. Do Usury Laws Matter?

Some argue that financial regulation can be circumvented by market participants through clever contracting (e.g., Wright (1949)). However, others (e.g., North (1990)) note that contracts attempting to disguise interest and evade usury laws by, for example, specifying "late payment penalties" or manipulating exchange rates impose additional costs that would not be present in the absence of usury laws.[9] These costs and risks must have *some* impact on financial development. Another possibility is that rate ceilings simply change with

---

[8] Rockoff (2003) finds a similar pattern.

[9] In addition to the costs of writing complex contracts, North (1990) points to the difficulty in enforcing such contracts, which often deterred lenders, particularly foreign lenders. Usury laws not only impose contracting and enforcement costs on lenders directly, but may also signal the danger of enforcement and expropriation for outside lenders. Temin and Voth (2005, 2008a, 2008b)
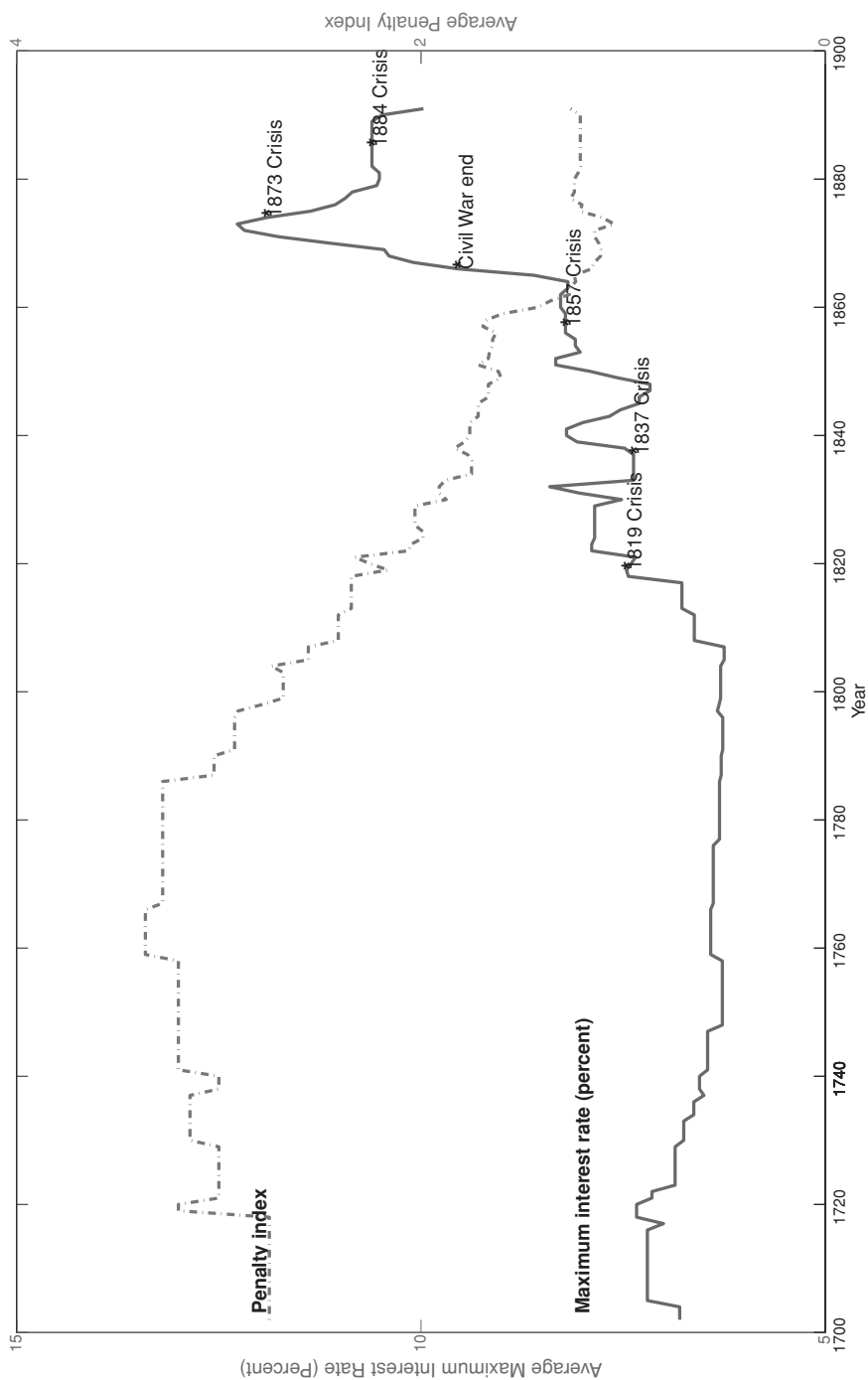
Figure 1. Evolution of average maximum allowable interest rate and usury penalty.

market interest rates and hence never bind and therefore never have to be enforced.[10] However, both of these explanations have difficulty reconciling the heterogeneity in rate ceilings and penalties we observe across states at a point in time. Ultimately, these are empirical questions that we attempt to address next.

A. Market Interest Rates

In order to determine the strictness of usury laws, we need measures of (unconstrained) market interest rates. Ideally, we would like to have a detailed panel of state-level interest rates that covers our sample of usury law changes. Bodenhorn (2003), using Comptroller of the Currency records, calculates average bank lending rates at the state level. However, his data only begin in 1878 and hence only cover 14 years of our sample. To supplement these data we also use several longer series of 18th- and 19th-century market interest rates from Homer (1963): the yields on long-term British government bonds (beginning 1727); the yields of high-grade long-term American bonds (beginning 1798); the average annual U.S. commercial paper rate (beginning 1831); the annual New England municipal bond yield (beginning 1798); the average yield on high-grade railroad bonds (beginning 1857); and the average annual call money rate (beginning 1857), which is the overnight lending rate between banks in New York on collateralized loans. All series are annual, except for call money rates that are monthly, and all rates end in 1891 to coincide with our usury law sample.

The state-level bank lending rates provide rich cross-sectional information and better capture the loan rates facing small businesses, farms, and other potentially credit-rationed borrowers. Their short time-series is limiting, however, making it difficult to analyze the impact of financial crises, for example. In addition, because bank lending rates are subject to usury laws, these rates do not reflect unconstrained market rates. On the other hand, while rates from Homer (1963) provide a long time series, they offer little cross-sectional information (only New England municipal bond rates and New York call money rates) and they are likely far below what a small credit-rationed borrower could obtain, making them a lower bound on available rates to these borrowers. However, unlike bank lending rates, neither bond, commercial paper, nor call money rates are subject to usury laws. For these reasons, we compare both sets of rates

---

find that lending activities in England during the 18th century were constrained by usury laws. Wright (2002) also argues that banks were reluctant to violate usury laws because doing so placed their corporate charter at risk.

[10] The mindset of legislators at the time was that usury laws certainly did bind, as suggested by some of the quotes contained in our Internet Appendix, which can be found in the *Journal of Finance*'s website. Rockoff (2003, pp. 24–25) discusses how "Friedman (1963) documents a number of cases in which the fear of a capital drain to states with more liberal usury laws was brought up in legislative debates. For example, a legislative committee in Connecticut in 1871 'painted a picture of money fleeing to Massachusetts,' where the usury law had been repealed in 1867." (see Murray (1866)).

to usury laws. The correlations among these rates are high, averaging about 0.70 (see the Internet Appendix). We also use the first principal component of the covariance matrix of these rates to build an index of market interest rates. The average correlation between the individual rates and this index is 0.85.

B. Are Rate Ceilings Restrictive?

Figure 2 plots the percentage of years for which the maximum legal rate for each state is binding relative to the U.S. bond rate, commercial paper rate, high-grade railroad bond rate, and New York call money rate. There are two important features of these rates. First, none of these rates are subject to usury laws and hence they can (and often do) exceed usury rate ceilings. Second, these rates are likely lower bounds on the prevailing interest rates faced by small borrowers at the time, borrowers who are almost certainly greater credit risks and have less collateral than large borrowers who have access to the U.S. bond, commercial paper, railroad bond, or call money markets.

As Figure 2 shows, for many states the usury restriction binds relative to market rates in a significant fraction of years. Hence, the restriction on small borrowers would be even more binding. In addition, the rate differences can be substantial, suggesting that at certain times usury laws impose very tight constraints on lending. The figure also highlights the heterogeneity over time and across states, with some states having binding rate ceilings a significant fraction of the time, while borrowers in other states are never constrained.

C. Impact on Lending Activity and Enforcement

Table II contains results corresponding to a series of tests for the first part of Prediction 1, which posits that usury laws generate lower lending activity. Panel A examines the impact of usury laws on loan volume. We report results for regressions of the change in the total amount of loans and discounts per capita in year t on the change in the maximum legal rate and the change in the difference between the maximum legal rate and market interest rates in year $t - 1$. We use the principal component index rate, regional rates, and state bank lending rates that allow for variation in interest rates across states at a point in time to proxy for market interest rates. The regional rates are constructed as the New England municipal bond rate for all states in the New England region, the New York call money rate for New York State, and the U.S. bond rate for all other states (beginning in 1857). We run the regressions in first differences, with controls for state age and state fixed effects when using the U.S. bond and principal components index rates, and controls for age, state, and year fixed effects when using the regional and state-level rates. Standard errors used to compute t-statistics (reported in parentheses in the table) are clustered by state. Loan volume data are obtained from state-level national banks' balance
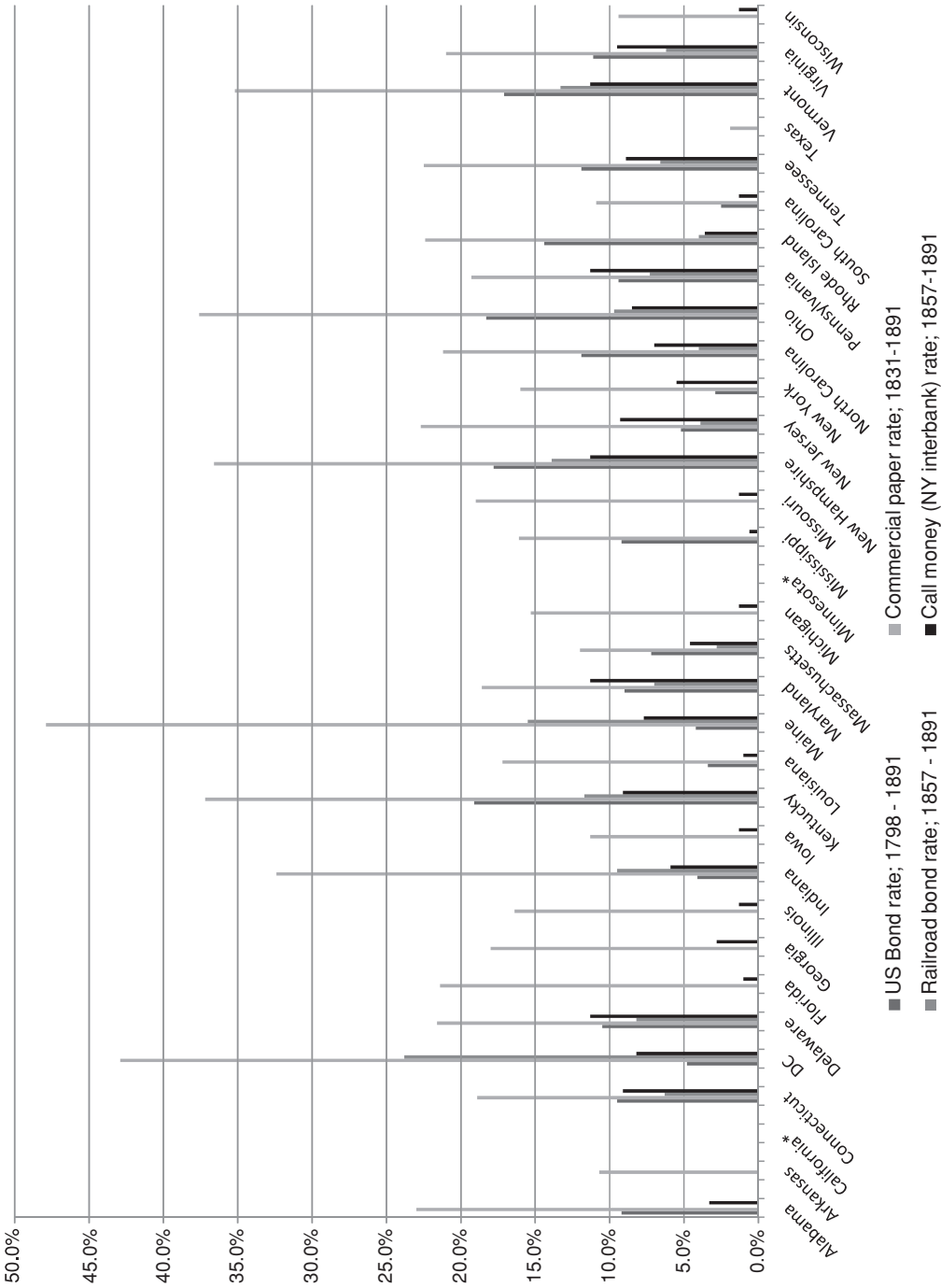
Figure 2. Market interest rates and binding usury ceilings. This figure plots the frequency (percentage of years) with which the maximum legal rate for a state is binding relative to the U.S. bond rate, commercial paper rate, high-grade railroad bond rate, and call money rate, none of which were subject to usury laws.

Table II
Do Usury Laws Matter?

Panel A reports results for the impact of usury laws on lending volume using the total amount of loans and discounts per capita and Panel B reports results using the total bonds for circulation per capita (data obtained from state level banking sector balance-sheets for the years 1865 to 1891 from the reports of the Comptroller of the Currency). Regressors are the change in the maximum legal interest rate in year $t-1$ as well as the change in the difference between the maximum legal rate and the principal component index rate, regional rate, and state-level bank lending rate in year $t-1$ for that state. The regional rate is constructed as the New England municipal bond rate for all states in the New England region, the New York call money rate for New York State, and the U.S. bond rate for all other states. Panel C reports results using the change in total penalty for a state in a given year as the dependent variable. All regressions are run in first differences, with a control for state age (state-specific time trend). In addition, regressions using the U.S. bond and principal components index rates include state fixed effects and regressions using the regional and state-level bank lending rates include state and year fixed effects. Reported t-statistics (in parentheses) assume group-wise clustering of errors by state. Adjusted-R^2s are reported for the full specification that includes the fixed effects as well as the amount of remaining variation explained by the regressors after the fixed effects are accounted for ($\bar{R}^2$ after F.E.).

Panel A: Impact of Usury Laws on Lending Volume

Dependent Variable = Sample Period	ΔLoans and Discounts per Capita$_t$			
	1865–1891	1865–1891	1865–1891	1878–1891
Δ Max. rate$_{t-1}$	0.982			
	(2.38)			
Δ(Max. rate$-$PC rate)$_{t-1}$		0.840		
		(2.26)		
Δ(Max. rate$-$Regional rate)$_{t-1}$			0.926	
			(2.34)	
Δ(Max. rate$-$State bank rate)$_{t-1}$				0.261
				(2.06)
Fixed effects:				
Year?	Yes	No	Yes	Yes
State?	Yes	Yes	Yes	Yes
State time trend:	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.20	0.07	0.19	0.10
$\bar{R}^2$ after F.E.	0.04	0.03	0.04	0.01
Cluster	State	State	State	State
N	779	779	779	375

Panel B: Impact of Usury Laws on Bonds for Circulation

Dependent Variable = Sample Period	ΔBonds for Circulation per Capita$_t$			
	1865–1891	1865–1891	1865–1891	1878–1891
Δ Max. rate$_{t-1}$	−0.039			
	(−1.62)			
Δ(Max. rate$-$PC rate)$_{t-1}$		−0.043		
		(−2.22)		
Δ(Max. rate$-$Regional rate)$_{t-1}$			−0.043	
			(−1.73)	
Δ(Max. rate$-$State bank rate)$_{t-1}$				−0.072
				(−1.53)

Table II—*Continued*

Panel B: Impact of Usury Laws on Bonds for Circulation			

Dependent Variable =	ΔBonds for Circulation per Capita$_t$			
Sample Period	1865–1891	1865–1891	1865–1891	1878–1891
Fixed effects:				
Year?	Yes	No	Yes	Yes
State?	Yes	Yes	Yes	Yes
State time trend:	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.22	0.08	0.21	0.34
$\bar{R}^2$ after F.E.	0.01	0.01	0.03	0.02
Cluster	State	State	State	State
N	779	779	779	375

Panel C: Are Penalties Tougher When Maximum Rates Are More Binding?			

Dependent Variable =	Δ Penalty for Violating Usury$_t$			
Sample Period	1787–1891	1857–1891	1857–1891	1878–1891
Δ Max. rate$_{t-1}$	−0.064			
	(−4.63)			
Δ(Max. rate−PC rate)$_{t-1}$		−0.044		
		(−4.27)		
Δ(Max. rate−Regional rate)$_{t-1}$			−0.063	
			(−4.61)	
Δ(Max. rate−State bank rate)$_{t-1}$				−0.015
				(−3.14)
Fixed effects:				
Year?	Yes	No	Yes	Yes
State?	Yes	Yes	Yes	Yes
State time trend:	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.07	0.05	0.11	0.12
$\bar{R}^2$ after F.E.	0.07	0.05	0.07	0.03
Cluster	State	State	State	State
N	2,805	1,122	1,122	422

sheets for the years 1865 to 1890 from the reports of the Comptroller of the Currency.[11]

Panel A of Table II shows that changes in lending volume per capita increase when changes in the maximum rate increase. The elasticity of next period's per capita lending volume to rate ceilings is 0.98. We obtain equally sharp results when employing the maximum rate relative to market interest rates as a regressor. The most compelling tests are those using the regional and

[11] Ideally, we would have included both national and state balance sheet information. However, to the best of our knowledge, state data on state bank loans do not exist. The Comptroller of the Currency supervised national, not state, banks and hence collected data only on national banks. To obtain state bank data one would have to search the archives of each individual state's local government agencies in each year, which significantly varied across states and over time. Our attempt to find such data was not successful. However, it is very likely that loan activity at national banks was highly correlated with that of state banks within the same state at the same time.

state-level interest rates that control for state and year fixed effects. When market interest rates approach or exceed the maximum legal rate, usury laws become more binding and subsequently loans per capita decrease.

The premise underlying the private and public interest theories is that financial regulation has a causal effect on financial activity (Prediction 1). This suggests that we should interpret the results in Panel A of Table II as evidence of a supply restriction, where usury rate ceilings affect lending volume. However, while usury law changes predict lending volume in the next year (avoiding some of the simultaneity problem), it is unclear whether this empirical relation is driven by supply (regulation) or demand forces. Panel B of Table II tries to distinguish these two possibilities by examining the relation between changes in bonds for circulation per capita and maximum rate changes. National banks are required to hold at least one-third of their capital (but not less than $30,000) in government bonds that are deposited with the Comptroller of the Currency. In exchange for these bonds, the banks receive national bank notes equal to the lesser of 90% of the bond's notional amount or market value. These bonds are not subject to usury laws and hence their supply should not be directly affected by usury restrictions. Therefore, if rate ceilings from usury laws affect supply, we should see either no effect on government bond holdings or the opposite effect as that on lending volume, since banks may substitute away from bank note creation and instead use their capital (in excess of the minimum required by the Comptroller of the Currency) to supply new loans.

As Panel B of Table II shows, the amount of bonds for circulation has a weaker and opposite-signed relation with usury law changes than lending activity. Our results are generally consistent with the micro-level evidence in Temin and Voth (2008a, 2008b), who find significant supply distortions in London credit markets following the tightening of usury laws by the British government in 1714.

Panel C of Table II addresses whether penalties for violating usury also become tougher when rate ceilings become more binding. Penalties are a form of enforcement. We find that penalties increase when maximum legal rates are more binding.

D. Relation to Economic Growth

The literature on financial development and economic growth emphasizes the importance of financial development in allocating resources to their best use. While much of the literature studies cross-country differences in financial development, we study financial regulation *within* a country, essentially holding other factors such as institutions (Acemoglu, Johnson, and Robinson (2001)) and legal origins (La Porta et al. (1997)) fixed.[12]

---

[12] Few studies (Jayaratne and Strahan (1996), Rajan and Zingales (1998), Guiso, Sapienza, and Zingales (2004), Garmaise and Moskowitz (2006), and Burgess and Pande (2005)) offer plausible identification strategies that attempt to document a causal effect of financial development on economic growth. Many of these studies look within a country or region in order to better identify the causal relations.

We examine whether usury laws (as a measure of financial development) have any impact on economic development. We hypothesize that more restrictive usury laws affect economic growth since they affect lending activity, and thus some risky but positive NPV projects cannot be financed. On the other hand, if projects are simply getting financed through other means that we cannot measure (i.e., private loans or illegal "black market" loans), then the effect on growth may be inconsequential.

Panel A of Table III reports results from regressing measures of per capita state economic growth on the lagged change in maximum legal interest rate. We compute five measures of per capita economic growth: state gross product; manufacturing value added; manufacturing establishments; agricultural output; and total number of farms from the 1850, 1860, and 1870 U.S. Censuses. We provide details on the construction of these measures in the Internet Appendix. The breakdown of most state economies in the 19th century is between the manufacturing or industrial sector and the agricultural sector. Usury laws affect borrowers in both sectors. Regressions contain a dummy variable for civil law states, state age, the lagged growth rate of the independent variable, and region-by-year fixed effects as controls. Standard errors used to compute t-statistics in the table are clustered by state.

The first column of Panel A reports regression results for the per capita growth in state gross product from 1850 to 1870 on the lagged change in maximum legal rates from the previous decade (1840 to 1850 and 1850 to 1860). Increases in maximum rates are associated with future increases in economic growth for the state, consistent with Prediction 1. For a given state, a one percentage point increase in the maximum legal rate translates into a 5.7% increase in economic growth over the next decade. The second column of Table III Panel A reports regression results for the growth in manufacturing value added per capita, which increases 4.4% over the subsequent decade for a percentage point increase in rate ceilings. Likewise, the third column reports results for the per capita growth in manufacturing establishments, which also rises following a loosening of financial restrictions. Finally, the last two columns of Panel A show that agricultural sector growth is also affected, as both output in the agricultural sector and number of farms increase following a relaxation of usury laws, though the effect on number of farms is statistically insignificant.

While the results in Panel A of Table III are consistent with Prediction 1, we interpret these regressions with caution as we lack a persuasive instrument for usury laws that would satisfy the exclusion restriction. Controlling for region-by-year fixed effects, state-specific linear time trends, and the lagged growth rate of the state help rule out some omitted factors. For example, the concern that states in a region may raise rate ceilings simultaneously during poor economic episodes, which then subsequently rebound in the following period, is absorbed by these controls. (There is not enough variation to use state-by-year fixed effects, but using state fixed effects gives similar results.)

However, to more clearly identify the mechanism of financial development driving economic growth, we also study the differential effect of changes in

Table III
The Relation between Usury Laws and Economic Growth

Panel A reports results from regressing measures of per capita state economic growth from 1850 to 1870 on the lagged change in maximum legal interest rate from the previous decade (1840 to 1850 and 1850 to 1860). Five measures of per capita economic growth are employed: state gross product per capita; manufacturing value added per capita; number of manufacturing establishments per capita; agricultural production per capita; and number of farms per capita from the 1850, 1860, and 1870 U.S. Censuses. Panel B reports results from regressing the growth rate in the number of farms in each state by farm size (acreage) for the years 1860, 1870, 1880, and 1890 obtained from the U.S. Censuses on the lagged change in maximum legal interest rate. All regressions include a dummy variable for civil law states, the age of the state (state-specific time trend), the lagged growth rate of the dependent variable, and region-by-year fixed effects as control variables (coefficient estimates not reported for brevity). Adjusted-R^2's are reported and t-statistics (in parentheses) that assume group-wise clustering of errors at the state level are reported.

Panel A: Economic Growth Rate from 1850 to 1870

Per Capita Growth Rates in:	State Gross Product	Manufacturing Value Added	Manufacturing Establishments	Agricultural Output	Number of Farms
ΔMax. rate$_{t-1}$	0.057	0.044	0.071	0.092	0.011
	(2.78)	(2.95)	(3.93)	(2.33)	(1.46)
Fixed effects:	Region × year	Region×year	Region × year	Region × year	Region × year
State time trend:	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.69	0.51	0.53	0.75	0.53
Cluster	State	State	State	State	State
N	66	66	66	66	66

Panel B: Growth in Number of Farms from 1860 to 1890

Number of Farms	Size < 10 acres	10 ≤ Size < 20	20 ≤ Size < 50	50 ≤ Size < 100	100 ≤ Size < 500	500 ≤ Size < 1,000	Size ≥ 1,000
ΔMax. rate$_{t-1}$	0.064	0.029	0.013	-0.001	-0.055	-0.052	-0.128
	(2.15)	(1.75)	(0.97)	(-0.78)	(-2.57)	(-1.72)	(-3.29)
Fixed effects:	State	State	State	State	State	State	State
State time trend:	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.34	0.41	0.37	0.47	0.53	0.36	0.36
Cluster	State	State	State	State	State	State	State
N	129	130	130	129	130	125	114

usury laws on the growth rates of smaller and larger farms.[13] We obtain detailed data from the 1860, 1870, 1880, and 1890 U.S. Censuses, where decennial data exist on the total number of farms in a state, as well as the number of farms across various acreage size categories. Panel B of Table III reports results from regressing the growth rates of farms of various sizes within a state on the lagged decennial change in maximum legal interest rates. All regressions contain a state-specific linear time trend and state fixed effects as controls, with standard errors clustered by state.

We find that relaxation of usury laws leads to higher subsequent growth rates for smaller farms, while larger farms are either not affected by less restrictive laws or experience slightly negative growth rates. The coefficient on the lagged change in the maximum legal rate declines almost monotonically with increases in farm size, moving from 0.064 for farms with less than 10 acres (t-statistic= 2.15) to -0.128 for farms more than 1,000 acres (t-statistic= -3.29). These results indicate that smaller farms benefit from the relaxation of usury laws, and also that increased entry probably hampers growth in the number of large farms. Consistent with our political economy story and Prediction 1, usury laws have a different effect on the growth of small and large entities—greatly affecting entry among the smallest segment of the market and not affecting or adversely affecting the larger segment, which likely faces fewer borrowing restrictions. Our results are consistent with Guiso et al. (2004) and the banking literature that finds that small firms are more dependent on local credit markets (Berger et al. (2005), Petersen and Rajan (2002), and Garmaise and Moskowitz (2006)).

The effects we uncover in Table III on economic growth may come from the direct impact of usury laws themselves or from other omitted political and economic factors driving usury laws and other regulation that also affects growth. Writers and policy makers in the 19th century seemed to believe or at least argue that usury laws have a direct effect on economic growth (see some select quotes from politicians at the time in the Internet Appendix). However, the endogeneity of regulation and economic activity makes this determination difficult. Our goal is to understand the political and economic forces that drive financial regulation and to link those same factors to economic growth. An alternative interpretation of our results is not that usury laws affect growth directly, but that the political economy drives both financial regulation and growth—a theme we investigate in the next section.

IV. The Determinants of Usury Laws

We study the factors that determine the adoption and repeal of usury laws across states and over time, and we attempt to link these to the private and public interest theories of Section I.

---

[13] We thank an anonymous referee for suggesting this test.

A. Is Regulation Tighter When It Is Less Costly?

Table IV provides results for a variety of tests of Prediction 2, in which we posit that usury laws relax when the cost of capital rises (e.g., the cost of regulation increases). We proxy for the marginal cost of capital using periods of high market interest rates, financial crises, and periods during which neighboring states compete for outside capital by altering their own usury laws.

Panel A of Table IV examines how maximum legal rates respond to the proximity of market rates to the usury rate ceiling. We regress the change in the maximum rate for a state on the lagged change in the difference between the maximum legal rate and the average U.S. bond rate last period. For states that change their rate ceiling to no limit, we use a number that is five percentage points higher than the maximum rate ceiling across all states in that year, which turns out to be higher than any of the market interest rates in that year as well. We find a negative and significant coefficient, which indicates that when the market interest rate approaches or exceeds the usury ceiling in year $t - 1$, states increase their rate ceiling in year t. The economic significance of this effect is large. A one–standard deviation increase in interest rates relative to the state-imposed rate ceiling in the previous year results in an average 35 basis point increase in the rate ceiling the following year. The next two columns of Panel A employ the principal components index rate and the regional rate (which allows both state and year fixed effects to be employed) as market interest rate proxies and find nearly identical results.

The fourth column of Panel A repeats the regression for regional rates separating the difference between the lagged change in the maximum legal rate and the regional rate into positive and negative components. This regression tests whether states respond differently to a tightening or loosening of the regulation. When the local interest rate is greater than the maximum rate, usury restrictions become binding and we see a subsequent increase in the state's maximum allowable rate to alleviate this constraint, indicated by the positive and significant coefficient. When the regional rate falls below the maximum rate, however, usury laws become less costly and we see a subsequent reduction in the usury ceiling to tighten the restriction the following period. The last two columns repeat these tests using state-level bank lending rates that allow state and year fixed effects to be employed. Despite the very short sample period (1878 to 1891), the results are remarkably consistent: States lift rate ceilings when they become costly and lower them when it is cheap to do so. These results provide evidence in favor of Prediction 2.

Panel B of Table IV examines how maximum rates change in response to financial crises, when the marginal cost of capital is especially high. We regress a state's maximum legal rate on dummies for financial crisis years (1819, 1837, 1857, 1873, and 1884) and the year after each crisis, to account for a potential lag in legislative response. Maximum rates rise during and following times of financial distress, consistent with Prediction 2 that laws relax when they become costly. States raise their maximum legal rate by 1.3 percentage points during or shortly following financial crises. Since interest rates are particularly high during these times, the second column of Panel B reports results including

Table IV

Is Regulation Tighter When It Is Less Costly?

The first three columns of Panel A report results from regressing the change in the maximum rate for a state on the lagged change in the difference between the maximum legal rate and the U.S. bond rate, principal component index rate, regional rate, and state-level bank lending rate last period. The regressions using regional rates and state-level bank lending rates are repeated by separating the difference between the lagged maximum legal rate and regional (and state) bank rates into positive and negative components, where the rate exceeds and falls below the maximum rate. Panel B reports results from regressing the maximum allowable interest rate on dummies for financial crisis years (1819, 1837, 1857, 1873, and 1884) and the year following each crisis, as well as the lagged difference between the maximum legal rate the regional rate and its interaction with crisis years. Also reported are interactions between crisis years and proxies for the impact of the crisis on the state's economy: the total number of railroad track miles that defaulted divided by the number of manufacturing establishments in the state during the 1873 crisis (Railroad failure), the amount of manufacturing capital per manufacturing establishment in 1870, and the amount of machinery capital per capita in 1870. Panel C reports results from regressing the maximum legal interest rate for a state in a given year on the contemporaneous average maximum legal interest rate of states that border and do not border it. The average state border maximum legal interest rate is also interacted with the wealth (per capita output) of the state and the average wealth of the border states. Finally, the last column of Panel C reports results from regressing the change in loans per capita on dummies for whether the state changed its usury laws in the opposite direction as its neighbors. Regressions are estimated with year and/or state-level fixed effects and include state age (state specific time trend) as a regressor (coefficients not reported). Standard errors used to compute *t*-statistics (reported in parentheses) are calculated assuming group-wise clustering at the state level. Adjusted-R^2s are reported for the full specification that includes the fixed effects as well as the amount of remaining variation explained by the regressors after the fixed effects are accounted for ($\bar{R}^2$ after F.E.).

| | | | Panel A: How Do Maximum Rates Respond to Market Rates? | | |
			Δ Maximum Legal Rate$_t$		
Dependent Variable =					
Sample Period	1798–1891	1857–1891	1857–1891	1857–1891	1878–1891	1878–1891
Δ(Max. rate − U.S. bond rate)$_{t-1}$	−0.064 (−4.22)					
Δ(Max. rate − PC rate)$_{t-1}$		−0.072 (−5.43)				
Δ(Max. rate − Regional rate)$_{t-1}$			−0.103 (−4.59)			
...Regional rate < Max. rate				0.099 (4.50)		
...Regional rate > Max. rate				−0.103 (−3.97)		
Δ(Max. rate − State bank rate)$_{t-1}$					−0.101 (−3.07)	

Table IV—*Continued*

Panel A: How Do Maximum Rates Respond to Market Rates?

Dependent Variable =	Δ Maximum Legal Rate$_t$					
Sample Period	1798–1891	1857–1891	1857–1891	1857–1891	1878–1891	1878–1891
…State bank rate < Max. rate						0.107
						(2.11)
…State bank rate > Max. rate						−0.097
						(−2.35)
Fixed effects:						
Year?	No	No	Yes	Yes	Yes	Yes
State?	Yes	Yes	Yes	Yes	Yes	Yes
State time trend:	Yes	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.04	0.04	0.10	0.10	0.17	0.17
$\bar{R}^2$ after F.E.	0.03	0.03	0.05	0.05	0.05	0.05
Cluster	State	State	State	State	State	State
N	2,631	1,122	1,122	1,122	422	422

Panel B: How Do Maximum Rates Respond to Financial Crises?

Dependent Variable =	Max. Rate	ΔMax. Rate	ΔMax. Rate	Max. Rate	Max. Rate	Max. Rate
Sample Period	1787–1891	1857–1891	1857–1891	1857–1891	1857–1891	1857–1891
Crisis	0.978	0.259	0.266			
	(3.11)	(3.30)	(2.71)			
(Max. rate− Regional rate)$_{t-1}$		−0.098	−0.098			
		(−5.72)	(−4.43)			
Crisis × (Max. rate− Regional rate)$_{t-1}$			−0.011			
			(−1.58)			
Crisis × railroad failure				114.654		
				(2.25)		
Crisis × manufacturing capital					0.173	
					(2.27)	
Crisis × machinery capital						0.126
						(1.75)

(continued)

Table IV—*Continued*

Panel B: How Do Maximum Rates Respond to Financial Crises?

Dependent Variable =	Max. Rate	ΔMax. Rate	ΔMax. Rate	Max. Rate	Max. Rate	Max. Rate
Sample Period	1787–1891	1857–1891	1857–1891	1857–1891	1857–1891	1857–1891
Fixed effects:						
Year?	No	No	Yes	Yes	Yes	Yes
State?	Yes	Yes	Yes	Yes	Yes	Yes
State time trend:	Yes	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.49	0.06	0.06	0.59	0.56	0.56
R^2 after F.E.	0.06	0.06	0.06	0.01	0.07	0.07
Cluster	State	State	State	State	State	State
N	2,825	1,122	1,122	1,122	1,122	1,122

Panel C: How Do Maximum Rates and Lending Volume Respond to Competition?

Dependent Variable =	Max. Rate$_t$	Max. Rate$_t$	Δ Loans per Capita
Sample Period	1787–1891	1787–1891	1865–1891
Max. rate of border states$_t$	95.869	63.062	
	(6.03)	(2.79)	
Max. rate of nonborder states$_t$	10.812	50.682	
	(0.11)	(0.41)	
Border × own wealth		−0.039	
		(−3.05)	
Border × border wealth		0.238	
		(2.15)	
Δ border rate <0, Δ own rate <0			−3.486
			(−2.78)
Δ border rate <0, Δ own rate ≥0			1.565
			(2.41)
Fixed effects:			
Year?	Yes	Yes	Yes
State?	Yes	Yes	Yes
State time trend:	Yes	Yes	Yes
$\bar{R}^2$	0.72	0.75	0.18
R^2 after F.E.	0.42	0.47	0.02
Cluster	State	State	State
N	2,825	2,825	858

the lagged difference between the maximum rate and the regional rate as a regressor. (There is only one crisis during the 14-year sample of state-level bank rates, making it infeasible to conduct this and other tests with state-level bank rates.) Both variables are significant, indicating that financial crises affect usury laws even beyond the higher market rates that prevail during these times. The total effect from the sum of both a one–standard deviation move in market rates and a financial crisis is 1.6 percentage points, most of which comes from interest rate movements being more binding, but about 26 basis points come from the crisis itself controlling for interest rates (i.e., the quantity restriction). Since financial crises are defined by quantity restrictions as well as high prices, this result is intuitive. Likewise, column 3 of Panel B shows that the interaction between the two is negative—in financial crises, states with the most binding usury laws subsequently raise their rate ceiling even more. The economic effects are also large as the interaction term adds another 20 basis points to the overall effect, raising rate ceilings by an average 1.8 percentage points.

The last three columns of Panel B of Table IV add measures of a state's sensitivity to financial crises and interactions with the dummy for financial crisis years. Prediction 2 also claims that states more sensitive to capital shocks are more likely to repeal usury laws during a crisis. To capture a state's sensitivity to financial crises, we use the total mileage of railroads that defaulted during the financial crisis of 1873 for every state. These data are recorded as of September 1873 (from Benmelech and Bordo (2007)). Since railroads are not typically affected by usury laws because they have substantial collateral and could issue public debt that was not subject to usury laws, this proxy should capture a state's sensitivity to the crisis of 1873 that is otherwise unrelated to usury laws. We scale track mileage of defaulted railroads by the number of manufacturing establishments in the state from the 1870 Census. The fourth column of Table IV shows that states hit hardest by the financial crisis, as proxied by the total mileage of defaulted railroad tracks, are more likely to raise rate ceilings. The last two columns employ two additional measures of crisis sensitivity: the amount of manufacturing capital per manufacturing establishment in 1870 and the amount of machinery capital per capita in 1870. Benmelech and Bordo (2007) show that the manufacturing sector and particularly the machinery sector are hit hardest by financial crises. Consistent with Prediction 2 that states hit hardest by financial crisis are more likely to change their laws, we find positive interaction terms for both measures of crisis sensitivity.

Panel C of Table IV examines how maximum rates and lending activity respond to competition for capital, another proxy for the cost of capital. The first column of Panel C of Table IV reports results from regressing the maximum legal interest rate for a state in a given year on the average maximum legal interest rate for that year among states that border it as well as on the maximum rate among states that do not border it.[14] The maximum legal rate for

---

[14] We also looked at states "nearby" but not sharing a border with the state of interest and found similar though weaker results consistent with competition for capital.

a state in each year is highly positively correlated with the maximum rate imposed by bordering states in that same year, even after accounting for year fixed effects, which eliminate general interest rate levels or economic conditions, and state fixed effects, which eliminate any time-invariant unobserved effects at the state level. This finding suggests that a state's variation in rate ceiling over time is partly determined by what its neighbors are doing, which we interpret as a response to competition for capital. The magnitude of the response is also large. A one percentage point increase in a neighboring state's maximum legal rate increases the state's own rate ceiling by 96 basis points. Whether a nonborder state changes its rate has no effect.

As another test for the role state competition plays in determining usury laws, the second column of Table IV, Panel C interacts both the wealth of the state (per capita output) with the border rate variable and interacts the wealth of bordering states with the border rate variable. Wealthy states should be less prone to competition for outside capital since their marginal utility for capital is lower (e.g., New Jersey is more likely to follow New York than vice versa). The level effects of the state wealth variables are absorbed by the state fixed effects. The interaction terms indicate that states respond less to poorer neighbors' and more to wealthier neighbors' usury laws.

Finally, the premise that border effects represent competition for outside capital presumes that usury laws actually affect capital flows and lending activity across states. Of course, if states respond optimally to competition for capital, then in equilibrium there will be no distortion in financing activity across states. Therefore, to test this premise, we need to observe what happens to state lending activity if a state does not respond to competition. The last column of Table IV's Panel C regresses changes in loans per capita on two dummy variables designed to capture when a state does not respond to competition or responds in the opposite direction of its neighbors. As the last column of Panel C shows, when a state's neighbors increase their rate ceiling but the state itself does not, loans per capita decrease in the state, whereas when its neighbors tighten their ceilings but the state does not also tighten, loans per capita increase in the state. These results indicate that failure to respond to competition for capital impacts subsequent loan activity.

So, why do some states sometimes *not* respond to neighboring state law changes if not responding has adverse capital consequences? The tension between private and public interests provides an answer. At certain times states will trade off the public benefits of greater capital supply for the private benefits of certain groups within the state benefiting from limited capital access. We continue to explore this idea below.

B. Private Interests and Incumbent Political Power

As a direct test of private interests, Table V examines the role incumbent political power plays in determining a state's usury laws.

Table V
Private Interests and Incumbent Political Power

Panel A reports results from regressing the maximum legal interest rate for a state-year from 1787 to 1891 on proxies for the political power of incumbents: a dummy variable indicating whether the state had suffrage laws that only allowed land owners and/or those who paid taxes to vote, and the percentage of white males who did not vote, available for 23 states for the following election years: 1824, 1828, 1832, 1836, 1840, and 1844. Panel B reports results on the relation between suffrage restrictions and general incorporation restrictions as well as on how both suffrage and incorporation regulations behave in financial crises. Regressions are estimated with year and/or state-level fixed effects and include state age (state-specific time trend) as a regressor (coefficients not reported). Standard errors used to compute t-statistics (reported in parentheses) are calculated assuming group-wise clustering at the state level. Adjusted-R^2s are reported for the full specification that includes the fixed effects as well as the amount of remaining variation explained by the regressors after the fixed effects are accounted for ($\bar{R}^2$ after F.E.).

Panel A: Restricted Suffrage and Usury Laws

Dependent Variable = Sample Period	Max. Rate 1787–1891	%Nonvoting White Males 1824–1844	Max. Rate 1824–1844	Max. Rate 1824–1844	Max. Rate 1824–1844	Max. Rate 1787–1891
Restricted suffrage	−1.318 (−2.71)			−3.058 (−12.02)	−22.945 (−7.15)	−1.446 (−7.42)
%Nonvoting white males		12.284 (3.17)		−0.646 (−1.60)	2.122 (5.34)	
Restricted suffrage × %NVWM			−1.510 (−3.01)		−5.033 (−6.67)	
Restricted suffrage × Crisis$_t$						0.059 (1.56)
Restricted suffrage × Crisis$_{t+5}$						−0.420 (−2.51)
Fixed effects:	Year+State	Year+State	Year+State	Year+State	Year+State	Year+State
State time trend:	Yes	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.56	0.89	0.48	0.52	0.55	0.56
$\bar{R}^2$ after F.E.	0.07	0.04	0.01	0.08	0.15	0.03
Cluster	State	State	State	State	State	State
N	2,825	138	138	138	138	2,825

Table V—*Continued*

Panel B: Restricted Suffrage, Incorporation Laws, and Financial Crises

Dependent Variable = Restricted suffrage	Restricted Incorporation 1787–1891		Restricted Incorporation 1787–1891		Restricted Suffrage 1787–1891	
Sample Period	Levels	Changes	Levels	Changes	Levels	Changes
Restricted suffrage	0.219	0.002				
	(3.71)	(3.09)				
Crisis			−0.012	−0.017	−0.001	0.005
			(−0.91)	(−1.09)	(−0.02)	(0.85)
Fixed effects:	State	None	State	None	State	None
State time trend:	Yes	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.52	0.01	0.68	0.02	0.44	0.02
$\bar{R}^2$ after F.E.	0.24	0.01	0.35	0.02	0.16	0.00
Cluster	State	State	State	State	State	State
N	2,825	2,792	2,825	2,792	2,825	2,792

B.1. Restricted Suffrage Laws

Following the literature on the relation between restricted suffrage laws based on wealth and the power of the elite (e.g., Engerman and Sokoloff (1997, 2005), Engerman et al. (2000), and Sokoloff and Engerman (2000)), we use wealth-based suffrage laws as a proxy for the political power of incumbents. Restricted suffrage laws are generally instituted to keep voting control in the hands of the established incumbent elite and prevent political power from swinging to a new group. Voting in the 19th-century United States was largely a privilege reserved for wealthy white men who owned a significant amount of property, and these voting rights varied by state. Restricted suffrage implies more concentrated voting power to push policies that further the private interests of the voting group. We focus exclusively on suffrage restrictions that are based on wealth as our proxy for incumbent elite power, and ignore suffrage laws based on race or gender, where additional factors may be motivating these laws.

Figure 3 plots the year-by-year average interest rate ceiling for states with and without wealth-based restricted suffrage laws. States with restricted suffrage have more restrictive usury laws (lower interest rate ceilings). During financial crises, however, both restricted and nonrestricted suffrage states loosen their usury laws, even to the point near the end of the century where there is little difference between the two.

Panel A of Table V examines the relation between wealth-based suffrage restrictions and usury laws with controls for state and year fixed effects and state age (state-specific linear time trend). We regress the maximum legal interest rate for a state in a given year on a dummy variable indicating whether the state has wealth-based restricted suffrage laws that only allow land owners and/or those who pay taxes to vote in that year. We find that states with wealth-based restricted suffrage laws have much tighter usury laws. The average maximum interest rate is 1.32 percentage points lower when wealth-based restricted suffrage laws are present.

As another proxy for concentrated incumbent political power, we employ the percentage of white males who did not vote in the most recent presidential election, available for 23 states for the following election years: 1824, 1828, 1832, 1836, 1840, and 1844.[15] The second column of Table V's Panel A reports regression results of the percentage of nonvoting white males on the wealth-based restricted suffrage indicator. Restricted suffrage implies 12% fewer white males vote, controlling for state and year fixed effects. The third column of Panel A reports results from regressing the maximum legal rate on the percentage of nonvoting white males. A 10-percentage point increase in voting concentration translates into a 1.5-percentage point lower rate ceiling. The fourth column of Panel A includes both restricted suffrage and the percentage of nonvoting white males as regressors and the fifth column also includes the interaction between the two. Both restricted suffrage and percentage of nonvoting white males are

---

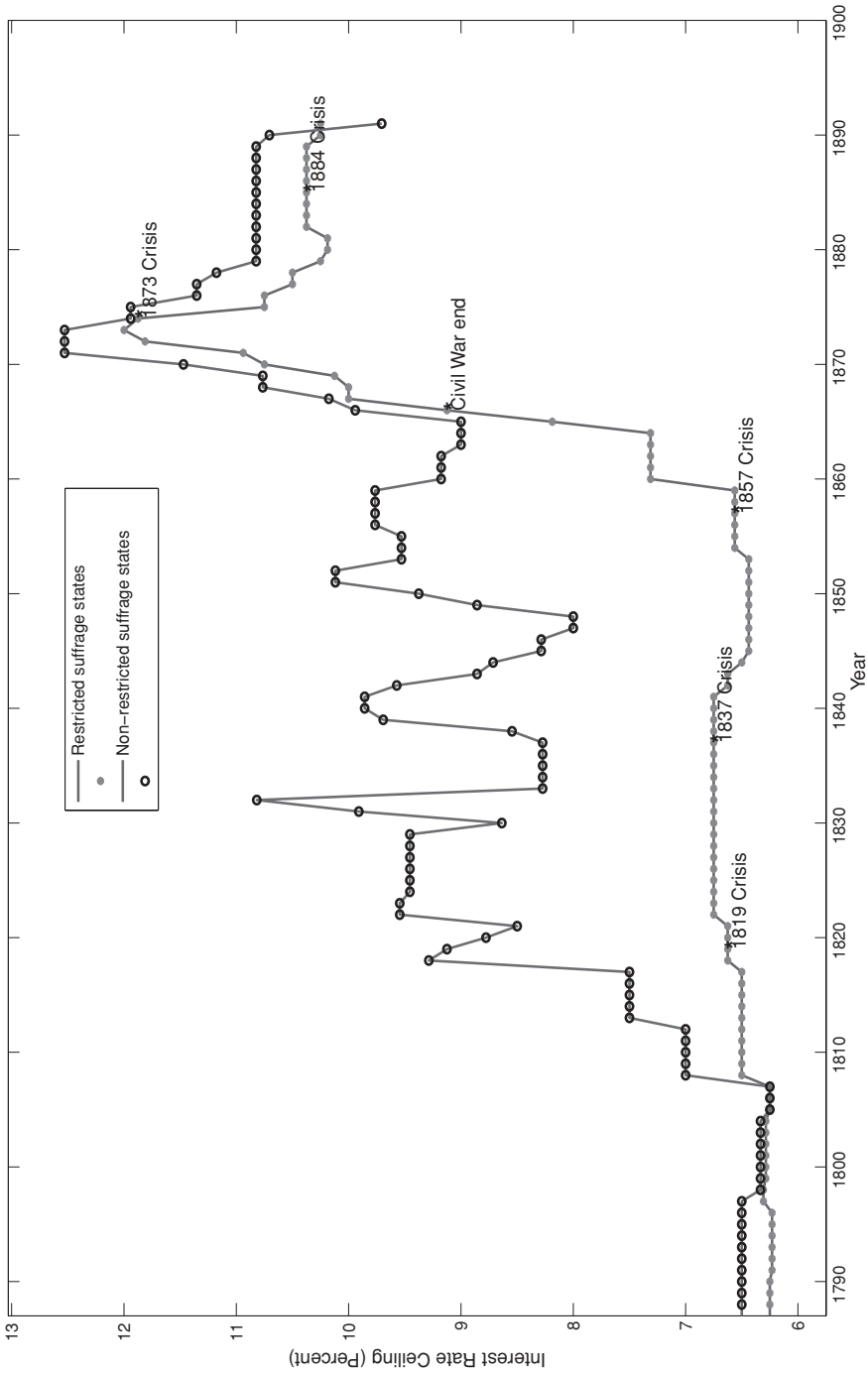[15] The source of this data is Engerman and Sokoloff (2005).

Figure 3. Time-series of interest rate ceiling for wealth-based restricted and nonrestricted suffrage states (1787 to 1891).

associated with lower usury rate ceilings and the interaction between them is even more negative, implying that states in which restricted suffrage laws result in the most concentrated voting power also have the most restrictive usury laws. These findings support Prediction 3, which states that usury laws are more strict when incumbents have more concentrated political power.

The last column of Table V, Panel A tests the interaction between Prediction 2, which posits that cost of regulation matters, and Prediction 3, which asserts that political power matters. Specifically, we document a distinct pattern in usury laws around financial crises, when the cost of financial regulation is high: States with incumbent political power liberalize usury laws in the short term to accommodate the financial crisis (Prediction 2), but then revert back to financial restrictions when the crisis abates (Prediction 3). The interaction term between restricted suffrage and crisis years on maximum rates is negligible, indicating that during financial crises, all states (even those with incumbent political power) liberalize their rate ceilings, presumably because incumbents are also hit by the crisis. However, the interaction term between restricted suffrage and a dummy variable for *5 years after* the crisis shows that these same states with incumbent political power reduce their rate ceilings after the crisis is over. (The level effects of both variables are captured by the inclusion of state and year fixed effects.) Hence, all states relax financial regulation during a crisis, but only those states with concentrated voting power among the wealthy reimpose the restrictions after the crisis subsides. This evidence supports the private interest view of regulation and is difficult to reconcile under alternative theories. For example, the public interest hypothesis, which argues that financial restrictions benefit the public and protect the poor, would have to somehow argue that these protections are not needed during a financial crisis, a time when lending protection would seem most valuable, but are otherwise needed when the crisis has passed, and only when voting power is concentrated among the wealthy.

B.2. Restricted Incorporation Laws

According to Prediction 4, usury laws are likely to coexist with other policies designed to exclude other groups when incumbents have political power, as financial regulation is not the only barrier to entry. For instance, incumbents with political power can restrict entry directly using licensing or charter restrictions. During the 19th century, states limited competition from new entrants by imposing restrictions on the formation of nonfinancial corporations.[16]

---

[16] According to Wallis (2005, pp. 213–214): "Initially, all corporations were 'special': created by an act of the legislature that specified the rights and responsibilities of each corporation individually . . . The numerous examples of truly special privileges created by state legislatures gave substance to concerns about corruption." One notable example of such corruption is the case of the Camden and Amboy railroad, which obtained a monopoly of the Northeast to Southwest rail route in New Jersey, connecting New York and Philadelphia, in return for giving a substantial block of stock to the state.

In contrast, general incorporation laws allow the formation of nonfinancial corporations without a special charter from the legislature. We exploit variation in the adoption of general incorporation laws across states and over time (from Evans (1948)), which allows for easier and faster entry of new firms.

Panel B of Table V tests whether wealth-based suffrage restrictions, a proxy for incumbent political power, are correlated with restricted incorporation laws. The first column reports the specification with state fixed effects and the second column reports results from a first difference regression of changes on changes (both regressions include age as a control). Both specifications show that wealth-based suffrage laws are associated with restricted incorporation laws, implying tighter restrictions on firm entry. The presence of wealth-based voting restrictions increases the probability of adopting restricted incorporation laws by 22%. This evidence supports the notion in Prediction 4 that when incumbents have more concentrated political power, they tend to adopt other policies designed to exclude new entrants in addition to tighter usury laws.[17]

Above, we show that during a financial crisis, even states with concentrated voting power tend to liberalize their usury laws. Do these states also relax incorporation and voting restrictions during financial crises? According to the private interest view, these policies should *not* be altered during financial crises because incumbents are not directly affected by them. The only reason usury laws are relaxed during a financial crisis is because they start to bind on incumbents. However, incumbents still wish to maintain their political power so restricted suffrage laws should remain in place irrespective of a financial crisis. Likewise, incumbents still want to deter entry of new firms through other regulation, so restricted incorporation laws should also remain in a financial crisis. Consistent with this conjecture, the last four columns of Table V's Panel B show that incorporation and restricted suffrage laws are not altered during a financial crisis. The fact that financial policies change but other regulation is maintained during a financial crisis is consistent with the private interest view and is difficult to reconcile with alternative theories for regulation.

The results in Table V indicate that usury laws are correlated with other forms of political and economic restrictions that are designed to *exclude* others from the right to vote or the right to start up a firm. While these policies are likely determined endogenously, the evidence suggests that usury laws are also designed to exclude groups from credit markets, contrasting sharply with the public interest view of regulation, which posits that the regulation is designed to assist, protect, and *include* weaker groups.[18]

---

[17] Probit regressions yield the same results as the linear probability models we use. We report results from the linear probability model because this model also allows us to cluster standard errors by state and include fixed effects, which are not estimated reliably in a probit model.

[18] The relation between direct entry restrictions and usury laws we document is similar to the evidence in Djankov et al. (2002) and is consistent with Rajan and Zingales's (2003, 2004) hypothesis that financial regulation and entry restrictions are used complementarily.

C. Who Are the Powerful Incumbents?

Rajan and Zingales (2003) argue that incumbent private interests may correspond to industrialists or financiers. We try to identify whose private interests are motivating regulation by separating the private interests of the financial and nonfinancial sectors, the latter of which includes primarily the industrial and agricultural sectors. While less restrictive usury laws provide financiers with an opportunity to finance more projects, they also facilitate entry of new financial institutions. We examine combinations of policies that should favor one incumbent sector over another in order to identify which incumbent group likely drives regulation.

We begin by looking at measures where incumbent power is likely to be greatest, that is, where restricted suffrage and restricted incorporation laws exist. In the first two columns of Table VI, we regress the maximum legal interest rate on a dummy variable that equals one if a state in a given year has *both* wealth-based suffrage restrictions and restricted incorporation laws. The other extreme set of policies we define as "egalitarian," which correspond to years in which a state has general incorporation laws and no suffrage restrictions. As the first column of Table VI shows, states where incumbents have more power adopt more strict usury laws; rate ceilings are 145 basis points lower in these states. This evidence suggests that financial and economic barriers to entry are complements, consistent with the incumbent private interest view. The most egalitarian states have significantly more lax rate ceilings that are 36 basis points higher than the average maximum rate and therefore 181 basis points higher than rate ceilings in states with the most incumbent power.

To distinguish the private interests of the nonfinancial and financial sectors, we examine other forms of financial regulation that should appeal to each group differently and we analyze their relation to usury laws. Free banking laws are a natural candidate for this task since incumbent banks want to restrict new bank entry and competition, while incumbent firms or farms are either indifferent or may want to foster bank competition to lower their own cost of capital. We use free banking laws as an inverse proxy for the political power of the financial sector.[19]

The third column of Table VI reports regression results of the maximum legal interest rate on a dummy variable that equals one if a state has free banking laws in a given year. Free banking was only used in antebellum America, so the sample ends in 1861. The results indicate that free banking laws are not associated with maximum legal rates, suggesting that it is not incumbent financiers that are driving financial regulation.

To better distinguish the private interests of financiers from other incumbents, we also consider the combination of policies most appealing to the financial and nonfinancial sectors along three dimensions: suffrage, general

---

[19] Similar to general incorporation laws that are applied to nonfinancial corporations, free banking laws enable free entry in the banking industry in antebellum America. For example, according to Bodenhorn (2007), in 1821 New York's constitution required a two-thirds majority for the passage of a charter, which further protected the existing banks' favored positions.

<div align="center">

Table VI

Nonfinancial vs. Financial Incumbent Political Power

</div>

The table reports results from regressing the maximum legal interest rate for a state in a given year on proxies for the political power of the nonfinancial and financial sectors, as well as a proxy for egalitarian law or the most laisse faire regulation. Nonfinancial incumbent political power is greatest when the state adopts restricted suffrage laws and restricts general incorporation in order to restrict entry. Egalitarian law implies no restrictions on suffrage laws or general incorporation. Two indicator variables are created to capture these preferences. Banking incumbent power is defined using free banking laws that opened access to outside banks and were only relevant until 1861. An indicator variable is set equal to one for states with free banking laws that allow outside banks to compete in the state in a given year. The last two columns report results defining nonfinancial and financial power and egalitarian law using all three forms of regulation. Nonfinancial power equals one if there are restricted suffrage laws, restricted general incorporation laws, and no restrictions on free banking laws in a given state and year. Financial sector power equals one if there are restricted suffrage laws, no restrictions on general incorporation laws, and restricted free banking laws. Egalitarian law equals one if there are no restrictions on suffrage, general incorporation, or free banking laws. Regressions are estimated with year and/or state-level fixed effects and include state age (state-specific time trend) as a regressor (coefficients not reported). Standard errors used to compute t-statistics (reported in parentheses) are calculated assuming group-wise clustering at the state level. Adjusted-R^2s are reported for the full specification that includes the fixed effects as well as the amount of remaining variation explained by the regressors after the fixed effects are accounted for ($\bar{R}^2$ after F.E.).

Dependent Variable = Sample Period	Max. Rate 1787–1891	Max. Rate 1787–1891	Max. Rate 1787–1861	Max. Rate 1787–1861	Max. Rate 1787–1861
Incumbent power					
Restricted suffrage and incorporation	−1.453 (−2.96)	−1.488 (−2.41)			
Egalitarian law					
No restrictions	0.361 (2.04)	0.0405 (2.80)			
Free banking laws			−0.221 (−0.48)		
Nonfinancial incumbent power					
Restricted suffrage and incorporation, free banking				−1.359 (−2.92)	−1.194 (−3.18)
Financial incumbent power					
Restricted suffrage and banking, free incorporation				0.349 (0.90)	0.473 (1.31)
Egalitarian law					
No restrictions				2.533 (1.49)	2.789 (1.62)
Fixed effects:					
Year?	Yes	No	Yes	Yes	No
State?	No	Yes	Yes	No	Yes
State time trend:	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.23	0.48	0.67	0.17	0.74
$\bar{R}^2$ after F.E.	0.02	0.05	0.00	0.09	0.11
Cluster	State	State	State	State	State
N	2,825	2,825	1,802	1,802	1,802

incorporation, and free banking. Nonfinancial incumbent private interests are most aligned with voting restrictions, incorporation restrictions, and free banking laws that promote lender competition. To capture these preferences we designate nonfinancial power with an indicator variable equal to one if a state-year has this combination of policies. Financier incumbent private interests are most aligned with voting restrictions, general incorporation laws that create more potential borrowers, and restrictions on free banking to control bank entry. We designate bank incumbent power with an indicator variable equal to one for state-years with this combination of policies. We also create a dummy variable to capture the most egalitarian set of policies, which consists of no restrictions on suffrage, incorporation, or banking.

The fourth and fifth columns of Table VI report that usury rates are 1.2 to 1.4 percentage points lower when the set of regulation policies is most consistent with nonfinancial incumbent interests. The set of policies most consistent with financial incumbent interests has no relation to rate ceilings, suggesting that incumbent financiers are not driving financial regulation. Finally, the most egalitarian set of policies is associated with maximum legal rates 2.5 to 2.8 percentage points higher. This evidence suggests that financial regulation is the outcome of a broader set of policies designed to protect private nonfinancial incumbent interests.

D. Penalties for Violating Usury

We confirm that the same determinants of rate ceilings highlighted in Tables IV to VI also capture variation in the penalty index for violating the maximum rate, with, of course, the opposite sign. These results, which are contained in the Internet Appendix, are useful in two respects. First, while one could argue that rate ceilings are determined in part by market interest rates and risk, penalties should be unaffected by both. Second, penalties moving in conjunction with rate changes reflect a desire to enforce usury laws. If usury laws are cosmetic or innocuous, why bother to change the penalties?

E. Public Interest

To directly test the public interest view of financial regulation we examine whether variables designed to proxy for public interests influence usury laws.

E.1. Personal Bankruptcy Stay and Debt Moratoria Laws

The first set of proxies for public interests are a set of policies designed to protect poor and weak debtors. We employ bankruptcy stay laws or debt moratoria passed by state legislatures and examine their relation with usury laws. Bolton and Rosenthal (2002) and Rothbard (1962) show that these laws resulted from public demand that relief be provided to the poor, especially during financial crises. We use a dummy variable for whether a state has bankruptcy stay laws forgiving personal debt (Coleman (1974)) and include

Table VII

Proxies for Public Interests

Panel A reports results for proxies of public interest from a set of policies designed to protect poor and weak debtors: bankruptcy stay laws or debt moratoria passed by state legislatures. We use a dummy variable for whether a state had bankruptcy stay laws that forgave personal debt, obtained from personal bankruptcy laws from Coleman (1974), and use the percentage of representatives in each state voting in favor of debt relief in the House of Representatives in 1822 for the relief of debtors who bought public land from the federal government. Also used are the extent of newspaper circulation and the coverage of political and corruption stories, obtained from Gentzkow et al. (2006) and Glaeser and Goldin (2006). The extent of political and corruption coverage of newspapers is approximated by the count of the word "politic" deflated by the count of the word "January," which controls for the newspaper's size, and corruption and fraud coverage is estimated as the count of the word "corrupt" or "fraud" deflated by the word count "January." Regressions are estimated with year and/or state-level fixed effects and include state age (state specific time trend) as a regressor (coefficients not reported). Standard errors used to compute t-statistics (reported in parentheses) are calculated assuming group-wise clustering at the state level. Adjusted-R^2s are reported for the full specification that includes the fixed effects as well as the amount of remaining variation explained by the regressors after the fixed effects are accounted for ($\bar{R}^2$ after F.E.).

	Panel A: Protection of the Poor and News Coverage					
Dependent Variable =	Maximum Legal Interest Rate					
Sample Period	1820–1840	1820–1840	1788–1891	1788–1891	1788–1891	1788–1891
Bankruptcy stay	0.966					
	(0.14)					
Debt moratoria vote		0.631				
		(1.08)				
News copies per capita			24.307			119.728
			(2.76)			(5.18)
Political coverage				0.036		0.691
				(0.17)		(1.16)
Corruption coverage					1.097	4.069
					(1.16)	(3.85)
Fixed effects:						
Year?	Yes	Yes	No	No	No	No
State?	No	No	Yes	Yes	Yes	Yes
State time trend:	Yes	Yes	Yes	Yes	Yes	Yes
$\bar{R}^2$	0.49	0.29	0.50	0.49	0.49	0.52
$\bar{R}^2$ after F.E.	0.48	0.29	0.09	0.09	0.09	0.10
Cluster	State	State	State	State	State	State
N	315	461	2,811	2,337	2,337	2,337

year fixed effects in the regression, with standard errors used to compute t-statistics (in parentheses) clustered at the state level. As the first column of Table VII shows, there is no significant relation between personal bankruptcy stay laws and usury laws. We also employ a variable to proxy for protection of weak debtors that is based on the vote in the House of Representatives in 1822 for the relief of debtors who bought public land from the federal government. Specifically, we use the percentage of representatives in each state voting in

favor of debt relief as a proxy for the state's interest in protecting the poor. As the second column of Table VII shows, there is also no relation between this measure and usury laws. These two results are inconsistent with Prediction 6 of the public interest theory, which posits that usury laws coincide with other policies designed to protect the poor.

E.2. *Newspaper Circulation and Corruption Coverage*

The second set of proxies we employ for public interests are the extent of newspaper circulation and the coverage of political and corruption stories, obtained from Gentzkow, Glaeser, and Goldin (2006) and Glaeser and Goldin (2006), respectively. We use the number of news copies per capita as a proxy for heightened public interests. Greater circulation of mass media likely makes it more difficult for private interests to push their own policies forward and may provide a mechanism to coalesce public interests. As the third column of Table VII reports, there is a strong positive relation between news copy circulation per capita and maximum legal rates, indicating that usury laws are more lax when public opinion has a more widespread outlet. This evidence, which controls for state fixed effects, suggests that if newspaper circulation is a good proxy for the strength of public interests, then those public interests desire lax rather than tight usury laws. Hence, restrictions on financial activity do not seem consistent with public interests.

The fourth and fifth columns of Table VII employ the extent of newspapers' coverage of politics and corruption. We employ the measures used by Glaeser and Goldin (2006), which for political coverage is the count of the word "politic" deflated by the count of the word "January" (which controls for the newspaper's size), and corruption and fraud coverage is the count of the word "corrupt" or "fraud" deflated by the count of the word "January." The former variable proxies for the extent of coverage of political events and politics in general. The latter variable proxies for the number of reported corruption and fraud events. We interpret both of these variables as proxies for public interests that make it more difficult for private interests to pass their policies. When political coverage in newspapers is high, public interest in policies is likely heightened. In addition, when public reporting of corruption is high, then either recent corruption activity has been high or monitoring of corruption has improved, both of which are likely to amplify public interests and deter private interests. As Table VII shows, neither variable is significantly related to usury laws.

Finally, the last column of Table VII reports results from a multiple regression that includes all three media proxies: news copies, political coverage, and corruption coverage. All three variables are positively associated with maximum rates, meaning that when there is more media coverage, particularly about politics and corruption, usury laws are relaxed. If these variables proxy for the prominence of public interests, then these results are inconsistent with Prediction 7, which posits that usury laws tighten when public interests are more prominent.

Table VIII
Alternative Explanations Using Cross-sectional Evidence from 1850

Results are reported from regressing a state's maximum legal rate in 1850 on alternative explanations that might influence usury laws: two measures of bank market power (a bank Herfindahl concentration index and average bank wealth), number of city officers and legal professionals per employed persons, number of pupils and publishers per capita, number of religious seating accommodations per capita, and percentage of Roman Catholic accommodations. Regressions include the percentage of gross state product from the banking and manufacturing sectors, a dummy variable for civil law states, the age of the state, capital per capita, and region fixed effects (coefficients not reported for brevity). Adjusted-R^2s are reported.

Dependent Variable =	Maximum Legal Interest Rate					
Bank concentration	−0.055					
	(−1.34)					
Banking wealth		−0.192				
		(−1.25)				
%City officers, lawyers			−2.496			
			(−1.34)			
%Pupils, publishers				−22.688		
				(−6.75)		
Religious accommodations per capita					−0.107	−0.153
					(−5.77)	(−6.95)
%Roman Catholic accommodations						0.091
						(5.86)
$\bar{R}^2$	0.41	0.36	0.52	0.71	0.65	0.71
N	33	33	33	33	33	33

We also provide additional evidence on the public interest view by using a series of agricultural shocks as proxies for public interests and the risk sharing role of usury laws suggested by Glaeser and Scheinkman (1998). The results, which are contained in the Internet Appendix, provide no support for the public interest view.

F. Alternative Explanations Using Cross-sectional Evidence from 1850

Table VIII examines the determinants of usury laws on the cross-section of states in 1850 that employs a host of additional state-level variables only available from the 1850 Census. The 1850s were also a time of unparalleled growth and changes in financial regulation in the United States, making it an interesting period to study.

F.1. Proxies for Bank Market Power

The first two columns of Table VIII examine the relation between usury laws and proxies for bank market power: a bank Herfindahl concentration index based on bank capital and the amount of bank capital per capita in the state ("bank wealth"). We find that maximum legal rates are negatively, but insignificantly, related to banking concentration and wealth. This null result

is inconsistent with two possible explanations. First, if bank market power proxies for financier incumbent power, then these results suggest that financier incumbent private interests do not determine financial regulation. Second, recall that the intent of usury laws according to the public interest view is to protect citizens against the market power of banks. Prediction 5 therefore conjectures a relation between bank market power and tight usury restrictions under the public interest theory that is not supported by the data.

F.2. Proxies for Bureaucratic Capital

The third column of Table VIII reports results from regressing the maximum legal interest rate on the percentage of people employed as city officers or lawyers per employed persons. The idea is to test whether more developed bureaucracies, as proxied by the presence of city officers and lawyers, may be better able to pass and enforce usury laws, whereas states without bureaucratic capital or experience may simply not be able to implement such regulation. We find no significant relation between this proxy and usury rates, though the sign is in the predicted direction.

F.3. Proxies for Borrower Sophistication

The public interest theory is predicated on protecting borrowers from the market power of lenders. In particular, less sophisticated borrowers require the most protection from bank market power and require more social insurance. Tighter usury laws are therefore more likely to exist where less sophisticated borrowers are present, according to the public interest view. As a proxy for the financial sophistication of the residents in a state, we employ the number of pupils or publishers per employed persons in the state, controlling for per capita capital, a proxy for household wealth. The relation between maximum legal rates and percentage of pupils and publishers is negative, suggesting that states with more sophisticated residents have *lower* legal rates. This result is opposite to that predicted by the public interest hypothesis. However, if the percentage of pupils and publishers proxies for the incumbent elite, who have powerful private interests, then the negative relation with usury rates may be consistent with private interests.

F.4. Religious Motives

Finally, we consider the role that religion plays in determining usury laws. Previous research documents a role for religion in the determination of usury laws in Europe centuries prior (Ekelund, Hebert, and Tollison (1989, 1947) and Nelson (1969)).[20] Recent studies also show that religion and financial or

[20] Weber (1930) argues that usury laws had a parallel in almost every religious ethic in the world. According to Nelson (1969), Calvin was the key figure in abolishing the restrictions on lending. Furthermore, Nelson (1969) argues that the ancient prohibition against lending at interest was

economic development are related (Stulz and Williamson (2003), Guiso, Sapienza, and Zingales (2003), and Barro and McCleary (2003)).

While some writers claim that prohibition of interest is the decisive criterion of the difference between the Catholic and Protestant ethic, Ekelund et al. (1989) argue that in Europe usury laws were affected by the influence of the Roman Catholic church due to the church's rent-seeking behavior. Thus, the apparent influence of religion may really be masking private economic interests. It seems unlikely, however, that the rent-seeking behavior of the Catholic church was an important factor in determining usury laws in the United States during the 19th century: Given the Protestant origins of the United States and the importance of religious freedom during the 19th century, religion is less likely to play a prominent role in the determination of U.S. usury laws.

More broadly, we investigate the role of religion as a proxy for conservative attitudes toward lending. In the last two rows of Table VIII, we regress the maximum legal rate on the number of church accommodations (seating capacity summed across all churches, temples, synagogues, and other religious dwellings) per capita and on religious accommodations per capita attributed to the Roman Catholic Church. More religious states adopt more strict usury laws. This result may be consistent with either the public or private interest view of financial regulation. However, in sharp contrast to evidence from Europe, a higher presence of Catholicism is related to lax rather than tight usury laws. In fact, 1850 followed a period of a wave of Irish and German immigration to the United States that heightened the tension between Catholic and Protestant views. Consequently, this period should show a strong relation between usury strictness and Catholic influence if religion is an important driving force. The opposite results for Catholicism's influence on financial regulation in Europe versus the United States suggests that religious beliefs per se are not driving usury laws.

V. Conclusion

We examine the political economy of one of the oldest forms of financial regulation, usury laws, and link it to financial development in the United States in the 19th century. We find that usury laws bind and have an impact on financial and economic activity, particularly among smaller borrowers. The tension between private and public interests can explain the heterogeneity in regulation observed across U.S. states and over time during this period. When the cost of regulation is low, private interests impose tight restrictions to extract rents and impede competition, but when the cost of regulation is high for those private interests, the restrictions are lifted. Our evidence suggests that incumbents with political power prefer stringent usury laws because they impede competition

removed abruptly with the Protestant Reformation. While Weber (1930) argues that the more liberal attitude of Calvin to usury did not gain a definite victory, he agrees that usury laws were abolished by the time of Salmasius. The original usury prohibition was against "any interest rate," but modern Judaeo–Christian meaning is "high interest rate." The Muslim world still adheres to the historical definition of "any interest rate."

from potential new entrants who are credit rationed. However, during financial crises when incumbents become credit rationed themselves, usury laws are relaxed. We also find that financial regulation is correlated with other restrictive political and economic policies adopted by the state designed to exclude other groups and protect incumbent interests.

The collection of evidence supports the private interest view of financial regulation and highlights the political economy of financial development. Drawing parallels to today's financial environment, these findings may provide guidance for financial policy in the current global financial economy and in emerging markets particularly. History indicates that financial regulation is often motivated by special interests that can generate long-term local and global consequences. Our evidence is consistent with private interests using regulation to extract rents from others, where financial crises are often used as motivation and justification to push through such self-serving regulation.

REFERENCES

Acemoglu, Daron, Simon Johnson, and James A. Robinson, 2001, The colonial origins of comparative development: An empirical investigation, *American Economic Review* 9, 1369–1401.

Barro, Robert J., and Rachel M. McCleary, 2003, Religion and economic growth across countries, *American Sociological Review* 68, 760–781.

Becker, Gary S., 1983, A theory of competition among pressure groups for political influence, *Quarterly Journal of Economics* 98, 371–400.

Bekaert, Geert, Campbell R. Harvey, and Robin Lumsdaine, 2002, Dating the integration of world capital markets, *Journal of Financial Economics* 65, 203–249.

Bekaert, Geert, Campbell R. Harvey, and Christian Lundblad, 2005, Does financial liberalization spur growth? *Journal of Financial Economics* 77, 3–56.

Benmelech, Efraim, and Michael Bordo, 2007, The financial crisis of 1873 and 19th century American corporate governance," Working paper, Harvard University.

Berger, Allen N., Nathan H. Miller, Mitchell Petersen, Raghuram G. Rajan, and Jeremy C. Stein, 2005, Does function follow organizational form? Evidence from the lending practices of large and small banks, *Journal of Financial Economics* 76, 237–269.

Bodenhorn, Howard, 2003, *State Banking in Early America* (Oxford University Press, New York, NY).

Bodenhorn, Howard, 2007, Usury ceilings, relationships and bank lending behavior: Evidence from nineteenth century, *Explorations in Economic History* 44, 179–202.

Bolton, Patrick, and Howard Rosenthal, 2002, Political intervention in debt contracts, *Journal of Political Economy* 110, 1103–1134.

Bonelli, Vincent F., 2003, *The Response of Public and Private Philanthropy to the Panic of 1819 in New York City* (Dorrance Publishing Company, Pittsburgh, PA).

Braun Matiás, and Claudio Raddatz, 2008, Trade liberalization and the politics of financial development, *Journal of Finance* 63, 1469–1508.

Burgess, Robin, and Rohini Pande, 2005, Can rural banks reduce poverty? Evidence from the Indian social banking experiment, *American Economic Review* 95, 780–795.

Coleman, Peter J., 1974, Debtors and creditors in America, *The State Historical Society of Wisconsin*.

Djankov, Simeon, Rafael La Porta, Florencio López-de-Silanes, and Andrei Shleifer, 2002, The regulation of entry, *Quarterly Journal of Economics* 117, 1–37.

Ekelund, Robert, Herbert Robert F., and Robert D. Tollison, 1989, An economic model of the medieval church: Usury as a form of rent-seeking, *Journal of Law, Economics, and Organizations* 5, 307–331.

Engerman, Stanley L., Stephen Haber, and Kenneth L. Sokoloff, 2000, Inequality, institutions and differential paths of growth among new world economies, in Claude Menard, ed.: *Institutions, Contracts, and Organizations* (Edward Elgar, Cheltenham).

Engerman, Stanley L., and Kenneth L. Sokoloff, 1997, Factor endowments, institutions and differential paths of growth among new world economies: A view from economic historians of the United States, in Stephan Haber, ed.: *How Latin America Fell Behind* (Stanford University Press Stanford, CA).

Engerman, Stanley L., and Kenneth L. Sokoloff, 2005, The evolution of suffrage institutions in the new world, *Journal of Economic History* 65, 891–921.

Evans, George H. Jr., 1948, *Business incorporations in the United States 1800–1943* (National Bureau of Economic Research, New York, NY).

Feijen, Eric, and Enrico Perotti, 2006, Deliberate financial fragility, Working paper, University of Amsterdam.

Friedman, Lawrence M., 1963, The usury laws of Wisconsin: A study in legal and social history, *Wisconsin Law Review* 1963, 515–565.

Garmaise, Mark, and Tobias J. Moskowitz, 2006, Bank mergers and crime: The real and social effects of credit market competition, *Journal of Finance* 61, 495–539.

Gentzkow, Matthew, Edward Glaeser, and Claudia Goldin, 2006, The rise of the fourth estate: How newspapers became informative and why it mattered, in Edward Glaeser and Claudia Goldin eds.: *Corruption and Reform: Lessons from America's Economic History* (The University of Chicago Press, Chicago, IL).

Glaeser, Edward L., and Claudia Goldin, 2006, Corruption and reform: An introduction, in Edward Glaeser and Claudia Goldin eds.: *Corruption and reform: Lessons from America's Economic History* (The University of Chicago Press, Chicago, IL).

Glaeser, Edward L., and José Scheinkman, 1998, Neither a borrower nor a lender be: An economic analysis of interest restrictions and usury laws, *Journal of Law and Economics* 41, 1–35.

Grossman, Richard S., 2007, Fear and greed: The evolution of double liability in American banking, *Explorations in Economic History* 44, 59–80.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales, 2003, People's opium? Religion and economic attitudes, *Journal of Monetary Economics* 50, 225–282.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales, 2004, Does local financial development matter? *Quarterly Journal of Economics* 119, 929–969.

Holmes, George K., 1892, Usury in law, in practice and in psychology, *Political Science Quarterly* 7, 431–467.

Homer, Sidney, 1963, *A History of Interest Rates* (Rutgers University Press, New Brunswick, NJ).

Jayaratne, Jith, and Philip E. Strahan, 1996, The finance-growth nexus: Evidence from bank branch deregulation, *Quarterly Journal of Economics* 110, 639–670.

Kroszner, Randall S., and Philip E. Strahan, 1999, What drives deregulation? Economics and politics of the relaxation of bank branching restrictions, *Quarterly Journal of Economics* 114, 1437–1467.

La Porta, Rafael, López-de-Silanes, Florencio, Andrei Shleifer, and Robert W. Vishny, 1997, Legal determinants of external finance, *Journal of Finance* 52, 1131–1150.

Levine, Ross, and Sara Zervos, 1998, Stock markets, banks, and economic growth, *American Economic Review* 88, 537–558.

Murray, J. B. C., 1866, *The History of Usury from the Earliest Period to the Present Time* (J. B. Lippincott & Co., Philadelphia, PA).

Nelson, Benjamin, 1969, *The Idea of Usury: From Tribal Brotherhood to Universal Otherhood* (The University of Chicago Press, Chicago, IL).

North, Douglas C., 1990, *Institutions, Institutional Change and Economic Performance* (Cambridge University Press, Cambridge, UK).

Peltzman, Sam, 1965, Entry in commercial banking, *Journal of Law and Economics* 8, 11–50.

Peltzman, Sam, 1976, Toward a more general theory of regulation, *Journal of Law and Economics* 19, 109–148.

Perotti, Enrico, and Paolo Volpin, 2006, Investor protection and entry, Working paper, University of Amsterdam.

Petersen, Mitchell, and Raghuram Rajan, 2002, Does distance still matter: The information revolution in small business lending, *Journal of Finance* 57, 2533–2570.

Rajan, Raghuram, and Luigi Zingales, 1998, Financial development and growth, *American Economic Review* 88, 559–586.

Rajan, Raghuram, and Luigi Zingales, 2003, The great reversals: The politics of financial developments in the twentieth century, *Journal of Financial Economics* 69, 5–50.

Rajan, Raghuram, and Luigi Zingales, 2004, *Saving Capitalism from the Capitalists* (Princeton University Press, Princeton and Oxford).

Rockoff, Hugh, 2003, Prodigals and projectors: An economic history of usury laws in the United States from colonial times to 1900, NBER Working paper 9742.

Rothbard, Murray, N., 1962, *The Panic of 1819: Reactions and Policies* (Columbia University Press, New York and London).

Sokoloff, Kenneth L., and Stanley L. Engerman, 2000, Institutions, factor endowment, and paths of development in the new world, *Journal Economic Perspectives* 14, 217–232.

Stigler, George J., 1971, The theory of economic regulation, *Bell Journal of Economics and Management Science* 2, 3–21.

Stulz, René M., and Rohan Williamson, 2003, Culture, openness, and finance, *Journal of Financial Economics* 70, 313–349.

Temin, Peter, and Hans-Joachim Voth, 2005, Credit rationing and crowding out during the industrial revolution: Evidence from Hoare's Bank, 1702–1862, *Explorations in Economic History* 42, 325–348.

Temin, Peter, and Hans-Joachim Voth, 2008a, Private borrowing during the financial revolution: Hoare's Bank and its customers, 1702–24, *Economic History Review* 61, 541–564.

Temin, Peter, and Hans-Joachim Voth, 2008b, Interest rate restrictions in a natural experiment: Loan allocation and the change in the usury laws in 1714, *Economic Journal* 118, 743–758.

Wallis, John J., 2005, Constitutions, corporations, and corruption: American states and constitutional change, 1842 to 1852, *The Journal of Economic History* 65, 211–256.

Weber, Max, 1930, *The Protestant Ethic and the Spirit of Capitalism* (George Allen & Unwin Ltd, London, UK).

White, Eugene, 2001, California banking in the nineteenth century: The art and method of the bank of A. Levy, *Business History Review* 75, 297–324.

Wright, Chester W., 1949, *Economic History of the United States* (McGraw-Hill Book Company Inc., New York, Toronto, London).

Wright, Robert E., 2002, *Hamilton Unbound: Finance and the Creation of American Republic* (Greenwood Press, Westport, CT).