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# THE POLITICAL ECONOMY OF FINANCIAL REGULATION: EVIDENCE FROM U.S. STATE USURY LAWS IN THE 19TH CENTURY

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## ABSTRACT

We investigate the causes and consequences of financial regulation by studying the political economy of U.S. state usury laws in the 19th century. We find evidence that usury laws were binding and enforced and that lending activity was affected by rate ceilings. Exploiting the heterogeneity across states and time in regulation, enforcement, and market conditions, we find that regulation tightens when it is less costly and when it coexists with other economic and political restrictions that exclude certain groups. Furthermore, the same determinants of financial regulation that favor one group (and restrict others) are associated with higher (lower) future economic growth rates. The evidence suggests regulation is the outcome of private interests using the coercive power of the state to extract rents from other groups, highlighting the endogeneity of financial development and growth.

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# Introduction

We study the political economy and consequences of financial regulation through the lens of usury laws in the U.S. during the 19th century. Usury laws are, arguably, the oldest form of financial regulation. Mentioned in the Bible and the Koran and dating back to ancient Rome they have long been the subject of political and religious debate. Yet, little is known about the economics behind this form of financial regulation. Usury laws regulate the maximum lending rate that can be charged and the penalties imposed for contravention. The emerging growth in state economies during the 19th century provides a wealth of cross-sectional and time-series heterogeneity in regulation and economic activity to analyze the relationship between financial regulation and development. The political economy of U.S. state usury laws in the 19th century may be a microcosm for cross-country financial regulation today.

More broadly, this study hopes to shed light on the economics of regulation in general. The public-interest theory of regulation hypothesizes that government intervention corrects market inefficiencies to maximize social welfare (e.g., Feldstein (1972a 1972b), Schmalensee (1979), and Joskow and Noll (1981)). However, as Stigler (1971), Peltzman (1976, 1989), and Becker (1983) argue, regulation may sometimes be the outcome of private interests who use the coercive power of the state to extract rents at the expense of other groups. Hence, regulation may reduce social welfare if it increases the benefits to one particular group. We investigate the determinants and consequences of usury laws through the guidance of the public and private interest theories.

This investigation entails answering who and what determines regulation and who benefits and loses from financial regulation? Do usury laws serve as a social insurance mechanism that transfers wealth across states of the world (as argued by Glaeser and Scheinkman (1998)) in the interests of the public? Or, do private interests with political power impose usury laws to benefit themselves and impede competition? In short, do usury laws protect the poor or financially distressed, or do they reward financially strong incumbents by limiting access to others?

Usury laws provide a policy instrument for the mechanism of regulation to be identified. Unlike other measures of financial development (e.g., market capitalization or credit divided by GDP) maximum legal rates and penalties are easy to quantify and represent direct constraints on the cost of capital.

As a first step in this analysis we ask whether usury laws had financial impact. We find that

usury laws are binding, for at least some borrowers in some states at certain times. We show that states increase the penalty for usury when the maximum rate becomes more binding. We also find usury laws significantly affect lending activity in the state. Bonds, which were not subject to usury laws, show an increase in activity when rate ceilings decline, suggesting substitution of financial instruments, though bond markets at this time offered financial access almost exclusively to state governments and large firms.

We then investigate the causes and consequences of usury law changes. The tension between private and public interests provides an explanation for the variation in usury laws observed across states and time. First, states impose tighter usury laws (lower maximum rates and stiffer penalties) when it is less costly to do so. When current market interest rates rise close to or above the maximum legal rate or during financial crises, states relax restrictions by raising the rate ceiling. When market rates fall or the crisis abates, ceilings are reimposed or tightened. Moreover, states hit hardest by financial crises are even more likely to alter their usury laws. Usury laws also respond to neighboring state competition. When a bordering state relaxes its usury laws, states relax their own usury laws, otherwise we see capital flow from that state to its neighbors. These results suggest that states vary financial regulation according to how costly it is, implying that financial regulation has a real or perceived impact on economic development.

We also find evidence that usury laws were used by incumbents with political power to control entry and hamper competition as well as lower 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, credit-worthiness, and ownership of assets that can be used as collateral, they are relatively immune to these restrictions and hence, use this form of financial regulation to prevent further competition.

As a proxy for incumbent political power in a state, we examine state suffrage laws that restrict who can vote based on wealth. States that impose restrictions only allowing land owners and tax payers to vote keep political power in the hands of wealthy incumbents. We find that such voting restrictions are highly correlated with tight usury laws. In addition, the percentage of white males who voted in the most recent election is negatively correlated with restricted suffrage laws and tighter usury laws. Economic historians argue that suffrage laws are primarily driven by private interests [Engerman and Sokoloff (1997), Engerman and Sokoloff (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 argument, we find that suffrage laws are *not* affected by financial crises. Moreover, *after* a financial crisis, states with stronger voting restrictions are even more likely to reimpose and tighten usury laws.

As further corroboration of private interests, we find a positive relationship between suffrage restrictions and other forms of economic regulation, namely restrictions on general incorporation that permit free entry of firms. This evidence indicates usury laws are adopted in conjunction with other exclusionary policies designed to limit access to other groups. According to the public-interest theory, regulation is supposed to help underserved or disadvantaged groups and is therefore intended to be inclusive. In addition, unlike usury laws, incorporation restrictions are not altered during financial crises. Since incorporation restrictions do not constrain already incorporated firms, this result is consistent with incumbent firm private interests lifting rate ceilings during a financial crisis to loosen their own constraint, but maintaining incorporation restrictions to deter new entry.

We then consider which incumbent group's private interests are best being served by these policies by examining industrial versus financier interests in setting regulation. To distinguish between the private interests of these two groups, we examine another form of financial regulation that should appeal differentially to banks and industrialists. Free banking laws, which allow outside banks to compete directly in the state, are a natural candidate for this task since incumbent banks want to restrict bank entry, while incumbent industrialists are either indifferent or may wish to foster bank competition to lower their own cost of capital. We find that the combination of policies most consistent with industrial incumbent interests best explains usury laws. We find no relation between other measures of bank market or political power and usury laws.

We also show that the same determinants of maximum legal rates capture the penalties for usury. Penalties are lighter during financial crises, respond to competition, and are more strict when suffrage and incorporation laws are restrictive. Hence, enforcement of usury laws, as proxied by penalties, also moves in conjunction with rate ceilings.

To test whether public interests influence usury laws, we examine other state policies designed to protect the poor such as bankruptcy stay and debt moratoria laws. We also examine newspaper circulation and the prevalence of political and corruption coverage as a proxy for when public interests are likely to be heightened. Finally, since the public interest view argues that usury laws help smooth idiosyncratic shocks (e.g., social insurance motive of Glaeser and Scheinkman (1998)), we also examine agricultural shocks that had little to no effect on the industrial sector, whose

private interests we hypothesize are being served by usury laws. We employ shocks to agricultural technology, extreme weather, demand, and international commodity prices and exploit the cross-sectional and time variation in state exposure to these shocks. None of the public interest proxies – laws protecting the poor, news coverage, and agriculture shocks – exhibit any link to usury laws. We also consider alternative explanations for usury, including bank market power, bureaucratic costs, and religious motives, and find no evidence in favor of these alternative explanations.

Finally, we find a strong positive relationship between changes in usury laws and future changes in economic growth. The effect is much weaker for the industrial sector, consistent with industrial incumbents being less affected by lending restrictions. In addition, within the industrial sector, we find that value added growth increases faster than establishment growth, implying that the change in value for pre-existing firms (incumbents) is larger than the creation of new firms. This result is consistent with incumbent private interests setting policies for their own benefit at the expense of potential new entrants. Rather than draw any causal conclusions, we argue that private interests drive both financial policy and growth and provide evidence that state legislatures *argued* these laws affected the flow of capital and future growth.

Our results relate to the literature on the economics of regulation and complement research on the political economy of financial regulation. Peltzman (1965) and Kroszner and Strahan (1999) argue that financial regulation is determined by private interests. 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 Raddarz (2004) 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.

Our findings also complement research on the relation between financial development and economic growth (Jayaratne and Strahan (1996), Rajan and Zingales (1998), Bekaert, Harvey, and Lundblad (2001), and Levine and Zervos (1998)), which argues that financial development fosters growth. If finance is so beneficial, however, then why do some economies remain less financially developed? The tension between private and public interests provides an explanation. The same determinants of financial regulation that seem to favor a particular group and limit access to others, are also associated with lower future economic growth, highlighting the endogenous relation between

financial development and growth.

The rest of the paper is organized as follows. Section I develops the theoretical framework and testable hypotheses on financial regulation. Section II describes state usury laws and their evolution in the U.S. during the 19th century. Section III analyzes whether usury laws matter and are binding. Section IV presents a case study from the panic of 1819 that highlights our main conclusions. Section V examines the determinants of usury laws, focusing on market conditions and the tension between private and public interests. Finally, Section VI examines the relation between usury laws and economic growth and Section VII concludes.

# I. Theoretical Framework and Testable Hypotheses

We layout the hypotheses to be tested on financial regulation from the public and private interest views as they pertain to usury laws.

## A. The Private-Interest Group Hypothesis

The private-interest theory treats 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 may use regulation to capture rents at the expense of other groups by imposing maximum legal rates. Established incumbents, for example, can either finance new projects out of earnings without accessing external credit markets or already have an established reputation in the credit market and pledgeable collateral, and thus are not bound by the maximum legal rate. Incumbents may, therefore, benefit from usury laws if they 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. We proxy for the marginal cost of capital using periods of high market interest rates, financial crises, and when neighboring states compete for outside capital by altering their own usury laws.

Prediction 1. Usury laws tighten (relax) when the cost of capital declines (rises), particularly for

states more sensitive to capital shocks.

This prediction follows from Becker (1983). The loss of rents reduces the pressure for continued regulation of interest rates. The higher cost of usury laws and the shrinkage in incumbents' wealth leads the state to try to restore a politically optimal distribution. When the benefits from credit competition outweigh the private benefits of surplus division, even incumbents will favor usury repeal. During intense periods of high interest rates, competition for capital, and financial crises, it is likely the benefits from increased capital outweigh those from surplus division and usury ceilings are lifted. Conversely, when market interest rates subside and the financial crisis abates, private benefits of surplus division will once again dominate and usury ceilings are reinstated.

Prediction 1 is also consistent with the public-interest theory. Without private interests there is no tension between credit competition and surplus division, hence usury laws will simply follow market rates.

The ability of incumbents to dictate financial regulation in their own private interests depends on their relative political power within the state.

PREDICTION 2. Usury laws are more strict in states where incumbents have more political power.

This general prediction emerges from Stigler (1971), Peltzman (1976), Becker (1983), and Rajan and Zingales (2004).[1] States respond less to economic forces when incumbents exert their political influence to protect their own interests. Incumbents do not need financial development to ensure financial access.

If usury laws are used by incumbents to exclude new entry, then other exclusionary policies are likely simultaneously adopted by the state to protect incumbent interests. Financial restrictions are only one way of hampering competition and more direct restrictions on new entry are likely taken as well to protect incumbent interests.

PREDICTION 3. Usury laws will coexist with other policies designed to exclude new entrants when

[1] 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 barrier to entry and wish to lower their own cost of capital.

incumbents have political power.

### B. The Public-Interest Hypothesis

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

PREDICTION 4. States with more competitive credit markets have more lax usury laws.

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 5. Usury laws will coexist with other policies designed to protect the poor.

During times of intense public scrutiny, the demand for public policy to assist the general population may be greatest. Hence,

PREDICTION 6. Usury laws will tighten when public interests are given more prominence.

Finally, 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 more efficiently. This insurance mechanism helps smooth idiosyncratic shocks.

PREDICTION 7. Usury laws help smooth idiosyncratic shocks.

### C. Impact on Lending and Economic Growth

The premise underlying both the public and private-interest theories implies financial development, proxied by usury laws, impacts financial access which affects economic growth.

PREDICTION 8. States with tighter usury laws will experience lower lending activity and lower rates

of economic growth.

This prediction is a direct application of the Schumpeterian view of the relationship between financial regulation, financial development, and growth. A more developed financial sector is more efficient in reallocating capital to its best use.

PREDICTION 9. The impact on economic growth from usury will be weaker for those sectors less affected by lending restrictions.

This last prediction attempts to highlight the role financial regulation plays in affecting economic growth by exploiting heterogeneity in the effectiveness of usury laws across sectors or firms.

## II. Usury Laws in the United States

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 their usury laws during the 18th century and the remaining 20 states we study adopted their usury laws in the 19th century. Usury laws regulate the maximum legal interest rate that can be charged on a loan and the penalties imposed on lenders for violating this rate. By restricting the maximum legal rate of interest with no relation to risk, usury laws make the financing of some risky, yet profitable, projects illegal. Usury laws apply to the residence 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 where the borrower resides or the loan is made.

The source of the data for both the maximum legal rates and the penalty is Holmes (1892). The penalty for usury typically made a distinction between 'loss' and 'forfeiture'. Lenders that violated the law could have lost the legal interest and/or the principal if the law denied their collection from the borrower. Moreover, in some states lenders were 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.[2]

[2]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. Likewise, 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. When the penalty is the forfeiture of the entire interest the score is 1. None of the states forfeited more than the entire amount of interest although several states set the penalty at triple the illegal interest. An index of the severity of penalties is constructed as the sum of these measures across all dimensions of the usury penalty code.

In 19th century America, there was substantial heterogeneity in usury laws across states and time. Table 1 reports the heterogeneity of usury laws across 33 states and over time. States are sorted in ascending order by their time-series average maximum legal rate and summary statistics for both the maximum legal rates and the total penalty are reported. The mean maximum legal rate for each state over the entire time period for which the state has usury laws on its books is reported in the first column of Table 1. The average legal maximum rate ranged from 5.73% 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.[3] The second and third columns of Table 1 report the minimum and maximum legal rates over time for a state 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 lifted the ceiling on rates and allowed for no rate limit at some point during the sample period, while nearly half (16) of the states never repealed their usury laws. Many states changed their rate limits multiple times and in multiple directions. Virginia, for instance, increased its rate ceiling twice and reduced it on three separate occasions. The number of positive and negative changes for a given state suggests that policy makers believed usury laws to be impactful, otherwise why change them?

The next five columns of Table 1 report the same summary statistics for the penalty for charging usurious rates. There is substantial heterogeneity across states and for a given state over time in the penalties imposed for violating usury. States not only raise and lower the interest rate ceiling, but also alter the penalties for exceeding the ceiling. This evidence indicates variation in enforcement as well. The last row of Table 1 reports that the correlation between the maximum legal rate and total penalty is $-0.36$. States with low rate ceilings adopt stiff penalties to enforce them. If the penalties are innocuous or irrelevant, either because the maximum rate does not bind or is not enforced, why change them?

The last column of Table 1 reports the year of statehood for each state (year when the state joined the union). States that joined the union later tended to adopt higher maximum legal rates and less

[3] 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. 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.

stringent penalties.[4] There may be many reasons why older states tended to have more stringent usury laws than younger states: life cycle growth patterns, greater need for usury protection, more developed banking systems, more bureaucratic capital, and perhaps more likely to have private interest groups with stronger political clout. However, the general time trend is toward liberalization, as shown in Figure 1. Figure 1 plots the time-series evolution of usury laws in the U.S. by plotting cross-state averages of maximum legal rates and the penalty index annually. Since age has both a significant time-series and cross-sectional association with usury laws, we will employ state and year fixed effects to difference out these effects and will explicitly control for state age as a regressor in all of our tests, which is equivalent to controlling for a state-specific linear time trend. Since age may be correlated with private and/or public interests, this control may understate our findings.

Figure 1 also depicts the financial crises of 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.

## III. Do Usury Laws Matter?

We first establish whether usury laws were binding and had a real impact on financial access. Is financial regulation innocuous because it can be circumvented by market participants through clever contracting (Wright (1949))? North (1990) discusses how contracts attempting to disguise interest and evade usury laws by specifying "late payment penalties," manipulating exchange rates, or other devices imposed additional costs that would not be present in the absence of usury laws.[5] These costs and risks have some impact on financial development.

Another possibility is that usury rates simply do not bind and therefore never have to be enforced. Usury ceilings may simply change with market rates so that the constraint is never binding. However, both of these explanations have difficulty reconciling the heterogeneity in rate ceilings and penalties we observe across states and time.[6] Ultimately, however, these are empirical questions, which we

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

[5]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 also may signal the danger of enforcement and expropriation in general for outside lenders. Temin and Voth (2005, 2006) 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.

[6]The mindset of legislators at the time was that usury laws certainly did bind, as suggested by some of the quotes in Appendix A. Rockoff (2003, p. 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

attempt to answer in this section.

### A. Do usury laws bind?

We begin by examining the frequency with which usury ceilings would be binding for each state using several measures of market interest rates. We obtain data for 18th and 19th century market interest rates from Homer (1963). We use the yields on long-term British government securities beginning in 1727, the yields of high-grade long-term American bonds from 1798, the average annual U.S. commercial paper rate from 1831, New England municipal bond yields from 1798, high-grade railroad bond yields from 1857, New York city real estate mortgage rates from 1869, and the average annual call money rate from 1857. The call money rate is the overnight lending rate between banks in New York on collateralized loans. Except for the mortgage rates, none of the above rates were subject to usury laws. All series are annual (call money rates are available monthly) and end in 1891 to coincide with our usury law data. Panel A of Table 2 reports the correlation matrix of these various interest rates. The correlations are quite high. We also construct an index of interest rates by weighting each series using the principal components of the covariance matrix of these seven interest rates. The average correlation between each series and the principal component index is 0.85.

Figure 2 plots the time-series evolution of the cross-state average rate ceiling and minimum rate ceiling annually relative to the U.S. bond rate, commercial paper rate, and call money rate, which were not subject to usury laws. The figure shows that during certain times, usury rate ceilings were binding for the average state, and were quite often binding for states with the lowest rate ceilings.

Panel B of Table 2 reports the frequency (number and 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 on a state-by-state basis. These rates were not subject to usury laws and hence, could (and often did) exceed usury rate ceilings. Moreover, the U.S. bond, commercial paper, railroad bond, and call money rates are likely lower bounds on the prevailing interest rates faced by small borrowers at the time who were greater credit risks and had less collateral. For example, if the call money rate, which is an overnight collaterized interbank rate, exceeds the maximum legal rate, it is almost surely the case that actual borrowing rates faced

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)).

by less creditworthy households or firms for maturities longer than one day on non-collateralized loans are even more bound by the usury restriction. As Panel B of Table 2 shows, for many states there are a significant fraction of years when the usury restriction would bind, where state-imposed interest rate ceilings were below market interest rates. In addition, these rate differences could be substantial, suggesting usury laws could impose tight constraints on lending at certain times. The data also highlights the tremendous heterogeneity over time for a given state and across states, with some states having binding rate ceilings a significant fraction of the time, while others never being constrained.

### B. Impact on enforcement and lending activity

We exploit the heterogeneity in binding usury rate ceilings in Table 3 to address whether usury laws had real financial impact. Panel A of Table 3 addresses whether penalties for violating usury become tougher when rate ceilings become more binding. Penalties are a form of enforcement. We regress the penalty for violating usury on the difference between the maximum legal rate in each state and market interest rates. We use the U.S. bond rate, the principal component index rate, and a Regional rate that allows for variation in interest rates across states at a point in time. The Regional rate is constructed as the New England municipal bond rate for all states in the New England region, the New York city mortgage rate for New York state, and the U.S. bond rate for all other states. We run the regressions in first differences, with controls for 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 rates. Standard errors are clustered by year. Panel A of Table 3 shows that penalties decrease (increase) when market rates fall below (exceed) maximum legal rates and the usury ceiling becomes less (more) binding.

Panel B of Table 3 examines the impact of usury laws on lending activity. The first four columns report results for regressions of the change in total amount of loans and discounts per capita on the change in maximum legal rate and the change in the difference between the maximum legal rate and market interest rates. Loan volume data is obtained from state-level national banks' balance-sheets for the years 1865 to 1890 from the reports of the Comptroller of the Currency. Changes in lending volume per capita increase when changes in the maximum rate increase. The elasticity of 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. When market interest rates

approach or exceed the maximum legal rate, usury laws become more binding and loans per capita decrease. These results suggest that rate ceilings have an effect on lending volume.

The last four columns of Panel B of Table 3 show that changes in bonds for circulation per capita have a relationship with usury law changes that are of opposite sign to loans per capita. The opposite signed relationship between usury laws and bonds indicates that lenders are substituting other financial activities which are *not subject to usury laws* in place of loans that are subject to usury restrictions when usury laws become tighter and more costly. This evidence is inconsistent with a demand-based story for the drop in lending activity and further supports the notion that usury laws had real financial impact.

## IV. A Case Study in Private vs. Public Interests

In this section we present a case study of the relation between private interests and usury laws during the panic of 1819. This case study illustrates the main themes and conclusions from our empirical analysis: that usury laws were largely influenced by the private interests of wealthy industrialists. We show in the following sections a more general pattern linking usury laws and regulation to private interests throughout the 19th century.

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 1812 war. Prices of exports of farm staples dropped when European demand declined in 1818. According to Wright (1949):

> *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 philanthropy paralleled by public relief were part of a great philanthropic effort. Provision for the poor in New York City included supplies of winter fuel and health and medical services. 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. As part of the public efforts, state legislatures passed debt moratoria laws know as "stay laws" which postponed foreclosure of property. Some states also passed minimum appraisal laws that prevented 'fire sales' of properties below a certain minimum price. While these laws also provoked strong opposition in some states, many states – especially the frontier states – eventually adopted some form of debt relief legislation between 1818 and 1822.[7]

However, during this period of debt relief sentiment, none of the states relaxed their usury laws. Moreover, in 1820, the maximum legal rate was higher than 6% in 5 out of the 9 frontier states (8% in Alabama and Mississippi, 10% in Louisiana and Missouri, and no limit in Illinois, while it was 6% in Indiana, Kentucky, Ohio and Tennessee). Hence, the frontier states that were passing stay laws aimed at helping the poor, were also adopting more lax usury laws. In contrast, states with more strict usury laws were also less likely to adopt pro-debtors laws.[8] This evidence suggests that usury laws coexist with other policies *not* aimed at helping the poor, which contradicts the public interest view that strict usury laws are designed to help debtors.

Bolton and Rosentahl (2002) show that states with restricted suffrage laws were also less likely to pass debtor relief legislation. Stay laws and other forms of debt relief were more prevalent in the frontier states that did not have restricted suffrage laws, where debtors may have had more political voice. Since these states also had 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.

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

[7] Bolton and Rosentahl (2002), Rothbard 1962.

[8] The maximum legal rate in the non-frontier states in 1820 was 6%, except New jersey, New York, and South Carolina where the maximum legal rate was 7%

who would be forced to abandon trade for lack of capital."

The evidence from the depression of 1819 suggests that states that did not have restrictive suffrage laws were more likely to pass pro-debtors laws and also had lax usury laws. Moreover, incumbent industrialists were trying to limit competition in the product markets at the same time by curtailing the availability of credit. These facts suggest that the private interests of wealthy industrialists were driving a host of policies, including financial regulation, around the 1819 depression. We now turn to a more general and comprehensive analysis of the determinants of usury laws.

# V. The Determinants of Usury Laws

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

## A. Is regulation tighter when it is less costly?

Table 4 provides results for a variety of tests of prediction 1 that strictness of usury laws is inversely related to the cost of regulation. Panel A of Table 4 examines how maximum legal rates respond to the proximity of market rates to the usury ceiling. Specifically, 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.[9] The negative and significant coefficient indicates that when the market interest rate approaches or exceeds the usury ceiling in year $t-1$, states increase their usury ceiling subsequently in year $t$. The next two columns of Panel A of Table 4 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 finds nearly identical results. The last column of Panel A of Table 4 repeats the regression for Regional rates separating the difference between the lagged change in the maximum legal rate and Regional rate into positive and negative components, where the Regional rate exceeds the maximum rate and where it falls below the maximum rate. 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

[9]For states that change their rate ceiling to no limit, we use a number that is 5 percentage points higher than the maximum rate ceiling across all states in that year. This rate turns out to be higher than any of the market interest rates in that year as well. We confirm in unreported results that our findings are robust to using a maximum rate of 25 percent for no limit states, which is 5 percent higher than the maximum rate observed over the entire sample period for any state, and to using censored regressions to handle no rate limits.

rate, however, usury laws become less costly, and we see a subsequent reduction in the usury ceiling to tighten the restriction the following period. These results provide evidence in favor of prediction 1 that usury laws loosen when they become costly and tighten when they are inexpensive.

Panel B of Table 4 examines how maximum rates change and respond to financial crises, where the marginal cost of capital is especially high. We regress a state's maximum legal rate on dummies for financial crisis years (1857, 1873, and 1884) and the year after each crisis.[10] Maximum rates rise during and following times of financial distress, consistent with prediction 1. States raise their maximum legal rate by 1.3 percentage points during financial crises. Since interest rates are particularly high during these times, the second column of Panel B of Table 4 reports results including the lagged difference between the maximum rate and Regional rate as a regressor. Both variables are significant, indicating that financial crises affect usury laws even beyond the higher market rates that prevail during these times. Since financial crises are defined by quantity restrictions as well as high prices, this result makes sense. 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 more.

The last three columns of Panel B of Table 4 add measures of a state's sensitivity to financial crises and interact them with the dummy for financial crisis years. Prediction 1 also implies that states more sensitive to capital shocks will more likely 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. This data is recorded as of September, 1873 and comes from Benmelech (2006). Since railroads were not typically affected by usury laws because they had substantial collateral and could issue public debt (which 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 4 shows that states hit hardest by the financial crisis were more likely to raise rate ceilings subsequently. 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 (2006) shows that the manufacturing sector and particularly the machinery sector were hit hardest by

[10] We have also included a dummy for the five years after the end of the civil war (1865 to 1869) and obtained very similar results.

the 1873 financial crisis. Consistent with prediction 1, we find positive interaction terms for both measures of crisis sensitivity.

Panel C of Table 4 examines how maximum rates and lending activity respond to competition, as another proxy for the cost of capital. The first column of Panel C of Table 4 reports results from regressing the maximum legal interest rate for a state in a given year on the average maximum legal interest rate of states that border it as well as the average maximum rate for states that do not border it in that same year. The maximum legal rate for a state in each year is highly positively correlated with the maximum rate imposed in 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 ceilings over time is in part determined by what its neighbors are doing, which we interpret as a response to competition for capital. Contemporaneous changes in financial regulation are likely motivated by neighboring states competing for the same capital, and thus affecting the marginal benefit and cost of capital in the state. Whether a non-border state changes its rate has no effect. 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 legal rate by 96 basis points.

The second column of Panel B of Table 4 interacts the wealth of the state (per capita output) with the border rate variable and interacts the wealth of border 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 interaction terms indicate that states respond less to less wealthy neighbors and respond more to wealthier neighbors' usury laws, consistent with this prediction.

Finally, the premise that border effects represent competition for outside capital hinges on the behavior of usury law changes actually affecting capital flows and lending activity. However, 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 the counterfactual: what happens to state lending activity if a state does not respond to competition? The last column of Panel C of Table 4 regresses changes in loans per capita on two dummy variables designed to capture times when a state either does not respond to competition or responds in the opposite direction of its neighbors. As the last column of Panel C of Table 4 shows, when a state's neighbors

increase their usury ceiling but the state itself does not, loans per capita decrease in the state, and when its neighbors tighten their ceilings and the state oppositely raises its maximum rates, loans per capita increase in the state. These results indicate that failure to respond to competition impacts subsequent loan activity.

An interesting question is why we are able to observe the counterfactual? If failure to respond to competition has adverse capital consequences, why do some states not respond? The tension between private and public interests provides an answer, since states at certain times may tradeoff the public benefits of greater capital supply for the private benefits of certain groups within the state benefitting from limited capital access. While the results in Table 4 are consistent with both the private and public interest theories, we turn now to tests that attempt to distinguish private and public interest motives as they pertain to usury laws.

## B. Private interests and incumbent political power

Table 5 examines the role incumbent political power plays in determining a state's usury laws, as a proxy for private interests.

### B.1 Restricted suffrage laws

We follow the literature on the relationship between restricted suffrage laws and the power of the elite and property rights (e.g., Engerman and Sokoloff (1997), Engerman and Sokoloff (2005), Engerman, Haber, and Sokoloff (2000), and Sokoloff and Engerman (2000)), by using state-level suffrage laws as a proxy for the political power of incumbents. Restricted suffrage laws were 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 properties, though voting rights varied by state. Restricted suffrage implies more concentrated voting power to push policies that further the private interests of the voting group.

Panel A of Table 5 reports results from regressing the maximum legal interest rate for a state in a given year on a dummy variable indicating whether the state has restricted suffrage laws that only allow land owners and/or those who paid taxes to vote in that year. 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 since additional factors may be contributing to these laws.

States with restricted suffrage laws (based on wealth) in a given year have much tighter usury laws in that same year. Controlling for state and year fixed effects, the average maximum interest rate is 1.32 percentage points lower when 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 presidential elections, available for 23 states for the following election years: 1824, 1828, 1832, 1836, 1840 and 1844.[11] The second column of Panel A of Table 5 reports regression results of the percentage of non-voting white males on the restricted suffrage indicator. Restricted suffrage implies 12 percent 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 non-voting white males. A 10 percentage point increase in voting concentration translates into 1.5 percentage point lower rate ceiling, controlling for state and year fixed effects. The fourth column of Panel A includes both restricted suffrage and the percentage of non-voting white males as regressors and the fifth column also includes an interaction term between them. Both restricted suffrage and percentage of non-voting white males are associated with tighter usury restrictions and the interaction between them is even more negative, implying that states where restricted suffrage laws result in the most concentrated voting also have the most restrictive usury laws. These findings support prediction 2.

The last column of Panel A of Table 5 tests the interaction between predictions 1 and 2. Specifically, we document a distinct pattern in usury laws around financial crises: states with incumbent political power may liberalize usury laws in the short-term to accommodate the financial crisis (prediction 1) but then revert back to financial constraints when the crisis abates (prediction 2). The interaction term between restricted suffrage and crisis years on maximum rates is positive and insignificant, indicating that during financial crises, even states with incumbent political power liberalize their rate ceilings since incumbents are also hit by the crisis. However, the interaction term between restricted suffrage and a dummy variable for five years *after* the crisis shows that these same states with incumbent political power reduce their rate ceilings after the crisis is over. All states relax financial regulation during a crisis, but only those states with concentrated voting power reimpose the restrictions after the crisis subsides. This evidence supports the private interest view of regulation and is difficult to reconcile under alternative theories.

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

### B.2 Restricted incorporation laws

If suffrage laws are a good proxy for incumbent political power, then according to prediction 3 they should also affect other forms of regulation that benefit incumbents by restricting entry. Financial regulation is not the only barrier to entry. 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 forming non-financial corporations. According to Wallis (2005): "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 that 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 allowed the formation of non-financial corporations without a special charter from the legislature. We exploit variation in the adoption of general incorporation laws across states, which allow for easier and faster entry of new firms. We collect data on state-level evolution of general incorporation laws from Evans (1948).

Panel B of Table 5 tests whether restricted suffrage laws 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 restricted suffrage laws are associated with restricted incorporation laws, implying tighter restrictions on firm entry. Having tax or wealth-based suffrage restrictions increases the probability of having restricted incorporation laws by 22 percent. This evidence supports prediction 3.

Since states with incumbent political power adopt strict usury restrictions in conjunction with strict incorporation and voting restrictions, and since during a financial crisis even states with concentrated voting power liberalize their usury laws, we investigate whether incorporation and voting restrictions are also relaxed during financial crises. According to the private-interest view, these policies should *not* be altered during these episodes because incumbents are not directly affected by them. Incumbents should still wish to maintain their political power, implying that restricted suffrage laws should remain in place even during crises, and incumbents will still want to

deter entry of new firms through other regulation, implying that restricted incorporation laws should remain or get tighter. The alternative hypothesis, however, predicts the opposite effects. The public interest view implies a general liberalization of all policies and an omitted variable explanation also implies all of these policies moving in the same direction during a crisis. The last four columns of Panel B of Table 5 show that incorporation and restricted suffrage laws are not altered during financial crises, even though usury laws are being changed. This evidence is difficult to explain under any other theory besides private incumbent interests.

The results in Table 5 can be summarized as follows. Usury laws are correlated with other forms of political and economic restrictions that are designed to *exclude* others from the right to vote or start up a firm. While these policies are likely determined endogenously, this evidence suggests that usury laws, too, were designed to exclude groups from credit markets, contrasting sharply with the public-interest view of regulation which is designed to assist, protect, and *include* weaker groups.[12] Moreover, during times when usury laws bind for incumbents, lending restrictions are relaxed, but voting and charter restrictions, which are not binding for incumbents, are maintained.

## C. Who are the Powerful Incumbents? Industrialists vs. Financiers

Rajan and Zingales (2003) argue that incumbent private interest may come from industrialists or financiers. We try to identify whose private interests are motivating regulation by separating the private interests of incumbent industrialists from financiers. 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 group versus another in order to gauge power across incumbent groups.

We begin by looking at measures where incumbent power is likely to be greatest – where restricted suffrage and restricted incorporation laws exist. In the first two columns of Table 6, we regress the maximum legal rate on a dummy variable that equals one if a state in a given year has both restricted suffrage and restricted incorporation laws. The other extreme set of policies we define as being "egalitarian," which are years in which a state has general incorporation laws

[12]The relationship between direct entry restrictions and usury laws presented in Table 5 is similar to the relationship documented in Djankov et al. (2002). In a cross-country study of the regulation of entry, Djankov et al. (2002) find a negative relationship between the number of procedures to open a business (a measure of direct barriers to entry) and the size of equity markets relative to GDP (a measure of financial development). This finding is consistent with the case study evidence from the crisis of 1819 and with our regression results, as well as Rajan and Zingales' (2003, 2004) hypothesis that financial regulation and entry restrictions are used complementarily.

and no suffrage restrictions. As the first column of Table 6 shows, states in which incumbents have more power adopt more strict usury laws; maximum legal rates are 145 basis points lower in these states. This evidence suggests that financial and economic barriers to entry are used in complement, consistent with the incumbent private-interest view. The most egalitarian states have significantly more lax maximum legal rates that are 36 basis points higher than the average maximum rate.

To distinguish the private interests of industrialists from those of incumbent financiers or banks, we examine other forms of financial regulation that should appeal differentially to each group and analyze their relationship with usury laws. Free banking laws are a natural candidate for this task since incumbent banks want to restrict bank entry and competition, while incumbent industrialists 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. Similar to general incorporation laws that were applied to non-financial corporations, free banking laws enabled free entry to the banking industry in antebellum America.[13]

The third column of Table 6 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. Since free banking was used in antebellum America, the regressions span the time-series of usury laws only up to 1861. The results indicate that free banking laws are not associated with maximum legal rates. If free banking laws are a proxy for the political power of incumbent financiers, then this result suggests that it is not incumbent financiers that are setting financial regulation.

To better distinguish the private interests of banks from industrialists, we also consider the combination of policies most appealing to each group along three dimensions: suffrage, general incorporation, and free banking laws. Industrial incumbent private interests are most aligned with voting restrictions, incorporation restrictions, and free banking laws to promote lender competition to reduce their own cost of capital. To capture these preferences we designate industrial power with an indicator variable equal to one if a state-year has this combination of policies. Bank incumbent private interests are aligned with voting restrictions, general incorporation laws that create more potential borrowers, and restrictions on free banking laws to control bank entry. We designate bank incumbent power with an indicator variable equal to one for state-years with these combination of policies. Finally, we create a dummy variable to capture the most egalitarian set of policies which

[13]For example, according to Bodenhorn (2003), 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.

consists of no restrictions on suffrage, incorporation, or free banking.

The fourth and fifth columns of Table 6 report the results from using the three indicators of industrial, banking, and egalitarian policies. Consistent with the industrial incumbent private-interest view, usury rates are more restrictive, about 1.2 to 1.4 percent lower, when the set of regulation policies favors industrial power. Bank incumbent power has no significant effect on usury ceilings, suggesting that incumbent financiers are not driving financial regulation. Finally, the most egalitarian set of policies is associated with higher maximum legal rates. The evidence suggests that financial regulation is the outcome of a broader set of policies designed to protect private industrial incumbent interests.

## D. Penalties for violating usury

Table 7 repeats some of the main tests for the determinants of usury laws using the penalty index for violating usury as the dependent variable instead of the maximum legal rate. Consistent with our previous findings, states liberalize usury laws by reducing penalties during a financial crisis and when neighboring states liberalize, and impose stiffer penalties when they also have restrictions on suffrage and also have restrictions on other economic policies such as incorporation laws. These results emphasize that not only do states alter their rate ceiling in response to economic and political conditions, but that they also simultaneously alter the enforcement mechanism of these laws, as proxied by the penalties imposed.

## 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

The first set of proxies we employ for public interests are a set of policies designed to protect the poor and weak debtors. We employ bankruptcy stay laws or debt moratoria passed by state legislatures for this task and examine their relationship with usury laws. We use a dummy variable for whether a state had bankruptcy stay laws that forgave personal debt, obtained from Coleman "Debtors and Creditors in America: Insolvency, Imprisonment for Debt, and Bankruptcy, 1607-1900." As the first column of Table 8 shows, there is no significant relationship between personal bankruptcy stay laws

and usury laws. We also employ another variable to proxy for protection of weak debtors which is the vote in the House of Representatives in 1822 for the relief of debtors who bought public land from the Federal government. The percentage of representatives in each state voting in favor of debt relief is used as a proxy for the state's interest in protecting the poor. As the second column of Table 8 shows, there is also no relationship between this measure and usury laws. These two results are inconsistent with prediction 5 of the public interest theory that usury laws will 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 (2005) and Glaeser and Goldin (2005), respectively. We use the number of newspapers per capita as a proxy for when public interests are likely to be heightened. Greater circulation of mass media likely makes it more difficult for private interests to push forward their own policies and may provide a mechanism to coalesce public interests. As the third column of Table 8 reports, there is a strong positive relationship between newspaper circulation per capita and maximum legal rates, indicating that usury laws were more lax when public opinion had a more widespread outlet. This evidence suggests that if newspaper circulation is a good proxy for the strength of public interests, then those public interests desired lax rather than tight usury laws. Hence, restrictions on lending activity do not seem consistent with public interests.

The fourth and fifth columns of Table 8 employ the extent of political and corruption coverage of newspapers. We employ the measures used by Glaeser and Goldin (2005), 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 which is the count of the word "corrupt" or "fraud" deflated by the word count "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 (we hypothesize) likely amplify public

interests. As Table 8 shows, neither variable is significantly related to usury laws. These results are inconsistent with prediction 6 of the public interest theory that usury laws will tighten when public interests are more prominent.

### E.3 Agricultural shocks

The third and final set of proxies for public interests we employ are a series of agricultural shocks. According to prediction 7 of the public interest theory, usury laws are supposed to smooth idiosyncratic shocks. The evidence we have presented on market interest rates, financial crises, and state competition for capital are aggregate shocks.

To test this prediction, we employ shocks to the agricultural sector in each state that had little to no effect on the industrial sector, whose private interests we conjecture are determining usury laws. We begin with agricultural technology shocks, obtained from "A History of American Agriculture" from the United States Department of Agriculture (USDA) from 1780 to 1890. We assign an indicator variable to state-years experiencing a positive technological shock to its agricultural sector. We employ the nearest year for which we can find data on agricultural production across various crops to determine which states are most exposed to which crops and how the technology affected those crops (e.g., invention of the cotton gin on cotton-producing states). As the sixth column of Table 8 shows, the relationship between agricultural technology shocks and usury laws is non-existent.

We also employ a series of extreme weather shocks which adversely affected agriculture. Similar to the assignment of technology shocks, we identify which states were most exposed to the weather event and how much their particular agricultural sector was affected by the event based on its crop production (e.g., Mississippi River flood of 1849, which affected states along the river, particularly to the South). We assign a value of $-1$ to these state-years and zero otherwise. As column 7 of Table 8 shows, there is no relationship between weather shocks to the agricultural sector and usury laws.

We also employ a series of demand shocks for agricultural products using, for instance, the Crimean War from 1854 to 1857, where international demand for U.S. agricultural exports boomed, particularly wheat. Column 8 shows no relationship between these shocks and usury laws.

Finally, we also employ a series of commodity price shocks using the Froot, Kim, and Rogoff (2005) commodity price series from England and Holland which spans the 17th, 18th, and 19th

centuries. Froot, Kim, and Rogoff (2005) describe the construction of their series, which is provided in both nominal and real terms for the following commodities: wheat, oats, eggs, cheese, butter, barely, and peas. We assign the exposure of each state to each of these commodities at different points in time using the most recent available data we can find on the composition of the state's agricultural sector. When we cannot find 'hard data', we employ historical documents that indicate, for example, "Minnesota, California, and Illinois were the chief wheat states in 1890" and assign an exposure of 1 for these states to the respective commodity in the relevant years.[14] Taking the average of the England and Holland prices for a given year, we assign price changes to the state based on a state's weighted average exposure to the commodities in that year. As the last column of Table 8 shows, commodity price shocks affecting the agricultural sector of each state exhibit no relationship with usury laws.

Hence, none of the agricultural shocks (technology, weather, demand, or commodity prices) exhibits any association with financial regulation as it pertains to usury. The coefficients on the various shocks are not reliably different from zero, economically small, and oscillate in sign. This evidence does not support prediction 97of the public interest view. Since these shocks likely had little affect on the industrial sector, the lack of a link to usury laws supports the industrial private interest view.

## F. Alternative explanations using cross-sectional evidence from 1850

Table 9 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, that may capture alternative explanations.[15]

### F.1 Proxies for bank market power

The first two rows of Table 9 examine the relationship 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).[16] Maximum legal rates are negatively, but insignificantly, related to banking concentration and wealth. This null result has two possible

[14]Statements and data pertaining to "grains" are assigned equally to oats and barely prices, information on "dairy" is assigned equally to cheese and butter prices, and information on "vegetables" is assigned to prices for peas.

[15]The 1850's were also a time of unparalleled growth and changes in financial regulation in the U.S., making it an interesting time period to study.

[16]Results are similar if we scale number of banks and bank capital by number of establishments instead of population.

interpretations. First, if bank market power proxies for financier incumbent power, then these results suggest that financier incumbent private interests are not determining financial regulation. Second, the premise of the public-interest view of usury is to protect citizens against the market power of banks. Accordingly, prediction 4 conjectures a relationship 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 row of Table 9 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 here is to test whether more developed bureaucracies, proxied by the dearth 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 maintain such regulation. There is no significant relationship between this proxy and usury rates, though the sign is in the right 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 residents in a state, we employ the number of pupils or publishers per employed persons in the state, controlling for the variables that include per capita capital, a proxy for household wealth. The relationship 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, then the negative relationship with usury rates may be consistent with private interests.

### F.4 Religious motives

Finally, we consider the role religion might have played 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), Nelson (1947), and Nelson (1969)). Moreover, recent studies show that

religion and financial or 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, Hebert, and Tollison (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. Hence, the apparent influence of religion is driven more by private economic interests.[17] It seems unlikely, however, that the rent-seeking behavior of the church was an important factor in determining usury laws during the 19th century in the U.S. Moreover, given the protestant origins of the U.S and 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 9, 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 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 usury laws. In fact, 1850 followed a period of a wave of Irish and German immigration to the U.S. 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 contrasting results in Europe and the U.S. suggest it is not religious beliefs per se that are driving usury laws.

## VI. Usury Laws and 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 and Johnson (2001)) and legal ori-

[17]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 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.

gins (La Porta et al. (1997)) fixed.[18]

We examine usury laws as a measure of financial development. Even if usury laws impact financial development, they may not have any impact on economic development. We hypothesize that more restrictive usury laws affect economic growth since they affect lending activity and therefore 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.

Whether or not financial regulation causes economic growth is an empirical question we do not focus on. Writers and policy makers in the 19th century seemed to believe or at least argue that usury laws could have an adverse effect on economic growth (see Appendix A). However, the endogeneity of regulation and economic activity makes this determination difficult. Our goal is to understand what political and economic forces drive financial regulation and link those factors to economic growth. Indeed, we argue that the omitted variable driving both regulation and growth may be the political economy and private interests of industrial incumbents.

Table 10 reports results from regressing measures of per capita state economic growth on the lagged change in maximum legal interest rate. We have four measures of per capita economic growth: state gross product per capita, manufacturing value added per capita, manufacturing establishments per capita, and manufacturing employment per capita from the 1850, 1860, and 1870 U.S. Censuses.[19] We examine two changes in growth over two decades: from 1850 to 1860 and from 1860 to 1870. Rather than examine these periods together, since the period from 1850 to 1860 experienced unprecedented growth (Galman (1960) and North (1966)) and since the period 1860 to 1870 contains the Civil War, we report results separately in Panels A and B for each of these two decades. All regressions contain state age and regional fixed effects as controls.

The first column of Panel A of Table 10 reports regression results for the per capita growth in State Gross Product from 1850 to 1860 on the lagged change in maximum legal rates from 1840 to 1850. Increases in maximum rates are associated with future increases in economic growth for the state, consistent with prediction 8. A mean increase in the change in the maximum legal rate for a

[18]Few studies (Jayaratne and Strahan (1996), Rajan and Zingales (1998), Guiso, Sapienza and Zingales (2004), Garmaise and Moskowitz (2004), 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.

[19]We detail the construction of our measures of per capita economic growth in Appendix B.

state of about 10 basis points translates into a 1.5 percent increase in economic growth. This effect seems too large to be plausibly caused entirely by usury laws. Rather, as we have shown, usury laws are determined jointly with other political and economic restrictions, which likely also have affect growth. We believe omitted political economic factors are jointly determining regulation and real activity.

The second column of Panel A of Table 10 reports regression results for the growth in manufacturing value added per capita on lagged maximum rate changes, and the third column reports the difference in growth rates between the manufacturing sector and the rest of the state economy by regressing the difference between per capita manufacturing value added growth (column 2) and gross state product growth (column 1) on changes in maximum rates. The results highlight that usury law changes had less of an effect on growth in the manufacturing sector than the rest of the economy. If the manufacturing sector is a proxy for industrial incumbents, then this result is consistent with prediction 9, where incumbents are less affected by usury laws.

Columns 4 and 5 of Panel A of Table 10 report regression results for the per capita growth in manufacturing establishments and manufacturing employment, respectively, on lagged changes in maximum rates. The coefficients are negative, implying that manufacturing establishment growth and employment growth was slower than the growth in population. Combining these results with those from column 2, the results indicate that while valued added per capita for the manufacturing sector as a whole increased, the number of manufacturing establishments per capita decreased. The last column of Panel A of Table 10 highlights the statistical significance of this fact by regressing the difference between manufacturing value added growth and manufacturing establishment growth on usury rate changes. The positive coefficient is more than 4 standard errors from zero. This result implies that existing manufacturing firms increased their value substantially, while the growth rate in new firms (per capita) was negative. Hence, within the industrial sector the change in value for pre-existing firms (i.e., incumbents) increased while the creation of new firms decreased. This result is consistent with incumbent private interests setting policies for their own benefit at the expense of potential new entrants. Alternative theories have a difficult time rationalizing how usury law changes lead to value added growth increases and establishment growth decreases in the industrial sector.

Panel B of Table 10 reports the same regressions on the 1860 to 1870 sample. The results are consistent, but weaker, due to limited growth over this decade from the Civil War.

# VII. Conclusion

We examine the political economy of one of the oldest forms of financial regulation, usury laws, and link it to financial development and growth in the U.S. in the 19th century. We first establish that usury laws seemed to bind and have an impact on financial activity. We then find that the tension between private and public interests can best explain the heterogeneity in regulation across U.S. states and over time during this period of emerging growth in the U.S. economy. When the cost of regulation is low, private interests impose tight restrictions to extract rents and impede competition. When the cost of regulation is high, states relax these constraints as they start to bind on incumbents themselves. We find that financial regulation is also correlated with other restrictive political and economic policies adopted by the state that are designed to exclude other groups and protect incumbent interests. We do not find any relationship between usury laws and proxies for public interests. Finally, we find a positive relationship between usury laws and subsequent economic growth and argue that this relationship is the outcome of incumbent private interests jointly determining both regulation and growth through a variety of actions. The collection of evidence supports the private-interest view of financial regulation and highlights the potential endogeneity of financial and economic development. These findings may provide guidance for the determination of financial policy today in emerging markets and its local and global consequences.

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## Appendix A: The Mindset of Regulators in the 19th Century

Several quotes from legislators at the time highlight the mindset and arguments of regulators in the 19th century. In a stirring speech against usury laws in the Massachusetts legislature, Richard Henry Dana pointed to the link between rent seeking behavior and usury laws.

> *The borrower is no longer the trembling suppliant at the threshold of the patrician lender. Who are the borrowers now? The railroad, manufacturing, steam-boat and mining corporations. They are borrowers,– those great corporations that are suspected of* **controlling the politics of our States and towns.** *[emphasis added] The States and National Governments are borrowers, All mercantile enterprises require loans of credit; and the great merchants and manufacturers are borrowers one day and lenders the next. The great builders are borrowers.*
>
> *Again, it is not the poor mechanic that is the borrower. The journeymen the member from Boston employs, are not borrowers. Hired laborers in this country seldom are. It is mostly enterprise that borrows, and capital borrowing more capital.* (Dana (1867) pp. 20-21.)

Concerns about the relation between the competitiveness of credit markets and usury laws were reflected in the arguments of those in favor of repealing usury laws in the 19th century.

> *The only practical objection to the repeal, seemed to me to be, the fear that the banks of discount might combine and keep up an artificial rate of interest. I have made careful inquiries on this subject, and am satisfied that there is no more practical danger on that head, than the community must always incur in its financial transactions. The banks are numerous. There will be competition among them. And there is not only the competition of private lenders at home, but competition from abroad. capital is drawn toward demand. State lines and town lines are disregarded. Loans are made in a few minutes by telegraph; and it will more and more be the case that, when an inadequacy of supply to the demand, or a combination of lenders had raised the rate of usance, an influx from abroad will bring it to its natural level.* (Richard Henry Dana, Jr., Feb. 14, 1867, Speech in the House of Representatives of Massachusetts, pp. 22-23.)

Legislators argued that usury laws had financial and economic consequences for state economic growth. For example, in 1867 during a discussion of the usury bill in Virginia, and following the request of several members of the Virginia Senate, John Harmer Gilmer published an opinion paper titled "What is the Effect of the Usury Laws?." He writes:

> *Virginia in the past has been almost exclusively an agricultural and planting community. It may be unnecessary to pause here to inquire into the causes that gave her this complexion, or to show why it is that the boundless wealth, nature bestowed upon her in her water power and minerals, has been allowed to remain in unprofitable idleness; but I think he who examines the question will not deem the assertion, that the spirit of her usury laws was at least one of the original causes – very extravagant. She undoubtedly possesses as many of the elements essential to successful manufacture as any other*

*section of the continent, and her people have for centuries trodden beneath their feet such riches as in other communities would have made the land teem with the opulence of cities, railroads and canals. But be this as it may, the fortunes of the state took this direction as an early day in her history, and she has since made but little advance in wealth or power.*(Gilmer (1867) pp. 14.)

## Appendix B: Construction of Gross State Product

To the best of our knowledge there are no existing measures of state-level economic activity for the 19th century such as their modern counterparts. We collect data from the seventh (1850), eighth (1860), and ninth (1870) census reports to construct local measures of economic activity. Before the 7th census it was difficult to get reliable data for economic activity, thus the period 1850 to 1860 is the earliest period for which data exists and usury laws were in effect and important. We construct five different measures of economic activity growth at the state level: population, state gross product, manufacturing value added, establishments, and employment.

### Construction of Agricultural Production variables for 1849 and 1859:

For the year 1849, nominal values for agricultural production are given in the census, however the census reports only quantities (and not nominal values) for many commodities in 1859. To construct total agricultural production in 1849, we sum across all commodities for which we have prices in 1859 in order to have comparable measures that cover an identical set of commodities. Since for 1859, only real values are reported for agricultural production, we construct nominal values in the following manner. We obtain the average annual price for each commodity in 1859 by averaging prices from five markets (Philadelphia, New York, New Orleans, Cincinnati, Charleston). We then form nominal production for each commodity by multiplying the reported quantity by the average annual price. The total production includes production of the following commodities: Corn, wheat, cotton, oats, butter, wool, tobacco, cane sugar, rye, orchard products, rice, hops, clover seed, cheese, peas and beans, flaxseed, flax, hemp, molasses and wine. Significant commodities for which no price data was found, and which consequently are excluded from our agricultural production measure are: Hay, irish potatoes and sweet potatoes.[20]

### Construction of Gross State Product for 1849 and 1859:

Gross state product is formed by summing total agricultural production (as described above), manufacturing annual product and the value of animals slaughtered.

### Construction of Manufacturing Value Added for 1849 and 1859:

Manufacturing value added is formed by subtracting the value of raw materials used in manufactured goods from the annual product generated by the sale of those manufactured goods.

[20] Sources for agricultural commodity prices are Bezanson, Anne and Robert D. Gray and Miriam Hussey. "Wholesale Prices in Philadelphia 1784-1861. Part II." Philadelphia, 1937 and Cole, Arthur Harrison. "Wholesale Commodity Prices in the United States 1700-1861." Cambridge, 1938.

## Table 1:
## **Summary Statistics on Maximum Legal Interest Rate and Penalty for Usury**

The table reports summary statistics of the maximum legal interest rate and penalty for usury for each state from 1641 to 1891. The severity of penalty for usury 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 by their severity of penalty for usury in descending order. 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Avg. | Min. | Max. | #Changes | | Avg. | Min. | Max. | #Changes | | Statehood |
| State | | | | + | − | | | | + | − | |
| Virginia | 5.73 | 5 | 12 | 2 | 3 | 3.65 | 0.50 | 4.00 | 1 | 1 | 1788 |
| Delaware | 6.00 | 6 | 6 | 0 | 0 | 0.61 | 0.50 | 1.00 | 0 | 2 | 1787 |
| Maryland | 6.00 | 6 | 6 | 0 | 0 | 1.50 | 1.50 | 1.50 | 0 | 0 | 1788 |
| New Hampshire | 6.00 | 6 | 6 | 0 | 0 | 2.00 | 2.00 | 2.00 | 0 | 0 | 1788 |
| Vermont | 6.00 | 6 | 6 | 0 | 0 | 4.28 | 0.50 | 5.00 | 0 | 1 | 1791 |
| Tennessee | 6.19 | 6 | 10 | 1 | 1 | 2.55 | 1.00 | 4.00 | 0 | 1 | 1796 |
| Pennsylvania | 6.19 | 6 | 8 | 1 | 1 | 0.91 | 0.50 | 1.00 | 0 | 1 | 1787 |
| Kentucky | 6.26 | 6 | 10 | 1 | 2 | 0.65 | 0.50 | 1.00 | 1 | 2 | 1792 |
| North Carolina | 6.34 | 6 | 8 | 1 | 0 | 3.62 | 1.00 | 4.00 | 1 | 2 | 1789 |
| Ohio | 6.49 | 6 | 8 | 1 | 0 | 0.99 | 0.50 | 2.00 | 2 | 2 | 1803 |
| New Jersey | 6.64 | 6 | 7 | 1 | 2 | 1.82 | 1.00 | 2.00 | 0 | 1 | 1787 |
| New York | 6.89 | 6 | 7 | 0 | 1 | 2.02 | 0.00 | 2.50 | 1 | 1 | 1788 |
| Connecticut | 7.20 | 6 | none | 2 | 1 | 2.47 | 0.00 | 3.00 | 0 | 2 | 1788 |
| Massachusetts | 7.76 | 6 | none | 1 | 0 | 1.80 | 0.00 | 3.00 | 1 | 2 | 1788 |
| Alabama | 7.84 | 6 | none | 1 | 1 | 2.10 | 0.50 | 4.00 | 1 | 2 | 1819 |
| Indiana | 7.86 | 6 | none | 2 | 3 | 0.95 | 0.00 | 2.50 | 2 | 2 | 1816 |
| District of Columbia | 8.10 | 6 | 10 | 1 | 0 | 1.48 | 1.00 | 2.00 | 0 | 1 | 1871 |
| Georgia | 8.14 | 7 | none | 2 | 3 | 2.89 | 0.00 | 5.00 | 2 | 4 | 1788 |
| South Carolina | 8.65 | 7 | none | 2 | 4 | 3.56 | 0.00 | 5.00 | 2 | 2 | 1788 |
| Rhode Island | 9.02 | 6 | none | 1 | 0 | 1.37 | 0.00 | 2.33 | 0 | 2 | 1790 |
| Michigan | 9.08 | 6 | 10 | 2 | 1 | 0.64 | 0.50 | 1.50 | 2 | 1 | 1837 |
| Mississippi | 9.26 | 6 | none | 4 | 2 | 0.82 | 0.00 | 1.00 | 2 | 3 | 1817 |
| Missouri | 9.52 | 6 | 10 | 1 | 2 | 1.00 | 1.00 | 1.00 | 0 | 0 | 1821 |
| Illinois | 9.68 | 6 | 12 | 1 | 3 | 1.64 | 1.00 | 3.00 | 0 | 2 | 1818 |
| Maine | 10.14 | 6 | none | 1 | 0 | 0.99 | 0.00 | 4.00 | 0 | 2 | 1820 |
| Arkansas | 10.71 | 10 | none | 1 | 1 | 1.50 | 0.00 | 2.00 | 2 | 1 | 1836 |
| Wisconsin | 10.92 | 7 | none | 2 | 3 | 2.37 | 0.00 | 3.50 | 1 | 2 | 1848 |
| Iowa | 11.06 | 8 | none | 1 | 3 | 1.24 | 0.00 | 1.50 | 1 | 2 | 1846 |
| Texas | 12.88 | 10 | none | 1 | 2 | 0.88 | 0.00 | 1.00 | 1 | 1 | 1845 |
| Minnesota | 13.12 | 10 | none | 0 | 2 | 1.67 | 0.00 | 4.00 | 2 | 0 | 1858 |
| Louisiana | 13.43 | 8 | none | 1 | 1 | 0.92 | 0.50 | 1.00 | 1 | 1 | 1812 |
| Florida | 13.48 | 8 | none | 2 | 3 | 0.66 | 0.00 | 2.00 | 1 | 2 | 1845 |
| California | none | none | none | 0 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 1850 |
| mean (stdev.) | 7.63 | (2.59) | | | | 2.22 | (1.77) | | | | |

correlation (max. rate, penalty) = −0.36

Table 2:

**Were Usury Laws Binding?**

Panel A reports the correlation matrix between various market interest rates: yields on long-term British government securities beginning in 1727, the yields of high-grade long-term American bonds from 1798, the average annual U.S. commercial paper rate from 1831, New England municipal bond yields from 1798, high-grade railroad bond yields from 1857, New York city real estate mortgage rates from 1869, and the average annual call money rate from 1857. The call money rate is the overnight lending rate between banks in New York on collateralized loans and was not subject to usury laws. Data are from Homer (1963). All series are annual (call money rates are available monthly) and end in 1891 to coincide with our usury law data. We also construct an index of interest rates by weighting each series using the principal components of the covariance matrix of these seven interest rates. Panel B of Table 2 reports the frequency (number and 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. These rates were not subject to usury laws. States are sorted in ascending order by their average maximimum legal interest rate.

Panel A: Correlation matrix of market interest rates

| *Sample begins:* | UK bonds *1727* | US bonds *1798* | Commercial paper *1831* | NE municipal *1798* | Railroad bonds *1857* | NY mortgage *1869* | Call money rate *1857* | Principal component index |
|---|---|---|---|---|---|---|---|---|
| UK bonds | 1.00 | 0.81 | 0.50 | 0.86 | 0.88 | 0.84 | 0.34 | 0.77 |
| US bonds | | 1.00 | 0.45 | 0.79 | 0.86 | 0.86 | 0.40 | 0.75 |
| CP | | | 1.00 | 0.73 | 0.74 | 0.55 | 0.91 | 0.91 |
| NE municipal | | | | 1.00 | 0.98 | 0.92 | 0.55 | 0.94 |
| Railroad bonds | | | | | 1.00 | 0.92 | 0.57 | 0.95 |
| NY mortgage | | | | | | 1.00 | 0.42 | 0.84 |
| Call money | | | | | | | 1.00 | 0.77 |

| Panel B: Frequency of Maximum legal rates below market interest rates | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Maximum rate <** | **US bonds** | | **Commercial paper** | | **Railroad bonds** | | **Call money** | |
| State | #years | %years | #years | %years | #years | %years | #months | %months |
| Virginia | 18 | 11.1% | 34 | 21.0% | 10 | 6.2% | 88 | 9.5% |
| Delaware | 18 | 10.5% | 37 | 21.6% | 14 | 8.2% | 105 | 11.3% |
| Maryland | 18 | 9.0% | 37 | 18.6% | 14 | 7.0% | 105 | 11.3% |
| New Hampshire | 18 | 17.8% | 37 | 36.6% | 14 | 13.9% | 105 | 11.3% |
| Vermont | 18 | 17.1% | 37 | 35.2% | 14 | 13.3% | 105 | 11.3% |
| Tennessee | 18 | 11.9% | 34 | 22.5% | 10 | 6.6% | 83 | 8.9% |
| Pennsylvania | 18 | 9.4% | 37 | 19.3% | 14 | 7.3% | 105 | 11.3% |
| Kentucky | 18 | 19.1% | 35 | 37.2% | 11 | 11.7% | 84 | 9.1% |
| North Carolina | 18 | 11.9% | 32 | 21.2% | 6 | 4.0% | 65 | 7.0% |
| Ohio | 17 | 18.3% | 35 | 37.6% | 9 | 9.7% | 79 | 8.5% |
| New Jersey | 8 | 5.2% | 35 | 22.7% | 6 | 3.9% | 86 | 9.3% |
| New York | 5 | 2.9% | 28 | 16.0% | 0 | 0.0% | 51 | 5.5% |
| Connecticut | 18 | 9.5% | 36 | 18.9% | 12 | 6.3% | 84 | 9.1% |
| Massachusetts | 18 | 7.2% | 30 | 12.0% | 7 | 2.8% | 43 | 4.6% |
| Alabama | 8 | 9.2% | 20 | 23.0% | 0 | 0.0% | 31 | 3.3% |
| Indiana | 3 | 4.1% | 24 | 32.4% | 7 | 9.5% | 55 | 5.9% |
| DC | 2 | 4.8% | 18 | 42.9% | 10 | 23.8% | 76 | 8.2% |
| Georgia | 0 | 0.0% | 24 | 18.0% | 0 | 0.0% | 26 | 2.8% |
| South Carolina | 5 | 2.5% | 22 | 10.9% | 0 | 0.0% | 12 | 1.3% |
| Rhode Island | 18 | 14.4% | 28 | 22.4% | 5 | 4.0% | 33 | 3.6% |
| Michigan | 0 | 0.0% | 11 | 15.3% | 0 | 0.0% | 12 | 1.3% |
| Mississippi | 8 | 9.2% | 14 | 16.1% | 0 | 0.0% | 6 | 0.6% |
| Missouri | 0 | 0.0% | 15 | 19.0% | 0 | 0.0% | 12 | 1.3% |
| Illinois | 0 | 0.0% | 12 | 16.4% | 0 | 0.0% | 12 | 1.3% |
| Maine | 3 | 4.2% | 34 | 47.9% | 11 | 15.5% | 71 | 7.7% |
| Arkansas | 0 | 0.0% | 9 | 10.7% | 0 | 0.0% | 0 | 0.0% |
| Wisconsin | 0 | 0.0% | 5 | 9.4% | 0 | 0.0% | 12 | 1.3% |
| Iowa | 0 | 0.0% | 6 | 11.3% | 0 | 0.0% | 12 | 1.3% |
| Texas | 0 | 0.0% | 1 | 1.9% | 0 | 0.0% | 0 | 0.0% |
| Minnesota | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Louisiana | 3 | 3.4% | 15 | 17.2% | 0 | 0.0% | 9 | 1.0% |
| Florida | 0 | 0.0% | 15 | 21.4% | 0 | 0.0% | 9 | 1.0% |
| California | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |

Table 3:

## Do Usury Laws Matter?

Panel A reports results from regressing the change in total penalty for a state in a given year on the change in the maximum legal interest rate as well as the change in the difference between the maximum legal rate and the U.S. bond rate, principal component index rate, and Regional rate in that year. The U.S. bond rate and principal component index rate are described in Table 2. The Regional rate is constructed as the New England municipal bond rate for all states in the New England region, the New York city mortgage rate for New York state, and the U.S. bond rate for all other states. We run the regressions in first differences, with controls for age and state fixed effects when using the U.S. bond and principal components index rates, and state and year fixed effects when using the Regional rates. Standard errors are clustered by state or year. Panel B reports results for the impact of usury laws on lending volume. The first four columns report results using the total amount of loans and discounts per capita as the dependent variable and the last four columns report results using the total bonds for circulation per capita as the dependent variable, obtained from state-level banking-sector balance-sheets for the years 1865 to 1890 from the reports of the comptroller of the currency. Loans and discounts were subject to usury laws, while bonds for circulation were not. Regressions are run in first differences using the maximum legal rate and the maximum rate relative to the interest rates. All regressions also include the state's age as a regressor. Adjusted $R^2$s 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: ARE PENALTIES TOUGHER WHEN MAXIMUM RATES ARE MORE BINDING?

| **Dependent variable =** | **Δ Penalty for violating usury** | | | |
|---|---|---|---|---|
| Δ Max. rate | -1.005 | | | |
| | (-3.34) | | | |
| Δ(Max. rate−US bond) | | -0.059 | | |
| | | (-4.66) | | |
| Δ(Max. rate−PC rate) | | | -0.044 | |
| | | | (-4.38) | |
| Δ(Max. rate−Regional rate) | | | | -0.063 |
| | | | | (-4.71) |
| Fixed effects: | | | | |
| Year? | yes | no | no | yes |
| State? | yes | yes | yes | yes |
| $\bar{R}^2$ | 0.07 | 0.07 | 0.05 | 0.11 |
| $\bar{R}^2$ after F.E. | 0.07 | 0.07 | 0.05 | 0.07 |
| Cluster | state | year | year | year |

PANEL B: IMPACT OF USURY LAWS ON LENDING VOLUME

| **Dependent variable =** | **ΔLoans and discounts per capita** | | | | **ΔBonds for circulation per capita** | | | |
|---|---|---|---|---|---|---|---|---|
| Δ Max. rate | 0.982 | | | | -0.039 | | | |
| | (2.38) | | | | (-1.62) | | | |
| Δ(Max. rate−US bond) | | 1.013 | | | | -0.028 | | |
| | | (2.58) | | | | (-1.31) | | |
| Δ(Max. rate−PC rate) | | | 0.840 | | | | -0.043 | |
| | | | (2.44) | | | | (-1.65) | |
| Δ(Max. rate−Regional rate) | | | | 0.926 | | | | -0.043 |
| | | | | (2.43) | | | | (-2.41) |
| Fixed effects: | | | | | | | | |
| Year? | yes | no | no | yes | yes | no | no | yes |
| State? | yes | yes | yes | yes | yes | yes | yes | yes |
| $\bar{R}^2$ | 0.20 | 0.08 | 0.07 | 0.19 | 0.22 | 0.07 | 0.08 | 0.21 |
| $\bar{R}^2$ after F.E. | 0.04 | 0.04 | 0.03 | 0.04 | 0.01 | 0.01 | 0.01 | 0.03 |
| Cluster | state | year | year | year | state | year | year | year |

Table 4:

## 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, and Regional rate, respectively last period. The last column of Panel A repeats the regression using Regional rates by separating the difference between the lagged maximum legal rate and Regional rate into positive and negative components, where the Regional rate exceeds the maximum rate and where it falls below the maximum rate. Panel B reports results from regressing the maximum allowable interest rate on dummies for financial crisis years (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 esimated with year and/or state-level fixed effects and include age as a regressor (coefficients not reported). Standard errors used to compute $t$-statistics (reported in parentheses) are calculated assuming group-wise clustering at either the state or year level. Adjusted $R^2$s 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?

| **Dependent variable =** | | **$\Delta$ Maximum legal rate** | | |
|---|---|---|---|---|
| $\Delta$(Max. rate − US bond rate)$_{t-1}$ | -0.064 | | | |
| | (-4.90) | | | |
| $\Delta$(Max. rate − PC rate)$_{t-1}$ | | -0.072 | | |
| | | (-4.90) | | |
| $\Delta$(Max. rate − Regional rate)$_{t-1}$ | | | -0.103 | |
| | | | (-5.12) | |
| …Regional rate< Max. rate | | | | 0.099 |
| | | | | (2.93) |
| …Regional rate> Max. rate | | | | -0.103 |
| | | | | (-5.11) |
| Fixed effects: | | | | |
| Year? | no | no | yes | yes |
| State? | yes | yes | yes | yes |
| $\bar{R}^2$ | 0.04 | 0.04 | 0.10 | 0.10 |
| $\bar{R}^2$ after F.E. | 0.03 | 0.03 | 0.05 | 0.05 |
| Cluster | year | year | year | year |

Panel B: How do Maximum rates respond to Financial Crises?

| Dependent variable = | levels | changes | changes | levels | levels | levels |
|---|---|---|---|---|---|---|
| Crisis | 1.345 | 0.319 | 0.401 | | | |
| | (3.49) | (3.09) | (2.30) | | | |
| (Max. rate− Regional rate)$_{t-1}$ | | -0.099 | -0.094 | | | |
| | | (-4.97) | (-4.11) | | | |
| Crisis × (Max. rate− Regional rate)$_{t-1}$ | | | -0.014 | | | |
| | | | (-2.60) | | | |
| Crisis × railroad failure | | | | 136.495 | | |
| | | | | (2.17) | | |
| Crisis × manufacturing capital | | | | | 0.241 | |
| | | | | | (1.66) | |
| Crisis × machinery capital | | | | | | 0.177 |
| | | | | | | (2.27) |
| Fixed effects: | | | | | | |
| Year? | no | no | no | yes | yes | yes |
| State? | yes | yes | yes | yes | yes | yes |
| $\bar{R}^2$ | 0.49 | 0.06 | 0.06 | 0.59 | 0.56 | 0.56 |
| $\bar{R}^2$ after F.E. | 0.07 | 0.06 | 0.06 | 0.01 | 0.07 | 0.08 |
| Cluster | year | year | year | year | year | year |

Panel C: How do Maximum rates and lending volume respond to Competition?

| Dependent variable = | Max. rate$_t$ | Max. rate$_t$ | Δ Loans per capita |
|---|---|---|---|
| Max. rate of border states$_t$ | 95.869 | 63.062 | |
| | (6.03) | (2.79) | |
| Max. rate of non-border 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$\geq 0$ | | | 1.565 |
| | | | (2.41) |
| Fixed effects: | | | |
| Year? | yes | yes | yes |
| State? | yes | yes | yes |
| $\bar{R}^2$ | 0.72 | 0.75 | 0.18 |
| $\bar{R}^2$ after F.E. | 0.42 | 0.47 | 0.02 |
| Cluster | state | state | state |

Table 5:

## Private Interests and Incumbent Political Power

Panel A reports results from regressing the maximum legal interest rate for a state in a given year from 1641 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 how both suffrage and incorporation regulation behave in financial crises. Regressions are esimated with year and/or state-level fixed effects and include age 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 $R^2$s 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 = | Max. rate | %Non-voting white males | Max. rate | Max. rate | Max. rate | Max. rate |
|---|---|---|---|---|---|---|
| Restricted suffrage | -1.318 | 12.284 | | -3.058 | -22.945 | -1.446 |
| | (-2.71) | (3.17) | | (-12.02) | (-7.15) | (-7.42) |
| %Non-voting while males | | | -1.510 | -0.646 | 2.122 | |
| | | | (-3.01) | (-1.60) | (5.34) | |
| Restricted suffrage × %NVWM | | | | | -5.033 | |
| | | | | | (-6.67) | |
| Restricted suffrage × Crisis$_t$ | | | | | | 0.059 |
| | | | | | | (1.56) |
| Restricted suffrage × Crisis$_{t+5}$ | | | | | | -0.420 |
| | | | | | | (-2.51) |
| Fixed effects: | | | | | | |
| Year? | yes | yes | yes | yes | yes | yes |
| State? | 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 |

PANEL B: RESTRICTED SUFFRAGE, INCORPORATION LAWS, AND FINANCIAL CRISES

| Dependent variable = | Restricted incorporation | | Restricted incorporation | | Restricted suffrage | |
|---|---|---|---|---|---|---|
| | levels | changes | levels | changes | levels | changes |
| Restricted suffrage | 0.219 | 0.002 | | | | |
| | (3.71) | (3.09) | | | | |
| Crisis | | | -0.013 | -0.017 | -0.001 | 0.005 |
| | | | (-0.90) | (-1.09) | (-0.02) | (0.85) |
| Fixed effects: | | | | | | |
| Year? | no | no | no | no | yes | yes |
| State? | yes | no | yes | no | yes | no |
| $\bar{R}^2$ | 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 |

Table 6:

## Industrial vs. Bank Incumbent Political Power

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 industrialists and bankers, as well as a proxy for egalitarian law or the most laisse faire regulation. Industrial 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 industrial and bank power and egalitarian law using all three forms of regulation. Industrial 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. Banking 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 esimated with year and/or state-level fixed effects and include age 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 $R^2$s 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 = Maximum legal interest rate | | | | | |
|---|---|---|---|---|---|
| **Incumbent power** | | | | | |
| Restricted suffrage and incorporation | -1.453 | -1.488 | | | |
| | (-2.96) | (-2.41) | | | |
| **Egalitarian law** | | | | | |
| No restrictions | 0.361 | 0.0405 | | | |
| | (2.04) | (2.80) | | | |
| **Free banking laws** | | | -0.221 | | |
| | | | (-0.48) | | |
| **Industrial incumbent power** | | | | | |
| Restricted suffrage and incorporation, free banking | | | | -1.359 | -1.194 |
| | | | | (-2.92) | (-3.18) |
| **Bank incumbent power** | | | | | |
| Restricted suffrage and banking, free incorporation | | | | 0.349 | 0.473 |
| | | | | (0.90) | (1.31) |
| **Egalitarian law** | | | | | |
| No restrictions | | | | 2.533 | 2.789 |
| | | | | (1.49) | (1.62) |
| Fixed effects: | | | | | |
| Year? | yes | no | yes | yes | no |
| State? | no | yes | yes | no | 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 |
| $N$ | 3,715 | 3,715 | 2,557 | 2,557 | 2,557 |
| Cluster | state | state | state | state | state |

Table 7:

## Penalties for Violating Usury

The table reports results from regressing the penalty index for usury for a state in a given year annually from 1641 to 1891 on a dummy for financial crisis years (1857, 1873, and 1884) and the year following each crisis, the contemporaneous average penalty index of states that border it, a dummy variable indicating whether the state had restricted suffrage laws that only allowed land owners and/or those who paid taxes to vote, and indicator variables for industrial and bank incumbent power and egalitarian law as defined in Table 6. Regressions are esimated with year and/or state-level fixed effects and include age 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 $R^2$s 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 = Penalty index for violating usury | | | | |
|---|---|---|---|---|---|
| Crisis | -0.484 | | | | |
| | (-6.28) | | | | |
| Penalty of border states$_t$ | | 0.938 | | | |
| | | (5.69) | | | |
| Restricted suffrage | | | 0.497 | | |
| | | | (2.44) | | |
| Incumbent power | | | | 0.628 | |
| | | | | (3.59) | |
| Egalitarian law | | | | -0.572 | |
| | | | | (-1.53) | |
| Industrial incumbent power | | | | | 0.526 |
| | | | | | (5.05) |
| Bank incumbent power | | | | | -1.026 |
| | | | | | (-0.69) |
| Egalitarian law | | | | | -0.431 |
| | | | | | (-2.50) |
| Fixed effects: | | | | | |
| Year? | no | yes | yes | no | no |
| State? | yes | yes | yes | yes | yes |
| $\bar{R}^2$ | 0.55 | 0.73 | 0.64 | 0.55 | 0.58 |
| $\bar{R}^2$ after F.E. | 0.10 | 0.29 | 0.04 | 0.09 | 0.12 |
| $N$ | 3,715 | 3,715 | 3,715 | 3,715 | 2,257 |
| Cluster | state | state | state | state | state |

Table 8:

## Proxies for Public Interests

The first set of proxies we employ for public interests are a set of policies designed to protect the poor and weak debtors: bankcruptcy 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 (1975) 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. 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 (2005) and Glaeser and Goldin (2005), respetively. 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." The third set of proxies for public interests we employ are a series of agricultural shocks that had little to no effect on the industrial sector: agricultural technology shocks, obtained from "A History of American Agriculture" from the United States Department of Agriculture (USDA) from 1780 to 1890, extreme weather shocks, demand shocks for agricultural products, and a series of commodity price shocks to capture shocks to the agricultural sector in each state. Specifically, we use the Froot, Kim, and Rogoff (2005) commodity price series from England and Holland which spans the 17th, 18th, and 19th centuries. For all of these measures we assign the exposure of each state to each of the shocks at different points in time using the most recent available data we can find on the composition of the state's agricultural sector.

| | Dependent variable = Maximum legal rate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Bankruptcy stay | -0.536 | | | | | | | | |
| | (-0.97) | | | | | | | | |
| Debt moratoria vote | | -0.072 | | | | | | | |
| | | (-0.08) | | | | | | | |
| Newspapers per capita | | | 1.425 | | | | | | |
| | | | (6.82) | | | | | | |
| Political coverage | | | | 0.036 | | | | | |
| | | | | (0.17) | | | | | |
| Corruption coverage | | | | | -0.297 | | | | |
| | | | | | (-0.64) | | | | |
| Agriculture technology shocks | | | | | | -0.035 | | | |
| | | | | | | (-0.45) | | | |
| Agriculture weather shocks | | | | | | | -0.030 | | |
| | | | | | | | (-0.89) | | |
| Agriculture demand shocks | | | | | | | | -0.015 | |
| | | | | | | | | (-0.34) | |
| Commodity price shocks | | | | | | | | | 0.003 |
| | | | | | | | | | (0.27) |
| Fixed effects: | | | | | | | | | |
| Year? | yes | yes | no | no | no | yes | yes | yes | yes |
| State? | no | no | yes | yes | yes | yes | yes | yes | yes |
| $\bar{R}^2$ | 0.31 | 0.25 | 0.49 | 0.49 | 0.49 | 0.05 | 0.05 | 0.05 | 0.06 |
| $\bar{R}^2$ after F.E. | 0.20 | 0.07 | 0.06 | 0.09 | 0.09 | 0.01 | 0.01 | 0.01 | 0.01 |
| $N$ | 1,934 | 3,040 | 3,715 | 2,337 | 2,337 | 2,935 | 2,935 | 2,935 | 2,320 |
| Cluster | state | state | state | state | state | state | state | state | state |

Table 9:

## Alternative Explanations Using Cross-Sectional Evidence from 1850

The table reports results 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 accomodations per capita, and percentage of Roman Catholic accomodations. 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 $R^2$s are reported.

| Depdendent variable = Maximum legal interest rate | | | | | | |
|---|---|---|---|---|---|---|
| Bank concentration | -0.0545 | | | | | |
| | (-1.34) | | | | | |
| Banking wealth | | -0.1922 | | | | |
| | | (-1.25) | | | | |
| %City officers, lawyers | | | -2.496 | | | |
| | | | (-1.34) | | | |
| %Pupils, publishers | | | | -22.688 | | |
| | | | | (-6.75) | | |
| Religious accomodations per capita | | | | | -0.107 | -0.153 |
| | | | | | (-5.77) | (-6.95) |
| %Roman Catholic accomodations | | | | | | 0.091 |
| | | | | | | (5.86) |
| $\bar{R}^2$ | 0.41 | 0.36 | 0.52 | 0.71 | 0.65 | 0.71 |

Table 10:

**The Relation Between Usury Laws and Economic Growth**

Panel A (Panel B) reports results from regressing measures of per capita state economic growth from 1850 to 1860 (1860 to 1870) on the change in maximum legal interest rate from 1840 to 1850 (1850 to 1860). Four measures of per capita economic growth are employed: state gross product per capita, manufacturing value added per capita, manufacturing establishments per capita, and manufacturing employment per capita from the 1850, 1860, and 1870 U.S. Censuses and described in Appendix B. Panels A and B also report results from regressing the difference in growth rates between the manufacturing sector and all other sectors in terms of product and employment on the change in maximum legal rates. Regressions include a dummy variable for Civil Law states, the age of the state, and region fixed effects as control variables (coefficient estimates not reported for brevity). Adjusted $R^2$s are reported and $t$-statistics (in parentheses) are calculated using White-corrected standard errors.

| Per capita growth rates in: | (1) State Gross Product | (2) Manufacturing Value Added | Difference (2)−(1) | (3) Manufacturing Establishments | (4) Manufacturing Employment | Difference (2)−(3) |
|---|---|---|---|---|---|---|
| PANEL A: DEPENDENT VARIABLE = ECONOMIC GROWTH RATE FROM 1850 TO 1860 | | | | | | |
| $\Delta$Max. rate$_{1840:1850}$ | 15.40 | 1.09 | -14.31 | -5.22 | -5.37 | 6.32 |
| | (4.26) | (2.60) | (-4.44) | (-4.77) | (-4.75) | (4.25) |
| Fixed effects: | region | region | region | region | region | region |
| $\bar{R}^2$ | 0.35 | 0.15 | 0.37 | 0.41 | 0.40 | 0.35 |
| PANEL B: DEPENDENT VARIABLE = ECONOMIC GROWTH RATE FROM 1860 TO 1870 | | | | | | |
| $\Delta$Max. rate$_{1850:1860}$ | 5.91 | 0.38 | -5.53 | -1.98 | -2.03 | 2.36 |
| | (2.49) | (1.47) | (-2.59) | (-2.68) | (-2.66) | (2.41) |
| Fixed effects: | region | region | region | region | region | region |
| $\bar{R}^2$ | 0.14 | 0.03 | 0.15 | 0.16 | 0.16 | 0.13 |

**Figure 1. Evolution of Average Maximum Allowable Interest Rate and Usury Penalty**

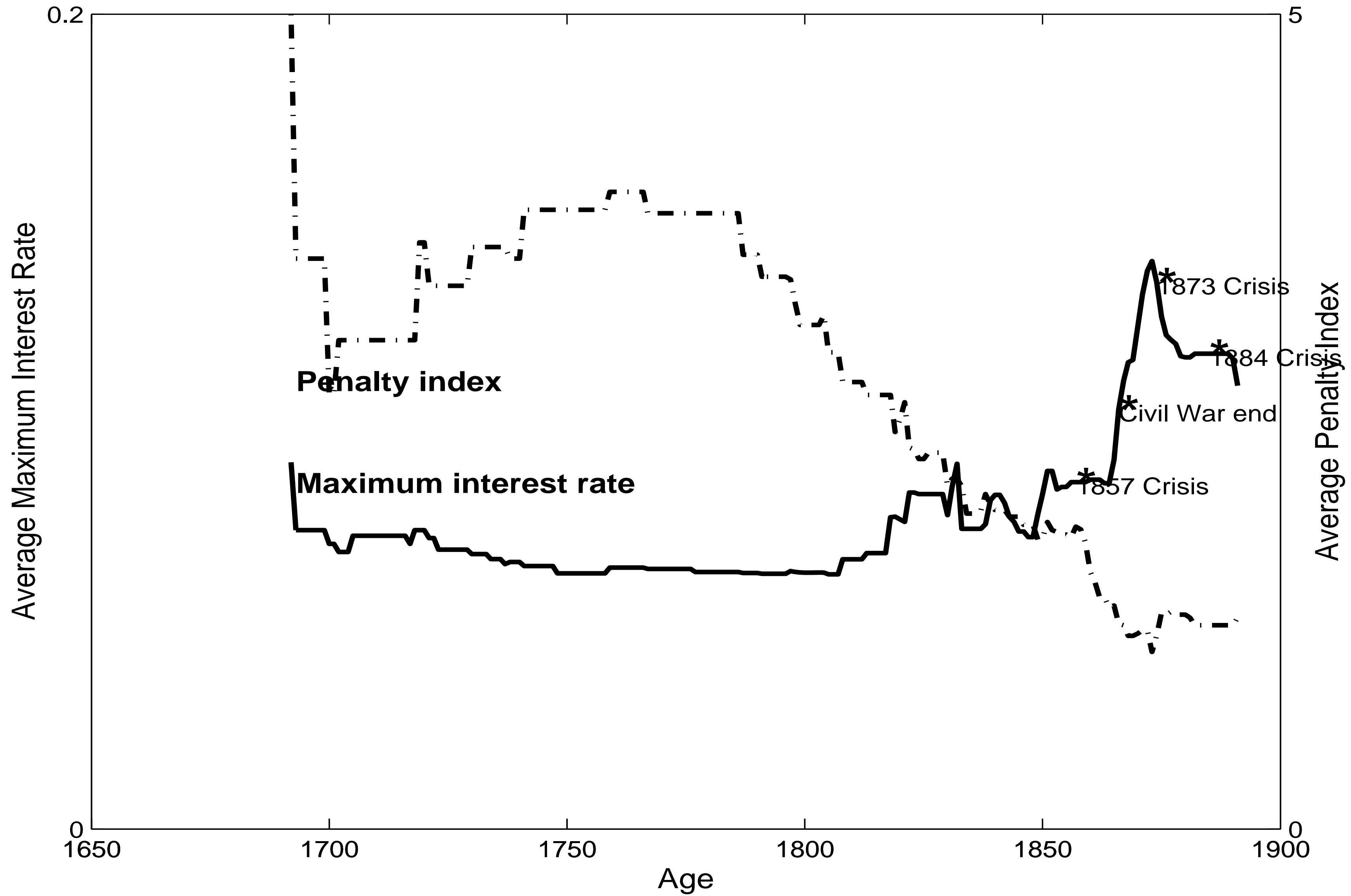

**Figure 2. Market Interest Rates and Maximum Legal Rates**