The Political Economy of Financial Regulation: Evidence from U.S. State Usury Laws in the 18th and 19th Century*

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Abstract

We study the political economy of financial regulation by examining the determinants and effects of U.S. state usury laws during the 18th and 19th centuries. We argue that regulation is the outcome of private interests using the coercive power of the state to extract rents from other groups. We find that strictness of usury coexists with other exclusionary policies such as suffrage laws and lack of general incorporation or free banking laws, which also respond less to competitive pressures for repeal. Furthermore, the same determinants of financial regulation that favor one group and limit access to others, are associated with lower future economic growth rates, highlighting the endogeneity of financial development and growth.

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Introduction

We study the political economy of financial regulation through the lens of usury laws in the U.S. during the 18th and 19th centuries. 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.

In his "Memoirs of an Unregulated Economist" George Stigler seems to have been puzzled by the existence of usury laws. He writes:

> *As an example, in recent times a good deal of fine work has been done on the capital markets and how they accumulate capital and allocate it to various users. Nevertheless, we have no sensible answer for so simple a question as why most societies pass (usury) laws setting maximum interest rates; assuredly the laws do not help poor borrowers. Indeed, the laws injure the poor by preventing them from offering higher interest rates to compensate for the greater riskiness of their repayment of a loan, and thus deprive them of access to legitimate capital markets.* (Stigler (1988) page 192.)

We attempt to answer the question posed by Stigler by adopting Stigler's (1971) own view of economic regulation, termed "the capture theory," where regulation is borne from private groups with political power attempting to capture rents at the expense of public interests. This study hopes to shed light on the economics of regulation, following the pioneering work of Bentley (1908), Stigler (1971), Peltzman (1976, 1989), and Becker (1983), who analyze regulation as the outcome of private interests using the coercive power of the state to extract rents at the expense of other groups. The private-interest theory contrasts with the public-interest theory of regulation in which the government intervenes to correct market inefficiencies and maximize social welfare (e.g., Feldstein (1972a 1972b), Schmalensee (1979), and Joskow and Noll (1981)).

The development and eventual repeal of usury laws in the United States during the 19th century is a natural framework to test theories of financial regulation. Usury laws regulate the maximum lending rate that can be charged and the penalties imposed for usury. There is substantial heterogeneity in usury laws during the 19th century both across states and over time for a given state. We investigate the political economy of what determined this heterogeneity. 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?

We argue that the tension between private and public interests provides an explanation for the variation in usury laws observed across states and time. States adopted usury laws in response to neighboring state competition and in response to financial crises in an attempt to improve their economic development. States hit hardest by financial crises were also more likely to repeal their usury laws.

We also find that usury laws were used by incumbents and the elite in established states to control entry, hamper competition and 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, creditworthiness, and ownership of assets that can be used as collateral, this form of financial regulation can be used to prevent further competition from deteriorating their rents. To proxy for incumbent power in a state, we first examine whether a state has suffrage laws that restrict who can vote. States that impose suffrage laws to only allow land owners and tax payers to vote keep political power in the hands of wealthy incumbents. Consistent with the private-interest theory, we find that stringent suffrage laws are highly correlated with tighter usury laws even in the presence of year and state level fixed effects. Moreover, strict suffrage laws also slow a state's response to competition and financial crises. Economic historians argue that suffrage laws are primarily driven by private interests [Engerman and Sokoloff (1997), 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 arguement, we find that suffrage laws in one state are immune to those in its neighboring states and are also not affected by neighboring state usury rate policies. Hence, while usury laws respond to local competition, suffrage laws do not.

To further corroborate the private-interest story we also examine other forms of economic regulation designed to exclude entry. We find a positive relationship between strict suffrage laws and the lack of general incorporation laws that permit free entry of firms. Furthermore, states with suffrage laws and no general incorporation laws, where exclusion is greatest, also have the strictest usury laws, and respond the least to competitive pressures. Consistent with the private-interest theory, this evidence indicates usury laws are adopted in conjunction with other exclusionary policies desigened to limit access to other groups. Finally, we augment our findings using characteristics of the state population to proxy for the prevalence and power of the elite incumbent class and find

a positive relationship with strictness of usury laws.

We then consider which incumbent group's private interests are best being served by these policies. We consider the role of industrial versus financier incumbent groups in setting financial regulation. To distinguish between the private interests of these two incumbent groups, we examine another form of financial regulation that should appeal differentially to banks and industrialists and analyze its relationship with usury laws. 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 and competition, while incumbent industrialists want to foster bank competition to lower their own cost of capital. We find that the combination of policies that restricts voting and incorporation, but allows free banking is associated with the strictest usury laws, consistent with industrial incumbent interests. Similarly, we find no relation between other measures of bank power, such as banking sector concentration or wealth, and usury laws.

We also consider alternative explanations for usury, including public interests and social insurance motives (Glaeser and Scheinkman (1998)), bureaucratic costs, and religious motives. The evidence in favor of these alternative explanations is weak. For example, the public-interest theory argues that usury laws are designed to protect borrowers from predatory lending when creditors have market power. Under this theory, regulation is supposed to help underserved or disadvantaged groups and is therefore intended to be inclusive. We find, however, that usury laws tend to be exclusive, since they coexist with other policies designed to exclude, rather than include, other groups.

Finally, we find a strong positive relationship between usury laws and subsequent economic growth. Though we are cautious to draw any causal conclusions, we find that while usury rates predict future growth, neither contemporaneous nor lagged growth predicts usury rates. We also find that instrumenting usury rates with suffrage laws predicts future economic growth. While usury laws are determined simultaneously with other exclusionary policies and actions that are also likely related to future economic growth, we provide evidence that state legislatures at least *believed* these laws affected the flow of capital and future growth. This evidence is consistent with the tension between private and public interests determining financial regulation.

Our results relate to the large literature on the economics of regulation (e.g., Stigler (1971), Peltzman (1976, 1989), and Becker (1983)), and complement research on the political economy of financial regulation. Peltzman (1965) and Kroszner and Strahan (1999) find that financial

regulation is determined in part by private interests. Rajan and Zingales (2003) propose an interest group theory of financial development, where both incumbent financiers and industrial incumbents oppose financial development because it breeds competition in the financial and industrial sectors. Braun and Raddarz (2004) also show that the relative strength of interest groups determines the level of financial system sophistication.

We provide direct evidence on the link between private interests and financial regulation, the tool with which private interests hinder financial development. Studying the private-interest group theory of financial development requires that a policy instrument for the mechanism of regulation be identified. Usury laws, being determined by the state legislature, are a natural instrument for this task. Unlike other measures of financial development (e.g., market capitalization over GDP, amount of credit over GDP, or accounting standards) maximum legal rates are also easy to quantify and represent direct constraints on the cost of capital. These constraints were almost certainly binding for some borrowers in the 19th century.

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)]. 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 origins (La Porta et al. (1997)) fixed.[1] The general conclusion of this literature is that financial development fosters economic growth, which raises the question: If finance is so beneficial, why do some economies remain less financially developed? In particular, why do we observe such heterogeneity in financial regulation across states and time in the 19th century U.S.? The tension between private and public interests provides an explanation that best fits the data. 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 rates, perhaps 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 hypotheses on financial regulation we test. Section II describes state usury laws and their

[1]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.

evolution in the U.S. during the 18th and 19th centuries. Section III analyzes the determinants of usury laws, focusing on the tension between private and public interests. Section IV examines the relation between usury laws and economic growth. Section V concludes.

I. Theoretical Framework and Hypotheses Development

In this section, we layout the hypotheses to be tested on financial regulation with regard to usury laws from the public and private interest views.

The private-interest theory treats regulation as a process in which some groups use the coercive power of the state to extract rents at the expense of other groups (e.g., Bentley (1908), Stigler (1971), Peltzman (1976, 1989), and Becker (1983)), in contrast to the public-interest theory in which the government intervenes to correct market inefficiencies and maximize social welfare (e.g., Feldstein (1972a 1972b), Schmalensee (1979), and Joskow and Noll (1981)). We focus on usury laws, a primitive form of financial development that is perhaps the oldest form of financial regulation.

A. The Private-Interest Group Hypothesis

Usury laws regulate the maximum legal 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 place 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 following predictions emerge from applying the private-interest theory to usury laws.

Well-organized and powerful incumbent groups may use the coercive power of the state to capture rents at the expense of other groups by imposing maximum legal rates. Nelson (1947) and Ekelund, Hebert, and Tollison (1989) argue that during the Middle Ages the Roman Catholic Church, the prominent borrower of that period, used usury laws to lower the interest on its loans. In addition to lowering their own cost of capital when credit markets are less competitive, incumbents may also benefit from the barriers to entry that maximum legal rates create. Wealthy industrial 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 pledgeble collateral, and thus are not bound by the maximum legal rate. Industrial 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).

As Rajan and Zingales (2003) illustrate, similar arguments apply to incumbent financiers. While less restrictive usury laws provide financiers with an opportunity to finance more projects, it also facilitates entry of new financial institutions. Repealing usury laws can reduce barriers to entry into the financial sector, which the incumbent financiers would like to preserve. In sum, more lax usury laws facilitate entry, and thus lead to lower profits for both industrial incumbents and existing financial institutions. While we use the general term 'incumbents' in our empirical predictions, we will try to separate the private interests of incumbent financiers from industrialists in our empirical analysis.

Incumbents weigh the marginal costs and benefits of financial regulation when imposing tight or loose usury laws. When the marginal cost of capital increases, usury laws become more lenient. The marginal cost of capital will be high when a competitor state alters its usury laws to attract outside capital, or during nationwide financial crises. Hence,

PREDICTION 1. Usury laws follow those of their competitors and are relaxed following financial crises.

Moreover, states facing more severe competition and states hit hardest by financial crises are more likely to repeal usury laws.

PREDICTION 2. States more sensitive to competition and financial crises are more likely to relax usury laws.

These predictions follow 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 will lead 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 competition for capital and financial crises, it is likely the benefits from increased capital outweigh those from surplus division and usury ceilings will be closer to 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 3. 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).[2]

PREDICTION 4. The relaxation of usury laws from wealth and competitive pressures is mitigated when incumbents have more political power.

Combining the first three predictions, states respond less to economic forces when incumbents exert their political influence to protect their own interests. Likewise, incumbents do not need financial development to ensure financial access during normal times. However, during bad times even incumbents may wish to relax financial regulation. Hence, for this reason as well the interaction between incumbency and economic forces will be a negative determinant of usury laws.

PREDICTION 5. Usury laws are more strict in states where the availability of collateral is higher.

Prediction 5 emerges directly from Rajan and Zingales (2004). The cost of capital of potential borrowers with collateral is less likely to be sensitive to the maximum legal rate. Hence, the cost of financial constraints is low for those with collateral. Conversely, usury laws act as a barrier to entry for those without collateral, reducing competition.

B. The Public-Interest Hypothesis

According to the public-interest hypothesis, financial regulation is set to maximize social welfare. Since usury laws are set by the state legislature, we consider welfare at the state level. Glaeser and Scheinkman (1998) model usury laws as a primitive means of social insurance, transferring 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. Crucial to this approach is the assumption

[2]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. A major difference between Glaeser and Scheinkman (1998) and our analysis is that they focus on consumption loans while we focus on production loans.

that lenders have market power and the supply of loans rises with the interest rate for a given level of risk. Usury laws thus impose a maximum price on capital and are more likely to be used when credit markets are less competitive.

PREDICTION 6. States with more competitive credit markets have more lax usury laws.

Also, since some types of borrowers need more protection than others,

PREDICTION 7. States with financially less sophisticated borrowers have more stringent usury laws.

Less sophisticated borrowers require protection from high interest rates and bank market power. Protection of the ignorant and the poor from excessive borrowing was considered one of the goals of usury laws at the time.[3]

Finally, since usury laws help transfer income across states of the world and individuals more efficiently according to the public-interest view,

PREDICTION 8. Tighter usury laws reduce the amount of income heterogeneity in a state.

This prediction emerges from Glaeser and Scheinkman (1998).

Finally, the premise underlying both the public and private-interest theories implies financial development, proxied by usury laws, is related to economic growth.

PREDICTION 9. States with less restrictions on the maximum legal interest rate will experience higher rates of economic growth.

This prediction is a direct application of the Schumpeterian view of the relationship between financial development and growth. A more developed financial sector is more efficient in reallocating capital to its best use. This prediction also emerges from Glaeser and Scheinkman (1998).

[3]According to Wright (1949): "Though [usury laws are] justifiable if intelligently drawn up to protect the ignorant and the poor who borrow chiefly for consumption needs, such attempts to fix the price of capital borrowed for investment purposes are fairly certain to fail."

C. 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.)

D. Do Usury Laws Matter?

Another view of financial regulation is that it has little impact on the economy because it can effectively be circumvented by market participants through 'clever' contracting (Wright (1949)). However, if usury laws are innocuous, this cannot explain the observed heterogeneity we see in usury laws across states and time.

Bodenhorn (2005) analyzes the lending behavior of the Black River Bank in New York during the years 1845 to 1859 and finds violations of the 7% maximum legal rate. On the other hand,

Wright (2002) argues that banks were reluctant to violate usury laws because doing so placed their corporate charter at risk. North (1990) discusses how contracts attempted to disguise interest and evade usury laws by specifying "late payment penalties," manipulating exchange rates, or other devices. However, such 'innovative contracting' imposes additional costs that would not be present in the absence of usury laws. In addition to the costs of writing complex contracts, North (1990) points to the difficulty in enforcing such contracts. Enforcement problems often deterred lenders, particularly foreign lenders, from entering the market. 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. These costs would seem to have some impact on financial development.

The mindset of legislators at the time was that usury laws certainly did bind, as suggested by some of the previous quotes. In addition, 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 legislative committee in Connecticut in 1871 "painted a picture of money fleeing to Massachusetts," where the usury law had been repealed in 1867." The fear of capital drain was driven by the principle that interest is to be paid according to the law of the place where the money is to be used or paid, or to which the loan specifically referred. So a loan supplied by a Connecticut bank contracted in Massachusetts was subject to Massachusetts usury laws.[4]

Ultimately, however, this is an empirical question. Eichengreen (1984) finds that usury laws were binding for risk-adjusted interest rates on real-estate mortgages in states with a 6% maximum legal rate. Likewise, Snowden (1988) finds that lending volume in the East was reduced by the existence of binding usury ceilings. Our own analysis of legal rates identifies significant variation in usury laws that responds to competition, financial crises, and various measures of private interests. This evidence suggests that usury laws mattered or that legislators believed they did.

II. Usury Laws in the United States

Usury laws pertain to the location of the loan or borrower, regardless of the location of the lender. 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

[4]See Murray (1866).

the remaining 20 states we study adopted their usury laws in the 19th century. Usury laws govern the maximum legal interest rate that can be charged on loans. In 19th century America there was substantial heterogeneity in usury laws across states and time. For example, the first law against usury in the colony of New York was passed in 1717 and established interest at 6%, while New Jersey passed a law against usury in 1738, that fixed the interest rate at 7%. In South Carolina interest was fixed by statute, passed in 1719, at 10%, but was substantially re-enacted in 1748 when the rate was reduced to 8% and later in 1777 when it was further reduced to 7%. In 1730, Virginia fixed the rate of interest at 6%, but four years later reduced it to 5%.

In addition to regulating the maximum legal rate for borrowing, the colonies (and later the states) also set penalties for charging usurious rates. The penalty 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 (as in Maryland until 1860), or triple the illegal interest as in Illinois, Massachusetts, and New Hampshire in 1850.

Table 1 reports the heterogeneity of usury laws across states in 1850, since the period 1850 to 1860 is going to play a prominent role in our analysis, and Table 2 summarizes usury laws across states over time from 1641 to 1891. States are sorted in ascending order by their maximum legal rate. We construct a qualitative index of the penalty.[5] 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 was 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. We also give states a score of 1 if the contract is void and 0 otherwise. An index of the severity of penalties adopted by the state is constructed as the sum of these measures across all five dimensions of the usury penalty code. The negative relationship between maximum rates and penalty is evident as the average penalty declines almost monotonically for states with higher legal rates.

[5]The source of the data for both the maximum legal rates and the penalty is Holmes (1892).

Figure 1 plots the time-series evolution of usury laws in the U.S. from 1641 to 1891. Cross-state averages of maximum legal rates and penalty are plotted annually. Similar to Rockoff (2003), we find that maximum legal rates (solid line) began to trend upward at the beginning of the 1800s and peaked in the 1870s. The penalty for usury (dashed line) began to decline at the end of the 18th century and continued to trend downward during most of the 19th century. The financial crises of 1857, 1873, and 1884 as well as the end of the Civil War (1865) are shown on the graph. As Figure 1 indicates, usury laws tend to relax following each of these episodes, both in terms of higher maximum rates and lower penalties. This evidence is suggestive of financial liberalizations following financial crises, consistent with Prediction 1.

Panel A of Table 2 reports summary statistics for both the maximum legal rates and the total penalty across states. The mean maximum legal rate over the entire time period for which the state has usury laws on its books is reported in the first column of Table 2. 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 observed in that year across all states as the effective maximum rate.[6] The second and third columns of Table 2 Panel A report the minimum and maximum legal rates over time for a state and the fourth column reports the number of changes 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.

The last column of Table 2 Panel A 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 stringent penalties.[7] There may be many reasons why older states tended to have more stringent usury laws than younger states. For example, older states may be less concerned about growth and attracting outside capital, may have greater household income inequality and perhaps a greater fraction of unsophisticated households who need usury protection, have more developed banking systems that are able to circumvent usury restrictions, have more bureaucratic capital to support financial regulation, and are more likely to have private interest groups with

[6]We have also used a flat rate of 25%, which is 5% higher than the maximum rate observed across all years and states in the sample, and a flat rate of 20%, which is the maximum observed rate, for any state-year with no rate limit. Results in the paper are robust to these alternative specifications for coding states with no maximum rate limit.

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

stronger political clout. We will investigate these hypotheses to better understand how financial regulation in the 19th century evolved across states.

Panels B and C of Table 2 analyze more formally the relationship between maximum legal rates and penalty for usury. Panel B reports that the correlation between the maximum legal rate and total penalty is -0.36.[8] The mean and standard deviation of the maximum legal rate and penalty for usury are also reported in Panel B across all states and years for reference and later use in interpreting economic significance from the regressions.

Panel C of Table 2 reports results from regressions of the maximum legal interest rate on the total penalty index. The first column of Panel C reports results from a panel regression across all state-years with year fixed effects to isolate the cross-sectional (or 'between') variation across states. Three sets of t-statistics are reported that correspond to standard errors calculated under OLS, assuming group-wise clustering at the state level, and assuming group-wise clustering at the year level with an autocorrelation adjustment of 10 annual lags. Because of the long time-series and persistence of usury laws, employing standard errors clustered by state appears to be the most conservative approach. There is a statistically and economically strong negative relationship between the legal rate and penalty. The second column employs state-level fixed effects in the regression to isolate time-series (or 'within') variation, and finds a similarly strong, both economically and statistically, negative relationship between usury rates and penalties. The third column of Panel C employs year and state fixed effects and finds a significant negative relationship between rates and penalties. Comparing the adjusted $\bar{R}^2$ from these regressions, it is evident that cross-sectional variation is substantially higher than time-series variation in usury laws: state-level fixed effects capture 55 percent of the maximum rate variation, year fixed effects capture 17 percent of the rate variation. We also report the incremental $\bar{R}^2$ from the penalty regressor *after* the fixed effects are taken into account. The fourth column of Panel C of Table 2 regresses changes (annual first differences) in maximum rates on changes in total penalty for usury, which generates very similar results. The last column of Panel C of Table 2 reports regression results using only the cross-section of 1850. The negative relationship between the maximum rate and penalty is present in the 1850 cross-section as well. Rates and penalties are likely determined simultaneously and, not

[8]Breaking down the components of the penalty index, maximum legal rates are negatively correlated with all dimensions of the penalty code, except perhaps the forfeiture of principal, which is negatively correlated with the other components of the penalty index. This result suggests that forfeiture of principal was often used as a substitute for the other measures of penalty such as the loss of principal or interest.

surprisingly, are negatively correlated.

Panel C of Table 2 highlights the various samples we use for our tests. We examine both time-series and cross-sectional variation in financial regulation and development. When possible, we employ a full panel of state-year observations. However, for some of our tests we employ only the 1850 cross-section due to data limitations. We focus on the maximum legal interest rate as the instrument for financial regulation for brevity and because it likely has the greatest impact on lending activity. Tests using the penalty for usury provide (in unreported results) very similar results (with opposite sign).

III. 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 theories of Section I.

A. Competition, Geography, and Financial Crisis

Table 3 examines the role competition, geography, and financial crises play in determining a state's usury laws. The first column 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. State and year fixed effects are included to difference out unobservable time and state effects, such as market interest rate levels or state characteristics. Standard errors used to compute t-statistics (reported in parentheses) are calculated assuming group-wise clustering at the state level. 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 for example, and state fixed effects, which eliminate any time-invariant unobserved effects at the state level. This finding suggests that a state's variation in legal rates over time is in part determined by what its neighbors are doing, which we interpret as a response to competition for capital. During this time period the flow of capital from foreign nations, particularly Europe, was substantial (see North (1966) and Davis and Cull (1994)). 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, consistent with Prediction 1. Hence, usury rates are close to market rates when the

cost of financial regulation is high. Whether a non-border state changes its rate has no effect. The magnitude of the response is also large. A one percent increase in a neighboring state's maximum legal rate increases the state's own legal rate by 87 basis points. Adjusted $\bar{R}^2$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.). Bordering states' maximum legal rates explain 32 percent of the variation in a state's rates after accounting for state and year fixed effects.

The second column of Table 3 adds two explanatory variables for the maximum rate of border and non-border states over the previous five years, excluding the current year. The 5-year lagged variables do not affect the state's current legal rate. Hence, it is the current legal rate of a state's competitor or neighbor that is the most significant determinant of a state's maximum legal rate. Results from both regressions are identical if we regress first differences on first differences instead of the fixed effects specification.

The third column of Table 3 includes the wealth of the state (per capita output) as a regressor and interacts the wealth of the state with the contemporaneous border variable. The wealth of the state proxies for how sensitive the state is to competitive forces. For instance, 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 term indicates that wealthy states respond less to border state usury rates, consistent with wealthier states being less sensitive to competition in support of Prediction 2.

The fourth column of Table 3 considers the effect of financial crises on usury laws. During financial crises, when the marginal utility of additional capital is high, states may set financial regulation to attract outside capital (Prediction 1). We regress the maximum legal rate of states on dummies for financial crisis years (1857, 1873, and 1884) and the year after each crisis, as well as a dummy for the five years after the end of the civil war (1865 to 1869). Maximum rates are relaxed (e.g., raised) during and following times of financial distress, consistent with Prediction 1. States raise their maximum legal rate by 1.3 to 1.5 percentage points during and after financial crises.

The last four columns of Table 3 add measures of a state's senstivity to financial crises and interact them with the dummy for financial crisis years. Prediction 2 implies states more sensitive to financial crises will more likely repeal usury laws following 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, 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 3 shows that states hid hardest by the financial crisis were more likely to repeal usury laws subsequently, consistent with Prediction 2. The fifth column repeats this regression using state and year fixed effects, where the year fixed effects absorb the level effect of the crisis itself. The results are similar. Finally, 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 product per capita in 1870. Benmelech (2006) shows that the manufacturing sector and particularly the machinery sector were hit hardest during the 1873 financial crisis. Consistent with Prediction 2, we find positive interaction terms for both measures of crisis sensitivity.

B. Private Interest: Incumbent Political Power

Table 4 examines the role political incumbent power plays in determining a state's usury laws, as a proxy for private interests.

B.1 Suffrage laws

We follow the literature on the relationship between suffrage laws, the power of the elite, institutions and property rights (e.g., Engerman and Sokoloff (1997), 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. 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. Despite the egalitarian spirit attributed to the Founding Fathers, voting in the United States was largely a privilege reserved for wealthy white men who owned a significant amount of properties. Similar to the negative relationship between the state's age and strictness of its usury laws' documented in Table 2, states that joined the union later also adopted more egalitarian voting rights. If suffrage laws are a reasonable proxy for incumbent political power then the similarity between usury laws and suffrage laws supports the private interest theory. Likewise, Rockoff (2003) hypothesizes that similar to voting restrictions that were eased in western states in order to attract settlers, the repeal

of usury laws in the same states was driven by competition among the states for capital. We now turn to test the empirical relationship between usury laws and incumbent political power as proxied by the existence of suffrage laws.

Panel A of Table 4 reports results from regressing the maximum legal interest rate for a state in a given year on a proxy for the political power of incumbents: a dummy variable indicating whether the state has suffrage laws that only allow land owners and/or those who paid taxes to vote in that year. States with suffrage laws in a given year have much tighter usury laws in that same year. Controlling for year fixed effects in column 1, the average maximum interest rate is 39 basis points lower for states with suffrage laws. Controlling for state-level fixed effects in column 2, to focus on the dynamics of laws for a given state, the average maximum rate is 1.24 percentage points lower when a state also imposes suffrage laws. Controlling for both state and year fixed effects in the third column, suffrage laws are associated with maximum interest rates that are 94 basis points lower on average. This finding suggests that when incumbents have political power, they exert their political influence to restrict financial access through strict usury laws, consistent with Prediction 3.

The fourth column of Panel A of Table 4 reports results from the same regression that also includes interactions between the average maximum legal lending rate of states that border it and a dummy variable for financial crisis years (the state and year fixed effects control for the levels of these variables). The interaction terms are negative, suggesting that the response to competitive pressure from either neighboring states or financial crises is mitigated when a group of incumbents has political power. These results highlight the tension between public and private interests in determining usury laws as suggested by Prediction 4.

Figure 2 shows graphically the evolution of usury laws (maximum legal rates and penalty for usury) over time for states with and without suffrage laws. The figure illustrates that states with suffrage laws not only have more stringent usury laws at any point in time, but also are less likely to change their usury laws over time. Non-suffrage law states change their usury laws far more frequently, consistent with these states responding more to competitive pressures. The figure also shows how all states respond to competitive pressures in extreme crisis years, even if the political stronghold of the elite incumbents is present. These patterns echo the results from the regressions.

B.2 Does Suffrage respond to competition?

To provide more evidence on the exogeneity of suffrage laws with respect to economic conditions, Panel B of Table 4 tests whether suffrage laws respond to competition from neighboring states. We regress a dummy variable that indicates whether a state has suffrage laws on the fraction of states that border it that also have suffrage laws at the same time. If suffrage responds to competition (e.g., a state repeals its suffrage laws when neighboring states do the same), then suffrage may be endogenously related to economic and competitive forces that are also affecting usury laws. As the first two columns in Panel B show, suffrage laws do not respond to 'suffrage competition' from neighboring states, even when we examine cumulative suffrage laws over a 5-year period. The last two columns of Panel B regress the suffrage law dummy on the border variable for usury rates (same year and lagged 5-years) to see if suffrage laws respond to usury rate competition, which may be a more direct test of state competitive pressure. As the last two columns of Panel B indicate, suffrage laws are unaffected by border state usury laws and seem to be fairly exogenous to competitive pressures from neighboring states.

B.3 General incorporation laws

If suffrage laws are a good proxy for incumbent political power, then 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, in addition to using borrowing constraints, by imposing restrictions on forming non-financial corporations directly or indirectly. 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 C of Table 4 tests whether suffrage laws are correlated with general incorporation laws. Since general incorporation laws, once adopted, are never repealed in our sample, we cannot employ *both* state and year fixed effects in this regression. So, the first column of Panel C reports the specification with year fixed effects and the second column with state fixed effects. Both specifications yield the same conclusion that suffrage laws make it less likely a state will have general incorporation laws, implying tighter restrictions on firm entry. After controlling for state fixed effects, having tax or wealth-based suffrage restrictions decreases the probability of having general incorporation laws by 17.9 percentage points. With year fixed effects the decrease in probability is 6 percentage points.

The third and fourth columns of Panel C include the fraction of bordering states that also have incorporation laws in the same year and an interaction term between border state incorporation and suffrage laws. Consistent with Prediction 4, states with suffrage laws and more voting power in the hands of incumbents respond less to competitive pressures to liberalize incorporation laws.

Panel D of Table 4 investigates the relation between charter and incorporation restrictions and usury laws. Since incorporation laws (or the lack of them) could also be used to affect competition, we examine whether states who had incorporation laws which made competition easier also had more lax usury laws. We regress the maximum legal rate of the state on a dummy variable indicating whether the state had adopted general incorporation laws in each year. As the first and second columns of Panel D of Table 4 report, states who adopt general incorporation laws, which increase new entry, also adopt more lenient usury laws. Cross-sectionally (e.g., year fixed effects specification), a state with incorporation laws allows rates to be 1.2 percentage points higher than states without incorporation laws at a point in time. Over time (e.g., state fixed effects specification), a given state allows for rates 69 basis points higher when it also adopts incorporation laws. The state fixed effects specification yields weaker results because it eliminates some of the most extreme state behavior such as Wisconsin who adopted general incorporation laws immediately when it joined the union or Delaware who never adopted incorporation laws during our sample period.

The last two columns of Panel D of Table 4 include both suffrage and general incorporation laws in the same regression. Consistent with our prior results, suffrage laws are negatively associated with usury and general incorporation laws are positively related to usury, consistent with private interests restricting entry.

The results in Table 4 can be summarized as follows. Usury laws are correlated with other

forms of economic regulation such as suffrage and general incorporation laws that are designed to *exclude* others from the right to vote or start up a firm. While these policies are likely determined endogenously, the fact that stringent usury laws are correlated with strict suffrage requirements and lack of general incorporation laws suggests that, like other forms of economic regulation, usury laws were not designed to include groups, but rather to exclude groups from markets and access to finance. This result contrasts sharply with the public-interest view of regulation which is designed to assist, protect, and *include* weaker groups.[9]

C. Who are the Incumbents? Industrialists vs. Financiers

Rajan and Zingales (2003) argue that either incumbent financiers or industrialists may be interested in restricting access to finance. We attempt to distinguish between these two types of incumbents to determine which group is more likely to be associated with restrictive usury laws. Specifically, 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 industrial incumbent power is likely to be greatest. To maintain power, industrialists want voting restrictions and want to deter competition, so state-years where suffrage laws exist *and* where general incorporation laws are absent are cases where industrialists have the most power. In the first column of Table 5, we regress the maximum legal rate on a dummy variable that equals one if a state in a given year has suffrage laws but no general incorporation laws (i.e., **industrial power** = suffrage=1 and incorporation=0). The absence of the general incorporation law creates barriers to entry to the industrial sector, but in order to maintain these barriers to entry the entrenched industrialists limit the franchise using suffrage laws. The other extreme set of policies we define as being *egalitarian*, which are years in which a state has general incorporation laws and no suffrage restrictions. Without suffrage laws voting power is not maintained by the wealthy incumbents and is extended to individuals regardless of wealth. General incorporation laws encourage entry to the industrial sector. The combination of these two policies is the most egalitarian platform, other things being equal.

[9]The relation between direct entry restrictions and usury laws presented in Table 4 is similar to the relation documented in Djankov et al. (2002). In a cross-country study of the regulation of entry Djankov et al. (2002) found a negative relation 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 our results and with Rajan and Zingales' (2003, 2004) hypothesis that financial regulation and entry restrictions are used complementarily.

As the first column of Table 5 shows, states in which the industrial sector has more power adopt more strict usury laws. Controlling for state-level fixed effects, when a state adopts both suffrage laws and refuses general incorporation laws, maximum legal rates are 52 basis points lower. The magnitude of this effect should be interpreted relative to the effects of suffrage and lack of incorporation laws shown previously in Panel D of Table 4 (last column with state fixed effects). Years in which a state adopts suffrage laws have maximum interest rates 1.17 percentage points lower than average, but years in which states have *both* suffrage laws and lack of general incorporation laws, tranlate into an extra 52 basis point reduction in the maximum rate, for a net effect of 1.69 percentage points lower. This evidence is consistent with the industrial incumbent private-interest view of regulation and suggests that finanacial and economic barriers to entry are used in complement. Consistent with complementarity of regulation policies, the most egalitarian states have significantly more lax maximum legal rates that are 113 basis points higher per year 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, 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 and competition, while incumbent industrialists 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. 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.

The second and third columns of Table 5 report 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 second column reports results from the specification that includes state fixed effects and the third column reports results when state and year fixed effects are included. Under both specifications, free banking laws are associated with lower legal interest rates. This evidence is potentially consistent with both industrial and bank incumbent private interests. Industrialists want low usury celings, to deter entry, and free banking, in order to lower their own cost of capital.

On the other hand, bank incumbents want to restrict bank entry and so oppose free banking laws. Bank incumbent preferences for usury rates are somewhat ambiguous, however. On the one hand, bank incumbents may want low usury ceilings to deter bank entry. On the other hand, bank incumbents may want no restrictions on interest rates to avoid any lending contraints imposed on themselves. The negative relation between free banking and usury rates is only consistent with bank incumbent private interests in the latter case.

To better sort out the private interests of banks from industrialists, we consider the combination of policies most appealing to each group along three dimensions: suffrage, general incorporation, and free banking laws. Industrial incumbent private interests dictate voting restrictions to maintain power, lack of general incorporation laws to restrict entry, 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 has suffrage laws, no general incorporation laws, and free banking laws in that year. Bank incumbent private interests are aligned with voting restrictions, to maintain power, general incorporation laws, to allow corporate entry, which creates more potential borrowers, and no free banking laws to restrict bank entry. We designate bank incumbent power with an indicator variable equal to one for state-years with suffrage and general incorporation laws, but no free banking laws. Finally, we create a dummy variable to capture the most egalitarian set of policies which consists of no suffrage laws and free entry of both corporations and banks (general incorporation and free banking laws).

The fourth column of Table 5 reports 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 restricive, about 76 basis points lower, when the set of regulation policies favors industrial power. Bank incumbent power also has a large negative effect on usury rates. If banks prefer strict usury laws to limit competition from other banks, then this could be construed as consistent with bank incumbent private interests. However, free banking laws seem to be a more effective and direct way to restrict outside bank entry. Moreover, tight usury laws also restrict firm entry and therefore limit the set of potential borrowers and place lending constraints on incumbent banks themselves. Thus, it seems banks would prefer to use a policy instrument that limited bank entry without affecting firm entry or its own lending practices. For both of these reasons it seems less plausible that banks would use usury laws to restrict entry by imposing tighter lending constraints. It is more likely they would use free banking laws to restrict entry and impose loose

or even repeal usury laws to remove any lending constraints on themselves and allow for entry of firms to increase the pool of potential borrowers. Under this scenario, the negative effect of bank incumbent power on legal rates is inconsistent with bank private interests and more likely reflects the private interests of industrial incumbents. Finally, the most egalitarian set of policies is associated with higher maximum legal rates.

These results highlight that the set of policies on voting restrictions, incorporation, banking, and usury are determined simultaneously and favor the private interests and political power of certain groups by excluding access to other groups. The evidence suggests that financial regulation is the outcome of a broader set of policies designed to protect private interests, and is most consistent with the private interests of industrial incumbents.

D. Cross-Sectional Evidence from 1850

Table 6 examines the determinants of usury laws on the cross-section of states in 1850 that employs a host of additional state-level variables designed to proxy for private interests. We focus on the cross-section of 1850 due to data availability on a richer set of state characteristics that are not available in other years. In addition, as we will argue in the next section, the 1850's were a time of unparalleled growth and changes in financial regulation in the U.S., making it an interesting time period to study.

D.1 Private Interests of Industrial and Elite Incumbents

Panel A of Table 6 reports results from regressing the maximum legal interest rate for a state in 1850 on measures of private interests and control variables for the percentage of gross state product from the manufacturing and banking sectors, a dummy variable for civil law origins, the age of the state (years since joined the union), capital per capita, and regional fixed effects. Detailed construction of these variables and their sources are described in Appendix A. Adjusted $\bar{R}^2$s are reported for each regression.

The first column of Panel A of Table 6 employs dummy variables for suffrage laws, incorporation laws, and free banking laws in 1850 for each state. Consistent with our previous results, suffrage laws are negatively associated with maximum rates and incorporation laws are associated with more lenient usury laws. We then combine these three policy instruments to proxy for the interests of industrial and bank incumbents, as well as the most egalitarian set of policies. The second

column of Panel A of Table 6 shows a strong negative association between the set of policies most favoring industrial incumbents and maximum legal rates. This result is consistent with the panel results in Table 5 and supports the industrial incumbent private interest view and Prediction 3. The impact on usury laws from the bank incumbent power proxy is not reliably different from zero and is opposite in sign to that found in Table 5. This evidence does not support the bank incumbent private interest story. Finally, the most egalitarian set of laws is also associated with the most liberal usury regulation, consistent with the results in Table 5 and the tension between private and public interests.

As an additional measure of industrial incumbent power, we also employ a measure of industrial wealth: the amount of manufacturing product per manufacturing establishment. Consistent with Prediction 3, this variable has a strong negative relation to maximum legal rates. Interacting industrial wealth with our measure of industrial power above, the last column of Panel A of Table 6 reports a significant negative effect from the interaction term on usury rates. States with policies in place that most favor industrialists and where industrialists are wealthier are those where industrial incumbents have the most power and have the greatest impact on usury restrictions.

Panel B of Table 6 employs measures of the political power and prevalence of the incumbent elite: the percentage of employed persons who are servants (not slaves), professors or physicians, and the sum of these groups, which we call the elite. The percentage of people employed as servants is likely a direct measure of how large the elite class is. The prevalence of professors and physicians are likely to be related to the prevalence of the elite in the state. Since the wealthiest or elite class is unlikely to be bound by usury laws (due to their reputation, collateral, and creditworthiness), they can effectively restrict access to new entrants. For all of these measures, the relationship between the maximum legal rate and the prevalence of the elite class within the state is negative and significant.

The fourth row of Panel B of Table 6 employs a measure of the value of collateral in the state: the value of real estate relative to state gross product. Prediction 5 states that usury laws are tighter in states where collateral value is high, since borrowers with more collateral are less likely to be affected by maximum rate restrictions. States with more collateral value relative to total output have stricter usury laws, consistent with Prediction 5 and the private-interest group theory.

In 1850, university education catered to the elite, so we also use the prevalence and size of universities in the state as a measure of the elite class' presence within the state. Consistent with

the previous results, we find a significant negative relationship between the number of universities per capita and revenue from universities per capita and maximum legal rates.

D.2 Public Interests and Alternative Explanations

We now consider alternative explanations for the determinants of usury laws, in particular the public-interest view of financial regulation.

Panel C of Table 6 examines the relation between usury rates and proxies for bank market power. The premise of the public-interest view of usury is to protect citizens against the market power of banks. Accordingly, Prediction 6 conjectures a relationship between bank market power and tight usury restrictions. To test this prediction we regress maximum legal rates on measures of banking competitiveness: a bank Herfindahl concentration index based on bank capital and the amount of bank capital per capita in the state (bank wealth).[10] The first two columns of Panel C of Table 6 show that maximum legal rates are negatively, but insignificantly, related to banking concentration and wealth, which fails to provide strong support for the public-interest hypothesis. The view that usury laws are used to protect borrowers from the market power of banks is not supported by the data.

The bank market power measures may also proxy for bank incumbent private interests. If so, then the weak relationship between these proxies and usury rates provides further evidence that the data does not support the bank incumbent private-interest view. Interacting the bank market power measures with the bank incumbent power proxy (where general incorporation laws are adopted but free banking laws are not), we find mixed and weak evidence on the interaction terms in explaining usury rates. This evidence fails to support the bank private-interest hypothesis.

Table 7 provides a more detailed breakdown of the banking sector in each state in 1850, where states are sorted in ascending order by their maximum legal rate in 1850. Table 7 shows that there is a positive relationship between legal rates and banking competition: states with more competitive credit markets, proxied by lower Hirschman-Herfindahl indexes of banking capital, larger number of banks, and more bank capital, have lower maximum legal rates. While this pattern is inconsistent with the public-interest view of usury regulation, it may be consistent with the private-interest hypothesis. States with poorly developed or young banking systems may need to attract outside

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

capital by raising maximum rates and likely do not have strong elite incumbents, whereas older states with more established banking systems also likely have established elite groups with political power, who lower rates to restrict entry and possibly reduce their own cost of capital.

Finally, Panel D of Table 6 reports results from regressing the maximum legal interest rate for a state on other measures of public interests and alternative explanations. A simple alternative explanation for the heterogeneity in usury rates is that states with more developed bureaucracies may be able to pass and enforce usury laws, while states without bureaucratic capital or experience may simply not be able to maintain such regulation. Under this alternative explanation, we expect to see a positive relationship between bureaucracies and strictness of usury. As a proxy for the development of bureacracy in a state, we use the percentage of people employed as city officers or lawyers per employed persons. The first column of Panel D reports no significant relationship between this proxy and usury rates, though the sign is in the right direction.

The public-interest theory is predicated on protecting borrowers from the market power of lenders. If borrowers are less sophisticated, we might expect usury laws to play a more important role in protecting them, according to Prediction 7. 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, which argues that lower legal rates are used to protect less sophisticated borrowers. However, if the percentage of pupils and publishers proxies for the incumbent elite class, then the negative relationship with usury rates may be consistent with private interests.

As another proxy for financial sophistication, we employ the illiteracy rate among Whites in each state. The relationship between maximum legal rates and White illiteracy is positive and insignificant, which, again, is opposite in sign to that predicted by the public interest theory and Prediction 7.

According to the public-interest hypothesis' rationale, usury laws are a primitive means of social insurance. Prediction 8 states the relationship between strictness of usury laws and consumption heterogeneity is negative (Glaeser and Scheinkman (1998)). To capture consumption or income heterogeneity within a state, we employ the 1850 U.S. Census which contains employment informa-

tion across 251 different occupations within each state. Unfortunately, we do not have information on wages for each occupation, so we use number of employees in each occupation and compute a Herfindahl index of the number of employees across the 251 different occupations in each state. Income should be more homogeneous across households the more concentrated employment is within a state. If the Herfindahl occupation index captures income concentration, then we expect it to be positively related to maximum legal rates. As the fourth column of Panel D of Table 6 reports, the relationship is positive, but insignificant. The sum of these results are not supportive of the public-interest view of usury regulation.

Finally, we consider the role religion might have played in determining usury laws. While the secular view of usury laws dates back to mercantilist writers such as Sir Josiah Child, Sir William Petty and John Locke and to the utilitarian philosopher Jeremy Bentham as well as Adam Smith, usury laws are much older and are rooted in the Bible.[11] 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)) and in Islamic banking today. Moreover, few 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)). It is interesting to examine, therefore, what role religion may have played in determining usury laws in the U.S. in the 19th century and whether this role is related to private or public interests. Ekelund, Hebert, and Tollison (1989) show that in Europe usury laws were affected by the influence of the Roman Catholic church and argue this was due to the church's rent-seeking behavior. However, it seems unlikely that the rent-seeking behavior of the church was an important factor in determining usury laws during the 19th century in the United States.

Other writers claim that prohibition of interest is the decisive criterion of the difference between the Catholic and Protestant ethic, though Weber (1930) argues that this is not the case since usury laws had a parallel in almost every religious ethic in the world.[12] 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 usury laws. Nevertheless, we investigate the role of general religion as

[11] In India, Vedic law controlled interest rates at the same early period. See Glaeser and Scheinkman (1998) and Rockoff (2003) for comprehensive surveys of the evolution of religious and philosophical ideas about usury.

[12] 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 were 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 the usury laws were abolished by the time of Salmasius.

a proxy for conservative attitudes toward lending.

In the last three rows of Panel D of Table 6, we regress the maximum legal rate across states in 1850 on the number of churches (religious dwellings across all denominations) and church accommodations (seating capacity summed across all churches, temples, synagogues, and other religious dwellings) per capita. These variables capture to what extent religion in general pervades the state. Consistent with the previous literature, 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, inconsistent with evidence from Europe, religion is only weakly related to usury laws. Decomposing religious accomodations per capita into the percentage of accomodations garnered by the Roman Catholic Church and by other Christian churches separately (dominated by the Protestant faith), we find that Catholicism is positively related to higher legal rates and that other Christian denominations are slighly negatively related to usury rates, which is opposite in sign to what researchers find in Europe (Ekelund, Hebert and Tollison (1989)). 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 suggests it is less likely religious beliefs per se are driving usury laws.

IV. Usury Laws and Economic Growth

A large literature focuses on the relationship between financial development and economic growth. Emphasis is placed on the importance of financial development in allocating resources to their best use. Theoretical models analyze the role of financial markets in identifying investment opportunities, improving risk sharing, transforming liquid savings into productive investments, and reducing the cost that firms face in raising external funds.

We examine usury laws as a measure of financial development. However, 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 some risky, but positive NPV, projects cannot be financed. Many researchers attempt to establish a causal link between financial development and economic growth with varying success [Jayaratne and Strahan (1996), Rajan and Zingales (1998), Guiso, Sapienza and Zingales (2004), and Garmaise and Moskowitz

(2005)]. It is an empirical question whether usury laws impose substantial costs and have import for economic development.

Do usury laws matter? Writers and policy makers in the 19th century seemed to believe they could have an adverse effect on 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.)

Whether or not financial regulation causes economic growth is an empirical question we do not focus on in this paper. 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. The evidence we uncover suggests that either financial regulation in the form of usury laws did impact economic growth, or (as the above quote highlights) state legislators behaved as if it did in setting these laws.

A. Cross-Section of 1850

We begin by examining the relation between usury laws in 1850 and economic growth from 1850 to 1860. We focus on this particular period due to the wealth of data available from the 1850 and 1860 U.S. Censuses, to avoid the effects of the Civil War, and because this period experienced enormous growth in the U.S. as a whole. The American economy in the early 1850's was booming. The decade from 1850 to 1860, and especially the 1850 to 1857 period, was one of substantial economic growth (see Galman (1960) and North (1966)). There were little international or domestic events that adversely hampered economic activity during the 1850's. The Crimean war in the mid 1850's cut

off Russian wheat and led to large scale exports of wheat from America. Recovery of cotton prices in late 1849, the renewal of railroad construction to western states and interregional trade, gold discoveries in California, the inflow of European immigrants, and the expansion of manufacturing in the Northeast all contributed to acceleration in development in all regions of the United States. Although the years from 1858 to 1860 do not present a picture of booming expansion, this decade is characterized by substantial economic growth, making it particularly interesting to examine the relationship between financial regulation and economic development.

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: gross state product and personal income that the U.S. Department of Commerce publishes annually since 1977 and 1969, respectively.[13] We collect data from the seventh (1850) and eighth (1860) 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, manufacturing establishments, and manufacturing capital invested. The construction of these variables and data sources are described in Appendix B.

For each of these variables we compute growth rates between 1850 and 1860. These five measures of economic growth are highly correlated. As Appendix A shows, the pairwise correlation between the different measures is around 0.99 and is statistically significant at the 1 percent level in all cases.[14]

Panel A of Table 8 examines the relationship between maximum rates and growth controlling for potential determinants of growth. The explanatory variables we use in addition to the maximum legal rate are: regional fixed effects to control for the effect of location and technology on economic activity,[15] the age of the state (1850 minus the year in which the state or territory joined the union) as a proxy for the state's endowment (or distance from its steady state) and its institutional quality,

[13]The U.S. Department of Commerce also reports state personal income estimates for 1929 to 1968 that do not include employment.

[14]The correlation between the different measures is encouraging since we had to construct them from raw data as described in Appendix B. The fact that they all seem to move together strengthens our confidence in the economic activity measures.

[15]According to North (1966) structural differences between the economies of the northeast, the west and the south affected the level of urbanization, industrialization and growth in the ante bellum period. The five regions we control for are: New England, Mid Atlantic East, South, Midwest and West.

the percentage of state gross product accounted for by the manufacturing sector, the amount of capital per capita in the state in 1850 as a proxy for state wealth, and an indicator variable for civil law origin states.

As the first row of Panel A of Table 8 shows, the relationship between all five economic measures of growth and the maximum legal rate is strongly positive. States with higher legal rates (i.e., more lax usury laws) are associated with higher future economic growth, controlling for manufacturing influence, age, civil law origin, capital per capita, and regional fixed effects. This result corroborates Prediction 9. The economic magnitude of the relationship is large. A one percentage point increase in the maximum legal rate corresponds to a 9.2, 35.9, 11.6, 3.6, and 7.0 percent increase in population, gross product, manufacturing value added, manufacturing establishment, and manufacturing capital growth, respectively per year over the next decade. These results suggest that financial regulation and economic growth are very much related, although we do not claim this relationship is causal. However, any omitted variables would have to be unrelated to the state's age, per capita wealth, Civil law origins, and region.

We also examine the relationship between elite political power and future economic growth using the percentage of persons employed as professors, physicians, and servants in 1850 as a proxy for the elite. As Table 8 indicates, states with more elite residents experience lower subsequent growth rates, consistent with the private-interest group theory. Including both the maximum legal rate and elite status in the last two rows of Panel A, usury rates soak up the explanatory power of the elite variable, but the maximum rate remains economically and statistically significant. These results are consistent with the private-interest group theory.

B. Panel Data from 1850 to 1870

To further address the robustness of these results, we build a panel data set of state growth rates using the 1870 Census to add an extra decade of state growth. The benefit of using a panel is that we can employ state-level fixed effects to difference out unobservables at the state level that might be related to growth and financial regulation. The disadvantage is that the period 1860 to 1870 includes the Civil War, which is an unusual period that may have adversely affected growth across states. To address this concern, however, we can employ year fixed effects to difference out unobservable time effects as an alternative specification and compare the results. Panel B of Table 8 regresses the growth rate of each state on the lagged maximum legal interest rate from 1850 to

1870, where the dependent variable is the 1850 to 1860 (1860 to 1870) growth rate regressed on the 1850 (1860) maximum legal interest rate. The first row reports results with year fixed effects to identify cross-sectional differences in usury rates and growth across states. The effect of maximum legal rates on growth is positive and significant. The second row repeats the regressions employing state fixed effects instead of year fixed effects to isolate the time-series relationship between changes in legal rates and growth rates for a given state. Lagged changes in maximum legal interest rates positively predict future economic growth rates. These results support Prediction 9 and the private interest theory.

To establish causality, we would like to identify an instrument for usury laws that is otherwise unrelated to economic growth. We employ suffrage laws as an instrument for maximum legal rates and examine its relation to future economic growth rates. As we argued earlier, suffrage appears reasonably exogenous to competitive and economic forces, as argued by Engerman and Sokoloff (1997), Engerman, Haber, and Sokoloff (2000), and Sokoloff and Engerman (2000)) and by some of our previous evidence. Nevertheless, we are cautious in our interpretation since it is possible suffrage laws are determined simultaneously with other regulation and policies that reflect the political and economic climate and may therefore also be related to growth.

We first regress the maximum legal interest rate on a dummy for whether the state has suffrage laws in that year and then use the predicted value in the second stage regression as an explanatory variable for growth. As before, both the suffrage variable and maximum rate are lagged. The regressions are run via two-stage least squares, where standard errors are adjusted for first-stage estimation error. The third row of Panel B of Table 8, which adopts the year fixed effects specification, reports a positive but insignificant relationship between instrumented maximum rates and future economic growth. However, the fourth row, which adopts the more conservative state fixed effects specification, identifies a significant positive relationship between instrumented usury rates and future growth. While identification of the causal nature of usury laws on growth is debatable, at the very least these results lend confidence to the strength of the association between financial regulation and growth.

To help identify the direction of causality, Panels C and D of Table 8 examine whether economic growth is contemporaneously correlated with or predicts future usury law changes. In Panel C (D) we regress maximum legal rates from 1850 to 1870 (1860 to 1880) on contemporaneous (lagged) economic growth from 1850 to 1870 under both year and state fixed effects specifications. There is

no reliable relation between either contemporaneous or lagged growth rates and usury laws. Our evidence suggests that relaxation of usury laws increases future economic growth, but that economic growth is not contemporaneously related to or predicts future usury laws. These results contradict a reverse causal story. In addition, the fact that we obtain no association when we reverse the regression and attempt to predict usury laws with growth suggests it is less likely that the same omitted variable is driving both usury law changes and economic growth over time.

While these tests are not definitive on the causal channel between financial regulation and growth, the sum of these results lends credence to the relationship between them and rules out at least some alternative explanations. This evidence is consistent with the accumulation of results in this paper and the tension between public and private interests in explaining financial regulation.

V. 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 18th and 19th century. We find that the tension between private and public interests can explain the heterogeneity we observe in usury laws across U.S. states during the 18th and 19th centuries. When the cost of regulation is low, private interests impose tight usury laws to extract rents and thwart competition. When the cost of regulation is high, such as during financial crises or competition for outside capital, usury laws are relaxed and repealed. Moreover, we find that financial regulation policies designed to protect one group's interests and exclude others are also correlated with other economic and political policies designed to do the same. Finally, we find a positive relationship between usury laws and subsequent economic growth. Whether this relationship is directly causal remains to be determined, but state legislatures seemed to believe in a causal link. This collection of evidence supports the private-interest view of financial regulation and its potential adverse effects on economic growth.

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Appendix A: Variable description and construction

For reference, the following is a list of the construction of the variables used in the paper and their sources.

%Manufacturing: the percentage of gross state product from the manufacturing sector, where manufacturing product is defined as the value of annual product for manufacturing establishments from the U.S. Census of 1850 and 1860 and gross state product is defined in Appendix B. (source: U.S. Census Bureau 1850 and 1860).

Civil law: a dummy variable equal to one if the state had no common law origins prior to or after the Revolutionary War and was not defined as a settler state. (source: Berkowitz and Clay (2003)).

Age: years since state joined the union and was granted statehood.

Capital per capita: total amount of capital divided by state population. (source: U.S. Census Bureau 1850)

Usury laws:

maximum rate: the maximum legal interest rate that could be charged on loans in a state, annually from 1640 to 1892. (source: Holmes (1892))

penalty: the total penalty index for usury (i.e., violating the maximum legal rate restriction) in a state, annually from 1640 to 1892. We construct a qualitative index of the penalties adopted by the state as the sum of measures across all five dimensions of the usury penalty code. 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 was 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. We also give states a score of 1 if the contract is void and 0 otherwise. The sum of these five measures of the usury penalty code constitute the total penalty index. (source: Holmes (1892))

State wealth: per capita output in the state for the years 1850, 1860, and 1870. (source: U.S. Census Bureau 1850, 1860, and 1870)

Railroad failure: 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).

Manufacturing capital per manufacturing establishment in 1870: (source U.S. Census 1870)

Machinery product per capita in 1870: (source U.S. Census 1870)

Crisis years: a dummy variable equal to one for financial crisis years (1857, 1873, and 1884) and the year following each crisis.

Post-Civil War: a dummy variable equal to one for the five years after the end of the civil war (1865-1869).

Suffrage: a dummy variable equal to one if the state has suffrage laws in a given year that only allowed either tax payers or land owners to vote. (source: Porter (1918))

Incorporation laws: a dummy variable equal to one if the state has general incorporation laws in a given year. (source: Evans (1948))

Border(rate): the average maximum legal interest rate of states bordering a state in a given year.

Border(suffrage): the fraction of states bordering a state that have suffrage laws in a given year.

Border(incorporation): the fraction of states bordering a state that have general incorporation laws in a given year.

Free banking laws: a dummy variable equal to one if the state has free banking laws in a given year, which enabled free entry to the banking industry in antebellum America. (source: Bodenhorn (2003))

Industrial wealth: manufacturing product per manufacturing establishment in 1850, 1860, and 1870. (source U.S. Census Bureau 1850, 1860, and 1870)

Colleges per capita: the number of universities per capita in the state. (source: U.S. Census Bureau 1850)

College revenue per capita: the total income from all universities in the state. (source: U.S. Census Bureau 1850)

%Servants: fraction of employed persons whose occupancy is a servant and not a slave. (source: U.S. Census Bureau 1850)

%Professors, physicians: fraction of employed persons whose occupancy is a professor or physician. (source: U.S. Census Bureau 1850)

%City officers and lawyers: fraction of employed persons whose occupancy is a city government official or lawyer. (source: U.S. Census Bureau 1850)

%Elite: fraction of employed persons whose occupancy is a professor or physician or servant or city officer. (source: U.S. Census Bureau 1850)

Collateral value: total value of real estate in the state divided by state gross product. (source: U.S. Census Bureau 1850)

Income concentration: using employment information across 251 different occupations within each state, we compute a Herfindahl index of the number of employees across the 251 different occupations in each state. (source: U.S. Census Bureau 1850)

%Pupils, publishers: fraction of employed persons whose occupancy is a pupil or publisher. (source: U.S. Census Bureau 1850)

White illiteracy: the illiteracy rate among whites in the state. (source: U.S. Census Bureau 1850)

Bank concentration: a Herfindahl-Hirschman index of bank capital in each state. (source: Bankers Almanac 1850)

Bank wealth: total amount of bank capital per capita in the state. (source: Bankers Almanac 1850 and U.S. Census Bureau 1850)

#Churches per capita: total number of religious organizations across all denominations per capita in the state. (source: U.S. Census Bureau 1850)

Church accommodations per capita: total number of seating capacity across all religious organizations and denominations per capita in the state. (source: U.S. Census Bureau 1850)

%Roman Catholic accomodations: fraction of total number of seating capacity across all religious organizations in the state assigned to the Catholic church. (source: U.S. Census Bureau 1850)

%Christian accomodations: fraction of total number of seating capacity across all religious organizations in the state assigned to non-Catholic Christians. (source: U.S. Census Bureau 1850)

Growth rates from 1850 to 1860:

> *Population Growth*: Rate of growth of total population (including white, free colored, and slaves) from 1850 to 1860. (source: U.S. Census Bureau 1850, 1860, and 1870).
>
> *Gross State Product Growth*: See Appendix A (source: U.S. Census Bureau 1850, 1860, and 1870 and multiple sources for prices).
>
> *Manufacturing Value Added Growth*: Rate of growth of manufacturing value added, where value added is defined as: Value added= Value of annual product - cost of raw materials (source: U.S. Census Bureau 1850, 1860, and 1870).
>
> *Manufacturing Establishments Growth*: Rate of growth in the number of manufacturing establishments (source: U.S. Census Bureau 1850, 1860, and 1870).
>
> *Manufacturing Capital Growth*: Rate of growth in the amount of capital invested by manufacturing establishments (source: U.S. Census Bureau 1850, 1860, and 1870).

Table A1 presents the correlations across the five economic growth measures.

Table A1:
Correlation Between Measures of Economic Growth

	Population	State Gross Product	Manufacturing Value Added	Manufacturing Establishments	Manufacturing Capital
Population	1.00				
State Gross Product	0.99	1.00			
Manufacturing Value Added	0.99	0.99	1.00		
Manufacturing Establishments	0.99	0.99	0.99	1.00	
Manufacturing Capital	0.98	0.99	0.99	0.99	1.00

Appendix B: Construction of Gross State Product

We describe the construction of our measures of gross state product.

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.

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.
Sources for agricultural commodity prices:

Bezanson, Anne and Robert D. Gray and Miriam Hussey. Wholesale Prices in Philadelphia 1784-1861. Part II. Philadelphia, 1937.

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Table 1:

Maximum Legal Interest Rate and Penalty for Usury in 1850

The maximum legal interest rate and penalty for usury for each state in 1850 is reported. State penalties for violating the maximum rate are levied along five dimensions: voiding the contract, forfeiting interest and/or principal, and loss of interest and/or principal. Each of these dimensions is coded with a value, where 0 implies no penalty and 1 implies total forfeiture or loss. If a state seizes some fraction of the value, then that fraction is coded. In some cases more than 100% of the value is lost or forfeited, in which case the value is set to greater than 1. An index of the severity of penalties adopted by the state is constructed as the sum of these measures across all five dimensions of the usury penalty code.

State	Maximum Rate	Contract Void?	Loss of interest	Loss of Principal	Forfeiture of Principal	Forfeiture of interest	Total
Connecticut	6%	0.0	1.0	0.0	0.0	0.0	1.0
Delaware	6%	0.0	1.0	1.0	0.0	0.0	2.0
District of Columbia	6%	0.0	1.0	1.0	0.0	0.0	2.0
Indiana	6%	0.0	0.0	0.0	0.0	1.0	1.0
Kentucky	6%	0.0	0.5	0.0	0.0	0.0	0.5
Maine	6%	0.0	0.5	0.0	0.0	0.0	0.5
Maryland	6%	0.0	1.0	1.0	3.0	0.0	5.0
Massachusetts	6%	0.0	0.0	0.0	0.0	1.5	1.5
Missouri	6%	0.0	0.0	0.0	0.0	1.0	1.0
New Hampshire	6%	0.0	0.0	0.0	0.0	1.5	1.5
New Jersey	6%	1.0	1.0	1.0	0.0	0.0	3.0
North Carolina	6%	1.0	1.0	1.0	2.0	0.0	5.0
Ohio	6%	0.0	1.0	1.0	0.0	0.0	2.0
Pennsylvania	6%	0.0	0.0	0.0	1.0	0.0	1.0
Rhode Island	6%	0.0	1.0	0.0	0.0	0.0	1.0
Tennessee	6%	0.0	0.5	0.0	0.0	0.5	1.0
Vermont	6%	0.0	0.5	0.0	0.0	0.0	0.5
Virginia	6%	1.0	1.0	1.0	2.0	0.0	5.0
6% rate avg.		**0.17**	**0.61**	**0.39**	**0.44**	**0.31**	**1.92**
Georgia	7%	0.0	1.0	0.0	0.0	0.0	1.0
New York	7%	1.0	1.0	1.0	0.0	0.5	3.5
South Carolina	7%	0.0	1.0	0.0	0.0	0.0	1.0
7% rate avg.		**0.33**	**1.00**	**0.33**	**0.00**	**0.17**	**1.83**
Alabama	8%	0.0	1.0	1.0	1.0	1.0	4.0
Florida	8%	0.0	1.0	0.0	0.0	0.0	1.0
Louisiana	8%	0.0	1.0	0.0	0.0	0.0	1.0
Mississippi	8%	0.0	1.0	0.0	0.0	0.0	1.0
8% rate avg.		**0.00**	**1.00**	**0.25**	**0.25**	**0.25**	**1.75**
Arkansas	10%	1.0	1.0	1.0	0.0	0.0	3.0
Illinois	10%	0.0	0.0	0.0	0.0	1.5	1.5
Iowa	10%	0.0	0.0	0.0	0.0	0.5	0.5
Michigan	10%	0.0	0.5	0.0	0.0	0.0	0.5
10% rate avg.		**0.25**	**0.38**	**0.25**	**0.00**	**0.50**	**1.38**
Texas	12%	0.0	1.0	0.0	0.0	0.0	1.0
California	no limit	0.0	0.0	0.0	0.0	0.0	0.0
Minnesota	no limit	0.0	0.0	0.0	0.0	0.0	0.0
Wisconsin	no limit	0.0	0.0	0.0	0.0	0.0	0.0

Table 2:

Maximum Legal Interest Rate and Penalty for Usury 1641 to 1891

Panel A 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 the measures in Table 1 across all five dimensions of the usury penalty code. 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. Panel B reports correlations between the maximum legal rate and penalties for usury for the entire sample across all state-years. Panel C reports regression results of maximum legal rates on penalties both across states at a point in time and for a given state over time. Three sets of t-statistics are reported that correspond to standard errors calculated under OLS, assuming group-wise clustering at the state level, and assuming group-wise clustering at the year level with an autocorrelation adjustment of up to 10 annual lags using a Newey-West estimator.

Panel A: Summary statistics

	Maximum legal interest rate (%)				Penalty for Usury				Year of
State	Avg.	Min.	Max.	#Changes	Avg.	Min.	Max.	#Changes	Statehood
Virginia	5.73	5	12	4	4.53	0.50	5.00	2	1788
Maryland	6.00	6	6	0	4.28	0.50	5.00	1	1788
Delaware	6.00	6	6	0	2.00	2.00	2.00	0	1787
New Hampshire	6.00	6	6	0	1.50	1.50	1.50	0	1788
Vermont	6.00	6	6	0	0.61	0.50	1.00	2	1791
Tennessee	6.19	6	10	2	3.07	1.00	5.00	1	1796
Pennsylvania	6.19	6	8	1	0.91	0.50	1.00	1	1787
Kentucky	6.26	6	10	2	0.65	0.50	1.00	1	1792
North Carolina	6.34	6	8	2	4.46	1.00	5.00	2	1789
Ohio	6.49	6	8	2	0.99	0.50	2.00	2	1803
New Jersey	6.64	6	7	3	2.64	1.00	3.00	1	1787
New York	6.89	6	7	3	2.93	0.00	3.50	2	1788
Connecticut	7.62	6	no limit	4	3.24	0.00	4.00	2	1788
Alabama	7.90	6	no limit	4	2.10	0.50	4.00	2	1819
Indiana	8.00	6	no limit	6	0.95	0.00	2.50	3	1816
District of Columbia	8.10	6	10	1	1.48	1.00	2.00	1	1871
Georgia	8.21	7	no limit	8	2.89	0.00	5.00	4	1788
Massachusetts	8.39	6	no limit	1	1.80	0.00	3.00	3	1788
South Carolina	8.97	7	no limit	6	4.20	0.00	6.00	3	1788
Michigan	9.08	6	10	4	0.64	0.50	1.50	3	1837
Mississippi	9.38	6	no limit	5	0.82	0.00	1.00	2	1817
Missouri	9.52	6	10	2	1.00	1.00	1.00	0	1821
Illinois	9.68	6	12	5	1.64	1.00	3.00	2	1818
Rhode Island	10.10	6	no limit	1	1.37	0.00	2.33	2	1790
Arkansas	11.07	10	no limit	1	2.07	0.00	3.00	2	1836
Wisconsin	11.11	7	no limit	4	2.37	0.00	3.50	3	1848
Iowa	11.25	8	no limit	4	1.24	0.00	1.50	3	1846
Maine	11.62	6	no limit	2	1.17	0.00	5.00	2	1820
Texas	13.46	10	no limit	2	0.88	0.00	1.00	1	1845
Minnesota	14.22	10	no limit	3	1.67	0.00	4.00	2	1858
Louisiana	15.33	8	no limit	4	0.92	0.50	1.00	1	1812
Florida	15.58	8	no limit	4	0.66	0.00	2.00	2	1845
California	no limit	no limit	no limit	0	0.00	0.00	0.00	0	1850

Panel B: Correlation matrix of maximum interest rate and usury penalties

	maximum rate	void contract	loss of interest	loss of principal	forfeiture of interest	forfeiture of principal	Total penalty
maximum rate	1.00	-0.22	-0.29	-0.35	-0.25	0.00	-0.36
void contract		1.00	0.40	0.67	0.42	-0.19	0.71
loss of interest			1.00	0.60	0.29	-0.39	0.54
loss of principal				1.00	0.57	-0.24	0.83
forfeiture of interest					1.00	-0.19	0.84
forfeiture of principal						1.00	-0.02
mean	7.63%	0.25	0.72	0.43	0.61	0.21	2.22
standard deviation	2.59%	0.43	0.40	0.49	1.00	0.52	1.77

Panel C: Regressions of maximum interest rate on total penalty for usury

	Panel data from 1641 to 1891				**Cross-section of 1850**
Dependent variable =	rate	rate	rate	first differences	rate
Total penalty	-0.0056	-0.0057	-0.0044	-0.0104	-0.0063
t_{ols}	(-21.98)	(-20.16)	(-13.34)	(-24.95)	(-2.29)
$t_{state\ cluster}$	(-3.35)	(-3.09)	(-2.48)	(-4.42)	
$t^{AR(10)}_{year\ cluster}$	(-4.75)	(-6.74)	(-7.87)	(-5.36)	
Fixed effects:	year	state	state&year	state	region
$\bar{R}^2$	0.17	0.55	0.56	0.24	0.40
$\bar{R}^2$ after F.E.	0.05	0.10	0.06	0.15	0.02
N	3,540	3,540	3,540	3,507	33
#states	33	33	33	33	33
#years	251	251	251	250	1

Table 3:

What Determines Usury Laws? Geography, Financial Crisis, and Competition

The table reports results from regressing the maximum legal interest rate for a state in a given year annually from 1641 to 1891 on the contemporaneous and five year lagged 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. Also reported are 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 a dummy for the five years after the end of the civil war (1865 to 1869). Also reported are interactions between the post-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 product per capita in 1870. Regressions are esimated with year and/or state-level fixed effects and standard errors used to compute t-statistics (reported in parentheses) are calculated assuming group-wise clustering at the state level. Adjusted R^2s are reported for the full specification that includes the fixed effects as well as the amount of remaining variation explained by the regressors after the fixed effects are accounted for ($\bar{R}^2$ after F.E.).

	Dependent variable = Maximum legal interest rate							
Border_t	0.865	0.988	0.922					
	(5.66)	(6.74)	(5.92)					
Non-border_t	0.253	0.048	0.089					
	(0.34)	(0.06)	(0.12)					
$\text{Border}_{t-5:t-1}$		-0.031						
		(-1.40)						
$\text{Non-border}_{t-5:t-1}$		0.038						
		(1.96)						
Wealth×Border			-0.003					
			(-3.44)					
Wealth			-0.005					
			(-1.75)					
Post-crisis years				0.013	0.013			
				(3.93)	(2.91)			
Post-Civil War				0.015				
				(3.15)				
$\text{Railroad failure}_{1873}$					0.0056	0.0056		
× Post-crisis					(2.38)	(3.17)		
$\text{Manufacturing capital}_{1870}$							0.0014	
× Post-crisis							(2.59)	
$\text{Machinery product}_{1870}$								0.0019
× Post-crisis								(2.11)
Fixed effects:								
Year?	yes	yes	yes	no	no	yes	yes	yes
State?	yes	yes	yes	yes	yes	yes	yes	yes
$\bar{R}^2$	0.72	0.72	0.72	0.53	0.52	0.61	0.59	0.58
$\bar{R}^2$ after F.E.	0.32	0.33	0.32	0.05	0.04	0.08	0.06	0.05
N	3,540	3,375	3,540	3,540	3,540	3,540	3,540	3,540
#clusters	33	33	33	33	33	33	33	33

Table 4:

What Determines Usury Laws?
Private Interest: 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 a proxy for the political power of the elite: a dummy variable indicating whether the state had suffrage laws that only allowed land owners and/or those who paid taxes to vote. Panel B reports results from regressing whether a state has suffrage laws on the fraction of states that border it that also have suffrage laws (Border(suffrage)), as well as the average maximum legal interest rate of bordering states (Border(rate)). Panel C reports results from regressing whether a state has general incorporation laws on an indicator for whether it has suffrage laws and on the fraction of bordering states that have general incorporation laws (Border(incorporation)). Panel D reports results from regressing the maximum legal interest rate set by usury laws on general incorporation and suffrage law indicator variables. Regressions are esimated with year and/or state-level fixed effects and standard errors used to compute t-statistics (reported in parentheses) are calculated assuming group-wise clustering at the state level. Adjusted R^2s are reported for the full specification that includes the fixed effects as well as the amount of remaining variation explained by the regressors after the fixed effects are accounted for ($\bar{R}^2$ after F.E.).

Panel A: Financial regulation and suffrage laws Dependent variable = Maximum legal interest rate				
Suffrage	-0.0039	-0.0124	-0.0094	-0.0052
	(-2.48)	(-4.76)	(-2.75)	(-2.38)
Suffrage × Border(rate)				-0.758
				(-5.27)
Suffrage × Crisis				-0.0019
				(-0.20)
Border(rate)				0.653
				(5.65)
Fixed effects:				
Year?	yes	no	yes	yes
State?	no	yes	yes	yes
$\bar{R}^2$	0.60	0.53	0.58	0.74
$\bar{R}^2$ after F.E.	0.14	0.05	0.04	0.02
N	3,540	3,540	3,540	3,540
#clusters	33	33	33	33

Panel B: Does suffrage respond to competition? Dependent variable = Has suffrage laws (voting restrictions)				
Border(suffrage)	-0.077			
	(-0.22)			
Border(suffrage)$_{t-5:t}$		-0.004		
		(-0.02)		
Border(rate)			0.941	
			(0.53)	
Border(rate)$_{t-5:t}$				0.530
				(0.31)
Fixed effects:				
Year?	yes	yes	yes	yes
State?	yes	yes	yes	yes
$\bar{R}^2$	0.61	0.61	0.61	0.61
$\bar{R}^2$ after F.E.	0.44	0.44	0.44	0.44
N	3,540	3,540	3,540	3,540
#clusters	33	33	33	33

Panel C: Does suffrage affect other economic regulation? Dependent variable = Has general incorporation laws (free incorporation entry)				
Suffrage	-0.0595	-0.1785	-0.0034	-0.0286
	(-2.50)	(-2.40)	(-0.32)	(-0.75)
Suffrage × Border(incorporation)			-0.848	-0.710
			(-4.00)	(-2.92)
Border(incorporation)			1.00	0.986
			(9.77)	(8.53)
Fixed effects:				
Year?	yes	no	yes	no
State?	no	yes	no	yes
$\bar{R}^2$	0.37	0.40	0.61	0.73
$\bar{R}^2$ after F.E.	0.03	0.06	0.11	0.27
N	3,540	3,540	3,540	3,540
#clusters	33	33	33	33
Panel D: Does economic regulation affect financial regulation? Dependent variable = Maximum legal interest rate				
Incorporation laws	0.0120	0.0069	0.0112	0.0039
	(2.51)	(2.64)	(2.33)	(1.44)
Suffrage			-0.0121	-0.0117
			(-6.95)	(-5.56)
Fixed effects:				
Year?	yes	no	yes	no
State?	no	yes	no	yes
$\bar{R}^2$	0.06	0.51	0.08	0.53
$\bar{R}^2$ after F.E.	0.01	0.01	0.02	0.05
N	3,540	3,540	3,540	3,540
#clusters	33	33	33	33

Table 5:

What Determines Usury Laws? 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 least strict regulation. Industrial incumbent political power is greatest when the state adopts suffrage laws and does not allow general incorporation laws in order to restrict entry. Egalitarian law implies no suffrage laws and allows for general incorporation. Two indicator variables are created to capture these preferences using suffrage and incorporation laws from 1641 to 1891. 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 allowed outside banks to compete in the state in a given year. The last column reports results defining industrial and bank power and egalitarian law using all three forms of regulation. Industrial power equals one if there are suffrage laws, no general incorporation laws, and free banking laws in a given state and year. Banking power equals one if there are suffrage laws, general incorporation laws, and no free banking laws. Egalitarian law equals one if there are no suffrage laws, but there are general incorporation and free banking laws. Regressions are esimated with year and/or state-level fixed effects and standard errors used to compute t-statistics (reported in parentheses) are calculated assuming group-wise clustering at the state level. Adjusted R^2s are reported for the full specification that includes the fixed effects as well as the amount of remaining variation explained by the regressors after the fixed effects are accounted for ($\bar{R}^2$ after F.E.).

Dependent variable = Maximum legal interest rate				
Industrial incumbent power				
Suffrage = 1, Incorporation = 0	-0.0052			
	(-2.82)			
Egalitarian law				
Suffrage = 0, Incorporation = 1	0.0113			
	(3.64)			
Free banking laws		-0.0060	-0.0055	
		(-3.49)	(-3.03)	
Industrial incumbent power				
Suffrage = 1, Incorporation = 0, Free banking = 1				-0.0076
				(-2.09)
Bank incumbent power				
Suffrage = 1, Incorporation = 1, Free banking = 0				-0.0377
				(-5.22)
Egalitarian law				
Suffrage = 0, Incorporation = 1, Free banking = 1				0.0071
				(3.16)
Fixed effects:				
Year?	no	no	yes	no
State?	yes	yes	yes	yes
$\bar{R}^2$	0.54	0.77	0.79	0.51
$\bar{R}^2$ after F.E.	0.04	0.02	0.03	0.01
N	3,540	2,550	2,550	2,550
#clusters	33	33	33	33
Sample ends	1891	1861	1861	1861

Table 6:

What Determines Usury Laws? Cross-Sectional Evidence from 1850

Panel A reports results from regressing the maximum legal interest rate for a state in 1850 on measures of industrial incumbent political power: a dummy variable indicating whether the state has suffrage laws in 1850 that only allow land owners and/or those who pay taxes to vote, a dummy variable indicating whether the state has general incorporation laws in 1850, and an indicator for whether a state allows free banking in 1850. Industrial incumbent power is strongest when the state has suffrage laws, no general incorporation laws, and has free banking laws. Bank incumbent political power is strongest when the state has general incorporation laws, but not free banking laws. The most egalitarian states have no suffrage laws, general incorporation and free banking laws. Also included as a regressor is the average manufacturing output per manufacturing establishment (Industrial wealth), and an interaction term between industrial wealth and industrial power. Panel B reports results from regressing the maximum legal interest rate on measures of elite class incumbency: the percentage of employed persons who are servants, professors or physicians, and their sum (%elite), the value of collateral (value of real estate relative to state gross product), the number of universities per capita, and revenue from universities per capita. Panel C reports results for other measures of bank market power: a bank Herfindahl concentration index and average bank wealth. Panel D reports results for alternative explanations that might influence usury laws: number of city officers and legal professionals per employed persons, number of pupils and publishers per capita, illiteracy rate for White people, income concentration (the Herfindahl index of number of employees across 251 different occupations in each state), number of religious dwellings (churches) per capita, number of religious seating accomodations per capita, and percentage of Christian and 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 (years since joined the union), capital per capita, and region fixed effects as control variables (coefficients not reported for brevity). Adjusted R^2s are reported for each regression.

Panel A: proxies for private interest and political power of industrial incumbents				
Suffrage laws	-0.0164			
	(-2.11)			
Incorporation	0.0253			
	(1.49)			
Free banking	-0.0039			
	(-0.45)			
Industrial power				
Suffrage = 1, Incorporation = 0, Free banking = 1		-0.0179		-0.0275
		(-3.31)		(-2.86)
Bank power				
Incorporation = 1, Free banking = 0		0.0057		
		(0.55)		
Egalitarian law				
Suffrage = 0, Incorporation = 1, Free banking = 1		0.0133		
		(2.81)		
Industrial wealth			-0.0015	-0.0006
			(-6.69)	(-1.12)
Industrial wealth × industrial power				-0.1030
				(-2.35)
Fixed effects:	region	region	region	region
$\bar{R}^2$	0.43	0.45	0.59	0.42
N	33	33	33	33

Panel B: proxies for elite class incumbency							
%Servants	-2.179						
	(-4.29)						
%Professors and Physicians		-5.669					
		(-2.83)					
%Elite			-1.700				
			(-4.81)				
Collateral value				-0.011			
				(-2.15)			
Colleges per capita					-1944.651		
					(-5.62)		
College revenue per capita						-0.226	
						(-5.24)	
Fixed effects:	region	region	region	region	region	region	
$\bar{R}^2$	0.69	0.62	0.71	0.42	0.63	0.68	
Panel C: proxies for bank market power							
Bank concentration	-0.0545		0.0162				
	(-1.53)		(1.38)				
Banking wealth		-0.1922		-0.0045			
		(-1.25)		(-0.23)			
Bank concentration × Bank power			-0.0797				
			(-2.19)				
Bank wealth × Bank power				1.5884			
				(1.72)			
Fixed effects:	region	region	region	region			
$\bar{R}^2$	0.41	0.36	0.41	0.36			
Panel D: proxies for alternative explanations							
%City officers, lawyers	-2.496						
	(-1.34)						
%Pupils, publishers		-22.688					
		(-6.75)					
White illiteracy			0.001				
			(0.52)				
Income concentration				0.003			
				(0.05)			
Churches per capita					-0.418		
					(-2.89)		
Religious accomodations per capita						-0.107	
						(-5.77)	
%Roman Catholic accomodations							0.091
							(5.86)
%Christian accomodations							-0.053
							(-1.95)
Fixed effects:	region	region	region	region	region	region	region
$\bar{R}^2$	0.52	0.71	0.50	0.49	0.60	0.65	0.71

Table 7:

Maximum Legal Rates, Legal Origin, and Banks

Summary statistics of the maximum legal interest rate, legal origin, and banking sector for each state in 1850 are reported.

State	Maximum rate	Common law	Settler state	Number of banks	Herfindahl index	Bank capital
Connecticut	6%	Yes	No	42	0.0520	10,073,101
Delaware	6%	Yes	No	9	0.1342	1,440,000
District of Columbia	6%			4	0.2541	1,182,300
Indiana	6%	No	No	14	0.0818	2,062,151
Kentucky	6%	Yes	No	23	0.0617	10,180,000
Maine	6%	Yes	No	37	0.0452	3,798,000
Maryland	6%	Yes	No	24	0.0773	9,187,395
Massachusetts	6%	Yes	No	130	0.0192	38,265,000
Missouri	6%	No	No	6	0.2996	1,208,760
New Hampshire	6%	Yes	No	24	0.0461	2,345,000
New Jersey	6%	Yes	No	26	0.0697	3,754,900
North Carolina	6%	Yes	No	19	0.0641	4,005,000
Ohio	6%	No	No	58	0.0295	7,623,233
Pennsylvania	6%	Yes	No	53	0.0424	18,754,176
Rhode Island	6%	Yes	No	63	0.0290	11,438,502
Tennessee	6%	Yes	No	23	0.1998	8,415,197
Vermont	6%	Yes	No	27	0.0439	2,310,000
Virginia	6%	Yes	No	35	0.0415	9,713,100
6% rate avg.				**34.3**	**0.088**	**8,097,546**
Georgia	7%	Yes	No	17	0.0913	5,329,215
New York	7%	Yes	No	211	0.0190	56,232,817
South Carolina	7%	Yes	No	14	0.1319	11,431,183
7% rate avg.				**80.7**	**0.081**	**24,331,072**
Alabama	8%	No	No	2	0.6250	2,000,000
Florida	8%	No	No	1	1.0000	N/A
Louisiana	8%	No	No	5	0.2216	13,266,920
Mississippi	8%	No	No	1	1.0000	100,000
8% rate avg.				**2.3**	**0.712**	**3,841,730**
Arkansas	10%	No	No	0	N/A	0
Illinois	10%	No	No	0	N/A	0
Iowa	10%	No	Yes	1	1.0000	2,000,000
Michigan	10%	No	No	6	0.3531	762,000
10% rate avg.				**1.8**	**0.677**	**481,000**
Texas	12%	No	No	**1**	**1.0000**	**300,000**
California	no limit	No	No	0	N/A	0
Minnesota	no limit	No	Yes	0	N/A	0
Wisconsin	no limit	No	No	1	1.0000	225,000
unlimited rate avg.				**0.33**	**N/A**	**75,000**

Table 8:

The Relation Between Usury Laws and Growth

Panel A reports results from regressing measures of state economic growth from 1850 to 1860 on the maximum legal interest rate in 1850. Five measures of economic growth from 1850 to 1860 are employed: population, state gross product, manufacturing value added, manufacturing establishments, and manufacturing capital invested obtained from the 1850 and 1860 U.S. Censuses and described in Appendix B. Panel A also reports results from regressing measures of state economic growth on a proxy for the presence of the incumbent elite class (percentage of employed persons who are professors, physicians, or servants). Panel B reports results from regressing the same measures of state economic growth on the maximum legal interest rate using a panel from 1850 to 1870, where we employ both state and year fixed effects to examine the cross-sectional and time-series relation between usury rates and economic growth. Results are also reported for maximum legal rates instrumented by an indicator for suffrage laws, which takes the value of one if the state has voting restrictions. Panel C reports results from regressing contemporaneous maximum legal interest rates on contemporaneous economic growth measures, and Panel D reports results from regressing legal rates on lagged economic growth rates from 1850 to 1870 with state and year fixed effects. Regressions in Panel A 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 (years since joined the union), capital per capita, and region fixed effects as a set of control variables (coefficient estimates not reported for brevity). Regressions in Panels B, C, and D include the age of the state and state and year fixed effects as a set of control variables (coefficient estimates not reported for brevity). Adjusted R^2s are reported for each regression. t-statistics (in parentheses) are calculated using White-corrected standard errors that also adjust for first-stage estimation error in the instrumental variables regressions.

Panel A: Cross-Section of 1850

	Dependent variable = Economic Growth rate from 1850 to 1860				
Growth in:	Population	State Gross Product	Manufacturing Value Added	Manufacturing Establishments	Manufacturing Capital Invested
Maximum rate_{1850}	9.17	35.87	11.57	0.36	0.07
	(3.54)	(3.26)	(3.33)	(3.23)	(3.93)
$\bar{R}^2$	0.46	0.40	0.42	0.39	0.74
Elite	-19.60	-75.69	-25.44	-0.77	-0.14
	(-2.25)	(-2.08)	(-2.23)	(-2.07)	(-2.29)
$\bar{R}^2$	0.30	0.24	0.27	0.23	0.63
Maximum rate_{1850}	8.16	32.23	10.04	0.33	0.06
	(2.42)	(2.25)	(2.23)	(2.23)	(2.79)
Elite	-4.80	-17.26	-7.24	-0.17	-0.02
	(-0.49)	(-0.41)	(-0.55)	(-0.41)	(-0.37)
$\bar{R}^2$	0.44	0.37	0.39	0.36	0.73
Fixed effects:	region	region	region	region	region
N	33	33	33	33	33

Growth in:	Population	State Gross Product	Manufacturing Value Added	Manufacturing Establishments	Manufacturing Capital Invested
Panel B: Dependent variable = Economic Growth rate from 1850 to 1870					
Maximum rate$_{t-1}$	8.65	32.09	10.35	0.32	0.07
	(3.51)	(3.15)	(3.19)	(3.20)	(3.48)
$\bar{R}^2$	0.28	0.23	0.25	0.25	0.42
Fixed effects:	year	year	year	year	year
Maximum rate$_{t-1}$	4.83	17.64	5.60	0.18	0.06
	(3.68)	(3.24)	(3.25)	(3.28)	(5.84)
$\bar{R}^2$	0.24	0.18	0.22	0.18	0.47
Fixed effects:	state	state	state	state	state
Maximum rate$_{t-1}$	83.54	213.83	78.21	1.89	0.67
*instrumented by suffrage$_{t-1}$	(0.46)	(0.29)	(0.34)	(0.26)	(0.43)
$\bar{R}^2$	0.01	0.02	0.01	0.01	0.20
Fixed effects:	year	year	year	year	year
Maximum rate$_{t-1}$	3.42	12.32	3.86	0.13	0.06
*instrumented by suffrage$_{t-1}$	(2.09)	(1.83)	(1.81)	(1.88)	(4.21)
$\bar{R}^2$	0.14	0.09	0.13	0.09	0.36
Fixed effects:	state	state	state	state	state
Panel C: Dependent variable = Maximum legal interest rate$_t$(%)					
Economic growth$_t$	1.25	0.29	0.83	28.57	126.21
	(0.87)	(0.81)	(0.75)	(0.80)	(0.76)
$\bar{R}^2$	0.51	0.51	0.50	0.51	0.50
Fixed effects:	year	year	year	year	year
Economic growth$_t$	0.69	0.13	0.43	12.92	175.66
	(0.54)	(0.43)	(0.43)	(0.42)	(1.27)
$\bar{R}^2$	0.29	0.29	0.29	0.29	0.30
Fixed effects:	state	state	state	state	state
Panel D: Dependent variable = Maximum legal interest rate$_{t+1}$(%)					
Economic growth$_t$	0.35	0.10	0.36	9.26	81.11
	(0.29)	(0.32)	(0.37)	(0.30)	(0.57)
$\bar{R}^2$	0.67	0.67	0.67	0.67	0.68
Fixed effects:	year	year	year	year	year
Economic growth$_t$	-0.52	-0.14	-0.35	-13.89	46.13
	(-0.34)	(-0.38)	(-0.30)	(-0.38)	(0.28)
$\bar{R}^2$	0.10	0.10	0.10	0.10	0.10
Fixed effects:	state	state	state	state	state
N	66	66	66	66	66

Figure 1. Time-Series of Cross-State Average of Maximum Allowable Interest Rate and Usury Penalty (1640 to 1891)

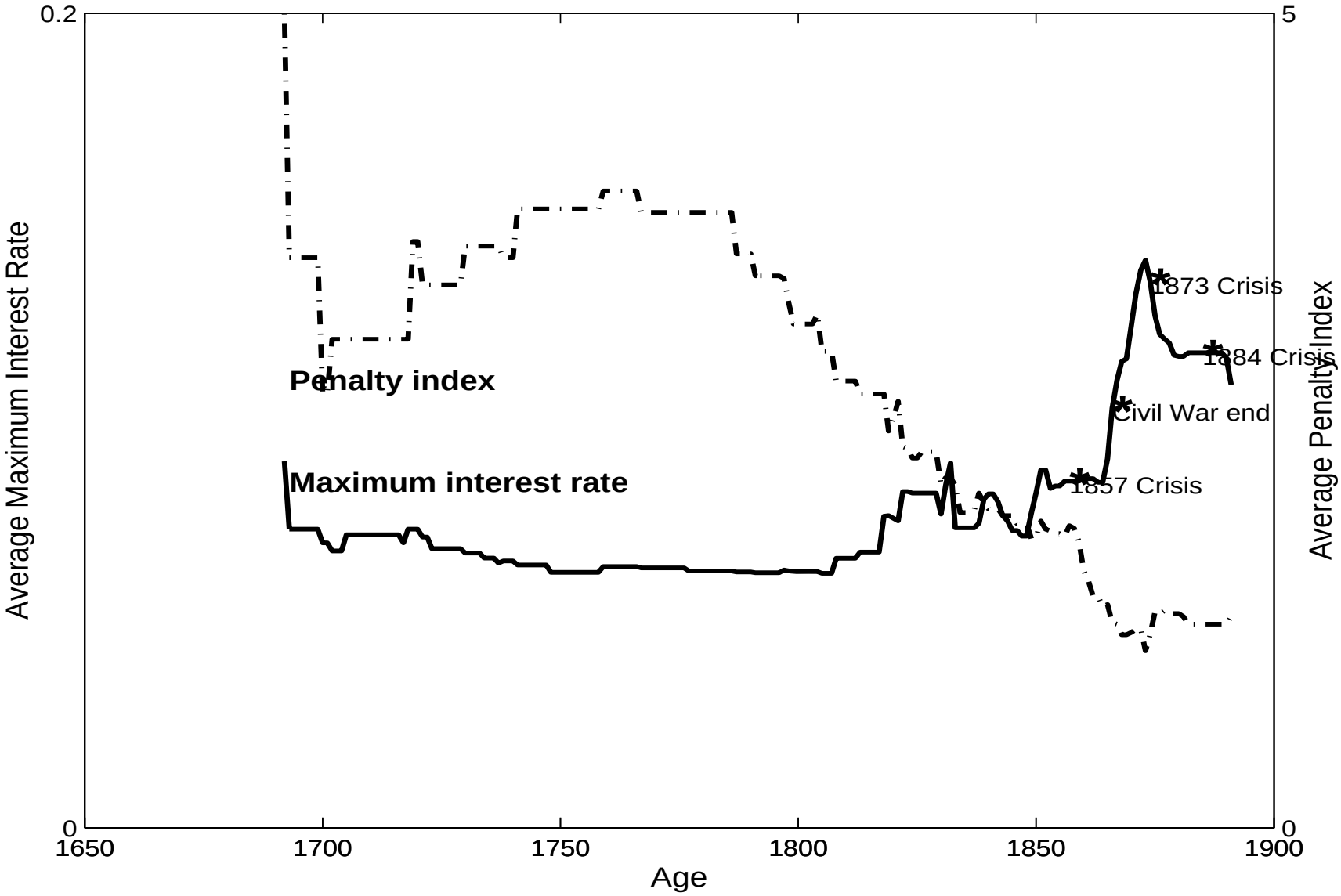


Figure 2. Time-Series of Cross-State Average of Maximum Allowable Interest Rate and Usury Penalty for Suffrage and Non-Suffrage States (1750 to 1891)

