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

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Abstract

We investigate the causes and consequences of financial regulation by studying the political economy of U.S. state usury laws in the 19th century. Exploiting cross-sectional and time-series variation in regulation, enforcement, and market conditions, we show that usury laws affect lending activity and that financial regulation tightens when it is less costly. We also find that strictness of financial regulation coincides with strictness of other economic and political regulation that excludes certain groups. The evidence suggests usury laws are the outcome of private interests using the coercive power of the state to extract rents from other groups, highlighting the political economy of financial development.

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Introduction

We study the political economy of financial regulation and its consequences through the lens of usury laws in the 19th century U.S. The emerging growth in state economies during the second half of the 19th century provides a rich setting of cross-sectional and time-series heterogeneity in regulation, enforcement, and economic activity to analyze the relationship between financial regulation, economic incentives, politics and financial development. Understanding the economic motivation and impact of financial regulation in this setting may be a microcosm for regulation and development in today's global environment.

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

We find evidence that usury laws were used by incumbents with political power to control entry and hamper competition as well as lower their own cost of capital. By limiting the maximum legal interest rate, usury laws cause credit rationing that increases the cost of entry in the market. Since wealthy incumbents already have access to capital via their reputation, relationships, creditworthiness, and ownership of assets that can be used as collateral, they are relatively immune to these restrictions and hence, use this form of financial regulation to prevent further competition.

In our empirical analysis, we first establish that usury laws had financial impact, constraining some borrowers in some states at certain times. We find that usury laws significantly affect lending activity in the state.

We then investigate the causes and consequences of usury law changes. The tension between private and public interests provides an explanation for the variation in usury laws observed across states and time. First, states impose tighter usury laws (lower maximum rates and stiffer penalties) when it is less costly to do so. For example, when current market interest rates rise close to or above the maximum legal rate or during financial crises, states relax restrictions by raising the rate ceiling. When market rates fall or the crisis abates, ceilings are reimposed or tightened. Moreover, states hit hardest by financial crises are even more likely to alter their usury laws in this fashion. We also

show that usury laws respond to neighboring state competition. States compete for capital flows (particularly foreign at this time) that respond to interest rate ceilings. Thus, when a bordering state relaxes its usury laws a state relaxes its own usury laws. These results suggest that financial regulation has a real (or at least perceived) impact on economic development.

While this result is consistent with both the private and public interest views of regulation, we attempt to distinguish between these two views by measuring the extent of incumbent political power in a state and its relationship with usury laws. Our first measure uses state suffrage laws that restrict who can vote based on wealth (not race or gender). States that impose suffrage restrictions only allowing land owners and tax payers to vote keep political power in the hands of wealthy incumbents. We find that such voting restrictions are highly correlated with financial restrictions. Economic historians argue that wealth-based suffrage laws are primarily driven by private interests [Engerman and Sokoloff (1997), Engerman and Sokoloff (2005), Engerman, Haber, and Sokoloff (2000), and Sokoloff and Engerman (2000)] and are less affected by general economic conditions, making it an effectual proxy for incumbent interests. Consistent with this view, we find that the percentage of white males who voted in the most recent election is negatively correlated with wealth-based restricted suffrage, and that these suffrage laws were *not* affected by financial crises. We also find that *after* a financial crisis abates, states with stronger wealth-based voting restrictions are even more likely to reimpose tighter usury laws.

As further corroboration of private interests, we find a positive relationship between wealth-based suffrage restrictions and other forms of economic regulation, such as general incorporation laws that permit free entry of firms. Usury laws are tighter when incorporation restrictions are also tight. The combination of these two policies restricts free entry further, implying financial regulation is adopted in conjunction with other exclusionary policies designed to limit access to other groups. This evidence seems to conflict with the public-interest motivation, which is supposed to include or help underserved or disadvantaged groups rather than limit access. Furthermore, during a financial crisis, usury laws are loosened but incorporation restrictions remain. Since incorporation restrictions do not constrain established incumbent firms, who are already incorporated, incumbents maintain these restrictions to deter new entry, but lift rate ceilings to loosen their own borrowing constraints during a credit crisis.

We also consider which incumbent group's private interests are best being served by these policies by examining industrial versus financier interests in setting regulation. To distinguish between the

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

In addition, we test the extent to which public interests may influence usury laws by examining three separate tests for public interests. First, we analyze the relationship between usury regulation and policies designed to protect the poor such as bankruptcy stay and debt moratoria laws. Second, we examine newspaper circulation and the prevalence of political and corruption coverage as a proxy for when public interests were likely to be heightened. Third, since the public interest view argues that usury laws help smooth idiosyncratic shocks (e.g., the social insurance motive of Glaeser and Scheinkman (1998)), we also examine agricultural shocks that had little to no effect on industrial incumbents. Specifically, we measure shocks to the agricultural sector by using technology events, extreme weather, demand changes, and international commodity price movements and exploit the cross-sectional and time variation in state exposure to these shocks. For all three tests, we find that *none* of the public interest proxies – laws protecting the poor, news coverage, or agriculture shocks – exhibit any link to usury laws.

Finally, we also consider, in a cross-sectional study of 1850 for which we have data, further alternative explanations for the variation in usury laws related to government bureaucratic costs and religious motives. We find no consistent evidence in favor of any of these alternative explanations.

Our results support the literature on the political economy of financial regulation. Peltzman (1965) and Kroszner and Strahan (1999) similarly argue that financial regulation is determined by private interests. Bekaert, Harvey, and Lumsdaine (2002) study the effects of regulatory changes on emerging capital markets. Rajan and Zingales (2003) propose an interest group theory of financial development, where both incumbent financiers and industrialists oppose financial development because it breeds competition. Braun and Raddatz (2007) show that the relative strength of interest groups determines the level of financial system sophistication. Feijen and Perotti (2006) show that weak democratic institutions allow incumbent interest groups to capture financial regulation and Perotti and Volpin (2006) provide evidence that entry in financially dependent sectors is higher

in countries with better investor protection. As an alternative to aggregate measures of financial development such as market capitalization or credit divided by GDP used in many of these studies, we employ usury laws as a direct policy instrument for the mechanism of financial regulation to be identified.

Our findings also relate to the broader literature on financial development and economic growth (Jayaratne and Strahan (1996), Rajan and Zingales (1998), Bekaert, Harvey, and Lundblad (2005), and Levine and Zervos (1998)), which argues that financial development fosters growth. If finance is so beneficial to growth, however, then why do some economies choose to remain less financially developed? The tension between private and public interests provides an explanation, where incumbent groups may be made better off at the expense of the rest of the economy, highlighting the endogenous relation between financial development and growth.

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

I. Theoretical Framework and Testable Hypotheses

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

The premise underlying both the public and private-interest theories implies financial regulation, proxied by usury laws, impacts financial development.

PREDICTION 1. Tighter usury laws generate lower lending activity.

A. The Private-Interest Group Hypothesis

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

Well-organized and powerful incumbent groups may use regulation to capture rents at the expense of other groups by imposing maximum legal rates. Established incumbents, for example, can either finance new projects out of earnings without accessing external credit markets or already have an established reputation in the credit market and pledgeable collateral, and thus are not bound by the maximum legal rate. Incumbents may, therefore, benefit from usury laws if they discourage entry from others who cannot access finance as easily. The notion that access to finance can be used as a barrier to entry is a central theme in Rajan and Zingales (2003, 2004).

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

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

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

Prediction 2 is also consistent with the public-interest theory. Without private interests there is no tension between credit competition and surplus division, hence usury laws will simply follow market interest 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 when incumbents have more political power.

This general prediction emerges from Stigler (1971), Peltzman (1976), Becker (1983), and Rajan and Zingales (2004).[1] States respond less to economic forces when incumbents exert their political

[1]Glaeser and Scheinkman (1998) also analyze a rent seeking motive for usury laws. However, in their analysis, maximum legal rates *rise* with the political power of the wealthy since they want to charge higher interest rates to the poor, whereas we predict that maximum legal rates will be lower since the wealthy use finance as a capital-constraining

influence to protect their own interests. Incumbents do not need financial development to ensure financial access.

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

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

B. The Public-Interest Hypothesis

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

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

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

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

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

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

Finally, Glaeser and Scheinkman (1998) model usury laws as a primitive means of social insurance. When banks have market power, financial regulation transfers income to states of the world where individuals have a high marginal utility of income from states of the world where they have a low marginal utility of income more efficiently. This insurance mechanism helps smooth

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

idiosyncratic shocks.

PREDICTION 8. Usury laws help smooth idiosyncratic shocks.

II. Data Description – Usury Laws in the 19th Century United States

Usury laws regulate the maximum legal interest rate that can be charged on a loan and the penalties imposed on lenders for exceeding this rate. Usury laws in America date back to at least 1641 when Massachusetts set the maximum legal rate at 8%. The rest of the original 13 colonies enacted their usury laws during the 18th century and the remaining 20 states we study adopted their usury laws in the 19th century. By restricting the maximum legal rate of interest with no relation to risk, usury laws make the financing of some risky, yet profitable, projects illegal. Usury laws apply to the residence of the loan or borrower, regardless of the location of the lender. Hence, banks in a state without usury laws are subject to the usury laws of the state where the borrower resides or the loan is made.

A. Data

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

[2]The penalty index is constructed as follows. A state gets a score of 0.5 for loss of the illegal interest, 1 for loss of the entire interest and 0 otherwise. Likewise, a state gets a score of 1 for loss of the principal and 0 otherwise. Since forfeiture is not limited to the nominal amounts of the principal or interest, a state gets a score of 1 for forfeiture of the nominal amount of the principal 2 or 3 for forfeiture twice or triple the principal, and 0 otherwise. Likewise, a state gets 0.5 for forfeiture of only the illegal interest, 1 or 1.5 for forfeiture twice or triple the illegal interest, and 0 otherwise. When the penalty is the forfeiture of the entire interest the score is 1. None of the states forfeited more than the entire amount of interest although several states set the penalty at triple the illegal interest. An index of the severity of penalties is constructed as the sum of these measures across all dimensions of the usury penalty code. This index preserves the ranking of states on penalty severity, but may understate differences in the quantitative severity of the penalties. We have experimented with other ways to construct a penalty index that attempt to highlight the quantitative differences across states and found similar results.

B. Cross-sectional and time-series variation

In 19th century America, there was substantial heterogeneity in usury laws across states and time. Table 1 reports the heterogeneity of usury laws across 33 states and over time. States are sorted in ascending order by their time-series average maximum legal rate and summary statistics for both the maximum legal rates and the total penalty are reported. The mean maximum legal rate for each state over the entire time period for which the state has usury laws on its books is reported in the first column of Table 1. The average legal maximum rate ranged from 5.73% in Virginia to no limit in California during the sample period. For the purpose of calculating means, if a state has no limit on the maximum legal rate in a given year, we employ 5% plus the maximum legal rate ceiling observed in that year across all states as the effective maximum rate.[3]

The second and third columns of Table 1 report the minimum and maximum legal rates over time for a given state and the fourth and fifth columns report the number of positive and negative changes, respectively, to the maximum legal rate for each state. More than half (17) of the states eventually lifted the ceiling on rates and allowed for no rate limit at some point during the sample period, while nearly half (16) of the states never repealed their usury laws. Many states changed their rate limits multiple times and in multiple directions. Virginia, for instance, increased its rate ceiling twice and reduced it on three separate occasions. The number of positive and negative changes for a given state suggests that policy makers believed usury laws to be impactful – otherwise why change them?

The next five columns of Table 1 report the same summary statistics for the penalty for charging usurious rates. There is substantial heterogeneity across states and for a given state over time in the penalties imposed for violating usury. States not only raise and lower the interest rate ceiling, but also alter the penalties for exceeding the ceiling. This evidence indicates variation in enforcement as well. The last two rows of Table 1 report that the correlation between the maximum legal rate and total penalty is -0.37 and the correlation between their changes (first differences) is -0.33. States with low rate ceilings adopt stiff penalties to enforce them and when states tighten their rates, they also tighten the penalties for violation. The evidence points to states adopting tougher penalties

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

when the rate ceiling becomes more binding. If the penalties are innocuous or irrelevant, either because the maximum rate does not bind or is not enforced, why bother to change them?

C. Evolution of usury laws

The last column of Table 1 reports the year of statehood for each state (year when the state joined the union). States that joined the union later tended to adopt higher maximum legal rates and less stringent penalties.[4] Hence, cross-sectionally, older states have tighter financial regulation. There may be many reasons why older states tended to have more stringent usury laws than younger states: life cycle growth patterns, greater need for usury protection, more developed banking systems, more bureaucratic capital, and perhaps more likely to have private interest groups with stronger political clout. We will try to address each of these potential explanations for usury laws.

However, the general time trend for all states is toward liberalization. Figure 1 plots the time-series evolution of usury laws in the U.S. by plotting cross-state averages of maximum legal rates and the penalty index annually. On average, states are relaxing their financial regulation as the 19th century comes to a close. Therefore, age has both a significant time-series and cross-sectional association with usury laws. The general time trend is toward liberalization, but cross-sectionally older states are more conservative. To control for these effects, we employ state and year fixed effects to difference out state and year-level unobservables and use state age as a regressor in all of our tests, which is equivalent to accounting for a state-specific linear time trend in all our regressions. Since age may be correlated with private and/or public interests, these controls may understate our findings.

Figure 1 also depicts the financial crises of 1819, 1857, 1873, and 1884 as well as the end of the Civil War (1865).[5] Usury laws tend to relax following each of these episodes, both in terms of higher maximum rates and lower penalties.

III. Do Usury Laws Matter?

We first establish whether usury laws were binding and had a real impact on financial access. Some argue that financial regulation can be circumvented by market participants through clever

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

[5] In separate analysis we have also included the years 1837 and 1839 to 1843 as financial crisis years, but leave them out of the main analysis since there is no consensus as to whether these years represent financial crises. All results in the paper pertaining to financial crises are robust to including these years.

contracting (e.g., Wright (1949)), but North (1990) discusses how contracts attempting to disguise interest and evade usury laws by specifying "late payment penalties," manipulating exchange rates, or other devices imposed additional costs that would not be present in the absence of usury laws.[6] These costs and risks must have *some* impact on financial development.

Another possibility is that usury rates simply do not bind and therefore never have to be enforced. Usury ceilings may simply change with market interest rates so that the constraint is never binding. However, both of these explanations have difficulty reconciling the heterogeneity in rate ceilings and penalties we observe across states and time.[7] Ultimately, however, these are empirical questions, which we now attempt to answer.

A. Market interest rates

In order to determine the strictness of usury laws, we need measures of (unconstrained) market interest rates. Ideally, we would like to have a detailed panel of state-level interest rates that covers our sample of usury law changes. Bodenhorn (2002), using Comptroller of the Currency records, calculates average bank lending rates at the state level. However, his data only begin in 1878 and hence only cover 14 years of our sample. To supplement these data we also use several longer series of 18th and 19th century market interest rates from Homer (1963): the yields on long-term British government bonds (beginning 1727), the yields of high-grade long-term American bonds (beginning 1798), the average annual U.S. commercial paper rate (beginning 1831), the annual New England municipal bond yield (beginning 1798), the average yield on high-grade railroad bonds (beginning 1857), and the average annual call money rate (beginning 1857), which is the overnight lending rate between banks in New York on collateralized loans. All series are annual, except for call money rates which are monthly, and all rates end in 1891 to coincide with our usury law sample. The state-level bank lending rates provide rich cross-sectional information and better capture the loan rates facing small businesses and other potentially credit-rationed borrowers. Their short time-series

[6] In addition to the costs of writing complex contracts, North (1990) points to the difficulty in enforcing such contracts, which often deterred lenders, particularly foreign lenders. Usury laws not only impose contracting and enforcement costs on lenders directly, but also may signal the danger of enforcement and expropriation in general for outside lenders. Temin and Voth (2005, 2006, 2007) find that lending activities in England during the 18th century were constrained by usury laws. Wright (2002) also argues that banks were reluctant to violate usury laws because doing so placed their corporate charter at risk.

[7] The mindset of legislators at the time was that usury laws certainly did bind, as suggested by some of the quotes in Appendix A. Rockoff (2003, p. 24-25) discusses how "Friedman (1963) documents a number of cases in which the fear of a capital drain to states with more liberal usury laws was brought up in legislative debates. For example a legislative committee in Connecticut in 1871 "painted a picture of money fleeing to Massachusetts," where the usury law had been repealed in 1867." (see Murray (1866)).

is limiting, however, making it difficult to analyze the impact of financial crises, for example. In addition, because bank lending rates were subject to usury laws, these rates do not reflect true unconstrained market rates. On the other hand, while rates from Homer (1963) provide a long time series, they offer no cross-sectional information (except for New England municipal bond rates and call money rates) and they are likely far below what a small credit-rationed borrower could obtain, making them a lower bound on available rates to these borrowers. However, unlike bank lending rates, neither bond, commercial paper, nor call money rates were subject to usury laws. For this reason and those above, we compare both sets of rates to usury laws.

Panel A of Table 2 reports that the correlations among these rates are quite high, including a state GDP-weighted average of the state-level bank lending rates.[8] We also construct an index of interest rates by extracing the largest common component among the rates from Homer (1963) using the first principal component of the covariance matrix to weight the six different market interest rates. The average correlation between the principal component index and each series is 0.85 and its correlation with the average state bank lending rate is 0.64.

B. Are rate ceilings restrictive?

Panel B of Table 2 reports the frequency (number and percentage of years) with which the maximum legal rate for a state is binding relative to the U.S. bond rate, commercial paper rate, high-grade railroad bond rate, and call money rate. There are two important features of these rates. First, none of these rates were subject to usury laws and hence, could (and often did) exceed usury rate ceilings. Second, these rates are likely lower bounds on the prevailing interest rates faced by small borrowers at the time, who were almost certainly greater credit risks and had less collateral than those large borrowers who had access to the U.S. bond, commercial paper, railroad bond, or call money markets. For example, when the call money rate, an overnight collaterized interbank rate, exceeds the maximum legal interest rate in a state, it almost certainly has to be the case that actual borrowing rates faced by less creditworthy households or small firms for maturities longer than one day on non-collateralized loans are even more restricted by the rate ceiling.

As Panel B of Table 2 shows, for many states there are a significant fraction of years when the usury restriction binds relative to these low market rates that small borrowers did not likely have access to. Hence, the restriction on small borrowers must have been even more binding. In addition,

[8] We use the average state gross product from 1850 and 1860 to determine the weights.

the rate differences could be substantial, suggesting usury laws could impose very tight constraints on lending at certain times. The data also highlights the tremendous heterogeneity over time for a given state and across states, with some states having binding rate ceilings a significant fraction of the time, while others never being constrained.

Figure 2 plots the average state-level bank lending rate for states with and without a rate ceiling, the average rate ceiling for states with rate limits, the minimum rate ceiling among states, and the commercial paper rate annually from 1878 to 1891. Also highlighted on the figure is the financial crisis of 1884. Figure 2 shows that prior to 1884, average bank lending rates in states with usury restrictions were considerably lower than unconstrained states, and much closer to the commercial paper rate, a rate available to only the largest and most creditworthy borrowers. Once the financial crisis of 1884 hits, however, these states loosened their rate ceilings, evidenced by the increase in their average rate ceiling, and consequently their average bank lending rates jumped to the same level as those in unconstrained states. The figure suggests that even toward the end of the 19th century, usury laws were binding for some (small) borrowers and that financial crisis was the catalyst to loosen regulation. This theme is highlighted throughout the paper.

C. Impact on lending activity and enforcement

Table 3 contains a series of tests for Prediction 1, which states that usury laws generate lower lending activity. Panel A of Table 3 examines the impact of usury laws on loan volume. We report results for regressions of the change in total amount of loans and discounts per capita on the change in maximum legal rate and the change in the difference between the maximum legal rate and market interest rates. We use the principal component index rate, Regional rates, and state bank lending rates that allow for variation in interest rates across states at a point in time. The Regional rate is constructed as the New England municipal bond rate for all states in the New England region, the New York call money rate for New York state, and the U.S. bond rate for all other states and is available beginning in 1857. The state-level bank lending rates from Bodenhorn (2002) start in 1878. We run the regressions in first differences, with controls for age and state fixed effects when using the U.S. bond and principal components index rates, and controls for age, state and year fixed effects when using the regional and state-level rates. Standard errors are clustered by year. Loan volume data is obtained from state-level national banks' balance-sheets for the years 1865 to 1890 from the reports of the Comptroller of the Currency.

Panel A of Table 3 shows that changes in lending volume per capita increase when changes in the maximum rate increase. The elasticity of per capita lending volume to rate ceilings is 0.98. We obtain equally sharp results when employing the maximum rate relative to market interest rates as a regressor. The most compelling tests are those using the regional and state-level interest rates that control for state and year fixed effects. When market interest rates approach or exceed the maximum legal rate, usury laws become more binding and loans per capita decrease.

The premise underlying the private and public interest theories is that financial regulation has a causal effect on financial activity (Prediction 1). Hence, we would like to interpret the results in Panel A of Table 3 as evidence of a supply restriction – usury rate ceilings affecting lending volume in a state, consistent with Prediction 1. However, because rates and loan volume are observed simultaneously, it is unclear whether this empirical relationship is driven by supply (regulation) or demand sources. To address this issue, Panel B of Table 3 examines the relationship between changes in bonds for circulation per capita and maximum rate changes. Bonds were not subject to usury laws and hence their supply should not be directly affected by usury restrictions. Bonds were also only available to particularly large lenders and governments, who are less likely affected by rate ceilings. To the extent large firms were affected by usury laws, bonds could be used as a substitute form of financing. Therefore, if rate ceilings from usury laws affect supply, we should expect either no effect on bond activity or the opposite effect as that on lending volume, since bonds become a substitute form of borrowing. On the other hand, if general demand for financing has changed, then both bond activity and loan activity should move in the same direction. As Panel B of Table 3 shows, bond activity has a weaker and opposite signed relationship with usury law changes than lending activity, even over the short sample for which we have state-level interest rates and control for state and year fixed effects as well as a state-specific linear time trend (age). This evidence is inconsistent with a demand-based story for the drop in lending activity and further supports the notion that usury laws had a real effect on the supply of loans. Our results are consistent with the micro-level evidence in Temin and Voth (2007) that finds significant distortions in London credit markets following the tightening of usury laws by the British government in 1714.[9]

Finally, Panel C of Table 3 addresses whether penalties for violating usury also become tougher

[9]Benmelech and Moskowitz (2007) also show that growth rates in gross state production also increase when rate ceilings are lifted. This result, while fraught with endogeneity concerns, is at least consistent with financial regulation having an impact on economic growth as well, supporting our findings that usury laws had direct financial impact that may have affected real economic activity.

when rate ceilings become more binding. Penalties are a form of enforcement. We find that penalties indeed increase when maximum legal rates are at or below market interest rates, when the usury ceiling is more binding.

IV. The Determinants of Usury Laws

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

A. Is regulation tighter when it is less costly?

Table 4 provides results for a variety of tests of Prediction 2, which states that strictness of usury laws is inversely related to the cost of regulation. We proxy for the marginal cost of capital using periods of high market interest rates, financial crises, and when neighboring states compete for outside capital by altering their own usury laws.

Panel A of Table 4 examines how maximum legal rates respond to the proximity of market rates to the usury rate ceiling. We regress the change in the maximum rate for a state on the lagged change in the difference between the maximum legal rate and the average U.S. bond rate last period.[10] The negative and significant coefficient indicates that when the market interest rate approaches or exceeds the usury ceiling in year $t-1$, states increase their rate ceiling subsequently in year t. The next two columns of Panel A of Table 4 employ the principal components index rate and the Regional rate (which allows both state and year fixed effects to be employed) as market interest rate proxies and finds nearly identical results. The fourth column of Panel A of Table 4 repeats the regression for Regional rates separating the difference between the lagged change in the maximum legal rate and Regional rate into positive and negative components. This regression tests whether states respond differently to a tightening or loosening of the regulation. When the local interest rate is greater than the maximum rate, usury restrictions become binding and we see a subsequent increase in the state's maximum allowable rate to alleviate this constraint, indicated by the positive and significant coefficient. When the regional rate falls below the maximum rate, however, usury laws become less costly, and we see a subsequent reduction in the usury ceiling to

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

tighten the restriction the following period. The last two columns repeat these tests using state-level bank lending rates that allow for state and year fixed effects to be employed. Despite the very short sample period (1878 to 1891), the results are remarkably consistent: states lift rate ceilings when they become costly and lower them when it is cheap to do so. These results provide evidence in favor of Prediction 2 that regulation loosens when it becomes costly and tightens when it becomes inexpensive.

Panel B of Table 4 examines how maximum rates change in response to financial crises, where the marginal cost of capital is especially high. We regress a state's maximum legal rate on dummies for financial crisis years (1819, 1857, 1873, and 1884) and the year after each crisis.[11] Maximum rates rise during and following times of financial distress, consistent with Prediction 2 that laws relax when they become costly. States raise their maximum legal rate by 1.3 percentage points during financial crises. Since interest rates are particularly high during these times, the second column of Panel B of Table 4 reports results including the lagged difference between the maximum rate and Regional rate as a regressor. (There is only one crisis during the 14-year sample of state-level bank rates, making it infeasible to conduct this and other tests with state-level data.) Both variables are significant, indicating that financial crises affect usury laws even beyond the higher market rates that prevail during these times. Since financial crises are defined by quantity restrictions as well as high prices, this result is intuitive. Likewise, column 3 of Panel B shows that the interaction between the two is negative – in financial crises, states with the most binding usury laws subsequently raise their rate ceiling even more.

The last three columns of Panel B of Table 4 add measures of a state's sensitivity to financial crises and interact them with the dummy for financial crisis years. Prediction 2 also claims that states more sensitive to capital shocks are more likely to repeal usury laws during a crisis. To capture a state's sensitivity to financial crises, we use the total mileage of railroads that defaulted during the financial crisis of 1873 for every state. This data is recorded as of September, 1873 and comes from Benmelech and Bordo (2007). Since railroads were not typically affected by usury laws because they had substantial collateral and could issue public debt (which was not subject to usury laws), this proxy should capture a state's sensitivity to the crisis of 1873 that is otherwise unrelated to usury laws. We scale track mileage of defaulted railroads by the number of manufacturing

[11] We have also included a dummy for the five years after the end of the civil war (1865 to 1869) and obtain very similar results. We have also defined 1837 and 1839 to 1843 as crisis years and found very similar results, but given the lack of consensus about these years being a crisis, we do not classify them as such for the results in the paper.

establishments in the state from the 1870 Census. The fourth column of Table 4 shows that states hit hardest by the financial crisis were more likely to raise rate ceilings subsequently. The last two columns employ two additional measures of crisis sensitivity: the amount of manufacturing capital per manufacturing establishment in 1870 and the amount of machinery capital per capita in 1870. Benmelech and Bordo (2007) show that the manufacturing sector and particularly the machinery sector were hit hardest by financial crises. Consistent with Prediction 2 that states hit hardest by financial crisis are more likely to change their laws, we find positive interaction terms for both measures of crisis sensitivity. In all these regressions, the inclusion of state fixed effects absorbs the level effects of the railroad failure, manufacturing capital, and machinery capital variables and the year fixed effects absorb the level effect of the crisis, enabling a straightforward interpretation of the interaction terms.

Panel C of Table 4 examines how maximum rates and lending activity respond to competition, as another proxy for the cost of capital. The first column of Panel C of Table 4 reports results from regressing the maximum legal interest rate for a state in a given year on the average maximum legal interest rate for that year among states that border it as well as states that do not border it. The maximum legal rate for a state in each year is highly positively correlated with the maximum rate imposed in bordering states in that same year, even after accounting for year fixed effects, which eliminate general interest rate levels or economic conditions, and state fixed effects, which eliminate any time-invariant unobserved effects at the state level. This finding suggests that a state's variation in rate ceilings over time is in part determined by what its neighbors are doing, which we interpret as a response to competition for capital. Contemporaneous changes in financial regulation are likely motivated by neighboring states competing for the same capital, and thus affecting the marginal benefit and cost of capital for the state. The magnitude of the response is also large. A one percentage point increase in a neighboring state's maximum legal rate increases the state's own rate ceiling by 96 basis points. Whether a non-border state changes its rate has no effect.

As another test for the role competition plays in determining usury laws, the second column of Panel B of Table 4 interacts the wealth of the state (per capita output) with the border rate variable and interacts the wealth of bordering states with the border rate variable. Wealthy states should be less prone to competition for outside capital since their marginal utility for capital is lower (e.g., New Jersey is more likely to follow New York than vice versa). The level effects of the state wealth variables are absorbed by the state fixed effects. The interaction terms indicate that states respond

less to less wealthy neighbors and respond more to wealthier neighbors' usury laws, consistent with competition for capital.

Finally, the premise that border effects represent competition for outside capital hinges on usury laws actually affecting capital flows and lending activity across states. However, if states respond optimally to competition for capital, then in equilibrium there will be no distortion in financing activity across states. Therefore, to test this premise, we need to observe what happens to state lending activity if a state does not respond to competition? The last column of Panel C of Table 4 regresses changes in loans per capita on two dummy variables designed to capture when a state either does not respond to competition or responds in the opposite direction of its neighbors. As the last column of Panel C of Table 4 shows, when a state's neighbors increase their rate ceiling, but the state itself does not, loans per capita decrease in the state, and when its neighbors tighten their ceilings, and the state does not also tighten, loans per capita increase in the state. These results indicate that failure to respond to competition for capital impacts subsequent loan activity.

An interesting question arises as to why some states at certain times *do not* respond to neighboring state law changes if it has these adverse capital consequences? The tension between private and public interests provides an answer, since states at certain times will tradeoff the public benefits of greater capital supply for the private benefits of certain groups within the state benefiting from limited capital access.

The results in Table 4, indicating that regulation tightens when it is less costly, are consistent with both the private and public interest theories. We now turn to tests that attempt to distinguish private and public interest motives as they pertain to usury laws.

B. Private interests and incumbent political power

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

B.1 Restricted suffrage laws

We follow the literature on the relationship between restricted suffrage laws based on wealth and the power of the elite (e.g., Engerman and Sokoloff (1997), Engerman and Sokoloff (2005), Engerman, Haber, and Sokoloff (2000), and Sokoloff and Engerman (2000)), by using wealth-based suffrage laws as a proxy for the political power of incumbents. Restricted suffrage laws were generally instituted

to keep voting control in the hands of the established incumbent elite and prevent political power from swinging to a new group. Voting in the 19th century United States was largely a privilege reserved for wealthy white men who owned a significant amount of properties, and these voting rights varied by state. Restricted suffrage implies more concentrated voting power to push policies that further the private interests of the voting group. We focus exclusively on suffrage restrictions that are based on wealth as our proxy for incumbent elite power, and ignore suffrage laws based on race or gender, where additional factors may be motivating these laws.

Figure 3 plots the year-by-year average interest rate ceiling and penalty index for states with and without wealth-based restricted suffrage laws. States with restricted suffrage have more restrictive usury laws in terms of lower interest rate ceilings and tougher penalties. During financial crises, however, both restricted and non-restricted suffrage states loosen their usury laws, even to the point where there is little difference between the two.

Panel A of Table 5 examines the relationship between wealth-based suffrage restrictions and usury laws more thoroughly by including controls for state and year effects and age (state-specific linear time trend). We regress the maximum legal interest rate for a state in a given year on a dummy variable indicating whether the state has wealth-based restricted suffrage laws that only allow land owners and/or those who pay taxes to vote in that year, and include state age and state and year fixed effects as controls. We find that states with wealth-based restricted suffrage laws have much tighter usury laws. The average maximum interest rate is 1.32 percentage points lower when wealth-based restricted suffrage laws are present.

As another proxy for concentrated incumbent political power, we employ the percentage of white males who did not vote in the most recent Presidential election, available for 23 states for the following election years: 1824, 1828, 1832, 1836, 1840 and 1844.[12] The second column of Panel A of Table 5 reports regression results of the percentage of non-voting white males on the wealth-based restricted suffrage indicator. Restricted suffrage implies 12 percent fewer white males vote, controlling for state and year fixed effects. The third column of Panel A reports results from regressing the maximum legal rate on the percentage of non-voting white males. A 10 percentage point increase in voting concentration translates into a 1.5 percentage point lower rate ceiling. The fourth column of Panel A includes both restricted suffrage and the percentage of non-voting white males as regressors and the fifth column also includes an interaction term between them.

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

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

The last column of Panel A of Table 5 tests the interaction between Prediction 2, that cost of regulation matters, and Prediction 3, that political power matters. Specifically, we document a distinct pattern in usury laws around financial crises, when the cost of financial regulation is high: states with incumbent political power liberalize usury laws in the short-term to accommodate the financial crisis (Prediction 2) but then revert back to financial restrictions when the crisis abates (Prediction 3). The interaction term between restricted suffrage and crisis years on maximum rates is positive and insignificant, indicating that during financial crises, even states with incumbent political power liberalize their rate ceilings, presumably because incumbents are also hit by the crisis. However, the interaction term between restricted suffrage and a dummy variable for *five years after* the crisis shows that these same states with incumbent political power reduce their rate ceilings after the crisis is over. (The level effects of both variables are captured by the inclusion of state and year fixed effects). Hence, all states relax financial regulation during a crisis, but only those states with concentrated voting power reimpose the restrictions after the crisis subsides. This evidence supports the private interest view of regulation and is difficult to reconcile under alternative theories.

B.2 Restricted incorporation laws

If suffrage laws are a good proxy for incumbent political power, then according to Prediction 4, which states that usury laws will coexist with other policies designed to exclude other groups when incumbents have political power, other forms of regulation that benefit incumbents by restricting entry should be adopted simultaneously. Financial regulation is not the only barrier to entry. Incumbents with political power can restrict entry directly using licensing or charter restrictions. During the 19th century, states limited competition from new entrants by imposing restrictions on forming non-financial corporations. According to Wallis (2005): "Initially, all corporations were 'special': created by an act of the legislature that specified the rights and responsibilities of each corporation individually . . . The numerous examples of truly special privileges created by state

legislatures gave substance to concerns about corruption." One notable example of such corruption is the case of the Camden and Amboy railroad that obtained a monopoly of the Northeast to Southwest rail route in New Jersey, connecting New York and Philadelphia, in return for giving a substantial block of stock to the state. In contrast, general incorporation laws allowed the formation of non-financial corporations without a special charter from the legislature. We exploit variation in the adoption of general incorporation laws across states and time, which allow for easier and faster entry of new firms. Data on state-level evolution of general incorporation laws comes from Evans (1948).

Panel B of Table 5 tests whether restricted suffrage laws are correlated with restricted incorporation laws. The first column reports the specification with state fixed effects and the second column reports results from a first difference regression of changes on changes (both regressions include age as a control). Both specifications show that restricted suffrage laws are associated with restricted incorporation laws, implying tighter restrictions on firm entry. Having wealth-based suffrage restrictions increases the probability of having restricted incorporation laws by 22 percent. This evidence supports Prediction 4, which states that usury laws coexist with other policies designed to exclude new entrants when incumbents have political power.

On average, states with incumbent political power adopt strict usury restrictions in conjunction with strict incorporation and voting restrictions. Previously, however, we also showed that during a financial crisis even states with concentrated voting power tend to liberalize their usury laws. Therefore, we now investigate whether incorporation and voting restrictions are also relaxed during financial crises. According to the private-interest view, these policies should *not* be altered during crisis episodes because incumbents are not directly affected by them. Incumbents should still wish to maintain their political power, implying that restricted suffrage laws should remain in place irrespective of a financial crisis, and incumbents will still want to deter entry of new firms through other regulation, implying that restricted incorporation laws should also remain or perhaps even tighten in a financial crisis. Hence, the private-interest view predicts that the unconditional positive correlation between financial, suffrage, and incorporation policies during normal times will be broken during financial crises because those private interests will suddenly be affected by the financial restrictions, yet still wish to maintain power through voting and entry restrictions. Consistent with this conjecture, the last four columns of Panel B of Table 5 show that, despite usury laws being loosened, incorporation and restricted suffrage laws are not altered during financial crises. This shift

in the correlation of these policies during a financial crisis is difficult to reconcile under alternative theories.

The results in Table 5 indicate that usury laws are correlated with other forms of political and economic restrictions that are designed to *exclude* others from the right to vote or start up a firm. While these policies are likely determined endogenously, the evidence suggests that usury laws, too, are designed to exclude groups from credit markets, contrasting sharply with the public-interest view of regulation which is designed to assist, protect, and *include* weaker groups.[13] Moreover, during times when usury laws bind for incumbents, lending restrictions are relaxed, but voting and charter restrictions, which are not binding for incumbents, are maintained.

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

Rajan and Zingales (2003) argue that incumbent private interests may come from industrialists or financiers. We try to identify whose private interests are motivating regulation by separating the private interests of incumbent industrialists from financiers. While less restrictive usury laws provide financiers with an opportunity to finance more projects, they also facilitate entry of new financial institutions. We examine combinations of policies that should favor one group versus another in order to identify which incumbent groups likely drove regulation.

We begin by looking at measures where incumbent power is likely to be greatest – where restricted suffrage and restricted incorporation laws exist. In the first two columns of Table 6, we regress the maximum legal interest rate on a dummy variable that equals one if a state in a given year has both restricted suffrage and restricted incorporation laws. The other extreme set of policies we define as being "egalitarian," which are years in which a state has general incorporation laws and no suffrage restrictions. As the first column of Table 6 shows, states in which incumbents have more power adopt more strict usury laws; rate ceilings are 145 basis points lower in these states. This evidence suggests that financial and economic barriers to entry are used in complement, consistent with the incumbent private-interest view. The most egalitarian states have significantly more lax rate ceilings that are 36 basis points higher than the average maximum rate.

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

[13]The relationship between direct entry restrictions and usury laws presented in Table 5 is similar to the evidence in Djankov et al. (2002), and is consistent with our regression results as well as Rajan and Zingales' (2003, 2004) hypothesis that financial regulation and entry restrictions are used complementarily.

analyze their relationship with usury laws. Free banking laws are a natural candidate for this task since incumbent banks want to restrict bank entry and competition, while incumbent industrialists are either indifferent or may want to foster bank competition to lower their own cost of capital. We use free banking laws as an inverse proxy for the political power of the financial sector.[14]

The third column of Table 6 reports regression results of the maximum legal interest rate on a dummy variable that equals one if a state has free banking laws in a given year. Since free banking was used in antebellum America, the regressions span the time-series of usury laws only up to 1861. The results indicate that free banking laws are not associated with maximum legal rates, suggesting that it is not incumbent financiers that are setting financial regulation.

To better distinguish the private interests of financiers from industrialists, we also consider the combination of policies most appealing to each group along three dimensions: suffrage, general incorporation, and free banking laws. Industrial incumbent private interests are most aligned with voting restrictions, incorporation restrictions, and free banking laws to promote lender competition to reduce their own cost of capital. To capture these preferences we designate industrial power with an indicator variable equal to one if a state-year has this combination of policies. Financier incumbent private interests are aligned with voting restrictions, general incorporation laws that create more potential borrowers, and restrictions on free banking laws to control bank entry. We designate bank incumbent power with an indicator variable equal to one for state-years with these combination of policies. Finally, we create a dummy variable to capture the most egalitarian set of policies which consists of no restrictions on suffrage, incorporation, or banking.

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

[14]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.

D. Penalties for violating usury

In unreported results (available upon request) we confirm that the same determinants of rate ceilings also capture variation in the penalty index for violating the maximum rate, with, of course, the opposite sign. States reduce penalties during a financial crisis and when neighboring states liberalize, and impose stiffer penalties when they also have restrictions on suffrage and other economic policies like incorporation laws. These results emphasize that not only do states alter their rate ceiling in response to economic and political conditions, but that they also simultaneously alter the enforcement mechanism of these laws, as proxied by the penalties imposed.

E. Public interest

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

E.1 Personal bankruptcy stay and debt moratoria

The first set of proxies we employ for public interests are a set of policies designed to protect the poor and weak debtors. We employ bankruptcy stay laws or debt moratoria passed by state legislatures and examine their relationship with usury laws. We use a dummy variable for whether a state had bankruptcy stay laws that forgave personal debt, obtained from Coleman (1974). As the first column of Table 7 shows, there is no significant relationship between personal bankruptcy stay laws and usury laws. We also employ another variable to proxy for protection of weak debtors which is the vote in the House of Representatives in 1822 for the relief of debtors who bought public land from the Federal government. The percentage of representatives in each state voting in favor of debt relief is used as a proxy for the state's interest in protecting the poor. As the second column of Table 7 shows, there is also no relationship between this measure and usury laws. These two results are inconsistent with Prediction 6 of the public interest theory that usury laws will coincide with other policies designed to protect the poor.

E.2 Newspaper circulation and corruption coverage

The second set of proxies we employ for public interests are the extent of newspaper circulation and the coverage of political and corruption stories, obtained from Gentzkow, Glaeser, and Goldin (2005) and Glaeser and Goldin (2005), respectively. We use the number of newspapers per capita

as a proxy for when public interests are likely to be heightened. Greater circulation of mass media likely makes it more difficult for private interests to push forward their own policies and may provide a mechanism to coalesce public interests. As the third column of Table 7 reports, there is a strong positive relationship between newspaper circulation per capita and maximum legal rates, indicating that usury laws are more lax when public opinion had a more widespread outlet. This evidence suggests that if newspaper circulation is a good proxy for the strength of public interests, then those public interests desired lax rather than tight usury laws. Hence, restrictions on financial activity do not seem consistent with public interests.

The fourth and fifth columns of Table 7 employ the extent of political and corruption coverage of newspapers. We employ the measures used by Glaeser and Goldin (2005), which for political coverage is the count of the word "politic" deflated by the count of the word "January" which controls for the newspaper's size, and corruption and fraud coverage which is the count of the word "corrupt" or "fraud" deflated by the word count "January." The former variable proxies for the extent of coverage of political events and politics in general. The latter variable proxies for the number of reported corruption and fraud events. We interpret both of these variables as proxies for public interests that make it more difficult for private interests to pass their policies. When political coverage in newspapers is high, public interest in policies is likely heightened. In addition, when public reporting of corruption is high, then either recent corruption activity has been high or monitoring of corruption has improved, both of which (we hypothesize) likely amplify public interests and deter private interests. As Table 7 shows, neither variable is significantly related to usury laws. These results are inconsistent with Prediction 7 that usury laws will tighten when public interests are more prominent.

E.3 Agricultural shocks

The third set of proxies for public interests we employ are a series of agricultural shocks. According to Prediction 8, usury laws should smooth idiosyncratic shocks. The evidence we have presented on market interest rates, financial crises, and state competition for capital are aggregate shocks. To test Prediction 8, we employ shocks to the agricultural sector in each state that had little to no effect on the industrial sector, whose private interests we conjecture are determining usury laws.

We begin with agricultural technology shocks, obtained from "A History of American Agriculture" from the United States Department of Agriculture (USDA) from 1780 to 1891. We assign

an indicator variable to state-years experiencing a positive technological shock to the agricultural sector. We employ the nearest year for which we can find data on agricultural production across various crops to determine which states are most exposed to which crops and how the technology affected those crops (e.g., invention of the cotton gin on cotton-producing states). As the sixth column of Table 7 shows, the relationship between agricultural technology shocks and usury laws is negligible.

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

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

Finally, we also employ a series of commodity price shocks using the Froot, Kim, and Rogoff (2005) commodity price series from England and Holland which spans the 17th, 18th, and 19th centuries. Froot, Kim, and Rogoff (2005) describe the construction of their series, which is provided in both nominal and real terms for the following commodities: wheat, oats, eggs, cheese, butter, barely, and peas. We assign the exposure of each state to each of these commodities at different points in time using the most recent available data we can find on the composition of the state's agricultural sector. When we cannot find 'hard data', we employ historical documents that indicate, for example, "Minnesota, California, and Illinois were the chief wheat states in 1890" and assign an exposure of 1 for these states to the respective commodity in the relevant years.[15] Taking the average of the England and Holland prices for a given year, we assign price changes to the state based on a state's weighted average exposure to the commodities in that year. As the last column of Table 7 shows, commodity price shocks affecting the agricultural sector of each state exhibit no relationship with usury laws.

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

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

F. Alternative explanations using cross-sectional evidence from 1850

Table 8 examines the determinants of usury laws on the cross-section of states in 1850 that employs a host of additional state-level variables only available from the 1850 Census. The 1850's were also a time of unparalleled growth and changes in financial regulation in the U.S., making it an interesting time period to study.

F.1 Proxies for bank market power

The first two rows of Table 8 examine the relationship between usury laws and proxies for bank market power: a bank Herfindahl concentration index based on bank capital and the amount of bank capital per capita in the state (bank wealth).[16] Maximum legal rates are negatively, but insignificantly, related to banking concentration and wealth. This null result has two possible interpretations. First, if bank market power proxies for financier incumbent power, then these results suggest that financier incumbent private interests are not determining financial regulation. Second, the premise of the public-interest view of usury is to protect citizens against the market power of banks. Accordingly, Prediction 5 conjectures a relationship between bank market power and tight usury restrictions under the public interest theory that is not supported by the data.

F.2 Proxies for bureaucratic capital

The third row of Table 8 reports results from regressing the maximum legal interest rate on the percentage of people employed as city officers or lawyers per employed persons. The idea here is to test whether more developed bureaucracies, proxied by the dearth of city officers and lawyers, may be better able to pass and enforce usury laws, whereas states without bureaucratic capital or

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

experience may simply not be able to maintain such regulation. There is no significant relationship between this proxy and usury rates, though the sign is in the predicted direction.

F.3 Proxies for borrower sophistication

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

F.4 Religious motives

Finally, we consider the role religion might have played in determining usury laws. Previous research documents a role for religion in the determination of usury laws in Europe centuries prior (Ekelund, Hebert, and Tollison (1989), Nelson (1947), and Nelson (1969)).[17] Moreover, recent studies show that religion and financial or economic development are related (Stulz and Williamson (2003), Guiso, Sapienza, and Zingales (2003), and Barro and McCleary (2003)).

While some writers claim that prohibition of interest is the decisive criterion of the difference between the Catholic and Protestant ethic, Ekelund, Hebert, and Tollison (1989) argue that in Europe usury laws were affected by the influence of the Roman Catholic church due to the church's rent-seeking behavior. Hence, they argue that the apparent influence of religion is driven more by private economic interests. It seems unlikely, however, that the rent-seeking behavior of the church was an important factor in determining usury laws during the 19th century in the U.S. Moreover,

[17] Weber (1930) argues that usury laws had a parallel in almost every religious ethic in the world. According to Nelson (1969), Calvin was the key figure in abolishing the restrictions on lending. Furthermore, Nelson (1969) argues that the ancient prohibition against lending at interest was removed abruptly with the Protestant Reformation. While Weber (1930) argues that the more liberal attitude of Calvin to usury did not gain a definite victory, he agrees that usury laws were abolished by the time of Salmasius.

given the protestant origins of the U.S and religious freedom during the 19th century, religion is less likely to play a prominent role in the determination of U.S. usury laws. More broadly, we investigate the role of religion as a proxy for conservative attitudes toward lending. In the last two rows of Table 8, we regress the maximum legal rate on the number of church accommodations (seating capacity summed across all churches, temples, synagogues, and other religious dwellings) per capita and religious accommodations per capita attributed to the Roman Catholic Church. More religious states adopt more strict usury laws. This result may be consistent with either the public or private interest view of financial regulation. However, in sharp contrast to evidence from Europe, a higher presence of Catholicism is related to lax usury laws. In fact, 1850 followed a period of a wave of Irish and German immigration to the U.S. that heightened the tension between Catholic and Protestant views. Consequently, this period should show a strong relation between usury strictness and Catholic influence if religion is an important driving force. The contrasting results in Europe and the U.S. suggest it is not religious beliefs per se that are driving usury laws.

V. Conclusion

We examine the political economy of one of the oldest forms of financial regulation, usury laws, and link it to financial development in the U.S. in the 19th century. We first establish that usury laws seemed to bind and have an impact on financial activity. We then find that the tension between private and public interests can best explain the heterogeneity in regulation observed across U.S. states and over time during this period of emerging growth in the U.S. economy. When the cost of regulation is low, private interests impose tight restrictions to extract rents and impede competition, but when the cost of regulation is high for those private interests, the restrictions are lifted. Our evidence suggests established industrialists preferred stringent usury laws because they lowered their own cost of capital without credit rationing themselves and impeded competition from potential new entrants who were credit rationed. However, during financial crises when incumbent industrialists became credit rationed, more relaxed usury laws were adopted. We also find that financial regulation is correlated with other restrictive political and economic policies adopted by the state that are designed to exclude other groups and protect incumbent interests. We find little evidence linking usury laws to proxies for public interests.

The collection of evidence supports the private-interest view of financial regulation and highlights

the political economy of financial development. These findings may provide guidance for financial policy today in emerging markets and its local and global consequences.

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

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

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

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

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

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

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

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

Table 1:

Summary Statistics on Maximum Legal Interest Rate and Penalty for Usury

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

	Maximum interest rate (%)					Penalty for Usury					Year of
	Avg.	Min.	Max.	#Changes		Avg.	Min.	Max.	#Changes		Statehood
State				+	−				+	−	
Virginia	5.73	5	12	2	3	3.65	0.50	4.00	1	1	1788
Delaware	6.00	6	6	0	0	0.61	0.50	1.00	0	2	1787
Maryland	6.00	6	6	0	0	1.50	1.50	1.50	0	0	1788
New Hampshire	6.00	6	6	0	0	2.00	2.00	2.00	0	0	1788
Vermont	6.00	6	6	0	0	4.28	0.50	5.00	0	1	1791
Tennessee	6.19	6	10	1	1	2.55	1.00	4.00	0	1	1796
Pennsylvania	6.19	6	8	1	1	0.91	0.50	1.00	0	1	1787
Kentucky	6.26	6	10	1	2	0.65	0.50	1.00	1	2	1792
North Carolina	6.34	6	8	1	0	3.62	1.00	4.00	1	2	1789
Ohio	6.49	6	8	1	0	0.99	0.50	2.00	2	2	1803
New Jersey	6.64	6	7	1	2	1.82	1.00	2.00	0	1	1787
New York	6.89	6	7	0	1	2.02	0.00	2.50	1	1	1788
Connecticut	7.20	6	none	2	1	2.47	0.00	3.00	0	2	1788
Massachusetts	7.76	6	none	1	0	1.80	0.00	3.00	1	2	1788
Alabama	7.84	6	none	1	1	2.10	0.50	4.00	1	2	1819
Indiana	7.86	6	none	2	3	0.95	0.00	2.50	2	2	1816
District of Columbia	8.10	6	10	1	0	1.48	1.00	2.00	0	1	1871
Georgia	8.14	7	none	2	3	2.89	0.00	5.00	2	4	1788
South Carolina	8.65	7	none	2	4	3.56	0.00	5.00	2	2	1788
Rhode Island	9.02	6	none	1	0	1.37	0.00	2.33	0	2	1790
Michigan	9.08	6	10	2	1	0.64	0.50	1.50	2	1	1837
Mississippi	9.26	6	none	4	2	0.82	0.00	1.00	2	3	1817
Missouri	9.52	6	10	1	2	1.00	1.00	1.00	0	0	1821
Illinois	9.68	6	12	1	3	1.64	1.00	3.00	0	2	1818
Maine	10.14	6	none	1	0	0.99	0.00	4.00	0	2	1820
Arkansas	10.71	10	none	1	1	1.50	0.00	2.00	2	1	1836
Wisconsin	10.92	7	none	2	3	2.37	0.00	3.50	1	2	1848
Iowa	11.06	8	none	1	3	1.24	0.00	1.50	1	2	1846
Texas	12.88	10	none	1	2	0.88	0.00	1.00	1	1	1845
Minnesota	13.12	10	none	0	2	1.67	0.00	4.00	2	0	1858
Louisiana	13.43	8	none	1	1	0.92	0.50	1.00	1	1	1812
Florida	13.48	8	none	2	3	0.66	0.00	2.00	1	2	1845
California	none	none	none	0	0	0.00	0.00	0.00	0	0	1850
mean	7.63					2.22					
stdev.	2.59					1.77					
correlation (max. rate, penalty) = −0.37						correlation (Δmax. rate, Δpenalty) = −0.33					

Table 2:

Market Interest Rates and Binding Usury Ceilings

Panel A reports the correlation matrix between various market interest rates: yields on long-term British government securities beginning in 1727, the yields of high-grade long-term American bonds from 1798, the average annual U.S. commercial paper rate from 1831, New England municipal bond yields from 1798, high-grade railroad bond yields from 1857, and the average annual call money rate from 1857, which is the overnight lending rate between banks in New York on collateralized loans. None of these rates were subject to usury laws. Data are from Homer (1963). All series are annual (call money rates are available monthly) and end in 1891 to coincide with our usury law data. We also construct an index of interest rates by weighting each series using the principal components of the covariance matrix of the six interest rates. Also reported are average state-level bank lending rates from 1878 to 1891 from Bodenhorn (2002), obtained from the Comptroller of the Currency. The state GDP-weighted average of the bank lending rates is reported in Panel A. Panel B of Table 2 reports the frequency (number and percentage of years) with which the maximum legal rate for a state is binding relative to the U.S. bond rate, commercial paper rate, high-grade railroad bond rate, and call money rate. These rates were not subject to usury laws. States are sorted in ascending order by their average maximimum legal interest rate.

Panel A: Correlation matrix of market interest rates

	UK bonds	US bonds	Commercial paper	NE municipal	Railroad bonds	Call money rate	Principal component index	State loan rate
Sample begins:	*1727*	*1798*	*1831*	*1798*	*1857*	*1857*	*1857*	*1878*
UK bonds	1.00	0.81	0.50	0.86	0.88	0.34	0.77	0.14
US bonds		1.00	0.45	0.79	0.86	0.40	0.75	0.39
CP			1.00	0.73	0.74	0.91	0.91	0.48
NE municipal				1.00	0.98	0.55	0.94	0.42
Railroad bonds					1.00	0.57	0.95	0.38
Call money						1.00	0.77	0.45
PC index							1.00	0.64

Panel B: Frequency of Maximum legal rates below market interest rates

Maximum rate <	**US bond**		**Commercial paper**		**Railroad bond**		**Call money**	
Sample period	*1798 - 1891*		*1831 - 1891*		*1857 - 1891*		*1857 - 1891*	
	#years	%years	#years	%years	#years	%years	#months	%months
Virginia	18	11.1%	34	21.0%	10	6.2%	88	9.5%
Delaware	18	10.5%	37	21.6%	14	8.2%	105	11.3%
Maryland	18	9.0%	37	18.6%	14	7.0%	105	11.3%
New Hampshire	18	17.8%	37	36.6%	14	13.9%	105	11.3%
Vermont	18	17.1%	37	35.2%	14	13.3%	105	11.3%
Tennessee	18	11.9%	34	22.5%	10	6.6%	83	8.9%
Pennsylvania	18	9.4%	37	19.3%	14	7.3%	105	11.3%
Kentucky	18	19.1%	35	37.2%	11	11.7%	84	9.1%
North Carolina	18	11.9%	32	21.2%	6	4.0%	65	7.0%
Ohio	17	18.3%	35	37.6%	9	9.7%	79	8.5%
New Jersey	8	5.2%	35	22.7%	6	3.9%	86	9.3%
New York	5	2.9%	28	16.0%	0	0.0%	51	5.5%
Connecticut	18	9.5%	36	18.9%	12	6.3%	84	9.1%
Massachusetts	18	7.2%	30	12.0%	7	2.8%	43	4.6%
Alabama	8	9.2%	20	23.0%	0	0.0%	31	3.3%
Indiana	3	4.1%	24	32.4%	7	9.5%	55	5.9%
DC	2	4.8%	18	42.9%	10	23.8%	76	8.2%
Georgia	0	0.0%	24	18.0%	0	0.0%	26	2.8%
South Carolina	5	2.5%	22	10.9%	0	0.0%	12	1.3%
Rhode Island	18	14.4%	28	22.4%	5	4.0%	33	3.6%
Michigan	0	0.0%	11	15.3%	0	0.0%	12	1.3%
Mississippi	8	9.2%	14	16.1%	0	0.0%	6	0.6%
Missouri	0	0.0%	15	19.0%	0	0.0%	12	1.3%
Illinois	0	0.0%	12	16.4%	0	0.0%	12	1.3%
Maine	3	4.2%	34	47.9%	11	15.5%	71	7.7%
Arkansas	0	0.0%	9	10.7%	0	0.0%	0	0.0%
Wisconsin	0	0.0%	5	9.4%	0	0.0%	12	1.3%
Iowa	0	0.0%	6	11.3%	0	0.0%	12	1.3%
Texas	0	0.0%	1	1.9%	0	0.0%	0	0.0%
Minnesota	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Louisiana	3	3.4%	15	17.2%	0	0.0%	9	1.0%
Florida	0	0.0%	15	21.4%	0	0.0%	9	1.0%
California	0	0.0%	0	0.0%	0	0.0%	0	0.0%

Table 3:

Do Usury Laws Matter?

Panel A reports results for the impact of usury laws on lending volume using the total amount of loans and discounts per capita as the dependent variable. Panel B reports results using the total bonds for circulation per capita as the dependent variable, both obtained from state-level banking-sector balance-sheets for the years 1865 to 1890 from the reports of the Comptroller of the Currency. Loans and discounts were subject to usury laws, while bonds for circulation were not. Regressors are the change in the maximum legal interest rate as well as the change in the difference between the maximum legal rate and the principal component index rate, Regional rate, and state-level bank lending rate in that year. The Regional rate is constructed as the New England municipal bond rate for all states in the New England region, the New York call money rate for New York state, and the U.S. bond rate for all other states. We run the regressions in first differences, with controls for age and state fixed effects when using the U.S. bond and principal components index rates, and state and year fixed effects when using the Regional rates. Standard errors are clustered by state or year. Panel C reports results using the change in total penalty for a state in a given year as the dependent variable. Regressions are run in first differences and include the state's age as a regressor. Adjusted R^2s are reported for the full specification that includes the fixed effects as well as the amount of remaining variation explained by the regressors after the fixed effects are accounted for ($\bar{R}^2$ after F.E.).

Panel A: Impact of usury laws on lending volume

Dependent variable =		**ΔLoans and discounts per capita**		
Sample period	*1865-1891*	*1865-1891*	*1865-1891*	*1878-1891*
Δ Max. rate	0.982			
	(2.38)			
Δ(Max. rate−PC rate)		0.840		
		(2.44)		
Δ(Max. rate−Regional rate)			0.926	
			(2.43)	
Δ(Max. rate−State bank rate)				0.261
				(2.65)
Fixed effects:				
Year?	yes	no	yes	yes
State?	yes	yes	yes	yes
$\bar{R}^2$	0.20	0.07	0.19	0.10
$\bar{R}^2$ after F.E.	0.04	0.03	0.04	0.01
Cluster	state	year	year	year

Panel B: Impact of usury laws on bonds for circulation

Dependent variable =		**ΔBonds for circulation per capita**		
Sample period	*1865-1891*	*1865-1891*	*1865-1891*	*1878-1891*
Δ Max. rate	-0.039			
	(-1.62)			
Δ(Max. rate−PC rate)		-0.043		
		(-1.65)		
Δ(Max. rate−Regional rate)			-0.043	
			(-2.41)	
Δ(Max. rate−State bank rate)				-0.072
				(-1.67)
Fixed effects:				
Year?	yes	no	yes	yes
State?	yes	yes	yes	yes
$\bar{R}^2$	0.22	0.08	0.21	0.34
$\bar{R}^2$ after F.E.	0.01	0.01	0.03	0.02
Cluster	state	year	year	year

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

Dependent variable =	**Δ Penalty for violating usury**			
Sample period	*1865-1891*	*1865-1891*	*1865-1891*	*1878-1891*
Δ Max. rate	-1.005			
	(-3.34)			
Δ(Max. rate−PC rate)		-0.044		
		(-4.38)		
Δ(Max. rate−Regional rate)			-0.063	
			(-4.71)	
Δ(Max. rate−State bank rate)				-0.015
				(-3.42)
Fixed effects:				
Year?	yes	no	yes	yes
State?	yes	yes	yes	yes
$\bar{R}^2$	0.07	0.05	0.11	0.12
$\bar{R}^2$ after F.E.	0.07	0.05	0.07	0.03
Cluster	state	year	year	year

Table 4:

Is Regulation Tighter When it is Less Costly?

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

Panel A: How do Maximum rates respond to market rates?

Dependent variable =	**Δ Maximum legal rate**					
Sample period	*1798-1891*	*1857-1891*	*1857-1891*	*1857-1891*	*1878-1891*	*1878-1891*
Δ(Max. rate − US bond rate)$_{t-1}$	-0.064					
	(-4.90)					
Δ(Max. rate − PC rate)$_{t-1}$		-0.072				
		(-4.90)				
Δ(Max. rate − Regional rate)$_{t-1}$			-0.103			
			(-5.12)			
. . .Regional rate< Max. rate				0.099		
				(2.93)		
. . .Regional rate> Max. rate				-0.103		
				(-5.11)		
Δ(Max. rate − State bank rate)$_{t-1}$					-0.101	
					(-2.49)	
. . .State bank rate< Max. rate						0.107
						(1.88)
. . .State bank rate> Max. rate						-0.097
						(-1.82)
Fixed effects:						
Year?	no	no	yes	yes	yes	yes
State?	yes	yes	yes	yes	yes	yes
$\bar{R}^2$	0.04	0.04	0.10	0.10	0.17	.17
$\bar{R}^2$ after F.E.	0.03	0.03	0.05	0.05	0.05	0.05
Cluster	year	year	year	year	year	year

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

Dependent variable =	Max. rate	ΔMax. rate	ΔMax. rate	Max. rate	Max. rate	Max. rate
Sample period	*1787-1891*	*1857-1891*	*1857-1891*	*1857-1891*	*1857-1891*	*1857-1891*
Crisis	1.345	0.319	0.401			
	(3.49)	(3.09)	(2.30)			
(Max. rate− Regional rate)$_{t-1}$		-0.099	-0.094			
		(-4.97)	(-4.11)			
Crisis × (Max. rate− Regional rate)$_{t-1}$			-0.014			
			(-2.60)			
Crisis × railroad failure				136.495		
				(2.17)		
Crisis × manufacturing capital					0.241	
					(1.66)	
Crisis × machinery capital						0.177
						(2.27)
Fixed effects:						
Year?	no	no	no	yes	yes	yes
State?	yes	yes	yes	yes	yes	yes
$\bar{R}^2$	0.49	0.06	0.06	0.59	0.56	0.56
$\bar{R}^2$ after F.E.	0.07	0.06	0.06	0.01	0.07	0.08
Cluster	year	year	year	year	year	year

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

Dependent variable =	Max. rate$_t$	Max. rate$_t$	Δ Loans per capita	
Sample period	*1787-1891*	*1781-1891*	*1865-1891*	
Max. rate of border states$_t$	95.869	63.062		
	(6.03)	(2.79)		
Max. rate of non-border states$_t$	10.812	50.682		
	(0.11)	(0.41)		
Border × own wealth		-0.039		
		(-3.05)		
Border × border wealth		0.238		
		(2.15)		
Δ border rate>0, Δ own rate<0			-3.486	
			(-2.78)	
Δ border rate<0, Δ own rate≥ 0			1.565	
			(2.41)	
Fixed effects:				
Year?	yes	yes	yes	
State?	yes	yes	yes	
$\bar{R}^2$	0.72	0.75	0.18	
$\bar{R}^2$ after F.E.	0.42	0.47	0.02	
Cluster	state	state	state	

Table 5:

Private Interests and Incumbent Political Power

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

Panel A: Restricted suffrage and Usury laws

Dependent variable =	Max. rate	%Non-voting white males	Max. rate	Max. rate	Max. rate	Max. rate
Sample period	*1787-1891*	*1824-1844*	*1824-1844*	*1824-1844*	*1824-1844*	*1787-1891*
Restricted suffrage	-1.318	12.284		-3.058	-22.945	-1.446
	(-2.71)	(3.17)		(-12.02)	(-7.15)	(-7.42)
%Non-voting while males			-1.510	-0.646	2.122	
			(-3.01)	(-1.60)	(5.34)	
Restricted suffrage × %NVWM					-5.033	
					(-6.67)	
Restricted suffrage × Crisis$_t$						0.059
						(1.56)
Restricted suffrage × Crisis$_{t+5}$						-0.420
						(-2.51)
Fixed effects:						
Year?	yes	yes	yes	yes	yes	yes
State?	yes	yes	yes	yes	yes	yes
$\bar{R}^2$	0.56	0.89	0.48	0.52	0.55	0.56
$\bar{R}^2$ after F.E.	0.07	0.04	0.01	0.08	0.15	0.03
Cluster	state	state	state	state	state	state

Panel B: restricted suffrage, incorporation laws, and financial crises

Dependent variable =	Restricted incorporation		Restricted incorporation		Restricted suffrage	
Sample period	*1787-1891*		*1787-1891*		*1781-1891*	
	levels	changes	levels	changes	levels	changes
Restricted suffrage	0.219	0.002				
	(3.71)	(3.09)				
Crisis			-0.013	-0.017	-0.001	0.005
			(-0.90)	(-1.09)	(-0.02)	(0.85)
Fixed effects:						
Year?	no	no	no	no	no	no
State?	yes	no	yes	no	yes	no
$\bar{R}^2$	0.52	0.01	0.68	0.02	0.44	0.02
$\bar{R}^2$ after F.E.	0.24	0.01	0.35	0.02	0.16	0.00
Cluster	state	state	state	state	state	state

Table 6:

Industrial vs. Bank Incumbent Political Power

The table reports results from regressing the maximum legal interest rate for a state in a given year on proxies for the political power of industrialists and bankers, as well as a proxy for egalitarian law or the most laisse faire regulation. Industrial incumbent political power is greatest when the state adopts restricted suffrage laws and restricts general incorporation in order to restrict entry. Egalitarian law implies no restrictions on suffrage laws or general incorporation. Two indicator variables are created to capture these preferences. Banking incumbent power is defined using free banking laws that opened access to outside banks and were only relevant until 1861. An indicator variable is set equal to one for states with free banking laws that allow outside banks to compete in the state in a given year. The last two columns report results defining industrial and bank power and egalitarian law using all three forms of regulation. Industrial power equals one if there are restricted suffrage laws, restricted general incorporation laws, and no restrictions on free banking laws in a given state and year. Banking power equals one if there are restricted suffrage laws, no restrictions on general incorporation laws, and restricted free banking laws. Egalitarian law equals one if there are no restrictions on suffrage, general incorporation, or free banking laws. Regressions are esimated with year and/or state-level fixed effects and include age as a regressor (coefficients not reported). Standard errors used to compute t-statistics (reported in parentheses) are calculated assuming group-wise clustering at the state level. Adjusted R^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 =	**Max. rate**	**Max. rate**	**Max. rate**	**Max. rate**	**Max. rate**
Sample period	*1787-1891*	*1787-1891*	*1787-1861*	*1787-1861*	*1787-1861*
Incumbent power					
Restricted suffrage and incorporation	-1.453	-1.488			
	(-2.96)	(-2.41)			
Egalitarian law					
No restrictions	0.361	0.0405			
	(2.04)	(2.80)			
Free banking laws			-0.221		
			(-0.48)		
Industrial incumbent power					
Restricted suffrage and incorporation, free banking				-1.359	-1.194
				(-2.92)	(-3.18)
Bank incumbent power					
Restricted suffrage and banking, free incorporation				0.349	0.473
				(0.90)	(1.31)
Egalitarian law					
No restrictions				2.533	2.789
				(1.49)	(1.62)
Fixed effects:					
Year?	yes	no	yes	yes	no
State?	no	yes	yes	no	yes
$\bar{R}^2$	0.23	0.48	0.67	0.17	0.74
$\bar{R}^2$ after F.E.	0.02	0.05	0.00	0.09	0.11
Cluster	state	state	state	state	state

Table 7:

Proxies for Public Interests

The first set of proxies we employ for public interests are a set of policies designed to protect the poor and weak debtors: bankcruptcy stay laws or debt moratoria passed by state legislatures. We use a dummy variable for whether a state had bankruptcy stay laws that forgave personal debt, obtained from personal bankruptcy laws from Coleman (1975) and use the percentage of representatives in each state voting in favor of debt relief in the House of Representatives in 1822 for the relief of debtors who bought public land from the Federal government. The second set of proxies we employ for public interests are the extent of newspaper circulation and the coverage of political and corruption stories, obtained from Gentzkow, Glaeser, and Goldin (2005) and Glaeser and Goldin (2005), respetively. The extent of political and corruption coverage of newspapers is approximated by the count of the word "politic" deflated by the count of the word "January" which controls for the newspaper's size, and corruption and fraud coverage is estimated as the count of the word "corrupt" or "fraud" deflated by the word count "January." The third set of proxies for public interests we employ are a series of agricultural shocks that had little to no effect on the industrial sector: agricultural technology shocks, obtained from "A History of American Agriculture" from the United States Department of Agriculture (USDA) from 1780 to 1891, extreme weather shocks, demand shocks for agricultural products, and a series of commodity price shocks to capture shocks to the agricultural sector in each state. Specifically, we use the Froot, Kim, and Rogoff (2005) commodity price series from England and Holland which spans the 17th, 18th, and 19th centuries. For all of these measures we assign the exposure of each state to each of the shocks at different points in time using the most recent available data we can find on the composition of the state's agricultural sector.

Dependent variable =	**Maximum legal interest rate**								
Sample period	*1820-1840*	*1820-1840*	*1788-1891*	*1788-1891*	*1788-1891*	*1800-1891*	*1800-1891*	*1800-1891*	*1800-1891*
Bankruptcy stay	-0.536								
	(-0.97)								
Debt moratoria vote		-0.072							
		(-0.08)							
Newspapers per capita			1.425						
			(6.82)						
Political coverage				0.036					
				(0.17)					
Corruption coverage					-0.297				
					(-0.64)				
Agriculture technology shocks						-0.035			
						(-0.45)			
Agriculture weather shocks							-0.030		
							(-0.89)		
Agriculture demand shocks								-0.015	
								(-0.34)	
Commodity price shocks									0.003
									(0.27)
Fixed effects:									
Year?	yes	yes	no	no	no	yes	yes	yes	yes
State?	no	no	yes	yes	yes	yes	yes	yes	yes
$\bar{R}^2$	0.31	0.25	0.49	0.49	0.49	0.05	0.05	0.05	0.06
$\bar{R}^2$ after F.E.	0.20	0.07	0.06	0.09	0.09	0.01	0.01	0.01	0.01
Cluster	state	state	state	state	state	state	state	state	state

Table 8:

Alternative Explanations Using Cross-Sectional Evidence from 1850

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

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

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

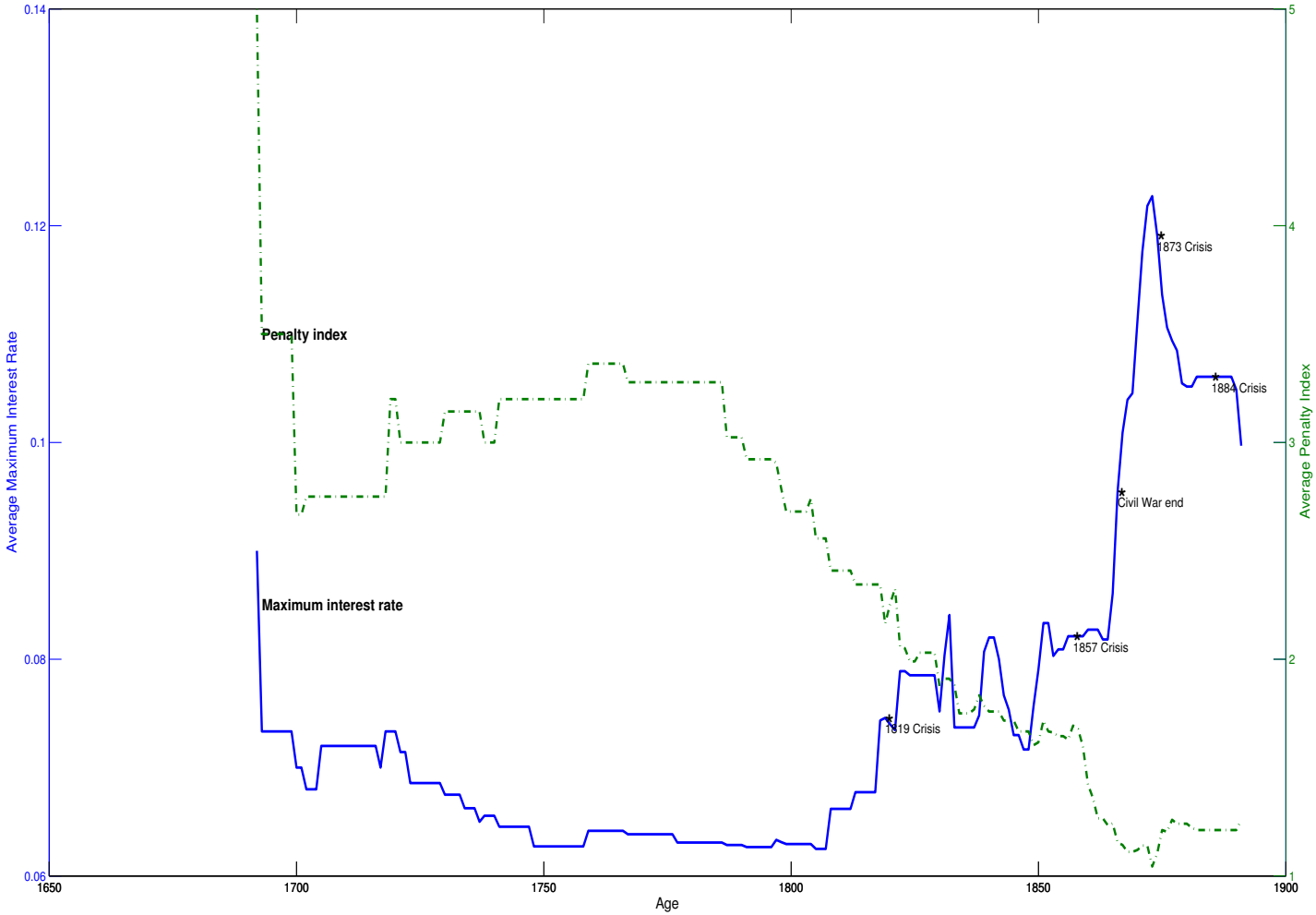

Figure 2. Market Interest Rates and Maximum Legal Rates (1878 to 1891)

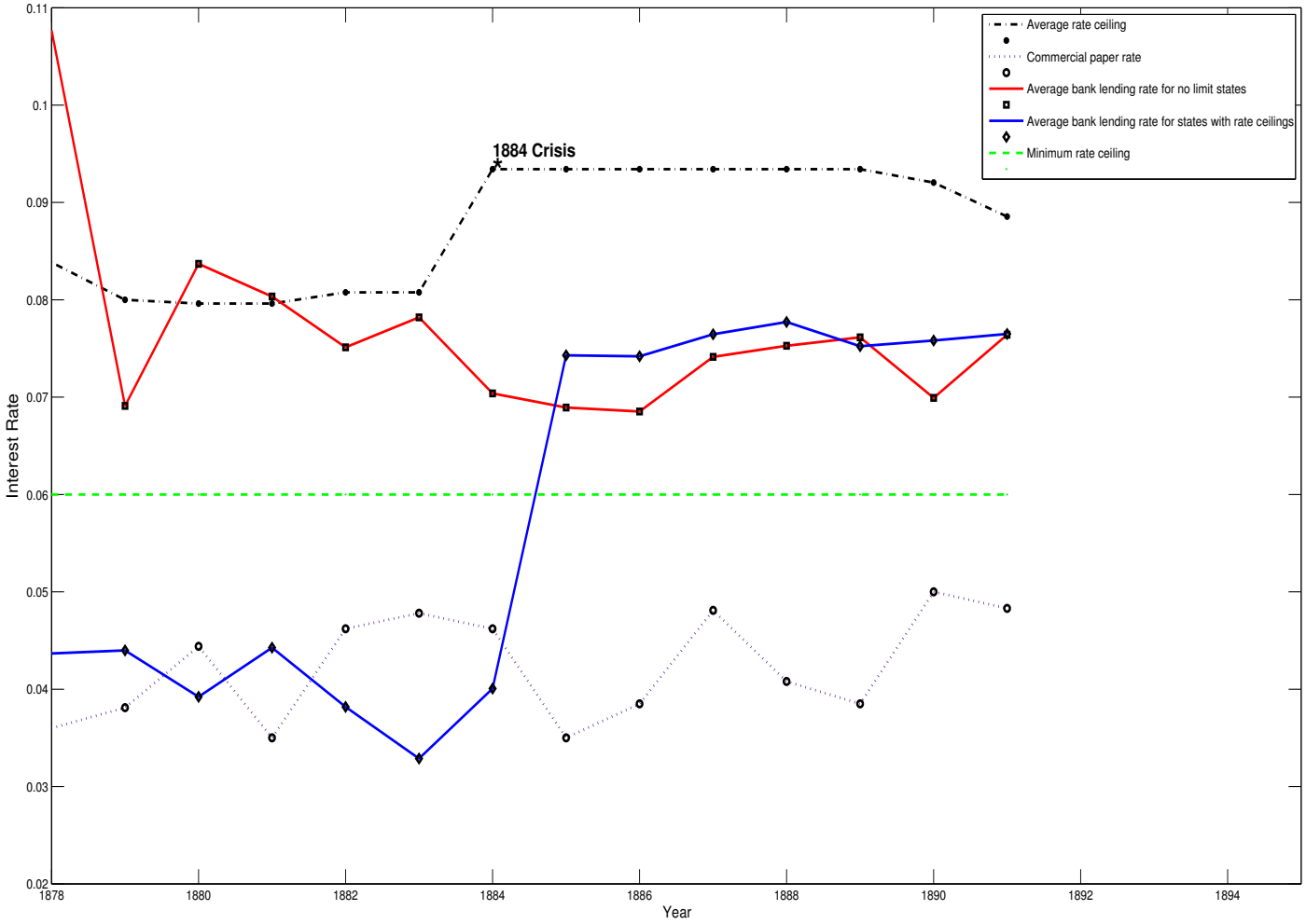

Figure 3. Time-Series of Maximum Allowable Interest Rate and Usury Penalty for Wealth-Based Restricted and Non-Restricted Suffrage States (1750 to 1891)