# Contingent judicial deference: theory and application to usury laws*

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**Abstract**

Legislation that seems unreasonable to courts is less likely to be followed. Building on this premise, we propose a model and obtain two main results. First, the enactment of legislation prohibiting something raises the probability that courts will allow related things not expressly forbidden. In particular, the imposition of an interest rate ceiling can make it more likely that courts will validate contracts with interest rates below the legislated cap. Second, legal uncertainty is greater with legislation that commands little deference from courts than with legislation that commands none. We discuss examples of effects of legislated prohibitions (and, in particular, usury laws) that are consistent with the model.

KEYWORDS: adjudication; courts; prohibitions; interest rate cap.

JEL CLASSIFICATION: K41, K22, K12, G21.

## 1 Introduction

The fact that courts exercise judgment and some level of discretion in interpreting legislation has been known for a long time. It is also well known that courts typically act as expected by legislators, yet sometimes uphold their own judgment calls instead. So far, however, economic accounts of adjudication have largely assumed that these judgment calls depend on judicial preferences. The focal question is why courts decide as they do, and in particular whether they are motivated by strictly legal reasons or by non-legal concerns such as ideology or self-interest. The judicial preferences are then formalized in a utility function that is expected to produce adjudication outcomes. In this paper, we take a different route. We depart from what we deem to be a simple truth about judicial systems, namely that courts exercise judgment about legislation and refrain from enforcing it when they deem it unlikely to be appropriate.

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We model courts' evaluation of legislation in a way analogous to a hypothesis test. The null hypothesis is that the legislation was enacted by well-intentioned and well-informed legislators. Just like a person is presumed innocent, legislation is presumed appropriate, so judicial deference to legislation is the courts' default position. Courts are imperfectly informed about the issue and use their prior knowledge to assess the legislation. The legislation is rejected if it is sufficiently different from what courts would expect under the null hypothesis.

As a result, courts will often enforce legislation as intended by legislators even if it does not reflect the courts' preferred policy choice; occasionally, however, courts will make a judgment call and overrule the legislator.[1] The paper highlights two key implications of the model, one related to the probability of statutory enforcement and the other concerning the effect of legislation on legal uncertainty.

The first implication can be stated as follows: the enactment of legislation specifying that parties cannot do something raises the probability that courts will allow related things not expressly forbidden. In simple words, the enactment of a prohibition can in practice create a permission. We use usury laws to illustrate this insight A statutory interest rate ceiling not only makes it more likely that courts will invalidate contracts with interest rates above the cap, but it can also make it more likely that courts will validate contracts with interest rates below the legislated cap.

Intuitively, it goes like this. Absent usury laws, very high interest rates are not prohibited. However, if courts deem a contract with interest rates of, say, 1000% "unconscionable", the absence of an interest rate cap will be considered inappropriate. Courts would then define an interest rate cap at, say, 40%. Now, contrast this situation with one where Congress enacted a statute capping interest rates at 50%. In this scenario, we believe that the null hypothesis that this cap is appropriate would not be rejected. If the court's best judgment is that the appropriate interest rate cap is 40%, a legislated cap of 50% raises little disagreement (whereas the absence of any ceiling generates a much greater level of disagreement). Hence the same court that would impose a 40% interest rate if legislation allowed any interest rate, would uphold the legislated 50% interest rate cap.

Notice the surprising outcome. In both cases, legislation permits the 45% contract. Yet the existence of the 50% ceiling changes how courts effectively regulate that contract. With no ceiling, courts invalidate the 45% contract; with a 50% ceiling, courts validate it. In other words, a 45% interest rate contract, while legislatively permitted in both scenarios,

[1] We realize that courts almost always speak in terms of deference even when they are failing to do so, but we are concerned with the substance rather than the rhetoric of court decisions. Moreover, we are assuming away the problem of statutory ambiguity, a legal scholars' favorite that is however not our concern here.

would only be deemed valid where there is a legislated cap of 50%.

The economic implication is that carefully crafted usury laws can cause credit markets to expand, rather than retract. By increasing the court's tolerance for higher levels of interest rates, a legislated ceiling would sway judges into permitting more loans, leading credit markets to expand.

Just like a statutory prohibition can raise the probability that courts permit things that are not statutorily prohibited (such as contracting with higher interest rates), the enactment of legislation permitting something may raise the probability that judges will prohibit related things not expressly permitted. To go back to the same example, in the presence of a legislated interest rate ceiling of 3% (too low) courts will probably overrule the legislator and apply their best judgment of placing the threshold at 40%. But suppose the legislature replaces the 3% with a 35% interest cap. Now the legislated cap raises much less disagreement and is strictly enforced by courts. The interest rates tolerated by courts, however, paradoxically drop from 40% ro 35%. So while the new usury law expressly extended the permission for parties to contract interest rates in the range of 3-35%, its actual effect was to prohibit contracts in the range of 35-40%. Here, the enactment of a permission in practice created a prohibition. These results can be visualized in Figure 1.

| | | **Permitting prohibition** | |
|---|---|---|---|
| Legislated ceiling | Prevailing ceiling | Legislated ceiling | Prevailing ceiling |
| None | 40% | 50% (down) | 50% (up) |

| | | **Prohibiting permission** | |
|---|---|---|---|
| Legislated ceiling | Prevailing ceiling | Legislated ceiling | Prevailing ceiling |
| 3% | 40% | 35% (up) | 35% (down) |

Figure 1: Permitting prohibition and prohibiting permission

The model is first employed to study usury laws, but our conclusions apply beyond that, as discussed and exemplified later.

The second insight from the model is that the dispersion of court decisions tends to be greater with legislation that commands little deference from courts, than with legislation that commands none. Technically, this means that the relationship between the variance of decisions and some measure of the degree of disagreement of the median judge with the legislation is non-monotonic. Assuming that greater judicial dereference is a proxy for better legislation, the implication is that within a certain range, legislative improvement trades-off with legal certainty.

To grasp the intuition, contrast these two situations. First, an interest rate cap is legislated at a completely unreasonable level. For example, it is too low (3%) or too high (3000%). In either of these cases, the null hypothesis that the legislation is appropriate will be rejected by most courts and the ceiling will be ignored (say, a very low ceiling is deemed an unconstitutional interference with the freedom of contract; a very high ceiling permits too many unconscionable loans). As such, courts validate contracts with interest rates above the unreasonably low legislated cap, or invalidate contracts with interest rates below the unreasonably high interest rate legislated cap. Either way, the legislator is overruled and a court-imposed interest rate cap arises as a byproduct of the court decisions. This cap is dispersed (say between 25% and 250%).

In the alternative scenario, the cap is legislated at a point deemed unreasonable by the majority of judges, but not by all. For example, the legislated cap is either "very low" (15%) or "very high" (300%), so some courts uphold these caps but most of them are deciding according to their own judgment calls. Crucially, courts that uphold the 15% interest rate ceiling are those that would otherwise choose a ceiling close to 25% – those who would choose a higher ceiling would reject the null hypothesis that the 15% cap is appropriate.

As a result, compared to a situation with a 3% interest rate ceiling, the 15% cap raises legal uncertainty because a credit contract with a 20% interest rate is subject to legal uncertainty in the latter case (some courts uphold the 15% ceiling) but not in the former case (all courts ignore the 3% ceiling).[2] These results can be visualized in Figure 2.

Bad legislation

| Legislated ceiling | Range of prevailing ceilings |
|---|---|
| 3% | 25-250% |
| 3000% | 25-250% |

Better legislation

| Legislated ceiling | Range of prevailing ceilings |
|---|---|
| 15% | 15-250% |
| 300% | 25-300% |

Figure 2: Legislation and legal uncertainty

Generalizing, when legislation is completely within the realm of reasonableness, no judge discards it so the variance of court decisions is "small". When the legislation is completely outside the realm of reasonableness, every judge discards it and the variance is "large". And when the legislation is considered reasonable by few judges only, the variance is even greater,

[2] Similarly, the courts that uphold the 300% legislated interest rate ceiling are those that would otherwise choose a ceiling close to 250%, as those who would choose a lower ceiling would reject the null hypothesis that the 300% cap is appropriate. As a result, compared to a situation with a 3000% interest rate ceiling, the 300% legislated cap raises legal uncertainty because a credit contract with a 280% interest rate is subject to legal uncertainty in the latter case (some courts uphold the 300% ceiling) but not in the former case (all courts ignore the 3000% ceiling).

"very large". Hence one message of the paper is that institutional mechanisms (such as stare decisis) that moderate dispersion and reduce legal uncertainty become more important as courts become more active in their task of double-checking misguided legislation.

We use a discussion of Brazilian credit markets as the empirical motivation for the model developed in this article. We discuss two examples, one involving a situation where courts rejected the legislated policy of imposing no interest rates, and another where courts rejected legislated interest rate ceilings that were deemed to low. To demonstrate the former, we produced a novel finding involving auto loans, and found a correlation indicating that courts increasingly ruled in favor of borrowers as the loans' interest rates rose. To demonstrate the latter, we briefly recount a telling example of Brazil's constitutional history of the late 20th century. We later show that the Brazilian experience is analytically similar to that of other countries, including the United States.

A discussion of statutory prohibitions based on usury laws may at first seem odd, not least because for centuries usury laws have been denounced as counterproductive and wasteful (Turgot, 1770; Bentham, 1818; Mill, 1909).[3] Yet usury laws endure almost everywhere, particularly in consumer relationships. In fact, interest rate caps can still be found even in the books of developed countries such as Japan (Ramseyer, 2013), most countries in the European Union (Reifner and Scroeder, 2012), and several states in the United States (Geisst, 2013). The topic of interest rate ceilings is still relevant for actual policy debates.

Indeed, in the backdrop of the apparent anti-usury laws consensus of the economics profession, there are theories supporting welfare enhancing properties of such laws. Stiglitz and Weiss (1981), Posner (1995) and Coco and De Meza (2009) portray usury laws as a remedy for borrowers' moral hazard. Bar-Gill (2004) argues that usury laws can be a means to neutralize certain consumers' behavioral biases. More imaginatively, Barzel (1997, p. 170) frame such laws as a mechanism to avoid over consumption of public goods by saving on court costs. Studies focused on economic history portrayed usury laws as substitutes for incomplete insurance markets (Posner, 1980; Carr and Landa, 1983; and Glaeser and Scheinkman, 1998).[4] Our model shows that in some cases the enactment of a usury law can paradoxically serve the purpose of increasing the availability of credit and the interest cap effectively prevailing, so it can also be thought of as a novel justification

[3] Earlier works helped to break the ancient prejudice against the charging of interest rates. See Hugo Grotius, The Rights of War and Peace (1625, 1901, p. 155-6) linking interest rates with credit risk and opportunity cost, and delinking it from natural law ("The five shillings commission which a banker, for instance, charges upon every hundred pounds, is not so much an interest in addition to five per cent, as a compensation for his trouble, and for the risk and inconvenience he incurs, by the loan of his money, which he might have employed in some other lucrative way" [...] "Those human laws, which allow a compensation to be made for the use of money or any other thing, are neither repugnant to natural nor revealed law"). See also Claudius Salmasius, De usuris liber, Lugd. Batavor. : Ex officina Elseviriorum, 1638 (treating money-lending as a business similar to any other).

[4] Economists have also offered explanations for usury laws based on their political economy and distributive effects. See Ekelund et al. (1989) and Benmelech and Moskowitz (2010).

for the enactment of carefully drafted usury laws.

The remainder of this introduction discusses the related literature. Section 2 contains the empirical motivation for this article. Section 3 describes our model of adjudication and demonstrates its implication for the enforcement of legislated prohibitions. Section 4 applies this result to a simple economy with usury laws. Section 5 discusses other examples and applications. Section 6 discusses the problem of legal uncertainty. Section 7 concludes.

### 1.1 Related Literature

Landes and Posner (1975) argued that courts tend to interpret statutes in much the same way that they interpret contracts. In contract law, the basic cannon for interpretation is the intention of the parties; similarly, courts interpret legislation in accordance with the original legislative understanding. Landes and Posners' reasoning infers court motives from results, and goes like this: if courts habitually placed their will above that of legislators, legislative bargains would be worth very little, so courts would effectively reduce the rents available to the legislators that profit from brokering the sale of legislation to interest groups. Such an arrangement would be of no interest to legislators and politicians in general, so the latter structure the judicial system in a way that insulates judges from the results of the cases they decide. Judges generally have tenure, fixed remuneration and few prospects of promotion. Having nothing to gain from being creative, courts presumably go along with legislators and enforce the political deals incorporated in legislation.

The Landes and Posner's argument was framed as a positive account – a description of, but not a prescription to, courts. Indeed, theirs is a testable hypothesis, but the supporting evidence is weak (Macey, 1986). Nevertheless, the enduring force of the Landes and Posner's proposition rests on its implied normative message, namely that in interpreting statutes courts should abide by the intention of the legislators because otherwise they will not only thwart the political system, but also increase legal uncertainty. This idea is developed in Easterbrook (1984). Alternative economic conceptions over the normatively desirable interpretative court strategy were formulated over time. Noticeably, Macey (1986) argued that courts should interpret statutes not as contracts but in a manner consistent with the stated public-regarding purpose of each statute, the objective being not to completely prevent interest groups from influencing lawmaking, but to raise the cost for doing so. Other influential normative conceptions in this debate include those of Eskridge (1987) and Farber and Frickey (1991).

The difficulties in coming up with a definitive economic benchmark for statutory interpretation helps explain why more recent work accepts (often implicitly) that some legal issues are amenable to a range of reasonable views that do not necessarily represent errors. Their approach can be framed more as exercises in social choice theory rather than in law and economics, because the focus is less on proposing efficient solutions to legal dilemmas and more on aggregating the different views of judges into a controlling conception.

Finding this controlling conception, however, is not easy, because the question of "what judges maximize?" has proven to be quite problematic (Cooter, 1983; Posner, 1993, 2005). Limited evidence exists that in adjudicating cases judges maximize expected monetary (Anderson, Shughart II and Tollison, 1989; Toma, 1991) or political gains (Cohen, 1991; Morriss et al., 2005; Choi and Gulati, 2004), so judicial motivation remains a conundrum for theories that regard judges as strictly self-seeking actors (Epstein, 1990; Kornhauser, 1992a). To deal with this problem, even authors identified with the tradition of law and economics had to embrace richer versions of judicial utility. Richard Posner, for example, analogized judges to nonprofit enterprises, voters and spectators at theatrical performances to construct judicial utility as a function of leisure, prestige, reputation, self-respect, the intrinsic pleasure of the work, and even "the other satisfactions that people seek in a job" (2008, p. 36; Epstein et al., 2013).

Some authors refine these ideas by distinguishing judicial utility that is derived from case dispositions (Badawi and Baker 2015; Cameron et al, 2000; Cameron and Kornhauser, 2006; Carrubba and Clark, 2012; Fischman, 2011; Cameron and Kornhauser 2015; Lax, 2003; Callander and Clark, 2013; Beim et al, 2014) and policies (Kornhauser 1992a, 1992b, 1995), or by empirically testing or factoring into the model institutional details of courts such as collegial and group decision-making (Kornhauser and Sager, 1986, 1993; Stearns, 2000) and panel composition effects (Revesz, 1997; Cross and Tiller, 1998; Sunstein et al. 2004). Recently, some studies documented the effects of other factors such as the presence of salient facts (Bordalo et al., 2015) and opinion authorship (Farhang et al., 2015).

Alternatively, authors drawing on the tradition of positive political theory focused on the role of the judiciary in shaping policy rather than on judicial utility (e.g. Miller and Moe, 1983; McCubbins et al., 1987, 1989). While most studies focused on the effects of substantive policy preferences that are based on the judge's ideology (e.g., Segal, 1989; Martin and Quinn, 2002) and prejudices (Kastellec, 2013; Martin and Pyle, 2000; Sen, 2015), others focused on the interactions between the judiciary and other branches of government (Ferejohn and Shipan, 1990; Gely and Spiler, 1990, 1992; Eskridge and Ferejohn, 1992). In a seminal article focusing specifically on statutory interpretation, Ferejohn and Weingast (1992) proposed that judicial interpretations reflect the strategic setting in which they are announced. In passing legislation, legislatures calculate the risk of court invalidation; similarly, courts decisions reflect the external political reality, for failing to take it into account can always trigger the enactment of new legislation that rebuffs the courts' position.[5]

Our approach is more closely related to Baker and Kornhauser (2015), who also build a model of judicial deference. However, they study whether an appellate court wants to impose its judgement over a possibly biased trial court that has more factual information, while here, facts are known and the question is whether the legislation is appropriate. The model structure and applications are also very different.

The model developed herein crucially also advances a proposition about the dispersion of court decisions concerning legislation. This resonates with a discussion of legal uncertainty, which has been regarded as an economic problem for a long time. Famously, Max Weber (1922) went as far as to attribute the very emergence of capitalism in part to the ability of continental European legal systems to foster "calculability" through the rational codification of law.[6] More recently, this view has been questioned, but just in part. The law and finance literature promoted the hypothesis that judge-made Common Law systems are better for financial development and economic growth than the Civil Law tradition that so captivated Weber (LaPorta et al., 1997, 1998; Botero et al., 2004; Johnson et al., 2000).

Yet, even in the United States, statutes enacted by legislatures have now become the primary source of law (Calabresi, 1982). Moreover, the notion that predictable courts are important for economic rationality and market coordination continues to loom large in economic thinking. It finds particular resonance in transactions costs economics (Coase, 1991; Williamson, 1999) and in some strands of the literature on law and development (Dam, 2006; Cooter and Schaefer, 2012).

In the modern law and economics literature, however, legal uncertainty has only been a derivative topic. The tradition in the field is to subsume legal uncertainty into the more normative-oriented category of "legal error". Indeed, the typical exercise in economic analysis of law is normative in character: an efficient benchmark is proposed and the non-conforming court decisions are treated as errors (Schwartz and Beckner III, 1998). With few exceptions (e.g. Rasmusen and Ramseyer, 2010), legal uncertainty is then framed as a byproduct of error, and the prospects of more errors in adjudication entail the prospects of

[5] In the spirit of rational choice theory, ours is a positive model of adjudication, especially in the sense that we advance no claims as to when courts should reject or enforce a legislated prohibition. But we do not see ourselves as writing the tradition of political positive theory because we are not concerned with the broader workings of the political system but rather with drawing economic implications from the adjudication model. The parallels with positive political theory are anecdotal at best: Ferejohn and Weingast (1992) posited the existence of a set of politically viable court interpretations, which are those that are stable because they do not provoke a legislative response. Similarly, our model shows that once a judicial prohibition has been established, the permitted zone can be enlarged with legislation that creates not too large of a disagreement by the courts.

[6] For Weber, the other major contribution of the legal systems to the emergence of capitalism was the development substantive legal provisions amenable to a market economy, especially those establishing freedom of contract. See Trubek (1972). See also Kaelber (2004) for discussion of Weber's views on usury laws.

greater legal uncertainty.[7] Our contribution in this paper is different, as we are concerned with the interplay between legislation and legal uncertainty.

## 2 Empirical motivation

We motivate our theory of courts' decisions using Brazil's example where high bank spreads are often contested in court, and where judges seem to increasingly favor debtors as the contracts' interest rates rise. The basic factual background is as follows. Interest rates in credit transactions in Brazil are generally subject to legislated usury caps. However, legislation enacted in 1964 exempted financial institutions from most of such caps, thus creating a dual system: non-financial institutions are strictly bound by usury ceilings; financial institutions are generally not.[8] Bank spreads are overall very high in Brazil (World Bank, 2006, 2015). Courts are welcoming to debtors who wish to question contractual interest rates and the levels of litigation between banks and their clients over the legality of contracts' interest rates are alarmingly high (Salama, 2016).

We used a text-mining algorithm to look at litigation involving auto loans to test the existence of a correlation between the contracts' interest rates and judges ruling in favor of the debtors. We programmed the software to read thousands of court decisions in order to classify and organize information based on the existence of specific words (such as bank, interest, the symbol "%", and so forth). We limited our search to the state of São Paulo because in that state all court decisions have been made available online since 2014. We were able to collect all entry-level court decisions involving bank financing for the purchase of autos. Financing in these cases is invariantly put in place by means of a mortgage chattel (alienação fiduciária), where in case of default foreclosure is based on a fiduciary deed of the car being financed to expedite collection.

The original search lead us to 11,000 decisions. From this original pool, we only kept the court decisions that met the following criteria: (i) a debtor was the plaintiff and a bank was the defendant; (ii) the debtor was specifically questioning the contract's interest rates; (iii) the contract's interest rate is expressly informed by the judge in her decision; and (iv) the contract's interest rate was one, or the only one, reason why the debtor was suing the

[7] The merger between legal uncertainty and legal error can be visualized, for example, in the discussion of accuracy in adjudication (Kaplow and Shavell, 1994, 1996). Take accident law for example, where the literature posits that courts are increasingly inaccurate as they depart from incentivizing optimal care. If increasing accuracy in adjudication were costless, courts would always decide cases correctly. But courts can only pursue accuracy up to a point, because more accuracy requires more information, which comes at a cost. Thus, courts make mistakes (that is, decide cases inaccurately). Legal uncertainty arises because in light of the prospects of court mistakes, individuals vary in their perception about how much they must invest in compliance in order to avoid liability. As a result, they may be over-deterred in beneficial activities or under-deterred in harmful activities (Craswell and Calfee, 1986; Polinsky and Shavell, 1989; Schinkel and Tuinstra, 2006).

[8] To be precise, both financial and non-financial institutions are subject to caps on default interest rates. However, only the latter are subject to caps on interest rates before default.

financial institution. We found 888 lawsuits that met such criteria. These lawsuits were then separated into two groups depending on how the judge decided: dismissed (where the judge maintained the contract's interest rate) and accepted (where the judge reduced the contract's interest). 862 lawsuits were dismissed and 26 were accepted. The average interest rate in the lawsuits classified as "accepted" was 11.67% per month (standard deviation was 5.95%) and the average interest rates in the lawsuits classified as dismissed was 1.94% per month (standard deviation was 0.52%).

The table below shows judges' decisions as a function of interest rates.

| Monthly interest rates | Accepted | Dismissed | % Accepted |
|---|---|---|---|
| Less than 3% | 0 | 837 | 0% |
| 3%-4% | 6 | 23 | 21% |
| 4%-7% | 3 | 2 | 60% |
| More than 7% | 17 | 0 | 100% |

During the selected period, inflation was approximately 0.5% per month and the Central Bank short-term interest rates was around 1% per month. These results are consistent with the largely documented fact that interest rate spreads in Brazil are very high. Another subtlety is that Brazilian law draws a distinction between the interest due during the life of the contract (where interest rates are generally not capped) and after default of the debtor (where interest are not strictly capped but penalties are capped to 12% per year). For consistency, we consolidated penalties and regular interest rates into one single rate.

We did not analyze the reasoning adopted by judges in dismissing or accepting claims. However, we observed that many decisions accepting debtors' claims were justified with the argument that the contract's interest rates were much higher than the market average. This is consistent with case law by the Brazilian Superior Court of Justice, which means that the courts in the state of São Paulo might be following the leads of the higher courts.

There are currently more than 12 million lawsuits in Brazil involving banks, a large portion of which deal with the legality of high interest rates in financing transactions. These numbers make Brazil an outlier in terms of the level of litigiousness in its credit market. However, the notion that courts may play an important role in defining acceptable interest rates is certainly not a typically Brazilian phenomenon. Suffices to notice that even where the legislation contains no express interest rate ceiling, courts in different jurisdictions routinely resort to doctrines such as "anatocism", "extortionate credit bargain" and "unconscionability"[9] to invalidate contracts with interest rates deemed as excessive (Reifner

[9]Unconscionability is the doctrine prevailing in the United States. See Allan Farnsworth, Contracts, § 4.28, at 314 (3d

and Scroeder, 2012). Sometimes, courts will go as far as to establish detailed tests, as in the case of Germany where the Supreme Court upholds a presumption that interest rates are contrary to good morals when they exceed double the relevant market rate (Reifner and Scroeder, 2012).

To sum up, debtors frequently contest contracts' interest rates in Brazil. We focused on litigation involving auto loans and found that most cases are dismissed but a non-negligible fraction of cases are accepted. There are two important results for our purposes: (1) the proportion of "acceptance" increases with the contract's interest rates; and (2) in an interval, the proportion of acceptance is strictly between 0 and 1. Although we cannot completely rule out the possibility that some omitted variables are determining the outcome (owing to the nature of the data), the results suggest that the reason for "acceptance" is indeed that some interest rates are deemed "too high" by some judges. Since it is not written anywhere what "too high" means, that will depend on judgment calls made by the courts.

Recent Brazilian history also contains a telling example where courts rejected a legislated interest rate ceiling that they considered "too low". Brazil's constitution of 1988 stated that "real interest rates [...] shall not exceed 12% per year". In a country with chronic inflation such as Brazil (and hyperinflation at that specific point in time where the constitutional usury ceiling had been enacted), an interest rate ceiling of 12% per year would not only be ineffectual but would probably also be fatal for the solvency of the financial system. The constitutional provision was sure to be inappropriate. Wisely, the Brazilian Supreme Court held that the legislated ceiling was merely a constitutional ambition; not an actionable rule. All of these findings are consistent with the spirit of our model.

Court rejection of a usury ceiling that is considered inappropriately low is a common phenomenon. What is remarkable about Brazil is only the fact that its foolishly low interest rate ceiling of 12% was inscribed in the federal constitution. In the US, the fate of its several state interest rate ceilings tells a similar story. During the $20^{th}$ century, the scope of legislated interest rate ceilings was continually reduced through court interpretation, often on the legal grounds that interest statutes were in derogation of the common law and should be strictly construed (Shanks, 1930).[10] The decisive coup on state usury laws was however given by the United States Supreme Court,[11] which in 1978 held that the relatively low state interest caps could not be enforced on national banks that were based in other

ed. 1999) (analyzing the doctrine of unconscionability as invoked by consumers). The unconscionability doctrine has been legislated and appears in U.C.C. § 2-302 and Restatement (Second) of Contracts § 208.

[10]Straus v. Elless Co., 222 N. W. 752 (Mich. 1929); Alston v. American Mortgage Co., 116 Ohio St. 643, 157 N. E. 374 (1927); Byrd v. Link-Newcomb Mill and Lumber Co., 118 Miss. 179, 79 So. 100 (1918).

[11]See Marquette Nat'l Bank of Minneapolis v. First of Omaha Service Corp., 439 U.S. 299, 318 (1978).

states.[12] National banks could then circumvent state ceilings only by basing themselves in a no-ceiling or high-ceiling state, as is now common (Saunders and Cohen, 2004).

There are several comparable examples worldwide. In Canada, for instance, it is a crime to charge yearly interest rates above 60%, but the legislation is rarely applied to payday lenders where charges are much higher (Howell, 2005). This is not to say that legislated usury ceiling are simply toothless – for example, the French criminal usury statute is said to have substantially curtailed the development of the high-yield bond market in France (Cafritz and Tene, 2013). The point however is that court deliberation about usury legislation seems to be an ever present phenomenon. In Rome, for instance, the existence of legislation on usury did not prevent judges from frequently adjusting interest rate ceilings to what was customary in the community (Mackeldey, 1883, p. 306). Courts continued to play a role in shaping interest rate ceilings well into modernity. A study about the American experience in the 19th century concluded that courts tended to maintain usury laws for handshake agreements while allowing more latitude to parties writing contracts (Geisst, 2013, p. 149). The lesson is that courts may disagree with interest rate legislation in finding it too strict (so they carve out exceptions) or too lenient (so they extend it). This is clear in history and in the practice of law worldwide; what is lacking is the incorporation of such facts into economic theory.

# 3 The model of contingent judicial deference

A case, characterized by a variable $x$, is contested in court. The variable $x$ may be the interest rate in a credit contract, the number of trials before a new drug could be sold over the counter, how much capital a business held before it went bust, the years of experience of the captain of the sinking boat, the time between conception and termination of pregnancy, etc. Adjudicators are imperfectly informed and have to make a decision on the case. They have information from: (i) their own judgments; and (ii) the legislation on the topic.

Denote by $\bar{x}$ the maximum admissible value of $x$ (an interest rate ceiling for example). Adjudicators do not know exactly what $\bar{x}$ should be. Adjudicator $i$ is characterized by her beliefs about $\bar{x}$, which depends on her information and, possibly, on her moral judgements.[13] Her beliefs about $\bar{x}$ are represented by a continuous density function $f_i$. For simplicity, we assume that $\bar{x}$ is distributed between $\bar{x}_L$ and $\bar{x}_H$, with $0 \leq \bar{x}_L < \bar{x}_H < \infty$. In Appendix A

[12] In the United States, the term "national bank" designates a bank that is chartered and supervised by the Office of the Comptroller of the Currency (OCC). State banks, in contrast, are chartered and supervised by state government. Case law has extended the privilege of "exporting" interest rates from more to less favorable states to federally-related lenders that are state-chartered and to federal savings and loans institutions.

[13] In a judicial system with independent courts, it is natural to consider differences in the $f_i$ function across courts since judgment and deliberation are idiosyncratic.

we show a simple generalization of the model that allows for an unbounded support and a positive mass at $\bar{x} = \infty$.

We make two technical assumptions on this density function: $f_i$ is strictly quasi-concave, which means that if $\bar{x} = 30\%$ is more likely to be the ideal ceiling than $\bar{x} = 20\%$, then $\bar{x} = 15\%$ has to be even less likely; and the density of the median $f_i(\bar{x}_i^{med})$ is larger than 1 (which would be the density in case of a uniform distribution), which means that the median is not an unlikely draw. These assumptions are satisfied by single-peaked distributions with sufficient mass around the peak. Figure 3 shows an example of a function $f_i$.

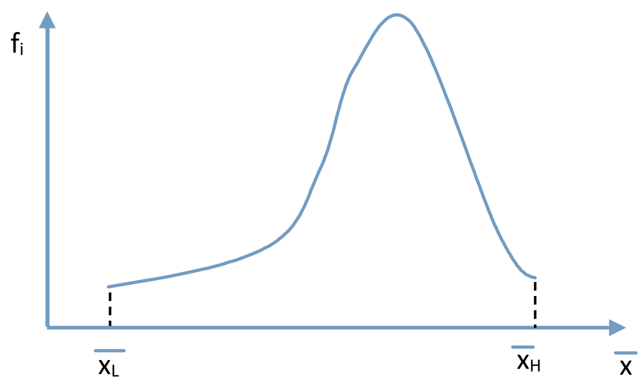


Figure 3: Beliefs of adjudicator $i$ about $\bar{x}$

To help fix ideas, in the example of interest rate ceilings, a 'pro-market' adjudicator who believes that the ideal ceiling $\bar{x}$ would probably be high is characterized by a distribution $f_i$ that assumes low values for low $\bar{x}$ and high values for large $\bar{x}$. In contrast, a 'skeptical-about-markets' adjudicator is characterized by a distribution $f_i$ that assumes high values for small ceilings $\bar{x}$. A distribution $f_i$ with a high variance characterizes an adjudicator that feels poorly informed about the issue.

There is also legislation establishing a ceiling $\bar{x}$, which we denote by $\bar{X}$ (which can be any number between $\bar{x}_L$ and $\bar{x}_H$). An adjudicator asks herself: was the legislation guided by good and accurate information? Was it enacted by well-intentioned legislators? Have circumstances changed enough to make that piece of information irrelevant? The crucial feature of the model is that adjudicator $i$ applies the legislation if (and only if) she deems it has been enacted by well-informed legislators that (basically) share her values and principles.

In order to capture this idea in the simplest possible way, we assume there are two types of legislators: the 'good' legislator knows what $\bar{x}$ should be and chooses $\bar{X} = \bar{x}$; the 'bad' legislator is a clueless agent that chooses $\bar{X} = \tilde{x}$, where $\tilde{x}$ is a random drawn from a uniform distribution between $\bar{x}_L$ and $\bar{x}_H$.[14] The prior probability that the legislator is 'good' is $\pi$. Our key assumption is that adjudicator $i$ applies the legislation if her posterior probability that the legislator is good is at least as large as $\alpha$, where $\alpha \in (0, \pi)$, and ignores the legislation otherwise. If the legislation is ignored, the adjudicator chooses what is more likely to be the correct decision according to her prior $f_i$ only.

The evaluation of the legislation thus resembles a hypothesis test: just like a person is presumed innocent, the legislation is presumed 'good'. A truly Bayesian adjudicator facing no institutional constraints would not restrict herself to a choice between applying or ignoring the legislation. She would calculate the probability that each decision is optimal and act accordingly. We persent a model along these lines in Appendix B. Our main conclusions also hold is that setting. We prefer this version in the main text because adjudicators are effectively constrained by legislation: in order to ignore a statute, they have to argue that it is not in accordance with some general principle, perhaps established in the constitution. Owing to these constraints, a piece of legislation is usually either deemed valid or not, with little room for 'somewhat valid' legislation. Accordingly, in the model, adjudicators will ignore a statute if they feel they can write a convincing 'case against the statute'.

### 3.1 The adjudicator's decision

The legislation reveals information about the type of the legislator. A simple application of the Bayes rule yields the posterior probability that the legislator is 'good' conditional on the observed ceiling, denoted by $\Pr\left(\text{good}|\bar{X}\right)$:

$$\Pr\left(\text{good}|\bar{X}\right) = \frac{\left(\bar{x}_H - \bar{x}_L\right) \pi f_i\left(\bar{X}\right)}{\left(\bar{x}_H - \bar{x}_L\right) \pi f_i\left(\bar{X}\right) + 1 - \pi} \tag{1}$$

Owing to the quasi-concavity of $f_i$, $\Pr\left(\text{good}|\bar{X}\right)$ is also quasi-concave in $[\bar{x}_L, \bar{x}_H]$. The posterior probability $\Pr\left(\text{good}|\bar{X}\right)$ is depicted in Figure 4.

Intuitively, when $f_i\left(\bar{X}\right)$ is small, adjudicator $i$ has reasons to believe that the legislation came from a 'bad' legislator – because a good legislator is unlikely to choose such $\bar{X}$ and a bad legislator chooses randomly. Since $\Pr\left(\text{good}|\bar{X}\right)$ is quasi-concave, the null hypothesis of a good legislator might be rejected if $\bar{X}$ is below some critical point $X_{Li}$ and might be rejected if $\bar{X}$ is larger than some critical point $X_{Hi}$. Define $X_{Li}$ as

$$X_{Li} = \sup\left\{x | \Pr\left(\text{good}|\bar{X}\right) \leq \alpha \text{ for all } \bar{X} < x\right\}$$

[14] The random draw from a uniform distribution is a modeling simplification that allows us to capture the key idea that ceilings in a certain range are more likely to reflect a sensible view of the world, while ceilings outside this range are less likely to be based on accurate knowledge about the issue. In the model in Appendix A, the implied distribution of $\bar{x}$ from the 'bad legislator' is not uniform, which seems more realistic.

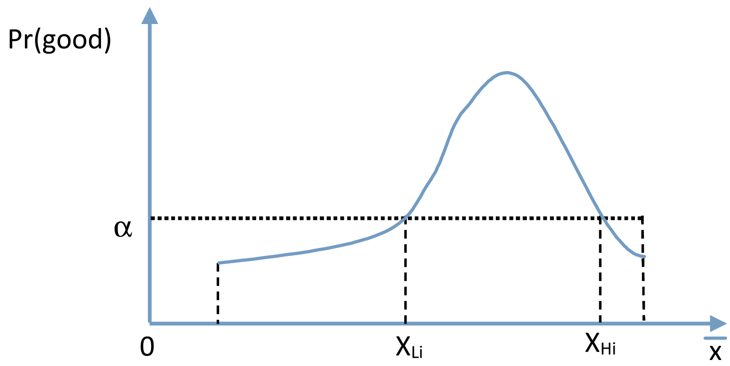


Figure 4: Posterior probability that the legislator is 'good'

and $X_{Hi}$ as

$$X_{Hi} = \inf\left\{x \middle| \Pr\left(\text{good}|\bar{X}\right) \leq \alpha \text{ for all } \bar{X} > x\right\}$$

as depicted in Figure 4. Last, define $X_{0i}$ as

$$X_{0i} = \bar{x}_i^{med}$$

Note that since $f_i(\bar{x}_i^{med}) > 1$, $\Pr\left(\text{good}|\bar{x}_i^{med}\right) > 1$. Hence, $X_{Li} < X_{0i} < X_{Hi}$.

The following proposition summarizes the adjudicator's decision.

**Proposition 1** *Consider a maximum legislated $x$ given by $\bar{X} \in [\bar{x}_L, \bar{x}_H]$.*

1. *There is deference to legislation as long as $\bar{X} \in [X_{Li}, X_{Hi}]$, with $\bar{x}_L \leq X_{Li} < X_{Hi} \leq \bar{x}_H$.*
2. *Whenever $\bar{X} \notin [X_{Li}, X_{Hi}]$, the adjudicator ignores the legislation follows a ceiling $\bar{X}_i^* = X_{0i}$.*

***Proof.*** *See the appendix.* ■

The key implication of the model is that the effecitve $\bar{X}_i^*$ is non-monotonic in $\bar{X}$. Figure 5 illustrates this point.

As long as $\bar{X} \in [X_{Li}, X_{Hi}]$, $\bar{X}_i^* = \bar{X}$. However, when $\bar{X} < X_{Li}$, the null hypothesis of a 'good' legislator is rejected, the statute is ignored and the adjudicator's effective ceiling becomes $X_{0i}$, which is larger that $X_{Li}$. Likewise, when $\bar{X} > X_{Hi}$, the rule is discarded and the adjudicator's effective ceiling becomes $X_{0i} < X_{Hi}$.

As mentioned before, a Bayesian adjudicator facing no institutional constraints would calculate the probability that each decision is optimal and act accordingly. The model in Appendix B considers this case and shows that an adjudicator's effective ceiling $\bar{X}_i^*$ would

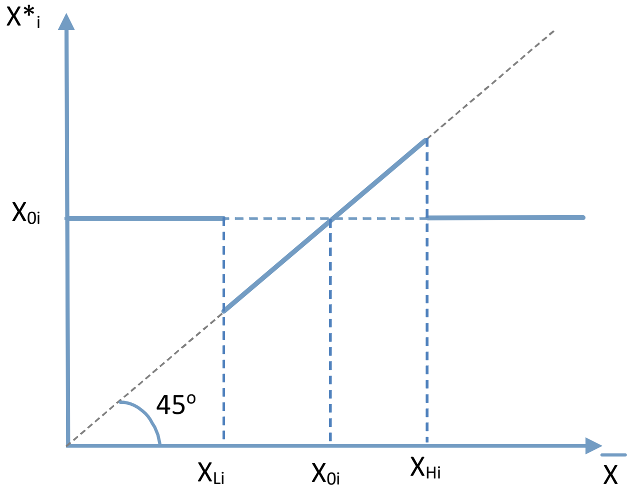


Figure 5: Adjudicator $i$'s effective ceiling

also be non-monotonic in the legal cap $\bar{X}$. The relationship between $\bar{X}_i^*$ and $\bar{X}$ would be given by Figure 14 instead of Figure 5, but the qualitative implications in both cases are basically the same.

### 3.2 The odds a case is accepted

We now consider a world with several adjudicators, and an agent does not know the adjudicator's type when suing. A case against a transaction characterized by $x$ (say, the interest rate in a credit contract) is brought to court. We now compare the odds the case will be accepted under two different legislated caps, $\bar{X}_1$ and $\bar{X}_2$, with $\bar{X}_1 < \bar{X}_2$.

For $x \in \left(\bar{X}_1, \bar{X}_2\right)$, the two legislated caps yield different prescriptions and that has a direct effect on adjudicators' decisions. Those who choose to follow the rules will allow the transaction when the legislated cap is $\bar{X}_2 > x$ but not when the cap is $\bar{X}_1 < x$. However, when $x \notin \left(\bar{X}_1, \bar{X}_2\right)$, a larger legislated cap has the opposite effect on adjudicators' decisions. Proposition 2 summarizes the result.

**Proposition 2** *Consider legislated caps $\bar{X}_1$ and $\bar{X}_2$, with $\bar{X}_1 < \bar{X}_2$. Denote by $p(x|\bar{X})$ the probability that a transaction characterized by $x$ will be judged illegal given an interest rate cap equal to $\bar{X}$.*

1. *For $x \notin \left(\bar{X}_1, \bar{X}_2\right)$, $p(x|\bar{X}_2) \geq p(x|\bar{X}_1)$.*
2. *For $x < \bar{X}_1 < \bar{X}_2$, $p(x|\bar{X}_2) > p(x|\bar{X}_1)$ whenever there is an adjudicator $i$ such that $X_{0i} < x$ and $\bar{X}_1 \leq X_{Hi} < \bar{X}_2$.*

3. *For $\bar{X}_1 < \bar{X}_2 < x$, $p(x|\bar{X}_2) > p(x|\bar{X}_1)$ whenever there is an adjudicator $i$ such that $X_{0i} \geq x$ and $\bar{X}_1 \leq X_{Li} < \bar{X}_2$.*

***Proof.*** *See the appendix.* ■

Figure 6 shows an example of the probability that a transaction characterized by $x$ will be judged illegal in case of a legislated cap equal to $\bar{X}_1$ (solid line), and in case of a more lenient cap, equal to $\bar{X}_2$ (dashed line). For $x \notin \left(\bar{X}_1, \bar{X}_2\right)$, the prescription from both caps is the same. However, the likelihood that each rule be followed is (potentially) different. The first statement of Proposition 2 shows that as long as the transaction is not directly affected by the change in the legislation – i.e., for contracts with $x \notin \left(\bar{X}_1, \bar{X}_2\right)$ – the probability that the case will be accepted is at least as *large* for more lenient laws. The second and third statement of the proposition show what is needed for the probability $p(x|\bar{X})$ to (strictly) increase in $\bar{X}$.

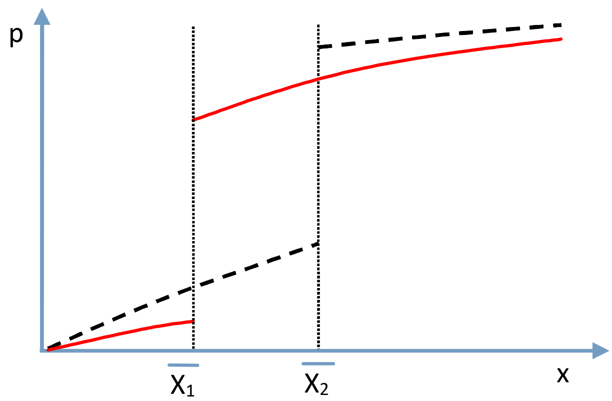


Figure 6: Probability the contract is deemed illegal

The intuition for the second statement of Proposition 2 is as follows: without any rule, adjudicator $i$ would deem excessive any contract with $x > X_{0i}$, which is smaller than both legislated caps. A (relatively) strict law setting a cap equal to $\bar{X}_1$ is in the realm of reasonable rules for adjudicator $i$, since $\bar{X}_1 < X_{Hi}$. Hence, adjudicator $i$ would follow this rule and allow transactions as long as $x < \bar{X}_1$. In constrast, a legislated cap equal to $\bar{X}_2$ is deemed excessively lenient by adjudicator $i$, since $\bar{X}_2 > X_{Hi}$. This rule is thus rejected, so adjudicator $i$ follows her own judgment and deem illegal contracts with $x > X_{0i}$. Although the legislated ceiling prescribed by the more lenient rule, $\bar{X}_2$, is larger than $\bar{X}_1$, the adjudicator effectively considers an interest rate ceiling that is smaller than $\bar{X}_1$ (since $X_{0i} < \bar{X}_1$).

The intuition for the third statement of Proposition 2 is basically the same. A (relatively) lenient law setting a ceiling equal to $\bar{X}_2$ is in the realm of reasonable rules for adjudicator $i$, since $\bar{X}_2 > X_{Li}$. Hence, adjudicator $i$ would follow this rule and disallow contracts with $x > \bar{X}_2$. In constrast, a legislated cap equal to $\bar{X}_1$ is deemed excessively strict by adjudicator $i$, since $\bar{X}_1 < X_{Li}$. This rule is thus rejected, so adjudicator $i$ follows her own judgment and decides according to a ceiling $\bar{X}_i^* = X_{0i}$. Although the cap prescribed by the more strict rule is smaller than $\bar{X}_2$, the adjudicator effectively considers a ceiling that is larger than $\bar{X}_2$ (since $X_{0i} > \bar{X}_2$).

Note that this model generates the empirical pattern described in Section 2. Adjudicator $i$ will declare a credit contract is not valid if the null hypothesis of a good legislator is rejected and the contracted interest rate $x$ is larger than $X_{0i}$. As long as the first condition holds for some adjudicators, the odds a contract will be deemed invalid owing to excessively high interest rates will be increasing in $x$, since the mass of adjudicators with $X_{0i} < x$ is increasing in $x$.

# 4 Application: usury laws

We now apply our model of contingent judicial deference to an economy with a simple credit market. We assume there are no market failures and no reason for interest rate caps. We choose this modeling strategy for simplicity and to ensure that all effects of usury laws on this economy are on the maximum allowed interest rate and on the probability a lawsuit against high interest rates are accepted. The set of possible economic reasons for capping interest rates includes: some form of irrationality or time inconsistency in preferences that leads agents to borrow at excessively high interest rates; some negative externality from risky loans; banks' market power; among others. A model with some of these (or other) reasons for capping interest rates with the same demand and supply curves for loans would yield the same positive implications as this model. The normative implications could be different, but these are not the focus of this paper.

There is a measure-one continuum of agents, indexed by $j$, each one with an investment project. In order to invest, an agent needs to borrow 1 unit of resources, the cost of a project. The probability that project $j$ will succeed is $\pi_j$, which is specific to the agent and lies in the interval $(0, 1)$. A successful project yields $B$ (a constant larger than 1) with probability $\pi_j$ and 0 otherwise. There is limited liability, so the debt is wiped away when the project yields 0 and $B$ is the maximum gross interest rates a bank can collect.

There is a competitive banking sector. Banks lend to agent $j$ at rate $R_j = 1 + r_j$, which is endogenous (and they may decide not to lend). All information is common knowledge ($\pi_j$ is known to everyone). The opportunity cost of resources is normalized to 0. Banks and agents are risk neutral.

### 4.1 Benchmark case: no court cases

Suppose there are no court cases. The only risk faced by the bank is that agents might go bankrupt.

Let $R_j$ be the interest rate in a loan to agent $j$. The zero profit condition for a bank implies:

$$\pi_j R_j = 1 \Longrightarrow R_j = \frac{1}{\pi_j} \tag{2}$$

Loans occur in this model as long as

$$\pi_j B \geq 1 \tag{3}$$

Figure 7 shows interest rates in this economy as a function of the probability of success $\pi$, for a given $B$.

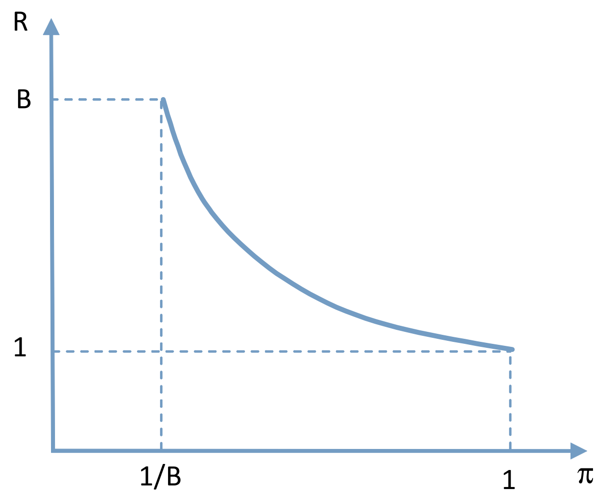


Figure 7: Interest rates as function of $\pi$ (no court cases)

A binding cap on interest rates would reduce the amount of loans in this economy. Disallowing interest rates larger than $\bar{R} < B$ would imply that projects with $\pi_j \in [1/B, 1/\bar{R})$ would not be financed.

### 4.2 The law and the economy

We now include the possibility of lawsuits in the model. If her project succeeds, the borrower can go to court and try to avoid paying interest on her debt, which entails a cost $c$ (we will think of it as an effort cost). When this happens, an adjudicator is randomly assigned to the case and the probability the agent does not need to pay interest on her loan is given as in Section 3.2. The model implies that the probability interest rates will be declared ilegal is weakly increasing and possibly discontinuous in $R$.

For an agent that did not go bankrupt, it is worth going to court if the expected gain (interest not paid $R_j - 1$ times probability $p(R_j)$) is larger than $c$:

$$p(R_j)[R_j - 1] > c \Longrightarrow R_j > \frac{c}{p(R_j)} + 1$$

Agents choose to sue if $R_j > \hat{R}$ where:

$$\hat{R} = \inf_{R_j} \left\{ R_j - 1 - \frac{c}{p(R_j)} \geq 0 \right\} \tag{4}$$

In case $R_j \leq \hat{R}$, agent $j$ will never choose to go to court. Hence a deal will occur whenever $B$ is larger than $1/\pi_j$ as in the benchmark case.

In case $R_j > \hat{R}$, agent $j$ will sue if she does not go bankrupt. Hence, the expected payoff for the bank is

$$\pi_j ([1 - p(R_j)] R_j + p(R_j)) - 1$$

and the zero profit condition for banks implies

$$R_j = \frac{\frac{1}{\pi_j} - p(R_j)}{1 - p(R_j)} \tag{5}$$

If the agent goes bankrupt, her payoff is 0. If her project is successful, she is expected to repay $p(R_j) + (1 - p(R_j))R_j$ (with probability $p$, no interest is paid; with probability $1 - p$, $R_j$ is repaid) and the cost $c$. The agent is willing to borrow if her expected payoff, conditional on the success of the project, is positive. Hence, a deal occurs if:[15]

$$B - p(R_j) - (1 - p(R_j))R_j - c \geq 0$$

Plugging in the interest rate from (5), we get that a loan takes place as long as

$$\pi_j (B - c) \geq 1$$

which is a more stringent condition than the one in (3). Figure 8 illustrates the relationship between the probability of success $\pi_j$ and the minimum interest rate charged by a bank.[16]

In the region where lawsuits occur, the minimum expected disbursement with interest rates is still $1/\pi_j$, as the probability that interest rates are deemed excessive by the adjudicator is priced in, but agents also pay the cost $c$. The largest interest rate in this economy

[15] Naturally, the probability interest rates are void is priced in loan contracts. Hence the legal risk considered ex ante by lenders will be consistent with the ex post probability that interest is not paid – whatever the legal risk is.

[16] Parameters in the figure are such that in equilibrium, some borrowers sue the bank.

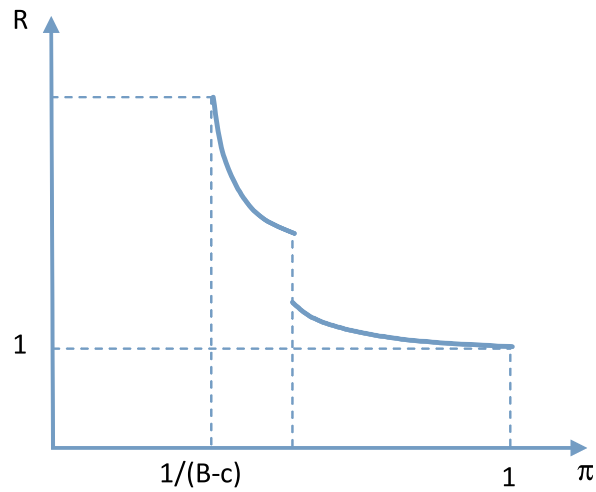


Figure 8: Interest rates as function of $\pi$ (when lawsuits occur)

is implicitly given by

$$R^{\max} = \frac{B - c - p(R^{\max})}{1 - p(R^{\max})} \tag{6}$$

but the marginal agent is effectively paying $B - c$ in interest (in expected terms), in case her project succeeds.

In comparison to the benchmark case in Section 4.1, the economy is affected in two ways: (i) there are less credit operations; and (ii) there are more costly lawsuits.

### 4.3 Usury laws

We now study the effect of a legislated interest rate cap $\bar{R}$ in this credit market. First, Consider an economy with no interest rate caps, i.e., $\bar{R} = \infty$. Using (4) and (6), the condition for no lawsuits in equilibrium is that

$$p(B|\bar{R} = \infty) \leq \frac{c}{B-1} \tag{7}$$

In words, if the probability that gross interest rate $B$ will be deemed too high in an economy with no interest rate caps ($\bar{R} = \infty$) times the gain from not paying interest ($B - 1$) is not enough to cover the suing costs $c$, we are back to the case of Section 4.1. In case there are no lawsuits in equilibrium, usury laws can only reduce the amount of credit in the economy.

Now, assume there are lawsuits in equilibrium in this economy, so condition 7 does not hold. Proposition 3 shows conditions for the existence of interest rate caps that increase the amount of loans in the economy.

**Proposition 3** *Consider an economy with no interest rate caps where the condition in (7) does not hold, so there are lawsuits in equilibrium.*

1. *The maximum gross interest rate in this economy* $R^{\max}$ *is larger than* $B$*.*
2. *There is an interest rate cap* $\bar{R} \in (B - c, B]$ *that raises the amount of loans in this economy as long as*
$$p(B - c|\bar{R} = B - c) < \frac{c}{B - c - 1} \tag{8}$$
3. *An interest rate cap* $\bar{R} = B$ *implements the equilibrium with loans to all projects that satisfy (3) and no lawsuits as long as*
$$p(B|\bar{R} = B) \leq \frac{c}{B - 1} \tag{9}$$

***Proof.*** *See the appendix.* ■

The first statement of the proposition just shows that in the presence of lawsuits, although the marginal project financed in equilibrium is safer than the marginal project financed when no lawsuits occur, interest rates are larger. The high interest rates compensate the legal risk – interest rates might not be paid.

The second statement of the proposition shows that a properly chosen interest rate cap raises the amount of loans in this economy as long as the condition in (8) holds. There are two reasons for why the condition in (8) is milder than the condition in (7). The first is that (8) considers the probability an adjudicator will deem too lenient an interest rate cap of $B - c$, while (7) considers the probability a judge will deem too lenient a rule that imposes no restriction on interest rates. The latter probability might be substantially higher. The second reason is that (8) refers to the probability of a succesful claim against interest rates $B - c$, while (7) refers to the probability of a successful claim against interest rates $B$. This reflects the idea that riskier projects can be financed at lower interest rates in the absence of legal risk (the risk that courts will declare interest rates are excessively high).

The third statement of Proposition 3 shows if (9) holds, a cap on interest rates at $\bar{R} = B$ implements the equilibrium described in Section 4.1, where all projects with an expected positive return are financed. The condition in (9) is milder than that in (7) because an adjudicator might consider excessively lenient a rule that imposes no restriction on interest rates but might accept a rule that sets an interest rate cap of $B$.

In standard economic models, usury laws reduce the amount of loans in the economy, as agents that would only be able to get credit at very high interest rates cannot get loans. This effect is also present in this model. However, here, well chosen interest rate caps also affect adjudicators' decisions, reducing the probability of successful lawsuits. This leads to lower interest rates and might lead to more borrowing in equilibrium.

## 5 Examples

We used usury laws to demonstrate the proposition that legislation specifying that something cannot be done raises the probability that judges will allow related things not expressly forbidden.[17] We now wish to show that this proposition applies beyond credit transactions. We use life insurance as an example.[18] Older life insurance policies in the United States habitually contained a "suicide exclusion" whereby coverage would be denied to the beneficiaries of a deceased person who voluntarily took her life.[19] The main concerns of insurance companies were, quite clearly, adverse selection and moral hazard. Yet judges and juries were often uncomfortable with upholding the suicide exclusion, normally for a concern with protecting an innocent beneficiary from ruin (a non-working wife with children, for example).[20]

To invalidate the suicide exclusion, courts basically employed the following reasoning: suicide is the intentional act of a person enjoying all her mental faculties, but those who commit suicide are in principle insane, so insurance companies can only deny recovery if they can prove that the persons who took out their lives were sane in doing so.[21] But fulfilling this burden of proof was evidently difficult, not least because the person whose sanity was in question was already dead, so courts could then recharacterize suicides as accidents and maintain the right to recovery under the insurance policy.[22] Insurance companies tried to deal with this problem by drafting the suicide exclusion so as to encompass "suicide, sane or insane", but that broader wording was often to no avail and the exclusion would still be considered inapplicable.[23]

In response, most state legislators in the United States passed statutes with an intermediate solution: suicide exclusions would be generally forbidden, except that they would

[17] As well as on the analytically equivalent proposition that the enactment of legislation permitting something may raise the probability that judges will prohibit related things not expressly permitted.

[18] Most of the factual background on the history of life insurance discussed in this section can be found in Schuman (1993).

[19] See Knickerbocker Life Ins. Co. v. Peters, 42 Md. 414, at 417 (1875).

[20] Columbian Nat'l Life Ins. Co. v. Wood, 193 Ky. 395, at 397 (1922). But see Bigelow v. Berkshire Life Insurance Co., 3 Otto 284, at 286-287 (1876) (accepting contractual limitation of liability).

[21] See New York Life Ins. Co. v. Dean, 226 Ky. 597, 11 S. W. 2d 417 (1928); Ladwig v. National Guardian Life Ins. Co., 247 N.W. 312 (Wis. 1933); and Muzenich v. Grand Carniolian Slovenian Catholic Union, 154 Kan. 537, 119 P 2d 504 (1941). But see Strasberg v. Equitable Life Assur. Soc. U.S., 281 App. Div. 9, at 13-14 (1952); Dent v. Virginia Mut. Benefit Life Ins. Co., 226 A. 2d 166, at 167 (D.C. App. Ct. 1967) (holding a presumption of sanity and ascribing to the plaintiffs the burden of proving insanity of the deceased).

[22] Mutual Life Insurance Co v. Terry, 15 Wall. 580, at 591 (1872); Knickerbocker Life Ins. Co. v. Peters, 42 Md. 414, at 421 (1875); and Ladwig v. National Guardian Life Ins. Co., 247 N.W. 312, at 314 (Wis. 1933).

[23] See Equitable Life Assur. Soc. v. Bailey, 284 S.W. 403, at 404 (1926); and Christensen v. New England Mut. Life Ins. Co., 197 Ga. 807, at 809-812 (1944).

be permitted during the first two years after the life insurance was issued. This rule is now inscribed in the books of most American states (Tseng, 2004).[24] Courts have basically dropped the argument that a suicide is in principle insane (at least insofar as the two-year period is concerned) and insurance policies are now drafted accordingly.[25] This is exactly a situation where a legislation imposing a prohibition (the two-year rule) raised the prospects that judges allow related things not expressly forbidden by legislation (the suicide exclusion outside of the two-year period).

Our model also sheds light on some historical events specifically in the realm of interest rate caps. The debates over interest rate regulation in the United Kingdom in 19th and early 20th century are a case in point. In the context of the ascendance of finance in the 19thCentury, in 1854 the British Parliament had passed the Usury Laws Act abolishing all interest rate ceiling in the United Kingdom (Geisst, 2013, pp. 131-133). Yet moved by alleged abuses against debtors, in 1897 the House of Commons appointed a committee to investigate moneylending (Goode, 1982). The report was finalized in 1898 and contained several anecdotal evidences used to substantiate the conclusion that moneylenders were abusing their permission to price credit on market conditions (Goode, 1982, p. 44).[26] In response, parliament enacted the Money-Lenders Act of 1900, which expressly authorized courts to reopen credit transactions when interest or other charges were considered excessive or the terms of the transaction were deemed harsh, unconscionable or inequitable. The Act of 1900 also required moneylenders to be registered with (but not licensed by) the Customs and Excise (Goode, 1982).[27]

The Money-Lenders Act of 1900 was largely ineffectual, first because registration was not followed by any kind of supervision and second because statutory authorization for courts to reopen loan transactions was unnecessary, as history books are full of references to discussions over the legality of interest rates before the enactment of the Act of 1900 (Geisst, 2013, p. 177, noting that interest rates became usurious beyond some "flexible" point even in the absence of a statutory cap). After a brief amendment in 1911, the Money-lenders Act of 1900 was more substantively amended by Money-Lenders Act of 1927. This is where the model advanced in the present article can be useful to reassess history.

The conventional wisdom is that the Moneylenders Acts of 1900 and 1927 are part of a single regulatory wave of anti-usury, pro-debtor policymaking in the United Kingdom

[24] In a few states the legislated exception covers only one year and in a few others there is no such legislation.

[25] See McKinnon v. Lincoln Benefit Life Company, 162 Fed. Appx. 223, at 227 (2006); Mitchell v. American General Life Insurance Company, 2014 U.S. Dist. LEXIS 93742, at 5-6, 8 (2014); and Collins v. Unum Life Insurance Company of America, 2016 U.S. Dist. LEXIS 60628, at 31, 34, 37 (2016).

[26] The report famously included a testimony from a moneylender admitting to have charged 3,000% interest, and of another one that provided credit under 34 different aliases to avoid the notoriety of being an abusive lender (Goode, 1982).

[27] The Money-Lenders Act did not affect clearing banks but only other financiers.

(Goode, 1982; Crowther Report, 1972; Geisst, 2013, p. 177). Yet only the Act of 1927 did contain an explicit interest rate threshold, which the Act of 1900 did not, which means that the effects, and perhaps even its motivation, of the 1927 Act may have been different from those of the Act of 1900. The 1927 Act is said to have strengthened the anti-usury objectives of the previous Act of 1900 by requiring licensing (instead of only registration) and by imposing requirements and restrictions as to the seeking of business, formalities of contract and enforcement by moneylenders. Moreover, and crucially for present purposes, the Moneylenders Act of 1927 introduced a presumption that interest rates over 48% were prima facie unconscionable. Although this was not a full-fledged interest rate prohibition, it meant that whenever interest rates were above 48% per year the moneylender had the burden of proving that the loan was neither harsh nor unconscionable.

Our model permits to hypothesize that the inclusion of this 48% threshold in the Money-Lenders Act of 1927 may have in fact served, willfully or not, to enlarge credit markets and consolidate market pricing of credit in Britain. The main reason is that before 1927 courts did "reopened" contracts and sometimes upheld standards of fairness in interest rate charges below 48% (Meston, 1968), so it is not unreasonable to imagine that this quasi-interest rate ceiling in fact swayed courts into accepting higher interest rates in money lending transactions. To be true, after 1927 courts did not simply invalidate every contract with interest rates above 48%; there were cases where courts upheld contracts with interest rates as high as 177% (Meston, 1968), so the 48% threshold was indeed read as a presumption and not as a prohibition. But historians recognize that market rates did prevail in money-lending transactions even after 1927, and that the Money-Lenders Act did little to reduce prevailing interest rates (Geisst, 2013, p. 178), which does not demonstrate but is consistent with our model of legislated "prohibitions that permit".

A similar analysis can be replicated with present-day cases where usury ceilings are first eliminated and subsequently reinstated. For instance, the wave of consumer protection as of the 1960s decade has led several countries in Europe to reinstate usury ceilings for certain kinds of transactions. Examples include overdraft credit and protected housing loans in Spain, credit unions in Ireland, and non-banks in Greece, but there are others. The exact implications of such legislation are unclear, but the conventional wisdom that they in practice served to curb lending has never been demonstrated (Reifner and Scroeder, 2012). One of the reasons may be that researchers have consistently failed to take into account the interplay between courts and legislation.

A final point is that the courts' judgment calls and statutory interpretations can also change over time, and usury provides again a telling example. Many states in the United

States have strict usury laws in their books, but based on a Supreme Court decision of 1978 courts now permit nationally chartered banks to apply the lawful interest rate of the lender's home state independently of the usury laws where the borrower is domiciled. Yet a 2016 decision by the U.S. Court of Appeals for the Second Circuit reversed in part this longstanding position. It held that if a debt is assigned by a national bank to an entity that is not a national bank, then borrowers can raise state usury laws in their favor.[28] This highly publicized decision created much legal uncertainty for lenders and other financial industry firms whose businesses rely on securitizations and bundling of debt. The decision is valid only in the states of the Second Circuit – New York, Connecticut and Vermont – and a pressing question is concerns whether other states will follow suit. This court debates illustrate the problem of dispersion in court decisions, to which we now turn.

# 6 Rules and legal uncertainty

We now use our model of contingent judicial deference to study the interaction between a legislated ceiling $\bar{X}$ and the dispersion of judicial decisions, which is a measure of legal uncertainty. The model in Section 3 implies that adjudicator $i$ defers to legislation and follows the legislated cap $\bar{x}$ as long as $\bar{X} \in (X_{Li}, X_{Hi})$ and decides according to a cap $\bar{X}_i^* = X_{0i}$ if $\bar{X} \notin (X_{Li}, X_{Hi})$. We now parameterize these three thresholds so that, for adjudicator $i$,

$$\begin{aligned} X_{Lid} &= x_{L0} + \varepsilon_i + \nu d \\ X_{Hid} &= x_{H0} + \varepsilon_i + \nu d \\ X_{0id} &= x_{00} + \varepsilon_i + \nu d \end{aligned}$$

where $x_{L0}$, $x_{H0}$ and $x_{00}$ are the thresholds that characterize the decision of the 'median adjudicator' at an initial point in time ($d = 0$), $\varepsilon_i$ is an adjudicator's specific term, distributed with full support between $-\bar{\varepsilon}$ and $\bar{\varepsilon}$, $\nu > 0$ is a positive constant and $d \in \mathbb{R}$ is a preference shifter, common to all adjudicators.We assume that $x_{L0} - \bar{\varepsilon} > 0$, so that all adjudicators agree that sufficiently low values of $x$ should be allowed.

This specification has two important features. First, there is dispersion among adjudicators' judgements, given by the term $\varepsilon_i$, that does not vary in time. Second, there is a preference shifter that does not affect the variance of adjudicator's opinions, only its mean. One interpretation is that as time goes by, judgments change, and this is captured in the model by the variable $d$. The question then is how the legislation affects decisions for different values of $d$.

[28] See Madden v. Midland Funding, LLC, 786 F. 3d 246 (2015). The Supreme Court denied certiorari.

A statute imposes a ceiling on $x$ denoted by $\bar{X}$. For $d = 0$, all adjudicators follow the rule as long as $\bar{x} \in [x_{L0} + \bar{\varepsilon}, x_{H0} - \bar{\varepsilon}]$. This condition is satisfied by the top line in the example in Figure 9, that shows the bounds for $X_{Li0}$ and $X_{Hi0}$. For any adjudicator $i$, $\bar{X} \in (X_{Li0}, X_{Hi0})$.

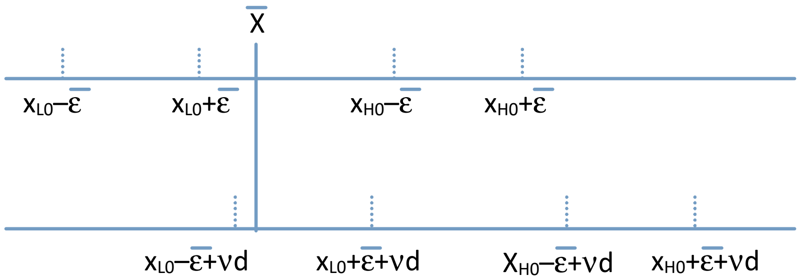


Figure 9: Changing judgments and a fixed rule

For a given $d$, an adjudicator's decision can be summarized by her effective threshold for $x$, denoted by $\bar{X}^*_{id}$, which is the maximum value of $x$ that adjudicator $i$ deems acceptable given $d$ ($\bar{X}^*_{id}$ may be different from $\bar{X}$).

Naturally, for larger $d$, some adjudicators start to reject the rule and follow their own judgment. This generates dispersion in $\bar{X}^*_{id}$. The interesting implication of this model is that the dispersion in $\bar{X}^*_{id}$ is non-monotonic in $d$. This result is stated in Proposition 4.

**Proposition 4** *Assume $\bar{X} \in [x_{L0} + \bar{\varepsilon}, x_{H0} - \bar{\varepsilon}]$. It follows that:*

1. *For $d = 0$, the variance of $\bar{X}^*_{id}$ is 0, since $\bar{X}^*_{id} = \bar{X}$ for all $i$.*

2. *For sufficiently large $d$, the variance of $\bar{X}^*_{id}$ equals the variance of $\varepsilon_i$, since all adjudicators choose to ignore the rule.*

3. *For some intermediary value of $d$, the variance of $\bar{X}^*_{id}$ is larger than the variance of $\varepsilon_i$, implying that the rule induces dispersion.*

***Proof.*** *See the appendix.* ■

The first statement follows from the assumption that $\bar{X} \in [x_{L0} + \bar{\varepsilon}, x_{H0} - \bar{\varepsilon}]$. The second statement is a direct implication of the assumptions that $x_{L0} - \bar{\varepsilon} > 0$, since for large enough $d$, $X_{Lid}$ will be larger than $\bar{X}$ for all $i$, so all adjudicators will follow their own judgment, $\bar{X}^*_{id} = x_{00} + \varepsilon_i + \nu d$ for all $i$. Hence, the dispersion in $\bar{X}^*_{id}$ will be equal to the dispersion in $\varepsilon_i$ (since $x_{00}$ and $\nu d$ are the same for all $i$).

The interesting result is the third statement of Proposition 4. For some intermediary values of $d$, the existence of a rule actually makes adjudicators' decisions *more* disperse. Figure 10 shows dispersion of $\bar{X}^*_{id}$ as a function of $d$.

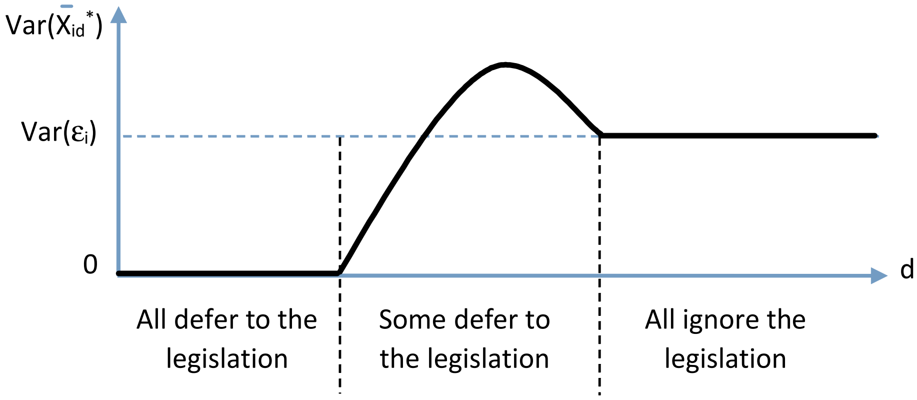


Figure 10: Legal uncertainty as a function of $d$

The bottom line of Figure 9 helps to explain the intuition for this increase in dispersion. In this case, the lowest value of $X_{Lid}$, $x_{L0} - \bar{\varepsilon} + \nu d$, is just a little bit smaller than $\bar{X}$. Hence $X_{Lid} > \bar{X}$ for the majority of adjudicators. For them, $\bar{X}^*_{id} = x_{0id}$. However, for the few agents with $X_{Lid} < \bar{X}$, the rule is deemed reasonable, so $\bar{X}^*_{id} = \bar{X}$. Since their $X_{Lid}$ is very close to $\bar{X}$, their effective threshold $\bar{X}^*_{id}$ is smaller than $x_{0id}$. Since the agents with the lowest $x_{0id}$ are the ones whose decisions follow an even lower effective threshold, $\bar{X}$, we get that the dispersion in effective thresholds is higher than in the case $t$ is very large.

In words, in the situation depicted in the bottom line of Figure 9, most adjudicators are ignoring the rule and following their own judgment. However, those who would choose the lowest thresholds for $x$ in the absence of a rule still find the rule reasonable, though more strict than what they would choose in the absence of a rule. Hence the legislation is inducing those with a preference for a lower $\bar{X}^*_{id}$ to choose an even lower threshold without affecting those who prefer a larger $\bar{X}^*_{id}$.

When $X_{Lid} > \bar{X}$ for some but not all adjudicators, so that some apply the legislation and others don't, two effects are in place: (i) the rule induces conformity within those who follow the rule; (ii) the rule might increase the gap between those who follow the rule and those who choose to ignore it. When $X_{Lid} > \bar{X}$ for very few adjudicators, the former effect dominates. However, when $X_{Lid} > \bar{X}$ for the vast majority adjudicators, the second effect dominates, so the variance of $\bar{X}^*_{id}$ is certainly larger than the variance of $\varepsilon_i$. Intuitively, inducing conformity within those who follow the rule has a negligible effect on the dispersion of $\bar{X}^*_{id}$ if too few agents follow the rule.[29]

## 7 Final remarks

Legislation that seems to be enacted by well-informed and well-intentioned legislators is more likely to be followed by courts. Building on this simple premise, we proposed a model of contigent judicial deference and derived implications about the effect of legislation on the probability of statutory enforcement and on the dispersion of judicial decisions within a legal system.

The model raises additional theoretical and applied questions. The first theoretical question concerns the dynamics of courts and legislatures concerning prohibitions. We showed that once courts are considered, the enactment of a prohibition to contract cancreate a permission to contract. However, our model is static, while the examples discussed suggest that there may be a dynamic component in the interplay of courts and legislatures. Another theoretical question relates to the role played by legislation in the process whereby courts reach a decision concerning a case. The standard hypothesis is that judges defer to legislation because of their incentive structure and because they are schooled in, and develop a preference for, judicial restraint. The analysis developed herein opens new possibilities of investigation, especially concerning the unmistakable parallel between the decision-making processes of courts and monetary authorities. That being the case, legislation can play a guidance role similar to that which in the monetary policy literature is attributed to rules.

As to the applied aspects, the main question concerns feasibility. This article should not be read as an endorsement of usury laws, but as a study of their economic effects once court discretion is factored into credit models. We explained that the exercise of judgment calls by courts can cause the enactment of usury laws to enlarge credit markets in a second-best scenario. But this attractive outcome can only arise if some conditions are met. The first is market interest rates being routinely viewed by courts as "excessive". Remarkably, however, this does not mean that the model is valid only for high interest rates jurisdictions. Japan, for instance, is worldwide famous for its low interest rates, yet usury ceilings have become highly contentious in its consumer markets (Ramseyer, 2013). Conversely, some countries with much higher interest rate levels seem to have reduced the problem of interest rate litigation by adopting flexible and higher interest rate ceilings. For instance, in Slovenia caps range from as high as 453% per year for small loans to 13.2% for long-term loans (data of 2010; see Reifner and Scroeder, 2012, p. v). The message then is that circumstances

[29] In an intermediary region, any effect can dominate. Hence, the variance of $\bar{x}^*_{it}$ may be larger than the variance of $\varepsilon_i$ for a large set of values of $t$.

matter.

Second, the success of usury laws depends crucially on legislative precision, which is difficult to attain due to the well-known problems of politicians motivation and costly information. In particular, dispersion in court decision-making can be particularly problematic where courts apply different treatment to different kinds of borrowers and transactions, because in that case a flat interest rate ceiling may curtail the lenders' ability to charge risk-adjusted rates. An alternative to deal with this problem is to create various classes of interest rate ceilings, as is now common practice in various countries, but legislated error tends to grow with statutory complexity.

Beyond the problem of usury ceilings, analytically similar concerns can be expected to exist with any kind of legislated prohibitions. We expect that therein lies the main value of this article.

## References


[1] Anderson, G. M., Shughart, W. F. II, Robert, D., and Tollison, R. D. (1989). Political entry barriers and tax incidence: The political economy of sales and excise taxes. *Public Finance/Finances Publiques* 44, 8-18.

[2] Badawi, A. B., and Baker, S. (2015). Appellate lawmaking in a judicial hierarchy. *Journal of Law and Economics* 58(1), 139-172.

[3] Baker, S., and Kornhauser, L. (2015). A Theory of Judicial Deference. Working paper.

[4] Bar-Gill, O (2004). Seduction by plastic. *Northwestern University Law Review* 98(4), 1373-1434.

[5] Barzel, Y. (1997). Economic analysis of property rights. Cambridge: Cambridge University Press.

[6] Beim, D., Hirsch, A. V., and Kastellec, J. P. (2014). Whistleblowing and compliance in the judicial hierarchy. *American Journal of Political Science* 58(4), 904-918.

[7] Benmelech, E., and Moskowitz, T. J. (2010). The political economy of financial regulation: Evidence from US state usury laws in the 19th century. *Journal of Finance* 65(3), 1029-1073.

[8] Bentham, J. (1818). In defense of usury (4th ed.). London: Payne and Foss.

[9] Bordalo, P., Gennaioli, N., Shleifer, A. (2015). Salience Theory of Judicial Decisions, *Journal of Legal Studies* 44(S1), 35-58.

[10] Botero, J. C., Djankov, S., La Porta, R., López de Silanes, F., and Shleifer, A. (2004). The regulation of labor. *Quarterly Journal of Economics* 119(4), 1339-1382.

[11] Cafritz, E., and Tene, O. (2003). Securities regulation v. consumer protection: French financial market legislation. *The International Lawyer* 37(1), 173-190.

[12] Calabresi, G. (1982). A common law for the age of statutes. The Lawbook Exchange, Ltd.

[13] Callander, S., and Clark, T. S. (2013). Precedent and doctrine in a complicated world. Annual meeting of the Public Choice Society, Charleston, South Carolina.

[14] Cameron, C. M., and Kornhauser, L. A. (2006). Appeals mechanisms, litigant selection, and the structure of judicial hierarchies. In Rogers J. R., Flemming, R. B. and Bond, J. R. Institutional Games and the US Supreme Court (173-204). Virginia: University of Virginia Press.

[15] Cameron, C. M., and Kornhauser, L. A. (2015). Stare decisis and judicial log-rolls: A gains-from-trade model. Annual Meeting of the American Law and Economics Association, New York.

[16] Cameron, C. M., Segal, J. A., and Songer, D. (2000). Strategic auditing in a political hierarchy: An informational model of the Supreme Court's certiorari decisions. *American Political Science Review* 94(01), 101-116.

[17] Carr, J. L., and Landa, J. T. (1983). The economics of symbols, clan names, and religion. *Journal of Legal Studies* 12(1), 135-156.

[18] Carrubba, C. J., and Clark, T. S. (2012). Rule creation in a polit ical hierarchy. *American Political Science Review* 106(03), 622-643.

[19] Choi S. J. and Gulati G. M. (2004). A tournament of judges? *California Law Review* 92(1), 299-322.

[20] Coase, R. H. (1991). Contracts and the activities of firms. *Journal of Law and Economics* 34(2), 451-452.

[21] Coco, G., and De Meza, D. (2009). In defense of usury laws. *Journal of Money, Credit and Banking* 41(8), 1691-1703.

[22] Cohen, M. A. (1991). Explaining judicial behavior or what's "unconstitutional" about the sentencing commission? *Journal of Law Economics, and Organization* 7(1), 183-199.

[23] Cooter, R. D. (1983). The objectives of private and public judges. *Public Choice* 41(1), 107-132.

[24] Cooter, R. D., and Schäfer, H. (2012). Solomon's knot: How law can end the poverty of nations. Princeton, NJ: Princeton University Press.

[25] Craswell, R., and Calfee, J. E. (1986). Deterrence and uncertain legal standards. *Journal of Law, Economics and Organization* 2(2), 279-303

[26] Cross, F. B., and Tiller, E. H. (1998). Judicial partisanship and obedience to legal doctrine: Whistleblowing on the federal courts of appeals. *Yale Law Journal* 107(7), 2155-2176.

[27] Crowther, G. (1971). Consumer credit: report of the Committee (Vol. 1). Great Britain: Her Majesty's Stationery Office.

[28] Dam, K. W. (2006). The law-growth nexus: The rule of law and economic development (1st ed.). London: The Orion Publishing Group Ltd.

[29] Easterbrook, F. H. (1984). Foreword: The court and the economic system. *Harvard Law Review* 98(4), 4-60.

[30] Ekelund, R. B., Hébert, R. F., and Tollison, R. D. (1989). An economic model of the medieval church: usury as a form of rent seeking. *Journal of Law, Economics and Organization* 5(2), 307-331.

[31] Epstein, R. A. (1990). Independence of Judges: The uses and limitations of public choice theory. *Brigham Young University Law Review* 1990(3) 827-855.

[32] Epstein, L., Landes, W., Posner, R. (2013). The behavior of federal judges: a theoretical and empirical study of rational choice. Cambridge: Harvard University Press.

[33] Eskridge, W. N. (1987). Dynamic statutory interpretation. *University of Pennsylvania Law Review* 135(6), 1479-1555.

[34] Eskridge, W. N., and Ferejohn, J. (1992). Making the deal stick: Enforcing the original constitutional structure of lawmaking in the modern regulatory state. *Journal of Law, Economics and Organization* 8(1), 165-189.

[35] Farber, D. A., and Frickey, P. P. (1991). Law and public choice: a critical introduction. Chicago: University of Chicago Press.

[36] Farhang, S., Kastellec, J. P., and Wawro, G. (2015). The politics of opinion assignment and authorship on the US court of appeals: Evidence from sexual harassment cases. *Journal of Legal Studies* 44(S1), 59-85.

[37] Farnsworth, A. (1999). Contracts (3rd ed.). Aspen Law and Business.

[38] Ferejohn, J. A., and Weingast, B. R. (1992). A positive theory of statutory interpretation. *International Review of Law and Economics* 12(2), 263-279.

[39] Ferejohn, J., and Shipan, C. (1990). Congressional influence on bureaucracy. *Journal of Law, Economics, and Organization* 6, 1-20

[40] Fischman, J. B. (2011). Estimating preferences of circuit judges: a model of consensus voting. *Journal of Law and Economics* 54(4), 781-809.

[41] Geisst, C. R. (2013). Beggar thy neighbor: A history of usury and debt. Pennsylvania: University of Pennsylvania Press.

[42] Gely, R., and Spiller, P. T. (1990). A rational choice theory of supreme court statutory decisions with applications to the "State Farm" and "Grove City" cases. *Journal of Law, Economics and Organization* 6(2), 263-300.

[43] Gely, R., and Spiller, P. T. (1992). The political economy of Supreme Court constitutional decisions: The case of Roosevelt's court-packing plan. *International Review of Law and Economics* 12(1), 45-67.

[44] Glaeser, E. L., and Scheinkman, J. (1998). Neither a borrower nor a lender be: an economic analysis of interest restrictions and usury laws. *Journal of Law and Economics* 41(1), 1-36.

[45] Goode, R. M. (1982). Usury in English Law. Arizona Journal of International and Comparative Law, 1, 38-60.

[46] Grotius, H. (1625). The rights of war and peace (A. C. Campbell, Trans.). New York: M. Walter Dunne. (Original work published 1625).

[47] Howell, N. (2005). High cost loans: A case for setting maximum rates. CCCL Background Paper, Centre for Credit and Consumer Law, Brisbane.

[48] Johnson, S.; La Porta, R.; Lopez-de-Silanes, F.; and Shleifer, A. (2000). Tunneling. *American Economic Review* 90(2), 22-27.

[49] Kaelber, L. (2004). Max Weber on usury and medieval capitalism: From "The History of Commercial Partnerships" to "The Protestant Ethic". *Max Weber Studies* 4(1), 51-75.

[50] Kaplow, L., and Shavell, S. (1994). Why the legal system is less efficient than the income tax in redistributing income. *Journal of Legal Studies* 23(2), 667-681.

[51] Kaplow, L., and Shavell, S. (1996). Property rules versus liability rules: An economic analysis. *Harvard Law Review* 109(4), 713-790.

[52] Kastellec, J. P. (2013). Racial diversity and judicial influence on appellate courts. *American Journal of Political Science* 57(1), 167-183.

[53] Kornhauser, L. A., and Sager, L. G. (1986). Unpacking the court. *Yale Law Journal* 96(1), 82-117.

[54] Kornhauser, L. A. (1992a). Modeling collegial courts I: Path dependence. *International Review of Law and Economics* 12(2), 169-85.

[55] Kornhauser, L. A. (1992b). Modeling collegial courts II: Legal doctrine. *Journal of Law, Economics and Organization* 8(3), 441-70.

[56] Kornhauser, L. A. (1995). Adjudication by a resource-constrained team: Hierarchy and precedent in a judicial system. *Southern California Law Review* 68, 1605-1630.

[57] Kornhauser, L. A., and Sager, L. G. (1993). The one and the many: Adjudication in collegial courts. *California Law Review* 89(1), 1-59.

[58] La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R. (1998). Law and Finance. *Journal of Political Economy* 106(6), 1113-1155.

[59] La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R. W. (1997). Legal determinants of external finance. *Journal of Finance* 52(3), 1131-1150.

[60] Landes W. M., and Posner R. E (1975). The independent judiciary in an interest-group perspective. *Journal of Law and Economics* 18(3), pp. 875-901.

[61] Lax, J. R. (2003). Certiorari and compliance in the judicial hierarchy discretion, reputation and the rule of four. *Journal of Theoretical Politics* 15(1), 61-86.

[62] Macey, J. R. (1986). Promoting public-regarding legislation through statutory interpretation: An interest group model. *Columbia Law Review* 86(2), 223-268.

[63] Mackeldey, F. (1883). Handbook of the Roman Law (Moses Dropsie, Trans.). Philadelphia: T. and J. W. Johnson and Co.

[64] Martin, A. D., and Quinn, K. M. (2002). Dynamic ideal point estimation via Markov chain Monte Carlo for the US Supreme Court, 1953–1999. *Political Analysis* 10(2), 134-153.

[65] Martin, E., and Pyle, B. (2000). Gender, race, and partisanship on the Michigan Supreme Court. *Albany Law Review* 63(4), 1205-1236.

[66] McCubbins, M. D., Noll, R. G., and Weingast, B. R. (1987). Administrative procedures as instruments of political control. *Journal of Law, Economics and Organization* 3(2), 243-277.

[67] McCubbins, M. D., Noll, R. G., and Weingast, B. R. (1989). Structure and process, politics and policy: Administrative arrangements and the political control of agencies. *Virginia Law Review* 75(2), 431-482.

[68] Meston L. (1968). The law relating to moneylenders (5th ed.). London: Oyez Publications.

[69] Mill, J. S. (1909). Principles of political economy with some of their applications to social philosophy (7th ed.). London: Longmans, Green and Col.

[70] Miller, G. J., and Moe, T. M. (1983). Bureaucrats, legislators, and the size of government. *American Political Science Review* 77(02), 297-322.

[71] Morriss, A. P., Heise, M., and Sisk, G. C. (2005). Signaling and precedent in federal district court opinions. *Supreme Court Economic Review* 13, 63-97.

[72] Polinsky, A. M., and Shavell, S. (1989). Legal error, litigation, and the incentive to obey the law. *Journal of Law, Economics and Organization* 5(1), 99-108.

[73] Posner, E. A. (1995). Contract law in the welfare state: A defense of the unconscionability doctrine, usury laws, and related limitations on the freedom to contract. *Journal of Legal Studies* 24(2), 283-319.

[74] Posner, R. A. (1980). A theory of primitive society, with special reference to law. *Journal of Law and Economics* 23(1), 1-53.

[75] Posner, R. A. (1993). What do judges and justices maximize? (The same thing everybody else does). *Supreme Court Economic Review* 3, 1-41.

[76] Posner, R. A. (2005). Judicial behavior and performance: An economic approach. *Florida State University Law Review* 32(4), 1259-1280.

[77] Posner, R. A. (2008). How judges think. Massachusetts: Harvard University Press.

[78] Ramseyer, J. M. (2013). Liability for defective products: comparative hypotheses and evidence from Japan. *American Journal of Comparative Law* 61(3), 617-655.

[79] Ramseyer, J. M.; and Rasmusen, E. B. (2013). Are Americans more litigious? In Buckley, F. H. The American illness: Essays on the rule of law. Oxford: Oxford University Press.

[80] Reifner, U., and Schröder, M. (Eds.). (2012). Usury laws: A legal and economic evaluation of interest rate restrictions in the European Union (Vol. 17). BoD-Books on Demand.

[81] Revesz, R. L. (1997). Environmental regulation, ideology, and the DC Circuit. *Virginia Law Review* 83(8), p. 1717-1772.

[82] Salama, B. M. (2016). Crédito bancário e judiciário: condutores institucionais da superlitigância. In: Prado, M. M. (Coord.). O Judiciário e o Estado Regulador brasileiro. São Paulo: FGV Direito SP.

[83] Saunders, M., and Cohen, A. (2004). Federal regulation of consumer credit-the cause or the cure for predatory lending? Joint Center for Housing Studies, Harvard University. Working Paper Series, BABC, 04-21.

[84] Schinkel, M. P., and Tuinstra, J. (2006). Imperfect competition law enforcement. *International Journal of Industrial Organization* 24(6), 1267-1297.

[85] Schuman, G. (1993). Suicide and the life insurance contract: was the insured sane or insane? That is the question-or is it? *Tort and Insurance Law Journal* 28(4), 745-777.

[86] Schwartz, W. F., and Beckner III, C. F. (1998). Toward a theory of the meritorious case: Legal uncertainty as a social choice problem. *Geo. Mason L. Review* 6(4), 801-820.

[87] Segal, J. A., and Cover, A. D. (1989). Ideological values and the votes of us supreme court justices. *American Political Science Review* 83(02), 557-565.

[88] Sen, M. (2015). Is justice really blind? Race and reversal in us courts. *Journal of Legal Studies* 44(S1), S187-S229.

[89] Shanks, H. (1930). Credit Sales at a Price in Excess of the Cash Sale Price as a Violation of the Usury Laws Source. *Yale Law Journal* 39(3), 408-413.

[90] Stearns, L. S. (2000). Constitutional process: A social choice analysis of Supreme Court decision making. Michigan: University of Michigan Press.

[91] Stiglitz, J. E., and Weiss, A. (1981). Credit rationing in markets with imperfect information. *American Economic Review* 71(3), 393-410.

[92] Sunstein, C. R., Schkade, D., and Ellman, L. M. (2004). Ideological voting on federal courts of appeals: A preliminary investigation. *Virginia Law Review* 90, 301-354.

[93] The Moneylenders Act, 1900 (63 and 64 Vict. c. 51). United Kingdom.

[94] The Moneylenders Act, 1927 (17 and 18 Geo. 5. c. 21). United Kingdom.

[95] Toma, E. F. (1991). Congressional influence and the Supreme Court: The budget as a signaling device. *Journal of Legal Studies* 20(1), 131-146.

[96] Trubek, D. M. (1972). Max Weber on law and the rise of capitalism. *Wisconsin Law Review* 1972(3), 720-753.

[97] Tseng, S. H. Y. (2004). The effect of life insurance policy provisions on suicide rates. University of Chicago.

[98] Turgot, A. R. J. (1913). Mémoire sur les prêts d'argent. In Schelle, G. (Ed.). Oeuvres de Turgot (v. 3), 154-202. Paris: Alcan. (Original work published 1770).

[99] Weber, M. (1978). Economy and society: An outline of interpretive sociology. Berkeley, CA: University of California Press. (Original work published 1922).

[100] Williamson, O. (1999). Public and private bureaucracies: A transaction cost economics Perspective. *Journal of Law, Economics and Organization* 15(1), 306-342.

[101] World Bank. (2006). Brazil interest rates and intermediation spreads.

[102] World Bank. (2015). Interest rate spread, 2015.

# A The model with an unbounded support for the ceiling

In the model of Section 3, the interest rate ceiling has to be a number between $\bar{x}_L$ and $\bar{x}_H$ with $\bar{x}_H < \infty$. This isincompatible with the fact that in some countries, there is no ceiling for interest rates in credit contracts. Here we show a simple modification of the model that would allow for beliefs with a positive mass on the ideal ceiling being infinite (and on the ideal ceiling being zero as well).

There is a one-dimensional variable $\theta$ that summarizes what needs to be known about the issue. This variable $\theta$ can assume values between 0 and 1. In case of interest rate ceilings, $\theta$ would be a function of several economic and (possibly) moral factors, including the market power of banks, borrowers' propensity to take unconscionable loans, moral judgements about individuals' right to sign private contracts or about limits to interest rates, etc.

Adjudicators do not know the value of $\theta$. Adjudicator $i$ is characterized by her beliefs about $\theta$, which depends on her information and, possibly, on her moral judgements. Her beliefs about $\theta$ are represented by a continuous density function $f_i$. We assume $f_i$ is strictly quasi-concave and the density of the median $f_i(\theta_i^{med})$ is larger than 1 as in the model of Section 3.

Denote by $\bar{x}$ the maximum admissible value of $x$ (an interest rate ceiling for example). We posit that $\bar{x}$ is an increasing function of $\theta$. More specifically, the 'correct' ceiling $\bar{x}$ is given by:

$$\bar{x} = \begin{cases} 0 & \text{for } \theta \leq \theta_L \\ \xi(\theta) & \text{for } \theta \in (\theta_L, \theta_H) \\ \infty & \text{for } \theta \geq \theta_H \end{cases} \tag{10}$$

where $0 \leq \theta_L < \theta_H \leq 1$, $\xi' > 0$, $\lim_{\theta \to \theta_L} \xi(\theta) = 0$ and $\lim_{\theta \to \theta_H} \xi(\theta) = \infty$. .

As in Section 3, there are two types of legislators. Here, the 'good' legislator knows $\theta$ and chooses $\bar{X}$ given by (10); the 'bad' legislator is a clueless agent that draws a random $y$ from a uniform distribution between 0 and 1 and chooses $\bar{X}$ as if $\theta$ were equal to $y$. All other assumptions are as in the model of Section 3.

In this model, a version of Proposition 1 also holds (the proof is available upon request). Adjudicator $i$ will defer to the legislation whenever $\bar{X} \in [X_{Li}, X_{Hi}]$ with $0 \leq X_{Li} < X_{Hi} \leq \infty$ and will otherwise ignore the legislation and follow a ceiling $\bar{X}_i^* = X_{0i}$. Propositions 2, 3 and 4 then follow from this result.

# B A model of unconstrained Bayesian adjudicators

We now modify the model from Section 3 in the following way: now, instead of defer to the legislation as long as $\Pr\left(\text{good}|\bar{X}\right) > \alpha$, the adjudicator calculates the probability that the transaction should be allowed, considering her own prior information and what she can learn from the legislation, and decides depending on whether the probability that the transaction should be allowed is larger than 0.5.[30] In this sense, this is a model of a Bayesian adjudicator facing no institutional constraints. For the sake of simplicity, we also assume that the median of the distribution $f_i$ coincides with the mode, i.e., the value of $\bar{x}$ that maximizes $f_i(\bar{x})$ is $\bar{x}_i^{med}$.

[30] The probability threshold of 0.5 is without lost of generality.

All other assumptions of the original model are mantained. In particular, the legislator who enacted the statute can be either 'good' or 'bad' and the legislation provides information about it. Hence as before, upon observing a legislated ceiling equal to $\bar{X}$, $\Pr\left(\text{good}|\bar{X}\right)$ is given by (1). Owing to the assumption that $\bar{x}_i^{med}$ is also the mode of the distribution of $f_i$, $\Pr\left(\text{good}|\bar{X}\right)$ is maximized at $\bar{X} = X_{0i}$. Owing to the quasiconcavity of $f_i$, we have that $\Pr\left(\text{good}|\bar{X}\right)$ is decreasing in $\left(X_{0i} - \bar{X}\right)$ for $\bar{X} < X_{0i}$ and decreasing in $\left(X_{0i} - \bar{X}\right)$ for $\bar{X} > X_{0i}$.

Denote by $J_i(x)$ the probability that a contract characterized by variable $x$ should be allowed, from the point of view of adjudicator $i$, based only on her prior knowledge $f_i$. The function $J_i$ is given by:

$$J_i\left(x\right) = 1 - F\left(x\right) \tag{11}$$

Hence $J_i$ is decreasing in $x$ and $J_i\left(X_{0i}\right) = 0.5$.

Denote the legislation establishing a ceiling $\bar{X}$ by $\ell$ so $\ell(x) = 1$ for $x \leq \bar{X}$ and $\ell(x) = 0$ otherwise. Since an adjudicator aims at making the correct decision, she deems a contract valid as long as the posterior probability that $x$ should be allowed, given $\bar{X}$, is larger than 0.5, i.e., if

$$\Pr(x|\bar{X}) = \Pr\left(\text{good}|\bar{X}\right)\ell(x) + \left(1 - \Pr\left(\text{good}|\bar{X}\right)\right)J(x) \geq 0.5 \tag{12}$$

For example, if $\ell(x) = 1$, the posterior probability that $x$ should be allowed, $\Pr(x|\bar{X})$, is given by the probability that the legislator is informed (first term in the RHS of (12)) plus the probability that the legislator is uninformed but $x$ should indeed be allowed (second term of (12)). Thus the adjudicator is effectively weighing the legislation and her own judgment. The key implication of (12) is that the weight on the legislation decreases as $\bar{X}$ gets farther away from $X_{0i}$. In other words, the weights attributed to each factor depend on how the legislation fits the adjudicator's judgment.

## B.1 The adjudicator's decision

We now show that, as in our baseline model, $\bar{X}$ has a non-monotonic effect on the threshold effectively followed by the adjudicator, denoted by $\bar{X}_i^*$.

Consider an adjudicator represented by $J_i$. In the case depicted in Figure 11, the prescription of the legislation is identical to what she would decide in the absence of any rule. Hence $\Pr\left(\text{good}|\bar{X}\right)$ is at its maximum attainable value.

$\Pr(x|\bar{X})$ is a weighted average between $\ell$ and $J_i$, hence it is larger than 0.5 for $x < \bar{X}$ and smaller than 0.5 for $x > \bar{X}$.

Now, consider a larger threshold, as depicted in Figure 12. This cap allows for larger values of $x$ than the adjudicator would choose, in the absence of any legislation. Here, $\Pr(\text{good}|\bar{X})$ is smaller than in the previous case. Nevertheless, in this example, $\Pr(x|\bar{X})$ is still larger than 0.5 for $x < \bar{X}$ and negative for $x > \bar{X}$. The adjudicator defers to the legislation.

An increase in $\bar{X}$ by $dx$ would have two effects: (i) it would bring $\bar{X}$ further away from $X_{0i}$ and thus reduce $\Pr(\text{good}|\bar{X})$ by an infinitesimal amount; (ii) $\Pr(\bar{X} + dx|\bar{X} + dx)$ would be the

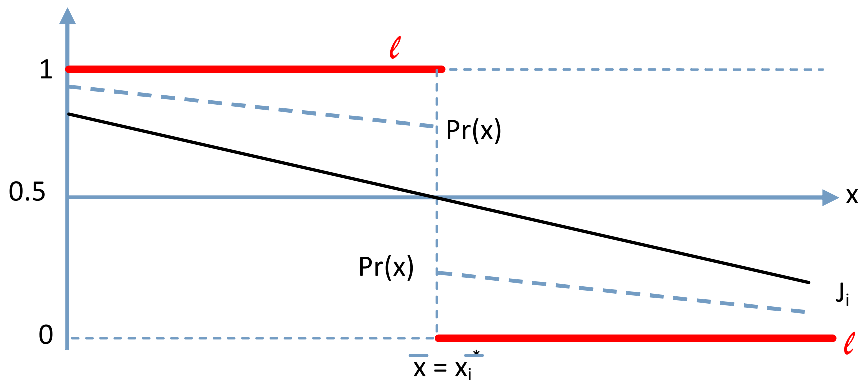


Figure 11: Legislation and judgement coincide

average between $J(\bar{X}+dx)$ and 1 (and not 0 as before). Since $\Pr(x|\bar{X}) > 0.5$, as the change in $\Pr(\text{good}|\bar{X})$ is infinitesimal, this increase in $\bar{X}$ by $dx$ would raise $\bar{X}_i^*$ by $dx$ as well.

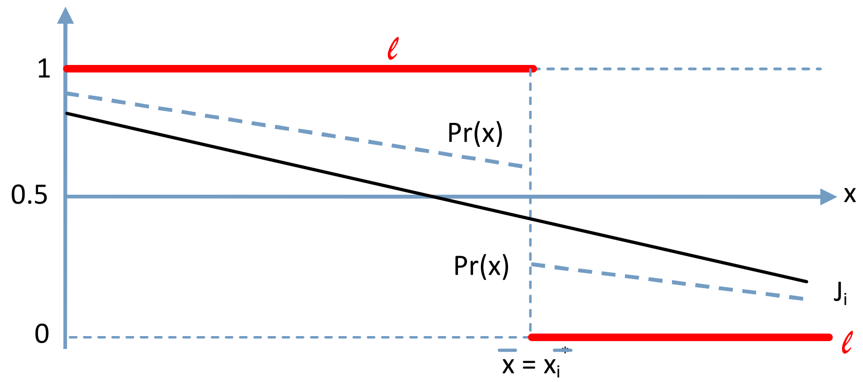


Figure 12: $\bar{x} > x_{0i}$; the adjudicator follows the letter of the law

However, if $\Pr(x|\bar{X}) < 0.5$, an increase in $\bar{X}$ by $dx$ would actually reduce $\bar{X}_i^*$. This case is depicted in Figure 13. This legislation is more lenient than in Figure 12, so $\Pr(\text{good}|\bar{X})$ is smaller than in the previous case. In this example, $\Pr(x|\bar{X}) < 0.5$ for some $x < \bar{X}$, so the adjudicator does not follow the letter of the law.

An increase in $\bar{X}$ by $dx$ would reduce $\Pr(\text{good}|\bar{X})$ and would have no effect on $\ell$ in a neighborhood of $\bar{X}_i^*$ (since $\ell(x) = 1$ for $x$ in this neighborhood). Hence, this increase in $\bar{X}$ by $dx$ would decrease $\Pr(x|\bar{X})$ for $x < \bar{X}$. This implies that $\Pr(x|\bar{X})$ would cross the line $x = 0.5$ at a smaller value of $x$. Therefore, in this case, $\bar{X}_i^*$ is actually decreasing in $\bar{X}$.

The following proposition summarizes an adjudicator's decision.

**Proposition 5** *Consider a cap $\bar{X} \in [\bar{x}_L, \bar{x}_H]$ so that $\ell(x) = 1$ for $x \leq \bar{X}$ and $\ell(x) = -1$ otherwise.*

1. *The adjudicator deems $x$ acceptable if and only if $x \leq \bar{X}_i^*$ for some $\bar{X}_i^* \in [\bar{x}_L, \bar{x}_H]$.*

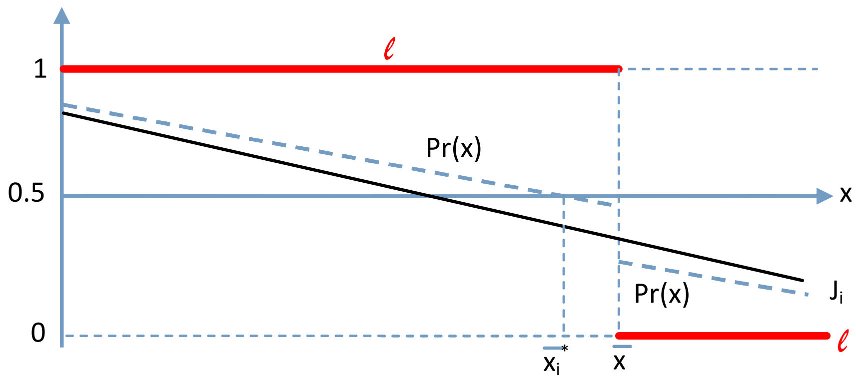


Figure 13: $\bar{x} > x_{0i}$; the adjudicator does not follow the letter of the law

2. *The adjudicator applies the letter of the law for* $\bar{X} \in [\bar{X}_L, \bar{X}_H]$, *with* $\bar{x}_L \leq \bar{X}_L < X_{0i} < \bar{X}_H \leq \bar{x}_H$ *and does not apply the letter of the law for* $\bar{X}$ *outside this interval.*

3. *If* $\bar{X}_L > \bar{x}_L$, *then* $\bar{X}_i^*$ *is strictly decreasing in* $\bar{X}$ *for* $\bar{X} \in [\bar{x}_L, \bar{X}_L]$.

4. *If* $\bar{X}_H < \bar{x}_H$, *then* $\bar{X}_i^*$ *is strictly decreasing in* $\bar{X}$ *for* $\bar{X} \in [\bar{X}_H, \bar{x}_H]$.

***Proof.*** *See the appendix.* ■

The second point of Proposition 5 states that the adjudicator follows the letter of the law if the legislation is close enough to her own judgment but might not follow it the disagreement between $\ell$ and $J_i$ is large enough. The third and fourth points of the proposition state that outside the region where the adjudicator follows the letter of the law, the adjudicator's effective interest rate ceiling $\bar{X}_i^*$ is actually decreasing in $\bar{X}$. For $\bar{X} \notin [\bar{X}_L, \bar{X}_H]$, a usury law with a lower interest rate ceiling actually leads to a higher effective interest rate ceiling $\bar{X}_i^*$.

Figure 5 illustrates how a adjudicator's effective threshold $\bar{X}_i^*$ behaves as a function of the ceiling $\bar{X}$ prescribed by the legislation:

Intuitively, if $\bar{X}$ is just a bit larger than $X_{0i}$, the adjudicator defers to the legislation, since the weight she attributes to the legislation is large enough to offset her mild disagreements with the statute. As $\bar{X}$ goes up, the adjudicator gives less and less weight to the law. Once we reach the region of no deference to the legislation, the adjudicator's own interest rate ceiling $\bar{X}_i^*$ becomes decreasing in $\bar{X}$ because the weight on the legislation is decreasing in $(\bar{X} - X_{0i})$. The intuition for a smaller $\bar{X}$ is the same.

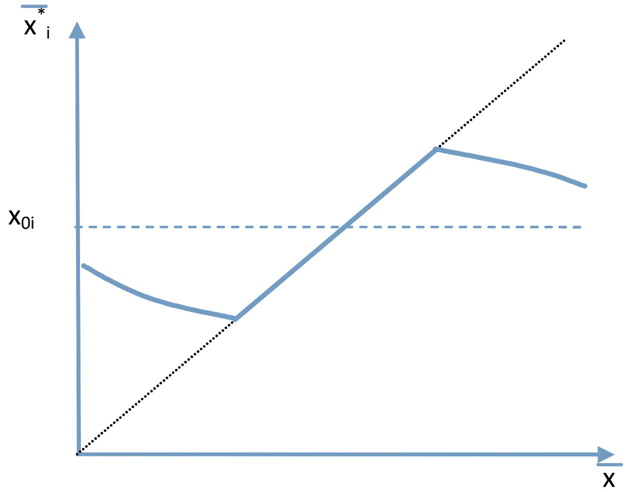


Figure 14: An adjudicator's effective interest rate ceiling

# C Proofs

## C.1 Proof of Proposition 1

*First statement:* Recall $X_{Li} = \sup \left\{ x | \Pr\left(\text{good}|\bar{X}\right) \leq \alpha \text{ for all } \bar{X} \leq x \right\}$. Hence $X_{Li} < X_{0i}$ because: $f_i\left(\bar{x}_i^{med}\right) > 1$ by assumption; using (1) and $X_{0i} = \bar{x}_i^{med}$, we get $\Pr\left(\text{good}|X_{0i}\right) > \pi$, and since $\pi > \alpha$, $\Pr\left(\text{good}|X_{0i}\right) > \alpha$.

Owing to the strict quasi-concavity of $\Pr\left(\text{good}|\bar{X}\right)$, if $\lim_{x \to X_{Li}} \Pr\left(\text{good}|x\right) \leq \alpha$, then $\Pr\left(\text{good}|x\right) < \alpha$ for $x \in [\bar{x}_L, X_{Li})$. The strict quasi-concavity of $\Pr\left(\text{good}|\bar{X}\right)$ also implies that $\Pr\left(\text{good}|x\right) > \alpha$ for $x \in (X_{Li}, X_{0i})$. Hence the null hypothesis of a good legislator is rejected when $x \leq X_{Li}$, but is not rejected if $x \in [X_{Li}, X_{0i}]$.

A similar argument shows that the null hypothesis of a good legislator is rejected when $x \geq X_{Hi}$, but is not rejected if $x \in [X_{0i}, X_{Hi}]$.

*Second statement:* If $\bar{X} \notin [X_{Li}, X_{Hi}]$, the adjudicator chooses what is more likely to be the correct decision according to her prior $f_i$ only. The probability that a contract characterized by variable $x$ should be allowed is then given by the function $J_i$ in 11, so $J_i(x)$ is larger than half if and only if $x < X_{0i.}$

## C.2 Proof of Proposition 2

Using Proposition 1, for $x < \bar{X}_1 < \bar{X}_2$, the contract will only be judged illegal by adjudicator $i$ if (i) the legislation is rejected and (ii) $x > X_{0i}$. If the legislation is rejected because the cap $\bar{X}$ is below $X_{Li}$, the contract will nevertheless be deemed legal because $x < \bar{X} < X_{Li} < X_{0i}$. If the legislation is rejected because the cap exceeds $X_{Hi}$, then the contract will be deemed illegal if $x > X_{0i}$. The probability $p(x|\bar{X})$ is thus equal to the mass of adjudicators with $x > X_{0i}$ and

$\bar{X} > X_{Hi}$. This mass is weakly increasing in $\bar{X}$, hence if $\bar{X}_1 < \bar{X}_2$, $p(x|\bar{X}_2) \geq p(x|\bar{X}_1)$. This inequality will be strict if there is some adjudicator $i$ such that $x > X_{0i}$ and $\bar{X}_2 > X_{Hi}$ but $\bar{X}_1 \leq X_{Hi}$. This yields the first statement for $x < \bar{X}_1 < \bar{X}_2$ and the second statement.

A similar argument yields the first statemente for $\bar{X}_1 < \bar{X}_2 < x$ and the third statement.

### C.3 Proof of Proposition 3

*First statement:* the condition in (4) implies that when lawsuits occur, the maximum interest rate $R^{\max}$ is such that

$$R^{\max} > 1 + \frac{c}{p\left(R^{\max}\right)}$$

Using (6), this implies that

$$p(R^{\max}) > \frac{c}{B-1} \tag{13}$$

but using (6), the condition $R^{\max} > B$ can also be written as (13).

*Second statement:* in case interest rates are capped at $B - c$ and (8) holds, when interest rates are equal to $B - C$, the condition for no lawsuits in equilibrium in (4) does not hold and is slack. By continuity, there is some $\epsilon > 0$ such that a cap in interest rates equal to $B - c + \epsilon$ yields no lawsuits in equilibrium when interest rates are $B - c + \epsilon$ (and thus no lawsuits for interest rates not larger than $B - c + \epsilon$). That means that project $i$ is financed as long as $\pi_i \geq 1/(B - c + \epsilon)$. In the absence of a usury law, lawsuits occur in equilibrium and project $i$ is financed only if $\pi_i \geq 1/(B - c)$. Since $1/(B - c + \epsilon) < 1/(B - c)$, capping interest rates at $B - c + \epsilon$ increases the volume of credit in the economy.

*Third statement:* in case interest rates are capped at $B$ and (9) holds, the condition for no lawsuits in equilibrium in (4) does not hold for any $R \leq B$. This implements the equilibrium described in Section 4.1.

### C.4 Proof of Proposition 4

The first statement follows from the assumption.

*Second statement*: for $d > \left(\bar{X} - x_{L0} + \bar{\varepsilon}\right)/\nu$, $X_{Lid} > \bar{X}$ for all $i$, hence all adjudicators reject the law, so $\bar{X}^*_{id} = X_{0id} = x_{00} + \varepsilon_i + \nu d$, thus $Var\left(\bar{X}^*_{id}\right) = Var(\varepsilon_i)$.

*Third statement*: Consider the case where $d = \left(\bar{X} - x_{L0} + \bar{\varepsilon}\right)/\nu - \eta$, for some small $\eta > 0$, so that $\eta < (x_{00} - x_{L0})/\nu$. For those with $\varepsilon_i < -\bar{\varepsilon} + \nu\eta$, it must be that $\bar{X} < X_{Lid}$, so they reject the rule and decide according to $\bar{X}^*_{id} = X_{0id}$. For those with $\varepsilon_i \geq -\bar{\varepsilon} + \nu\eta$, it must be that $\bar{x} \geq X_{Lid}$, so $\bar{X}^*_{id} = \bar{x}$. Since $\nu\eta < (x_{00} - x_{L0})$, $\bar{X} < x_{0id}$. Hence the distribution of $\bar{X}^*_{id}$ is the distribution of $X_{0id}$ with the lowest values of $X_{0id}$ replaced by $\bar{x}$, which is smaller than the smallest $X_{0id}$.

### C.5 Proof of Proposition 5

*First statement: S*ince $\ell$ and $J_i$ are both weakly decreasing in $x$ and $\Pr(\text{good}|\bar{X})$ is independent of $x$, $\Pr\left(x|\bar{X}\right)$ is weakly decreasing in $x$. If $\Pr\left(x|\bar{X}\right) \geq 0.5$ for all $x$, $\bar{X}^*_i = \bar{x}_H$. Otherwise, call

$\bar{X}_i^*$ the maximum value of $x$ such that $\Pr\left(x|\bar{X}\right) \geq 0.5$ and we get that $\Pr\left(x|\bar{X}\right) \geq 0.5$ if and only if $x \leq \bar{X}_i^*$.

*Second statement:* For $\bar{X}$ in a neighborhood of $X_{0i}$, $J_i(x)$ is close to 0.5, so a continuity argument shows that the adjudicator follows the legislation, with $\Pr\left(x|\bar{X}\right) > 0.5$ if and only if $x \leq \bar{X}$. Moreover, for $\bar{X} < X_{0i}$, $\Pr\left(x|\bar{X}\right) > 0.5$ since $\Pr\left(x|\bar{X}\right)$ is the weighted average between $\ell\left(\bar{X}\right)$, which is equal 1, and $J_i\left(\bar{X}\right)$, which is larger than 0.5.

Up to which point $\bar{X}$ do we have $\Pr\left(x|\bar{X}\right) \geq 0.5$? Owing to the quasi-concavity of $f_i$, $\Pr(\text{good}|\bar{X})$ is decreasing in $\bar{X}$ for $\bar{X} > X_{0i}$. Moreover, $J_i\left(\bar{X}\right)$ is also weakly decreasing in $\bar{X}$ for $\bar{X} > X_{0i}$. Hence, using (12), $\Pr\left(x|\bar{X}\right)$ is weakly decreasing in $\bar{X}$ for $\bar{X} > X_{0i}$. Either $\Pr\left(x|\bar{X}\right) \geq 0.5$ for all $x \in [X_{0i}, x_H]$ (in which case we define $\bar{X}_H = \bar{x}_H$) or there is some maximum value of $\bar{X}$, call it $\bar{X}_H$, that satisfies $\Pr\left(x|\bar{X}\right) \geq 0.5$.

Since $J_i$ is decreasing in $x$, as long as $\Pr\left(x|\bar{X}\right) \geq 0.5$, it must be that $\Pr\left(x|\bar{X}\right) \geq 0.5$ for $x \leq \bar{X}$. It follows that adjudicator $i$ deems legal any $x \leq \bar{X}$ as long as $\bar{X} \leq \bar{X}_H$, with $\bar{X}_H \in [X_{0i}, x_H]$.

For $\bar{X} > X_{0i}$, $\lim_{\epsilon\to 0^+} \Pr\left(\bar{X}+\epsilon|\bar{X}\right) < 0.5$ since $\lim_{\epsilon\to 0^+} \Pr\left(\bar{X}+\epsilon|\bar{X}\right)$ is the weighted average between $\ell\left(\bar{X}+\epsilon\right)$, which is equal 0, and $J_i\left(\bar{X}+\epsilon\right)$, which is smaller than 0.5.

Up to which point $\bar{X}$ do we have $\lim_{\epsilon\to 0^+} \Pr\left(\bar{X}+\epsilon|\bar{X}\right) < 0.5$? For $\bar{X}$ in a neighborhood of $X_{0i}$, the adjudicator follows the legislation, hence $\lim_{\epsilon\to 0^+} \Pr\left(\bar{X}+\epsilon|\bar{X}\right) < 0.5$. Since $\Pr(\text{good}|\bar{X})$ is increasing in $\bar{X}$ for $X_{0i} < \bar{X}$, $1 - \Pr(\text{good}|\bar{X})$ is decreasing in $\bar{X}$ for $X_{0i} < \bar{X}$. Moreover, $J_i$ is decreasing in $x$. Using (12), we get that $\lim_{\epsilon\to 0^+} \Pr\left(\bar{X}+\epsilon|\bar{X}\right)$ is decreasing in $\bar{X}$ for $\bar{X} > X_{0i}$. Thus either $\lim_{\epsilon\to 0^+} \Pr\left(\bar{X}+\epsilon|\bar{X}\right) < 0.5$ for all $x \in [\bar{x}_L, X_{0i}]$ (in which case we define $\bar{X}_L = \bar{x}_L$) or there is some minimum value of $\bar{X}$, call it $\bar{X}_L$, that satisfies $\lim_{\epsilon\to 0^+} \Pr\left(\bar{X}+\epsilon|\bar{X}\right) \leq 0.5$.

Since $J_i$ is decreasing in $x$, as long as $\lim_{\epsilon\to 0^+} \Pr\left(\bar{X}+\epsilon|\bar{X}\right) < 0.5$, it must be that $\Pr\left(x|\bar{X}\right) < 0.5$ for $x > \bar{X}$. It follows that adjudicator $i$ deems illegal any $x > \bar{X}$ as long as $\bar{X} > \bar{X}_L$, with $\bar{X}_L \in [0, X_{0i}]$.

*Third statement: For* $\bar{X} < \bar{X}_L$, $\lim_{\epsilon\to 0^+} \Pr\left(\bar{X}+\epsilon|\bar{X}\right) > 0.5$. Using (12), clearly $\Pr(x|\bar{X}) > 0.5$ for $x \leq \bar{X}$. Since $J_i$ is decreasing in $x$, the effective threshold $\bar{X}_i^*$ is the maximum value that solves $\Pr(\bar{X}_i^*|\bar{X}) = 0.5$. We know it exists and $\bar{X}_i^* \in (\bar{X}, X_{0i}]$, because $\Pr\left(X_{0i}|\bar{X}\right) < 0.5$ for $\bar{X} < X_{0i}$ (since $J_i(X_{0i}) = 0.5$ and $\ell(X_{0i}) = 0$). Owing to the strict quasi-concavity of $f_i$, $\Pr(\text{good}|\bar{X})$ is strictly increasing in $\bar{X}$ for $\bar{X} < X_{0i}$. Using (12), we get that an increase in $\Pr(\text{good}|\bar{X})$ reduces $\Pr(x|\bar{X})$ for $x > \bar{X}$, hence it decreases the value $\bar{X}_i^*$ that solves $\Pr(\bar{X}_i^*|\bar{X}) = 0.5$. The proof of the *fourth statement* is analogous.