

# The Financial Power of the Powerless

## Socio-Economic Status and Interest Rates under Partial Rule of Law

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**Abstract.** In advanced economies interest rates generally vary inversely with the borrower's socio-economic status, because status tends to depend inversely on default risk. Both of these relationships depend critically on the impartiality of the law. Specifically, they require a lender to be able to sue a recalcitrant borrower in a sufficiently impartial court. Where the law is markedly biased in favor of elites, privileged socio-economic classes will pay a surcharge for capital. This is because they pose a greater risk to lenders who have limited means of punishing them. Legal power, as measured by privileges before the law, thus undermines financial power, which is the capacity to borrow cheaply. Developing the underlying theory, this paper also tests it through a data set consisting of judicial records from Ottoman Istanbul, 1602-1799. Pre-modern Istanbul offers an ideal testing ground because rule of law existed but was highly partial. Court data show that titled elites, men, and Muslims all paid higher interest rates conditional on various loan characteristics. A general implication is that elites can benefit from instituting impartially enforced rules in financial markets. The beginnings of legal modernization in the Ottoman Empire included the establishment of relatively impartial commercial courts.

**Keywords.** Rule of law, elite, status, religion, gender, court, interest rate, credit, financial market, Ottoman Empire, Istanbul, Islam, Islamic law, Sharia

**JEL codes.** G10, K42, N2, N4, N95

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## 1. Introduction

In competitive credit markets, the price of credit depends on many factors, including the risk the transaction imposes on the lender. That is why lenders perform credit checks and may require collateral. Borrowers with poor credit records and few assets are relatively risky; anyone who lends to them will expect a higher return to compensate for the greater risk of default. Thus, in modern developed economies the poor find it much more costly than the rich to borrow. Whereas individuals in the bottom quartile of the U.S. income distribution borrow through short-term loans from pawnshops and payday lenders at rates of around 450 percent per annum, those in the top quartile do so through credit cards at 13 to 16 percent. Unlike the poor, the wealthy also have access to long-term credit through home equity loans at rates of around 4 percent.<sup>1</sup>

Although the logic of the observed rate differences may seem obvious to anyone familiar with basic economics, it rests also, and critically, on two assumptions regarding the rule of law. It assumes that financial contracts are enforceable impartially when the borrower is able to pay.<sup>2</sup> The rich pay less for credit because they are relatively unlikely to default and because, if they do, lenders can make them repay through courts whose verdicts are more or less impartial, at least with regard to financial matters.<sup>3</sup>

However, in settings where the courts are biased in favor of the wealthy, their creditors will expect compensation for the risk of being unable to obtain restitution. Lenders will also factor into their calculations that wealthy borrowers expecting the judicial system to be biased in their favor

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<sup>1</sup> In the U.S. the typical payday loan of \$325 has an annual interest rate ranging from 391% to 521%. Around 12 million Americans are trapped in a “payday loan” cycle, and they are in “payday loan debt” an average of 212 days a year (Center for Responsible Lending, [www.responsiblelending.org/payday-lending/](http://www.responsiblelending.org/payday-lending/)). From 1986 to 2014, 30-year fixed rate mortgages have ranged from 3.6% (December 2012) to 11.4% (October 1987) ([www.hsh.com](http://www.hsh.com)). The average APR on U.S. credit cards has ranged between 15.8% (1995) and 12.9% (2003) over 1994-2011 ([http://www.federalreserve.gov/releases/g19/HIST/cc\\_hist\\_tc\\_levels.html](http://www.federalreserve.gov/releases/g19/HIST/cc_hist_tc_levels.html)). For another example, of the 1.2 million British adults who took out a payday loan in 2009, 67% had an average income below the national mean. Interest on British payday loans is typically about £25 per month for every £100 borrowed, which amounts to an annualized compounded rate of 1355% (Burton 2010; <http://www.which.co.uk/money/credit-cards-and-loans/guides/payday-loans/payday-loans-how-they-work/>). In 1997-2014, the typical variable rate mortgage in Britain ranged from 2.5% (2009-2014) to 9.5% (1998) (<http://www.housepricecrash.co.uk/graphs-base-rate-uk.php>). In 2011, British credit card rates reached a 13-year high, topping out at 19.1% (<http://www.theguardian.com/money/2011/may/05/credit-card-interest-rates-13-year-high>).

<sup>2</sup> A judicial system’s impartiality may vary across contexts. For example, a system that handles credit cases impartially may be highly biased on inter-ethnic relations.

<sup>3</sup> No judicial system has been fully impartial on any matter. Even in countries that score very high in rule of law indices, such as the Scandinavian countries, money can “buy” verdicts through outstanding lawyers. Impartiality is thus a *relative* concept.

have a greater temptation to default. The wealth and judicial partiality effects thus work against each other. Whereas the former lowers the credit cost of the rich, the latter raises it.

More generally, anything that hinders the enforcement of a credit contract raises the borrower's credit cost. Just as judicial biases in favor of the wealthy raise their interest rates on loans, institutions that allow the poor to escape loan repayment—bankruptcy options, shielding of assets from creditors, organizations that defend poor defaulters as victims of exploitation—raise interest rates charged to the poor. In addition to lacking assets, the poor pay high interest rates in a modern economy because of laws that prevent them from collateralizing their resources, whether actual or potential. So there is a negative correlation between wealth and credit cost for multiple reasons. The rich benefit both from a higher capacity to post collateral and better enforcement of their credit obligations relative to those of the poor.

Wealth is not the only source of interpersonal variation that leads to differential contract enforcement. Class, age, gender, ethnicity, religion, race, political affiliation, and profession are among the other common determinants of how well credit contracts are enforced. By the logic outlined above, any group that enjoys legal protection will pay a corresponding premium in competitive credit markets. Let  $f$  (favored) and  $u$  (unfavored) represent individuals from two subgroups. If the courts favor  $f$ , conditional on everything else being constant,  $f$  will pay more for credit than  $u$ . By implication, the social handicaps that disadvantage  $u$  in court against  $f$  will translate into greater financial power, as manifested through lower borrowing costs. The paper develops a model that highlights the mechanism at play. It shows that in contexts where legal and political institutions are sufficiently biased in favor of high-status individuals, lending to these individuals is relatively risky. The key variable is not the rule of law per se. Rather, it is the bias built into the law.

The proposed theory thus connects “financial power,” which is the capacity to borrow at low cost, to “legal power” with respect to financial contracts, as measured by privileges enjoyed on financial matters before a court of law. In modern advanced economies credit costs of the poor and rich differ by orders of magnitude only in part because of wealth differences. Also critical is that the poor, who lack “political power” in the sense of representation in government, enjoy far greater legal power. Indeed, the law allows the poor to default with impunity far more easily than the rich. The legal power of the politically powerless thus ends up compounding the financial power that the rich derive from their wealth. By the same logic, removing the bankruptcy

protections of the poor and biasing courts against them could offset their disadvantages in credit markets. The cost-lowering effects of such policy changes could even outweigh the surcharges they incur because of lower wealth. In spite of their lack of political power, they could enjoy greater financial power.

We test the latter implication of the theory through a data set composed of private loans issued in Ottoman Istanbul during the period 1602-1799. This is an ideal empirical context. Even though Islamic law (the Sharia) bans interest, the Ottoman Empire's Islamic courts permitted interest, provided two conditions were fulfilled. The rate had to be "moderate" and, as in Europe in earlier times, it had to be disguised through one of several legal ruses designed to make the payment look like the price of some object (Rubin 2011; Kuran 2011, ch. 8). Equally important, Islamic Ottoman courts served all Ottoman subjects through procedures that were manifestly biased in favor of clearly defined groups. These courts gave Muslims rights that they denied to Christians and Jews. They privileged men over women. Moreover, because the courts lacked independence from the state, Ottoman subjects connected to the sultan enjoyed favorable treatment. The data set includes registrations and settlements of credit contracts as well as adjudications of credit-related disputes. The records include information on both the borrower's social class and that of the lender; elites have titles, and the more numerous commoners do not. They also provide the gender and religion of every litigant and witness. Loan characteristics are available, too. A loan record indicates whether it was a mortgage and, if not, whether it was secured through a surety or a pawn. Most important, it specifies the interest rate, albeit in a form that accommodated the letter of Islamic law, and repayment terms.

Our findings broadly support the hypothesis that judicial partiality may reverse the familiar connection between socio-economic status and interest rates. Men, elites, and Muslims paid higher interest rates than women, commoners, and non-Muslims, respectively. The magnitudes are economically substantial. In a society where the average real interest rate was around 19 percent, the interest rate premium was around 3.8 percentage points for men, 2.4 percentage points for Muslims, and 3.5 percentage points for elites.

The results carry broad implications for four distinct literatures. One concerns the connection between rule of law and the performance of financial markets. Our findings accord with the sovereign borrowing literature, which suggests that limiting the state's ability to repudiate its loan contracts enables it to borrow more cheaply (North and Weingast 1989; Sargent and Velde

1995; Stasavage 2002).<sup>4</sup> Yet, a state can be perfectly creditworthy but fail to enforce *private* contracts impartially. As North, Wallis, and Weingast (2009) show, another giant step towards improving the rule of law involves binding society's elites.<sup>5</sup> Specifically, it entails the establishment of institutions that make the law apply to politically, economically, and socially powerful groups, not just the powerless. This paper shows theoretically and empirically why the powerful had much to gain from binding themselves and equalizing the judicial playing field, at least with respect to private finance. The powerful may or may not be able to muster the required collective will. But the legal leveling cannot be achieved overnight. Obviously nations differ greatly in regard to transitioning to impartial rule of law.

The second literature is that on the sources and perpetuation of modern inequalities. A widely accepted finding is that correlations among wealth, education, employment opportunities, and political representation exacerbate wealth inequalities (Durlauf 1996; Acemoglu and Robinson 2000; De Gregorio and Lee 2002; Piketty 2014). Certain contributions to the literature suggest that financial regulations favorable to politically dominant groups trap the poor in a cycle of poverty (Demirgüç-Kunt and Levine 2009). We contribute to the inequality literature by demonstrating theoretically and validating empirically that there are downsides to policies that restrict people's ability to commit credibly to repaying loans. Our empirical results thus suggest that the legal transformations associated with modernity have imposed serious unintended costs on the poor.

Comparative financial history is the third relevant literature. This literature generally focuses on average interest rates. We show here that much can be learned from intergroup variations, too. Works that examine variations in specific times and places report a panoply of relationships that are difficult to interpret individually or collectively. Jan Luiten van Zanden, Jaco Zuijderduijn, and Tine De Moor (2012) find that interest rates were essentially constant across groups in fifteenth- and sixteenth-century Holland. Jean-Laurent Rosenthal (1993) shows that in pre-Revolution rural France elites paid lower rates than the middle or lower classes. The pattern varied over time, and the distinction between classes practically disappeared by the eve of the French Revolution. Meanwhile, the King of France paid a premium on loans. At the fairs in Lyon,

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<sup>4</sup> The literature's most influential strand starts with North and Weingast's (1989) account of the Glorious Revolution in England. Various aspects of their argument have been refined or revised by Carruthers (1990), Clark (1996), Wells and Wills (2000), Quinn (2001), Sussman and Yafeh (2006), Cox (2012), Pincus and Robinson (2014), and Greif and Rubin (2015).

<sup>5</sup> Hadfield and Weingast (2014) develop the theoretical foundations of this insight. They show that legal consistency improves the efficiency of human interactions by helping to coordinate expectations and behaviors.

which were exempt from taxes and usury laws, he borrowed at 16 percent while creditworthy bankers and merchants did so at 10 to 12 percent (Doucet 1933, 487-88). The theory developed ahead calls for reconsidering such varying historical findings from the perspective of intergroup differences in contract enforcement. They may well be furnishing clues about variations in the prevailing degrees of judicial impartiality in financial affairs. Consider the Netherlands. In the period studied by van Zanden, Zuijderduijn, and De Moor, it was leading Europe's transition from personal to impersonal exchange. The associated institutional developments would have contributed to making the enforcement of Dutch financial contracts more impartial, though perhaps not yet to a degree sufficient to make the partiality effect dominate the wealth effect.

The fourth relevant literature is that on comparative civilizational performance. Among its big puzzles is that in the course of the second millennium the Middle East went from leader to laggard in many domains. One basic indicator of the lag involves trust in the courts, and another the persistent prevalence of personal exchange. Where the roots of these problems lie, and, more specifically, whether Islamic law was a factor, is a matter of potent controversy. In identifying and quantifying intergroup variations in credit cost, this article provides a novel perspective on the efficiency of governance based on Islamic law. It also yields new insights into why, throughout the Middle East, finance was largely de-Islamicized in the nineteenth century by placing it under the jurisdiction of secular commercial courts. Finally, it speaks to the controversy over the suitability of Islamic law, on the eve of the European advances into the region, to the emerging modern economy.

The article is structured as follows. The next section develops a simple model for understanding how judicial partiality affects the operation of private credit markets. Section 3 provides the relevant historical and institutional context, with a focus on credit transactions in the early modern Ottoman Empire. Section 4 discusses our data set, which Section 5 proceeds to analyze. Section 6 addresses potential alternative explanations. Section 7 relates our insights to other literatures. Section 8 underscores the analytic significance of the Ottoman case through a typology of financial markets, past and present, according to the nature and strength of judicial partiality. Finally, Section 9 presents conclusions and some further implications.

## **2. A Model of Private Credit Transactions under Partial Rule of Law**

We know of no model that addresses how private credit markets operate under varying degrees of judicial partiality. In this section, we aim to capture the key features in a manner that yields testable implications. Our focus is on credit transactions between individuals who are essentially strangers, because the loans in our court data are precisely of this type. In Ottoman Istanbul there were also unrecorded loan transactions among people who knew each other well and had repeated interactions. In Appendix 1, we model how this “personal” market could have co-existed with the essentially impersonal market modeled here. The primary difference between the two markets lies in the enforcement of contracts. In a personal market debtors are incentivized to repay their loans through the threat of communal sanctions. Specifically, threats of multilateral punishment are strong enough to encourage borrowers to repay their loans. In the personal credit market the equilibrium interest rate is lower than what a borrower would pay in the open, impersonal market, because she does not incur a “reneging surcharge.” Likewise, the lender’s expected profit is higher, because the borrower rarely reneges (Greif 2006, chap. 3). Hence, only when a borrower or lender cannot find a match within the personal credit market of their social network does he or she turn to the impersonal market. In the impersonal market, the enforcement of agreements is secured partly through a third party, the court system.

The co-existence of personal and impersonal lending markets compromises the representativeness of the lender-borrower pairings that show up in court data. This is because transactions in the former are rarely brought to court. Indeed, with credit contracts among friends and relatives, there is seldom a reason to seek court registration at the outset, or to undertake the costly procedures necessary to secure repayment through a trial, or to register repayment in court. We put aside the personal credit market for the time being in order to focus on how an impersonal credit market works when the enforcer of contracts is partial to certain groups. Section 6 addresses the data selection biases rooted in the multiplicity of credit markets.

## 2.1 Setup

Consider an economy consisting of  $M$  players. There are  $M_L$  lenders and  $M_B = M - M_L$  borrowers.<sup>6</sup> Each borrower  $i$  is risk-neutral<sup>7</sup> and has three characteristics: wealth,  $w_i > 0$ , the principal of the loan sought,  $p_i$ ,<sup>8</sup> and the “partiality” received from the court,  $\beta_i \in [0, 1]$ . Each lender  $j$  is risk-neutral and has a single characteristic: the “partiality” received from the court,  $\lambda_j \in [0, 1]$ . Assume that lenders have enough funds to accommodate any loan seeker.<sup>9</sup> The partiality parameters of the players affect the ex ante relative probability of the lender winning a lawsuit over a loan that the borrower refuses to settle, i.e., refrains from repaying fully even though she is financially able to do so. Specifically, if a borrower with partiality parameter  $\beta_i$  borrows from a lender with partiality parameter  $\lambda_j$ , the probability of the borrower winning a suit in which she reneges, which we call the “partiality surcharge,” is a contest function  $\Pi = \beta_i / (\beta_i + \lambda_j)$ , and the probability of the lender winning is  $1 - \Pi$ . Partiality thus represents the ease of escaping punishment following failure to repay a loan. The source of partiality differences could be biases of the courts or laws that favor particular groups. In a country with fully impartial rule of law,  $\beta_i = 0$  for all borrowers and  $\lambda_j = 1$  for all lenders. When rule of law is partial,  $\beta_i > 0$  for some borrowers and  $\lambda_j < 1$  for some lenders.<sup>10</sup>

A one-period game consisting of four stages is played. In stage 1, a lender and borrower are randomly matched. They agree to loan terms, with each loan contract specifying the principal

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<sup>6</sup> In certain private credit markets, a person may serve as both borrower and lender. Identified examples come from underdeveloped or pre-modern rural communities (Udry 1994, Fafchamps and Lund 2003, Richardson 2005). But this possibility is not of immediate concern here. In the Ottoman records analyzed further on, people rarely appear as both borrower and lender, perhaps because credit was scarcely used as a risk-sharing mechanism. In any case, a substantial portion of the loans were supplied in the name of entities whose charters barred them from borrowing.

<sup>7</sup> The risk neutrality assumption does not affect our results unless risk preferences are highly correlated with wealth or partiality. In societies where many people live close to subsistence, risk preferences are very unlikely to be correlated with partiality. The former correlation is possible. But a greater willingness to bear risk cannot explain our empirical results unless rich Ottomans were much more risk-loving than the wealthy in societies where interest rates are inversely related to socio-economic status.

<sup>8</sup> It is of course possible to endogenize the principal of the loan, making it a choice variable. For simplicity, we assume that borrowers need the loan for some use (e.g., to buy a house, buy seed for the upcoming planting season) which is exogenously given. Endogenizing the principal does not alter the model’s comparative statics.

<sup>9</sup> This is equivalent to the case where a person seeking a large amount of credit approaches multiple lenders, each with limited funds. Adding to the model a limit on lender capacity would complicate the dynamics without adding much insight or affecting the comparative statics. Hence, we omit this possibility.

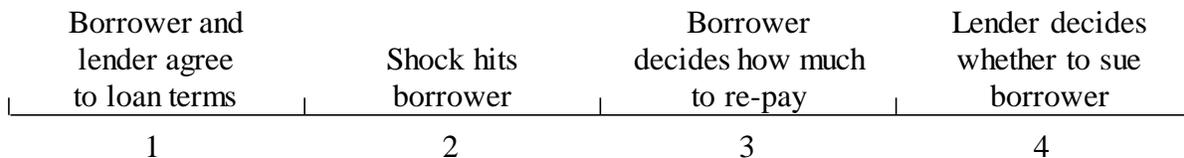
<sup>10</sup> A person could have a different  $\beta_i$  as a borrower than  $\lambda_i$  as a lender. In Ottoman Istanbul, the weight of evidence that a plaintiff had to bring was greater against a Muslim or male defendant than against a non-Muslim or female defendant. So a male Muslim would have a high  $\beta_i$ , but a relatively low  $\lambda_i$ .

( $p_i$ ) exogenously desired by the borrower and interest ( $r_i$ ).<sup>11</sup> In stage 2, which commences after the credit market clears, an i.i.d. shock,  $\varepsilon_i$ , hits each borrower. Thus, the borrower's total wealth (excluding the amount borrowed) is  $w_i + \varepsilon_i$ . The shock could be a natural event that alters the value of pre-existing assets, such as a flood. Shocks are distributed over pdf  $g(\cdot)$  and cdf  $G(\cdot)$ , with mean 0 and variance  $\sigma^2$ .<sup>12</sup>

In stage 3, with the shock realized, the borrower decides how much of the loan to repay. Denote this amount as  $P_i \leq (1 + r_i)p_i$ . If the borrower opts to settle the loan in full ( $P_i = (1 + r_i)p_i$ ), the game ends. If the borrower cannot repay the loan, which happens if  $w_i + \varepsilon_i < (1 + r_i)p_i$ , she declares bankruptcy and, again, the game ends.<sup>13</sup> If the borrower is able to repay but refuses, the game proceeds to a fourth stage.

In stage 4, the lender decides whether to take the renegeing borrower to court. If he chooses to sue, he pays court cost  $C$ .<sup>14</sup> He then wins with probability  $1 - \Pi$  and is paid  $(1 + r_i)p_i - P_i$  as restitution. The borrower wins with probability  $\Pi$ . We assume full information. Accordingly, a lender contemplating a lawsuit knows whether the borrower can repay the loan. Figure 1 summarizes the stages of the game.

*Figure 1. Stages of game play*



<sup>11</sup> For clarity we ignore the role of collateral. Incorporating it into the model would strengthen the results, because the wealth effect would grow. The poor, having limited access to collateral, pay even higher interest rates relative to the wealthy when lenders account for collateral. The transaction costs associated with repossessing collateral upon default shrink the gap (Barro 1976).

<sup>12</sup> The variance of the shock is identical across borrowers. Results would strengthen if we allowed poorer or judicially more disadvantaged borrowers to pursue riskier ventures. By the same token, they could weaken if borrowers living close to subsistence avoided risky ventures for fear of starvation. The latter possibility was unlikely in Ottoman Istanbul, where innumerable charities provided a social safety net and the sultan kept food abundant in order to prevent riots.

<sup>13</sup> An alternative specification would have the lender being able to recoup a portion of the loan in the case of default. Extending the model in this direction would entail significant complication with little additional insight. Partial repayment of loans is observed in the court data, so the model includes this possibility.

<sup>14</sup> A more general specification would make the borrower also pay a court cost. Certain conditions would become difficult to interpret, with little additional insight.

## 2.2 Equilibrium Outcomes

The model is solvable through backward induction. Suppose that stage 4 is reached and the borrower, though capable of repaying, decides to renege. This means that  $P_i < (1 + r_i)p_i \leq w_i + \varepsilon_i$ . The lender must now decide whether to sue the borrower. Being risk neutral, he proceeds only if the expected return exceeds the court cost:<sup>15</sup>

$$(1) \quad (1 - \Pi)[(1 + r_i)p_i - P_i] > C.$$

In Stage 3, the borrower chooses how much of the loan to repay,  $P_i$ . She does so after the shock,  $\varepsilon_i$ , is realized in stage 2. If  $(1 + r_i)p_i > w_i + \varepsilon_i$ , she declares bankruptcy, and the game is over. If  $(1 + r_i)p_i \leq w_i + \varepsilon_i$ , the borrower chooses to pay back  $P_i \in [0, (1 + r_i)p_i]$ . There are three possible equilibrium actions, depending on the parameters.

Case a.  $(1 + r_i)p_i < C/(1 - \Pi)$ : Repay nothing, do not sue. Re-arranging inequality (1), the borrower can foresee that the lender will take her to court if  $P_i < (1 + r_i)p_i - C/(1 - \Pi)$ . Hence, if  $(1 + r_i)p_i - C/(1 - \Pi) < 0$ , the borrower's optimum is to pay nothing back ( $P_i^* = 0$ ), and the lender's optimum is to refrain from suing. In essence, the loan is small enough and the lender's chance of winning in court sufficiently low that court costs rule out a lawsuit.

Case b.  $(1 + r_i)p_i > C/\Pi(1 - \Pi)$ : Repay nothing, sue. If this condition holds, the borrower's choices include repayment amounts that trigger a lawsuit as well as ones that do not. From her perspective, paying nothing ( $P_i^* = 0$ ) dominates all choices that result in a lawsuit. Among all choices that avoid a lawsuit, her optimum is that with the minimum payment:  $P_i^* = (1 + r_i)p_i - C/(1 - \Pi)$ . This is positive. In essence, the borrower repays the loan up to the amount that makes the lender consider it too expensive to sue. The borrower chooses from these two options by determining which maximizes her expected wealth. It is  $w_i + \varepsilon_i - (1 - \Pi)(1 + r_i)p_i$  if she repays nothing and  $w_i + \varepsilon_i - (1 + r_i)p_i + C/(1 - \Pi)$  if she pays just enough to discourage a lawsuit. Hence,  $P_i^* = 0$  if  $(1 + r_i)p_i > C/\Pi(1 - \Pi)$  and  $P_i^* = (1 + r_i)p_i - C/(1 - \Pi)$  otherwise.

Case c.  $(1 + r_i)p_i \in [C/(1 - \Pi), C/\Pi(1 - \Pi)]$ : Repay just enough to discourage a lawsuit. The logic is analogous to that of case b.

Backward induction brings us at last to stage 1. Here randomly matched borrowers and lenders agree to the interest paid on a loan,  $r_i$ , for a given principal  $p_i$ . The cdf  $G(\cdot)$  is common

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<sup>15</sup> Indifference is broken by choosing actions that avoid suing.

knowledge, but the shock has not yet materialized. The players anticipate the three cases of stage 3. In case a, where the borrower reneges and gets away with breach of contract without facing a lawsuit, the lender's expected profit is

$$(2a) \quad \pi^L = -p_i,$$

which is negative. For that reason, she will never agree to such a loan. In case b, the loan is large enough that the borrower is incentivized to renege on repayment in spite of the lawsuit that is certain to follow. The borrower repays nothing, and the lender's expected profit is:

$$(2b) \quad \pi^L = [1 - G((1 + r_i)p_i - w_i)](1 - \Pi)(1 + r_i)p_i - p_i.$$

In case c, the loan's expected return is sufficiently high that if the borrower were to refuse repayment the lender would sue. But renegeing is not an equilibrium action in this case, as the expected return is too small to incentivize renegeing. Hence, the equilibrium action is for the borrower to pay just enough to discourage a lawsuit, and the lender's expected profit is:

$$(2c) \quad \pi^L = [1 - G((1 + r_i)p_i - w_i)][(1 + r_i)p_i - C/(1 - \Pi)] - p_i.$$

In the absence of search costs,<sup>16</sup> an equilibrium arises when no lender can obtain a greater expected return by lending to another borrower, and no borrower can borrow more cheaply from another lender. Thus, an equilibrium may entail loans of either type b or type c. The interest paid on the loan is determined by setting  $\pi^L = \gamma$  in Equations 2b or 2c, where  $\gamma$  reflects the opportunity cost of lending, the elasticity of demand for loans, and the level of market competition.<sup>17</sup>

### 2.3 Comparative Statics

Because our overarching goal is to explain differences in interest rates, the analysis focuses on comparative statics with respect to  $r_i$ . We concentrate on the set of loans for which  $\pi^L = \gamma$  in equations 2b or 2c. Consider first how the borrower's characteristics affect the interest rate, conditional on the principal,  $p_i$ . An increase in the borrower's partiality parameter  $\beta_i$  lowers the lender's expected return, so the interest rate rises to offset the expected loss. This response,  $\partial r_i / \partial \beta_i$ , is the *judicial partiality effect*. Whatever the borrower's partiality parameter, the relationship between wealth and interest rate remains negative. This is because, ceteris paribus, a

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<sup>16</sup> Incorporating search costs into the model would not change the comparative statics provided they are not highly correlated with wealth or partiality.

<sup>17</sup> We do not model the determinants of  $\gamma$ , since the level of lender profits does not affect the comparative statics of interest here. To be sure, in an imperfectly competitive market or one with search costs the expected profit will not be equal across loans. However, unless the market imperfections or search costs are highly correlated with wealth or judicial partiality, including such complications in the model does not qualitatively affect our results.

wealthier borrower is relatively less likely to default. This other response,  $\partial r_i / \partial w_i$ , is the *wealth effect*. Proposition 1, proved in Appendix 2, summarizes the foregoing observations.

**Proposition 1:** The equilibrium interest rate ( $r_i$ ) is weakly increasing in the borrower's partiality ( $\beta_i$ ), weakly decreasing in the lender's partiality ( $\lambda_j$ ), and decreasing in the borrower's wealth ( $w_i$ ), *ceteris paribus*.

Consider now the situation in which, among the  $M_B$  borrowers, the wealth of borrowers is positively correlated with their partiality. This is realistic, for favorable treatment generally reflects, and may also result from, high socio-economic status. Proposition 1 suggests that higher socio-economic status, implying a high  $w_i$  and high  $\beta_i$ , has both a wealth effect, through which the rich pay lower interest rates, and a judicial partiality effect, through which they pay higher rates. Hence, the relationship between socio-economic status and credit cost depends on which of these countervailing effects is stronger. In modern societies with relatively impartial rule of law, the wealth effect dominates. But in societies with a highly partial judicial system, the partiality effect can be large enough to dominate. Proposition 2, also proved in Appendix 2, captures the logic:

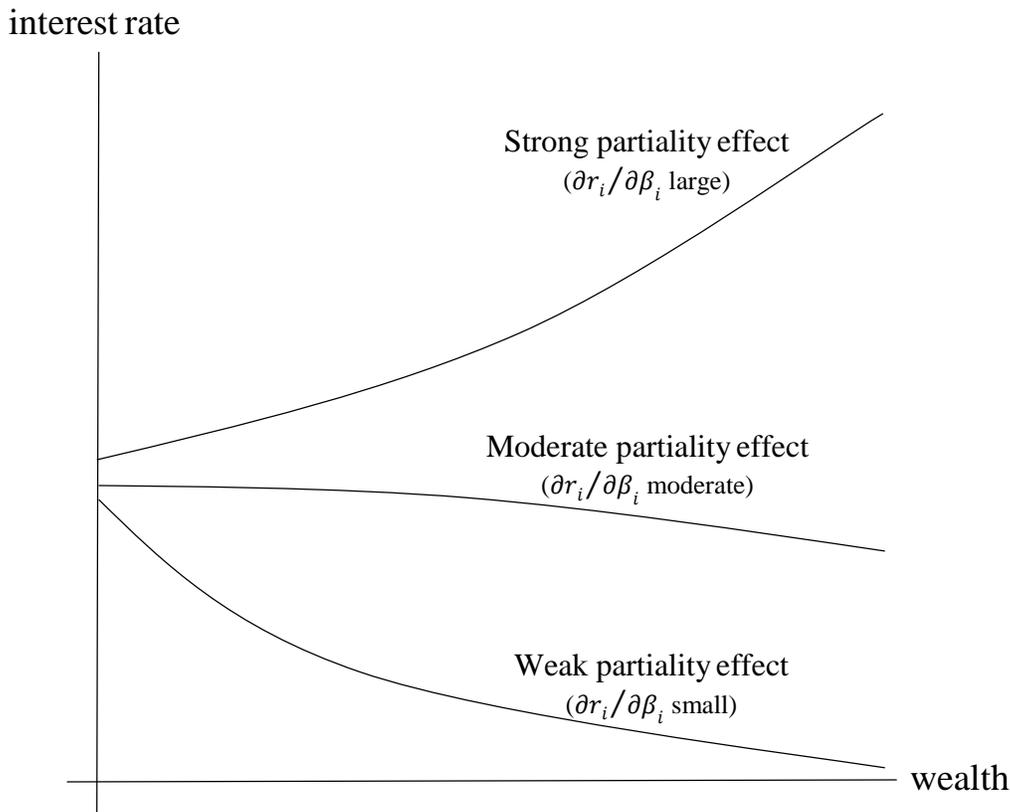
**Proposition 2:** If partiality and wealth are positively correlated across borrowers and the partiality effect ( $\partial r_i / \partial \beta_i$ ) is sufficiently strong relative to the wealth effect ( $\partial r_i / \partial w_i$ ), the equilibrium cost of credit,  $r_i^*$ , is increasing in the borrower's wealth, *ceteris paribus*.

This proposition captures a striking relationship that is contrary to the connection between social class and credit cost observed in advanced modern societies. It indicates that when court verdicts are strongly biased in favor of the wealthy, the familiar negative relationship is reversed. Put differently, whenever the judicial playing field is tilted sufficiently in favor of people of high socio-economic status, a credit market will make them pay a price for their legal advantages. In spite of their lower risk of involuntary default, they will pay more for credit. Figure 2 conveys the contrast in question graphically.<sup>18</sup>

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<sup>18</sup> By Proposition 1, the average interest rate is increasing in partiality even when wealth is zero. Provided there is some variation in the bias parameter of borrowers with zero wealth, the three curves of Figure 2 will not meet at the vertical axis.

Figure 2. Relationship between wealth and credit cost for varying levels of partiality effect



Wealth is not the only indicator of creditworthiness. Any characteristic associated with creditworthiness may be correlated with higher borrowing costs for the same reason as wealth. Take education. If the educated are considered relatively creditworthy, and they also benefit from favoritism in the courts, their credit costs may be relatively high. This insight has been missing from the literature on credit markets. The reason is that researchers have tended to focus on contexts where courts are either absent altogether or else both present and impartial.

### 3. Partiality in Ottoman Courts and Society

In the seventeenth and eighteenth centuries, the period to which we will turn to test the foregoing theoretical claims, Istanbul was the commercial center of the Mediterranean and the seat of its most powerful ruler, the Ottoman sultan. The Ottoman Empire was governed under a variant of Islamic law (sharia). The sultan could impose supplementary rules and regulations, provided they conformed to Islamic law at least formally. Enforcing Islamic law was among the sultan's duties.

He exercised the obligation through Islamic courts, each headed by a Muslim judge whose staff was uniformly Muslim. In Istanbul alone at least a dozen Islamic courts adjudicated disputes, registered private contracts, and recorded private settlements, all on behalf of the sultan.<sup>19</sup> The judges of these courts ranked among the best in the empire. That is unsurprising, because in his own city the sultan had a stake in minimizing judicial biases. Impartial courts would help to keep Istanbul's residents content, alleviating the dangers of riots directed at high officials. In Istanbul the sultan could monitor judges better than anywhere else. Hence, the enforcement of Islamic law was probably stronger in Istanbul than in other parts of the empire.

Istanbul had a population of around 700,000 in the period under consideration. Practically everyone belonged to one of the three leading monotheistic faiths. Because religion was a key source of identity, the court registers make clear, for each person mentioned by name, whether or not he or she is Muslim. With few exceptions, the registers also distinguish between Christians and Jews. At around 58.8 percent of the population, Muslims formed the city's largest religious group. Christians formed the second largest group, with 34.8 percent. The remaining 6.4 percent of the indigenous population was Jewish (Mantran 1962, 46).<sup>20</sup> A few thousand non-Muslim foreigners lived in the city at the start of our period; almost all were merchants from Western Europe. By 1800 the foreign population had grown by an order of magnitude.

The religious heterogeneity of the population is relevant because under Islamic law – the law of the land – legal rights and obligations differed according to religion. Muslims were required to live by Islamic law. Thus, to register a commercial legal contract or have a dispute adjudicated formally, Muslims had to use an Islamic court. For their part, Christians and Jews could use a court of their choice, provided no Muslim was involved. To have a contract with a co-religionist registered in court, a Christian Greek merchant could use an Islamic court; alternatively he might use a court of the Greek Patriarchate. The legal system under which credit markets operated was thus pluralistic, but asymmetrically across the three religious communities. While all financial dealings involving Muslims were necessarily governed by Islamic law, non-Muslims enjoyed choice of law with respect to dealings among themselves (Kuran 2011, chaps. 9-10).

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<sup>19</sup> The number of courts ranged from 12 to 20 during the two centuries covered here. Of the three courts included in the article's data set, Galata and Central Istanbul existed throughout the period. The earliest surviving records of Bab are from 1665.

<sup>20</sup> No official census was taken during this period. Estimates compiled by Behar (1996, tables 4.1, 4.2) suggest that no major changes occurred in the size or religious composition of the population during the period covered here.

Courts that recruit officials from a sub-population are always subject to in-group bias, which is the tendency to favor people belonging to one's own group. It is present, for example, in the American court system, where the juries of trials pitting an American firm against a foreign firm are notoriously partial to the former. The American legal system somewhat alleviates the anti-foreign bias of juries through appeals courts and norms of equal legal protection (Moore 2003, Shapiro 1981, chaps 1-2). In a traditional Islamic judicial system, there are no appeals courts. Moreover, judges are trained to weigh Muslim testimony more heavily than non-Muslim testimony.<sup>21</sup> Hence, the judicial procedures of Istanbul's Islamic courts did not counteract in-group bias; by design, they reinforced it. The operating procedures and norms of the Islamic courts openly favored Muslims over non-Muslims.

Another source of judicial bias stemmed from lack of judicial independence (Imber 2002, chap. 6). The sultan's capacity to appoint, transfer, and even fire his officials at will incentivized judges to refrain from issuing verdicts contrary to his interests. Their incentives to protect the sultan's interests were compounded by the oversight of a "board of witnesses" (*şühûdü'l-hâl*) at court proceedings.<sup>22</sup> Composed of elites, this board's formal purpose was to ensure the judge's adherence to traditional values. But its members' access to the palace must have kept him steadily conscious of elite sensitivities. Indeed, that was probably the board's primary function. In trials pitting subjects against state officials, the judge had personal reasons, then, to tilt the legal playing field in favor of the latter. To adjudicate cases between officials and subjects fairly would be to risk retaliation from a powerful constituency. It does not follow that a judge was expected to always rule in favor of officials. After all, the appearance of blatantly unfair courts would hurt the sultan's image as the deliverer of justice. Subjects pitted against officials could expect to win cases where their evidence was sufficiently strong. By the same token, subjects would expect to lose cases where the preponderance of the evidence supported their case, but not overwhelmingly.

State officials were privileged outside the court system, too. Considered part of the sultan's extended household, they were all exempt from taxation. In addition to career bureaucrats, the sultan's household included the military and religious corps. Collectively, its members formed the *askeri* class—literally, the military class, but understood to include clerics and bureaucrats.

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<sup>21</sup> Contrary to a widespread supposition, this did not mean that judges followed a rigid equivalency rule, such as two non-Muslims equals one Muslim. A judge could find the testimony of a non-Muslim more credible than that of an opposing Muslim. But the benefit of the doubt would go to the Muslim.

<sup>22</sup> These state-appointed witnesses were distinct from witnesses that litigants called to court themselves.

Subjects outside the military class formed the *reaya*, meaning tax-paying subjects (Shaw 1976-77, vol. 1, chap. 5). Although average wealth and income were much lower for commoners than for the military class, the former were not uniformly poor or oppressed. They included investors, merchants, artisans, and the caretakers of trusts known as waqfs. Certain commoners attained great respect by virtue of becoming rich. Some carried influence in high circles. Typically, successful commoners obtained an honorific title. Muslim members of the *reaya* could earn an honorific title by undertaking the arduous and expensive pilgrimage to Mecca. High-level priests and rabbis also held titles of respect. They were esteemed partly because their roles included managing their flocks' relations with the state. The sultan often delegated to them the collection of non-Muslim poll taxes. Jews and Christians were well represented also among customs officials and tax farmers. Though such non-Muslim officials were denied membership in the sultan's household, they belonged to a favored subgroup of commoners.<sup>23</sup>

Like all other pre-modern societies, the Ottomans excluded women from a wide range of social functions. The judiciary consisted entirely of men, which naturally predisposed it to seeing cases through male eyes. The inevitable biases did not seem out of place, however. The bureaucracy and the military reserved positions of leadership for men, as did all three religions of the city's residents (Peirce 1993, Faroqhi 2002). Moreover, each religion enforced rules meant to keep property primarily under male control. Although the Islamic inheritance system gave female inheritors greater shares than practically any other religion, it still favored males. Indeed, female inheritors received one-half as much as male inheritors of their familial category; for example, daughters received half as much as sons (Coulson 1971, Zarinebaf-Shahr 1996).

Women also enjoyed less mobility than men. Whereas men could travel freely, subject to state restrictions, women usually needed, in addition, the permission of male family leaders. They also had to be accompanied by an adult male relative. Men's greater freedoms would have harmed their ability to obtain credit by allowing them to disappear more easily. To run away from a creditor, an indebted woman would have had to escape with a man; an unaccompanied female traveler would have been viewed suspiciously. That a woman posed a lower flight risk than a man is borne out in the data presented and analyzed in the next section. As indicated in Table 1, the data set includes 38 cases of debt involving a "lost" (*gâ'ib*) borrower. The fugitive is a man in all

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<sup>23</sup> Because they helped to finance the Sultan's household, they would have enjoyed political clout.

but one, even though at least a fifth of all borrowers are female. In the full database of 16,085 cases from which our loan data are extracted, there are 145 human disappearances. These include 142 men, two women, and one married couple. Thus, just 2.1% of all fugitives are women.<sup>24</sup>

*Table 1: Gender distribution of fugitives*

	Total	Female borrowers		Involves one or more fugitives	Female fugitives	
		Number	%		Number	%
Cases involving a loan, whether or not record allows computation of interest	1,224	232	19.0*	38	1	2.6

\* This figure provides a lower bound on the share of female borrowers among all loans. That is because the sample used in the table includes cases involving unspecified borrowers, some of whom were certainly female.

For all the disadvantages they endured vis-à-vis Ottoman men, Ottoman women held substantial wealth in their own name. Accordingly, a substantial share of the Ottoman Empire’s Islamic trusts (waqfs) carried a woman’s name. And when women participated in credit transactions, they took risks and assumed liabilities on their own.<sup>25</sup> Unlike some other legal systems of the time, the Ottoman legal system empowered them to enter into contracts as individuals. None of this invalidates the discrimination they faced in court. Just as the legal testimony of a non-Muslim was considered less dependable than that of a Muslim, female testimony was devalued relative to male testimony. Although a woman could present evidence that trumped that of a man, in close cases the judge was expected to, and generally would, give the benefit of the doubt to the man. Precisely for this reason men were far more likely to serve as witnesses at commercial legal registrations.

To summarize, Ottoman society exhibited three cleavages relevant here. They involved religion, social standing, and gender. Muslims were more privileged than non-Muslims. Elites consisting of the sultan’s extended household and titled commoners enjoyed advantages over

<sup>24</sup> The seventeenth-century cases are recorded in Kuran, ed. (2010-13) and those of the eighteenth-century are in an unpublished database of the authors. The lone debt case involving a fugitive couple is Istanbul 2: 30b/1 (1616).

<sup>25</sup> Ottoman women were not unique in this respect. In medieval Europe, women often served as lenders, particularly in the market for consumption loans, but occasionally also in the market for productive loans. For evidence, see Jordan (1993).

regular commoners. Finally, men had rights denied to women. An Ottoman subject could be privileged along one dimension but underprivileged along others. A male Greek Orthodox mason benefited from privileges that eluded his female relatives, even women of the sultan's immediate family. By the same token, most positions in the bureaucracy and military were closed to him so long as he remained a Christian; and the principal court system of the land treated him as less trustworthy than a Muslim. His wife and daughters were underprivileged on all three counts; as females, as regular commoners, and as non-Muslims.

In view of the model of section 2, the foregoing account of Ottoman society furnishes three distinct hypotheses, all testable. Controlling for various factors, one expects female subjects to pay less for credit than males, non-Muslims to pay less than Muslims, and commoners to pay less than elites. Given that the Islamic court system blatantly favored men, Muslims, and elites, these groups would be expected to pay a price for their privileges. Their non-favored counterparts—women, non-Muslims, and commoners—could borrow more cheaply precisely because courts were relatively strict in enforcing their contractual obligations.

#### **4. Court Data from Ottoman Istanbul, 1602-1799**

The registers of Istanbul's Islamic courts contain abundant cases involving interest-based credit contracts. We have selected 30 registers distributed across the seventeenth and eighteenth centuries. Of the 15 registers from the seventeenth century, all belong to the Galata or Central Istanbul courts, the first located at the city's main port and the second in the vicinity of the Grand Bazaar (Kapalıçarşı).<sup>26</sup> For the eighteenth century, we have used nine registers from Galata and two from Central Istanbul, plus, because most Central Istanbul registers of the period perished in fires, four of the Bab court, another of Istanbul's leading courts.<sup>27</sup>

Apart from edicts issued by the sultan and orders by top state officials, which are irrelevant to the questions at hand, the registers contain three types of records. There are contracts brought to a judge for legal validation in case of a dispute, settlements documented before a judge in case of a challenge, and transcripts of adjudications. Each type of record could mention a credit contract

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<sup>26</sup> The seventeenth-century cases used in this article are reproduced, with English and modern Turkish summaries, in Kuran, ed. (2010-13), vols. 9-10.

<sup>27</sup> The 15 registers are Galata 224 (1713-16), Bab 122 (1718-19), Galata 266 (1726-27), Bab 154 (1730-31), Galata 279 (1731-33), Bab 173 (1740), Bab 204 (1751-53), Galata 353 (1759), Galata 360 (1760-61), Galata 379 (1765), Galata 410 (1770-71), Galata 515 (1792-93), Istanbul 68 (1796-97), Galata 541 (1797-98), and Istanbul 70 (1797-99).

and spell out its terms. For instance, a registered contract might indicate that a woman has taken out a three-year mortgage on her house. The settlement of a deceased businessman's estate might show what one of his creditors was paid principal and accrued interest. A trial record might convey that a creditor approached the court for repossession of a borrower's assets to complete the payment of a partially repaid loan. Of all the cases in the registers, only those involving credit are directly relevant here. Our data set consists of every credit case mentioned in the 30 registers, provided an interest rate is either stated explicitly or computable from the provided information.<sup>28</sup>

In each register, cases appear more or less chronologically in a scribe's handwriting. Every party or witness to a contract, settlement, or dispute is identified by name, gender, and religion; if he or she has an honorific title, it too is recorded. This is one of the characteristics that makes the data set invaluable for testing the theory of section 2. It allows the quantification of how key markers of status in Ottoman society—gender, religion, and social position—played out in credit markets.

All cases were brought to court through the initiative of one or more Ottoman subjects. In the case of lawsuits, the move was made by the plaintiff unilaterally. With contract and settlement registrations, all parties had to endorse the choice. The terms of the loan contracts brought to court would have reflected competitive pressures. Creditors faced competition, as did borrowers. All participants in Istanbul's credit market understood that parties asked or offered what they thought the market would bear. True, the sultan sought to regulate the credit market through a nominal interest rate ceiling, which in Istanbul varied between 15 and 20 percent during the period under consideration. But certain lenders, notably waqf caretakers, were exempt from the ceiling. Equally significant, judges routinely made exceptions.<sup>29</sup> Although nominal rates that coincided with a ceiling, such as 15 percent, appear frequently in the records, they served as focal points rather than binding limits. Loan suppliers were effectively free to adjust their rates according to buyer characteristics. They needed only to frame the contract in a manner acceptable to an Islamic court.

In our 30 registers, the interest rate is characterized as "rent" in the case of mortgages, and as the price of some fictitious object—a piece of cloth, a sword, a garment—when money was

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<sup>28</sup> If a record mentions a loan without dealing with specifics of the credit contract, it is excluded from the data set for lack of usable information.

<sup>29</sup> In the literature on Ottoman credit practices, a common theme is that judges were sensitive to market pressures. During the Russo-Ottoman War of 1768-74, reports Kaya (2007, 37-38), they allowed lenders to raise rates in response to a fall in credit supply.

loaned for a fixed period without the use of collateral. With interest-bearing contracts not registered in court, there was always the danger that the borrower would repay only the principal and refuse to pay the interest on the ground that Islam prohibits it. But typically judges enforced the letter of the agreement, which buried the interest in a side transaction. In treating fictitious sales as genuine, judges upheld interest-bearing contracts without transgressing what they ostensibly considered a basic principle of Islamic lending.

Islamic law lacks a concept of legal personhood. Thus, all lenders and borrowers in the registers are individuals. Some borrowers intended to transfer the loan to a partnership to which they belonged, but they accepted liability as individuals; partners of a borrower carried no liability unless they explicitly provided surety. Although the purpose of the loan is not always apparent, most borrowers did so to smooth consumption. In the absence of banks, people with cash flow problems turned to moneylenders, who were all individuals. Many moneylenders were savers trying to earn a return in the absence of other investment opportunities; others were merchants aiming to keep their capital from sitting idly between voyages. But the largest share of the lenders, 56.6 percent of those in our sample, represented a cash waqf (*para vakfi*), a waqf with a liquid endowment (Mandaville 1979; Kuran 2011, chap. 8). The cash waqf itself had no standing before the law, so technically the lender was its caretaker (*mütevelli*). Nevertheless, he was required to abide by the terms of his organization's deed. A small number of waqf deeds reserved loans for residents of a particular neighborhood. The typical cash waqf did not limit borrowers to any particular subgroup. As a group, the waqf caretakers came closest to being a class of professional moneylenders; each controlled a liquid endowment created to produce income by supplying credit. The size of the typical endowment was small. Revealingly, only one cash waqf appears as a source of credit more than once in our sample.

A significant minority of the individuals who appear in the registers carry an honorific title. Since titled individuals tended to be wealthy, they are undoubtedly overrepresented in our sample. The most common male titles were Efendi, Çelebi, Ağa, Bey, Beşe, El-Hac, and Çavuş. Of these, Efendi and Bey were given to learned people and government officials, though not exclusively. Çelebi was given to waqf founders and caretakers, but it could also refer simply to a respected upbringing. Ağa, Beşe, and Çavuş were terms of respect generally reserved for military officials. El-Hac meant that the holder completed a pilgrimage to Mecca; it thus signaled that he was both sufficiently pious to undertake a long and arduous journey and wealthy enough to finance it. There

are no generally agreed rankings of these titles. By far the most common female title was Hatun, and it was used exclusively for distinguished Muslim women. In our sample no Christian or Jewish woman has a title.<sup>30</sup>

As with all court records, one must worry about selection biases in the records of Istanbul's Islamic courts. In the trials in our data set, cases initiated by plaintiffs belonging to a judicially favored class such as males and Muslims were more common relative to those of the disfavored classes with whom they interacted (Kuran and Lustig 2012). Fortunately, for the sake of this analysis, only 13.5 percent of the debt contracts in our data set come from a trial, and 8.3 percent come from the registration of a settlement; the remaining 78.2 percent consist of registrations made at the initiation of a contract. The latter type of registration, which we call a pre-registration, occurs *before* a contract is fulfilled, reneged upon, challenged, or acted upon in some other way. Unlike a settlement, which occurs at the end of the contract period, or along the way when parties decide to renegotiate, it is not subject to reinterpretation. The evidentiary weight of pre-registrations massively reduced judges' ability to tilt verdicts in favor of the privileged. Kuran and Lustig (2012, Tables 15-17) show that in seventeenth-century Istanbul, when a plaintiff introduced contract documentation into a lawsuit, his odds of winning increased almost fourfold. Even more striking, when a defendant challenged the plaintiff's account through documentary evidence, the judge was about 20 times less likely to rule in favor of the plaintiff. Hence, focusing on pre-registered contracts will greatly diminish the likelihood that any observed interest rate differentials stemmed from intergroup differences in court use. Although we work with pre-registrations throughout the analysis, in the Appendix we also report results with all registrations, and also with the full data set, which includes pre-registrations, registered settlements, and trials. Other sources of possible selection bias are discussed in section 7.

Summary statistics for the loan characteristics of concern are in Table 2. Across all loans in our sample of pre-registered contracts, the average nominal interest rate is 14.0 percent, and the average real interest rate is 19.4 percent.<sup>31</sup> The figures differ slightly for the full sample. In both

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<sup>30</sup> For more on the titles, see Kuran, ed. (2010-13), vol. 1, pp. 63-64.

<sup>31</sup> To deflate the nominal interest rates found in the data we used the consumer price index of Pamuk (2000) and applied a "silver smoothing" technique to account for changes in the amount of silver in the currency. Specifically, in subperiods when the grams of silver content in aspers (*akçes*) change, we assumed that half of the currency in circulation was new in the first year of the change, three-quarters in the second year, and 100 percent in the third year. In years for which the Pamuk index provides no information for the grams of silver in aspers, we used the previous year's figure. For missing data points in the index, we interpolated the consumer price index geometrically. All of the article's results hold, and they are generally strengthened, when Pamuk's consumer price index is used as a deflator

cases, there is substantial variation, partly because of periods of inflation or deflation. Lenders and borrowers evidently factored into their calculations anticipated changes in the purchasing power of money.<sup>32</sup> But they also made mistakes, causing the spread of the real distribution to eclipse the nominal spread.<sup>33</sup> This is consistent with modern data pointing to a positive correlation between the rate and variability of inflation (Logue and Willett 1976).

*Table 2: Summary statistics: Loan characteristics*

Variable	Mean	Standard deviation
<u>All contracts</u> ( $N = 703$ )		
Real interest rate (%)	19.0	15.9
Nominal interest rate (%)	14.1	8.9
Loan principal (in aspers, base 1600)	223.1	415.9
Mortgage (%)	70.6	45.6
Pawn (%)	76.5	42.4
Surety (%)	42.0	49.4
Lender is a waqf (%)	56.6	49.6
Loan pre-registered (%)	78.8	40.9
<u>Just pre-registered contracts</u> ( $N = 550$ )		
Real interest rate (%)	19.4	16.2
Nominal interest rate (%)	14.0	9.2
Loan principal (in aspers, base 1600)	209.3	401.1
Mortgage (%)	78.7	41.0
Pawn (%)	83.8	36.9
Surety (%)	49.8	50.0
Lender is a waqf (%)	59.1	49.2

The characteristics of the borrowers and lenders also show significant variation (Table 3). About three-fifths of all lenders and over two-fifths of all borrowers are titled. Around three-fifths of all borrowers and a huge majority of all lenders are Muslim. And almost all lenders, but only three-quarters of the borrowers, are male.

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without silver smoothing or when only nominal rates are used. The results are also robust to alternative silver-smoothing techniques. All results are robust in terms of statistical significance to deflation through the Istanbul wage index of Özmucur and Pamuk (2002). As currency exchange rates, we use one kurush per 120 aspers or dirhams, the most common rates in the period. Florins appear in four of our cases (one in 1602, two in 1604, and one in 1615). Based on the exchange rate given on one of these 1604 cases, we use one florin per 200 aspers.

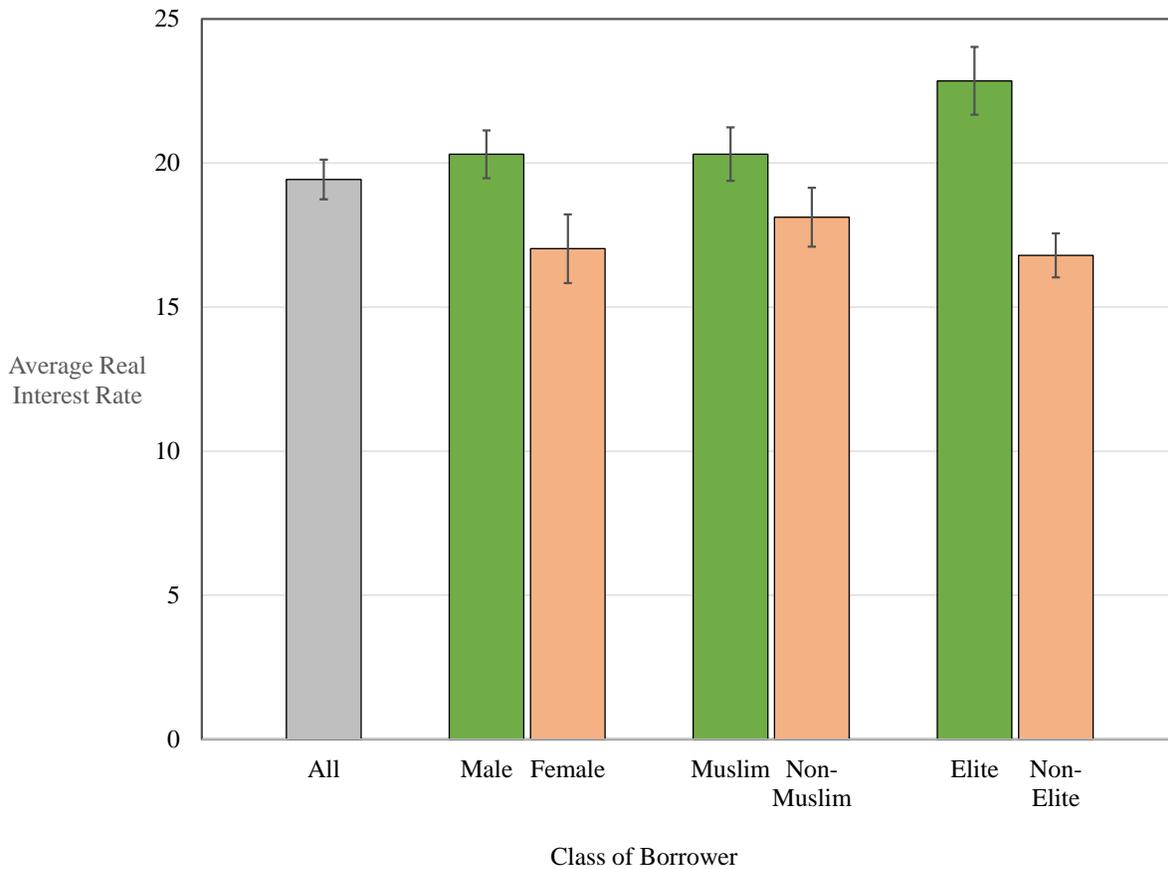
<sup>32</sup> The annualized nominal interest rate spans a broad range, from 0.5% to 137.5%. It falls between 5% and 30% in 673 of 703 observations (95.7%), and between 10% and 20% in 562 of the 703 observations (79.9%).

<sup>33</sup> The range of the annualized real interest rate is immense: -26.1% to 129%. In over half of the observations, the annualized real interest rate lies between 10% and 30%, and in about one-fifth it falls between 0% and 10%. In 6.1% of the observations the rate is negative.

Table 3: Summary statistics: Lender and borrower characteristics

Variable	Mean (%)	Standard deviation	N
<u>All contracts</u>			
Titled borrower (%)	45.0	49.8	667
Titled lender (%)	63.0	48.3	667
Muslim borrower (%)	62.2	48.5	664
Muslim lender (%)	92.0	27.1	664
Male borrower (%)	77.7	41.7	667
Male lender (%)	92.7	26.1	667
<u>Just pre-registered contracts</u>			
Titled borrower (%)	43.5	49.6	536
Titled lender (%)	63.4	48.2	536
Muslim borrower (%)	64.5	47.9	533
Muslim lender (%)	94.4	23.1	533
Male borrower (%)	75.5	43.1	538
Male lender (%)	93.9	24.0	538

Figure 3. Average Real Interest Rate by Class of Borrower



Error bars represent one standard error.

Figure 3 illustrates one of the striking observations of this article: the differences between the interest rates of favored and unfavored borrowers for each of our three markers of judicial privilege: social status, religion, and gender. The transactions captured by the bars aggregate all types of lenders. Table 4 breaks down the real interest rates, and also the real principals of the observed credit transactions, by our markers of privilege for both borrowers and lenders. For brevity, we report only pre-registered contracts here.<sup>34</sup> A few patterns jump out. First, titled lenders lent at higher rates to other titled borrowers than they did to non-titled borrowers ( $p < 0.0001$ ).<sup>35</sup> Titled borrowers took out larger loans from titled lenders, and the difference in principal between titled and non-titled is marginally significant ( $p = 0.07$ ). Titled borrowers also borrowed at higher rates from non-titled lenders than did non-titled borrowers, though the difference is insignificant ( $p = 0.26$ ). Second, Muslim lenders charged more to co-religionists than they did to non-Muslims ( $p = 0.04$ ), and the mean principal of these loans was practically the same across groups ( $p = 0.72$ ). Finally, male lenders charged other males higher rates than they did to females ( $p = 0.04$ ) even though the principal was not relatively higher for male borrowers ( $p = 0.11$ ). In all three cases, lenders belonging to the judicially favored group charged more for credit to borrowers who shared their privileges than to borrowers from the unfavored group. Evidently privileged lenders understood the risks of lending to people like themselves. Muslim, elite, and male borrowers thus paid a price in private credit markets for their privileges. These patterns are consistent with the presented model.

In principle, the patterns identified in Table 4 could be artifacts of omitted variables. Multivariate statistical tests with controls are necessary to determine whether they are spurious.

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<sup>34</sup> The statistics for all contracts, including trials, are available upon request.

<sup>35</sup> This and subsequent test statistics use a two-sided unpaired  $t$ -test.

Table 4: Average interest rates by borrower and lender characteristics, pre-registered cases (standard deviations in parentheses: real principal in aspers, base year 1600)

		<u>Lender</u>					
		Titled			Non-Titled		
<u>Borrower</u>	Titled	<u>Real <math>r</math></u>	<u>Nominal <math>r</math></u>	<u>Principal</u>	<u>Real <math>r</math></u>	<u>Nominal <math>r</math></u>	<u>Principal</u>
			0.231 (0.182)	0.161 (0.121)	286.3 (499.2)	0.214 (0.160)	0.153 (0.119)
		N = 204			N = 29		
<u>Borrower</u>	Non-Titled	0.151 (0.122)	0.126 (0.043)	193.6 (428.2)	0.181 (0.141)	0.120 (0.035)	141.2 (240.2)
		N = 136			N = 167		

		<u>Lender</u>					
		Muslim			Non-Muslim		
<u>Borrower</u>	Muslim	<u>Real <math>r</math></u>	<u>Nominal <math>r</math></u>	<u>Principal</u>	<u>Real <math>r</math></u>	<u>Nominal <math>r</math></u>	<u>Principal</u>
			0.203 (0.172)	0.148 (0.103)	198.6 (381.7)	0.189 (0.058)	0.117 (0.005)
		N = 342			N = 3		
<u>Borrower</u>	Non-Muslim	0.172 (0.130)	0.119 (0.035)	212.2 (443.5)	0.238 (0.187)	0.172 (0.158)	368.0 (472.4)
		N = 162			N = 27		

		<u>Lender</u>					
		Male			Female		
<u>Borrower</u>	Male	<u>Real <math>r</math></u>	<u>Nominal <math>r</math></u>	<u>Principal</u>	<u>Real <math>r</math></u>	<u>Nominal <math>r</math></u>	<u>Principal</u>
			0.201 (0.170)	0.143 (0.103)	223.3 (395.5)	0.239 (0.109)	0.179 (0.121)
		N = 384			N = 22		
<u>Borrower</u>	Female	0.166 (0.140)	0.122 (0.030)	160.7 (287.8)	0.216 (0.085)	0.128 (0.038)	553.3 (1263.5)
		N = 121			N = 11		

## 5. Data Analysis

Our loan contract dataset contains five variables suitable to serving as a control: the real principal on the loan, whether the loan is a mortgage, whether it involves a pawn, whether there is a surety on the loan, and whether the lender is a waqf. The first four controls (principal, mortgage, pawn, and surety) all affect the repayment probability. As explained in presenting the model, the higher the loan principal, the greater the risk to the lender. Mortgages provide collateral in the form of a house or a shop. Pawns formed an alternative source of collateral, and sureties amounted to assurances from others that they would accept responsibility for any unpaid debt. Waqfs charged lower rates on average: 17.6 percent in real terms, as against 20.8 percent for non-waqf lenders.

Hence, it makes sense to control for their presence. Potentially important variables are missing, such as the borrower's wealth. Later, in Section 6, we shall explain why our results cannot be attributed solely to omitted variable bias.<sup>36</sup>

According to the model, the biases of the Ottoman judicial system would have resulted in advantageous interest rates for legally disadvantaged borrowers, holding other loan factors constant. To test this hypothesis, we run the following regression equation using ordinary least-squares:

$$(3) \text{ interest rate}_{i,t} = \beta_0 + \beta_1 \text{borrower}_i + \beta_2 X_i + D_t + \epsilon_{i,t},$$

where  $\text{borrower}_i$  represents a characteristic of borrower  $i$ , such as gender, religion, or class,<sup>37</sup>  $X_i$  is a vector of loan characteristics (principal, mortgage, pawn, surety, lender as a waqf);  $D_t$  is a vector of court register fixed effects;<sup>38</sup> and  $\epsilon_{i,t}$  is the error term. In all regressions, standard errors are clustered by court register.

Propositions 1 and 2 suggest that all three sources of borrower judicial advantage—male, Muslim, and elite—could have raised the interest rate, provided the courts were sufficiently biased. The primary results reported in Table 5 largely support this prediction.<sup>39</sup> Column (1) indicates that male borrowers paid an average of 3.8 percentage points more in interest than female borrowers did. The difference is highly significant statistically, and its magnitude is far from trivial. Ottoman men paid about one-fifth more for credit than Ottoman women did, all else equal. Column (2) shows that Muslim borrowers paid a premium of 2.4 percentage points relative to non-Muslims. This finding suggests that for their faith-based privileges Muslims paid one-seventh more for credit than non-Muslims. Column (3) indicates that elites paid 3.5 percentage points more for loans than commoners did. The magnitude is again substantial, one-fifth of the average real interest rate. Figure 4 illustrates the three findings.

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<sup>36</sup> In any case, we report in Appendix 3 the residual plots for our key regression. These plots indicate that no obvious bias affects the results.

<sup>37</sup> Because we lack panels specific to each borrower, it is unnecessary to include a subscript  $t$  either for the borrower or the loan characteristics.

<sup>38</sup> A court register is a book containing the proceedings of a judge's tenure at one specific court. A judge served between eight and eighteen months in any one post. Because our registers do not overlap temporally except slightly at the end of the period in question, register fixed effects are more or less tantamount to time fixed effects.

<sup>39</sup> All regressions, including the robustness checks in Appendix 3, only use contracts for which the loan characteristics listed in Table 2 are fully known.

Table 5: The effect of borrower's status on credit cost, pre-registered contracts

	Dependent Variable: Real Interest Rate					
	(1)	(2) All Registered Cases			(5) Male Borrowers Only	
Male borrower	0.038*** [0.012]			0.040*** [0.012]		
Muslim borrower		0.024** [0.011]		0.022 [0.014]	0.028* [0.014]	
Elite borrower			0.035** [0.013]	0.022 [0.015]		0.032** [0.013]
Principal (in 1000 aspers, base 1600)	-0.006 [0.022]	-0.004 [0.023]	-0.003 [0.022]	-0.002 [0.021]	-0.011 [0.036]	-0.011 [0.035]
Mortgage	-0.058* [0.031]	-0.071** [0.030]	-0.059* [0.030]	-0.057 [0.033]	-0.085* [0.042]	-0.075* [0.040]
Pawn	0.015 [0.034]	0.010 [0.032]	0.012 [0.035]	0.023 [0.037]	0.017 [0.039]	0.021 [0.044]
Surety	0.006 [0.013]	0.010 [0.015]	0.004 [0.012]	0.009 [0.012]	-0.001 [0.018]	-0.010 [0.014]
Lender is a waqf	-0.017 [0.014]	-0.017 [0.015]	-0.011 [0.014]	-0.011 [0.013]	-0.016 [0.013]	-0.009 [0.012]
Constant	0.135*** [0.016]	0.161*** [0.015]	0.156*** [0.013]	0.105*** [0.020]	0.176*** [0.021]	0.171*** [0.020]
Register fixed effects	YES	YES	YES	YES	YES	YES
Observations	538	539	538	533	405	404
R-squared	0.519	0.515	0.547	0.556	0.504	0.540

Standard errors clustered by court register in brackets.

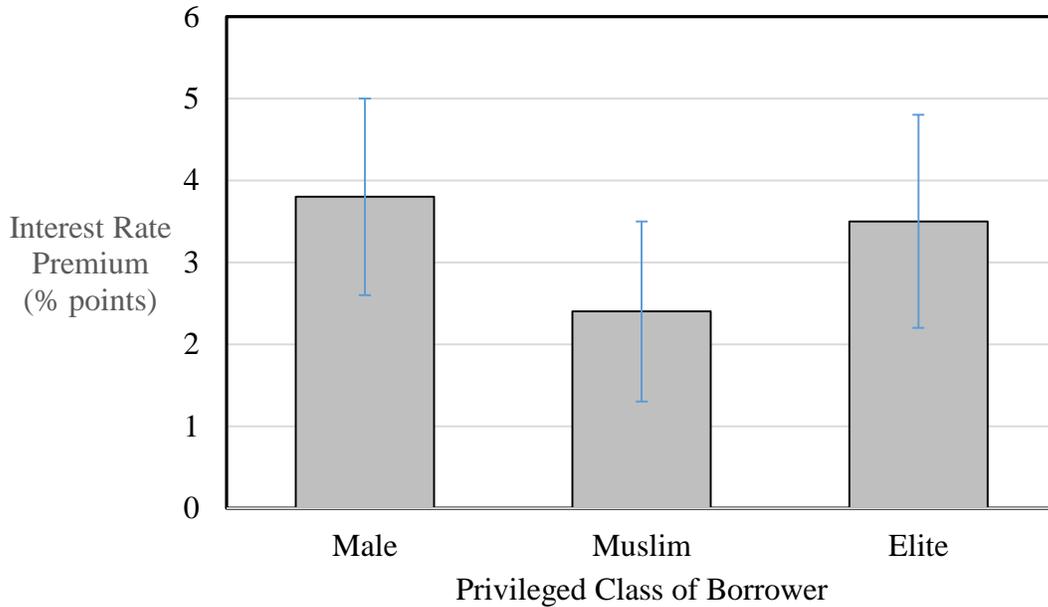
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Column (4) shows that, controlling for all three characteristics, the “gender effect” dominates. Males pay a highly statistically significant surcharge of 4.0 percentage points relative to females, while the “religion effect” and “elite effect” become less significant statistically. The fact that the borrower’s gender appears to be the strongest predictor of the interest rate is unsurprising given the relative ease with which men could flee (Table 1). The loss of statistical significance on Muslim and elite borrowers may be due to multicollinearity between these variables. Of the elite borrowers in the sample, 93.1 percent are Muslim.

Columns (5) and (6) test the “religion effect” and “elite effect” only among males. If men’s ability to flee more easily were driving all the results, the coefficients on Muslim borrower and elite borrower would be insignificant. Instead, the coefficients are similar in magnitude and statistical significance to those of Columns (2) and (3), respectively. Evidently, Muslim and elite borrowers have unique features that contribute to raising their interest rates. We report regressions

with the same specifications, but using all data (including registered settlements and trials) in Appendix 3. The key coefficients are largely similar in terms of magnitude and statistical significance.<sup>40</sup>

*Figure 4. Interest Rate Premium for Male, Muslim, and Elite Borrowers  
Regression Coefficients from Table 5, Columns (1), (2), and (3)*



Error bars represent one standard error.

The foregoing exercise leaves out the lender’s identity. Yet, according to our model the court’s decision depends on both the borrower’s partiality and that of the lender. The interest rate should fall insofar as the lender is favored relative to the borrower ( $\beta_i < \lambda_j$ ). On that basis we expand regression equation (3) to include the lender’s identity. It becomes:

$$(4) \text{ interest rate}_{i,t} = \beta_0 + \beta_1(B_F \times L_U)_i + \beta_2(B_U \times L_F)_i + \beta_3(B_U \times L_U)_i + \beta_4 X_i + D_t + \epsilon_{i,t},$$

<sup>40</sup> Table 4 indicates that the loan principal differed between Muslim and non-Muslim lenders, and between male and female lenders, but the numbers of observations are minuscule. While our data set contains far too few loans made by female or non-Muslim lenders to make statistically meaningful claims, it is essential to verify that these observations do not drive any results. So Appendix 3 also reports regressions with the same specifications, but using data only on loans issued by male Muslims. The key coefficients are largely similar in terms of magnitude and statistical significance to those reported in Table 5.

where  $B_F$  ( $B_U$ ) indicates that the borrower belongs to a judicially favored (unfavored) group, and  $L_F$  ( $L_U$ ) indicates the same for the lender. In the present context, the favored groups are men, Muslims, and elites.

Table 6: Effect of borrower's and lender's status on credit cost, pre-registered contracts

	Dependent Variable: Real Interest Rate				
	(1)	(2)	(3)	(4)	(5)
Favored:	Male	Muslim	Titled	Muslim	Titled
Unfavored:	Female	Non-Muslim	Non-titled	Non-Muslim	Non-titled
	<u>All Pre-Registered Cases</u>			<u>Male Borrowers Only</u>	
(Favored borrower) x (unfavored lender)	0.029 [0.040]	-0.077*** [0.017]	0.004 [0.028]	-0.160** [0.058]	-0.000 [0.035]
(Unfavored borrower) x (favored lender)	-0.038** [0.014]	-0.036*** [0.012]	-0.044** [0.018]	-0.042** [0.017]	-0.041** [0.017]
(Unfavored borrower) x (unfavored lender)	-0.016 [0.024]	0.030 [0.033]	-0.021 [0.016]	0.023 [0.045]	-0.020 [0.022]
Principal (in 1000 aspers, base 1600)	-0.005 [0.021]	-0.007 [0.024]	-0.003 [0.021]	-0.021 [0.044]	-0.012 [0.035]
Mortgage	-0.060* [0.030]	-0.085** [0.032]	-0.065* [0.032]	-0.107** [0.049]	-0.082* [0.043]
Pawn	0.016 [0.034]	0.022 [0.034]	0.014 [0.037]	0.033 [0.046]	0.024 [0.047]
Surety	0.007 [0.014]	0.017 [0.016]	0.004 [0.012]	0.006 [0.021]	-0.008 [0.014]
Lender is a waqf	-0.013 [0.015]	-0.011 [0.015]	-0.012 [0.014]	-0.007 [0.013]	-0.009 [0.012]
Constant	0.169*** [0.012]	0.186*** [0.015]	0.192*** [0.023]	0.207*** [0.024]	0.204*** [0.033]
Register fixed effects	YES	YES	YES	YES	YES
Observations	538	534	536	401	402
R-squared	0.521	0.523	0.549	0.515	0.541

Standard errors clustered by court register in brackets.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 6 reports the results for gender, religion, and social status. The coefficients on borrower and lender characteristics measure their effects in relation to the omitted combination ( $B_F \times L_F$ ). Consider first the results with respect to the gender of the parties, reported in Column (1). The figures resemble those of Table 5 in terms of economic and statistical significance; given the paucity of female lenders in the sample (see Table 3), this is hardly surprising. The column indicates that male lenders charged female borrowers 3.8 percentage points less than they did to male borrowers. Column (2) suggests that, on average, Muslim lenders charged non-Muslim

borrowers 3.6 percentage points less than they did to borrowers of their own religion. In terms of economic and statistical significance, these results are also similar to those of Table 5; this, too, is unsurprising, because the sample contains few non-Muslim lenders. Finally, Column (3) indicates that, again on average, commoners paid 4.4 percentage points less for loans issued by elite lenders than elite borrowers did. These results, which are also economically and statistically similar to those of Table 5, suggest that if commoners are disadvantaged in their interactions with the judiciary, it is primarily when they face elites. The figures in Columns (4) and (5), which are restricted to male borrowers, resemble those of Columns (2) and (3).

The model predicts that judicially favored borrowers will pay higher rates when borrowing from unfavored lenders than from favored lenders. The underlying logic is that unfavored lenders find it difficult to sue them successfully should they renege. Yet we find no statistically significant effect on the “favored borrower x unfavored lender” coefficients in the gender and title regressions, and a negative effect in the religion regressions. These anomalies are almost certainly due to low numbers of observations ( $N=29$  for titled borrower, non-titled lender;  $N=3$  for Muslim borrower, non-Muslim lender;  $N=22$  for male borrower, female lender). The small subsamples deny us the statistical power to compare these coefficients meaningfully to the omitted “favored borrower-favored lender” variable.

Thus far, we have treated all titled individuals as equally favored by the courts. In practice, the courts were probably particularly partial to state officials, including administrators, clerics, and military officers. Our theory would suggest that under a more restricted definition of “elite” the judicial partiality premium would be even larger. Indeed, when the exercise in Tables 5 is repeated using state officials as the privileged group,<sup>41</sup> the elite interest rate premium jumps to 6.8 percentage points (see Table A.7 in Appendix 3). This represents a massive surcharge of 35.1 percent to the cost of credit. It thus provides further evidence that credit markets penalized judicially privileged borrowers.

In sum, the evidence presented here broadly confirms the model’s predictions. Unfavored groups—commoners, non-Muslims, and women—paid considerably less for loans than favored groups. Ranging from 2.4 to 4.4 percentage points, their discount amounted to between 13 and 23 percent of the average real interest rate.

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<sup>41</sup> Our data set contains 303 titled borrowers. Of these, 112 were state officials with one of the following titles: Efendi, Bey, Ağa, Beşe, and Çavuş. Of the titles left out, the most common are Hatun ( $N=52$ ) and Çelebi ( $N=52$ ).

With each marker of socio-economic status that lends itself to quantitative analysis, credit cost differences accord with our theory. Moreover, the differences run in the *opposite* direction from what is observed in countries whose courts are less biased on financial matters, if at all, toward the socially disadvantaged. The signs of the key coefficients are always consistent with theoretical predictions, and the magnitudes are generally substantial. If an alternative theory also explains these results, it would have to be consistent with Ottoman institutional history. Specifically, it would have to accord with the Ottoman judicial system's deliberate and open partiality in favor of certain groups, including Muslims, men, and elites. Not only is our explanation couched in a parsimonious theory based on elementary economic relationships; it also matches the historical record. It thus satisfies the two main criteria of solid historical explanation: grounding in general theory and consistency with observed facts.

## **6. Alternative Explanations**

As mentioned earlier, each of our striking empirical findings could be driven, in principle, by selection biases. The relevant biases fall into two categories. One is that loans made to the least risky borrowers did not make it into court registers because the lenders were sufficiently confident of repayment to forego the expenses of registration. The other is that the riskiest potential borrowers are absent from the records because no one was willing to lend to them. Such biases afflict all personal credit markets; even today people take unrecorded loans from friends and relatives, and a bad credit history can close credit options. What matters here is not the existence of such selection biases in our data but the possibility that they affected certain classes of borrowers disproportionately. If the least risky members of a judicially favored group were more likely to get excluded from our sample of borrowers than those of a judicially unfavored group, this selection bias would contribute to the interest rate surcharge imposed on the former. This section explores the possible contribution of selection biases to each of the interest rate differentials observed, beginning with our strongest result, namely, that women borrowed more cheaply than men.

In Ottoman Istanbul lenders would have understood that men posed a substantial flight risk. Accordingly, they would have been sensitive to factors that affect mobility. For instance, they would have favored married men over single men, because the latter could more easily pack up and move. Insofar as such selection occurred, the average creditworthiness of male borrowers would have improved. This makes it even more remarkable that women, who did not need to be

screened for flight risk, borrowed more cheaply in practice. The selection bias in question did not work against men; by improving the creditworthiness of the men in our sample of borrowers, it lowered the recorded average interest rate for males.

For reasons already discussed, the risk of lending was diminishing in the borrower's wealth. If the women in our sample were wealthier than the men, that could have contributed to the observed interest rate differential by lowering the risk of lending to women. Unfortunately, our data set does not provide information on borrower wealth. Hence, we do not know whether wealthy women were disproportionately represented relative to men. But there is reason to believe that they were not. The size of the loans taken by women approximately equals that of men.<sup>42</sup> Since the wealthy probably took out larger loans on average, the wealth effect is unlikely to have favored women.

Yet another possible explanation for the gender differential is that loans registered in the name of a woman were actually taken on behalf of their husbands. A married man might have chosen to borrow through his wife to signal that he was not going to move. If such signaling were common, the observed gender differential would represent a surcharge imposed on men unable to signal immobility. There are two reasons for ruling out this possibility. First, in the extensive literatures on Ottoman family life, courts, and financial practices, nothing suggests that married women borrowed on behalf of their husbands. If the practice were common, contemporaneous observers would have mentioned it, just as they wrote about the legal ruses that credit market participants used to circumvent Islam's ban on interest. Second, the Islamic inheritance system, which assigns mandatory shares to a decedent's daughters, spouse(s), and mother, put women in control of a substantial share of private Ottoman wealth.<sup>43</sup> Thus, many Ottoman waqfs carried a female name.<sup>44</sup> So it is not surprising that almost a quarter of all the borrowers in our sample are women. That figure is in line with the gender distribution of private assets. It appears, then, that the female borrowers in our sample borrowed on their own, rather than as agents of their husbands.

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<sup>42</sup> In the entire sample, the average real principal of loans taken by men was 215.3 aspers (using 1600 as a base,  $N=406$ ), while it was 193.4 aspers for women ( $N=132$ ). The difference lacks statistical significance ( $p=0.589$ ).

<sup>43</sup> The inheritance practices of non-Muslim Ottomans resembled those of Muslim Ottomans (Kuran 2011, 180-84).

<sup>44</sup> Our seventeenth-century data contain 849 distinct waqfs whose founder is identifiable. Of these, 146 (17.2%) have a female founder.

If cases of borrowing on behalf of a husband existed, these would have been exceptions, not the rule.

The most plausible alternative explanation for the observed gender differential is that men had better outside credit options than women. Precisely because of their greater mobility, men would have had relatively more contacts. When in financial distress, they may well have found it easier to find a friend both able to lend them money and willing to do so without registration. Insofar as this difference was at play, its effect on the male-female interest rate differential in court records would have been positive, like that of male judicial privileges. Whether this selection effect swamped the opposite selection effect rooted in lender selectivity cannot be determined, given the available data.

Let us turn now to the finding that elites paid more for credit than commoners. Elite borrowers are over-represented in our sample, making up 43.5% of the observations. This raises the possibility that the borrowers in our sample cover the entire swath of the elites but only the least risky commoners, or that only the safest commoners had access to credit in the first place. But why, then, were the rates for commoners so low? After all, lenders were free to charge commensurate premia to riskier commoners. There is no plausible reason why they would have lent at high rates only to risky elites while simply denying loans to especially risky commoners.

Another possible explanation for the elite surcharge is that the strongest elites had other borrowing sources, leaving the weakest to borrow from the open credit market recorded in our data set. But there is no evidence of special credit lines for the strongest elites. The sultan did not make loans to his wealthiest or most powerful officials. But simply by virtue of belonging to a wealthier class, loan seeking elites would have had greater opportunities relative to loan seeking commoners to borrow from friends and relatives without registration. This logic suggests that the observed interest rate surcharge for elites was due partly to a selection bias that excluded from our sample disproportionately more low-risk elites than low-risk commoners. Yet, this logic applies also to modern credit markets and those of the past where elites did not pay a surcharge for credit. In seventeenth-century Holland, state officials in need of credit would have found it easier, relative to a cash-strapped peasant, to borrow informally from a friend; this is because his network contained more people able to lend. Evidently the substantial elite surcharge in Ottoman Istanbul

was due partly, if not largely, to pro-elite biases of the courts through the mechanism that our model identifies.

Turning now to the interest rate surcharge imposed on Muslim borrowers, in principle it could have stemmed from wealth differences between religious groups. If Christian and Jewish borrowers were wealthier on average than Muslim borrowers, lenders would consider it safer to make loans to the former. Accordingly, non-Muslims would borrow relatively more cheaply because of the wealth effect—the same factor that allows today’s rich Americans to borrow more cheaply than their poor compatriots. But in the seventeenth and eighteenth centuries non-Muslim Ottomans were not better off than Muslim Ottomans. If anything, Muslims were wealthier, because the vast majority of the empire’s waqfs were under Muslim control. Not until the nineteenth century did non-Muslims pull ahead of Muslims in terms of wealth and living standards by securing dominant positions in the most dynamic sectors of the emerging modern economy (Kuran 2011, chaps. 9-10). Hence, although the wealth levels of individual borrowers in our sample are unknown, research on intercommunal economic comparisons provides no reason for believing that they explain the religion-based interest rate differential in our data. It is worth repeating that our regressions control for collateral and surety.

A clear source of religion-based selection bias in our sample is that in the Ottoman Empire non-Muslims, but not Muslims, had choice of law. Thus, at least in credit transactions involving no Muslims, non-Muslim borrowers had the option of using Christian or Jewish courts for either registration or adjudication. The most creditworthy non-Muslims might have preferred to borrow from coreligionists to avoid revealing information on income or wealth to Muslim court officials and, through them, to the Sultan’s tax collectors.<sup>45</sup> Insofar as non-Muslims had incentives to keep credit matters out of Islamic courts, the non-Muslim borrowers appearing in our Islamic court records could be a riskier subset of all non-Muslim borrowers. Islamic courts had superior enforcement powers by virtue of representing the Sultan, which would have been particularly attractive to non-Muslim lenders making loans to very risky non-Muslims. The upshot is that the non-Muslim credit transactions in our data set would have been biased in favor of risky loans. Because Muslims lacked choice of law, this selection effect was absent for Muslim borrowers.

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<sup>45</sup> Outside the Islamic legal system, loans registered in Christian or Jewish courts might have involved higher interest rates than those that were not registered at all. Cihan Artunç has collected 36 promissory notes of loans between elite Orthodox Greeks from the court registers of the Ecumenical Patriarchy of Istanbul, all dated between 1656 and 1733. Most of the loans were made at 20% nominal interest.

Amazingly, though, it is Muslims, not Christians and Jews, who paid more for credit in practice. The pro-Muslim partiality of the judiciary must have been strong enough to swamp rate adjustments driven by the choice of law given to Christians and Jews.

*Table 7: The effect of borrower's status on loan principal, pre-registered contracts*

	Dependent Variable: Loan Principal (in 1000 aspers, base 1600)					
	(1)	All Registered Cases			Male Borrowers Only	
	(2)	(3)	(4)	(5)	(6)	
Male borrower	0.015 [0.078]		0.001 [0.083]			
Muslim borrower		-0.047 [0.035]		-0.074* [0.040]	-0.049 [0.035]	
Elite borrower			0.020 [0.038]	0.063* [0.031]		0.036 [0.040]
Mortgage	-0.252** [0.094]	-0.244** [0.107]	-0.244** [0.103]	-0.238** [0.100]	-0.195** [0.089]	-0.189** [0.090]
Pawn	0.054 [0.132]	0.050 [0.129]	0.040 [0.125]	0.043 [0.136]	0.065 [0.100]	0.050 [0.100]
Surety	0.122 [0.075]	0.109 [0.076]	0.124 [0.076]	0.114 [0.079]	0.108 [0.066]	0.130* [0.070]
Lender is a waqf	-0.101* [0.053]	-0.102* [0.052]	-0.103* [0.053]	-0.101* [0.054]	-0.076* [0.043]	-0.076* [0.044]
Constant	0.275 [0.169]	0.311** [0.117]	0.286** [0.111]	0.322 [0.190]	0.230*** [0.071]	0.199** [0.074]
Register fixed effects	YES	YES	YES	YES	YES	YES
Observations	555	556	555	550	415	414
R-squared	0.179	0.179	0.178	0.184	0.286	0.285

Standard errors clustered by court register in brackets.

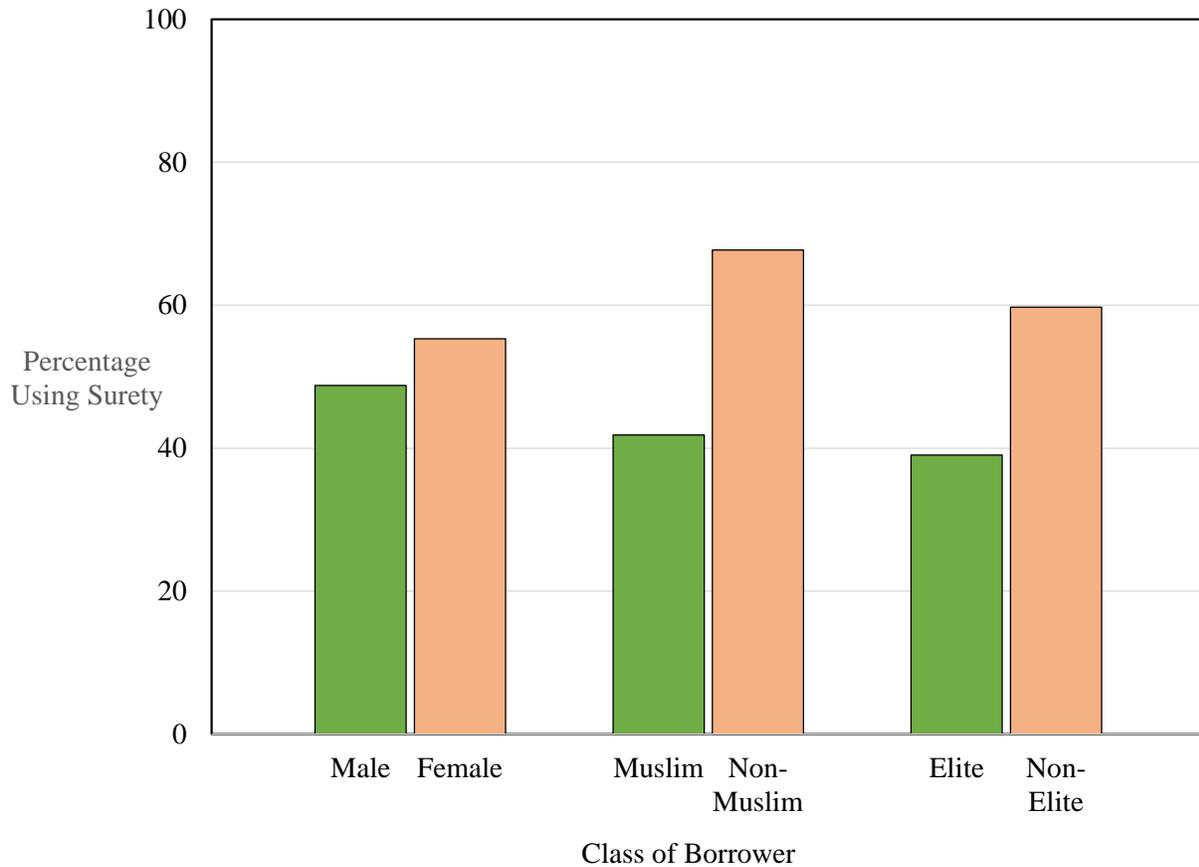
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

There is also a possible alternative explanation that involves the principal rather than selection bias. The favored groups might have paid a premium for larger loans, just as mortgage takers today pay a premium for jumbo loans. In fact, the judicially favored residents of Ottoman Istanbul did not borrow larger amounts. As seen in Table 7, the principal of loans received by men was statistically identical to those taken by women. Likewise, elites and commoners, and also Muslims and non-Muslims, borrowed amounts that are statistically indistinguishable.<sup>46</sup> These

<sup>46</sup> Although in specification (4) the coefficient on elite borrower is positive and weakly significant, in absolute terms it approximately equals the negative and also weakly significant coefficient on Muslim borrower. Of all elite borrowers, 95.8 percent are Muslim.

findings make it very unlikely that the observed interest rate differentials reflected differences in loan magnitudes. They also suggest that rate differentials were not driven by favored groups taking out loans for different purposes than unfavored groups. Although our data generally lack information on the purpose of the loan, we would expect any differences in loan purpose to be reflected in the loan’s principal.

*Figure 5. Use of Surety by Class of Borrower*



It is also possible that favored borrowers paid higher interest rates because they gave lenders less collateral. Indeed, Geanakoplos (2010) suggests that equilibrium interest rates and the level of collateral are jointly determined. In line with this observations, the regressions reported in Tables 5-6, show that in Ottoman Istanbul the mortgage rate (the rate on loans secured through a house) was between 5.8 and 10.7 percentage points lower than the rate for other types of loans, depending on the empirical specification. Other forms of collateral, such as a pawn other than real estate or a repayment guarantee provided by a third-party known as a “surety”, might be expected have an analogous effect on the cost of credit. Yet, they are insignificant regardless of

specification; and the relevant coefficients are not negative but positive. This intriguing observation calls for investigating the determinants of pawning and the appointment of a surety in the credit markets under consideration.

Fascinatingly, it turns out that judicial status mattered to the choice of collateral itself. Figure 5 shows that for all three markers of judicial privilege, the disadvantaged party was more likely to use a surety than the advantaged party. Table 8 shows that the pattern is not driven by some confounding variable. The dependent variable is the use of a surety in specifications (1)-(3) of this table, and the use of either a pawn or surety in specifications (4)-(6). Relative to Christian or Jewish borrowers, specification (2) shows, Muslim borrowers were 24.7 percentage points less likely to use a surety. In the same vein, specification (3) indicates that elite borrowers were 17.9 percentage points less likely to use a surety than non-elite borrowers. These findings are themselves consistent with our judicial favoritism hypothesis: if the individuals willing to guarantee the loans taken by Muslims were primarily Muslim and those of elites were mostly elites, their value to lenders would have been minimal. Judicially favored sureties would have lacked credibility in the eyes of lenders for the same reason that judicially favored borrowers did. Lenders would have expected the courts to be lax in forcing recalcitrant sureties to fulfill their contractual duties.

In fact, in the 104 contracts in which a Muslim borrower used a surety, the surety was a fellow Muslim in 101 of them (97.1%). In the 99 contracts in which a non-Muslim used a surety, the surety was Christian in 90 of them (90.9%). Both men and women generally used a male surety (93.7% and 90.6%, respectively). Since the vast majority of the elites in our sample were Muslim, the same observation applies to their cases as well. Their sureties were fellow Muslims. We thus have a reason for why the use of a surety shows up insignificant in our regressions that test the effect of personal status on the interest rate. Its effect is picked up by the borrower's personal status.

If our judicial favoritism hypothesis is correct, favored classes would either use collateral more frequently (to appease reluctant lenders) or just as often as non-favored classes (if the additional risk of lending was channeled solely through the interest rate). Specifications (4)-(6) of Table 8 largely support this conjecture. In these regressions, the dependent variable is presence of a surety or a pawn, two vehicles for raising the probability of repayment. Males and elites did not use collateral either significantly more or significantly less than females or non-elites. Muslim

borrowers, however, did use collateral marginally less than non-Muslim borrowers (specification (5)). This may have been a result of their inability to find sureties acceptable to lenders, as is suggested by specification (2). Yet, the combined results of specifications (4), (5), and (6) lead to the conclusion that the source of our primary results cannot be the under-collateralization of loans issued to the judicially favored.

In sum, no alternative explanation accounts fully for all of our key results: elites paid more for credit than commoners, Muslims paid more than non-Muslims, and men paid more than women. It may be possible to tell a semi-convincing story for one of the results based on selection bias or unobserved wealth. But no apparent alternative explanation fits *all* the results. It is well-documented in historical sources that the Ottoman judicial system was biased in favor of elites, Muslims, and men. And the connection between the partiality of Ottoman courts and the inverse relationship between socio-economic status and credit cost is based on elementary economic logic. This connection accounts in a unified manner for all three of our basic empirical results.

*Table 8: The effect of borrower's status on use of sureties and pawns, pre-registered contracts*

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent Variable: Surety			Dependent Variable: Pawn or Surety		
Male borrower	-0.025 [0.066]			-0.015 [0.019]		
Muslim borrower		-0.247*** [0.042]			-0.045* [0.025]	
Elite borrower			-0.179*** [0.050]			0.014 [0.035]
Principal (in 1000 aspers, base 1600)	0.188 [0.117]	0.160 [0.109]	0.186 [0.114]	0.005 [0.057]	0.004 [0.055]	0.010 [0.056]
Mortgage	0.336*** [0.078]	0.278*** [0.093]	0.234*** [0.080]	0.450*** [0.063]	0.471*** [0.062]	0.470*** [0.062]
Pawn	-0.120 [0.099]	-0.046 [0.099]	-0.017 [0.087]			
Lender is a waqf	0.131** [0.055]	0.136** [0.052]	0.134** [0.051]	-0.005 [0.023]	-0.012 [0.021]	-0.010 [0.021]
Real interest rate	0.103 [0.216]	0.153 [0.212]	0.075 [0.205]	0.059 [0.168]	0.072 [0.166]	-0.005 [0.157]
Constant	0.307** [0.121]	0.404*** [0.103]	0.309*** [0.103]	0.580*** [0.074]	0.585*** [0.075]	0.568*** [0.076]
Register fixed effects	YES	YES	YES	YES	YES	YES
Observations	538	539	538	538	539	538
R-squared	0.182	0.225	0.197	0.466	0.475	0.475

Standard errors clustered by court register in brackets.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## 7. Related Works on Private Credit Markets

A broad literature in economic history suggests that even where formal financial institutions are weak or altogether absent, borrowers of high socio-economic status have relatively high access to credit and/or pay less for loans (Rosenthal 1993; Hoffman, Postel-Vinay, and Rosenthal 2000; Botticini 2000; Reis 2010; Temin and Voth 2008a, 2008b; Zuijderduijn 2009; Ogilvie, K pker, and Maegraith 2011; Padgett and McLean 2011; van Zanden, Zuijderduijn, and de Moor 2012). Certain works on the financial markets of modern underdeveloped countries identify analogous patterns (Timberg and Aiyar 1984; Iqbal 1988; Aleem 1990; Banerjee and Duflo 2011, ch. 7). The last work shows that among the poor relatively better off borrowers incur lower interest charges than the poorest borrowers.<sup>47</sup>

Yet, overall the evidence on the determinants of private-market interest rates in pre-modern Europe and underdeveloped countries is mixed. Numerous studies find that rates are invariant to borrower characteristics because of either information costs or usury regulations. But many also speak of the rationing of credit to borrowers able to post adequate collateral. Other studies identify variations familiar to members of advanced modern societies: lower rates for borrowers deemed relatively creditworthy, who usually belong to groups that are privileged in a broad set of realms.

In these literatures the arguments that connect high socio-economic status to cheap credit share an implicit assumption: unless an unanticipated wealth shock causes the borrower to default, the lender is able to obtain repayment. In other words, it is taken for granted that if a borrower is capable of repaying but tries to renege, the lender has effective recourse. This assumption is justified when a lender can sue a recalcitrant borrower in an essentially impartial court. If the loan contract was indeed breached, a court will certify that fact and force the borrower to pay. As shown above, this logic is incomplete insofar as the judicial system is partial to certain groups. When legal enforcement is sufficiently partial to elites, the familiar relationship between socio-economic status and interest rates is reversed: politically, economically, and socially powerful people pay higher rates on loans, not lower. This finding suggests that comparative research on financial markets would benefit from attention to the operation of courts. It raises questions about the political and judicial institutions that shaped the workings of heretofore analyzed private credit markets. It calls for inquiries into who may have been favored on matters involving credit disputes;

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<sup>47</sup> Neither group has privileged access to courts.

and into whether unequal access to the political process has protected high-status defaulters. Just as important, it intimates that the powerful may have chosen deliberately to level the legal playing field with regard to financial contracts even as they fought to preserve diverse privileges.

The most influential historical studies of financial markets focus on Western Europe, where the early modern era rule of law was perceptibly stronger than in the Ottoman Empire. Among the first in-depth analyses of private credit markets in early modern Europe was *Priceless Markets* by Philip Hoffman, Gilles Postel-Vinay, and Jean-Laurent Rosenthal. Their setting is pre-Revolution France, where, in the absence of formal banking, notaries served as financial intermediaries. Notaries operated through “priceless markets,” in which borrowers competed on the basis of collateral and reputation, and lenders did not vary interest rates to reflect borrower-specific risk conditions.<sup>48</sup> In an earlier piece, Rosenthal (1993) shows that before 1789 interest rates in rural France fluctuated between 4 and 6 percent, generally remaining below the 6 percent cap. To identify connections between credit costs and borrower characteristics, Rosenthal exploits interest rate variations that are lacking in the Hoffman, Postel-Vinay, and Rosenthal (1992, 1995, 2000) samples from Paris. On average, he finds, elites paid less for credit than the middle or lower classes. The pattern varied over time, and the distinction between classes practically disappeared by the eve of the French Revolution. Here is the key result:

...status played an important role in differentiating borrowers. As expected, nobles, priests, and institutions (elites) paid substantially lower interest rates than all other groups. While estimated less accurately, the middle class (services, trade, and *bourgeois*) received more favorable terms than groups of lower status. Within the lower class, rural residents (farmers and unknown), faced higher rates than urban residents (artisans, women, and textiles) (Rosenthal 1993, 145).

Rosenthal’s findings conform to the familiar inverse connection between socio-economic status and credit cost. The theory of section 2 makes one expect the inverse relationship between status and interest rates for groups outside of royalty to be linked to the judicial system. Even in a highly unequal society such as pre-Revolution France, courts could be relatively impartial with regard to financial contracts. By no means was pre-Revolution French jurisprudence impartial across the board. But Rosenthal’s findings are indicative of a society where financial disputes were adjudicated with sufficient impartiality that the “wealth effect” outweighed the “judicial partiality effect” in determining credit costs.

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<sup>48</sup> Where intermediaries were not used, credit remained relatively personal.

Another setting where private credit markets have received intense scrutiny is late-medieval Netherlands. Like pre-modern France, late-medieval Netherlands lacked formal banking. Yet, Dutch property rights were stronger and better protected than those of other late-medieval polities (Zuijderduijn 2009, 2014). Van Zanden, Zuijderduijn, and de Moor (2012) observe that creditors had numerous means of recourse when a loan went bad, and that a fairly advanced loan registry supported legal enforcement. Zuijderduijn (2014) adds that locals and outsiders were equally likely to use village courts and that they obtained credit at similar rates; evidently, these courts did not favor locals. Under the circumstances, the personal characteristics of borrowers hardly mattered to interest rates; rates for men did not differ significantly from those for women, nor the rates of wealthy borrowers from those of the poor.<sup>49</sup> Yet, the loans analyzed in these studies were also heavily collateralized regardless of social status. This would have weakened the wealth effect on interest rates. When the wealth effect on rates is weak and the judicial partiality effect is negligible, the pattern of late-medieval Netherlands is the likely outcome.

Other findings, too, await further interpretation in the light of this article's model. Studying pre-modern Italy, Botticini (2000) observes that Jewish lenders typically set the interest rate at the legal maximum. Yet, the required collateral depended on borrower characteristics. In particular, whereas poor borrowers generally had to pawn property, wealthier households could borrow on a written promise of repayment.<sup>50</sup> Likewise, Reis (2010) finds that in nineteenth-century Portugal literate borrowers paid significantly less in interest than illiterates. With respect to each of these cases, one wonders how impartially credit contracts were enforced. Without information about the relevant legal biases, the observed patterns cannot be interpreted; nor can they be compared properly to cases from other times and places.<sup>51</sup>

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<sup>49</sup> The last result belongs to van Zanden, Zuijderduijn, and de Moor (2012), who also find that access to credit was invariant to gender. In records from 1462, 28 percent of female-headed households had monetary debt compared with 32 percent of male-headed households. Although female access to credit appears to have weakened in the sixteenth century, women played a greater role in supplying credit over time; the percentage of female-headed households supplying credit increased from 6 to 22 percent from 1462 to 1514. Ogilvie, K pker, and Maegraith (2011) report a different pattern for seventeenth-century W rttemberg. There, gender and marital status significantly affected access to credit, possibly because women had weaker property rights than men.

<sup>50</sup> In related work, Padgett and McLean (2011) study a large set of merchant loans provided through private credit markets in fifteenth-century Florence. They find that lending remained highly personalized, but also that partnership members and the politically connected had greater access to credit.

<sup>51</sup> Research on private lending in medieval and early modern England is fairly limited. For relevant efforts, see Schofield and Mayhew (2002), Richardson (2005), Briggs (2006), Temin and Voth (2008a, 2008b), and Koyama and Briggs (2013).

With respect to the Middle East, Eliyahu Ashtor's (1977, 198-99) study of interest rates in the medieval period focuses on average interest rates across time and space. But for Iraq, it also presents a sprinkling of comparative data. "Ordinary" annual interest rates, Ashtor reports, were around 6.66 percent. But the vizier borrowed at between 10 and 20 percent, depending on the length of the loan. The differences, which Ashtor does not interpret, accord with the theory developed here. Lenders would have charged the vizier more because of obstacles to making him repay, if he chose to default. Courts could not enforce the vizier's financial commitments as reliably as those of ordinary citizens. That is why he paid more for credit.

Studying the effects of political connections in contemporary Malaysia, Bliss and Gul (2012) establish that they raise the credit costs of firms. Compared to unconnected firms, politically connected Malaysian firms incur significantly higher interest rates. Apparently, lenders perceive politically connected firms to be riskier. One reason is that connected firms can stay afloat in spite of bad balance sheets and major inefficiencies. Another, our own analysis underscores, is that connected firms that default are relatively immune to lawsuits. To sue a firm with connections to top Malaysian authorities is to risk retaliation in the face of low chances of success.

Judicial partiality need not favor elites. Modern Brazil offers a case of financial laws meant to assist the poor in certain markets. In fact, the laws actually harm the poor. It is notoriously costly to evict a tenant in Brazil, and even costlier to foreclose on a property. In rental disputes, the legal playing field is thus tilted in favor of poor tenants and against property owners. As a consequence, owners require huge deposits for rentals, and they screen renters tightly, making it exceedingly difficult for the poor to rent. Indeed, most renters are wealthy, and the poor tend to own a home. Ferreira, Lanjouw, and Neri (2003) speak of middle-class households who rent in a fashionable neighborhoods of Rio de Janeiro or São Paulo; the domestic servants of these households own homes in the metropolitan periphery. Apparently 63 percent of poor Brazilian households own their own home, typically a shabbily constructed structure lacking basic modern amenities. Poor Brazilians tend to be excluded from the mortgage and rental housing markets.

The literature on ethnic discrimination in the United States provides evidence of differences in private lending rates based on borrower characteristics. According to numerous studies, American ethnic minorities pay higher interest rates on loans, or are more commonly denied credit, even if otherwise comparable to whites. For instance, Blanchflower, Levine, and Zimmerman (2003) show that, relative to comparable white-owned firms, black-owned firms pay

rates that are about one percentage point higher. In the same vein, Blanchard, Zhao, and Yinger (2008) find that black-owned businesses pay relatively higher interest rates when they borrow from financial firms. Cavalluzzo and Cavalluzzo (1998) report a similar finding for Asian and Hispanic-owned firms relative to white-owned firms, and Hu, Liu, Ondrich, and Yinger (2011) for black and Hispanic-owned firms, again, relative to white-owned firms. While the patterns are clear, the underlying mechanisms are debated (Brennan 1977; Ausubel 1997). The relevant causes must include laws designed to protect minorities against discrimination in financial markets. Apprehensions rooted in lawsuits alleging ethnic financial discrimination may be reducing the supply of credit in sub-markets with heavy concentrations of protected ethnic groups.

To return to the Ottoman data used here, it contains nothing similar to triple-digit interest rates charged commonly to the poor in advanced modern societies. A major reason is that in Ottoman Istanbul, as elsewhere in pre-modern times, the poor lacked the bankruptcy protections they now enjoy in many societies. In seventeenth- and eighteenth-century Istanbul, debtors could be thrown into prison and forced to work off their unpaid loans.<sup>52</sup> They could also be evicted from their homes summarily to pay off debt. Bankruptcy laws protect modern borrowers from the former dangers. They shield certain personal assets from collection agencies. And fair housing laws delay, and in extreme cases hinder, foreclosure. For reasons made clear by the model of section 2 above, these well-intentioned laws have a downside. In making it more difficult for lenders to recoup their losses from defaults, they raise credit costs of the poor. Laws meant to protect the powerless thus have the unintended effect of compounding their handicaps in financial markets. With regard to private finance, modernity has been strikingly unkind to the poor.

## **8. Identification of Variations in Judicial Partiality**

The foregoing literature survey provides further evidence that the enforcement of financial contracts matters to inter-group differences in borrowing costs. Where the law privileges certain groups, the identity of the intended beneficiaries affects the outcome, as does the degree of judicial partiality. Table 9 provides a heuristic device for relating the possible cases to one another along two dimensions. The table's rows refer to the wealth of the sub-population that the law favors. Its

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<sup>52</sup> Numerous cases in Kuran ed. (2010-13), vols. 9 and 10, provide evidence. See Galata 25: 75b/3, Galata 27: 11b/2, Istanbul 2: 42b/2, Galata 41: 30b/2, Istanbul 4: 18b/2; Istanbul 16: 16a/3; Galata130: 31a/2; Galata 145: 13b/2, 67b/2, 122a/3; and Istanbul 22: 10b/1, 11a/2, 16a/1, 17b/3, 32a/6, 63a/2, 119a/2. Pertinent eighteenth-century cases in our database include Galata 224: 9b/3, 140b/2.

columns distinguish among degrees of judicial partiality: weak, moderate, and strong. All the cases mentioned in this article, including the Ottoman case analyzed in depth, fall into one of the table's cells.

*Table 9: Judicial partiality and inter-group differences in interest rates: Four cases*

		Strength of judicial partiality effect		
		Weak	Moderate	Strong
<b>Intended beneficiary of legal partiality</b>	Rich	<p>Wealth effect dominates partiality effect.</p> <p>Outcome: Interest rate negatively correlated with wealth.</p> <p>Example: Investment loans in advanced countries of modern world.</p>	<p>Wealth and partiality effects offset one another.</p> <p>Outcome: Interest rate invariant to wealth.</p> <p>Example: Consumption loans in late-medieval Netherlands.</p>	<p>Partiality effect dominates wealth effect.</p> <p>Outcome: Interest rate positively correlated with wealth.</p> <p>Examples: Consumption loans in medieval Iraq, Ottoman Istanbul.</p>
	Poor	<p>Wealth and partiality effect work in same direction.</p> <p>Outcome: Negative correlation between interest rate and wealth.</p> <p>Examples: Consumption loans in advanced countries of modern world. Housing loans in modern Brazil. Consumption loans in 19<sup>th</sup> century-Portugal.</p>		

Starting with the bottom row, we see that legal measures that allow poor borrowers to avoid repayment with impunity add new handicaps to their credit market disadvantages rooted in poverty. Under fully impartial law, contract enforcement would be invariant to wealth. Lenders would impose higher rates on the poor to compensate for their higher chances of default. A stark example lies in the immense variability in credit costs in the United States—450 percent per annum for the poor, as against 4-16 percent for the rich. Another lies in the exclusion of Brazil's urban poor from the mortgage and even rental housing markets. The interest rate variations in nineteenth-century Portugal offer yet another example because the literate tend to be richer than the illiterate.

In none of these cases is it easy to decompose the wealth and judicial partiality effects on the credit costs of the poor. That is because the effects work in the same direction. Only through special statistical techniques, such as instrumental variables, could one distinguish between the

two effects. In the top row, however, the two effects counteract each other, enabling the detection of a partiality effect reliably, provided it is strong enough to swamp the wealth effect.

The first column of the top row captures cases where the judicial partiality and wealth effects work against each other. Investment lending in the advanced economies offers an example. The second column captures cases where the partiality and wealth effects offset one another. Late-medieval Netherlands, where rich and poor smoothed consumption at identical rates, appears to exemplify it. The last column involves judicial partiality strong enough to swamp the wealth effect. This is where the presence of the judicial partiality effect is identifiable conclusively simply by comparing the credit costs of rich and poor with statistical controls.

Table 9 thus demonstrates the analytic value of the empirical case presented here. The institutional particularities of Ottoman Istanbul's credit markets offer especially fortuitous conditions for testing the presented model.

## **9. Conclusions and Final Observations**

Students of the rule of law have long understood that credit costs depend on the enforceability of financial contracts. The credibility of a state's promises affects the cost of financing public debt. Likewise, the enforceability of private financial commitments influences the cost of private debt. Just as investors induce the bonds of unreliable states to pay high interest rates, so in countries where individual commitments are poorly enforced rates on private loans tend to be high. This article's insight is that intergroup variations in contract enforcement generate systematic differences in private interest rates. Judicially favored groups pay more for credit precisely because their promises are relatively less credible. Policies that limit the underlying judicial biases will lower the interest rates of the favored accordingly.

There are substantial overlaps between the distributions of political power, economic power, and legal power. The richest Americans enjoy vastly disproportionate political clout, as measured by the capacity to influence elections and legislation, and also high legal power, as measured by the ability to mount a defense in court. In the modern world, finance is a domain where groups with low economic and political power enjoy substantial legal power because of legislation that protects them, to one degree or another, from creditors. An unintended byproduct of such legislation is to weaken the credibility of financial commitments by the poor. That is why in advanced economies the poor endure interest rates that exceed by two orders of magnitude those

paid by the rich. This must rank among the structural causes of chronic poverty observed in wealthy countries.

Comparative economic historians study the interest rates paid by states for insights into their creditworthiness. They also study personal interest rates for clues about the efficiency of private finance. Intergroup differences in private credit costs, this article shows, can convey valuable information about the social institutions governing the enforceability of credit contracts. Where women are less mobile than men, gender differences in flight risk translate into higher interest rates for male borrowers. Likewise, where the courts favor one religious community over another, the judicially advantaged community pays a price for its privileges through higher credit costs. In seventeenth and eighteenth century-Istanbul, not only men and Muslims but also elites paid a surcharge for credit. Evidently, competitive credit markets compensated lenders for the added risk they took when lending to privileged groups.

Although economic history is far more advanced in relation to Western Europe than to late-industrializing regions, the issue of intergroup interest comparisons appears to be an exception. Indeed, the existing systematic work is sparse, and no study is couched in a testable theory of intergroup variations. The best available work, on France and the Netherlands, suggests that in the period for which we have analyzed Istanbul data, private loan contracts were enforced relatively impartially across social groups. Men did not pay noticeably more than women, for instance, or elites than commoners. If further research sustains these initial observations, it would constitute new evidence that Europe's economic ascent went hand in hand with a redistribution of political power. We would have confirmation that well before industrialization power reconfigurations made the judicial systems of Western Europe fairer. It would also indicate that the economic divergence between Europe and the Middle East, which began in the Middle Ages, was accompanied by a political divergence whose financial manifestations were evident as early as the seventeenth century.

Restricting elite privileges is central to what North, Wallis, and Weingast (2009) characterize as the transition from the "natural state" to the "open access order". In a natural state, a small clique monopolizes rights and resources; in an open access order, all members of society compete for resources on a field that self-enforcing institutions keep more or less flat. Though no society has eliminated all privileges, and no society succeeds in blocking the establishment of new privileges, the rule of law is relatively more advanced in open access orders.

The transition to an open access order took centuries in the West, which comprises Western Europe, along with former European colonies with substantial populations of European origin. It is still under way almost everywhere else. The argument developed here suggests that leveling the playing field in financial markets would be among the early reforms attempted. The potential gains are obvious, and the immediate beneficiaries form a politically powerful constituency. Just as powerful states borrow more cheaply when political checks and balances make their promises more credible, so privileged groups make themselves more creditworthy when they force the judiciary to hold them to their financial contracts. Not until the nineteenth century did the Middle East launch fundamental political reforms aimed at reducing judicial biases. The reforms were initiated during an existential crisis marked by the painful realization that European rivals had pulled way ahead economically and militarily.

The foregoing analysis cannot account for the timing of the Ottoman judicial reforms. But it does provide insights into why the reforms were unlikely to materialize without a crisis. Reforms that would level the judicial playing field would have benefited elites as a whole. By the same token, they would have harmed individual elites with already negotiated contracts. After contract negotiation, individual elites would do worse under impartial enforcement than under their traditional judicial privileges. This is why, as North, Wallis, and Weingast note, nowhere has the transition to an open access order unfolded without resistance from privileged groups.

The findings here shed light also on the types of reforms that the Ottoman Empire undertook once it became clear that its traditional social order was unsustainable and that its very existence required fundamental reforms. Elites were accustomed to military reforms in response to technological advances and to periodic fiscal reforms designed to close budget deficits (Ágoston 2005, İnalçık 1980). But the social order that defined individual rights and responsibilities had never been questioned seriously. The Gülhane Decree of 1839 extended a broad set of rights to all Ottoman citizens regardless of religion or ethnicity. It also decoupled legal rights from rank, position, and influence. Although these reforms did not immediately eradicate age-old judicial biases, at least they legitimized the secularization of governance, reorganization of the bureaucracy, and the development of new judicial institutions to supplement, and eventually supplant, the Islamic judicial system. The opening of secular commercial courts to handle legal matters involving merchants and financiers was among the early fruits of the post-1839 reforms known collectively as the Tanzimat—literally, reorganization. They included the establishment of

commercial courts whose judges did not have to be Muslim. The law these courts enforced was based primarily on the French Commercial Code (Shaw, 1976-77, vol. 2, 118-19; Berkes 1998, chap. 6; Findley 1980). The equalization of legal rights thus produced its first practical effects in private commerce and finance.

The enormous literature on the Tanzimat highlights the gains of previously underprivileged groups (Berkes 1998, chaps. 8-10). What has escaped notice is that the new principles of governance were put into practice most rapidly and most effectively in contexts where the losers of privileges had something tangible to gain in return. Secular commercial courts enabled Muslims to conduct business under rules that enhanced their competitiveness. In leveling the judicial playing field in commerce and finance, they also allowed traditionally privileged Ottoman groups to bind themselves in contexts where the absence of credible commitment opportunities was raising their costs. To accept the jurisdiction of secular courts over a loan contract amounted to relinquishing age-old privileges for the sake of better terms. Indeed, the emergence of a secular alternative to the Islamic legal system raised the creditworthiness of groups that had found it difficult to make financial contracts credibly. It also lowered their credit costs. By 1900 they were borrowing at 7 to 9 percent (Biliotti, 207-21).

Judicial reforms of the nineteenth century enabled Ottoman citizens to trade, invest, produce, and save more efficiently, using modern economic institutions. This article adds that the shrinking of the domain of Islamic law was needed also because it imposed financial burdens on Ottoman elites, the group best positioned to exploit the opportunities that the modern economy provided to individuals enjoying access to cheap credit. Hence, the legal de-Islamization initiated in the nineteenth century was not a matter of cultural taste or of mindless imitation, as diverse commentators have held for generations. In advancing the rule of law, including the principle of equal treatment, it provided new material benefits in the form of lower interest rates to social groups long privileged openly under Islamic law. It thus aligned the distribution of financial power across social groups with the wealth distribution, relative political influence, and the distribution of social status.

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## ONLINE APPENDICES

### Appendix 1: Model Extension – Private Loan Markets

Consider the economy modeled in Section 2, with the following additions. Each player belongs to one of  $N$  social groups, which for simplicity we consider non-overlapping (so that there are  $M/N$  people in each group). Prior to the beginning of the game,  $M_L$  players are randomly assigned via an i.i.d. process with probability  $q_L$  to be lenders,  $M_B$  are assigned with probability  $q_B$  as borrowers, and the remaining  $M - M_L - M_B$  players do not enter the loan market. Lenders have excess funds that are investible, and borrowers need funds for consumption.

We add to the timeline of the model in Section 2 a period 0, where borrowers can borrow from lenders in their social group, if one exists. The key difference between lending within a social group and lending on the open market described in Section 2 is that the former is personal and the latter is impersonal. In the personal, intra-group market, social pressures (via multi-lateral punishment or social sanctions) are strong enough to encourage borrowers to repay their loans if they can.

However, a borrower cannot always find a lender in his or her social group, and vice versa. A lender has a borrower in his social group with probability  $1 - (1 - q_B)^{M/N}$ , which is small when  $q_B$  is small. Likewise, a borrower has a lender in his social group with probability  $1 - (1 - q_L)^{M/N}$ , which is also small if  $q_L$  is small. If a lender or borrower does not find a match within his social group, he can enter the general market for loans, modeled in Section 2, where they interact with people outside of their social group. That is, if no match is made in period 0, the game proceeds to period 1, and the model described in Section 2 comes into play.

Solving the equilibrium of this extended model is straight-forward. The backwards induction employed in that section is not affected by the introduction of Stage 0. Continuing the backwards induction from Stage 1, it is clear in Stage 0 that a lender and borrower will agree to the terms of a loan if they find a match within their social class. For transactions within a social class, the equilibrium interest rate is lower than what the borrower would pay on the open market, since he does not have to pay a “reneging premium.” Likewise, the lender’s expected profit is also higher, since the borrower never reneges. Hence, only when borrowers and lenders cannot find a match within their social group do they use the open market.

An alternative specification would allow period 0 to last an infinite amount of time, should the lender or borrower so desire. In such a specification, a player can wait for a lender or borrower to show up in his social group; he can also enter the impersonal market at any time, moving to Stage 1. Imagine that once every month a lender shows up with probability  $q_L$  and a borrower with probability  $q_B$ . At any given time, a borrower or lender can wait one month for the possibility of transacting within their social group, or enter the impersonal market immediately. Assume that lenders have a monthly discount rate  $\delta < 1$ , implying that waiting is costly. Assume also that borrowers need funds for something pressing, so they never wait. In other words, they always enter the impersonal market if no lender is available in their social class. But a lender might wait if the expected benefit from doing so exceeds the opportunity cost from not earning a return on his funds. It is clear that the parameter space over which a lender enters the impersonal market is increasing in his expected profit from operating in the impersonal market, and it is decreasing in both  $q_B$  and  $\delta$ . Under this specification, borrowers and lenders will enter the impersonal market, making the analysis in Section 2 relevant, as long as they are not matched with someone in their social group immediately, and the opportunity cost of waiting for a borrower is sufficiently high.

The key point of this extension is that some loans will leave no traces in court data. When credit transactions occur among friends and relatives, there is little need to register them with a court or to go through the procedures necessary to secure repayment in an impersonal setting. Such private markets exist even in the most advanced economies with very impartial courts: undocumented lending still occurs between kin, friends, and acquaintances. Their existence means that the credit transactions found in official records represent biased samples of all credit transactions. In our context, too, they kept excluded certain transactions for the records. By the same token, for reasons given in Section 6, the resulting biases do not come close to explaining our empirical findings.

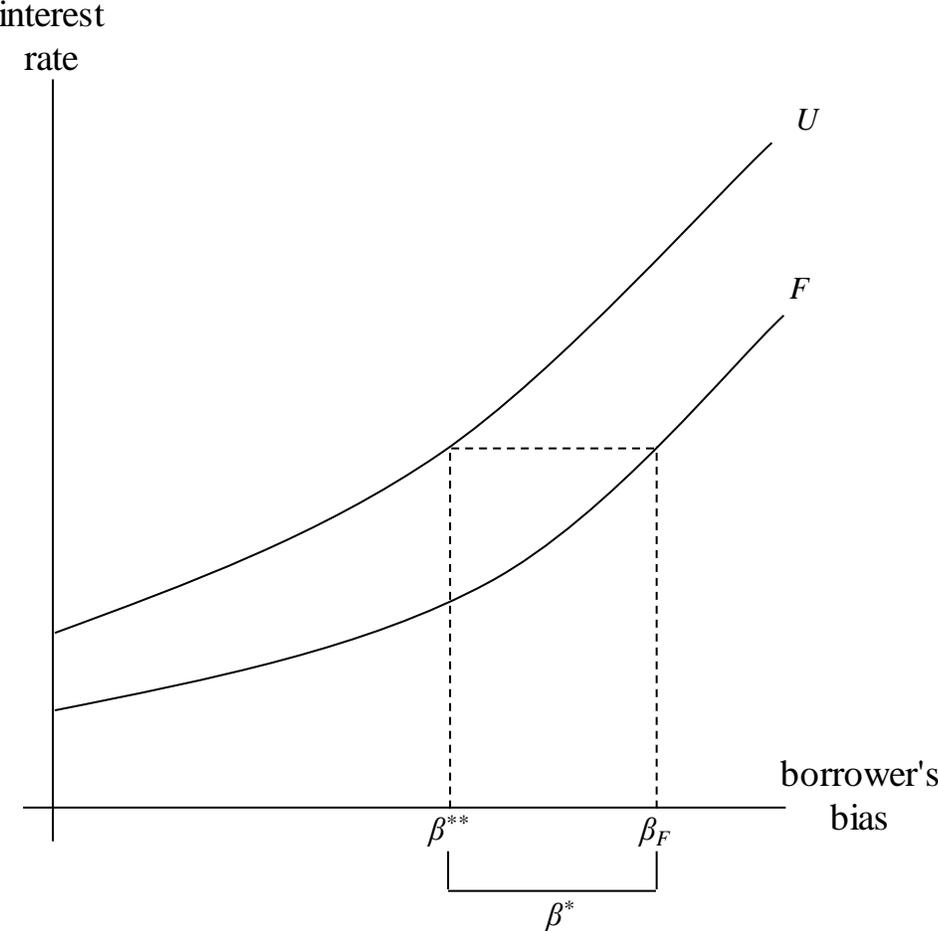
## Appendix 2: Proofs of Propositions

*Proof of Proposition 1.* Setting  $\pi^L = \gamma$  in equation (2b) means that the equilibrium interest rate must satisfy the condition  $[1 - G((1 + r_i)p_i - w_i)](1 - \beta_i/(\beta_i + \lambda_j))(1 + r_i) = 1 + \gamma/p_i$ . The left side of this equation is decreasing weakly in  $\beta_i$  and increasing weakly in  $\lambda_j$  and  $w_i$ . It can be shown that the left side is increasing also in the equilibrium level of  $r_i$ . An increase in  $r_i$  has two countervailing effects. On the one hand, it raises the return to the lender if the borrower repays the loan. On the other hand, it increases the probability of default. However, if the market is in equilibrium, the lender cannot gain from decreasing the interest rate; otherwise, all lenders would do so, and the market would be out of equilibrium. In equilibrium, then, the lender's expected profit is increasing in  $r_i$ . The left side of equation (2b) is therefore increasing in  $r_i$ . Hence, an increase in  $r_i$  requires an increase in  $\beta_i$  or decrease in  $\lambda_j$  or  $w_i$  to maintain the equilibrium condition  $\pi^L = \gamma$ , ceteris paribus. The same logic holds when setting  $\pi^L = \gamma$  in equation (2c). ■

*Proof of Proposition 2.* Imagine a continuum of individuals with different levels of wealth,  $w_i$ . Prior to game play, each individual is assigned to one of two social classes as a function of wealth. The two social classes,  $F$  (favored) and  $U$  (unfavored), are associated with partiality parameters  $\beta_F$  and  $\beta_U$  for borrowers and  $\lambda_F$  and  $\lambda_U$  for lenders. By assumption,  $\beta_F > \beta_U$  and  $\lambda_F > \lambda_U$ . An individual is assigned class  $F$  with probability  $\alpha(w_i)$ , where  $\alpha' > 0$ , and to class  $U$  with probability  $1 - \alpha(w_i)$ .

Focus on the situation where two different borrowers borrow from the same lender, whose partiality parameter is  $\lambda_j$ . If  $\lambda_j$  is sufficiently small that the partiality effect can be strong for a sufficiently large  $\beta_F$ , then for a given difference in wealth,  $w_F - w_U$ , and a given principal,  $p_i$ , there must exist some  $\beta^*$ , such that  $F$  pays a higher interest rate (on average) if  $\beta_F - \beta_U > \beta^*$ . That is, for a given degree of partiality  $\beta_F$  for  $F$ , any degree of partiality for  $U$  such that  $\beta_U < \beta^{**}$  will result in a lower interest rate for  $U$  than for  $F$ . Figure A.1 displays this intuition graphically. ■

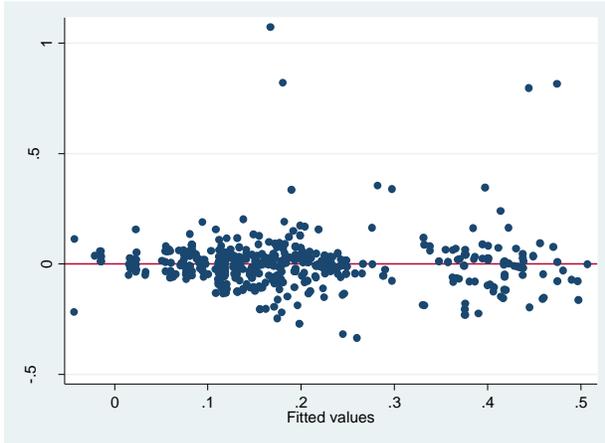
Figure A.1. Equilibrium interest rate paid by borrowers as a function of court partiality



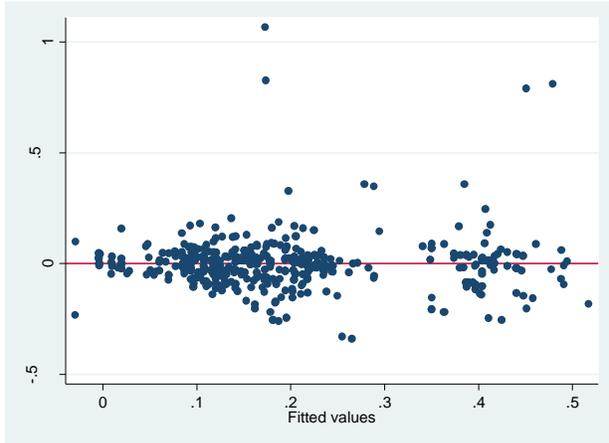
### Appendix 3: Robustness Checks

Figure A.2: Residual plots of six regressions in Table 5

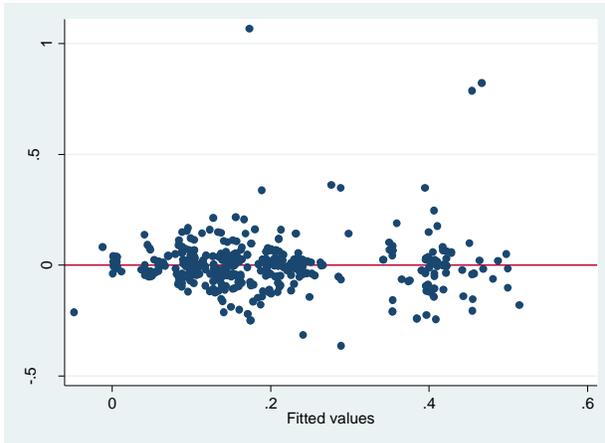
Column (1)



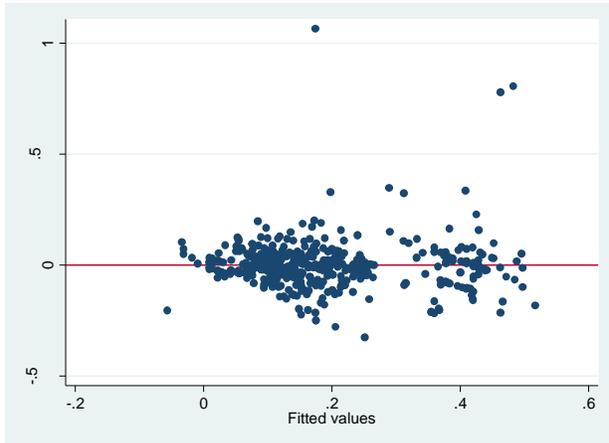
Column (2)



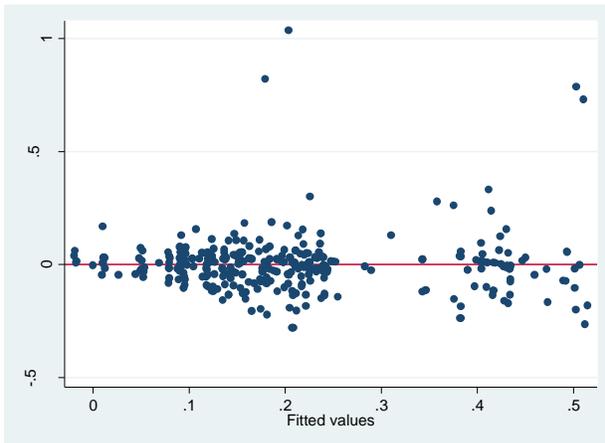
Column (3)



Column (4)



Column (5)



Column (6)

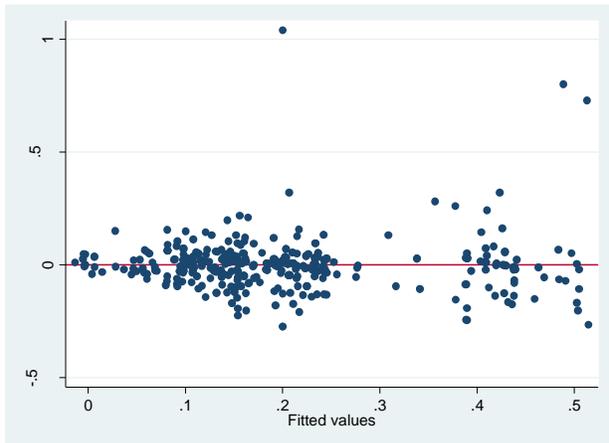


Table A.1: The effect of borrower's status on credit cost, all registered contracts (pre-registered and post-registered)

	Dependent Variable: Real Interest Rate					
	(1)	All Cases			Male Borrowers Only	
	(2)	(3)	(4)	(5)	(6)	
Male borrower	0.034*** [0.011]		0.038*** [0.012]			
Muslim borrower		0.027** [0.013]		0.026 [0.016]	0.035** [0.015]	
Elite borrower			0.033** [0.013]	0.018 [0.015]		0.031** [0.014]
Principal (in 1000 aspers, base 1600)	-0.006 [0.019]	-0.004 [0.020]	-0.004 [0.019]	-0.002 [0.018]	-0.007 [0.027]	-0.008 [0.026]
Mortgage	-0.048* [0.027]	-0.057** [0.028]	-0.046 [0.028]	-0.046 [0.029]	-0.074* [0.038]	-0.066 [0.040]
Pawn	0.010 [0.028]	0.003 [0.026]	0.006 [0.030]	0.015 [0.031]	0.014 [0.032]	0.019 [0.037]
Surety	0.006 [0.010]	0.010 [0.011]	0.004 [0.009]	0.009 [0.010]	0.005 [0.014]	-0.004 [0.011]
Lender is a waqf	-0.019 [0.012]	-0.019 [0.013]	-0.015 [0.012]	-0.015 [0.011]	-0.019* [0.010]	-0.013 [0.010]
Constant	0.137*** [0.015]	0.159*** [0.014]	0.156*** [0.015]	0.107*** [0.021]	0.164*** [0.018]	0.163*** [0.019]
Register fixed effects	YES	YES	YES	YES	YES	YES
Observations	593	595	594	588	451	450
R-squared	0.517	0.515	0.543	0.552	0.501	0.531

Standard errors clustered by court register in brackets.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A.2: The effect of borrower's status on credit cost, all contracts (pre-registrations, settlements, and adjudications)

	Dependent Variable: Real Interest Rate					
	(1)	(2)	(3)	(4)	(5)	(6)
	All Cases				Male Borrowers Only	
Male borrower	0.036*** [0.011]			0.040*** [0.011]		
Muslim borrower		0.025** [0.011]		0.027* [0.013]	0.036** [0.014]	
Elite borrower			0.027* [0.015]	0.014 [0.016]		0.030* [0.016]
Principal (in 1000 aspers, base 1600)	-0.004 [0.016]	-0.002 [0.018]	-0.002 [0.017]	-0.002 [0.015]	-0.003 [0.023]	-0.004 [0.022]
Mortgage	-0.035 [0.025]	-0.042 [0.025]	-0.035 [0.027]	-0.034 [0.028]	-0.057 [0.036]	-0.049 [0.038]
Pawn	-0.009 [0.026]	-0.016 [0.027]	-0.012 [0.030]	-0.007 [0.029]	-0.004 [0.033]	-0.001 [0.037]
Surety	0.007 [0.010]	0.011 [0.011]	0.006 [0.009]	0.011 [0.010]	0.007 [0.014]	-0.002 [0.013]
Lender is a waqf	-0.015* [0.009]	-0.017* [0.010]	-0.013 [0.010]	-0.012 [0.008]	-0.018* [0.009]	-0.014 [0.010]
Loan Registered	0.006 [0.019]	0.013 [0.018]	0.012 [0.018]	-0.000 [0.020]	0.014 [0.024]	0.015 [0.025]
Constant	0.130*** [0.020]	0.146*** [0.018]	0.147*** [0.019]	0.111*** [0.022]	0.146*** [0.024]	0.148*** [0.025]
Register fixed effects	YES	YES	YES	YES	YES	YES
Observations	667	672	671	661	518	516
R-squared	0.508	0.498	0.523	0.540	0.488	0.512

Standard errors clustered by court register in brackets.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

*Table A.3: The effect of borrower's status on credit cost, restricted to pre-registered contracts with male Muslim lenders*

	Dependent Variable: Real Interest Rate					
	(1)	(2) All Registered Cases			(4)	(5) Male Borrowers Only
Male borrower	0.039** [0.015]			0.043*** [0.015]		
Muslim borrower		0.031** [0.013]		0.029** [0.014]	0.032* [0.018]	
Elite borrower			0.037* [0.018]	0.019 [0.018]		0.030 [0.018]
Principal (in 1000 aspers, base 1600)	0.008 [0.026]	0.011 [0.027]	0.010 [0.026]	0.006 [0.027]	-0.016 [0.040]	-0.019 [0.039]
Mortgage	-0.047 [0.038]	-0.064 [0.039]	-0.052 [0.039]	-0.052 [0.040]	-0.068 [0.055]	-0.058 [0.054]
Pawn	0.013 [0.045]	0.013 [0.045]	0.005 [0.047]	0.016 [0.046]	0.008 [0.056]	0.002 [0.057]
Surety	0.003 [0.011]	0.009 [0.013]	0.007 [0.012]	0.013 [0.013]	-0.004 [0.017]	-0.008 [0.015]
Lender is a waqf	-0.011 [0.017]	-0.010 [0.017]	-0.010 [0.017]	-0.008 [0.016]	-0.007 [0.016]	-0.007 [0.016]
Constant	0.120*** [0.019]	0.143*** [0.018]	0.154*** [0.018]	0.095*** [0.023]	0.163*** [0.027]	0.173*** [0.026]
Register fixed effects	YES	YES	YES	YES	YES	YES
Observations	472	473	473	471	353	353
R-squared	0.560	0.559	0.559	0.569	0.562	0.560

Standard errors clustered by court register in brackets.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A.4: Effect of borrower's and lender's status on credit cost, all registered contracts (pre-registrations and settlements)

	Dependent Variable: Real Interest Rate					
	(1) Favored: Unfavored:	(2) Muslim Non-Muslim	(3) Titled Non-titled	(4) Muslim Non-Muslim	(5) Titled Non-titled	
		<u>All Cases</u>			<u>Male Borrowers Only</u>	
(Favored Borrower) x (Unfavored Lender)	0.011 [0.030]	-0.051* [0.028]	0.001 [0.024]	-0.096*** [0.024]	-0.007 [0.030]	
(Unfavored Borrower) x (Favored Lender)	-0.036*** [0.013]	-0.033** [0.014]	-0.037** [0.016]	-0.043** [0.017]	-0.037** [0.016]	
(Unfavored Borrower) x (Unfavored Lender)	-0.010 [0.030]	-0.006 [0.033]	-0.026 [0.017]	-0.012 [0.039]	-0.028 [0.023]	
Principal (in 1000 aspens, base 1600)	-0.006 [0.019]	-0.006 [0.021]	-0.004 [0.019]	-0.013 [0.030]	-0.010 [0.026]	
Mortgage	-0.049* [0.028]	-0.064** [0.031]	-0.049 [0.031]	-0.086* [0.045]	-0.069 [0.043]	
Pawn	0.011 [0.029]	0.010 [0.029]	0.007 [0.031]	0.024 [0.037]	0.021 [0.039]	
Surety	0.006 [0.010]	0.014 [0.012]	0.005 [0.009]	0.009 [0.014]	-0.003 [0.011]	
Lender is a waqf	-0.016 [0.014]	-0.018 [0.013]	-0.015 [0.012]	-0.014 [0.011]	-0.013 [0.010]	
Constant	0.170*** [0.013]	0.187*** [0.013]	0.188*** [0.021]	0.201*** [0.020]	0.197*** [0.028]	
Register fixed effects	YES	YES	YES	YES	YES	
Observations	593	589	591	447	448	
R-squared	0.518	0.518	0.543	0.504	0.530	

Standard errors clustered by court register in brackets.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A.5: Effect of borrower's and lender's status on credit cost, all contracts (pre-registrations, settlements, and adjudications)

	Dependent Variable: Real Interest Rate				
	(1) Favored: Unfavored:	(2) Male Female	(3) Muslim Non-Muslim	(4) Titled Non-titled	(5) Muslim Titled Non-Muslim Non-titled
		<u>All Cases</u>		<u>Male Borrowers Only</u>	
(Favored Borrower) x (Unfavored Lender)	0.007 [0.034]	-0.102 [0.064]	-0.004 [0.022]	-0.079*** [0.025]	-0.004 [0.026]
(Unfavored Borrower) x (Favored Lender)	-0.037*** [0.012]	-0.030** [0.014]	-0.037* [0.019]	-0.040** [0.017]	-0.039* [0.021]
(Unfavored Borrower) x (Unfavored Lender)	-0.019 [0.027]	-0.023 [0.027]	-0.018 [0.016]	-0.033 [0.030]	-0.023 [0.020]
Principal (in 1000 aspers, base 1600)	-0.004 [0.016]	-0.004 [0.018]	-0.003 [0.016]	-0.008 [0.024]	-0.007 [0.021]
Mortgage	-0.035 [0.027]	-0.047* [0.027]	-0.037 [0.028]	-0.064 [0.040]	-0.053 [0.040]
Pawn	-0.010 [0.027]	-0.014 [0.027]	-0.012 [0.030]	-0.001 [0.033]	-0.000 [0.037]
Surety	0.008 [0.010]	0.014 [0.012]	0.006 [0.010]	0.010 [0.015]	-0.000 [0.013]
Lender is a waqf	-0.014 [0.010]	-0.016 [0.010]	-0.012 [0.009]	-0.014 [0.009]	-0.011 [0.009]
Loan registered	0.006 [0.019]	0.007 [0.019]	0.010 [0.018]	0.010 [0.024]	0.013 [0.025]
Constant	0.165*** [0.020]	0.181*** [0.020]	0.176*** [0.023]	0.190*** [0.025]	0.181*** [0.031]
Register fixed effects	YES	YES	YES	YES	YES
Observations	667	665	667	513	513
R-squared	0.509	0.504	0.528	0.493	0.517

Standard errors clustered by court register in brackets.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A.6: Effect of borrower's and lender's status on credit cost, restricted to pre-registered contracts with male Muslim lenders

	Dependent Variable: Real Interest Rate					
	(1) Favored: Unfavored:	(2) Male Muslim Non-Muslim	(3) Titled Non-titled	(4) Muslim Non-Muslim	(5) Titled Non-titled	
		<u>All Registered Cases</u>			<u>Male Borrowers Only</u>	
(Favored Borrower) x (Unfavored Lender)	XX	XX	-0.025 [0.023]	XX	-0.032 [0.031]	
(Unfavored Borrower) x (Favored Lender)	-0.039** [0.015]	-0.031** [0.013]	-0.051** [0.023]	-0.032* [0.018]	-0.045* [0.022]	
(Unfavored Borrower) x (Unfavored Lender)	XX	XX	-0.029 [0.023]	XX	-0.026 [0.027]	
Principal (in 1000 aspers, base 1600)	0.008 [0.026]	0.011 [0.027]	0.009 [0.026]	-0.016 [0.040]	-0.021 [0.039]	
Mortgage	-0.047 [0.038]	-0.064 [0.039]	-0.055 [0.040]	-0.068 [0.055]	-0.060 [0.053]	
Pawn	0.013 [0.045]	0.013 [0.045]	0.002 [0.047]	0.008 [0.056]	-0.002 [0.057]	
Surety	0.003 [0.011]	0.009 [0.013]	0.007 [0.011]	-0.004 [0.017]	-0.006 [0.015]	
Lender is a waqf	-0.011 [0.017]	-0.010 [0.017]	-0.012 [0.018]	-0.007 [0.016]	-0.007 [0.016]	
Constant	0.159*** [0.020]	0.174*** [0.021]	0.200*** [0.031]	0.195*** [0.029]	0.215*** [0.040]	
Register fixed effects	YES	YES	YES	YES	YES	
Observations	472	473	473	353	353	
R-squared	0.560	0.559	0.562	0.562	0.563	

Standard errors clustered by court register in brackets.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A.7: Effect of borrower's title status on credit cost, pre-registrations only

Dependent Variable: Real Interest Rate	
State official borrower	0.068*** [0.021]
Principal (in 1000 akçe, base 1600)	-0.007 [0.021]
Mortgage	-0.059** [0.028]
Pawn	0.020 [0.033]
Surety	0.009 [0.012]
Lender is a waqf	-0.011 [0.014]
Constant	0.148*** [0.015]
Register fixed effects	YES
Observations	538
R-squared	0.558

Standard errors clustered by the court register in brackets.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.