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 premium for capital. This is because they pose a greater risk to lenders who have limited means of punishing them. 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.

1. Introduction

In competitive credit markets, the price of credit depends on the risk that 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 considered 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 smooth consumption. Whereas individuals in the bottom quartile of the U.S. income distribution smooth consumption 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.[1]

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.[2] 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.[3]

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

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[1] 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/). From 1986 to 2014, 30-year fixed rate mortgages have ranged from 3.6% (December 2012) to 11.4% (October 1987) (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). 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).

[2] A judicial system's impartiality may vary across contexts. For example, a system that handles credit cases fairly impartially may be highly biased on matters involving ethnic relations.

[3] 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.

their favor 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 wealth and credit cost are negatively related 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 theory yields implications that we test through a data set composed of private loans issued in Ottoman Istanbul during the period 1602-1799. This is an ideal empirical context, because Islamic Ottoman courts served all Ottoman subjects, but through procedures that were biased in favor of clearly defined groups, sometimes explicitly. 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 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 pay higher interest rates than women, commoners, and non-Muslims, respectively. The magnitudes point to immense economic significance. In a society where the average real interest rate was around 19 percent, the interest rate premium was around 3.4 percentage points for men, 2.5 percentage points for Muslims, and 3.4 percentage points for elites.[4]

The results carry broad implications for three distinct literatures. One concerns the connection between rule of law and the performance of financial markets. Our findings are consistent 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).[5] Yet, a state can be perfectly creditworthy but fail to enforce *private* contracts impartially. As North, John Wallis, and Weingast (2009) show, another giant step towards improving the rule of law involves binding society's elites.[6] 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 it cannot happen overnight. Obviously nations of the world differ greatly in regard to transitioning to impartial rule of law.

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[4] Our results are consistent with the findings in Bliss and Gul (2012) that in contemporary Malaysia political connections adversely affect the credit costs of firms. Their analysis indicates that politically connected firms pay significantly higher rates than unconnected firms. They observe that lenders perceive politically connected firms to be riskier. That is because they could stay afloat in spite of bad balance sheets and major inefficiencies.

[5] 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), Greif and Rubin (2014), and Pincus and Robinson (2014).

[6] 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.

Comparative financial history is another relevant literature. This literature generally focuses on average interest rates. We show here that much can be learned from intergroup variations, too. Works that have examined 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, 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 the heretofore varying historical findings from the perspective of intergroup differences in contract enforcement. These studies may in fact be furnishing clues about the prevailing degree of judicial impartiality in the financial affairs of these nations. 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 such that that the wealth effect dominated the partiality effect.

The third 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 paper 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.

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

No model exists for understanding 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 recorded in the court data that we analyze 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. In an impersonal market, a third party—a court system—enforces agreements. The co-existence of personal and impersonal lending markets may compromise the representativeness of the lender-borrower pairings that show up in court data. We put this aside for the time being in order to study how an impersonal credit market works when the enforcer of contracts is partial to certain groups. Selection issues are addressed in Section 7.

2.1 Setup

Consider an economy consisting of M players. There are M_L lenders and $M_B = M - M_L$ borrowers.[7] Each borrower i is risk-neutral[8] and has three characteristics: wealth, $w_i > 0$, the principal of the loan sought, p_i,[9] 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, λ_j

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[7] 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.

[8] 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.

[9] 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.

∈ [0, 1]. Assume that lenders have enough funds to accommodate any loan seeker.[10] 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 β_i borrows from a lender with partiality parameter λ_j, the probability of the borrower winning a suit in which she reneges, which we call the "partiality premium," 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.[11]

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 (p_i) exogenously desired by the borrower and interest (r_i).[12] In stage 2, which commences after the credit market clears, an i.i.d. shock, ε_i, hits each borrower. This means that his 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 σ^2.[13]

In stage 3, with the shock realized, the borrower decides how much of the loan to repay. Denote this amount as $P_i \le (1 + r_i)p_i$. 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

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[10] 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. We therefore omit this possibility.

[11] A person could have a different β_i as a borrower than λ_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 β, but a relatively low λ.

[12] 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, although this gap is partially mitigated by the transaction costs associated with repossessing collateral upon default (Barro 1976).

[13] The variance of the shock is identical across borrowers. Results would only strengthen if we allowed poorer or judicially more disadvantaged to take on 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 political instability.

declares bankruptcy and, again, the game ends.[14] If the borrower is able to repay but nevertheless refuses, the game proceeds to a fourth stage.

In stage 4, the lender decides whether to take the reneging borrower to court. If she does so, the lender pays court cost C.[15] If she sues, the lender wins with probability $1 - \Pi$ and is paid $(1 + r_i)p_i - P_i$ as restitution; the borrower wins with probability Π. We assume full information. Accordingly, a lender contemplating a lawsuit knows whether the borrower can repay the loan. Figure 1 summarizes the four stages of the game.

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, she proceeds only if the expected return exceeds the court cost:[16]

(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, ε_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 actions, depending on the parameters.

Case a. $\underline{(1 + r_i)p_i < C/(1 - \Pi)}$: 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. $\underline{(1 + r_i)p_i > C/\Pi(1 - \Pi)}$: 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: $P_i^* = (1$

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[14] 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.

[15] A more general specification would make the borrower also pay a court cost. Certain conditions would become difficult to interpret, with little additional insight.

[16] Indifference is broken by choosing actions that avoid suing.

$+ r_i)p_i - C/(1 - \Pi)$. 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. $\underline{(1 + r_i)p_i \in [C/(1 - \Pi), C/\Pi(1 - \Pi)]\text{: Repay just enough to discourage a lawsuit.}}$ 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 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) $\pi^L = - p_i,$

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

In case c, the loan's expected return is sufficiently high that the borrower's refusal to repay will always trigger a lawsuit. By the same token, it is not so large as to incentivize the borrower to renege. The lender's expected profit is:

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

In the absence of search costs,[17] an equilibrium arises when no lender can obtain greater expected returns 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 γ reflects the opportunity cost of lending, the elasticity of demand for loans, and the level of market competition.[18]

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[17] Incorporating search costs into the model would not change the comparative statics provided they are not highly correlated with wealth or partiality.

[18] We do not model the determinants of γ, 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.

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 β_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 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 (β_i), weakly decreasing in the lender's partiality (λ_j), and decreasing in the borrower's wealth (w_i), ceteris paribus.

Consider now the situation in which, amongst the M_B borrowers, the borrower's wealth is positively correlated with her 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 β_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 the favoritism that they enjoy. In spite of their lower risk of default, they will pay more for credit. Figure 2 conveys the contrast in question graphically.[19]

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, which focuses on cases 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.[20] 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

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[19] 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.

[20] 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.

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 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).[21] A few thousand non-Muslim foreigners lived in the city at the start of our period; almost all were merchants from Western Europe. The foreign population grew by an order of magnitude by the end of the eighteenth century.

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.

Courts that draw their 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 the testimonies of Muslims more heavily than those of non-Muslims.[22] Hence, the judicial procedures of Istanbul's Islamic courts were designed not to counteract in-group bias but, on the contrary, to reinforce 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

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[21] 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.

[22] 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.

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.[23] 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 the judge steadily conscious of elite sensitivities. Indeed, that may have been the board's primary function. In trials pitting subjects against state officials, the judge thus had personal reasons to tilt the legal playing field in favor of the latter. A judge who tried to adjudicate cases between officials and subjects fairly would risk losing his job. It does not follow that a judge was expected to rule always 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. Because of the tilted playing field, 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. 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

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[23] These state-appointed witnesses were distinct from witnesses that litigants called to court themselves.

were denied membership in the sultan's household, they belonged to a favored subgroup of commoners.[24]

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 posted a lower flight risk than a man is borne out in the data that we present and analyze in the next section. As indicated in Table 1, the data set includes 35 cases of debt involving a "lost" (*gâ'ib*) borrower. The fugitive is a man in all but one, even though around one-quarter of all borrowers are female. In the full database of 14,004 cases from which our debt data are extracted, there are 135 human disappearances. These include 132 men, one woman, and one married couple.[25]

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.[26] Unlike some other legal

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[24] Because they helped to finance the Sultan's household, they would have enjoyed political clout.

[25] 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 case involving a fugitive couple is Istanbul 2: 30b/1 (1616), and that about a disappeared woman, Galata 224: 120b/1 (1714).

[26] 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).

systems of the time, the Ottoman legal system gave them the right to enter into contracts as individuals. None of this invalidates the discrimination they faced in court. Just as the word 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 sum up, 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 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 leads to 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—would enjoy more favorable credit costs 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 26 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).[27] For the eighteenth century, we have used six registers from Galata and two from Central Istanbul, plus, because most Central Istanbul registers of the period perished in fires, three of the Bab court, another of Istanbul's leading courts.[28]

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 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 as 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 26 registers, provided an interest rate is either stated explicitly or computable from the provided information.[29]

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 what 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

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[27] The seventeenth-century cases used in this paper are reproduced, with English and modern Turkish summaries, in Kuran, ed. (2010-13), vols. 9-10.

[28] The 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), Galata 353 (1759), Galata 360 (1760-61), Istanbul 68 (1796-97), Galata 541 (1797-98), and Istanbul 70 (1797-99).

[29] If the record of a lawsuit mentions that someone was repaid for a loan, without dealing with specifics of the credit contract, it is excluded from the data set for lack of usable information.

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.[30] Although nominal rates that coincided with a ceiling, such as 15 percent, appear frequently in the records, they served, then, 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.

As in Europe in earlier times, interest was prohibited in principle, but allowed in practice through legal ruses (Rubin 2011; Kuran 2011, chap. 8). In our 26 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 loaned for a fixed period without the use of collateral. With interest-bearing contracts that had not been 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 ostensibly they considered a basic principle of Islamic lending.

Islamic law lacks a concept of legal personhood. Accordingly, 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 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. These moneylenders were all individuals. Many 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, 65.7 percent of the lenders in our sample, represented a cash waqf (*para vakfı*), a waqf with a liquid endowment (Mandaville 1979). 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

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[30] 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.

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 cash endowment created to produce income by supplying credit. The size of the typical endowment was small. Revealingly, no cash waqf appears as a source of credit more than once in our data set.

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 referred to a respected upbringing, and it was given also to waqf founders and caretakers. Ağa, Beşe, and Çavuş were terms of respect generally reserved for military officials. El-Hac signaled that the holder completed a pilgrimage to Mecca and, hence, that he was both pious and wealthy enough to finance a long journey. There are no generally agreed rankings of these titles. By far the most common female title was Hatun, and it was used exclusively for Muslim women. In our sample no Christian or Jewish woman has a title.[31]

As with all court records, one must worry about selection biases in the records of Istanbul's Islamic courts. Indeed, 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 unfavored classes with whom they interacted (Kuran and Lustig 2012). Fortunately, for the sake of this analysis, only 13.7 percent of the debt contracts in our data set come from a trial; the remaining 86.3 percent are from a registration or settlement. A registration occurs *before* a contract is fulfilled, reneged upon, or challenged. Its evidentiary weight massively reduced the court's 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 a document 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, registered contracts greatly reduced the likelihood that the interest rate differentials reported below stem from differences in court use. Hence, we work with registrations throughout the analysis, although we also report results with the full data set,

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[31] For more on the titles, see Kuran, ed. (2010-13), vol. 1, pp. 63-64.

including both registrations 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 registered loans in our sample of registered contracts, the average nominal interest rate is 14.0 percent, and the average real interest rate is 19.3 percent.[32] The figures differ slightly for the full sample. In both 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.[33] But they also made mistakes, causing the spread of the real distribution to eclipse the nominal spread.[34] This is consistent with modern data showing that the rate and variability of inflation are correlated positively (Logue and Willett 1976).

The characteristics of the borrowers and lenders also show significant variation. This variation is seen in Table 3. Almost three-fifths of all lenders and about 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.

Table 4 breaks down the real interest rates and real principals of the observed credit transactions by three markers of privilege for both borrowers and lenders: social status, religion, and gender. For brevity, we report only registered contracts here.[35] A few patterns jump out. First, titled lenders lent at higher rates to other titled borrowers than they did to non-titled borrowers ($p<0.0001$).[36] Titled borrowers took out larger loans from titled lenders, and the difference in principal between titled and non-titled is statistically significant ($p=0.03$). Titled borrowers also borrowed at higher rates from non-titled lenders than did non-titled borrowers,

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[32] 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 (*akçe*s) 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 without silver smoothing or when only nominal rates are used. The results are also robust to alternative silver-smoothing techniques. Finally, all results are robust in terms of statistical significance to deflation through the Istanbul wage index of Özmucur and Pamuk (2002).

[33] The annualized nominal interest rate spans a broad range, from 0.5% to 137.5%. It falls between 5% and 30% in 584 of 610 observations (95.7%), and between 10% and 20% in 485 of the 610 observations (79.5%).

[34] 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-quarter it falls between 0% and 10%. In 5.6% of the observations the rate is negative.

[35] The statistics for all contracts, including trials, are available upon request.

[36] This and subsequent test statistics use a two-sided unpaired *t*-test.

though the difference is insignificant ($p=0.59$). Second, Muslims lent to co-religionists at higher interest rates than they did to non-Muslims ($p=0.04$), and the mean principal of these loans was practically the same across groups ($p=0.81$). Finally, male lenders charged other males higher rates than they did to females ($p=0.09$), although males also borrowed more than females ($p<0.0001$). In all three cases, the judicially favored group charged more for credit to members of its own group than it did to those of the unfavored group. This is consistent with the presented model. The identified patterns suggest that lenders of favored groups were charging more to people who shared their privileges. They must have understood the risks of lending to people like themselves. Taken as a whole, Table 4 is consistent with our hypotheses, namely, that Ottoman Muslims, elites, and men paid a price in private credit markets for their privileges.

There are avenues, of course, through which the identified patterns could be spurious. Multivariate statistical tests with controls are needed to determine whether the patterns in Table 4 are artifacts of omitted variables.

5. Data Analysis

Our data set of registered contracts contains five variables suitable to serving as a control: the real principal on the loan (in logarithmic form), 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: 17.8 percent, as against 22.3 percent for non-waqf lenders. Hence, it makes sense to control for their presence.

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

(3) $interest\ rate_{i,t} = \beta_0 + \beta_1 Borrower_i + \beta_2 X_i + D_t + \epsilon_{i,t},$

where $Borrower_i$ represents a characteristic of borrower i, such as gender, religion, or class,[37] 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;[38] and $\epsilon_{i,t}$ is the error term. In all regressions, standard errors are clustered by court register.

Table 5 presents the primary results, summarizing the effect of three possible borrower characteristics on interest rates: title, Muslim, and male. Propositions 1 and 2 suggest that all three could have raised the interest rate, provided the courts were sufficiently biased. The results largely support this prediction. Column (1) indicates that male borrowers paid an average of 3.4 percentage points more in interest than female borrowers did. The difference is highly significant statistically, and its magnitude is far from trivial. Evidently, 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 2.5 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 3.4 percentage points more for loans than commoners did. The magnitude is again substantial, one-fifth of the average real interest rate.

Column (4) shows that, controlling for all three characteristics, the "gender effect" dominates. Males pay a premium of 3.7 percentage points relative to females, while the statistical significance of the "religion effect" and "elite effect" are reduced. 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 a 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, 95.8 percent are Muslim.

So columns (5) and (6) test the "religion effect" and "elite effect" only amongst males. If men's ability to flee more easily were driving all 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

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[37] Because we lack panels specific to each borrower, it is unnecessary to include a subscript t either for the borrower or the loan characteristics.

[38] 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, register fixed effects amount to year fixed effects.

regressions with the same specifications, but using all data (including adjudications) in Appendix 3. The key coefficients are largely similar in terms of magnitude and statistical significance.[39]

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) $\quad interest\ rate_{i,t} = \beta_0 + \beta_1 B_F, L_{U_i} + \beta_2 B_U, L_{F_i} + \beta_3 B_U, L_{U_i} + \beta_4 X_i + D_t + \epsilon_{i,t},$

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 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, L_{F_i}. 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 figures indicate that male lenders charged female borrowers 3.5 percentage points less than they did to male borrowers. Column (2) suggests that, on average, Muslim lenders charged non-Muslim borrowers 3.0 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 4.3 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. As in Table 5, the strongest effect is the gender effect. In Column (4), where all characteristics are included, the "religion effect" and "elite effect" fall in significance. Again, this does not mean that the gender effect

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[39] Table 4 indicates that the loan principal differed between Muslim and non-Muslim lenders, and also 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 any 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.

alone drives up the interest rate. The results in Columns (5) and (6), which are restricted to male borrowers, resemble those of Columns (2) and (3).[40]

The model predicts that favored borrowers will pay higher rates when borrowing from unfavored lenders than from favored lenders, because unfavored lenders will find it difficult to successfully sue them should they renege. However, we find no statistically significant effect on the "favored borrower-unfavored lender" coefficients. The reason probably lies in the uniformly low number of observations (*N*=33 for titled borrower, non-titled lender; *N*=2 for Muslim lender, non-Muslim borrower; *N*=21 for male borrower, female lender). This denies us the statistical power to compare these coefficients 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 exercises in Tables 5 and 6 are repeated using state officials as the privileged group,[41] the elite interest rate premium jumps to 7.6 percentage points (see Appendix 3). This represents a massive surcharge of 39.4 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 2.5 to 3.4 percentage points, their discount amounted to between 13 and 18 percent of the average real interest rate.

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. Although the results vary in level of statistical significance, the signs of the coefficients are always consistent with theoretical predictions, and the magnitudes are generally substantial. If an alternative theory also explains these results, it would

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[40] In column (5), the coefficient on "Muslim borrower, non-Muslim lender" represents an anomaly, for it is significant and has an unexpected sign. The coefficient rests on two observations, which makes it difficult to interpret. The observations were probably shaped by unobservable variables.

[41] Our data set contains 239 titled borrowers. Of these, 92 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*=46), a mark of distinction for Muslim women, and Çelebi (*N*=42), an honorific title for men of good upbringing.

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 both criteria of solid historical explanation: grounding in general theory and consistency with observed facts.

The patterns observed in Ottoman Istanbul raise the question of whether the theory is testable in other contexts. We turn, then, to a review of related literatures on other societies.

6. 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 greater access to credit and/or that they pay less for loans (Rosenthal 1993; Hoffman, Postel-Vinay, and Rosenthal 2000; Botticini 2000; Reis 2010; Temin and Voth 2008a, 2008b; Zuijderduijn 2009; Ogilvie, Küpker, 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 the same pattern (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.[42]

Yet, the overall evidence on the determinants of private-market interest rates in pre-modern Europe and, to a lesser extent, underdeveloped countries is mixed. Numerous studies find that interest rates were invariant to borrower characteristics, because of either information constraints or usury limits. But generally they also find that credit was rationed to borrowers able to provide greater collateral. Other studies find that rates varied across borrowers in a manner familiar to the modern observer: rates were lower for those deemed more creditworthy, who were usually the privileged. A fairly consistent finding is that the rich enjoyed some form of advantage in credit markets, generally greater access to credit or lower interest rates.[43]

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[42] Neither group, of course, has partial access to courts.

[43] Yet another literature that displays evidence of differences in private lending rates based on borrower characteristics is that on discrimination. Numerous studies find that American ethnic minorities pay higher interest rates on loans, or are more commonly denied credit, even when they are otherwise comparable to whites. For instance, Blanchflower, Levine, and Zimmerman (2003) show that black-owned firms are charged interest rates that are, on average, one percentage point higher than comparable white-owned firms. In the same vein, Blanchard,

In these literatures the arguments advanced to explain the connection between high socio-economic status and low interest rates share an implicit assumption: unless the borrower defaults, lenders are able to obtain repayment. In other words, it is taken for granted that if a borrower is capable of repaying the loan 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, this logic is incomplete insofar as the judicial system is sufficiently partial to certain groups. Then, the familiar connection between socio-economic status and interest rates is reversed: people of high status pay higher interest 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 the private credit markets analyzed in works to date. It calls for inquiries into who may have been favored on matters involving credit disputes; and into whether unequal access to the political process protected high-status groups. Just as important, the finding raises the possibility that high status-groups, for all the privileges they fought to preserve, deliberately leveled the playing field with regard to the enforcement of financial contracts, if only to lower their credit costs.

The most influential historical studies of financial markets focus on Western Europe, where, by 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, whose setting is pre-Revolution France. Formal banking was not yet available, but notaries served as intermediaries. They did so through "priceless markets," where borrowers competed on the basis of collateral and reputation, and lenders did not vary interest rates to reflect borrower-specific risk conditions.[44] In an earlier piece, Rosenthal (1993) shows that in pre-Revolution rural France interest rates fluctuated between 4 and 6 percent, generally remaining below the 6 percent cap. To identify connections between credit costs and borrower characteristics, Rosenthal exploits the interest rate variations that are lacking in the Hoffman, Postel-Vinay, and Rosenthal (1992, 1995,

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Zhao, and Yinger (2008) find that black-owned businesses pay 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.

[44] Where intermediaries were not used, credit remained relatively personal.

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 above makes one expect the negativity of the socio-economic status-interest relationship for status groups outside of royalty to be related to the judicial system. Even in a highly unequal society such as pre-Revolution France, courts can be relatively impartial with regard to financial contracts. This is not to suggest that pre-Revolution French jurisprudence was impartial. Rosenthal's findings are indicative of a society where financial contracts are adjudicated with sufficient impartiality that the "wealth effect" outweighed the "judicial partiality effect" in determining credit costs.

Another setting where private credit markets have received intense scrutiny is late-medieval Netherlands. Like pre-modern France, late-medieval Netherlands lacked a formal banking sector. Yet, Dutch property rights were strong and well-protected, especially in comparison to 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 Dutch 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; men did not pay significantly different rates than women, and the wealthy did not face different rates than borrowers of modest means.[45] Yet, the loans analyzed in these studies were also heavily

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[45] This result belongs to van Zanden, Zuijderduijn, and de Moor (2012), who also find that access to credit did not differ by gender. In records from 1462, 28 percent of female-headed households had monetary debt compared with 32 percent of households headed by men. Although female access to credit appears to have weakened in the sixteenth century, women played a bigger 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, Küpker, and Maegraith (2011) report a different pattern for seventeenth-century Württemberg. There, gender and marital status significantly affected access to credit, possibly because women had weaker property rights than men.

collateralized regardless of social status. This would have weakened the wealth effect on interest rates. The model presented above suggests that when the wealth effect is weak and the judicial partiality effect is negligible, the pattern of late-medieval Netherlands is what will emerge.

Other findings, too, await further interpretation in the light of the model of section 2. Studying pre-modern Italy, Botticini (2000) finds that Jewish lenders typically set the interest rate at the legal maximum. Yet, the required collateral differed by a borrower's characteristics. In particular, poor borrowers were generally required to pawn property, while wealthier households could borrow on a written promise of repayment.[46] Likewise, Reis (2010) finds that in nineteenth-century Portugal literate borrowers paid significantly lower rates than illiterates. With respect to each of these cases, this paper's argument raises the question of how impartially credit contracts were enforced. Without information about judicial partiality in regard to private credit relations, the observed patterns cannot be interpreted or compared adequately with cases from other times and places.[47]

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 some 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, which is why he paid more for credit.

Judicial partiality is not designed to help elites alone. Modern Brazil offers a case of financial laws meant to assist the poor in certain markets, but that actually harm them. 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 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 very difficult for the poor to rent. Indeed, most renters are wealthy, and the

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[46] Padgett and McLean (2011) study private lending markets in an analysis of a large set of merchant loans in fifteenth-century Florence. They find that lending remained highly personalized, but also that the politically connected had greater access to credit, as did partnership members.

[47] Amazingly little research exists on private lending in medieval and early modern England. For relevant efforts, see Schofield and Mayhew (2002), Richardson (2005), Briggs (2006), Temin and Voth (2008a, 2008b), and Koyama and Briggs (2013).

poor tend to own a home. Ferreira, Lanjouw, and Neri (2003) speak of middle-class households who rent in a fashionable neighborhood of Rio de Janeiro or São Paulo, while their domestic servants own homes in the metropolitan periphery. They find that 63 percent of poor Brazilian households own their own home, typically a shabbily constructed structure that does not supply even basic modern comforts. Poor Brazilians tend to be excluded from the mortgage and rental housing markets. Our model indicates that this unfortunate situation stems from substantial legal bias in favor of Brazilian renters and owners.

The Ottoman data used here contain nothing similar to the 450 percent charged commonly to the poor in the modern United States. The reason is that in Ottoman Istanbul, as elsewhere in pre-modern times, the poor lacked the bankruptcy protections that they enjoy in modern industrial countries. In seventeenth- and eighteenth-century Istanbul, debtors could be thrown into prison or forced to work off loans upon default.[48] Bankruptcy laws protect modern borrowers from these fates, but, as the model of section 2 above suggests, at a cost. Because bankruptcy laws make it more difficult for modern lenders to recoup their losses in case of default, they impose high interest on loans to the poor. Laws meant to protect the poor thus have the unintended effect of increasing their credit costs.

7. 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

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[48] 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. b

group, this selection bias would contribute the interest rate premium charged to the former. We will explore the possible contribution of selection biases to each of the interest rate differentials observed, beginning with our strongest result, which is 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 all the 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 quality of the men in our sample of borrowers, it lowered the average of the recorded male interest rate.

For reasons already discussed, the risk of lending was diminishing the borrower's wealth. If the women in our sample were wealthier than the men, that could have contributed to the observed differential by lowering the risk of lending to women. Unfortunately, our data set does not provide information on borrower wealth, so 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.[49] 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 was common, the observed gender differential would represent a premium charged to 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 commented on it, just as they wrote about the legal ruses that credit market participants used routinely 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

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[49] In the entire sample, the average real principal of loans taken by men was 227.1 *akçe* (using 1600 as a base, *N*=444), while it was 180.3 *akçe* for women (*N*=142). The difference lacks statistical significance (*p*=0.247).

women in control of a substantial share of private Ottoman wealth.[50] Thus, many Ottoman waqfs carried female names.[51] So it is not surprising that about a quarter of all the borrowers in our sample were 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. If there were cases of borrowing on behalf of a husband, these would have formed 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 make a loan 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 40.1% 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 reason why they would have lent at high rates only to risky elites while simply denying loans to especially risky commoners.

A more plausible alternative explanation for the elite premium is that the strongest elites had other borrowing sources, leaving the weakest to borrow from the open credit market recorded in our data set. 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 premium of elites was due partly to a selection bias that kept out of our sample of borrowers a disproportionate share of low-risk elites than low-risk

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[50] The inheritance practices of non-Muslim Ottomans resembled those of Muslim Ottomans (Kuran 2011), 180-84.

[51] Our data set features 849 distinct waqfs whose founder is identifiable. Of these, 146 (17.2%) has a female founder.

commoners. This logic applies, also, to modern credit markets and those of the past where elites did not pay a premium 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 had more people able to lend. This suggests that the substantial elite premium in Ottoman Istanbul was due partly, if not largely, to pro-elite biases of the courts through the mechanism identified through our model.

Turning now to the interest rate premium imposed on Muslim borrowers, in principle it could stem 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 rich Americans today to borrow more cheaply than poor Americans. 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 founded and operated by Muslims. 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 provide 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 so as to avoid revealing information on income or wealth to Muslim court officials and, through them, to the Sultan's tax collectors.[52] 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

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[52] It is not clear that non-Muslims received less expensive loans outside the Islamic legal system. 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% interest.

would have made 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. Amazingly, however, it is Muslims, not non-Muslims, who paid more for credit in practice. Our model suggests that pro-Muslim judicial partiality must have been strong enough to swamp rate adjustments driven by the choice of law given to Christians and Jews.

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 borrowed amounts that are statistically indistinguishable.[53] The only significant difference in principal size is between those loans taken by Muslims and non-Muslims. But Muslims, the judicially favored group, took smaller loans on average, not larger. These findings make it highly unlikely that the observed interest rate differentials reflected differences in loan magnitudes.

In sum, no alternative explanation accounts 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 a great stretch of the imagination is required to construct an alternative story that accounts for *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 empirical results.

8. Conclusions

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.

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[53] Although the coefficient on elite borrower is positive and significant in specification (4), 95.8 percent of elite borrowers are Muslim. Moreover, the negative coefficient on Muslim borrower swamps in magnitude the coefficient on elite borrower.

Likewise, the enforceability of private financial commitments influences the cost of private debt. Just as investors force 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 give rise to 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.

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. In focusing on intergroup differences in private credit costs, we have shown here that these 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 interest rates. 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, little systematic work has been undertaken, and none at all that 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 contacts 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 was accompanied by a transformation in the distribution of political power. It would suggest that well before industrialization power reconfigurations made the judicial system 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. It is worth underscoring that no society has eliminated all privileges. Though the rule of law is substantially more advanced in open access orders than in natural states, never is it complete.

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. The Middle East did not launch political reforms aimed at reducing judicial biases until the nineteenth century, during an existential crisis marked by the realization that European rivals had pulled way ahead economically and militarily.

Our analysis cannot account for the timing of the Ottoman judicial reforms. But it does provide insights into why they 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 reported here shed light also on the *types* of reforms that the Ottoman Empire would undertake 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 triggered by technological advances and also to periodic fiscal reforms designed to close budget deficits (Ágoston 2005, İnalcık 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, the 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 reforms initiated in 1839 and known collectively as the Tanzimat—literally, reorganization. The judges of commercial courts did not have to be Muslim. The law that they 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. The establishment of secular courts enabled Muslims to conduct business under rules that enhanced their competitiveness. In leveling the judicial playing field in commerce and finance, the new courts 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 been unable to sign credible financial contracts.[54]

It has been understood that judicial reforms of the nineteenth century enabled Ottoman citizens to trade, invest, produce, and save more efficiently, using modern economic institutions. We now see 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

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[54] It also lowered their interest rates. By the end of the century, they were borrowing from banks at rates between 7 and 9 percent (Biliotti 1909, 207-21).

law, including the principle of equal treatment, it provided material benefits to social groups long privileged openly under Islamic law.

References

Ágoston, Gábor. 2005. *Guns for the Sultan: Military Power and the Weapons Industry in the Ottoman Empire.* Cambridge: Cambridge University Press.

Aleem, Irfan. 1990. "Imperfect Information, Screening, and the Costs of Informal Lending: A Study of a Rural Credit Market in Pakistan." *World Bank Economic Review* 4: 329-49.

Ashtor, Eliyahu. 1977. "Le Taux d'Intérêt dans l'Orient Médieval." Pp. 197-213 in *Fatti e Idee di Storia Economica Nei Secoli XII-XX: Studi Dedicati a Franco Borlandi.* Bologna: Il Mulino.

Banerjee, Abhijit V. and Esther Duflo. 2011. *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty*. New York: PublicAffairs.

Barro, Robert J. 1976. "The Loan Market, Collateral, and Rates of Interest." *Journal of Money, Credit, and Banking* 8: 439-56.

Behar, Cem. 1996. *The Population of the Ottoman Empire and Turkey, 1500-1927*. Ankara: State Institute of Statistics.

Berkes, Niyazi. 1998. *The Development of Secularism in Turkey*, new ed. New York: Routledge.

Biliotti, Adrien. 1909. *La Banque Impériale Ottomane.* Paris: Henri Jouve.

Blanchflower, David G., Phillip B. Levine, and David J. Zimmerman. 2003. "Discrimination in the Small-Business Credit Market." *Review of Economics & Statistics* 85: 930-43.

Blanchard, Lloyd, Bo Zhao, and John Yinger. 2008. "Do Lenders Discriminate against Minority and Women Entrepreneurs?" *Journal of Urban Economics* 63: 467-97.

Bliss, Mark A. and Ferdinand A. Gul. 2012. "Political Connection and Cost of Debt: Some Malaysian Evidence." *Journal of Banking & Finance* 36: 1520-27.

Bogart, Dan and Gary Richardson. 2009. "Making Property Productive: Reorganizing Rights to Real and Equitable Estates in Britain, 1660-1830." *European Review of Economic History* 13: 3-30.

Bogart, Dan and Gary Richardson. 2011. "Property Rights and Parliament in Industrializing Britain." *Journal of Law and Economics* 54: 241-74.

Botticini, Maristela. 2000. "A Tale of 'Benevolent' Governments: Private Credit Markets, Public Finance, and the Role of Jewish Lenders in Medieval and Renaissance Italy." *Journal of Economic History* 60: 164-89.

Briggs, Chris. 2006. "Manor Court Procedures, Debt Litigation Levels and Rural Credit Provision in England, c.1290-c.1380." *Law and History Review* 24: 519-58.

Burton, Marie. 2010. "Keeping the Plates Spinning: Perceptions of Payday Loans in Great Britain." *Consumer Focus* (http://www.consumerfocus.org.uk/assets/1/files/2010/02/ Keeping-the-plates-spinning.PDF).

Carruthers, Bruce G. 1990. "Politics, Popery, and Property: A Comment on North and Weingast." *Journal of Economic History* 50: 693-98.

Cavalluzzo, Ken S. and Linda C. Cavalluzzo. 1998. "Market Structure and Discrimination: The Case of Small Businesses." *Journal of Money, Credit, and Banking* 30: 771-92.

Clark, Gregory. 1996. "The Political Foundations of Modern Economic Growth: England, 1540-1800." *Journal of Interdisciplinary History* 26: 563-88.

Coulson, N. J. 1971. *Succession in the Muslim Family*. Cambridge: Cambridge University Press.

Cox, Gary W. 2012. "Was the Glorious Revolution a Constitutional Watershed?" *Journal of Economic History* 72: 567-600.

Davison, Roderic H. 1963. *Reform in the Ottoman Empire, 1856-1876.* Princeton: Princeton University Press.

Doucet, Roger. 1933. "Le Grand Parti de Lyon au XVIe Siècle." *Revue Historique* 58: 473-513.

Fafchamps, Marcel and Susan Lund. 2003. "Risk Sharing Networks in Rural Philippines." *Journal of Development Economics* 71: 261-287.

Faroqhi, Suraiya. 1987, *Men of Modest Substance: House Owners and House Property in Seventeenth-Century Ankara and Kayseri.* Cambridge: Cambridge University Press.

Faroqhi, Suraiya. 2002. *Stories of Ottoman Men and Women: Establishing Status, Establishing Control.* Istanbul: Eren Yayıncılık.

Ferreira, Francisco H. G., Peter Lanjouw, and Marcelo Neri. 2003. "A Robust Poverty Profile for Brazil Using Multiple Data Sources." *Revista Brasileira de Economia* 57: 59-92.

Findley, Carter V. 1980. *Bureaucratic Reform in the Ottoman Empire: The Sublime Porte, 1789-1922.* Princeton: Princeton University Press.

Greif, Avner, and Jared Rubin. 2014. "Endogenous Political Legitimacy: The English Reformation and the Institutional Foundations of Limited Government." Working paper, Stanford University.

Hadfield, Gillian K., and Barry R. Weingast. 2014. "Constitutions as Coordinating Devices." Pp. 121-50 in *Institutions, Property Rights, and Economic Growth*, ed. Sebastian Galiani and Itai Sened. Cambridge: Cambridge University Press.

Hoffman, Philip T., Gilles Postel-Vinay, and Jean-Laurent Rosenthal. 1992. "Private Credit Markets in Paris, 1690-1840." *Journal of Economic History* 52: 293-306.

Hoffman, Philip T., Gilles Postel-Vinay, and Jean-Laurent Rosenthal. 1995. "Redistribution and Long-Term Private Debt in Paris, 1660-1726." *Journal of Economic History* 55: 256-84.

Hoffman, Philip T., Gilles Postel-Vinay, and Jean-Laurent Rosenthal. 2000. *Priceless Markets: The Political Economy of Credit in Paris, 1660-1870.* Chicago: University of Chicago Press.

Hu, Yue, Long Liu, Jan Ondrich, and John Yinger. 2011. "The Racial and Gender Gap in Small Business Lending: Improved Estimates Using Matching Methods." Working paper, Syracuse University.

Imber, Colin. 2002. *The Ottoman Empire, 1300-1650: The Structure of Power.* New York: Palgrave Macmillan.

Iqbal, Farrukh. 1988. "The Determinants of Moneylender Interest Rates: Evidence from Rural India." *Journal of Development Studies* 24: 364-78.

İnalcık, Halil. 1980. "Military and Fiscal Transformation in the Ottoman Empire, 1600-1700." *Archivum Ottomanicum* 6: 283-337.

Jordan, William Chester. 1993. *Women and Credit in Pre-Industrial and Developing Societies.* Philadelphia: University of Pennsylvania Press.

Kaya, Süleyman. 2007. "XVIII. Yüzyıl Osmanlı Toplumunda Kredi İlişkilerinin Hukuki Boyutu." *Türk Hukuk Tarihi Araştırmaları* 3 (Spring): 13-41.

Koyama, Mark and Chris Briggs. 2013. "Medieval Microcredit? Pledging and Rural Credit Markets in England." Working paper, George Mason University.

Kuran, Timur, ed. 2010-13. *Social and Economic Life in Seventeenth-Century Istanbul: Glimpses from Court Records*, 10 vols. Istanbul: İş Bank Cultural Publications.

Kuran, Timur. 2011. *The Long Divergence: How Islamic Law Held Back the Middle East.* Princeton: Princeton University Press.

Kuran, Timur, and Scott Lustig. 2012. "Judicial Biases in Ottoman Istanbul: Islamic Justice and Its Compatibility with Modern Economic Life." *Journal of Law and Economics* 55: 631-66.

Logue, Dennis E. and Thomas D. Willett. 1976. "A Note on the Relation between the Rate and Variability of Inflation." *Economica* 43: 151-58.

Mandaville, Jon E. 1979. "Usurious Piety: The Cash Waqf Controversy in the Ottoman Empire." *International Journal of Middle East Studies* 10: 298-308.

Mantran, Robert. 1962. *İstanbul dans la Seconde Moitié du XVIIᵉ Siècle*. Paris: Librairie Adrien Maisonneuve.

Moore, Kimberly A. 2003. "Xenophobia in American Courts." *Northwestern University Law Review* 97: 1497-1550.

North, Douglass C. and Barry R. Weingast. 1989. "Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England." *Journal of Economic History* 49: 803–32.

North, Douglass C., John Joseph Wallis, and Barry R. Weingast. 2009. *Violence and Social Orders: A Conceptual Framework for Interpreting Recorded Human History.* Cambridge: Cambridge University Press.

Ogilvie, Sheilagh, Markus Küpker, and Janine Maegraith. 2011. "Household Debt in Seventeenth-Century Württemberg: Evidence from Personal Inventories." Working paper, University of Cambridge.

Özmucur, Süleyman and Şevket Pamuk. 2002. "Real Wages and Standards of Living in the Ottoman Empire, 1489-1914." *Journal of Economic History* 62: 293-321.

Padgett, John F. and Paul D. McLean. 2011. "Economic Credit in Renaissance Florence." *Journal of Modern History* 83: 1-47.

Pamuk, Şevket. 2000. *500 Years of Prices and Wages in Istanbul and Other Cities, 1469-1998.* Ankara: State Institute of Statistics.

Peirce, Leslie P. 1993. *The Imperial Harem: Women and Sovereignty in the Ottoman Empire*. Oxford: Oxford University Press.

Pincus, Steven C.A. and James Robinson. 2014. "What Really Happened During the Glorious Revolution?" Pp. 192-237 in *Institutions, Property Rights, and Economic Growth: The Legacy of Douglass North*, ed. Sebastian Galiani and Itai Sened. Cambridge: Cambridge University Press.

Quinn, Stephen. 2001. "The Glorious Revolution's Effect on English Private Finance: A Microhistory, 1680-1705." *Journal of Economic History* 61: 593-615.

Reis, Jaime. 2010. "Institutions and Economic Growth in the Atlantic Periphery: The Efficiency of the Portuguese Machinery of Justice, 1870-1910." Pp. 73-101 in *Economic Development in Latin America: Essays in Honor of Werner Baer*, ed. Hadi Esfahani, Giovanni Facchini, and Geoffrey J.D. Hewings. New York: Palgrave Macmillan.

Richardson, Gary. 2005. "The Prudent Village: Risk Pooling Institutions in Medieval English Agriculture." *Journal of Economic History* 65: 386-413.

Rosenthal, Jean-Laurent. 1993. "Credit Markets and Economic Change in Southeastern France 1630-1788." *Explorations in Economic History* 30: 129-57.

Rubin, Jared. 2011. "Institutions, the Rise of Commerce, and the Persistence of Laws: Interest Restrictions in Islam and Christianity." *Economic Journal* 121: 1310-39.

Sargent, Thomas J. and François R. Velde. 1995. "Macroeconomic Features of the French Revolution." *Journal of Political Economy* 103: 474-518.

Schofield, Phillipp and N. J. Mayhew, eds. 2002. *Credit and Debt in Medieval England c. 1180– c. 1350*. Oxford: Oxbow Books.

Shapiro, Martin. 1981. *Courts: A Comparative and Political Analysis*. Chicago: University of Chicago Press.

Shaw, Stanford J. 1976-77. *History of the Ottoman Empire and Modern Turkey*, 2 vols. (second with Ezel Kural Shaw). Cambridge: Cambridge University Press.

Stasavage, David. 2002. "Credible Commitment in Early Modern Europe: North and Weingast Revisited." *Journal of Law, Economics, and Organization* 18: 155-86.

Sussman, Nathan and Yishay Yafeh. 2006. "Institutional Reforms, Financial Development, and Sovereign Debt: Britain 1690-1790." *Journal of Economic History* 66: 906-35.

Temin, Peter and Hans-Joachim Voth. 2008a. "Interest Rate Restrictions in a Natural Experiment: Loan Allocation and the Change in the Usury Laws in 1714." *Economic Journal* 118: 743-58.

Temin, Peter and Hans-Joachim Voth. 2008b. "Private Borrowing during the Financial Revolution: Hoare's Bank and its Customers, 1702-1724." *Economic History Review* 61: 541-64.

Timberg, Thomas A. and C.V. Aiyar. 1984. "Informal Credit Markets in India." *Economic Development and Cultural Change* 33: 43-59.

Udry, Christopher. 1994. "Risk and Insurance in a Rural Credit Market: An Empirical Investigation in Northern Nigeria." *Review of Economic Studies* 61: 495-526.

van Zanden, Jan Luiten, Jaco Zuijderduijn, and Tine de Moor. 2012. "Small is Beautiful: The Efficiency of Credit Markets in the Late Medieval Holland." *European Review of Economic History* 16: 3-22.

Wells, John and Douglas Wills. 2000. "Revolution, Restoration, and Debt Repudiation: The Jacobite Threat to England's Institutions and Economic Growth." *Journal of Economic History* 60: 418-41.

Zarinebaf-Shahr, Fariba. 1996. "Women, Law, and Imperial Justice in Ottoman Istanbul in the Late Seventeenth Century." Pp. 81-95 in *Women, the Family, and Divorce in Islamic History*, ed. Amira El Azhary Sonbol. Syracuse: Syracuse University Press.

Zuijderduijn, Jaco. 2009. *Medieval Capital Markets. Markets for 'Renten', State Formation, and Private Investment in Holland (1330-1550)*. Leiden: Brill.

Zuijderduijn, Jaco. 2014. "On the Home Court Advantage: Participation of Locals and Non-Residents in a Village Law Court in Sixteenth-Century Holland." *Continuity and Change* 29: 19-48.

Figure 1. Stages of game play

Borrower and lender agree to loan terms	Shock hits borrower	Borrower decides how much to re-pay	Lender decides whether to sue borrower
1	2	3	4
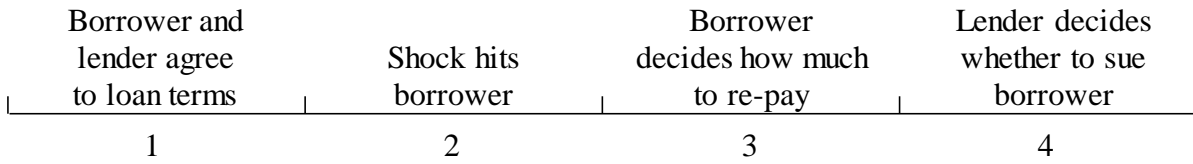
Figure 2. Relationship between wealth and credit cost for varying levels of partiality effect

interest rate

Strong partiality effect
($\partial r_i / \partial \beta_i$ large)

Moderate partiality effect
($\partial r_i / \partial \beta_i$ moderate)

Weak partiality effect
($\partial r_i / \partial \beta_i$ small)

wealth
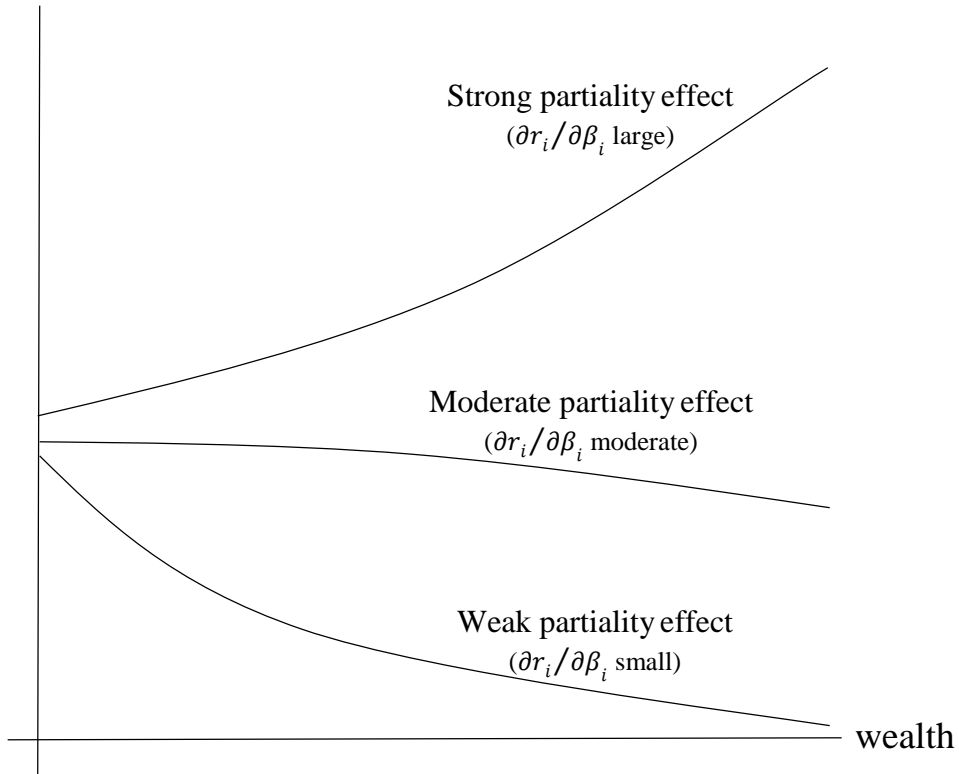
Table 1: Gender distribution of fugitives

	Total cases	Cases involving women		Fugitives in debt cases	Female fugitives	
		Number	%		Number	%
Loan contracts	597	147	24.6	35	1	2.9
All cases	14,004	5,243	37.4	135	2	1.5

Table 2: Summary statistics: Loan characteristics

Variable	Mean	Standard deviation	N
All contracts			
Loan principal (in *akçe*, base 1600)	217.3	413.1	616
Nominal interest rate (%)	14.1	9.4	610
Real interest rate (%)	19.1	16.5	610
Mortgage (%)	71.5	45.2	628
Pawn (%)	76.4	42.5	628
Lender is a waqf (%)	65.7	47.5	612
Surety (%)	44.4	49.7	628
Loan registered (%)	86.3	34.4	629
Registered contracts			
Loan principal (in *akçe*, base 1600)	209.6	387.7	535
Nominal interest rate (%)	14.0	9.7	525
Real interest rate (%)	19.3	16.8	525
Mortgage (%)	77.9	41.6	542
Pawn (%)	82.3	38.2	542
Lender is a waqf (%)	67.9	46.7	535
Surety (%)	50.0	50.0	542

Table 3: Summary statistics: Lender and borrower characteristics

Variable	Mean (%)	Standard deviation	N
All contracts			
Titled borrower (%)	39.9	49.0	592
Titled lender (%)	58.8	49.3	592
Muslim borrower (%)	61.8	48.6	587
Muslim lender (%)	93.9	24.0	587
Male borrower (%)	76.2	42.6	584
Male lender (%)	94.0	23.8	584
Registered contracts			
Titled borrower (%)	38.9	48.8	527
Titled lender (%)	59.4	49.2	527
Muslim borrower (%)	62.7	48.4	523
Muslim lender (%)	95.4	20.9	523
Male borrower (%)	74.7	43.5	522
Male lender (%)	94.3	23.3	522

Table 4: Average interest rates by borrower and lender characteristics
(standard deviations in parentheses: real principal in akçe, base year 1600)

		Lender					
		Titled			Non-Titled		
		Real r	Nominal r	Principal	Real r	Nominal r	Principal
	Titled	0.240	0.164	306.2	0.194	0.143	153.2
		(0.196)	(0.132)	(497.3)	(0.154)	(0.109)	(180.8)
Borrower			$N=170$			$N=33$	
	Non-titled	0.155	0.129	189.1	0.179	0.120	146.4
		(0.132)	(0.058)	(414.1)	(0.145)	(0.038)	(247.7)
			$N=136$			$N=171$	

		Lender					
		Muslim			Non-Muslim		
		Real r	Nominal r	Principal	Real r	Nominal r	Principal
	Muslim	0.205	0.147	203.6	0.172	0.116	151.2
		(0.180)	(0.106)	(374.3)	(0.071)	(0.006)	(152.5)
Borrower			$N=314$			$N=2$	
	Non-Muslim	0.173	0.124	212.4	0.222	0.174	332.4
		(0.134)	(0.058)	(426.7)	(0.217)	(0.177)	(412.2)
			$N=169$			$N=22$	

		Lender					
		Male			Female		
		Real r	Nominal r	Principal	Real r	Nominal r	Principal
	Male	0.199	0.145	226.1	0.226	0.177	150.2
		(0.178)	(0.109)	(388.3)	(0.132)	(0.128)	(239.8)
Borrower			$N=359$			$N=21$	
	Female	0.168	0.122	145.3	0.228	0.118	644.5
		(0.140)	(0.031)	(220.7)	(0.116)	(0.040)	(1394.6)
			$N=116$			$N=9$	

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

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent Variable: Real Interest Rate					
	All Registered Cases				Male Borrowers Only	
Male borrower	0.034***			0.037***		
	[0.011]			[0.012]		
Muslim borrower		0.025*		0.023	0.035*	
		[0.013]		[0.016]	[0.017]	
Elite borrower			0.034**	0.021		0.035**
			[0.014]	[0.016]		[0.017]
Log real principal	-0.002	-0.001	-0.003	-0.000	-0.001	-0.003
	[0.007]	[0.008]	[0.007]	[0.007]	[0.008]	[0.008]
Mortgage	-0.060	-0.063	-0.054	-0.055	-0.071	-0.063
	[0.040]	[0.038]	[0.038]	[0.041]	[0.049]	[0.049]
Pawn	0.020	0.008	0.014	0.024	0.010	0.017
	[0.042]	[0.038]	[0.041]	[0.043]	[0.047]	[0.051]
Surety	0.008	0.012	0.006	0.011	0.008	-0.001
	[0.014]	[0.015]	[0.011]	[0.013]	[0.016]	[0.013]
Lender is a waqf	-0.025	-0.025	-0.021	-0.021	-0.025*	-0.020
	[0.015]	[0.015]	[0.014]	[0.013]	[0.012]	[0.013]
Constant	0.152***	0.169***	0.171***	0.115***	0.172***	0.181***
	[0.036]	[0.037]	[0.024]	[0.039]	[0.041]	[0.031]
Register fixed effects	YES	YES	YES	YES	YES	YES
Observations	498	504	503	497	378	377
R-squared	0.534	0.532	0.564	0.573	0.509	0.542

Standard errors clustered by the register in brackets

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

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

	Dependent Variable: Real Interest Rate					
	(1)	(2)	(3)	(4)	(5)	(6)
	All Registered Cases				Male Borrowers Only	
Male borrower, female lender	-0.010 [0.034]			-0.008 [0.033]		
Female borrower, male lender	-0.035*** [0.012]			-0.037** [0.014]		
Female borrower, female lender	-0.034 [0.030]			-0.038 [0.031]		
Muslim borrower, non-Muslim lender		-0.053 [0.043]		-0.065 [0.046]	-0.081*** [0.029]	
Non-Muslim borrower, Muslim lender		-0.030** [0.013]		-0.020 [0.015]	-0.041** [0.018]	
Non-Muslim borrower, non-Muslim lender		-0.004 [0.040]		-0.043 [0.029]	-0.012 [0.049]	
Titled borrower non-titled lender			-0.009 [0.023]	-0.004 [0.025]		-0.019 [0.031]
Non-titled borrower titled lender			-0.043** [0.019]	-0.029 [0.020]		-0.045** [0.021]
Non-titled borrower non-titled lender			-0.029 [0.017]	-0.013 [0.023]		-0.035 [0.024]
Log real principal	-0.002 [0.007]	0.000 [0.008]	-0.003 [0.007]	-0.001 [0.007]	-0.000 [0.008]	-0.004 [0.007]
Mortgage	-0.060 [0.041]	-0.067* [0.039]	-0.056 [0.038]	-0.058 [0.042]	-0.078 [0.052]	-0.065 [0.049]
Pawn	0.021 [0.043]	0.013 [0.039]	0.015 [0.041]	0.024 [0.044]	0.017 [0.051]	0.018 [0.051]
Surety	0.008 [0.014]	0.015 [0.016]	0.007 [0.011]	0.010 [0.012]	0.012 [0.018]	0.001 [0.013]
Lender is a waqf	-0.027 [0.017]	-0.023 [0.015]	-0.022 [0.015]	-0.024 [0.016]	-0.021 [0.013]	-0.020 [0.013]
Constant	0.188*** [0.029]	0.187*** [0.030]	0.208*** [0.031]	0.201*** [0.029]	0.203*** [0.036]	0.224*** [0.039]
Register fixed effects	YES	YES	YES	YES	YES	YES
Observations	498	500	502	497	375	377
R-squared	0.534	0.535	0.564	0.574	0.512	0.543

Standard errors clustered by the register in brackets; registered cases only

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

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

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent Variable: Log of Real Principal					
	All Registered Cases				Male Borrowers Only	
Male borrower	0.116			0.005		
	[0.149]			[0.145]		
Muslim borrower		-0.394***		-0.616***	-0.340**	
		[0.139]		[0.121]	[0.147]	
Elite borrower			0.141	0.482***		0.258
			[0.115]	[0.117]		[0.158]
Mortgage	-0.728***	-0.673***	-0.701***	-0.580***	-0.673***	-0.647**
	[0.219]	[0.208]	[0.218]	[0.201]	[0.213]	[0.233]
Pawn	0.331	0.326	0.277	0.293	0.388	0.317
	[0.260]	[0.274]	[0.272]	[0.247]	[0.294]	[0.301]
Surety	0.288*	0.236	0.344**	0.215	0.285*	0.414**
	[0.140]	[0.152]	[0.139]	[0.144]	[0.158]	[0.154]
Lender is a waqf	-0.439**	-0.460**	-0.471**	-0.437**	-0.469**	-0.475**
	[0.179]	[0.173]	[0.177]	[0.177]	[0.173]	[0.180]
Constant	4.741***	5.028***	4.827***	5.030***	4.951***	4.743***
	[0.238]	[0.221]	[0.200]	[0.266]	[0.199]	[0.193]
Register fixed effects	YES	YES	YES	YES	YES	YES
Observations	515	521	520	514	388	387
R-squared	0.251	0.263	0.242	0.292	0.274	0.265

Standard errors clustered by the register in brackets

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

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 lending 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 δ. 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 to the model 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 societies 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 7, 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 $[1 - G((1 + r_i)p_i - w_i)]\left(1 - \beta_i/(\beta_i + \lambda_j)\right)(1 + r_i) = 1 + \gamma/p_i$. The left side of this equation is decreasing weakly in β_i and increasing weakly in λ_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 counter-veiling 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 β_i or decrease in λ_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 β_F and β_U for borrowers and λ_F and λ_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 λ_j. If λ_j is sufficiently small that the partiality effect can be strong for a sufficiently large β_F, then for a given difference in wealth, $w_F - w_U$, and a given principal, p_i, there must exist some β^*, such that F pays a higher interest rate (on average) if $\beta_F - \beta_U > \beta^*$. That is, for a given degree of partiality β_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 3 displays this intuition graphically. ∎

Figure 3. Equilibrium interest rate paid by borrowers as a function of court partiality
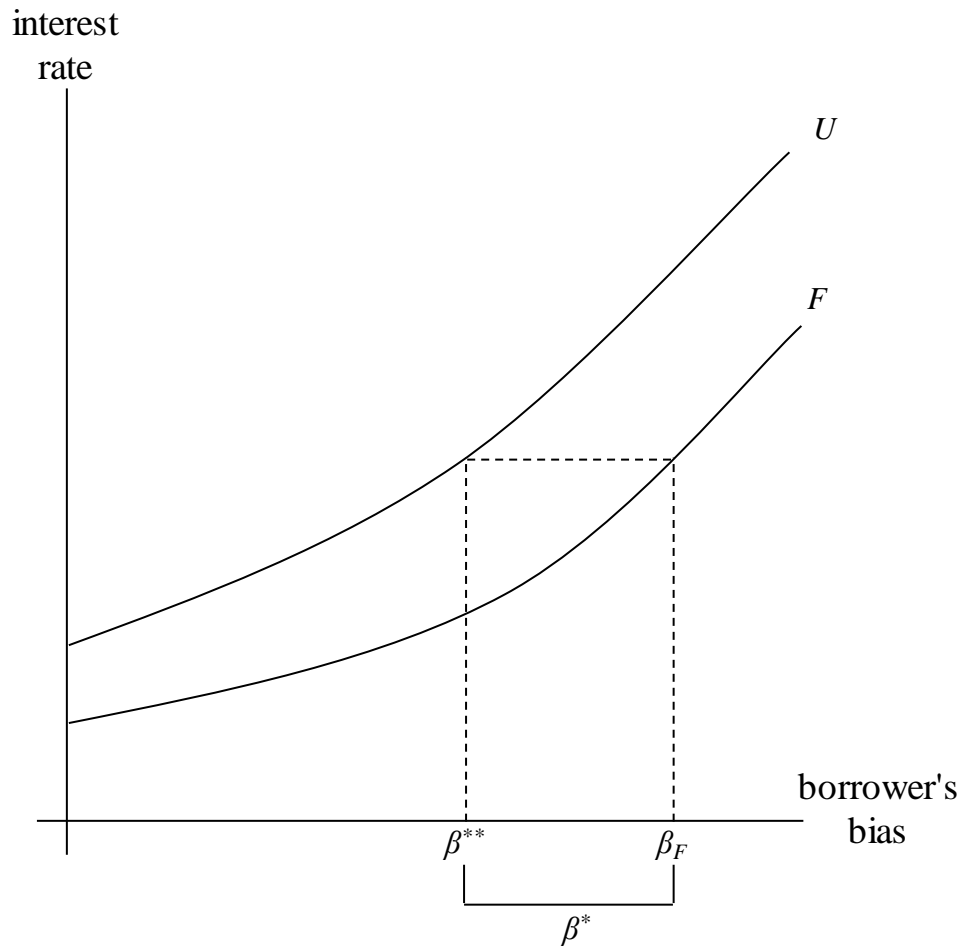
Appendix 3: Robustness Checks

Table A.1: The effect of borrower's status on credit cost, all contracts

	Dependent Variable: Real Interest Rate					
	(1)	(2)	(3)	(4)	(5)	(6)
	All Cases				Male Borrowers Only	
Male borrower	0.036***			0.039***		
	[0.011]			[0.012]		
Muslim borrower		0.021*		0.024*	0.032**	
		[0.011]		[0.014]	[0.015]	
Elite borrower			0.024*	0.012		0.027*
			[0.013]	[0.014]		[0.015]
Log real principal	-0.002	-0.001	-0.003	-0.001	-0.000	-0.002
	[0.007]	[0.007]	[0.006]	[0.007]	[0.007]	[0.007]
Mortgage	-0.057	-0.061*	-0.057	-0.056	-0.074	-0.068
	[0.034]	[0.033]	[0.034]	[0.036]	[0.044]	[0.045]
Pawn	0.009	-0.001	0.006	0.012	0.007	0.014
	[0.035]	[0.033]	[0.036]	[0.037]	[0.039]	[0.045]
Surety	0.008	0.011	0.005	0.010	0.007	-0.003
	[0.013]	[0.014]	[0.011]	[0.012]	[0.017]	[0.015]
Lender is a waqf	-0.016	-0.016	-0.013	-0.013	-0.015	-0.011
	[0.010]	[0.011]	[0.011]	[0.010]	[0.011]	[0.011]
Loan Registered	0.001	0.007	0.004	-0.005	0.004	0.004
	[0.018]	[0.014]	[0.014]	[0.019]	[0.018]	[0.018]
Constant	0.148***	0.165***	0.170***	0.124***	0.162***	0.172***
	[0.035]	[0.036]	[0.029]	[0.036]	[0.036]	[0.031]
Register fixed effects	YES	YES	YES	YES	YES	YES
Observations	557	565	565	555	431	429
R-squared	0.531	0.523	0.552	0.564	0.512	0.541

Standard errors clustered by the register in brackets

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table A.2: The effect of borrower's status on credit cost, male Muslim lenders only

	Dependent Variable: Real Interest Rate					
	(1)	(2)	(3)	(4)	(5)	(6)
	All Registered Cases				Male Borrowers Only	
Male borrower	0.031**			0.034**		
	[0.012]			[0.014]		
Muslim borrower		0.025*		0.022	0.033*	
		[0.014]		[0.016]	[0.019]	
Elite borrower			0.030*	0.018		0.030
			[0.017]	[0.019]		[0.021]
Log real principal	0.001	0.004	0.001	0.002	0.002	-0.002
	[0.006]	[0.007]	[0.007]	[0.007]	[0.007]	[0.007]
Mortgage	-0.050	-0.058	-0.052	-0.050	-0.061	-0.056
	[0.050]	[0.050]	[0.051]	[0.051]	[0.061]	[0.061]
Pawn	0.013	0.008	0.006	0.012	0.004	0.003
	[0.058]	[0.056]	[0.056]	[0.057]	[0.064]	[0.065]
Surety	0.003	0.008	0.007	0.010	0.003	0.000
	[0.011]	[0.012]	[0.011]	[0.013]	[0.014]	[0.013]
Lender is a waqf	-0.024	-0.024	-0.026	-0.022	-0.021	-0.023
	[0.019]	[0.018]	[0.019]	[0.017]	[0.014]	[0.016]
Constant	0.140***	0.145***	0.165***	0.117***	0.157***	0.182***
	[0.028]	[0.029]	[0.024]	[0.038]	[0.034]	[0.031]
Register fixed effects	YES	YES	YES	YES	YES	YES
Observations	447	449	449	447	334	334
R-squared	0.574	0.576	0.576	0.581	0.560	0.558

Standard errors clustered by the register in brackets

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

Table A.3: Effect of borrower's and lender's status on credit cost, all contracts

Dependent Variable: Real Interest Rate

	(1)	(2)	(3)	(4)	(5)	(6)
	All Registered Cases				Male Borrowers Only	
Male borrower, female lender	-0.017 [0.037]			-0.013 [0.034]		
Female borrower, male lender	-0.037*** [0.013]			-0.039*** [0.014]		
Female borrower, female lender	-0.037 [0.028]			-0.045 [0.029]		
Muslim borrower, non-Muslim lender		-0.157* [0.084]		-0.088** [0.041]	-0.094*** [0.025]	
Non-Muslim borrower, Muslim lender		-0.023* [0.011]		-0.016 [0.012]	-0.032* [0.016]	
Non-Muslim borrower, non-Muslim lender		-0.029 [0.036]		-0.066** [0.029]	-0.038 [0.041]	
Titled borrower non-titled lender			-0.009 [0.022]	0.008 [0.021]		-0.008 [0.027]
Non-titled borrower titled lender			-0.035* [0.017]	-0.020 [0.018]		-0.035* [0.019]
Non-titled borrower non-titled lender			-0.017 [0.016]	0.005 [0.021]		-0.023 [0.020]
Log real principal	-0.002 [0.006]	-0.000 [0.007]	-0.003 [0.006]	-0.001 [0.006]	0.000 [0.007]	-0.003 [0.007]
Mortgage	-0.058 [0.035]	-0.065* [0.034]	-0.059* [0.034]	-0.060 [0.038]	-0.078 [0.046]	-0.070 [0.045]
Pawn	0.010 [0.036]	-0.001 [0.033]	0.008 [0.037]	0.012 [0.039]	0.010 [0.042]	0.015 [0.045]
Surety	0.008 [0.013]	0.012 [0.014]	0.005 [0.011]	0.007 [0.013]	0.008 [0.018]	-0.002 [0.015]
Lender is a waqf	-0.018 [0.013]	-0.017 [0.012]	-0.013 [0.011]	-0.020 [0.014]	-0.015 [0.012]	-0.011 [0.011]
Loan registered	0.001 [0.018]	0.002 [0.017]	0.005 [0.014]	-0.005 [0.019]	0.003 [0.019]	0.005 [0.019]
Constant	0.187*** [0.030]	0.189*** [0.029]	0.194*** [0.031]	0.201*** [0.029]	0.196*** [0.030]	0.200*** [0.033]
Register fixed effects	YES	YES	YES	YES	YES	YES
Observations	557	561	564	555	428	429
R-squared	0.531	0.528	0.553	0.568	0.513	0.541

Standard errors clustered by the 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, male Muslim lenders only

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent Variable: Real Interest Rate					
	All Registered Cases				Male Borrowers Only	
Female borrower, male lender	-0.031**			-0.034**		
	[0.012]			[0.014]		
Non-Muslim borrower, Muslim lender		-0.025*		-0.019	-0.033*	
		[0.014]		[0.015]	[0.019]	
Titled borrower non-titled lender			-0.024	-0.023		-0.038
			[0.021]	[0.021]		[0.029]
Non-titled borrower titled lender			-0.043*	-0.032		-0.046*
			[0.022]	[0.023]		[0.025]
Non-titled borrower non-titled lender			-0.026	-0.016		-0.032
			[0.023]	[0.026]		[0.029]
Log real principal	0.001	0.004	0.001	0.002	0.002	-0.002
	[0.006]	[0.007]	[0.007]	[0.007]	[0.007]	[0.007]
Mortgage	-0.050	-0.058	-0.054	-0.052	-0.061	-0.058
	[0.050]	[0.050]	[0.051]	[0.051]	[0.061]	[0.060]
Pawn	0.013	0.008	0.005	0.012	0.004	0.002
	[0.058]	[0.056]	[0.057]	[0.057]	[0.064]	[0.065]
Surety	0.003	0.008	0.007	0.010	0.003	0.003
	[0.011]	[0.012]	[0.011]	[0.013]	[0.014]	[0.013]
Lender is a waqf	-0.024	-0.024	-0.027	-0.024	-0.021	-0.023
	[0.019]	[0.018]	[0.019]	[0.018]	[0.014]	[0.016]
Constant	0.171***	0.170***	0.203***	0.200***	0.191***	0.226***
	[0.025]	[0.024]	[0.035]	[0.036]	[0.032]	[0.045]
Register fixed effects	YES	YES	YES	YES	YES	YES
Observations	447	449	449	447	334	334
R-squared	0.574	0.576	0.578	0.584	0.560	0.561

Standard errors clustered by the register in brackets

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

Table A. 5: Effect of borrower's title status on credit cost, registrations only

	Dependent Variable: Real Interest Rate
State official borrower	0.076***
	[0.020]
Log real principal	-0.005
	[0.007]
Mortgage	-0.055
	[0.035]
Pawn	0.020
	[0.038]
Surety	0.013
	[0.012]
Lender is a waqf	-0.023
	[0.014]
Constant	0.178***
	[0.026]
Register fixed effects	YES
Observations	503
R-squared	0.578

Standard errors clustered by the register in brackets

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