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**Resolving Lawsuits with a Decisive Oath:  
An Economic Analysis**

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# Resolving Lawsuits with a Decisive Oath: An Economic Analysis

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**ABSTRACT:** The decisive oath is an interesting but little-known element in some legal proceedings, mostly in civil law traditions. It is different from ordinary (testimonial) oaths that are routinely administered to witnesses at trial with the aim of eliciting only truthful testimony, but which are of dubious value in achieving that end. By contrast, a decisive oath can end a lawsuit in cases where the plaintiff has no evidence. We use a simple economic model of litigation to examine the impact of the decisive oath in resolving lawsuits. To test the implications of the model, we focus on the relationship between the stakes of the case and litigation outcomes by using data from the early nineteenth century Ottoman courts. The results show that as the stakes increased (1) among cases lacking evidence, resolution by oath was more likely than settlement; (2) among cases not settling, plaintiffs were less likely to request an oath; and (3) among cases where the plaintiff requested an oath, the defendant was more likely to take the oath. Our analysis contributes both to the theoretical literature on the economics of dispute resolution, and to the historical literature on the role of decisive oaths in resolving legal disputes, especially in Islamic societies.

**JEL Codes:** D91, K10, K20, K40, N45, P48, Z12

**Keywords:** Decisive oath, law, dispute resolution, legal procedure, litigation, settlement, trial, evidence, lying, Ottoman law

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# Resolving Lawsuits with a Decisive Oath:

## An Economic Analysis

### *1. Introduction*

The decisive oath is an interesting but little-known element in some legal proceedings, mostly in civil law traditions. It is different from ordinary (testimonial) oaths that are routinely administered to witnesses at trial with the aim of eliciting only truthful testimony, but which are of dubious value in achieving that end. By contrast, a decisive oath can end a lawsuit in cases where the plaintiff has no evidence, and the defendant swears innocence (non-responsibility). The effect is similar to the assignment of the burden of proof on plaintiffs under the common law, which also results in defendant victory in the absence of evidence.

We use a simple economic model of litigation to examine the impact of the decisive oath in resolving lawsuits.<sup>1</sup> Our main objective is to derive testable hypotheses on its impact, which we can examine with an historic data set of lawsuits from Ottoman courts. The main theoretical challenge is to explain why cases in which the plaintiff lacks evidence ever reach a point where an oath is available. The standard model would predict that such cases should be weeded out prior to that stage—either they would not be filed, or they would settle. The way that we explain their survival to the trial stage is by assuming that if a plaintiff lacking evidence requests an oath that the defendant is not legally responsible, some truly guilty defendants will *not take it* and will therefore accept responsibility. The reason we suggest is that some defendants will not lie, even

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<sup>1</sup> See Spier (2007) for a survey of the economic literature on dispute resolution.

when they cannot be proved to have done so, an explanation that may be said to fall within the realm of behavioral economics given its seeming violation of the assumption of rationality.

For a quantitative analysis of the model's implications, we use data from the registers (*sicil*) of the Galata and Üsküdar courts in Istanbul and the provincial courts of Konya and Kütahya during the period between 1796 and 1844. The data consist of rich court records of cases for which the decisive oath was available as a means of resolving disputes. As we will see, of the total of 939 disputes brought to court, 248 (26%) were resolved by oath rather than by settlement or evidence-based trial.

In our empirical analysis, we first look at cases resolved by evidence and use the data to test a basic prediction of the economics of dispute resolution, which is that the likelihood of trial would be an increasing function of the stakes of the case (Bebchuk, 1984). Next, we focus on cases lacking evidence and ask the following specific questions: (1) which cases were resolved by oath rather than settlement? (2) among cases that did not settle, in which did the plaintiff request an oath? and (3) among cases in which the plaintiff requested an oath, in which did the defendant take it? In addressing all of these questions, our focus will be on the stakes of the case, which is the key observable distinction.

The results generally provide support for the model's predictions. Specifically, while controlling for other differences across cases (e.g., type of dispute, gender and religion of the parties), we find that among cases with evidence trial was more likely than settlement as the stakes increased. Regarding cases lacking evidence, (1) resolution by oath rather than settlement was more likely as the stakes increased; (2) among cases that did not settle and went to oath, plaintiffs were less likely to request an oath as the stakes increased; and (3) among cases where the plaintiff requested an oath, the defendant was more likely to take the oath as the stakes

increased. In interpreting our results, we note that we cannot make any causal claims because of selection bias in court records (Cosgel and Ergene, 2014a).

Our analysis contributes both to the theoretical literature on the economics of dispute resolution, and to the historical literature on the role of decisive oaths in resolving legal disputes, especially in Islamic societies. To our knowledge, this issue has not been previously examined within the context of the economic model of litigation, and the previous historical literature on the topic has been mostly descriptive. The remainder of the paper is organized as follows. The next section gives a brief survey of the use of the decisive oath in history. Section 3 incorporates the decisive oath into the standard economic model of litigation. Section 4 provides some historical background on Ottoman courts. Section 5 describes our data set. Section 6 presents the empirical results. Finally, section 7 offers concluding remarks.

## ***2. The Decisive Oath***

A fascinating yet little known institution in legal history and practice has been the availability of an option to end a lawsuit by a decisive oath (*litis decisorium*, *serment décisoire*, *al-yamān al-ḥāsima*)<sup>2</sup>. This type of oath is different from the well-known *testimonial* oath typically observed in modern courtrooms in which the witnesses swear to tell the truth. It is also different from the *complementary* oath, which in some legal systems judges may elicit from one of the parties with the sole objective of complementing certain evidence presented in court. The decisive oath is distinct in that it can be employed as a last resort to end a legal dispute if the plaintiff has no other evidence to present in court. Most surprisingly, in some circumstances

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<sup>2</sup> Various other terms have been used to describe the decisive oath in different legal systems and case-types, including the exculpatory oath, compurgation, defendant's oath, party oath, and oath of innocence.

courts actually accept this oath as the basis for a finding on behalf of the oath-taker, a fact that seems to defy common sense.

As one of the oldest legal institutions, the decisive oath has actually been an integral component of dispute resolution throughout history, from ancient civilizations to modern societies. The laws and abbreviated court records of various ancient civilizations of the Fertile Crescent indicate widespread use of the decisive oath in both civil and criminal lawsuits since at least 2,000 BC. As Magnetti, (1979: 2-3) has noted, “[f]requent references to the use of the oath in the laws of Hammurabi (late eighteenth century B.C.) and in the Middle Assyrian laws (fifteenth century B.C.) attest to its widespread use throughout the later Mesopotamian legal system.”<sup>3</sup> Similar references can be found in the Book of the Covenant (Exodus, 21-23 ), which indicates the important role that decisive oaths played in ending lawsuits under the Hebrew law (Price, 1929: 26-29). The Roman civil law likewise included the decisive oath as part of the litigation process by the time of Justinian in the 6th century CE (Silving, 1959: 1339).

Even in modern societies, the decisive oath has been adopted by a number of legal systems, including those in the Middle East and in civil law countries in Europe. This has been the case, for example, “in the French civil code and in other codes, such as those of the Netherlands, Italy, and Portugal” (Bechor, 2012: 167). Islamic legal systems have similarly incorporated the decisive oath into their court procedures, based on a tradition (*hadith*) attributed to Prophet Mohammad that stipulates that the plaintiff has to prove his case or that the defendant must swear an oath (Liebesny, 1972: 48-49). Consequently, the decisive oath has typically played an important role in legal systems based on the Islamic Law, such as in the historical legal codes of the Ottoman Empire and colonial Indonesia, and in the modern civil codes of

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<sup>3</sup> For other evidence and general discussion of the decisive oath in ancient societies, see also Bechor ( 2012: 143-211), Black (1893), Liebesny (1972), Price (1929), and Silving (1959).

contemporary Egypt, Iraq and other Middle Eastern countries (Bechor, 2012; Halim, 2013; Jennings, 1996).

Although these various legal systems naturally differ in terms of specific procedures guiding the courtroom implementation of the decisive oath, they share the common objective of using it effectively to end lawsuits in the absence of evidence. Jurists have disagreed, however, regarding the circumstances that warranted the use of a decisive oath, as well as its scope, the rights of the parties, and the implications of late arrival of evidence. Schools of thought have consequently emerged regarding answers to such questions as whether the decision to elicit the oath belonged to the judge or the plaintiff, whether other individuals could take the oath on behalf of the defendant, whether the defendant had the right to re-direct the oath to the plaintiff, and whether the outcome of the dispute could be altered by new evidence that arrived after the completion of the trial.<sup>4</sup> Despite such subtle differences in implementation, societies that have accepted the decisive oath as an integral component of their legal systems have nevertheless agreed on the basic need of the parties to determine the outcome of a lawsuit even when they had no other evidence to present in court.

Absence of decisive evidence is always a possibility in legal disputes. Modern courts, particularly in the common law tradition, resolve such cases by means of the burden of proof, which is typically placed with the plaintiff: if plaintiffs cannot prove their claims, they lose the case. The usual justification for this placement is to conserve on administrative costs (Posner, 2003, 617-618). The decisive oath effectively allows the plaintiff to try to shift the burden to the defendant, who then has the option to swear an oath (thereby avoiding liability) or not (thereby assuming liability). As we will see, the fact that some defendants opt not to swear suggests that

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<sup>4</sup> See, for example, the disagreement among Muslim jurists regarding the question of late evidence, as discussed in Bechor (2012: 69-77).

oath-taking is a considered decision, even when there is apparently no material consequence of lying.

### ***3. Theoretical Framework***

This section develops the theoretical framework on which the empirical analysis will be based. It employs the basic asymmetric information model of litigation and settlement, which we extend by incorporating the possibility of oath taking as an alternative way of resolving a dispute. In the standard model, one party to the suit has private information that affects the outcome of a trial; we will follow Bebchuk (1984) and assume defendants have private information about their guilt.<sup>5</sup> This knowledge takes the form of  $P$ , the probability of plaintiff victory or extent of financial liability if a case proceeds to trial by evidence. The amount in dispute, or the stakes of the case,  $J > 0$ , and the costs of trial to the plaintiff and defendant,  $C_p$  and  $C_d$ , respectively, are all assumed to be public knowledge. In the standard model, after filing suit the plaintiff makes a settlement demand,  $S$ , which the defendant either accepts, resulting in a settlement, or rejects, resulting in a trial.<sup>6</sup>

We extend this model in the following way. Suppose plaintiffs are of two types: those who have sufficient evidence that the threat to go to trial if  $S$  is rejected is credible, and those who have insufficient evidence to credibly proceed to trial. For the first type, it must therefore be true that the expected value of a trial,  $PJ - C_p$ , is positive against all possible defendant types.<sup>7</sup> Thus, there is a lower bound on the distribution of  $P$  such that  $PJ - C_p > 0$ .

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<sup>5</sup> We will use the term “guilt” generically here to mean legal responsibility of the defendant, whether criminally or civilly.

<sup>6</sup> Because the uninformed party makes the settlement offer, the model is one of “sorting” or “screening” rather than “signaling.”

<sup>7</sup> This rules out the credibility issue raised by Nalebuff (1987).



For the second type of plaintiff,  $P=0$  by definition because the latter lacks evidence. Thus, such a plaintiff would never proceed to trial by evidence. We will assume that defendants know which type of plaintiff they are facing; perhaps upon filing suit plaintiffs must declare to the judge whether or not they have evidence. In the absence of the oath option, this would preclude plaintiffs without evidence from ever filing suit in the first place because defendants would reject any positive settlement demand, and the plaintiff would then drop the suit. Our innovation of introducing the possibility of requesting an oath, however, gives plaintiffs of this second type another option, which will be detailed below.

### *3.1 Evidence-based cases*

Consider first cases involving plaintiffs *with* evidence, who therefore have a credible threat to go to trial if settlement fails. As noted, the plaintiff (the uninformed party) first makes a settlement demand,  $S$ , which the defendant either accepts or rejects. Given that defendants' private information is over the plaintiff's probability of victory at trial,  $P$ , a defendant of type  $P$  will accept the offer if  $S \leq PJ + C_d$ , or if

$$P \geq \frac{S - C_d}{J} \equiv \hat{P} \tag{1}$$

and will reject it otherwise. This cutoff value sorts defendants into two types—those that settle (strong cases for the plaintiff) and those that go to trial (weak but still profitable cases for the plaintiff). In this setting, Bebchuk (1984) proved that, at the optimum, both the optimal settlement amount and the probability of trial are increasing functions of the stakes of the case,  $J$ . These represent standard predictions in economic models of trial and settlement.

### *3.2. Cases lacking evidence: the oath option*

Consider next the situation for plaintiffs with no evidence of the defendant's guilt, which leaves as the only option requesting an oath from the defendant. The exact procedural rules governing the use of this option are not clear; it is likely that they have varied across jurisdictions and over time. We will employ the following structure. The plaintiff first makes a settlement demand  $S$ , which the defendant either accepts or rejects. If the defendant rejects the demand, the judge asks the plaintiff to decide whether or not to request an oath. If the plaintiff does request an oath, the defendant either swears it and is absolved of any responsibility for the plaintiff's damages (i.e., owes nothing), or does not swear it and is held responsible for the full amount of the plaintiff's losses,  $J$ .

This description raises the obvious question of why a rational defendant would *ever* decline to swear an oath if one is requested, since doing so would end the case and allow him or her to avoid liability. The answer must be that some defendants will not swear if they are truly guilty—i.e., they will honestly admit legal responsibility. Economic theories of rational behavior, in whatever context, generally do not admit such an admission when a lower-cost option is available. Although modern-day court proceedings in most (if not all) legal systems require witnesses to swear an oath to tell the truth (a testimonial oath), and lying under oath is punishable under perjury laws, this is a very difficult charge to enforce, particularly when the plaintiff lacks evidence of the defendant's guilt. Consequently, testimony given under oath is generally viewed as “cheap talk.”

As we have discussed, however, in many societies, both modern-day and historical, norms of truth-telling, enforced by religious (internal) beliefs or other social sanctions, are potentially powerful motivators for many people. For example, the defendant's guilt may be known by some people—friends, family, business associates—even though no objective

evidence of it exists, and so swearing innocence will be known by them to be a lie. Additionally, some people may tell the truth simply because they view it as a moral imperative. Recognition of this idea adds some practical relevance to this procedural option.

We formalize this as follows. Suppose that lying entails some psychic cost which varies across individuals based on the degree to which they have internalized the imperative of truth-telling. Let  $\lambda$  be this cost, which is distributed across the population on the interval  $[0, \infty)$ . Now consider a case where the plaintiff has requested an oath from the defendant. The latter can swear the oath and avoid liability, which entails no cost if the defendant is innocent but a cost of  $\lambda$  if he or she is guilty. Alternatively, the plaintiff can decline to swear and pay  $J$ . Obviously, only a truly guilty defendant will decline to swear, and only then if  $\lambda > J$ ; that is, if lying is costlier than accepting liability. It follows that, conditional on a plaintiff requesting an oath, a defendant will be more likely to swear as  $J$  increases because the fraction of guilty defendants for whom  $\lambda < J$  is larger.

As noted, the resolution of cases in the current scenario will be determined by the following sequence of decisions: (i) the plaintiff makes a settlement demand,  $S$ , which the defendant either accepts or rejects; (ii) if the defendant rejects the settlement demand, the plaintiff decides whether or not to request an oath; and (iii) if the plaintiff requests an oath, the defendant decides whether or not to swear. Defendants who swear owe nothing, whereas defendants who do not swear are responsible for the full amount of the plaintiff's loss,  $J$ . As a final point, we assume that if the plaintiff requests an oath and the defendant swears it, the plaintiff forfeits the right to bring the case to court in the future, even if he or she acquires evidence.<sup>8</sup> In other words, requesting an oath resolves the case one way or the other. Let  $v(J)$  be

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<sup>8</sup> For differences among Islamic schools of thought regarding the finality of the oath and conditions surrounding the permissibility of late arrival of evidence, see Bechor (2011: 69-74).

the forgone option value of the case in this event, where  $v(J) < J$  and  $v'(J) > 0$ . Thus,  $v(J)$  is the plaintiff's opportunity cost of requesting an oath.

Given this set-up, note first that defendants who would never swear an oath (guilty defendants who have a high cost of lying) will settle for any amount less than  $J$  rather than go to an oath, whereas defendants who would swear (innocent defendants and those with a low cost of lying) will refuse any positive settlement demand. The plaintiff, however, cannot distinguish between these two types at the settlement stage.<sup>9</sup> Thus, they will either demand  $S=J$ , which some defendants will accept and some will refuse (a “separating” demand), or  $S=0$ , which both will accept (a “pooling” demand). However, if defendants know that a plaintiff will *not* request an oath if settlement fails, neither type will accept a positive settlement demand. The ultimate equilibrium therefore hinges on the credibility of the plaintiff's willingness to request an oath if settlement fails, which depends in turn on the fraction of defendants who will swear an oath if one is requested. The details of the derivation of an equilibrium in this case are contained in Appendix A. The remainder of this section summarizes the conclusions.

First, if that fraction of defendants who will swear an oath if requested exceeds a threshold, the plaintiff will not request an oath, thereby preserving the option value of the case. In this equilibrium, no cases will settle or proceed to oath. Second, if the fraction of defendants who will swear is less than the threshold, the equilibrium consists of a quasi-mixed strategy in which the plaintiff demands  $S=J$  and always requests an oath if settlement fails. As for defendants, all those who would swear the oath (innocent defendants and those willing to lie), and a fraction who would not swear (guilty but “honest” defendants), refuse this offer and go to

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<sup>9</sup> In this sense, the model resembles the one in Katz (1990).

oath. Thus, some cases end up settling and some end up going to oath, and among the latter, some defendants swear the oath and some do not.

### *3.3 Summary of empirical predictions*

The empirical predictions of the model, which subsequent sections will test using data from nineteenth century Ottoman courts, are summarized as follows. First, for evidence-based cases, an increase in the stakes of the case ( $J$ ) increases the likelihood of trial. Second, for cases lacking evidence: (i) the probability of a case going to oath rather than settling is increasing in the stakes of the case; (ii) conditional on the case not settling, the probability of the plaintiff's requesting an oath is decreasing in the stakes of the case; and (iii) conditional on the plaintiff's requesting an oath, the probability of the defendant's swearing an oath is increasing in the stakes of the case.

## ***4. Ottoman Courts***

For an empirical analysis of the predictions of the model, we use data from the registers (*sicil*) of Ottoman courts of law. The registers show that basic elements of the litigation process in Ottoman courts were similar in many ways to those observed in modern courts. The litigation began when one party (*müddei*, the plaintiff) filed an accusation against another party (*müdde'aleyh*, the defendant) seeking a legal remedy. The dispute could involve an accident, inheritance division, breach of contract, and various other claims of harms to the defendant, including damages to property (e.g., crops, house, animals). It could also involve offenses against persons, through verbal insults and physical attacks, which parties could bring to court for resolution or compensation. By contrast, crimes against religion and public interest, such as theft, banditry,

and wine drinking, for which punishment was prescribed in the Qur'an, were considered a violation of a claim of God (*hakk Allah*) and hence were typically prosecuted by government officials.

If the defendant denied the accusation, the case would be resolved either by a settlement between the parties or by a judge's decision after a formal trial.<sup>10</sup> An important advantage of using data from Ottoman courts for our analysis is that the registers include information regarding not just formal trials, but settlements reached in court as well. Disputes settled in court were typically entered into the record generically as the result of intervention by mediators (*muslihûn*), without further details regarding the process of reaching an agreement. The records nevertheless provide sufficient detail for empirical analysis of the characteristics of the parties, the dispute, and the resolution. This type of information is not generally available in modern-day litigation data.

If the parties could not reach a settlement, the case would go to trial and be decided by a judge, based on either the evidence presented in court or by a decisive-oath proceeding. The plaintiff would be asked first to present the case and provide evidence to substantiate the claims. If the plaintiff was able to produce evidence and the judge found the evidence to be reliable, the suit would end in favor of the plaintiff.

If the plaintiff could not produce evidence, however, or the credibility of the evidence was dubious, the trial did not automatically conclude in favor of the defendant (as would be true if the plaintiff had the burden of proof). Rather, the suit would proceed to the possible use of a decisive oath for resolution. In this proceeding, the plaintiff would be asked by the judge if they

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<sup>10</sup> We exclude from the analysis cases in which the defendant accepted the plaintiff's accusation, situations in which the plaintiff would win the suit and be entitled to receive the requested compensation. Some of those cases may have been brought to court for the sole benefit of recording the admission in court registers for future reference.

wished to request an oath of innocence from the defendant regarding the accusation. If the plaintiff did not demand an oath from the defendant, the suit would immediately end in favor of the defendant. However, if the plaintiff chose to request an oath, the conclusion of the suit would depend on the defendant's action: if the defendant took the oath, the plaintiff would lose the case, but if the defendant refused to take the oath (*nükûl*), the plaintiff would win.

## 5. Data and Empirical Model

To analyze factors affecting the way suits proceeded through these stages, we built a dataset of legal disputes from the registers of Ottoman courts during the early nineteenth century. Specifically, we chose the courts of Galata and Üsküdar in Istanbul, and the courts of Konya and Kütahya from the provinces, because they represent the diversity within and across the central and provincial courts of the Ottoman Empire. We chose the years between 1796 and 1844 because for most of this period the registers of our courts are continuously available. In addition, the period covers a sufficiently long span before the full implementation of the *Tanzimat* era legal reforms, which altered the overall court system and legal procedures in the Empire.<sup>11</sup>

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<sup>11</sup> The dataset includes all of the disputes found in the registers of Konya and Kütahya. Given the enormous number of disputes brought to the courts of Galata and Üsküdar in the imperial capital, our dataset includes a smaller subset (about 10%) of the available records from these courts. Specifically, we selected the disputes from the Galata and Üsküdar courts by conducting clustered sampling of registers at 10 year intervals. Among all of the legal disputes available in the Galata court registers, we entered in our dataset all of those recorded in the years 1830 and 1840, and those recorded in the first 10 folios in the years 1800, 1810, and 1820. Likewise, among the legal disputes available in the Üsküdar registers, we included all of those recorded in the years 1810 and 1820, and those recorded in the first 20 folios of the year 1800. Our sample for the Üsküdar court is smaller because the registers were not available for the years between 1825 and 1840. Our dataset includes legal disputes recorded in the following court registers (Şer'iyye Sicilleri) in Ottoman archives. Galata court registers numbered 552, 594, 633, 672, 702; Konya court registers numbered 67-74, 74 / F-4, 76, 83, 102; Kütahya court registers numbered 6-22; and Üsküdar court registers numbered 551, 571-2, 589. Portions of some of these registers can be found in transcribed form in the following publications: Demirkol (2016: 78-595), Kahveci (2014: 38-279), Şahin (2013: 91-299), Bildik (2010: 90-356), Dumluoğlu (2010: 30-318), Üçdemir (2010: 22-264), Yıldız (2010: 12-219), Özger (2007: 58-118), Karaca (2007: 21-205), Kutluğ (2006: 22-151), Ünlü (2005: 80-526).

**Figure 3: The Locations of Galata, Üsküdar, Konya, and Kütahya**



**Note:** Figure 3 shows the locations of the courts of Galata, Üsküdar, Konya and Kütahya in the Ottoman Empire. Whereas Galata and Üsküdar were neighborhoods in Istanbul, Konya and Kütahya were provincial towns in Anatolia. For reference, the map includes the frontier of the Empire in the year 1800 as well as the borders of today's countries.

Our original dataset consisted of 2,163 legal disputes recorded in 38 registers of these courts. This includes only entries of settlements, trials by evidence, and resolutions by oath, rather than registrations of admissions, because of our focus on legal disputes *resolved in court*. Moreover, given our interest in estimating the relationship between the stakes of a case ( $J$ ) and the oath, we had to drop from analysis certain legal disputes that fall outside of our scope. For example, we excluded from analysis 732 suits that involved non-monetary claims, such as a disputed border. In addition, we excluded 311 cases that involved countersuits by the parties, which made it difficult to identify the right to oath between the plaintiff and the defendant. Finally, in the baseline analysis we dropped 181 disputes that involved collective parties, such as a whole neighborhood, an entire family, the state or its agents, or a corporate body like a guild or



a charitable foundation. Some of these collectives likely did not have the decisive oath as a meaningful option for concluding their lawsuits. More importantly, restricting the analysis to suits between two individuals allowed us to focus on the stakes of a case ( $J$ ) by controlling for several known characteristics of litigants that might be correlated with  $P$  or  $\lambda$  but are well-defined only for individuals. Specifically, our baseline analysis includes variables regarding the gender, religion and economic status (honorific titles) of litigants, which are important to control for but are not well-defined for collectives. In section 6.5 below, however, we will relax this restriction by including in the analysis collectives that consist of multiple individuals and corporate bodies.

**Table 1: Legal Disputes between Individuals, by Court and Case-types**

	Settlement	Trial by Evidence	Resolution by Oath	All cases
<b>COURT</b>				
<b>Galata</b>	267	55	113	435
<b>Üsküdar</b>	44	34	27	105
<b>Konya</b>	42	44	37	123
<b>Kütahya</b>	44	42	37	123
<b>CASE-TYPE</b>				
<b>Family</b>	22	10	7	39
<b>Personal Crime</b>	53	2	18	73
<b>Property</b>	27	14	10	51
<b>Probate</b>	36	30	19	85
<b>Commercial</b>	387	110	194	691
<b>Total</b>	525	166	248	939

*Note:* The entries show the number of legal disputes brought to court for resolution and resolved by settlement or trial by evidence or decisive oath, broken down by courts and case-types.

The final dataset for the baseline analysis consists of 939 *monetary* disputes between two individuals. Table 1 shows the breakdown of these disputes by court and case-type. Case-type

categories are somewhat arbitrary because the original court records did not formally make such distinctions. Using the basic reason given for the dispute in its recorded description, we divided legal disputes into five broad categories for analysis; namely, disputes concerning family matters, personal crimes, property, probate, and commerce.<sup>12</sup> Family disputes include those related to marriage, divorce, children, and associated obligations (e.g., alimony, custody). Personal crimes consist of various types of felonies and misdemeanors, such as murder, theft, physical assault, and verbal insults and swearing. Given our focus on the decisive oath, we include in this category only cases brought to court by aggrieved parties, not by a government official.

Property disputes could arise from numerous disagreements concerning real estate, arable land, water rights, and rights to various other types of fixed and moveable property. We grouped all legal disputes concerning the division of estate and appropriation of inheritance shares into the probate category. In the final category, commercial disputes consist of disagreements concerning loans, partnerships, production, and exchange. Examples included non-payment of debt, misreporting of profits, breach of contract, and delayed delivery or faulty quantity or quality of goods and services.

The table also shows the breakdown by whether these disputes were resolved as settlements between parties, in trials by evidence, or by decisive oath. Interestingly, out of all suits that failed to settle, the number of those concluded by a decisive oath was 1.5 times the amount of those concluded by evidence, which supports the importance of decisive oath in Ottoman jurisprudence.

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<sup>12</sup> For a similar categorization, see Ergene (2003: Chapter 4).

Ottoman court registers provide essential details regarding all disputes brought to court, including the identities of disputants, their arguments, and the resolution (Coşgel and Ergene, 2014b). Consisting of abbreviated descriptions of each suit, the records typically begin by identifying the parties through their full names, honorific titles, places of origin, and various other distinguishing information. If the disputants were related to each other through family ties, this information would be noted. The records then summarize the dispute, including the plaintiff's accusations and the defendant's responses, often in the form of direct quotations.

For cases settled in court, the registers provide the same basic information as those that wound up at trial regarding the identities and arguments of disputants. In addition, settlement entries include the terms of the agreement, such as the amount that the defendant committed to pay to the plaintiff for compensation to end the suit. For settlements concerning non-monetary disputes, the terms specify the action that the defendant agreed to perform for an amicable resolution. Since settled cases were not formally tried, settlement entries make no mention of the available evidence, possibly because they could be strategically undisclosed during negotiations at this stage of the proceedings. By the same token, such entries obviously include no information regarding parties' contemplation of using the decisive oath in later stages.

If settlement attempts failed and the case was tried by evidence, the record would describe the specific evidence provided by the litigants, such as the names and abbreviated testimonies of the witnesses. If instead no evidence was presented and the case was tried by a decisive oath, the records would indicate whether the plaintiff requested the oath and whether the defendant took the oath. Finally, the record would note the judge's decision.

We used the information from Ottoman courts for an empirical analysis of the following questions: (1) which cases wound up at evidence-based trial instead of being settled; (2) which

other cases went to resolution by decisive oath (due to lack of evidence) rather than reach settlement; (3) conditional on failing to settle, in which cases lacking evidence did the plaintiff request an oath from the defendant; and (4) conditional on the plaintiff requesting an oath, in which cases did the defendant take it?

For a regression analysis of these questions, we used OLS to estimate the following equation:

$$Y_{itcr} = \beta_1 + \beta_2 J_{itcr} + E_t + F_c + G_r + \mathbf{X}'_{itcr} \boldsymbol{\lambda} + u_{itcr} , \quad (2)$$

where  $Y_i$  is the outcome of interest (e.g., trial vs. settlement) for dispute  $i$  of type  $t$  brought to court  $c$  in year  $r$ .  $J$  is the key independent variable, which is the monetary value of the plaintiff's claimed loss, corresponding to the stakes of the case as discussed in the theoretical model.

**Table 2: The Stakes of the Case ( $J$ ), Means by Court and Case-type**

	Settlement	Trial by Evidence	Resolution by Oath	All cases
<b>COURT</b>				
<b>Galata</b>	344	1,336	557	524
<b>Üsküdar</b>	94	347	246	163
<b>Konya</b>	983	1,193	1,234	1,116
<b>Kütahya</b>	822	1,295	1,235	1,116
<b>CASE-TYPE</b>				
<b>Family</b>	230	980	512	473
<b>Personal Crime</b>	477	2,510	1,371	753
<b>Property</b>	435	734	488	528
<b>Probate</b>	984	1,085	2,048	1,257
<b>Commercial</b>	279	1,135	450	464
<b>Total</b>	354	1,099	643	562

*Note:* The entries show the mean values of the monetary damages sued or settled by the plaintiffs, by court and case-types, in Ottoman *guruş*.

Table 2 shows the breakdown of mean  $J$  by court and case-type. Among courts, the mean value of the stakes of all cases brought to the provincial courts of Konya and Kütahya was

notably higher than those brought to the capital city courts of Galata and Üsküdar. Likewise, the mean value of all stakes was substantially higher in probate cases than other types. To control for potential variations across courts and case-types in our dependent variables as indicated by Tables 1 and 2, our analysis includes court and case-type fixed effects, denoted by  $E$  and  $F$  in (2). In addition, we include fixed effects for the year of litigation, denoted by  $G$ , to control for systematic variations in outcome variables over time.

Finally, we include in the analysis a vector of variables,  $X$ , to control for other characteristics of litigants that could potentially have confounding effects on the outcome variable. Specifically, this vector consists of five sets of characteristics (Appendix B shows the descriptive statistics of these variables). The first set consist of two binary variables concerning the gender of litigants; specifically, whether the plaintiff and the defendant were male or female. Another characteristic of litigants that could have affected the outcomes of interest is religion. Since Muslims and non-Muslims had different status under Ottoman law, these differences could affect the parties' behavior in court. Moreover, non-Muslims had various other alternatives for resolving disputes among themselves, for example by taking them to consulates or their own denominational courts. We control for the effect of religion on our outcome variables by including binary variables that denote whether the plaintiff and the defendant were Muslim or non-Muslim. A third factor that could affect litigation outcomes is whether the parties were related to each other by family ties, which we consider in the analysis by including a binary variable that marks the presence of such a relationship between the plaintiff and the defendant.

The fourth set refers to the use of representatives in court (Jennings, 1975; Coşgel and Ergene, 2016: 246-51). Parties were sometimes unable to go to court in person for a variety of reasons, such as sickness, pregnancy, old age, or physical disability. In that case, there was no

formalized system of legal representation in the sense of paid lawyers, but Ottoman law allowed parties to designate a relative or acquaintance to serve as their representative (*vekil*) in litigating disputes in court. To account for the way oath use could be affected by the presence of representatives in court, we include in the analysis variables that mark whether the plaintiff or the defendant who presented the case went to court as a representative.

Finally, we include a fifth set of variables to account for the socio-economic status of litigants. Since court registers did not record direct information regarding wealth or occupation consistently, researchers have used the honorific titles of individuals as proxy (Coşgel and Ergene, 2016: 49-61). Since women typically did not have titles, however, we use as a proxy the titles, if any, of the fathers of litigants to control for whether the father of the plaintiff or the defendant had honorific military or religious titles.

## ***6. Results***

This section examines the implications of the theoretical model by using the data to estimate the association between the (log) stakes of a case ( $J$ ) and various outcome variables as described by the four questions listed above. The results, reported in Tables 3-6, provide strong support for the predictions of the theoretical model regarding the impact of  $J$  and these outcomes.

### *6.1 Settlement versus Trial by Evidence*

Recall that a basic prediction of the economic analysis of dispute resolution was that in evidence-based cases the likelihood of trial would be an increasing function of the stakes of the case (Bebchuk, 1984). To test this prediction, we ran OLS to estimate the relationship between the (log) monetary value of the plaintiff's claimed damages ( $J$ ) and a binary dependent variable

that equals 1 if the case went to trial and 0 if it was settled. Unfortunately, the settlements included in this analysis are not exclusively those in which the parties had evidence. As noted above, settlements entries in our records do not specify whether the parties had any evidence to support their cases, possibly because they were strategically kept private at this stage of the proceedings. Since we are thus unable to distinguish between settlements with and without evidence, we run the analysis by combining all settlements into a single category, based on the reasonable assumption that they come from the same distribution.

**Table 3: The Likelihood of Trial by Evidence**

VARIABLES	(1)	(2)	(3)
Monetary claim (log $J$ )	0.087*** (0.006)	0.084*** (0.005)	0.090*** (0.018)
Observations	691	691	691
R-squared	0.110	0.173	0.269
Gender		x	x
Religion		x	x
Related Parties		x	x
Representative use		x	x
Honorific Title		x	x
Court FE			x
Case-type FE			x
Year FE			x

*Note:* The dependent variable is a binary variable that equals 1 if the case went to trial by evidence and 0 if it was settled. Monetary claim is the log value of the damages sued or settled by the plaintiff in Ottoman *guruş*. Gender consists of binary variables regarding whether the plaintiff and the defendant were a woman. Religion refers to binary variables regarding whether the plaintiff and the defendant were non-Muslim. Related parties is a binary variable that equals 1 if the plaintiff and the defendant are related by family ties. Representative use refers to binary variables regarding whether the plaintiff and the defendant went to court as a representative. Honorific titles consist of binary variables concerning whether the father of the plaintiff and the defendant had religious or military titles. Court FE and Case-type FE are for the four courts and five types of cases described in text. Year FE refer to the year of litigation. Full results are presented in Appendix C. Standard errors in parentheses clustered at the case-type level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

The results, reported in Table 3, show that the coefficient of  $J$  is positive and highly significant, as predicted.<sup>13</sup> To see the sensitivity of the estimated association between  $J$  and the likelihood of trial to the inclusion of various control variables discussed above, we report three separate versions of the regression equation. Column (1) includes only  $J$  as an independent variable, column (2) includes various personal characteristics of the parties, and column (3) includes fixed effects for the four courts, five case-types, and the year of litigation. The coefficients of  $J$  are very close in magnitude across the three columns, confirming a robust association between  $J$  and the likelihood of trial.

### 6.2 Settlement versus Resolution by Decisive Oath

We next turn to cases lacking evidence and ask how the stakes of a case affected the choice between settling the suit and going to the oath option. Recall that the theoretical model predicted that among cases that went to trial  $J$  would be positively correlated with the likelihood of case being resolved by oath rather than settlement. We test this prediction by running OLS to estimate the relationship between the (log) monetary value of the plaintiff's claimed damages and a binary dependent variable that equals 0 if the case was settled and 1 if it was resolved by decisive oath.

**Table 4: The Likelihood of Resolution by Decisive Oath**

VARIABLES	(1)	(2)	(3)
Monetary claim (log $J$ )	0.065*** (0.011)	0.068*** (0.013)	0.078*** (0.013)
Observations	773	773	773
R-squared	0.047	0.068	0.118
Gender		x	x

<sup>13</sup> The results presented here are OLS estimates with the standard errors clustered at the case-type level.



Religion	X	X
Related Parties	X	X
Representative	X	X
Honorific Title	X	X
Court FE		X
Case-type FE		X
Year FE		X

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*Note:* The dependent variable is a binary variable that equals 0 if the case was settled and 1 if it was resolved by decisive oath. Monetary claim is the log value of the damages sued by the plaintiff in Ottoman *gurus*. Gender consists of binary variables regarding whether the plaintiff and the defendant were a woman. Religion refers to binary variables regarding whether the plaintiff and the defendant were non-Muslim. Related parties is a binary variable that equals 1 if the plaintiff and the defendant are related by family ties. Representative use refers to binary variables regarding whether the plaintiff and the defendant went to court as a representative. Honorific titles consist of binary variables concerning whether the father of the plaintiff and the defendant had religious or military titles. Court FE and Case-type FE are for the four courts and five types of cases described in text. Year FE refer to the year of litigation. Full results are presented in Appendix C. Standard errors in parentheses clustered at the case-type level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

The results, reported in Table 4, show that *J* indeed had a positive and highly significant relationship with the likelihood of being resolved by decisive oath. The result holds true in all three equations. Although the coefficient of *J* is somewhat lower in equations (1) and (2) with fewer controls, the signs are consistently positive, and the significance remains high.

### 6.3 The Plaintiff's Decision to Request an Oath

We next turn to the question of how the stakes of a case affected the plaintiff's decision of whether or not to request a decisive oath from the defendant in cases that reached that stage. The model predicted that the probability of the plaintiff's requesting an oath is decreasing in the stakes of the case. To determine whether *J* had a positive or negative relationship with the plaintiff's decision of whether to request a decisive oath, we defined a dependent variable that equals 1 if the plaintiff chose to request a decisive oath from the defendant and 0 if they declined to request such an oath, conditional on the case reaching that stage.

**Table 5: The Likelihood of Plaintiff Requesting a Decisive Oath**

VARIABLES	(1)	(2)	(3)
Monetary claim (log $J$ )	-0.065*** (0.009)	-0.071*** (0.010)	-0.056*** (0.007)
Observations	248	248	248
R-squared	0.054	0.098	0.197
Gender		x	x
Religion		x	x
Related Parties		x	x
Representative		x	x
Honorific Title		x	x
Court FE			x
Case-type FE			x
Year FE			x

*Note:* The dependent variable is a binary variable that equals 1 if the plaintiff requested a decisive oath from the defendant and 0 if they did not ask for an oath. Monetary claim is the log value of the damages sued by the plaintiff in Ottoman *gurus*. Gender consists of binary variables regarding whether the plaintiff and the defendant were a woman. Religion refers to binary variables regarding whether the plaintiff and the defendant were non-Muslim. Related parties is a binary variable that equals 1 if the plaintiff and the defendant are related by family ties. Representative use refers to binary variables regarding whether the plaintiff and the defendant went to court as a representative. Honorific titles consist of binary variables concerning whether the father of the plaintiff and the defendant had religious or military titles. Court FE and Case-type FE are for the four courts and five types of cases described in text. Year FE refer to the year of litigation. Full results are presented in Appendix C. Standard errors in parentheses clustered at the case-type level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

Table 5 shows the results of the OLS regression. The coefficient on  $J$  is negative and significant at conventional levels, though the magnitude of the coefficient drops somewhat in the last column. This result indicates that a plaintiff was less likely to request an oath as  $J$  rose, consistent with the model's prediction.

#### 6.4 Defendant's Decision to Take an Oath

Finally, we examine the question of whether the defendant would take the oath if requested by the plaintiff. The theoretical model's prediction in this regard is that the probability

of the defendant's swearing an oath is increasing in the stakes of the case. To test this prediction, we defined a dependent variable that equals one if the defendant took a decisive oath of innocence and 0 if they took a pass on the opportunity, conditional on the plaintiff having requested an oath.

**Table 6: The Likelihood of Defendant Taking the Oath**

VARIABLES	(1)	(2)	(3)
Monetary claim (log $J$ )	0.023*** (0.003)	0.021*** (0.002)	0.020*** (0.002)
Observations	193	193	193
R-squared	0.013	0.064	0.122
Gender		x	x
Religion		x	x
Related Parties		x	x
Representative		x	x
Honorific Title		x	x
Court FE			x
Case-type FE			x
Year FE			x

*Note:* The dependent variable is a binary variable that equals 1 if the defendant took a decisive oath of innocence and 0 if they did not take the oath. Monetary claim is the log value of the damages sued by the plaintiff in Ottoman *gurus*. Gender consists of binary variables regarding whether the plaintiff and the defendant were a woman. Religion refers to binary variables regarding whether the plaintiff and the defendant were non-Muslim. Related parties is a binary variable that equals 1 if the plaintiff and the defendant are related by family ties. Representative use refers to binary variables regarding whether the plaintiff and the defendant went to court as a representative. Honorific titles consist of binary variables concerning whether the father of the plaintiff and the defendant had religious or military titles. Court FE and Case-type FE are for the four courts and five types of cases described in text. Year FE refer to the year of litigation. Full results are presented in Appendix C. Standard errors in parentheses clustered at the case-type level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

Table 6 shows the results of OLS regression analysis of this question. The coefficient of  $J$  is positive and significant with about the same magnitude in all three models, indicating a strong relationship between the stakes of a case and the defendant's decision. The positive and significant coefficient is in line with the theoretical prediction of greater willingness of defendants to take an oath as the stakes increased.

### *6.5 Litigation Involving Parties Acting Collectively*

In this section, we include in the analysis collective parties who came to court as plaintiffs or defendants but were excluded from the preceding analysis to focus on disputes between two individuals. Recall that this exclusion allowed us to incorporate individual level characteristics regarding gender, religion, and honorific titles as proxies to control for the plaintiff's chances of winning at trial. The question remains, however, whether the results of our analysis regarding the association between the stakes of a case and the various outcome variables would hold true if we had included collective parties with a shared legal objective, consisting of corporate bodies like guilds and charitable foundations or groups of individuals, such as a family or a whole neighborhood.

There are a total of 181 cases involving collective parties in our dataset. Including them in the analysis raises the number of observations in the sample from 939 to 1,120, as seen in Appendix B. The decisive oath was an available option to collectives in certain situations, such as when all members of a family involved in a dispute were asked to take the oath, or if a whole neighborhood requested an oath from an individual defendant. Out of 181 suits involving a collective, 96 (53%) were settled, 40 (22%) went to trial by evidence, and 45 (25%) were resolved by oath. Among the cases in latter category, the plaintiff requested an oath in 37 (82%) cases, and interestingly the defendant took the oath in all 37 cases.

**Table 7: Settlement, Trial, and the Decisive Oath in the Whole Sample (Including Collectives)**

VARIABLES	Trial by Evidence vs. Settlement			Resolution by Oath vs. Settlement		
	(1)	(2)	(3)	(4)	(5)	(6)

Monetary claim (log $J$ )	0.075** (0.017)	0.072*** (0.014)	0.075** (0.025)	0.055** (0.016)	0.060*** (0.012)	0.068** (0.016)
Observations	827	827	827	914	914	914
R-squared	0.089	0.113	0.234	0.037	0.063	0.107
Related Parties		x	x		x	x
Representative use		x	x		x	x
Court FE			x			x
Case-type FE			x			x
Year FE			x			x

VARIABLES	Request the Decisive Oath			Take the Decisive Oath		
	(7)	(8)	(9)	(10)	(11)	(12)
Monetary claim (log $J$ )	-0.046* (0.017)	-0.056** (0.012)	-0.050*** (0.005)	0.024*** (0.003)	0.017*** (0.002)	0.011** (0.004)
Observations	293	293	293	230	230	230
R-squared	0.028	0.068	0.145	0.019	0.031	0.073
Related Parties		x	x		x	x
Representative use		x	x		x	x
Court FE			x			x
Case-type FE			x			x
Year FE			x			x

*Note:* The dependent variables are as indicated in the top rows. Specifically they are binary variables that in columns 1-3 equal 1 if the case went to trial and 0 if it was settled; in columns 4-6 equal 1 if the case was resolved by oath and 0 if it was settled, in columns 7-9 equal 1 if the plaintiff requested a decisive oath from the defendant and 0 if they did not ask for an oath, and in columns 10-12 equal 1 if the defendant took a decisive oath of innocence and 0 if they did not take the oath. Monetary claim is the log value of the damages sued by the plaintiff in Ottoman *guruş*. Related parties is a binary variable that equals 1 if the plaintiff and the defendant are related by family ties. Representative use refers to binary variables regarding whether the plaintiff and the defendant went to court as a representative. Court FE and Case-type FE are for the four courts and five types of cases described in text. Year FE refer to the year of litigation. Full results are presented in Appendix C. Standard errors in parentheses clustered at the case-type level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

To examine whether the results of our preceding analysis would change after the inclusion of collectives in the sample, we ran OLS to estimate the same equations, but with appropriate modifications. Specifically, we dropped from the analysis all individual-level control variables (regarding gender, religion, and honorific titles) that were not well-defined for collective parties. But we kept in the analysis the control variables for family relationships between the parties and the use of representatives, in addition to fixed effects for the four courts,

five case-types, and year of litigation. Appendix B shows the summary statistics of these control variables.

As seen in the various panels of Table 7, including collectives in the analysis did not substantially alter our basic conclusions regarding the relationship between the stakes of case ( $J$ ) and the likelihoods of evidence-based trial (cf. Table 3), resolution by decisive oath (cf. Table 4), whether plaintiff requested an oath (cf. Table 5), and whether defendant took the oath (Table 6). Specifically,  $J$  is still correlated positively with the likelihood of trial by evidence, positively with the likelihood of being resolved by oath, negatively with the plaintiff requesting the oath, and negatively with the defendant taking the oath. The magnitudes of the coefficients of  $J$  in models 1-9 are typically smaller in Table 7 than those in Tables 3-6, but significance remains high.

## ***7. Conclusion***

This paper has investigated the impact of the decisive oath on the resolution of legal disputes. Although unfamiliar to most people, this mechanism for resolving a dispute has been important in history, especially in civil law traditions. Its use is primarily reserved for cases in which the plaintiff has no evidence of the defendant's responsibility. In modern courts, the assignment of the burden of proof to plaintiffs would result in a judgment for the defendant in such cases. Anticipating this, plaintiffs would either never file them, or they would be settled as part of separating equilibrium wherein only strong cases proceeded to trial. Consequently, the availability of this device would seem to be moot in the context of existing economic theories of

litigation and settlement because cases where the plaintiff lacked evidence would never reach the stage where the oath could be used.

Historical evidence on dispute resolution in the Ottoman Empire, however, reveals that some cases *were* resolved in this way. Empirical analysis of this data therefore required us to amend the theory of dispute resolution to account for this possibility. We did this by assuming that taking an oath to tell the truth is a binding constraint for some people. This simple change led to several testable predictions which were all confirmed by the empirical results. Our analysis therefore contributes to the theoretical, empirical, and historical analysis of dispute resolution.

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## Appendix A

This appendix derives the equilibrium of the model for cases lacking evidence. Let  $\alpha$  be the fraction of defendants who will swear an oath if requested, which is increasing in  $J$  given the specification in the text. Specifically,  $\alpha = \Pr(\lambda < J)$ . Also, let  $\theta$  be the probability that the plaintiff will request an oath if settlement fails, and let  $\sigma$  be the probability that a defendant who would never swear will accept a settlement demand of  $S=J$ . (Defendants who would never swear will reject this demand with certainty.) We can then define the probability that the defendant will swear an oath, if one is requested, conditional on his or her having rejected a settlement demand, to be

$$\hat{\alpha} = \frac{\alpha}{\alpha + (1 - \alpha)(1 - \sigma)} = \frac{\alpha}{1 - (1 - \alpha)\sigma} \quad (A1)$$

Note that if  $\sigma=0$ ,  $\hat{\alpha} = \alpha$ , and if  $\sigma=1$ ,  $\hat{\alpha} = 1$ . In the first case, refusing a settlement is uninformative because both defendant types refuse to settle, whereas in the second case, it is perfectly informative because only those who would never swear refuse.

Given (A1), a plaintiff whose settlement demand is refused will request an oath if  $(1 - \hat{\alpha})J > v(J)$ , in which case  $\theta=1$ ; and will not request an oath if the reverse is true, in which case  $\theta=0$ . Suppose initially that  $\sigma=0$ , or that all defendants who will never swear will reject a settlement demand of  $S=J$ . As noted,  $\hat{\alpha} = \alpha$  in this case, and the plaintiff will not find it desirable to request an oath if  $(1-\alpha)J < v(J)$ , or if

$$\alpha > \bar{\alpha} \equiv \frac{J - v(J)}{J} \quad (A2)$$

where  $0 < \bar{\alpha} < 1$  given that  $v(J) < J$ . For simplicity, let  $v(J) = \varepsilon J$ , where  $0 < \varepsilon < 1$ . Thus,  $\bar{\alpha} = 1 - \varepsilon$ .

According to (A2), if the fraction of defendants who would swear is large enough, plaintiffs will not find it profitable to request an oath if their settlement demand is refused; that

is,  $\theta=0$ . It follows that it is optimal for defendants who would *not* swear to refuse the settlement demand, which is consistent with the initial assumption that  $\sigma=0$ . This establishes that  $\theta=\sigma=0$  is an equilibrium when (A2) holds; that is, when the fraction of defendants who will swear is large enough. Note that, with  $\bar{\alpha} = 1 - \varepsilon$ , this outcome becomes more likely as  $J$ , and hence  $\alpha$ , increases.

Consider next the situation where  $\alpha < \bar{\alpha}$ , and again, suppose initially that  $\sigma=0$ , in which case  $\hat{\alpha} = \alpha$ . In this case it is optimal for the plaintiff to request an oath because the inequality in (A2) is reversed. Thus,  $\theta=1$ . But now, defendants who would never swear are indifferent between settling for  $S=J$  and going to an oath. Thus, any  $\sigma \in [0,1]$  is consistent with an equilibrium. The plaintiff's expected return from requesting an oath is therefore equal to  $(1 - \hat{\alpha})J$ , which is decreasing in  $\sigma$  given that  $\frac{\partial \hat{\alpha}}{\partial \sigma} > 0$  from (A1). Thus,  $\theta=1$  is only optimal if  $(1 - \hat{\alpha})J \geq v(J)$ , which holds if  $\sigma \leq \sigma^*$ , where  $\sigma^* < 1$  is defined by  $\hat{\alpha} = \bar{\alpha}$ .<sup>14</sup> In other words, plaintiffs will only find it optimal to request an oath if the fraction of defendants who would never swear among those who refuse to settle is small enough.

Conversely, if  $\sigma > \sigma^*$ ,  $\theta=0$  is optimal for the plaintiff, in which case  $\sigma=0$  is optimal for defendants who would never swear an oath. But this implies that  $\hat{\alpha} = \alpha$ , in which case  $\theta=1$  is optimal. This oscillating solution establishes that an equilibrium does not exist if  $\sigma > \sigma^*$ . It follows that the only equilibrium in this case consists of  $\theta=1$  and  $\sigma \in [0, \sigma^*]$ ; that is, plaintiffs always request an oath if settlement fails, and a strictly positive fraction of plaintiffs who would never swear refuse to settle and go to oath.

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<sup>14</sup> The condition for  $\sigma^* > 0$  is  $\alpha < \bar{\alpha}$ , which holds by assumption in this case, and the condition for  $\sigma^* < 1$  is  $1 - \varepsilon < 1$ , which holds by the assumption that  $\varepsilon < 1$ .

The following comparative statics apply to this model. First, as noted, an increase in  $J$  makes it more likely that the equilibrium in which plaintiffs will *not* request an oath exists.<sup>15</sup> In the equilibrium where the plaintiff *does* request an oath, a fraction of cases  $\alpha+(1-\alpha)(1-\sigma)$  go to oath when requested, and a fraction  $\frac{\alpha}{\alpha+(1-\alpha)(1-\sigma)}$  of those swear an oath. Both of these expressions are increasing in  $J$  given that  $\alpha$  is increasing in  $J$  for any  $\sigma \in [0, \sigma^*]$ .

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<sup>15</sup> Condition (A2) is a threshold condition, so there is a critical value of  $J$  at which it is crossed. For empirical purposes, however, case-specific factors (such as differences in  $\varepsilon$ ) will lead to variation across cases as to when the threshold is crossed.

*Appendix B***Table B1: Summary Statistics for Control Variables**

	<b>Trial by Evidence vs. Settlement (Table 3)</b>	<b>Resolution by Oath vs. Settlement (Table4)</b>	<b>Request Decisive Oath vs. Not (Table 5)</b>	<b>Take Decisive Oath vs. Not (Table 6)</b>
<b>Woman, plaintiff</b>	0.18* (0.39)	0.22 (0.41)	0.26 (0.44)	0.27 (0.45)
<b>Woman, defendant</b>	0.11 (0.32)	0.13 (0.34)	0.15 (0.36)	0.17 (0.37)
<b>Non-Muslim, plaintiff</b>	0.32 (0.47)	0.35 (0.48)	0.33 (0.47)	0.32 (0.47)
<b>Non-Muslim, defendant</b>	0.36 (0.48)	0.40 (0.49)	0.41 (0.49)	0.39 (0.49)
<b>Relative</b>	0.12 (0.32)	0.12 (0.33)	0.13 (0.34)	0.15 (0.35)
<b>Representative, plaintiff</b>	0.11 (0.31)	0.09 (0.29)	0.08 (0.28)	0.08 (0.28)
<b>Representative, defendant</b>	0.09 (0.29)	0.05 (0.22)	0.02 (0.14)	0.01 (0.10)
<b>Father with title, plaintiff</b>	0.06 (0.24)	0.04 (0.21)	0.05 (0.22)	0.07 (0.25)
<b>Father with title, defendant</b>	0.04 (0.20)	0.04 (0.20)	0.05 (0.22)	0.05 (0.22)
<b>Galata</b>	0.47 (0.50)	0.49 (0.50)	0.46 (0.50)	0.44 (0.50)
<b>Konya</b>	0.11 (0.32)	0.09 (0.29)	0.11 (0.31)	0.09 (0.29)
<b>Kütahya</b>	0.12 (0.33)	0.10 (0.30)	0.15 (0.36)	0.15 (0.36)
<b>Üsküdar</b>	0.30 (0.46)	0.31 (0.46)	0.29 (0.45)	0.32 (0.47)
<b>Family</b>	0.05 (0.21)	0.04 (0.19)	0.03 (0.17)	0.03 (0.17)
<b>Personal Crime</b>	0.08 (0.27)	0.09 (0.29)	0.07 (0.26)	0.07 (0.25)
<b>Property</b>	0.06 (0.24)	0.05 (0.21)	0.04 (0.20)	0.04 (0.19)
<b>Probate</b>	0.10 (0.29)	0.07 (0.26)	0.08 (0.27)	0.07 (0.25)
<b>Commercial</b>	0.72 (0.45)	0.75 (0.43)	0.78 (0.41)	0.80 (0.40)
<b>Observations</b>	691	773	248	193

Note: The entries show the means and standard deviations (in parentheses) of the variables used in Tables 3-6. For example, 0.18 and 0.39 are the mean and standard deviation of “Women, Plaintiff” variable in Table 3, which is the fraction of cases in which the plaintiff was a woman among the 691 cases.

**Table B2: Summary Statistics for Control Variables (Full Sample, Including Collectives)**

	<b>Trial by Evidence vs. Settlement (Table 7-1)</b>	<b>Resolution by Oath vs. Settlement (Table 7-2)</b>	<b>Request Decisive Oath vs. Not (Table 7-3)</b>	<b>Take Decisive Oath vs. Not (Table 7-4)</b>
<b>Collective, plaintiff</b>	0.08* (0.27)	0.08 (0.27)	0.06 (0.23)	0.06 (0.23)
<b>Collective, defendant</b>	0.09 (0.29)	0.09 (0.28)	0.11 (0.31)	0.12 (0.32)
<b>Relative</b>	0.12 (0.32)	0.13 (0.34)	0.15 (0.35)	0.17 (0.37)
<b>Representative, plaintiff</b>	0.12 (0.33)	0.10 (0.30)	0.09 (0.28)	0.09 (0.29)
<b>Representative, defendant</b>	0.10 (0.30)	0.06 (0.23)	0.02 (0.13)	0.01 (0.09)
<b>Galata</b>	0.42 (0.49)	0.45 (0.50)	0.41 (0.49)	0.39 (0.49)
<b>Konya</b>	0.15 (0.36)	0.12 (0.33)	0.13 (0.34)	0.12 (0.32)
<b>Kütahya</b>	0.15 (0.36)	0.13 (0.33)	0.17 (0.37)	0.17 (0.38)
<b>Üsküdar</b>	0.28 (0.45)	0.30 (0.46)	0.29 (0.45)	0.32 (0.47)
<b>Family</b>	0.04 (0.19)	0.03 (0.18)	0.03 (0.16)	0.03 (0.17)
<b>Personal Crime</b>	0.08 (0.27)	0.10 (0.30)	0.11 (0.31)	0.11 (0.31)
<b>Property</b>	0.08 (0.28)	0.07 (0.25)	0.04 (0.20)	0.04 (0.19)
<b>Probate</b>	0.13 (0.33)	0.10 (0.30)	0.12 (0.32)	0.12 (0.32)
<b>Commercial</b>	0.67 (0.47)	0.70 (0.46)	0.71 (0.46)	0.70 (0.46)
<b>Observations</b>	827	914	293	230

Note: The entries show the means and standard deviations (in parentheses) of the variables used in Tables 7. For example, 0.08 and 0.27 are the mean and standard deviation of “Collective, Plaintiff” variable in Table 7, which is the fraction of cases in which the plaintiff was a collective among the 827 cases.

## Appendix C

**Table C1 (Table 3, full version): The Likelihood of Trial by Evidence**

VARIABLES	(1)	(2)	(3)
Monetary claim (log <i>J</i> )	0.087*** (0.006)	0.084*** (0.005)	0.090*** (0.018)
Woman, plaintiff		-0.101** (0.031)	-0.107* (0.039)
Woman, defendant		-0.055 (0.028)	-0.050 (0.044)
Non-Muslim, plaintiff		-0.083** (0.029)	-0.050 (0.026)
Non-Muslim, Defendant		-0.046 (0.026)	0.001 (0.020)
Relative		-0.028 (0.079)	-0.083 (0.065)
Representative, plaintiff		0.031 (0.018)	-0.022 (0.027)
Representative, defendant		0.192** (0.057)	0.162*** (0.033)
Father with title, plaintiff		0.204* (0.083)	0.160 (0.097)
Father with title, defendant		-0.053* (0.023)	-0.051 (0.051)
Konya			0.175 (0.099)
Kütahya			0.285*** (0.055)
Üsküdar			0.042 (0.031)
Personal Crime			-0.290*** (0.016)
Property			-0.123*** (0.025)
Probate			-0.123** (0.035)
Commercial			-0.108*** (0.013)
Constant	-0.186*** (0.024)	-0.131** (0.030)	0.121 (0.189)
Observations	691	691	691
R-squared	0.110	0.173	0.269
Year FE	x	x	x

*Note:* The dependent variable is a binary variable that equals 1 if the case went to trial and 0 if it was settled. Monetary claim is the log value of the damages sued or settled by the plaintiff in Ottoman *guruş*. Gender consists of binary variables regarding whether the plaintiff and the defendant were a woman. Religion refers to binary variables regarding whether the plaintiff and the defendant were non-Muslim. Related parties is a binary variable that equals 1 if the plaintiff and the defendant are related by family ties. Representative use refers to binary variables regarding whether the plaintiff and the defendant went to court as a representative. Honorific titles consist of binary variables concerning whether the father of the plaintiff and the defendant had religious or military titles. Court FE and Case-type FE are for the four courts and five types of cases described in text. Year FE refer to the year of litigation. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.



**Table C2 (Table 4, Full Version): The Likelihood of Resolution by Oath**

VARIABLES	(1)	(2)	(3)
Monetary claim (log <i>J</i> )	0.065*** (0.011)	0.068*** (0.013)	0.078*** (0.013)
Woman, plaintiff		0.077* (0.033)	0.071** (0.024)
Woman, defendant		0.020 (0.054)	0.012 (0.052)
Non-Muslim, plaintiff		-0.047*** (0.008)	-0.024* (0.009)
Non-Muslim, Defendant		0.051** (0.012)	0.052* (0.024)
Relative		-0.031 (0.037)	0.002 (0.035)
Representative, plaintiff		-0.066 (0.049)	-0.060 (0.035)
Representative, defendant		-0.201*** (0.041)	-0.173*** (0.036)
Father with title, plaintiff		0.050 (0.084)	0.022 (0.095)
Father with title, defendant		0.125** (0.041)	0.094** (0.030)
Konya			0.158 (0.119)
Kütahya			0.132 (0.092)
Üsküdar			0.043 (0.023)
Personal Crime			0.058 (0.028)
Property			0.028* (0.011)
Probate			0.008 (0.026)
Commercial			0.146*** (0.030)
Constant	0.006 (0.066)	-0.019 (0.071)	-0.120 (0.189)
Observations	773	773	773
R-squared	0.047	0.068	0.118
Year FE	x	x	x

*Note:* The dependent variable is a binary variable that equals 1 if the case was resolved by oath and 0 if it was settled. Monetary claim is the log value of the damages sued by the plaintiff in Ottoman *guruş*. Gender consists of binary variables regarding whether the plaintiff and the defendant were a woman. Religion refers to binary variables regarding whether the plaintiff and the defendant were non-Muslim. Related parties is a binary variable that equals 1 if the plaintiff and the defendant are related by family ties. Representative use refers to binary variables regarding whether the plaintiff and the defendant went to court as a representative. Honorific titles consist of binary variables concerning whether the father of the plaintiff and the defendant had religious or military titles. Court FE and Case-type FE are for the four courts and five types of cases described in text. Year FE refer to the year of litigation. Standard errors in parentheses clustered at the case-type level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

**Table C3 (Table 5, Full Version): The Likelihood of Plaintiff Requesting Decisive Oath**

<b>VARIABLES</b>	(1)	(2)	(3)
<b>Monetary claim (log <i>J</i>)</b>	-0.065*** (0.009)	-0.071*** (0.010)	-0.056*** (0.007)
<b>Woman, plaintiff</b>		0.015 (0.063)	0.024 (0.055)
<b>Woman, defendant</b>		0.022 (0.020)	-0.002 (0.032)
<b>Non-Muslim, plaintiff</b>		-0.011 (0.012)	-0.044 (0.026)
<b>Non-Muslim, Defendant</b>		-0.029 (0.033)	-0.030 (0.031)
<b>Relative</b>		0.112** (0.027)	0.159** (0.044)
<b>Representative, plaintiff</b>		0.043 (0.090)	0.115** (0.031)
<b>Representative, defendant</b>		-0.273 (0.220)	-0.326 (0.161)
<b>Father with title, plaintiff</b>		0.236*** (0.013)	0.199*** (0.040)
<b>Father with title, defendant</b>		-0.046 (0.057)	0.019 (0.088)
<b>Konya</b>			-0.094 (0.129)
<b>Kütahya</b>			0.104 (0.090)
<b>Üsküdar</b>			0.011 (0.012)
<b>Personal Crime</b>			-0.054 (0.063)
<b>Property</b>			-0.040 (0.069)
<b>Probate</b>			-0.102* (0.043)
<b>Commercial</b>			0.054 (0.058)
<b>Constant</b>	1.121*** (0.046)	1.140*** (0.060)	1.365*** (0.117)
<b>Observations</b>	248	248	248
<b>R-squared</b>	0.054	0.098	0.197
<b>Year FE</b>	x	x	x

*Note:* The dependent variable is a binary variable that equals 1 if the plaintiff requested a decisive oath from the defendant and 0 if they did not ask for an oath. Monetary claim is the log value of the damages sued by the plaintiff in Ottoman *guruş*. Gender consists of binary variables regarding whether the plaintiff and the defendant were a woman. Religion refers to binary variables regarding whether the plaintiff and the defendant were non-Muslim. Related parties is a binary variable that equals 1 if the plaintiff and the defendant are related by family ties. Representative use refers to binary variables regarding whether the plaintiff and the defendant went to court as a representative. Honorific titles consist of binary variables concerning whether the father of the plaintiff and the defendant had religious or military titles. Court FE and Case-type FE are for the four courts and five types of cases described in text. Year FE refer to the year of litigation. Standard errors in parentheses clustered at the case-type level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

**Table C4 (Table 6, Full Version): Likelihood of Defendant Taking the Oath**

<b>VARIABLES</b>	(1)	(2)	(3)
<b>Monetary claim (log <i>J</i>)</b>	0.023*** (0.003)	0.021*** (0.002)	0.020*** (0.002)
<b>Woman, plaintiff</b>		0.018 (0.012)	0.022 (0.014)
<b>Woman, defendant</b>		0.023 (0.013)	0.021 (0.014)
<b>Non-Muslim, plaintiff</b>		-0.055*** (0.008)	-0.054** (0.012)
<b>Non-Muslim, Defendant</b>		-0.058*** (0.005)	-0.055** (0.018)
<b>Relative</b>		0.000 (0.018)	-0.019 (0.024)
<b>Representative, plaintiff</b>		0.045** (0.011)	0.083** (0.027)
<b>Representative, defendant</b>		0.084*** (0.005)	0.050* (0.023)
<b>Father with title, plaintiff</b>		-0.196 (0.126)	-0.219 (0.138)
<b>Father with title, defendant</b>		-0.042 (0.022)	0.012 (0.011)
<b>Konya</b>			-0.054 (0.054)
<b>Kütahya</b>			0.010 (0.021)
<b>Üsküdar</b>			-0.013 (0.010)
<b>Personal Crime</b>			0.006 (0.013)
<b>Property</b>			0.045* (0.018)
<b>Probate</b>			-0.061 (0.037)
<b>Commercial</b>			-0.082*** (0.010)
<b>Constant</b>	0.790*** (0.025)	0.842*** (0.016)	1.011*** (0.120)
<b>Observations</b>	193	193	193
<b>R-squared</b>	0.013	0.064	0.122
<b>Year FE</b>	x	x	x

*Note:* The dependent variable is a binary variable that equals 1 if the defendant took a decisive oath of innocence and 0 if they did not take the oath. Monetary claim is the log value of the damages sued by the plaintiff in Ottoman *guruş*. Gender consists of binary variables regarding whether the plaintiff and the defendant were a woman. Religion refers to binary variables regarding whether the plaintiff and the defendant were non-Muslim. Related parties is a binary variable that equals 1 if the plaintiff and the defendant are related by family ties. Representative use refers to binary variables regarding whether the plaintiff and the defendant went to court as a representative. Honorific titles consist of binary variables concerning whether the father of the plaintiff and the defendant had religious or military titles. Court FE and Case-type FE are for the four courts and five types of cases described in text. Year FE refer to the year of litigation. Standard errors in parentheses clustered at the case-type level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

**Table C5 (Table 7, full version) Settlement, Trial, and the Decisive Oath in the Whole Sample (Including Collectives)**

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
<b>Monetary claim (log <i>J</i>)</b>	0.075** (0.017)	0.072*** (0.014)	0.075** (0.025)	0.055** (0.016)	0.060*** (0.012)	0.068** (0.016)
<b>Collective. plaintiff</b>		-0.128 (0.099)	-0.204* (0.077)		-0.146* (0.058)	-0.147* (0.054)
<b>Collective. defendant</b>		0.061 (0.056)	-0.027 (0.039)		0.037 (0.101)	0.044 (0.119)
<b>Relative</b>		-0.025 (0.063)	-0.142 (0.082)		0.039 (0.024)	0.020 (0.023)
<b>Representative, plaintiff</b>		0.062 (0.042)	-0.003 (0.045)		-0.074 (0.066)	-0.066 (0.044)
<b>Representative, defendant</b>		0.171** (0.061)	0.086* (0.033)		-0.242*** (0.039)	-0.246*** (0.020)
<b>Konya</b>			0.229* (0.093)			0.123 (0.107)
<b>Kütahya</b>			0.273** (0.060)			0.092 (0.095)
<b>Üsküdar</b>			0.074 (0.052)			0.045 (0.036)
<b>Personal Crime</b>			-0.322*** (0.044)			0.067** (0.016)
<b>Property</b>			-0.228** (0.062)			-0.097** (0.022)
<b>Probate</b>			-0.005 (0.059)			0.063 (0.045)
<b>Commercial</b>			-0.099 (0.049)			0.086*** (0.012)
<b>Constant</b>	-0.130 (0.081)	-0.133 (0.074)	0.136 (0.144)	0.048 (0.071)	0.044 (0.060)	-0.006 (0.119)
<b>Observations</b>	827	827	827	914	914	914
<b>R-squared</b>	0.089	0.113	0.234	0.037	0.063	0.107
<b>Year FE</b>	x	x	x	x	x	x

Table C5, Continued

VARIABLES	(7)	(8)	(9)	(10)	(11)	(12)
<b>Monetary claim (log <i>J</i>)</b>	-0.046*	-0.056**	-0.050***	0.024***	0.017***	0.011**
	(0.017)	(0.012)	(0.005)	(0.003)	(0.002)	(0.004)
<b>Collective, plaintiff</b>		0.001	0.044		0.038*	0.058
		(0.184)	(0.243)		(0.016)	(0.035)
<b>Collective, defendant</b>		0.133**	0.105		0.068**	0.035
		(0.035)	(0.070)		(0.021)	(0.030)
<b>Relative</b>		0.152**	0.175***		0.045***	0.041*
		(0.034)	(0.017)		(0.009)	(0.017)
<b>Representative, plaintiff</b>		0.074	0.086		0.013	0.032
		(0.078)	(0.061)		(0.011)	(0.026)
<b>Representative, defendant</b>		-0.317	-0.377**		0.082**	0.054**
		(0.244)	(0.133)		(0.020)	(0.018)
<b>Konya</b>			-0.174			0.012
			(0.143)			(0.022)
<b>Kütahya</b>			0.050			0.001
			(0.077)			(0.007)
<b>Üsküdar</b>			0.017			0.028*
			(0.036)			(0.013)
<b>Personal Crime</b>			-0.040			0.011
			(0.055)			(0.007)
<b>Property</b>			-0.050			0.036**
			(0.056)			(0.011)
<b>Probate</b>			-0.079			-0.031*
			(0.061)			(0.013)
<b>Commercial</b>			-0.043			-0.081***
			(0.041)			(0.015)
<b>Constant</b>	1.034***	1.055***	1.241***	0.793***	0.813***	0.921***
	(0.078)	(0.062)	(0.266)	(0.032)	(0.030)	(0.007)
<b>Observations</b>	293	293	293	230	230	230
<b>R-squared</b>	0.028	0.068	0.145	0.019	0.031	0.073
<b>Year FE</b>	x	x	x	x	x	x

*Note:* The dependent variables are as indicated in the top rows. Specifically they are binary variables that in columns 1-3 equal 1 if the case went to trial by evidence and 0 if it was settled; in columns 4-6 equal 1 if the case was resolved by oath and 0 if it was settled, in columns 7-9 equal 1 if the plaintiff requested a decisive oath from the defendant and 0 if they did not ask for an oath, and in columns 10-12 equal 1 if the defendant took a decisive oath of innocence and 0 if they did not take the oath. Monetary claim is the log value of the damages sued by the plaintiff in Ottoman *guruş*. Related parties is a binary variable that equals 1 if the plaintiff and the defendant are related by family ties. Representative use refers to binary variables regarding whether the plaintiff and the defendant went to court as a representative. Court FE and Case-type FE are for the four courts and five types of cases described in text. Year FE refer to the year of litigation. Standard errors in parentheses clustered at the case-type level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .