

**THE DISTRIBUTION OF SENTENCES IN TAX-RELATED CASES:
EXPLAINING SUCCESS RATES**

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Abstract: Using a sample of over 1,200 tax-related cases from Spanish Courts of Appeals, and the multimodal approach recently proposed by Kessler, Meites, and Miller (1996), we attempt to isolate the factors that determine the government's success rate at trial. We argue that the variability of this rate should be explained by five multimodal characteristics (the settlement option, the plaintiffs' risk aversion, information asymmetries, the role of intermediate courts, and litigation costs), and find that the data largely supports our model.

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I- INTRODUCTION

The economic theory of litigation has isolated a set of factors that affect the decision of suing, as well as the decision of settling if the parties previously (and rationally) decided to sue. In this article, we are concerned with the *outcome* of this process; that is, the factors that determine success rates at trial. To our knowledge, we still lack from a fully satisfactory theory on this issue.

In a seminal article, Priest and Klein (1984) argued that the cases that go to trial are those in which there is relatively more uncertainty about their outcome. This pathbreaking result, known as the divergent-expectations hypothesis, follows from the fact that those cases that clearly favor either the plaintiff or the defendant are settled out of court. Hence, only the difficult and uncertain cases will be tried, thus implying that, on average, half of the victories will go to each party.

The divergent-expectations hypothesis has not been devoid of critics; both theoretical arguments and empirical evidence have been put forward against it. From a theoretical point of view, Hylton (1993) argues that a party's expected probability of success at trial could be higher than 50% if that party has an informational advantage. Shavell (1996), using a simple model of litigation, shows that it is possible for the cases that go to trial to result in a plaintiff's victory with any probability.¹

From an empirical point of view, Kessler, Meites, and Miller (1996) review over twenty articles that test the divergent-expectations hypothesis and conclude that plaintiffs win significantly less than 50% of the cases tried. They also conclude that deviations from the 50% rule are observed not only in the trial stage but also on appeal.² Our results, based on a sample of over 1,200 tax-related cases, support these findings.

We thus argue that, in the context we consider, there is no reason to expect a 50% success rate for either party. This largely follows from the fact that the settlement option, critical for the divergent-expectations hypothesis to hold, is not available for many types of taxes in our sample. Furthermore, when such option is available, it usually consists of a take-it-or-leave-it offer. Therefore, we argue that the divergent-expectation hypothesis is only slightly relevant for our setting, and the data seems to support our conjecture.

¹ Long before Hylton (1993) and Shavell (1996), and even before Priest and Klein (1984), Galanter (1974) suggested that a plaintiff's probability of prevailing in court can be explained by the differential stakes of the parties, as well as by whether the parties are one-shot players or repeated players.

² Given the extensive review of articles on the subject offered by these authors, we do not attempt another literature review in this article.

In order to explain success rates, we propose a model based on a variation of the multimodal approach advanced by Kessler, Meites, and Miller (1996).³ Although our sample consists entirely of tax-related cases from Spain, the model we propose is neither country-specific nor tax-specific. In fact, the features involved in the analysis are quite similar across European countries and subjects of litigation. In our model, the government's success rate is explained by the settlement option, the plaintiffs' risk aversion, information asymmetries, the role of intermediate courts, and litigation costs (or resources invested by the plaintiffs in litigation). We also propose a set of variables to proxy for these multimodal characteristics, and test the validity of the analytical framework we propose.

One of the interesting features of our data is that defendants (different branches of the government) win *less* than 50% of the cases tried, unlike most results reported in the literature where the opposite tends to be the case. We find that four of the multimodal characteristics we propose (the settlement option, information asymmetries, the role of intermediate courts, and litigation costs) help to explain such finding. The remaining multimodal characteristic, the plaintiffs' risk aversion, does not seem to have a significant explanatory power.

The rest of the article is organized as follows. In part II, we propose and discuss the multimodal characteristics that should explain the government's success rate at trial. In part III, we present the econometric framework, introduce the proxy variables for the multimodal characteristics we propose, report and discuss our estimations, and compute the sensitivity of the government's probability of success with respect to the multimodal characteristics. Finally, in part IV, we summarize the main implications of our analysis. An appendix containing tables concludes the article.

II- A LITIGATION MODEL BASED ON A MULTIMODAL APPROACH

Our purpose in this part is to set up a model to explain the government's success rate at trial. To that purpose, we follow a multimodal approach in order to explain why our data fails to support the main prediction of the divergent-expectations hypothesis (the 50% rule).⁴

³ The multimodal approach attempts to reconcile the 50% rule with the data by assuming that deviations from this rule can be explained by violations of the assumptions of the divergent-expectations model.

⁴ In our sample, the government (defendant) wins 46.44% of the cases. Although fairly close to the 50% rate predicted by Priest and Klein (1984), the hypothesis that the population mean is 50% is clearly rejected at the 5% significance level (test statistic = -2.48; two-tailed p -value = .0066). Furthermore, in our sample, win rates vary widely across taxes; see Table A2 in the appendix.

In our model, five multimodal characteristics explain the government's success rate at trial, namely, the settlement option, the plaintiffs' risk aversion, information asymmetries, the role of intermediate courts, and litigation costs. We analyze the role of each of these five variables immediately below.

1.- The Settlement Option

One of the characteristics of our sample is that settlements are possible for some types of cases (taxes) but not for others. Although the data set is discussed in more detail below, it suffices to note at this point that, in those cases in which settlement is not possible (mostly in sanctioning matters), a plaintiff's claim leads directly to litigation. In those cases in which settlement is possible, on the other hand, the plaintiff may choose to pay a fine and settle the case in exchange for a 50% reduction in the tax due. We show now, using a simple model of litigation, that the government is less likely to win cases about taxes that allow for the settlement option.

In those cases in which settlement is not possible, the critical decision taken by a plaintiff is whether or not to sue. The process starts when the government sends a taxpayer a form stating an amount due; the taxpayer can either pay the stated amount or refuse to pay and file a claim. In the latter case, since settlement is not possible, then the claim always leads to litigation.

Let a plaintiff receive a tax form sent by the government for the amount S , which the plaintiff thinks is incorrect. Let p_p be the plaintiff's probability of winning the case if he challenges the government in court, and C be his litigation costs under the American rule. Thus, a rational, risk-neutral plaintiff will sue if and only if $p_p S > C$; that is, if the plaintiff's expected gain from suing (not paying the amount S) is larger than his litigation costs. Or, put differently, he will sue as long as the probability of winning the case is larger than a given threshold; that is, as long as

$$p_p > (C / S). \quad (1)$$

Thus, if the amount at stake is \$400,000 and his litigation costs are \$60,000, the plaintiff will sue if the probability of winning is larger than 15%.

In those cases in which settlement is possible, the plaintiff may agree to pay a fine and settle the case, thus being entitled to a 50% reduction in the tax due. To formalize this alternative situation, let F be the fine and R the accrued interest on the unpaid amount, and define $Q=S+F+R$. The payoffs of a potential plaintiff when he chooses to settle and to sue are

respectively given by $Q-(1/2)S$ and $(1-p_p)Q+C$; hence, a rational, risk-neutral plaintiff will sue if and only if $(1-p_p)Q+C < Q-(1/2)S$. Or, put differently, he will sue as long as the probability of winning the case is larger than a given threshold; that is, as long as

$$p_p > (1/2)(S/Q) + (C/Q). \quad (2)$$

Thus, if the amount at stake is \$400,000, the fine is \$400,000, the accrued interest is \$200,000, and the litigation costs are \$60,000, a rational plaintiff will sue only if his probability of winning is larger than 26%.

Recall that in the first example, when settlement was not possible, a rational plaintiff sued as long as the probability of success was larger than 15%; however, in the second example, when settlement is possible, he sues if such probability is larger than 26%. Therefore, if a plaintiff estimates that his probability of winning a case is 20%, he would sue if settlement is not possible but would not sue if settlement is possible. In other words, the existence of the settlement option increases the probability that a plaintiff does *not* go to court with a “bad” case, thus decreasing the government’s probability of success.⁵

2.- Risk Aversion

A plaintiff’s preference toward risk should play an important role in his decision of whether or not to sue; see Perloff, Rubinfeld, and Ruud (1993) and Kessler, Meites, and Miller (1996). More precisely, the higher the plaintiff’s risk aversion, the higher the minimum probability of winning (threshold) that induces the plaintiff to go to court.

Although the same may be true for the government, it seems plausible to assume that plaintiffs will generally be more risk averse. This is due to the fact that plaintiffs typically risk a larger proportion of their wealth than the government does, as well as by the fact that plaintiffs risk their own wealth whereas the government does not. Thus, the higher the amount at stake, the more risk averse a plaintiff will become, and the “better” a case must be for him to go to court. In other words, the higher the risk aversion of plaintiffs, the “better” the cases they will try, and, therefore, the lower the government’s probability of success.

3.- Information Asymmetries

The existence of asymmetric information between the parties at trial generates a situation analogous to that of adverse selection in insurance markets. In other words, in the

⁵ For this argument to be true, it must be the case that $F < (1/2)(S^2/C)-R$. In words, if the fine is “too high,” the plaintiff always sues.

same way that individuals who buy insurance signal that they are more likely to be at risk, parties willing to go to trial are more likely to prevail; see Froeb (1993).

More precisely, a party's rejection of a settlement offer, and its subsequent decision to go to trial, could be interpreted to mean that this party knows something the other does not. Whatever that piece of information, it indicates that this party's conditional probability of success at trial is larger than its unconditional probability of success. We argue below that the government has such informational advantage, which is strengthened by the fact that the burden of proof lies on the plaintiffs' side. These reasons thus imply that, the larger the government's informational advantage, the higher the government's probability of success.

4.- The Role of Intermediate Courts

The cases in our sample can be divided into those that go directly to the Courts of Appeal (mostly cases involving the local government) and those that are previously considered by intermediate courts. The evidence shows that, if these intermediate courts decide in favor of a plaintiff, the government typically does not appeal the decision; if they decide in favor of the government, on the other hand, plaintiffs typically appeal. This being the case, intermediate courts can be thought of as performing the function of "filtering" the cases that clearly favor the plaintiffs and decide them in their favor. As a result, the sample of cases reaching the Courts of Appeal (the ones in our sample) will be skewed; that is, it will have a large proportion of cases favorable to the government.

To illustrate, assume that there are 50 "good" cases (with a large probability of a plaintiff's win) and 50 "bad" cases (with a low probability of a plaintiff's win); hence, the government's unconditional probability of success is 50%. Assume, further, that 25 "good" cases and 25 "bad" cases are considered by intermediate courts (the other 50 cases going directly to the Courts of Appeal), which decide the 25 "good" cases in favor of plaintiffs, thus letting the other plaintiffs free to appeal the remaining 25 cases. Note that, of the 75 cases that will reach the Courts of Appeal, 50 will be "bad" cases; hence, the government's probability of success in the sample of cases that reach these courts will be 67%. It thus follows from our argument that, the larger the proportion of cases considered by intermediate courts, the larger the government's probability of success.

5.- Litigation Costs

Besides the decision of whether or not to sue, a plaintiff that decided to go to trial must decide the amount of resources to allocate to the litigation process. This decision is important because the probability of winning a case obviously depends on the resources allocated to the case by the plaintiff and the government. Let C_p , C_g , p_p , and p_g be the

litigation costs of the plaintiff and the government, and the plaintiff's and the government's expected probability of success at trial, respectively. It should then be the case that $p_p = p_p(C_p, C_g)$ and $p_g = p_g(C_p, C_g)$, such that $\partial p_p / \partial C_p > 0$, $\partial p_p / \partial C_g < 0$, $\partial p_g / \partial C_p < 0$, and $\partial p_g / \partial C_g > 0$.

It would also be expected that $\partial C_g / \partial C_p > 0$; that is, the more resources a plaintiff allocates to try a given case, the more the government will spend in that case. However, although it would be plausible for the government to do so, it usually does not. Instead, it typically allocates an approximately equal amount of resources to all cases; hence, $\partial C_g / \partial C_p \rightarrow 0$. This governmental lack of flexibility in the allocation of resources for litigation implies that, the larger the amount of resources allocated by plaintiffs to the cases they try, the lower the government's probability of success.

III- EMPIRICAL ANALYSIS

We test in this part the model proposed in the previous part. We start by introducing the econometric framework, then we discuss the data and the variables that proxy for the multimodal characteristics proposed in the previous part, and finally we report and discuss the results of our estimations.

1.- The Econometric Framework

Let an index summarizing the government's ability to prove the i th case (M_{gi}) and another summarizing the plaintiff's ability to prove the same case (M_{pi}) be expressed as a linear function of k variables; that is,

$$M_{gi} = x_i' a + v_i \quad (3)$$

$$M_{pi} = x_i' b + w_i, \quad (4)$$

where $a = (a_1, \dots, a_{k+1})'$ and $b = (b_1, \dots, b_{k+1})'$ are vectors of coefficients, $x' = (x_1, \dots, x_{k+1})$ is a vector of explanatory variables such that $x_1 = 1$, and v and w are normally-distributed (0-mean) error terms. Thus, subtracting (4) from (3) yields the government's relative advantage to prove the i th case (M_i^*), which is given by

$$M_i^* = M_{gi} - M_{pi} = x_i'(a - b) + (v_i - w_i) = x_i' \beta + u_i, \quad (5)$$

where $\beta = (a - b)$ and $u_i = (v_i - w_i)$.

Let a court's decision of the i th case (D_i) be represented by a dummy variable such that $D_i = 1$ represents a situation in which the court decides in favor of the government, and $D_i = 0$ one in which the court decides in favor of the plaintiff. The government will be

successful ($D_i=1$) only if it presents a better case than the plaintiff; that is, only if $M_{gi} > M_{pi}$. It thus follows from (5) that the government will win the i th case only when $M_i^* > 0$, which, in turn, implies that $x_i' \beta + u_i > 0$. Therefore, the probability that the government wins the i th case (p_g) is given by

$$p_g = p_g(D_i = 1) = p_g(M_i^* > 0) = p_g(x_i' \beta + u_i > 0) = F(x_i' \beta) = \int_{-\infty}^{x_i' \beta} f(u_i) du_i, \quad (6)$$

where F and f indicate the cumulative distribution function and the probability distribution of u , respectively. In words, equation (6) states that the government's probability of winning its i th case is equal to the government's probability of presenting a better case than the plaintiff's, which, in turn, is given by the cumulative distribution function of the random variable u .

Finally, since v and w are normally distributed so is u , thus enabling the analytical framework to collapse into a probit model; that is, a model in which the government's probability of winning the i th case is given by

$$p_g(D_i = 1) = (2\pi)^{-1/2} \int_{-\infty}^{x_i' \beta} e^{-\frac{u_i^2}{2}} du_i = \Phi(x_i' \beta), \quad (7)$$

where Φ denotes the cumulative standard Normal distribution function. Equation (7) summarizes the econometric framework we propose to study the government's probability of success at trial. We now move to introduce the variables that will proxy for the multimodal characteristics discussed above (the explanatory variables in the vector x_i'), and subsequently to estimate the model.

2.- The Data and the Proxy Variables

The sample under consideration consists of a set of 1,208 tax-related cases decided during the first quarter of 1992 by the Courts of Appeal in the cities of Madrid, Barcelona, Burgos, Valladolid, La Coruña, Valencia, Granada, Málaga, Seville, Las Palmas (Gran Canaria), and Santa Cruz (Tenerife).⁶ The dependent variable under consideration (SNTNC) represents a Court of Appeal's sentence on a tax-related case in which the government was a defendant. By construction, this variable takes a value of 1 when the government won the case, and a value of 0 when the government lost the case.

As stated above, we argue that the government's success rate can be explained by five multimodal characteristics, namely, the existence of a settlement option, the plaintiffs' risk

⁶ The sample is analyzed in more detail, but from a different point of view, in Pastor (1993).

aversion, information asymmetries, the role of intermediate courts, and litigation costs (or resources invested by the plaintiffs in litigation). We now introduce the proxy variables to be used for each of these characteristics.

Our proxy for the existence of the settlement option is a variable representing whether the case concerns the income tax (TI), the only type of tax that typically allows for this possibility. Therefore, according to the arguments discussed above, we expect cases related to the income tax to have a *negative* impact on the government's probability of success.

We argue that the plaintiffs' risk aversion is an increasing function of the stakes involved in the cases tried, and we use the latter as a proxy for the former. We thus include three variables representing stakes, namely, stakes between 350,000 pesetas and 1 million pesetas (S3501M), stakes larger than 1 million pesetas (SL1M), and awards not determined by the court (SAND).⁷ We make no prediction about the sign of the third variable, but the arguments discussed above lead us to expect the first two variables to have a *negative* impact on the government's probability of success.⁸

We expect information asymmetries to be captured by two variables, one representing the capital gains tax (TCG) and the other representing the real estate tax (TRE). In both types of taxes, the government has an informational advantage over the plaintiffs. To illustrate, in cases concerning the capital gains tax, the issue at stake is the fiscal value of a property. This value is, to a great extent, determined by the government, based on standards also determined by the government. A similar argument applies to the real estate tax. Therefore, we expect this asymmetry of information concerning the capital gains tax and the real estate tax to have a *positive* impact on the government's probability of success.

In order to assess the impact of intermediate courts, we include a variable representing cases in which the local government is a defendant (DLG). Typically, these cases do *not* go through an intermediate court. Therefore, according to the arguments discussed above, we expect this variable to have a *negative* impact on the government's probability of success.

Finally, we include two variables to proxy for litigation costs, both of them representing the two parties that typically invest heavily in litigation, namely, private firms

⁷ The base category in the stakes variable is given by those awards smaller than 350,000 pesetas.

⁸ The reason we make no prediction about the sign of the variable SAND is that this variable is measured with some inherent noise. This follows from the fact that cases in which the awards are not determined by the courts may end up being high-stakes cases as well as low-stakes cases. We thus include this variable in the analysis with the sole purpose of obtaining a "clean" base category for the stakes variable.

(PPF) and individuals (PI). Therefore, according to our arguments above, we expect both variables to have a *negative* impact on the government's probability of success.

The notation for all the variables defined in this section is summarized in Table A1 in the appendix. Summary statistics for all these variables are reported in Table A2, also in the appendix. We now move to report and discuss the results of our estimations.

3.- Model Estimation

We first estimated a probit model with the nine explanatory variables defined above, namely, one variable representing the settlement possibility (TI), three representing the plaintiffs' risk aversion (SS3501M, SL1M, and SAND), two representing information asymmetries (TCG and TRE), one representing intermediate courts (DLG), and two representing litigation costs (PPF and PI).

The results obtained for this first estimation are reported in Table A3 in the appendix. That table shows that all the variables included in the model are significant and have their expected sign, with the exception of the three variables representing the plaintiffs' risk aversion, none of which is significant.⁹ We thus dropped the three stakes variables and reestimated the model; the results of this second estimation are reported below in Table 1.

TABLE 1: Estimated Model

| Variable | Coefficient | Std.Error | t-ratio | EAM |
|---|-------------|-----------|---------|------------------------------|
| TI | -0.69743 | 0.14749 | -4.7288 | -0.05943 |
| TCG | 0.30256 | 0.08951 | 3.3803 | 0.07799 |
| TRE | 0.45555 | 0.19484 | 2.3381 | 0.01520 |
| DLG | -0.27902 | 0.08339 | -3.3460 | -0.11788 |
| PPF | -0.39256 | 0.10101 | -3.8864 | -0.14188 |
| PI | -0.36816 | 0.10496 | -3.5075 | -0.11450 |
| Constant | 0.30437 | 0.09113 | 3.3401 | 0.26108 |
| LLFM = -794.19 LLFC = -834.26 LRT = 80.14 CRAGG-UHLER R ² = .0857 | | | | |
| IN-SAMPLE | | ACTUAL | | |
| PREDICTION | | 0 | 1 | Correct Predictions: 732 |
| SUCCESS | PREDICTED | 0 533 | 362 | % Correct Predictions: 60.60 |
| TABLE: | | 1 114 | 199 | |

EAM = Elasticity at Means; LLFM = Log-likelihood function for the model; LLFC = Log-likelihood function for the constant; LRT = Likelihood-ratio test. Sample size = 1,208.

All the variables remaining in the model are highly significant and have the expected sign. Thus, as predicted by our analytical framework, the government's probability of success increases when the government has an informational advantage, and decreases when the type of tax allows for the settlement option, when cases do not go through an intermediate court,

⁹ The lack of significance of the stakes variables does not necessarily imply that risk aversion does not play a role in determining success rates at trial. We are inclined to believe that these results follow from the problems inherent in the SAND variable discussed above. In other words, we believe that our proxy (rather than our multimodal characteristic) may be poorly specified.

and when plaintiffs invest heavily in litigation. Thus, the model does seem to capture the factors that explain the government's probability of success at trial.

The fit of the model is not impressive in terms of the Cragg-Uhler R^2 (.0857),¹⁰ although it is not clear whether the R^2 of probit models can be interpreted as the proportion of variability in the dependent variable explained by the independent variables.¹¹ A likelihood-ratio test shows that the three stakes variables representing the plaintiffs' risk aversion can be dropped from the model without a significant decrease in the likelihood function.¹² Finally, the model has a reasonably-good in-sample prediction success (correctly predicting 61% of the cases), although it may be interesting to note that the model seems to be pessimistic in its forecasts.¹³

4.- Impact of Multimodal Characteristics

We estimate in this section the sensitivity of the government's probability of success with respect to changes in the explanatory variables included in the model. As is well known, in probit models, the sensitivity of the dependent variable with respect to changes in any given independent variable cannot be interpreted directly from the estimated coefficients. This follows from the fact that these coefficients measure the impact of each independent variable on an index (M_i^* from equation (5) in our econometric framework) rather than on the dependent variable. In other words, the estimated relationship is linear between the explanatory variables and the index, but not between the explanatory variables and the dependent variable of interest. This last relationship actually depends on the specific point in which it is evaluated; we thus follow standard practice and take as a reference point the vector of means of the explanatory variables.¹⁴

¹⁰ The upper bound of the R^2 in probit models is not necessarily 1; such upper bound is actually a function of the value of the log-likelihood function for the constant (LLFC) and the number of observations in the sample (n). More precisely, this relationship is given by $R^2 \leq 1 - \exp(\text{LLFC})^{2/n}$; see Maddala (1983). Such expression enables us to determine that, in our model, the upper bound for the R^2 is in fact 1.

¹¹ Furthermore, as argued by Morrison (1972), although it is usual to obtain a low R^2 in models with qualitative dependent variables, such finding does not necessarily imply that the estimated model is not appropriate.

¹² $\text{LRT} = 2(794.19 - 792.27) = 3.84 < \chi^2_{3,05} = 7.81$.

¹³ This follows from the fact that out of 476 incorrect forecasts, in 362 (76.05%) the model predicts that the government will lose cases that the government actually won.

¹⁴ Technically, the probabilistic impact on a dependent variable (y) that follows from a change in any given independent variable (x_i) is given by $\partial y / \partial x_i = \phi(\bar{x} b) b_i$, where \bar{x} is the vector of means of the explanatory variables, b is the vector of estimated coefficients, and ϕ is the standard Normal probability distribution.

The sensitivity of the government's probability of success with respect to changes in the explanatory variables included in the model is reported below in Table 2.

TABLE 2: Probabilistic Impact of Multimodal Characteristics (in %)

| Variable | Probability | Variable | Probability |
|----------|-------------|----------|-------------|
| TI | -27.7043 | DLG | -11.0837 |
| TCG | 12.0189 | PPF | -15.5940 |
| TRE | 18.0962 | PI | -14.6245 |

Each number in the preceding table shows (everything else equal) the change in the government's probability of success when the case concerns a given multimodal characteristic.¹⁵ Thus, the table shows that, everything else equal, the government's probability of success increases by 12.02% if the case concerns the capital gains tax, and by 18.10% if the case concerns the real estate tax. It also shows that, everything else equal, the government's probability of success decreases by 27.70% when the case concerns the income tax, by 11.08% when the defendant is the local government, by 15.59% when the plaintiff is a private firm, and by 14.62% when the plaintiff is an individual.

IV- CONCLUSIONS

We have attempted to isolate a set of variables that may explain success rates at trial, using a variation of the multimodal approach proposed by Kessler, Meites, and Miller (1996). To that purpose, we proposed five multimodal characteristics to explain the variability in success rates, as well as the variables that should proxy for these characteristics. We also proposed an econometric framework and tested our model using a sample of tax-related cases from Spain.

We found that four of the five multimodal characteristics we proposed, namely, the settlement option, information asymmetries, the role of intermediate courts, and litigation costs, do explain the variability in the government's success rate at trial. The remaining multimodal characteristic, the plaintiffs' risk aversion, does not seem to have a significant explanatory power. As argued above, we believe that this may be due to the noise inherent in the stakes variables used as a proxy for risk aversion.

Although our sample consisted of tax-related cases from Spain, we believe that the analytical framework we propose is neither country-specific nor tax-specific. However, it would be interesting to confirm whether the model can successfully explain success rates for

¹⁵ Or, put differently, the change in the government's probability of success when a given variable takes a value of 1 (as opposed to 0) and all the other variables are held constant at their mean values.

different types of cases and in different countries. In fact, as much as we hope to have made a positive contribution to the literature on litigation, we hope even more to encourage some badly-needed research on litigation-related issues in Europe.

APPENDIX

TABLE A1: Variables and Notation

| |
|---|
| Dependent Variable: |
| SNTNC: Sentence (=1 if the government wins the case; =0 otherwise) |
| Explanatory Variables: |
| 1) Settlement Possibility: |
| TI: The case concerns the income tax |
| 2) Risk Aversion: |
| S3501M: The stakes of the case are between 350,000 and 1 million pesetas. |
| SL1M: The stakes of the case are larger than 1 million pesetas. |
| SAND: The award is not determined by the court |
| 3) Asymmetric Information: |
| TCG: The case concerns the capital gains tax. |
| TRE: The case concerns the real estate tax. |
| 4) Intermediate Courts: |
| DLG: The defendant is a local government. |
| 5) Litigation Costs (Investment in the Case): |
| PPF: The plaintiff is a private firm. |
| PI: The plaintiff is an individual. |

TABLE A2: Summary Statistics

| Variable | Cases | Won | Lost | % Won | Mean | SD |
|----------|-------|-----|------|-------|---------|---------|
| SNTNC | 1,208 | 561 | 647 | 46.44 | 0.46440 | 0.49894 |
| TI | 120 | 28 | 92 | 23.33 | 0.09934 | 0.29924 |
| S3501M | 246 | 104 | 142 | 42.28 | 0.20364 | 0.40287 |
| SL1M | 277 | 121 | 156 | 43.68 | 0.22930 | 0.42056 |
| SAND | 250 | 118 | 132 | 47.20 | 0.20695 | 0.40529 |
| TCG | 363 | 199 | 164 | 54.82 | 0.30050 | 0.45866 |
| TRE | 47 | 30 | 17 | 63.83 | 0.03891 | 0.19345 |
| DLG | 595 | 263 | 332 | 44.20 | 0.49255 | 0.50015 |
| PPF | 509 | 220 | 289 | 43.22 | 0.42136 | 0.49398 |
| PI | 438 | 179 | 259 | 40.87 | 0.36258 | 0.48094 |

Means and standard deviations (SD) computed on the basis of 1,208 observations. “Won,” “Lost,” and “% Won” all considered from the government’s point of view.

TABLE A3: First Run

| Variable | Coefficient | Std.Error | t-ratio | EAM |
|------------------------------|----------------|-------------|------------------------------------|----------|
| TI | -0.70098 | 0.14746 | -4.7537 | -0.05971 |
| S3501M | -0.15989 | 0.10258 | -1.5586 | -0.02792 |
| SL1M | -0.14730 | 0.09966 | -1.4781 | -0.02896 |
| SAND | -0.02203 | 0.10242 | -0.2151 | -0.00391 |
| TCG | 0.30379 | 0.09000 | 3.3754 | 0.07827 |
| TRE | 0.45035 | 0.19505 | 2.3089 | 0.01502 |
| DLG | -0.27653 | 0.08422 | -3.2835 | -0.11678 |
| PPF | -0.37910 | 0.10147 | -3.7361 | -0.13696 |
| PI | -0.36654 | 0.10569 | -3.4682 | -0.11395 |
| Constant | 0.36848 | 0.10309 | 3.5745 | 0.31594 |
| LLFM = -792.27 | LLFC = -834.26 | LRT = 83.98 | CRAGG-UHLER R ² = .0897 | |
| IN-SAMPLE | | | | |
| PREDICTION | | | | |
| SUCCESS | | | | |
| TABLE: | | | | |
| ACTUAL | | | | |
| 0 | | | | |
| 1 | | | | |
| Correct Predictions: 734 | | | | |
| % Correct Predictions: 60.76 | | | | |
| 0 | | | | |
| 476 | | | | |
| 303 | | | | |
| 1 | | | | |
| 171 | | | | |
| 258 | | | | |

EAM = Elasticity at Means; LLFM = Log-likelihood function for the model; LLFC = Log-likelihood function for the constant; LRT = Likelihood-ratio test. Sample size = 1,208.

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