Punitive Damages: Relevant Factors in the Judge's and Jury's Decision

Matías Irigoyen-Testa*

* Full-professor of civil law in Argentina. He teaches at the Universidad Nacional del Sur (Bahía Blanca), Universidad Torcuato Di Tella (Buenos Aires), and Universidad de Buenos Aires (Buenos Aires). Editor-in-Chief of "The Latin American and Iberian Journal of Law and Economics" (LAIJLE), official scholarly journal of the Latin American and Iberian Law and Economics Association (ALACDE). Director of the Research Group on "Law, Economics and Institutions: Consumer Protection" and member of the Research Group on "Economic Analysis of Tort Law: incentives and legal institutions" (co-directed by Hugo A. Acciarri and Andrea S. Castellano) of the Universidad Nacional del Sur (Bahía Blanca). Obtained his Ph. D. (Universidad Complutense de Madrid) and two masters degrees (Instituto Universitario Ortega y Gasset de Madrid and Universidad Carlos III de Madrid) in the field of law and economics. Former visiting scholar at Harvard University and scholarship holder of the Fundación Rafael del Pino, Spain, and Real Colegio Complutense at Harvard University, U.S.A. Corresponding email: mirigoyentesta@post.harvard.edu

ABSTRACT

The United States of America has heterogeneous state jury instructions, statutes, and relevant jurisprudence about punitive damages. This paper focuses on statistical research based on three series of data collections which examined approximately 23,600 civil cases disposed by bench or jury trials in the United States' 75 most populous counties. The goal of this research is to identify certain factors relevant to determining the admissibility and the amount of punitive damages, the statistical effect of these U.S. heterogeneous legal rules on awards, and the judge's and jury's rationality or irrationality and predictability or unpredictability. In the end, it is seen that while judges and jurors are unpredictable in applying punitive damages, judges rule more reasonably and predictably than jurors in calculating the dollar award of punitive damages.

1. INTRODUCTION

Over the past two and a half decades, punitive damages dollar awards have risen to multi-million or even billion dollar sums in the United State of America (Viscusi 2004; Pirest 2002, p. 1).[1] Consequently, some former American presidents have shown discontent with excessive jury awards.[2] Furthermore, the Supreme Court argues that given the risks of unfairness, it is constitutionally important for a court to provide assurance that a jury is asking the right question and that States avoid a procedure that unnecessarily deprives juries of proper legal guidance (*Philip Morris USA v. Williams*, 549 U.S. 346 [2007]). Therefore, the U.S. highest tribunal appears to try to develop a uniform doctrine for punitive damages awards (Hastie, Schkade, and Payne 1998, p. 288). Additionally, several scholars are also concerned about how punitive damages are awarded in practice. Some commentators have conducted different *experimental* research projects and conclude that: (1) because jurors do not receive proper legal guidance in setting punitive damages amounts neither have experiences to make reliable judgments (Viscusi 2004, p. 1427; Hastie 2002a, p. 241), they come up with any number that is available (Viscusi 2002a, p. 129); (2) even if jurors were, indeed, carefully instructed with the necessary legal guidance, seeing that the tasks of awarding punitive damages are extremely complex (Sustein 2002, p. 242), they would fail to comprehend, recall or consider the full set of legally necessary conditions for the verdicts they rendered, and to correctly translate their moral judgments to a precise dollar award (Kahneman, Schkade, and Sunstein 2002, p. 32; Hastie 2002a, pp. 239 and 241; Hastie, Schkade, and Payne 2002c, p. 77, 1998, p. 307; Viscusi 2002c);[3] (3) even if jurors comprehend or recall the jury instructions, they would base their punitive damages verdicts on an irrational basis, such as, the dollar amounts that are requested by plaintiffs, the plaintiff's location, the testimony about corporate risk analyses, and/or the information about party identities (Hastie, Schkade, and Payne 2002b, pp. 62-74, *passim*). In summary, these scholars conclude that juries should not decide punitive damages awards (Sustein 2002, p. 242) and that judges are better prepared (they are better educated on average, have more experience assessing accident situations, and understand legal rules better) for the assessment of punitive damages (Viscusi 1999, 2001b, pp. 135-136, 2002b, p. 207).

On the other hand, there are *empirical* studies that attempt to discover the possible judge's and jury's relevant factors to determining punitive damages awards. First, scholars conclude, for judges and juries, that the greater the amount of compensatory damages, *ceteris paribus*, the greater the amount of punitive damages (Eisenberg *et al.* 2010; Sunstein 2002; Eisenberg *et al.* 2002; Hersch and Viscusi 2004). Second, in general, punitive damages were sought in only 10 percent of tried cases where the plaintiff prevailed (Eisenberg *et al.* 2010). Third, the punitive award rate is administered, in general, in 30% of the aforementioned cases won by plaintiffs in which punitive damages were sought and, in particular, this percentage is duplicated in cases of intentional tort (Eisenberg *et al.* 2010).

Nevertheless, researchers disagree among each other about: (1) whether juries have equal (Eisenberg *et al.* 2002; Lempert 1999; Galanter and Luban 1999) or higher (Hersch and Viscusi 2004; Viscusi 2004; Eisenberg *et al.* 2010, p. 617) probability of awarding punitive damages than judges; (2) whether juries are equally (Eisenberg *et al.* 2006, p. 282) or more (Hersch and Viscusi 2004; Viscusi 2004, p. 1427) likely to award larger amounts of punitive damages; (3) whether judges are equally (Eisenberg *et al.* 2006, p. 282, 1997) or more rational, in economic terms, than juries (Hersch and Viscusi 2004; Viscusi 2004, p. 1427, Polinsky 1997); (4) whether or not they want optimal deterrence (Sunstein, Schkade, and Kahneman 2000, 2002); (5) whether juries are equally (Eisenberg *et al.* 2006, p. 282, 1997) or more unpredictable than judges (Sunstein, Schkade, and Kahneman 2000, 2002; Hersch and Viscusi 2004; Polinsky 1997); (6) whether (Eisenberg *et al.* 2010, 2006, 2002) or not (Sustein 2002, p. 242; Viscusi 2002b, p. 207) juries should decide on punitive damages.

[1] Alison F. Del Rossi and W. Kip. Viscusi claim that "the upsurge in the number and scale of blockbuster awards may be tapering off from its peak level." (Del Rossi and Viscusi 2010, p. 154.) In fact, the number and size of punitive damage verdicts and judgments have started to increase since the 1970s, particularly in products liability litigation (Owen 1994, p. 371).

[2] E.g., the former U.S. president, George W. Bush, urged Congress to pass caps on punitive damages and claimed: "excessive jury awards will continue to drive up insurance costs, will put good doctors out of business, will run them out of your community and will hurt communities like Scranton, Pennsylvania. That's a fact." See: Bush outlines medical liability reform. Proposal would limit jury awards in malpractice lawsuit. *CNN.com,* January 16, 2003 (last visited June 15, 2013). http://edition.cnn.com/2003/ALLPOLITICS/01/16/bush.malpractice/

[3] Additionally, W. Kip Viscusi concludes that even if jurors were provided with a detailed rationale and mathematical formula for setting punitive damages the problem of random and highly variable punitive damages awards would not be solved (Viscusi 2001a, pp. 342-344).

The biggest data available about punitive damages awards in the United States is provided by the *National Center for State Courts*.[4] The major empirical study conducted for the moment (Eisenberg, *et al.* 2006, p. 265), analyzes three data collections of 23,567 civil cases in total, disposed by bench or jury trials in the United States' 75 most populous counties: fiscal year 1991-92; and annual year 1996 and 2001 (U.S. Department of Justice 2004a, 2004b, 2004c). Unfortunately, this research project (and other ones that worked with one of these data sets) only studies, in general, the information available in these samples: the types of trials, cases, and litigants; the number of litigants and of the stages of trials; the amounts of compensatory and punitive damages; and the counties. The authors did not add further information to these data collections (fiscal year 1991-92; and annual year 1996 and 2001) about the legal guidance applicable in each case and other non-legal data corresponding to the jury that resolves each case. Some scholars used proxies in their analysis that are based on available data; for example, Viscusi (2004, p. 17) explains "[w]e control for county as a proxy for the legal environment. States differ in liability criteria and in damages rules, and counties differ in the demographic composition of juries and litigants." Others, such as Eisenberg *et al* (2006, p. 265), conclude "assessments of judge-jury differences in the world of punitive damages require continued careful analyses and benefit greatly from more and better data".

This empirical research project is taking a step further. In order to compare our results with those of the former largest empirical study to date, we work with the same three samples provided by the NCSC. We add more and better information to those samples, about the jury instructions, the statutes, the relevant jurisprudence (Table A1) and other non-legal variables (i.e., ethnicity, education level, and political ideology) of each state,[5] according to each judge's or jury's decision. In other words, every case is analyzed according to those legal and non-legal variables that correspond to each judge's or jury's resolution.

The goal of this research is to identify certain factors relevant to determining the admissibility and the amount of punitive damages, the statistical effect of the U.S. heterogeneous state jury instructions, statutes, and relevant jurisprudence on punitive damages awards, and the judge's and jury's rationality or irrationality, and predictability or unpredictability.

2. THE SAMPLE

2.1. Data Sets

As we said above, the data sets are obtained from the *National Center for State Courts*. This study analyzes three data collections of 23,567 civil cases in total, disposed by bench or jury trials in the United States (U.S. Department of Justice 2004a, 2004b, 2004c). The samples consist of tort, contract, and real property rights cases disposed in 45 jurisdictions chosen to represent the 75 most populous counties in the United States during the following three 12-month periods: (a) from July 1, 1991 to June 30, 1992 (U.S. Department of Justice 2004a), (b) from January 1, 1996 to December 31, 1996 (U.S. Department of Justice 2004b) and (c) from January 1, 2001 to December 31, 2001 (U.S. Department of Justice 2004c). The top 75 counties account for about 37 percent of the United States population, about half of all civil filings, and include 22 out of 45 states: Arizona, California, Connecticut, Florida, Georgia, Hawaii, Illinois, Indiana, Kentucky, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Texas, Virginia, Washington, and Wisconsin. The data collections include information on the type of case, type of plaintiffs and defendants, trial winners, amount of compensatory damages, amount of punitive damages, and case processing time.

Of the 23,567 cases, 6,504 correspond to the fiscal year 1991-1992, 9,025 to the calendar year 1996 and 8,038 to the calendar year 2001. Some cases are not useful for this research project. For example, 694 cases do not have a judge or jury ruling (329 in the period 1991/2, 227 in the year 1996 and 138 in 2001). There are 69 cases with no data on who won the legal dispute (1991/2: 42 cases, 1996: 17 cases and 2001: 10 cases). Of the cases that the plaintiff won, there is no information about the compensatory damages award in 348 cases (1991/2: 137 cases, 1996: 104 cases and 2001: 107 cases). Finally, we do not include data about the states Massachusetts and Washington, neither data about medical malpractice cases in Illinois, because their statutes prohibit punitive damages awards; in the former two states there is a general rule that forbids punitive damages awards with some exceptions for some type of cases; on the contrary, in Illinois, the general rule is that punitive damages awards are permitted but they are not allowed for medical malpractice. Thus, 205 cases from Massachusetts are discarded (1991/2: 68 cases, 1996: 63 cases and 2001: 74 cases), 354 cases from Washington (1991/2: 67 cases, 1996: 170

[4] The data were collected by the *National Center for State Courts* under a grant from the U.S. Department of Justice, Bureau of Justice Statistics. Available at: http://www.ncsc.org

[5] In one of his experimental research project, W. Kip Viscusi concluded that "minorities and the less well educated [participants] were particularly unwilling or unable to apply the recommended punitive damages formulas" (Viscusi 2001a, pp. 313 and 342-343).

cases and 2001: 117 cases) and 59 medical malpractice cases from Illinois (1991/2: 16 cases, 1996: 17 cases and 2001: 26 cases). Finally, we exclude from our analysis a jury-awarded compensatory damages award of over $ 40 billion, with no punitive damages, against Ferdinand and Imelda Marcos (1996), which was reversed by the Hawaii Supreme Court.[6] Consequently, among the valid cases for our study, there are 10,862 observations where the plaintiff prevailed (1991/2: 2,765 cases, 1996: 4131 cases and 2001: 3,966 cases). However, five legal disputes of 2001 had missing information on punitive damages; consequently, the data collection of 2001 has 3,961 valid observations. Therefore, for the purposes of our study, we focus on the 10,857 cases with valid and relevant information.

2.2. Predictors of the Models

The data collections provide information about the type of trial (jury or judge),[7] number of the stages of trial (single trial or bifurcate trial on punitive damages),[8] type of case (product liability case, intent tort case, medical malpractice, professional malpractice case, slander or libel case, fraud case, motor vehicle accident, employment contract case, and so forth), type of litigant (individual, hospital, corporation, government, and so forth), number of litigants (number of winning plaintiffs and losing defendants), the amount of compensatory and punitive damages (if they were awarded), and the county where the case took place (see *Table A2*).

In addition, we complete the data collections offering by the *NCSC* with continuous (quantitative) or discrete (qualitative) variables obtained by coding the information of the jury instructions, the statutes, the relevant jurisprudence and other non-legal variables of each state (see *Tables A1, A3, A4, A5, A6,* and *A7*).[9]

We include a dichotomic variable concerning the *negligence rule*: (a) if the prevailing claimant is 50% or more responsible for the incident, they may be barred from recovering any damages (*contributory negligence rule*); (b) where the plaintiff was found to be at fault for the incident, damages may be reduced accordingly (*comparative negligence rule*).

We also include another dichotomic variable relating to whether the state, in which the case was decided, applies the *complicity rule* as a requirement for awarding punitive damages against the principal.

Concerning the *applicability of punitive damages*, we aggregate six variables, depending on whether the case was decided in: (1) States which offer (or do not) definitions for the jury's improved understanding of the legal terms (dichotomic variable).[10] (2) States instruct (or do not) that the applicability of punitive damages is a discretionary decision (dichotomic variable). (3) States which require (or do not) a previous compensatory damages award (nominal variable). (4) States in which the admission of punitive damages should seek both deterrence and punishment, only deterrence, or only punishment (nominal variable). (5) States which have a common evidence requirement concerning the burden of persuasion (dichotomic variable): (a) clear and convincing evidence; (b) the preponderance of the evidence. 6) States which have a common requirement concerning the defendant's wrongdoing (nominal variable): (a) *highest requirement*: malice, fraud or recklessness. (b) *lowest requirement*: gross negligence.

Concerning the dollar award of punitive damages we include ten variables, depending on whether the case was decided in: (1) States which instruct (or do not) that the amount of punitive damages is a discretionary decision (dichotomic variable). (2) States which instruct (or do not) that the amount of punitive damages should be an impartial decision (dichotomic variable). (3) States in which the amount of punitive damages should seek both deterrence and punishment, only deterrence, or only punishment (nominal variable).[11] (4) States which mandate (or do not) the bench or jury trials to take into account each of the following variables while calculating the amount of punitive damages: (a) the dollar award of compensatory damages (nominal variable); (b) the defendant's conduct, and/or the defendant's motive or intent (nominal variable); (c) the duration of defendant's misconduct and the

[6] In this point, we follow the decision adopted by Joni Hersch and Kip Viscusi in their former paper using the same data set of 1996 (Hersch and Viscusi 2004 p. 11).

[7] This data is only provided by the data collections 1996 and 2001 (the data set 1991-92 only gives information about jury rulings).

[8] This data is only provided by the data collections 1996 and 2001 (it is not offered by the data set 1991-92).

[9] Some quantitative variables were transformed into categorical variables (dummy variables) by recoding their values.

[10] About the possible influence of this variable, Reid Hastie, David A. Schkade, and John W. Payne found in an experimental research project on punitive damages that: "Those jurors who were better able to comprehend and recall the instructions were also more likely to decide 'not liable' (Hastie *et al.* 2002, p. 77). The same authors also explain that there are proposals to improve the current jury instructions by adding comprehensible definitions of basic legal concepts (Hastie *et al.* 1998, p. 307).

[11] See an experimental research project conducted by Reid Hastie, David A. Schkade, and John W. Payne, the authors claim: "In addition, we were interested in our mock jurors' reactions to the distinction between the goals of punishment and deterrence articulated in the judge's instructions. In open-ended reports of their decision strategies, participants emphasized punishment over deterrence." (Hastie *et al.* 2002, p. 73.)

concealment of it, and/or the defendant's act to remedy the misconduct (nominal variable); (d) the harm likely to occur and awareness of this likelihood (nominal variable); (e) the profitability of the defendant's misconduct (nominal variable); (f) the aggravating and mitigating factors (nominal variable); (g) the defendant's financial wealth and/or his or her ability to pay (nominal variable).

On the other hand, we create two categorical variables about the rules of the Courts in which the cases were decided. First, about the *civil jury size*: (a) six jurors; (b) seven jurors; (c) eight jurors; (d) twelve jurors. Second, relating to the *verdict decision rule*: (a) a verdict is required in at least 3/4 of the jurors; (b) a verdict is required in at least 5/6 of the jurors; (c) a verdict is required to be unanimous in all of the jurors.

In addition, we code —exclusivity for the jury analysis— the following non-legal variables: (1) Percentage of the state population ethnicity (numerical variables): (a) White; (b) Black/African-American; (c) Hispanic; (d) Asian/Pacific Islander; (e) Native American; (f) Others. (2) Percentage of the level of education of the population of 25 years old or over (numerical variables): (a) High School graduates or higher; (b) Bachelor's Degree or higher; (3) State political ideology: (a) State presidential elections during 1992, 1996, and 2000: (i) Republican Party won (dichotomic variable); (ii) Democratic Party won (dichotomic variable). (b) State presidential elections since 1972 (numerical variable: the last nine elections: percentage that the Republican Party won).[12]

2.3. Models

In this paper, an analysis is conducted for each individual sample, 1991-92, 1996 and 2001, and jointly in the data collections 1996/2001 and 1991-92/1996/2001. There is no judge's data for the year 1991. While logic regressions are performed to analyze the admission of punitive damages (dependent variable: *the applicability of punitive damages*), simple and multiple regressions are used to study the amount of punitive damages (log-transformed dependent variable: *the amount of punitive damages*).

Two models are used for each jury's analysis (number 1 model and number 2 model) and one for the judge's studies. With regard to the admission of punitive damages, the jury's number 1 models include the variables showed in the *Appendix Tables A, B* and *C*. Observe that the additional variables of the *Table A3* might have spurious relationships with the dependent variable of each regression. These (non-legal) additional variables may give an impression of a correlation between them and the dependent variable, but in fact, they might have no causal connection. For this reason, it is also worked with the jury's number 2 models that do not include the former variables (*Table A3*) and only enter the ones showed in the *Appendix Tables A* and *C*. On the other hand, the judge's unique model always includes the variables seen in *Appendix Tables A* and *D*.

With regard to the amount of punitive damages, the jury's number 1 models include the predictors displayed in the *Appendix Tables A, B* and *E* and the jury's number 2 models enter only the variables exhibited in the *Appendix Tables A* and *E*. Finally, the judge's model always enters the explanatory variables given by *Appendix Tables A* and *F*.

3. DESCRIPTIVE STATISTICS

According to the goal of this study, it is not relevant a deeply descriptive analysis of the dependent and independent variables. We analyzed them and present no anomalies.

With regard to jury's decisions, there are 2,765 observations in 1991-92; 2,830 in 1996; and 2,854 in 2001. The admissibility ratio of punitive damages is 6.4% in 1991-92; 4.1% in 1996; and 5.2% in 2001 (see *Tables A8, A9, and A10* for more descriptive statistical data).

With regard to the judge's rulings, there is no information for the fiscal year 1991-92. There are 1,301 cases in 1996 and 1,107 in 2001 (more than double of the observations of each sample were jury's resolutions). The admissibility ratio of punitive damages in these samples is 4.2%; the same one in 1996 and in 2001 (observe *Tables A11, A12, and A13* for more information on descriptive statistics).

4. STUDY 1: THE ADMISSION OF PUNITIVE DAMAGES

4.1. The Proposed Hypothesis

From our point of view (Irigoyen-Testa 2009, pp. 16-26), punitive damages should be awarded only whenever two circumstances happen simultaneously: (1) the defendants' probability of being sufficiently awarded for the total harm caused is less than one hundred percent (Cooter and Ulen 1997, p. 314; Shavell 2004, p. 244;

[12] Some researchers have observed some statistical relationships between jurors' characteristics and award amounts (Zeisel and Diamond 1976).

Cooter 1988-1989; Cooter 1982; Polinsky, and Shavell 1998; Posner 1992), and (2) the losses are caused by a defendant's intentional act (malice, fraud or recklessness).[13]

Concerning the first requirement, the expected compensatory damages will be less than the expected harms, whenever the following happen indistinctly: (a) perfect compensation is impossible (irreparable injuries) or, (b) although it is possible a perfect compensatory damage (reparable injuries), the probability of being awarded for this perfect compensatory damage is less than one hundred percent.

Consequently, when irreparable damage is claimed versus a reparable damage, the likelihood of admitting punitive damages should increase. In this case, the plaintiff only has to demonstrate the second requirement for the admission of punitive damages (defendant's intentional act); on the contrary, when a reparable injury is asked exclusively, the plaintiff has to prove both requirements.

4.1.1. Amount of Compensatory Damages

On the one hand, focusing on the first requirement for the punitive damages admission explained *ut supra*, the greater the amount of compensatory damages, the greater the defendants' probability of being *sufficiently awarded for the total harm caused* when only reparable damages are claimed (but not when irreparable damages are claimed because perfect compensation is impossible). On the other hand, with regard to the second requirement, the greater the compensatory damages awards, the easier it would be for the plaintiff to demonstrate a defendant's behavior with malice, fraud or recklessness (when reparable and/or irreparable damages are claimed): in other words, the greater compensatory damages award is expected by the plaintiff, the more money he or she is willing to invest for a better lawyer, for investigating and collecting evidence to prove that the defendant caused a harm by an illicit and reprehensible behavior, and the easer to convince the judge or jury that the latter—al least—foresaw the possibility of harmful consequence and consciously took the risk (recklessness). Consequently, we can guess reasonably that the second effect (for both reparable and irreparable damages) related to the second requirement of a seriously reprehensible act for the punitive damages admission might outweigh the first one. Thus, we propose the following hypothesis*: the greater the amount of compensatory damages, the slightly greater the likelihood of admitting punitive damages.*

4.1.2. The Burden of Persuasion

When *clear and convincing evidence* (instead of *preponderance of the evidence*) is required as the burden of persuasion, it is more difficult for the plaintiff to demonstrate the requirements for the admission of punitive damages,[14] because in these cases a higher level of credibility must be satisfied than the common standard of proof in civil law (*preponderance of evidence*).

Thus, we pose the following hypothesis*: when clear and convincing evidence is required as the burden of proof in proceedings seeking punitive damages, the likelihood of admitting those decreases.*

4.1.3. Admission Requirement: the Defendant Acted with Malice, Fraud or Recklessness

Even if —from our theoretical point of view— the defendant's behavior with malice, fraud or recklessness is a requirement for the admission of punitive damages, occasionally, the defendant's gross negligence is sufficient for this applicability in some states (mere negligence is always insufficient for this admission). Consequently, we claim that when the defendant's behavior with malice, fraud or recklessness is a requirement for the admission of punitive damages (gross negligence is insufficient for this applicability) it is more difficult for the plaintiff to demonstrate the requirements for the admission of punitive damages. Thus, we present this hypothesis*: on the one hand, when the defendant's behavior with malice, fraud or recklessness is a requirement for the admission of punitive damages, the likelihood of admitting those decreases; on the other hand, when the defendant's behavior*

[13] In this paper, we understand for intentional act, an action that is done by the wrongdoer's purpose to under invest against the socially desirable level of care, or when the under investment is so notable that the wrongdoer or any other person would realize about this lack of care (malice, fraud or recklessness). Conversely, a non intentional act is an action that although the wrongdoer wants to invest in the socially desirable level of care, because of an information failure (that is not considered to be an extraordinary failure), he or she is not able to achieve this goal and his or her level of care is lower than the socially desirable one (negligence). There are economic reasons based on the socially desirable deterrence that prove the necessity of requiring a defendant's intentional act for the applicability of punitive damages (Cooter 1999, pp. 24-29; Cooter 2003; Owen 1994).

[14] Hastie, Schkade, and Payne argue that when a thorough review of the requirements for the admission of punitive damages is achieved, there is a high likelihood of determining that some of these requirements are not supported by the evidence (Hastie *et al.* 1998, p. 305). These authors claim that increasing the requisite standard of proof should help reduce the rate of improper verdicts (Hastie *et al.* 1998, p. 308).

with gross negligence is sufficient for the admission of punitive damages, the likelihood of admitting those increases.

4.1.4. According the Type of Case, the Defendant Acts Intentionally

When the type of case reveals a defendant's intentional act (second condition for the admission of punitive damages), the likelihood of applying punitive damages increases. We might guess that this factual circumstance (that represents the fulfillment of the second analyzed requirement) should be one of the strongest risk factors for admitting punitive damages. Consequently, we suggest this hypothesis*: when —according to the case type— the defendant acts intentionally, the likelihood of admitting punitive damages increases.*

4.1.5 According the Type of Case, Reparable Damages or Irreparable Damages are Claimed

When the type of case reveals that only reparable damages are claimed, the likelihood of applying punitive damages decreases—as explained above, in these cases, the plaintiff has to prove both requirements for the punitive damages admission. On the contrary, when it reveals that at least irreparable damages are claimed, the likelihood of admitting punitive damages increases—the plaintiff only has to prove the second requirement of a seriously reprehensible act. As a result, we propose this hypothesis*: on the one hand, when —according to the case type— only reparable damages are claimed, the likelihood of admitting punitive damages decreases; on the other hand, when —according to the case type— irreparable damages are claimed (among other types of damages), the likelihood of admitting punitive damages increases.*

4.1.6. Non-individual Plaintiff.

When the plaintiff or victim is a juridical person (i.e., the government, a company or a hospital) versus a physical person, exclusively reparable damages are claimed, consequently, the likelihood of admitting punitive damages decreases—in reparable harm cases (unlike irreparable harm cases), the plaintiff has to prove both requirements for the punitive damages admission. Hence, we pose this hypothesis*: on the one hand, when the plaintiff (victim) is a juridical person, only reparable damages are claimed, consequently, the likelihood of admitting punitive damages decreases; on the other hand, when the plaintiff (victim) is a physical person, reparable and/or irreparable damages are claimed, consequently, the likelihood of admitting punitive damages increases.*

4.1.7. Number of Winning Plaintiffs and Losing Defendants. The larger the number of winning plaintiffs and/or of losing defendants, the greater the likelihood of proving the requirements for the admission of punitive damages. So, we offer the following hypothesis*: the larger the number of winning plaintiffs, the greater the likelihood of admitting punitive damages (and vice versa); the larger the number of losing defendants, the greater the likelihood of admitting punitive damages.*

4.2. Method

As stated above, the statistical study on the applicability of punitive damages is conducted by logistic regressions. On the one hand, we analyze two models for each jury's individual sample, 1991-92, 1996 and 2001, and the joint data sets of 1996/2001 and 1991-92/1996/2001. On the other hand, we study one model for each judge's individual data set, 1996 and 2001, and for the joint data collection 1996/2001. There is no data about judge' decisions of 1996.

We compare the individual annual data sets 1996, 2001 and the joint data collection 1996/2001 of jury and bench trials. We understand that the appropriated confrontation is between the number 2 models of juries and the unique models of judges. We exclude in the comparison the number 1 models of juries because they incorporate non-legal independent variables that might have spurious relationships with the dependent variable. Nevertheless, we explain that our conclusions would not essentially change by incorporating the number 1 models in the comparison.

The dependent variable of the logistic regressions is the *Applicability of Punitive Damages*, whether or not punitive damages are awarded. The SPSS statistical software is used (method of successive steps forwards) to obtain the logistic regressions. Each model is validated by entering only the statistically significant variables previously obtained. For this step we use both SPSS and SAS statistical software (the latter provides additional measures of fit).

We study the goodness of fit of the models,[15] the statistical effect of the predictors,[16] and we verify that the assumptions of logistic regression are met.[17] Each hypothesis is tested with a confidence level of 95%.

4.3. Results

4.3.1. The Goodness of Fit of the Models

We observe the main outputs about the goodness of fit of the judges' and jury's models in the *Table 1* and *Table 2*, respectively. Fist, the overall models are statistically significant at 0.01 confidence level (see *Chi-square values and Model significances*). Second, according to the goodness of fit of the models, approximately 26% or 34% of the variance in whether or not judges apply punitive damages can be predicted from the linear combination of all the independent variables; roughly 16% or 27% of the same jury's variance can be predicted (*Nagelkerke's pseudo R-square values*); [3] the overall percent of cases that are correctly predicted by the judge's model is 96% and by the jury's ones is from 93% to 96% (*Overall predicted percentages*); [4] on the one hand, the associations of predicted percentage and the observed responses is between 75% and 85% in the judge's studies and between 75% and 81% in the jury's ones; on the other hand, the *c* statistical values that represent the area under the ROC curve are from 0.760 to 0.854 for judges and from 0.772 to 0.848 for juries (*Percent concordant and c statistical value, ROC curve*).

We highlight the main following outputs about the goodness of the models (see *Table 1* for judge's results and *Table 2* for jury's ones): [1] the overall model is statistically significant at 0.01 confidence level (*Chi-square values and Model significances*); [2] according to the goodness of fit of the models, approximately 26% or 34% of the variance in whether or not judges apply punitive damages can be predicted from the linear combination of all the independent variables; roughly 16% or 27% of the same jury's variance can be predicted (*Nagelkerke's pseudo R-square values*); [3] the overall percent of cases that are correctly predicted by the judge's model is 96% and by the jury's ones is from 93% to 96% (*Overall predicted percentages*); [4] on the one hand, the associations of predicted percentage and the observed responses is between 75% and 85% in the judge's studies and between 75% and 81% in the jury's ones; on the other hand, the *c* statistical values that represent the area under the ROC curve are from 0.760 to 0.854 for judges and from 0.772 to 0.848 for juries (*Percent concordant and c statistical value, ROC curve*).

Table 1

JUDGES: ADMISSION OF PUNITIVE DAMAGES (SUMMARY OF THE GOODNESS OF FIT OF THE LOGISTIC REGRESSIONS)

	1996	2001	1996/2001
Number of cases	1293	1098	2386
Chi-square value	98.885	190.926	190.926
Model significance	< 0.0001	< 0.0001	< 0.0001
Nagelkerke's pseudo R-square value	0.249	0.342	0.263
Overall predicted percentage	95.9	95.8	95.9
Concordant (association) (%)	84.9	75.0	82.1
c (association: ROC)	0.854	0.760	0.842

[15] To study the goodness of fit of the models we mainly analyze the Chi-square values, Nagelkerke's pseudo R-square values, Hosmer and Lemeshow tests (when it is possible), and the predicted percentages and association of predicted probabilities and observed responses (ROC curve).

[16] To study the statistical effect of the predictors, we mainly analyze, among others, the beta coefficient value (p-value for the Wald statistic), the standard error, and the exponential of beta coefficient (odds ratio).

[17] We analyze the correlation matrix, collinearity diagnostics, etc.

Table 2

JURIES: ADMISSION OF PUNITIVE DAMAGES (SUMMARY OF THE GOODNESS OF FIT OF THE LOGISTIC REGRESSIONS)

	1991-92		1996		2001		1996/2001		1991-92/1996/2001	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Number of observations	2513	2513	2488	2488	2853	2845	5338	5337	7838	7838
Chi-square value	226.166	213.938	204.212	199.813	228.425	209.452	454.158	384.708	465.252	428.324
Model significance	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Nagelkerke's pseudo R-square value	0.220	0.209	0.265	0.260	0.231	0.212	0.257	0.219	0.168	0.155
Overall predicted percentage	93.3	93.3	95.7	95.8	94.7	94.7	95.4	95.1	94.6	94.6
Concordant (association) (%)	79.5	77.7	80.3	80.9	79.2	75.6	77.7	78.8	77.0	75.2
c (association: ROC)	0.811	0.801	0.848	0.848	0.819	0.807	0.790	0.816	0.781	0.772

4.3.2. The Statistically Significant Variables

Observe the following *Tables 3* and *4* that summarize the most important data related to the statistically significant variables for each model. While the dependent variable is always the same (*Applicability of punitive damages)*, the independent variables entered in each model may vary.

Each box of the tables —that corresponds to the independent variables and the constant— contains three numbers. The first one gives the beta coefficient value (p-value for the Wald statistic: one star means a statistically significance level of 0.05 and two stars means a statistically significance level of 0.01); the second number —between parenthesis— represents the standard error; the third number —between square brackets— shows the odds ratio (the exponential of beta coefficient). Finally, it is highlighted that we verified in each model that the assumptions of logistic regression were met.[18]

[18] We analyzed the correlation matrix, collinearity diagnostics, etc.

Table 3

JUDGES: ADMISSION OF PUNITIVE DAMAGES (SUMMARY OF THE STATISTICALLY SIGNIFICANT VARIABLES)

	1996	2001	1996/200
Neperian logarithm of the amount compensatory damages	0.178 * (0.081) [1.194]	0.257 ** (0.097) [1.293]	
Case type:			
Intent tort case	3.482 ** (0.530) [32.522]	3.652 ** (0.480) [38.562]	2.470 ** (0.318) [11.827]
Dangerous building case	2.210 ** (0.547) [9.117]		
Fraud case	2.641 ** (0.478) [14.032]	2.178 ** (0.391) [8.832]	1.341 ** (0.269) [3.823]
The plaintiff is a seller			-1.548 ** (0.456) [0.213]
The plaintiff is a buyer	1.863 ** (0.536) [6.442]		
Employment contract case	2.188 ** (0.642) [8.915]		
Lease case			-2.010 * (1.020) [0.134]
Contract case (other than the ones that are include in the remaining variables)	1.902 ** (0.590) [6.700]		
Litigants:			
The plaintiff is a government, corporation, or hospital (or more than one)		-0.945 * (0.399)	-0.573 (0.271)

		[0.389]	[0.564]
The defendant is a government, corporation, or hospital (or more than one)			-0.573 *
			(0.257)
			[0.564]
Non-individual plaintiff vs. government, corporation, or hospital	-1.487 *		
	(0.620)		
	[0.226]		
More than two defendants			0.836
			(0.273)
			[2.308]
State statute and relevant jurisprudence:			
Compensatory damages are required			
	1.170 *		1.388 **
	(0.081)		(0.374)
	[3.222]		[4.008]
The purpose of punitive damages is deterrence and punishment		1.041 *	
		(0.448)	
		[2.833]	
Constant	-7.161 **	-7.174 **	-4.110 **
	(0.988)	(1.063)	(0.392)
	[0.001]	[0.001]	[0.016]

NOTE.—Dependent variable: Applicability of punitive damages. Independent variables and constant: the first number of each box corresponds to the beta coefficient value; the second number—between parentheses—represents the standard error; the third number—between square brackets—shows the odds ratio (the exponential of beta coefficient).
* $p < .05$.
** $p < .01$.

Table 4

JURY: ADMISSION OF PUNITIVE DAMAGES (SUMMARY OF THE STATISTICALLY SIGNIFICANT VARIABLES)

	1991-92		1996		2001		1996/2001		1991-92/1996/2001	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Case type:										
Intent tort case	2.296**	2.355 **	2.073 **	2.098 **	2.861 **	2.447 **	3.233 **	2.478 **	2.366 **	2.318 **
	(0.321)	(0.318)	(0.331)	(0.328)	(0.287)	(0.278)	(0.229)	(0.209)	(0.171)	(0.169)
	[9.935]	[10.543]	[7.952]	[8.150]	[17.476]	[11.550]	[25.356]	[11.917]	[10.658]	[10.156]
Slander or libel case	3.142**	3.225 **			2.679 **	2.040**	3.520 **	1.979	2.768 **	2.877 **
	(0.653)	(0.641)			(0.501)	(0.497)	(0.392)	(0.391)	(0.324)	(0.326)
	[23.157]	[25.157]			[14.570]	[7.693]	[33.793]	[7.233]	[15.923]	[17.766]
Professional malpractice case (other than medical malpractice case)	2.302 **	2.342 **					1.829 **		1.713 **	1.744 **
	(0.468)	(0.464)					(0.552)		(0.333)	(0.329)
	[9.996]	[10.399]					[6.226]		5.547	[5.719]
Product liability case				1.516			0.923 **	1.008		
				(0.557)			(0.452)	(0.440)		
				[4.555]			[2.517]	[2.741]		
Dangerous building case									-0.542 *	-0.571 *
									(0.260)	(0.260)
									[0.582]	[0.565]
Other tort case	1.173 **	1.255 **			1.036 **		1.509 **		0.778 **	0.844 **
	(0.295)	(0.294)			(0.338)		(0.305)		(0.200)	(0.199)
	[3.232]	[3.509]			[2.819]		[4.522]		[2.178]	[2.326]
Fraud case	2.055 **	2.107 **					2.408 **	0.664 **	1.760	1.765 **
	(0.333)	(0.333)					(0.240)	(0.236)	(0.185)	(0.184)
	[7.804]	[8.222]					[11.109]	[1.943]	[5.814]	[5.839]
The plaintiff is a seller	0.989 *	0.912 *	-1.312 *	-1.398 *		-2.304 **		-1.480		
	(0.406)	(0.418)	(0.620)	(0.619)		(0.730)		(0.474)		
	[2.689]	[2.489]	[0.269]	[0.247]		[0.100]		[0.228]		

The plaintiff is a buyer	1.787 **	1.814 **				-0.929 *	1.967 **		1.409 **	1.354 **
	(0.282)	(0.283)				(0.361)	(0.264)		(0.180)	(0.180)
	[5.970]	[6.136]				[0.395]	[7.147]		[4.090]	[3.871]
Employment contract case	2.173 **	2.216 **					2.632 **	0.822 **		
	(0.277)	(0.275)					(0.245)	(0.239)		
	[8.786]	[9.169]					[13.899]	[2.274]		
Lease case							2.270 **		1.837 **	
							(0.418)		(0.403)	
							[9.681]		[6.280]	
Contract case (other than the ones that are include in the remaining variables)							2.119 **		1.172 **	1.208 **
							(0.324)		(0.280)	(0.282)
							[8.326]		[3.230]	[3.347]
Real property case	1.771 **	1.576 *					2.368 **		1.760 **	1.787 **
	(0.663)	(0.679)					(0.691)		(0.463)	(0.463)
	[5.879]	[4.836]					[10.673]		[5.811]	[5.969]
Bodily injury is claimed			-2.504 **	-2.644	-1.482 **	-1.885		-1.651 **		
			(0.234)	(0.243)	(0.193)	(0.203)		(0.173)		
			[0.082]	[0.071]	[0.227]	[0.152]		[0.192]		
Litigants:										
The Plaintiff is a government, corporation, or hospital (or more than one)	-0.698 **	-0.690	-1.079 **	-1.033					-0.376	-0.383 *
	(0.265)	(0.266)	(0.383)	(0.379)					(0.165)	(0.165)
	[0.497]	[0.501]	[0.340]	[0.356]					[0.687]	[0.682]
More than two defendants						0.519 *	0.382 **	0.419 **	0.417 **	0.430 **
						(0.215)	(0.162)	(0.158)	(0.117)	(0.115)
						[1.680]	[1.465]	[1.512]	[1.518]	[1.537]
More than one plaintiff winner							0.331 *			
							(0.161)			
							[1.392]			
More than two plaintiffs winners						0.804 *		0.655 *		
						(0.340)		(0.278)		
						[2.235]		[1.925]		
Jury Instructions:										
Compensatory damages are required										0.396 *
										(0.184)

										[1.485]
The purpose of punitive damages is deterrence		1.258 * (0.528) [3.519]								0.922 * (0.397) [2.514]
The purpose of punitive damages is deterrence and punishment			-0.827 ** (0.306) [0.437]	-0.887 ** (0.306) [0.412]	-0.590 * (0.274) [0.555]			-0.541 (0.195) [0.582]		
It is provided legal definitions of the requirements for the admission of punitive damages							0.596 ** (0.179) [0.001]			
Clear and convincing evidence is required as the burden of persuasion.	0.674 ** (0.205) [1.962]	0.796 ** (0.195) [2.218]		1.197 ** (0.286) [3.310]				0.820 ** (0.178) [2.270]		0.343 ** (0.117) [1.410]
Gross negligence is sufficient for the admission									0.512 * (0.242) [1.668]	
It requires an intentional act (malice, fraud or recklessness)	-1.195 ** (0.230) [0.303]	-1.627 ** 0.207 [0.197]			-0.804 ** (0.226) [0.447]	-0.676 ** (0.215) [0.509]	-0.848 ** (0.211) [0.428]			-0.799 ** (0.126) [0.450]
Others:										
Bifurcate trial on punitive damages			1.093 ** (0.312) [2.983]		1.621 ** (0.324) [5.057]		0.992 ** (0.228) [2.698]			
Civil jury size:										
Six jurors			-1.154 ** (0.325) [0.315]		-1.346 ** (0.333) [0.260]		-1.164 ** (0.223) [0.312]			
Seven jurors							0.960 * (0.381) [2.612]			
Eight jurors					0.668 **					

					(0.253) [1.951]					
Twelve jurors	0.870 ** (0.218) [2.386]								0.878 ** (0.112) [2.406]	
Percentage of winning the presidential elections in the state in the last 35 years by the Republican Party									1.528 ** (0.285) [4.610]	
Constant	-3.510 ** (0.284) [0.30]	-2.717 (0.207) [0.066]	-0.915 ** (0.306) [0.401]	-1.852 ** (0.319) [0.157]	-1.242 (0.330) [0.289]	-1.460 (0.225) [0.232]	-3.936 (0.200) [0.020]	-2.652 (0.238) [0.071]	-5.034 (0.230) [0.007]	-3.467 ** (0.226) [0.031]

NOTE.—Dependent variable: Applicability of punitive damages. Independent variables and constant: the first number of each box corresponds to the beta coefficient value; the second number —between parentheses— represents the standard error; the third number —between square brackets— shows the odds ratio (the exponential of beta coefficient).
* $p < .05$.
** $p < .01$.

From *Table 3* for judges and *Table 4* for juries it can be attained the following information about the variables that are statistically significant at least in half of the judge's or jury's models.

On the one hand, the *risk factors of applying punitive damages* (see *Tables 3* and *4*: exponential of beta coefficients—between square brackets—higher than one) are: [1] *for both judge's and jury's decisions: Intent Tort Case* and *Fraud Case*;[19] [2] *only for judge's decisions:* the *Neperian Logarithm of Compensatory Damages*, and when compensatory damages awards are a requirement to apply punitive damages (variable label: *State statutes and relevant jurisprudence about the admission of punitive damages*);[20] [3] *only for jury's decisions: Slander or Libel Case*, professional malpractice cases other than the medical malpractice ones (variable label: *Professional malpractice case*), tort cases other than the ones that are included in the remaining variables (variable label: *Other tort case)*, real property cases (variable label: *Real property case*), more than two defendants (variable label: *More than two defendants*), and jury instructions require clear and convincing evidence as the burden of proof (variable label: *Jury Instruction (admission): clear and convincing evidence is required as the burden of persuasion.*).[21]

On the other hand, the *protective factors of applying punitive damages* (see *Tables 3* and *4*: exponential of beta coefficient—between square brackets—lower than one) are: [1] *for both judge's and jury's decisions:* constant (*control group for the model*) and *The Plaintiff is a Government, Corporation, or Hospital (or more than one);*[22] [2] *only for jury's decisions:* a bodily injury is claimed (variable label: *Bodily injury is claimed*) and the defendant's behavior with malice, fraud or recklessness is a requirement for the admission of punitive damages (variable label: *Jury Instruction (admission): It requires an intentional act (Malice, Fraud or Recklessness)*).[23]

Finally, there are some *unclear factors of applying punitive damages only for jury's decisions: the Plaintiff is a Seller*, and *the Plaintiff is a Buyer*.

4.4. Discussion

4.4.1. The Goodness of Fit of the Models

In this section, we analyze the goodness of fit of the models of jury's and judge's decisions about the admission of punitive damages. Furthermore, we compare the individual annual data sets 1996, 2001 and the joint data collection 1996/2001 of jury and bench trials. For the comparisons, we have to take into account —as we indicated before— the different sides of the jury's samples and the judge's ones (see *Table 1* for judges and *Table 2* for juries).

We highlight the main following comparisons between judges and juries:

First, in each judge's and jury's study, the overall model is statistically significant (see the Chi-square values). Because their significance levels (p-values or the *model significances*) are always less than the critical value 0.5 (and —furthermore— less than 0.01), it can be concluded that each model as a whole fits significantly better than an empty model (for example, a model with no independent variables).

Second, observe that the goodness of fit of the models is moderated in each study; as we know, the closer the Nagelkerke's pseudo R-square value is to the number one, the better it is goodness of fit of the model. Therefore, we can notice that the goodness of fit of the judge's models is moderately better to that of the jury. Note that the first and second highest Nagelkerke's pseudo R-square values (respectively, 0.342 and 0.263) belong to the judge's models. They indicate that approximately 34% or 26% of the variance in whether or not judges apply punitive

[19] Additionally, the following two variables are statistically significant at least in one of the judge's models and in one of the jury's studies (risk factors): *Employment Contract Case* and contract cases other than the ones that are included in the remaining variables (variable label: *Contract case (other than the ones that are include in the remaining variables)*),

[20] Additionally, the following four variables are statistically significant at least in one of the judge's models (risk factors): *the Plaintiff is a Buyer*, *Dangerous Building Cases*, the function of punitive damages is both deterrence and punishment (*Sdeter_punish*), and has more than two defendants (variable label: *More than two defendants*).

[21] Additionally, the following variables are statistically significant at least in one of the jury's studies (risk factors): *Product Liability Case*, *Lease Case*, *More Than One Winning Plaintiff*, *More Than Two Winning Plaintiffs*, When Compensatory Damages Awards are a Requirement to Apply Punitive Damages, *The Function of Punitive Damages is Deterrence, The Defendant's Behavior With Gross Negligence is Sufficient for the Admission of Punitive Damages, Bifurcate Trial on Punitive Damages (Variable Label: Bifurcat), Civil Jury Size: Seven, Eight or Twelve Jurors, Republican State Party Ideology*.

[22] Additionally, the following four variables are statistically significant at least in one of the judge's models (preventive factors): non-individual defendant (variable *Nonindivdf*), non-individual plaintiff and defendant (*Pari2_6*), *the Plaintiff is a Seller*, *Lease Case*.

[23] Additionally, the following variables are statistically significant at least in one of the jury's models (preventive factors): *Slander or Libel Case*, a bodily injury is claimed (variable label: *bodinj*), *Dangerous Building Cases*, the function of punitive damages is both deterrence and punishment (variable label: *Jdeter_punish*), the jury instructions provides definitions of legal terms (variable label: *J2definitions*)., *Civil Jury Size: six jurors* (variable label: *JurySize6*).

damages can be predicted from the linear combination of all the independent variables of the model 2001 and the joint model 1996/2001, respectively.

Third, the overall percent of cases that are correctly predicted by each model is very high. Notice that every judge's overall predicted percentage is consistently —and moderately— higher than that of the jury. The difference between the two is never higher than 1%; the overall predicted percentage in the judge's cases is always near 96%, in the jury's cases it is between 95% and 96%. Notwithstanding, it is important to highlight that —in both judge's and jury's models— the percentage of cases that are correctly predicted when punitive damages were not admitted is much higher (around 99%) than the ones for legal decisions that allow punitive damages awards (roughly 10% or less). Furthermore, each model's overall predicted percentage based on the full logistic regression model (all variables included) improves only by 1% the predicted percentage that is observed with just the information that is provided by the distribution of the dependent variable (*Applicability of punitive damages*). Consequently, we cannot claim that —from this point of view— the judge's models are better to predict the applicability of punitive damages than the jury's ones.

Fourth, the associations of predicted percentage and the observed responses, and the *c* statistical values that represent the area under the ROC curve, are —in general— better measures in the models of judges than the models of juries. They are slightly better in the judge's study of the year 1996 and the joint annuities 1996/2001. On the contrary, these measures are slightly better in the jury's models of 2001.

In summary, we conclude that the judge's models have a better goodness of fit than the jury's models. Nevertheless, that should not imply that the former models have a statistically significant better global predicted probability of the applicability of punitive damages than the latter ones. Having the information that provides the distribution of the dependent variable (*Applicability of punitive damages*), it can only improve —with the analyzed models— the predicted percentage by 1% (in both judge's and jury's decisions).

4.4.2. The Statistically Significant Variables

Observe again the *Table 3* for judge's studies and *Table 4* for jury's ones. Taking into account the analyzed goodness of fit of each model, it is also possible to obtain information about the probability of the admission of punitive damages including the values of each independent variable in each model. Even if the goal of this paper is not to find a way to predict exactly the applicability of punitive damages (we believe that this objective is a utopian one), we intend to give the maximum information possible about the relevant factors that influence significantly on the trial decisions. Therefore, we can analyze each model and attain the following main information about the compared judge's and jury's studies (respectively, data sets 1996, 2001 and joint data collections 1996/2001).

First, observing all compared studies, we can notice the variable *Intent Tort Case* is the major risk factor for applying punitive damages. In other words, the odds ratio of admitting punitive damages when there is an intent tort case (versus when there is not an intent tort case) increases considerably. This increment is almost the same for judges and juries in the joint years 1996/2001. On the contrary, in the isolated study of each year, these increases are significantly higher in the jury's models than in the judge's ones.

Second, the variable *Fraud Case* is the second highest risk factor in the judge's cases. On the contrary, this variable is only a strong risk factor in the jury's joint study 1996/2001 (being the fifth highest risk factor).

Third, while the variable *Slander or Libel Case* has no effect on the judge's rulings, this variable is the second risk factor for the jury's applicability of punitive damages in both analysis 2001 and joint study 1996/2001. In these cases, the odds ratio of applying punitive damages when there is a slander or libel case (versus when the case is not a slander or libel one) increases by —roughly— seven and a half times (see odds ratios: 7.693 – 7.233).

Fourth, in order to meet the assumptions necessary to ensure the validity of the model (in particular the assumption of normality of residuals) the variable *amount of compensatory damages* is transformed as the *Neperian Logarithm of the Amount Compensatory Damages*. In the judge's analysis, the transformed variable is maintained in the models of each isolated year (respectively, 1996 and 2001). This variable increases —mildly— the goodness of fit of those models and it is a risk factor —slightly— for applying punitive damages (see odds ratios: 1.194 – 1.293). Notwithstanding, in all the jury's models and in the study of the judges for the joint annuities 1996/2001, the variable *logarithm of compensatory damages* is not significant —or it is moderately significant— and it had to be removed because it has collinearity problems with other variables; this decision —generally— does not reduce the goodness of fit of the models.

Fifth, the type of person (individual or non-individual) of the plaintiff and/or defendant has a bigger statistical impact in the judge's decision than that of the jury's rulings. In the judge's study 1996, the odds ratio of applying punitive damages when —at least— one of the plaintiffs and one of the defendants are juridical persons (a non-individual plaintiff against a government, corporation or hospital: variable *Non-individual plaintiff Vs. Government, Corporation, or Hospital*) versus when one of them is a physical person (an individual) decreases to

less than one quarter (see that the odds ratio is 0.226). In the analysis of the judge's data set 2001, the variable that indicates that *The Plaintiff is a Government, Corporation, or Hospital (or more than one)* (odds ratio: 0.389) works as the highest protective factor for the admission of punitive damage. Finally, the variables that denote that *The Plaintiff is a Government, Corporation, or Hospital (or more than one)* (odds ratio: 0.564) and/or the defendant (variable *The defendant is a Government, Corporation, or Hospital (or more than one)*, odds ratio: 0.564) are juridical persons (government, corporation or hospital) act also as a protective factor. On the contrary, in the compared annuities of the juries, the variable that reveals that *The Plaintiff is a Government, Corporation, or Hospital (or more than one)* (odds ratio: 0.356) is only statistically significant in the year 1996; it works also as a protective factor for the applicability of punitive damages: the odds ratio of admitting punitive damages when the plaintiff is a juridical person, versus when he or she is a physical person, reduces to almost one third.[24]

Sixth, in the collated models, the fact that the *Plaintiff is a Seller* acts —in general— as a protective factor for punitive damages awards; in other words, when the plaintiff is a seller versus when he or she is not a seller, the odds ratio of admitting punitive damages decreases. On the one hand, for jury's data sets see analysis 1996 (odds ratio: 0.247), study 2001 (odds ratio: 0.10), and joint annuities 1996/2001 (odds ratio: 0.228). On the other hand, for judge's models observe this variable is exclusively significant in the joint study 1996/2001 (it also acts as a protective factor, odds ratio: 0.213).

Seventh, when the plaintiff claims a bodily injury (variable label: *Bodily injury is claimed*), there is a protective factor for jury's punitive damages award. It is the strongest protective factor in 1996 (odds ratio 0.071); the second strongest protective factor in the analysis 2001 and 1996/2001 (respectively, odds ratio: 0.152 and 0.192). Finally, we highlight that this variable is not statistically significant in the judge's models.[25]

Eighth, note that the control group (*constant*) for each model (when each of the independent variables of each model equals zero) always behaves statistically as one of the strongest protective factors for applying punitive damages.

Ninth, the variables relative to the fact that judge and jury should seek both deterrence and punishment to apply punitive damages, have little to no effect on the dependent variable. For the judge's models the variable (*State statute and relevant jurisprudence about the admission of punitive damages: the purpose of punitive damages is deterrence and punishment*) acts as a risk factor (2001, odds ratio: 2.833) or is not statistically significant (1996 and 1996/2001). On the contrary, for the jury's models the variable (*Jury Instruction (admission): The purpose of punitive damages is deterrence and punishment*) works as a protective factor (1996, odds ratio: 0.412, and 1996/2001, odds ratio: 0.502), or it is not statistically significant (2001).

Tenth, the variable that indicates that a *compensatory damages award* is required to apply punitive damages (variable label: *State statutes and relevant jurisprudence about the admission of punitive damages*), behaves as a moderate risk factor (1996, odds ratio: 3.222 and joint years 1996/2001, odds ratio: 4.008) or it is not statistically significant (2001).

Eleventh, the predictor that tells that *clear and convincing evidence* is required as the jury's burden of proof in proceedings seeking punitive damages (variable label: *Jury Instruction (admission): clear and convincing evidence is required as the burden of persuasion.*), performs as a moderate risk factor (1996, odds ratio: 3.310 and joint years 1996/2001, odds ratio: 2.270) or it is not statistically significant (2001).

Twelfth, the variable that denotes that the jury instructions demand, as an admission requirement, that the defendant acted with malice, fraud or recklessness (variable label: *Jury Instruction (admission): It requires an intentional act (Malice, Fraud or Recklessness)*), works as a slightly protective factor for applying punitive damages in 2001 (odds ratio: 0.509) and it is not statistically significant for the studies 1996 and 1996/2001.

Finally, even if the jury's number 1 models were not compared with the judge's unique models —for the reasons explained above—, we can highlight the following: [1] the s*ocio-cultural variables (ethnicity and education level)* are not statistically significant;[26] [2] the s*ocio-political variables* (state political ideology) are not statistically significant in the isolated study 1991-92, data set 1996, data collection 2001 and in the joint analysis 1996/2001. However, the variable labeled *Percentage of winning the presidential elections in the state in the last 35 years by*

[24] Daniel Kahneman, David A. Schkade, and Cass R. Sunstein conclude that "The weath of the defendant matters a great deal to dollar awards. *Peopole will impose significatly higher punitive damages awards on significatly wealthier defendants…" "*… jury awards will be greatly affected by knowledge of weath of the defendant." (HASTIE *et al.* 2002, p. 32.)

[25] See EISENBERG *et al.* 2006, pp. 279-280 (arguing that judges were for more likely than juries to award punitive damages in cases where bodily injury existed outside of motor vehicle setting).

[26] This is result is consistent with the experimental research project conducted by David A. Schkade, Cass R. Sunstein, and Daniel Kahneman in which different demographic groups (with diverse ethnicity, among others) produced very similar evaluations about punitive damages awards (HASTIE *et al.* 2002, p. 53).

the Republican Party is statistically significant in the number 1 models of the joint data sets 1991-92/1996/2001; according to this model, when the percentage of presidential elections won by the Republican Party increases (during the last 35 years in the jury's state), the odds ratio for admitting punitive damages also rises (odds ratio: 4.610); [3] on the one hand, the odds ratio of applying punitive damages when there is a *Bifurcate Trial on Punitive Damages* (versus when there is a single trial), increases —in general— in the jury's models (1996, odds ratio: 2.903; 2001, odds ratio: 2.690; 1996/2001, odd ratio: 5.507; 1991-91 and 1991-92/1996/2001: the variable is not statistically significant). On the other hand, the same variable is never statistically significant in the judge's analysis; [4] in principle, the larger the number of jurors on each jury, the greater the probability of applying punitive damages. If the jury consists of twelve members (Jury size: 12 jurors), the odds ratio for applying of punitive damages increases (risk factor) in the fiscal year 1991-92 (odds ratio: 2.386) and in the joint study 1991-92/1996/2001 (odds ratio: 2.406). In addition, if the jurors are six (Jury size: 6 Jurors), the odds ratio for allowing punitive damages decreases (1996, odds ratio: 0.315; 2001, odds ratio: 0.260; 1996/2001, odds ratio: 0.312). [27]

4.4.3. Accepted Hypothesis for Judges and/or Juries

We can accept the following hypothesis about the admission of punitive damages.

First, the hypothesis on the amount of compensatory damages is accepted only for judges. (No empirical evidence exists to accept this hypothesis for juries.): *the greater the amount of compensatory damages, the slightly greater the likelihood of admitting punitive damages.*

Second, there is no empirical evidence to accept the following hypothesis neither for judges nor juries cases: *when clear and convincing evidence is required as the burden of proof in proceedings seeking punitive damages, the likelihood of admitting those decreases.* Nevertheless, with regard to juries, the predictor related to this hypothesis (variable label: *Jury Instruction (admission): clear and convincing evidence is required as the burden of persuasion.*) shows a moderate effect in the opposite direction. It acts as a moderate risk factor in 1996 and in the joint study 1996/2001. However, no significant effects were noted in the study 2001.

Third, the following hypothesis is admitted only for jury's decisions: *on the one hand, when the defendant's behavior with malice, fraud or recklessness is a requirement for the admission of punitive damages, the likelihood of admitting those decreases; on the other hand, when the defendant's behavior with gross negligence is sufficient for the admission of punitive damages, the likelihood of admitting those increases.*

Fourth, the hypothesis is accepted for both judges and juries*: when —according to the case type— the defendant acts intentionally, the likelihood of admitting punitive damages increases.*

Fifth, there is no empirical evidence to accept the following hypothesis neither for judges nor juries cases: *on the one hand, when —according to the case type— only reparable damages are claimed, the likelihood of admitting punitive damages decreases; on the other hand, when —according to the case type— irreparable damages are claimed (among other types of damages), the likelihood of admitting punitive damages increases.* On the one hand, it could be interpreted that there is empirical evidence against our proposed hypothesis for juries. The variable that indicates that a bodily injury is claimed (*Bodily injury is claimed*) works as a protective factor of applying punitive damages in three (out of ten) of the jury's models. On the other hand, the variables product liability case (*Product liability case*) and *Dangerous Building Case*, predictors that usually imply that irreparable damages are claimed, work —in line with our hypothesis— as a risk factor of admitting punitive damages (in some

[27] David A. Schkade, Cass R. Sunstein, and Daniel Kahneman claim that "… deliberation generally increases differences among cases, by making severe verdicts more severe and lenient verdicts more lenient, relative to the predeliberation judgments of jurors." "The basic result is that deliberation causes awards to increase, and it causes high awards to increase a great deal." "Deliberation made dollar verdicts more severe, especially for high-punishment cases." See HASTIE *et al.* 2002, pp. 51-52. Reid Hastie also concludes that "A proportionality group decsiion rule principle describes the transformation of individual liability judgments into the group verdict on liability. But deliberation on the dollard amplifies, radther than damps, the variability across indiviudal judrores' dollar awards. And there is a systematic severity shift such that, on average, juries assess higher dollar awards than their members. In this case, group deliberation increases the unreliability and unpredictability of the result." (HASTIE *et al.* 2002, p. 241.) "An interesting finding was the observation that in juries which started delib- eration with large coalitions of jurors (3 or more out of 6) favoring the "No, punitive damages are not warranted" verdict, the "No" verdict was rendered by the jury with a relatively high probability. Such juries were likelier to reach the "No" verdict than were juries to render "Yes" verdicts when they were composed of comparably large coalitions of "Yes" jurors. This probability (of rendering a "No" verdict) was also larger than would be expected from a "proportionality" group decision rule. Again, emphasizing the tentativeness of this observation, one interpretation is that it results from the asymmetry in the burdens of proof on plaintiff and defendant and from the fact that several elements must all be independently satisfied by a preponderance of the evidence to find for the plaintiff". See HASTIE *et al.,* 1998, p. 305.

jury's models). Similarly, the latter variable acts also as a risk factor in one of the judge's models. Finally, in the case of judges, unlike those of juries, the variable *Lease Case* (where only reparable damages can be claimed), impacts as a protective factor in the joint study 1996/2001. In summary, because of the limited information provided by the significant variables of the analyzed models (that sometimes is contradictory), we conclude that there is no empirical evidence to accept our hypothesis for judges or juries.

Sixth, the following hypothesis is accepted for both judges and juries: *on the one hand, when the plaintiff (victim) is a juridical person, reparable damages are claimed, consequently, the likelihood of admitting punitive damages decreases; on the other hand, when the plaintiff (victim) is a physical person, reparable and/or irreparable damages are claimed, consequently, the likelihood of admitting punitive damages increases.*

Eighth, the following hypothesis is accepted only for juries: *the larger the number of winning plaintiffs, the greater the likelihood of admitting punitive damages.*

Ninth, the following hypothesis is accepted for both judges and juries: *the larger the number of losing defendants, the greater the likelihood of admitting punitive damages.*

Finally, it is stressed that while the goodness of fit of the judge's logistic regressions is better than that of the jury's ones, one more jury's hypothesis is accepted than that of the judge's (respectively, five and four hypothesis).

5. STUDY 2: THE AMOUNT OF PUNITIVE DAMAGES

5.1. The Proposed Hypothesis

In this section, we provide the hypothesis for the dollar award of punitive damages. From the traditional law and economics theory (Cooter and Ulen 1997, p. 314; Shavell 2004, p. 244; Cooter 1988-1989; Cooter 1982; Polinsky, and Shavell 1998; Posner 1992), it is said that the amount of punitive damages should be obtained with the following formula:

$$D = \frac{C}{p_c} - C = C\frac{1-p_c}{p_c}$$

To see this relation, denote punitive damages by *D*, compensatory damages by *C*, and the probability of being found liable of compensatory damages by p_c.

Nevertheless, observe that the traditional law and economics theory is accepting the following unrealistic assumption in its equation: when there is a compensatory damages award, the probability of being found liable of punitive damages (p_d) is 100%.

Consequently, for purposes of optimal deterrence, it is essential to add in the formula the variable of the probability of being found liable of punitive damages (p_d):[28]

$$D = \left(\frac{C}{p_c} - C\right)\frac{1}{p_d} = C\frac{1-p_c}{p_c\,p_d}$$

According to our mathematical expression, we propose the following hypothesis:

5.1.1. Amount of Compensatory Damages

The effects of this variable may be two-fold: *(1) Direct effect:* the greater the amount of compensatory damages awarded (*C*), the greater the amount of punitive damages awarded (*D*). *(2) Indirect effect:* the greater the amount of compensatory damages awarded (*C*), the slightly greater the probability of being found liable of punitive damages (p_d), consequently, the slightly less the amount of punitive damages awarded (*D*); Because we guess that the first effect (direct effect) outweighs the second one (indirect effect), the following hypothesis is proposed: *the greater the amount of compensatory damages, ceteris paribus, the greater the amount of punitive damages.*

5.1.2. The Burden of Persuasion

When *clear and convincing evidence* is required as the burden of proof in proceedings seeking punitive damages, the likelihood of admitting those decreases (p_d), consequently, the amount of punitive damages awarded

[28] Actually, we can also improve this formula (depending on whether reparable and/or irreparable damages were claimed). Nevertheless, this improvement would exceed the goal of this paper (see Irigoyen-Testa 2011). It is important to highlight that if we use an improved formula for this analysis, the hypothesis and conclusions would not change. For the same reason, we do not give a hypothesis for intentional cases and for non -individual plaintiffs.

should slightly increase (*D*). Thus, we propose the following hypothesis*: when clear and convincing evidence is required as the burden of proof in proceedings seeking punitive damages, ceteris paribus, the amount of punitive damages slightly increases.*

5.1.3. Admission Requirement: the Defendant Acted with Malice, Fraud or Recklessness.
When the defendant's behavior with malice, fraud or recklessness is a requirement for the admission of punitive damages (gross negligence is insufficient for this applicability), the probability of being found liable of punitive damages decreases (p_d), therefore, the amount of punitive damages should slightly increase (*D*). Thus, we propose the following hypothesis*: on the one hand, when the defendant's behavior with malice, fraud or recklessness is a requirement for the admission of punitive damages, ceteris paribus, the amount of punitive damages slightly increases; on the other hand, when the defendant's behavior with gross negligence is sufficient for the admission of punitive damages, ceteris paribus, the amount of punitive damages slightly decreases.*

5.1.4. Number of Winning Plaintiffs and Losing Defendants
The larger the number of winning plaintiffs and/or of losing defendants, the greater the amount of punitive damages needed (for the purpose of deterrence and punishment). Thus, we propose the following hypothesis*: the larger the number of winning plaintiffs, the greater the amount of punitive damages (and vice versa);* the larger the number of losing defendants, the greater the amount of punitive damages.

5.2. Method

As explained above, the statistical study of the amount of punitive damages is conducted by simple and multiple regressions. On the one hand, we analyze two models for each jury's individual sample, 1991-92, 1996 and 2001, and two joint data sets of 1996/2001 and 1991-92/1996/2001. On the other hand, we study one model for each judge's individual data set, 1996 and 2001, and joint data collection 1996/2001. (There is no data about judge' rulings in 1996.)

It is compared the individual annual data sets 1996, 2001 and the joint data collection 1996/2001 of jury and bench trials. As we explained before, we believe that it is appropriate only to compare the number 2 models of juries to the unique models of judges (excluding in the comparison the jury's number 1 models with non-legal predictors). As it will be observed, except for the study 2001, the additional legal variables of the jury's number 1 models are not statistically significant (only the variable *Bifurcate Trial on Punitive Damages* is significant in the study 2001).[29]

The dependent variable of the simple and multiple regressions is the *Amount of punitive damages.* In order to meet the assumptions necessary to ensure the validity of the model (in particular the assumption of normality of residuals) the variable *Amount of Punitive Damages* is transformed as the *Neperian Logarithm of the Amount Punitive Damages*.

The simple regressions (independent variable: transformed *amount of compensatory damages*) are conducted for each period to compare them to the multiple regressions of the same period. Thus, we are able to detect the percentage of further explanation of the variability of the dependent variable by introducing the additional predictors of each multiple regression.

The multiple regression analysis is carried out by the method of successive steps forwards, using the SPSS statistical software. Each model is validated by entering only the statistically significant variables previously obtained.

We study the goodness of fit of the models,[30] the statistical effect of the predictors,[31] and we verify that the assumptions of regressions are met.[32] Each hypothesis is tested with a confidence level of 95%.

[29] Again, we explain that our conclusions would not essentially change by incorporating the number 1 models in the comparison.
[30] To study the goodness of fit of the models we mainly analyze the F-Test for Analyses of Variance (ANOVA) and the adjusted R-square values.
[31] To study the statistical effect of the predictors, we mainly analyze, among others, the beta coefficient value (p-value for t-student statistic), the standard error, and the standardized coefficient.
[32] With the logical limitation due to the existence of dummy variables among the predictors, we verify that the assumptions of multiple regressions are met. We test the linearity assumption between the transformed variables of the amount of punitive damages and of the amount of compensatory damages (dispersion graphs); we verify that the residuals are normally distributed (Kolmogorov-Smirnov and Shapiro-Wilk statistics) and independent (Durbin-Watson statistic); we test the homoscedasticity of the variances (dispersion graphs); finally, we test the assumption of non-collinearity among predictors (observing the F-Test (ANOVA), the standardized coefficients of each predictors, and the collinearity diagnostic: variance proportions, eigenvalues, indexes, etc.).

5.3. Results

5.3.1. The Goodness of Fit of the Models

The following *Tables 5* and *6* summarize the most relevant information about the goodness of fit of the models for judge's and jury's simple and multiple regressions.

Table 5

JUDGES: AMOUNT OF PUNITIVE DAMAGES (SUMMARY OF THE GOODNESS OF FIT OF THE SIMPLE AND MULTIPLE REGRESSIONS)

	1996		2001		1996/2001	
	Simple regression	Multiple regression	Simple regression	Multiple regression	Simple regression	Multiple regression
Number of cases	62	61	47	47	99	98
Model significance	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Adjusted R-square	0.5774	0.792	0.3921	0.686	0.496	0.701

Table 6

JURIES: AMOUNT OF PUNITIVE DAMAGES (SUMMARY OF THE GOODNESS OF FIT OF THE SIMPLE AND MULTIPLE REGRESSIONS)

	1991-92		1996		2001			1996/2001		1991-92/1996/2001	
	Simple regression	Multiple regression	Simple regression	Multiple regression	Simple regression	Multiple regression		Simple regression	Multiple regression	Simple regression	Multiple regression
						Model 1	Model 2				
Number of cases	172	166	113	103	139	139	139	252	250	424	422
Model significance	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Adjusted R-square	0.465	0.543	0.507	0.620	0.633	0.657	0.647	0.587	0.597	0.562	0.577

See the former *Table 5* (judges) and *Table 6* (juries) that summarize the most relevant information about the goodness of fit of the models —respectively— for juries and judges. The main outputs are the followings: [1] the F-Test for Analyses of Variance (ANOVA) of each model has a significance level less than 0.01; [2] the R-square values for judge's simple regression are between 0.391 and 0.577 and for jury's are between 0.465 and 0.633; [3] the R-square values for judge's simple regression are between 0.686 and 0.792 and for jury's are between 0.543 and 0.647.[33]

5.3.2. The Statistically Significant Variables

Observe the following *Tables 7* and *8* that summarize the information regarding the statistically significant independent variables and constant for each model. While the dependent variable is always the same (Neperian logarithm of the amount of punitive damages), predictors entered in each model may vary.

Each box of those tables —that corresponds to the predictors and constant— has three numbers. The first one corresponds to the beta coefficient value (p-value for t-student statistic: one star means a statistical significance level of 0.05 and two stars means a statistical significance level of 0.01); the second number, between parenthesis, shows the standard error; the third number, between brackets, corresponds to the standardized coefficient. Finally, we highlight that we verified that the assumptions of regressions were met.[34]

[33] If we take into account the number 2 model of 2001 (instead of the number 1 model of 2001), the R-square values for jury's simple regressions are between 0.543 and 0.657.

[34] We verified this with the logical limitation due to the existence of dummy variables among the predictors. We tested the linearity assumption between the transformed variables of the amount of punitive damages and of the amount of compensatory damages (dispersion graphs); we also verified that the residuals are normally distributed (Kolmogorov-Smirnov and Shapiro-Wilk statistics) and independent (Durbin-Watson statistic); we tested the homoscedasticity of the variances (dispersion graphs); finally, we tested the assumption of non-collinearity among predictors, observing the F-Test (ANOVA), the standardized coefficients of each predictors, and the collinearity diagnostic (variance proportions, eigenvalues, indexes, etc.).

Table 7

JUDGES: AMOUNT OF PUNITIVE DAMAGES (SUMMARY OF THE STATISTICALLY SIGNIFICANT VARIABLES)

	1996		2001		1996/2001	
	Simple regression	Multiple regression	Simple regression	Multiple regression	Simple regression	Multiple regression
Neperian Logarithm of the Amount of Compensatory Damages	0.814** (0.097) [0.765]	0.779** (0.068) [0.799]	0.754** (0.136) [0.637]	0.887** (0.104) [0.748]	0.790** (0.080) [0.708]	0.823** (0.060) [0.771]
Case type:						
Professional malpractice case				-2.714* (1.116) [-0.202]		-2.785** (1.043) [-0.149]
Dangerous building case		1.014** (0.350) [0.191]				
Other tort case		3.00055** (0.88173) [0.631]		1.682* (0.801) [0.176]		2.113** (0.610) [0.193]
Real property case		-2.272* (0.862) [-0.172]				
The plaintiff is a seller				-2.406** (0.668) [-0.304]		-1.475** (0.439) [-0.188]
Litigants:						
Non-individual plaintiff vs. Individual defendant only				-2.239** (0.665) [-0.283]		-1.257** (0.385) [-0.183]
More than two plaintiffs		1.151* (0.517) [0.148]				
Jury Instructions (amount):						
Consider the total deterrence through other possible sentences				2.702** (0.815) [0.282]		2.587** (0.749) [0.194]
Constant	1.439 (1.081)	1.710* (0.754)	2.07895 (1.51704)	0.787 (1.150)	1.701 (0.892)	1.494* (0.679)

NOTE.—Log-Transformed Dependent Variable: the logarithm of the amount punitive damages (Log Punitive Damages). Independent variables and constant: the first number of each box corresponds to the beta coefficient value; the second number —between parentheses— represents the standard error; the third number —between square brackets— shows the standardized coefficient.
* $p < .05$.
** $p < .01$.

Table 8

JURY: AMOUNT OF PUNITIVE DAMAGES (SUMMARY OF THE STATISTICALLY SIGNIFICANT VARIABLES)

	1991-92		1996		2001			1996/2001		1991/1996/2001	
	Simple regression	Multiple regression	Simple regression	Multiple regression	Simple regression	Multiple regression		Simple regression	Multiple regression	Simple regression	Multiple regression
						Model 1	Model 2				
Neperian logarithm of the amount of compensatory damages	0.737** (0.060) [0.684]	0.667** (0.057) [0.631]			0.875** (0.057) [0.797]	0.883** (0.057) [0.805]	0.908** (0.057) [0.827]	0.873** (0.046) [0.767]	0.822** (0,049) [0.723]		
(Neperian logarithm of the amount of compensatory damages)^3			0.002** (0.000) [0.715]	0.002** (0.000) [0.705]						0.002** (0.000) [0.750]	0.002** (0.000) [0.715]
Case type:											
Product liability case				2.537** (0.784) [0.199]							
The Plantiff is a buyer		-0.887* (0.344) [-0.140]									
The Plaintiff is a Government, Corporation, or Hospital (or more than one)				1.216* (0.608) [0.132]							
Litigants:											
Individual plaintiff only vs. individual											

defendant only									-0,478* (0.241) [-0.084]		-0.743** (0.181) [-0.134]
The defendant is a Government, Corporation, or Hospital (or more than one)		1.437** (0.284) [0.278]									
Number of winning plaintiffs									0.139* (0.067) [0.085]		
Bifurcate trial on punitive damages						1.119* (0.498) [0.118]					
Jury Instructions (amout):											
Discretional decision						-.938** (0.314) [-0.157]	-.783* (0,311) [-0,131]				
Take into consideration the harm or the actual damages				0.926** (0.311) [0.185]							
Consider the risk of the event (expected damage)		- 0.875* (0.426) [-0.109]									
Constant	2.582** (0.710)	2.540** (0.675)	7.609** (0.355)	7.140* (0.354)	0.896 (0.685)	1.011 (0.671)	0.786 (0.674)	0.94215 (0.54951)	1.503* (0.600)	7.835** (0.163)	8.220** (0.185)

NOTE.—Log-Transformed Dependent Variable: the logarithm of the amount punitive damages (Log Punitive Damages). Independent variables and constant: the first number of each box corresponds to the beta coefficient value; the second number —between parentheses— represents the standard error; the third number —between square brackets— shows the standardized coefficient.

* $p < .05$.

** $p < .01$.

From the *Table 7* for judges and *Table 8* for juries it can be attained the following information about the analyzed simple regressions and the multiple regressions (and their variables that are statistically significant at least in half of the judge's or jury's studies):

On the one hand, taking into consideration the simple regressions *for both judge's and jury's decisions*, where the *independent variable is the amount of compensatory damages* (variable: *Neperian Logarithm of the Amount of Compensatory Damages* and *(Neperian Logarithm of the Amount of Compensatory Damages)*$^{\wedge 3}$), we highlight that: [1] the beta coefficients of the variables are statistically significant at the level of confidence of 99%; [2] while the standardized coefficient values of the judge's variable are between 0.637 and 0.765; those for the jury's variable are between 0.715 and 0.805.

On the other hand, first, taking into consideration the multiple regressions *for both judge's and jury's decisions*, we highlight that the variable *amount of compensatory damages* (variable: *Neperian Logarithm of the Amount of Compensatory Damages* and *(Neperian Logarithm of the Amount of Compensatory Damages)*^3) has a *positive correlation* with the dependent variable: its beta coefficients are statistically significant at the level of confidence of 99%; while the standardized coefficient values of the judge's variable are between 0.748 and 0.799; those for the jury's variable are between 0.705 and 0.827).

Second, taking into consideration the multiple regressions *only for judge's decisions*, the variables that have a *positive correlation* with the dependent variable are the followings: [1] the predictor that indicates tort cases other (variable label: *Other tort case*) than the ones that are included in the remaining variables (we mean, other than the followings cases: motor vehicle accident, dangerous building, product liability, intent tort, medical malpractice, Professional malpractice case, and slander or libel): its beta coefficients are statistically significant at the level of confidence of 95% (study 2001) and —even— of 99% (analysis 1996 and 1996/2001); its standardized coefficients are between 0.193 and 0.631; [2] the predictor that indicates that *the judge should take into account the function of punitive damages (only deterrence) to calculate the punitive damages award* (variable label: *S Amount: Total deterrence*): its beta coefficients are statistically significant at the level of confidence of 99% (analysis 2001 and 1996/2001); its standardized coefficients are between 0.194 and 0.282.

Third, taking into consideration the multiple regressions *only for judge's decisions,* the variables that have a *negative correlation* with the dependent variable are the followings: [1] the predictor that indicates that *the Plaintiff is a Seller*: its beta coefficients are statistically significant at the level of confidence of 99% (analysis 2001 and 1996/2001); its standardized coefficients are between (- 0.188) and (- 0.304); [2] the predictor that indicates that *at least, one of the plaintiffs and one of the defendants are juridical persons* (variable label *Non-individual plaintiff Vs. Government, Corporation, or Hospital*): its beta coefficients are statistically significant at the level of confidence of 99% (analysis 2001 and 1996/2001); its standardized coefficients are between (- 0.183) and (- 0.283); [3] the predictor that indicates *professional malpractice cases other than the medical malpractice ones* (variable label: *Professional malpractice case*): its beta coefficients are statistically significant at the level of confidence of 95% (study 2001) and —even— of 99% (analysis 1996/2001); its standardized coefficients are between (- 0.149) and (- 0.201).

5.4. Discussion

5.4.1. The Goodness of Fit of the Models

In this section we analyze the main outputs of the *Table 5* for judges and the *Table 6* for juries. Remember that for these comparisons, we have to take into account the different sides of the jury's samples and the judge's ones.

The F-Test for Analyses of Variance (ANOVA) of each model has a significance level (p-value or *model significance*) that is always less than the critical value 0.05 (and —furthermore— less than 0.01). Consequently, it can be claimed that there is a significant linear relationship between the dependent variable (*Amount of punitive damages*) and the independent variable or variables, taken all together, from each model.

In addition, notice that in any data collection analyzed, the goodness of fit of each multiple regression (according to its *adjusted R-square values*) is better than that of each compared simple regression. On the one hand, we note here that the goodness of fit of each jury's simple regression is usually better than that of the judge's simple regressions. Taking into account the adjusted R-square values, the amount of compensatory damages explains the variability of the jury's dollar awards of punitive damages between 10% (joint data collections 1996/2001) and 24% (data set 2001) more than that of the judge´s (notwithstanding, the opposite direction effect, 7%, it is observed, moderately, in the study 1996). On the hand, the judge's multiple regressions always explain the variability of the amount of punitive damages (dependent variable) better than the jury's multiple regressions. While 79.2% (1996), 68.6% (2001) or 70.1% (1996/2001) of this variability can be explained by judge's multiple regressions, 62% (1996), 65.7% (or 64.7% for number 2 model, 2001) or 59.7% (1996/2001) of the same variability can be explained

by jury's multiple regressions. In other terms, the judge's additional explanations of the variability of the dollar award of punitive damages are the following: 17.2% (1996), 3% (2001) and 10.4% (1996/2001).

In summary, we conclude that the independent variables entered into each multiple regression, in addition to the predictor of each simple regression (the amount of the compensatory damages), improve the explanation of the variability of the dependent variable (the amount of punitive damages) as follows: [1] in the Judge's models, from 20% to 30% (21.46% in 1996, 29.39% in 2001, and 20.5% in 1996/2001); [2] in the Jury's models, only from 1% to 12% (11.3% in 1996, 2.4% in 2001, and 1% in 1996/2001).

5.4.2. The Statistically Significant Variables

Tables 7 and *8* summarize the outputs of the simple and multiple regressions, respectively, for judges and juries. In this section, this main data is analyzed.

First, concerning to *both judge's and jury's decisions*, in order to meet the assumptions necessary to ensure the validity of the model (in particular the assumption of normality of residuals) the variable *amount of compensatory damages* is transformed as the *Neperian logarithm of the amount compensatory damages*, with the exception of the jury's studies 1996 and 1991-92/1996/2001 (where it has to be transformed as the *cube of the Neperian logarithm of the amount of compensatory damages*).[35] The transformed variable about the dollar award of compensatory damages has the greatest relative importance in every model (see standardized coefficients in *Tables 7* and *8*). The greater the amount of compensatory damages, the greater the amount of punitive damages.

Second, concerning to only *judge's decisions*: [1] the variable *Other Tort Case* (variable label: *Other tort case*) has the second greatest relative importance in every model; more precisely, when there is *Other tort case*, holding constant all other variables, the mean of the dollar award of punitive damages increases from —roughly— one and three quarters times (168.2%) to three times (300.1%); [2] when the state statute or relevant jurisprudence says that the judge should take into account the function of punitive damages (only deterrence) to calculate the punitive damages award (variable label: *S Amount: Total deterrence*), *ceteris paribus*, the mean of the dollar award of punitive damages increases by more than two and a half times (between 258.7% and 270.2%); [3] when the *Plaintiff is a Seller*, *ceteris paribus*, the mean of the dollar award of punitive damages decreases from —roughly— one and a half times to two and a half times (from 147.5% to 240.6%); [4] when —at least— one of the plaintiffs and/or defendants are juridical persons (variable label *Non-individual plaintiff Vs. Government, Corporation, or Hospital*), *ceteris paribus*, the mean of the dollar award of punitive damages decreases from one and a quarter times to two and a quarter times (from 125.7% to 223.9%); [5] when it is a professional malpractice case other than the medical malpractice one (variable label: *Professional malpractice case*), *ceteris paribus*, the mean of the dollar award of punitive damages decreases by —approximately— two and three quarters times (between 271.4% and 278.5%).

Third, concerning to only *jury's decisions:* on the one hand, we highlight that the predictors entered in each model usually vary (see *Table 8*). On the other hand, with regard to the non-legal variables taken into account in the jury's analysis, we can conclude de following: [1] the *socio-cultural variables (ethnicity and education level)* have no statistically significant effect on the amount of punitive damages; [2] the *socio-political variables* (state political ideology) are not statistically significant; [3] the predictor that indicates that that there is a *Bifurcate Trial on Punitive Damages* is only statistically significant in the jury's study 2001. According to this data collection, when there is a jury's bifurcate trial on punitive damages, *ceteris paribus*, the mean of the amount of punitive damages increases by approximately one and one-ninth times (111.9%); [4] unlike what we found in cases concerning the admission of punitive damages, the *Civil Jury Size* variables have no statistically significant effect on the amount of punitive damages.

5.4.3. Accepted Hypothesis for Judge and/or Jury

On the one hand, we can accept the following hypothesis on the amount of punitive damages for both judges and juries: *the greater the amount of compensatory damages, ceteris paribus, the greater the amount of punitive damages*. On the other hand, the hypothesis on *number of winning plaintiffs* is accepted only for judges in the joint study 1996/2001 and only for juries in the analysis 1996: *the larger the number of winning plaintiffs, the greater the amount of punitive damages.*

Finally, there is no empirical evidence to accept, in any case (judges or juries), the hypothesis on: [1] *the burden of persuasion*; [2] *admission requirements (the defendant acted with malice, fraud or recklessness)*; [3] *number of losing defendants*;

[35] To ensure the validity of the model we had to sacrifice the possibility of making an easy interpretation of the influence on rates of the variable *amount of compensatory damages* (explanatory variable) on the *amount of punitive damages* (dependent variable).

6. CONCLUSION

We highlight that the goodness of fit of the judge's models for the applicability (logistic regression) and the amount (multiple regression) of punitive damages is always better than that of the jury's models.

On the one hand, with regard to the *admission of punitive damages*, we conclude the following. First, each model's *overall predicted percentage* based on the full logistic regression model (all variables included) improves only by 1% the *predicted percentage* that is observed with just the information that is provided by the distribution of the dependent variable (*Applicability of punitive damages*). For these reasons, it cannot be stated that judge's decisions about the admissibility of punitive damages are less uncertain than jury's ones. Second, with regard to judge's and jury's decisions, we conclude: [1] when —according to the case type— the defendant acts intentionally, the likelihood of admitting punitive damages increases; [2] on the one hand, when the plaintiff (victim) is a juridical person, reparable damages are claimed, consequently, the likelihood of admitting punitive damages decreases; on the other hand, when the plaintiff (victim) is a physical person, reparable and/or irreparable damages are claimed, consequently, the likelihood of admitting punitive damages increases; [3] the larger the number of losing defendants, the greater the likelihood of admitting punitive damages. Third, with regard to judge's decisions exclusively, we conclude that the greater the amount of compensatory damages, the slightly greater the likelihood of admitting punitive damages. Fourth, with regard to jury's decisions exclusively, we conclude: [1] on the one hand, when the defendant's behavior with malice, fraud or recklessness is a requirement for the admission of punitive damages, the likelihood of admitting those decreases; on the other hand, when the defendant's behavior with gross negligence is sufficient for the admission of punitive damages, the likelihood of admitting those increases; [2] the larger the number of plaintiffs winners, the greater the likelihood of admitting punitive damages. Fifth, with regard to the possible effects detected from the non-legal variables entered in the jury's studies (whether they have spurious relationships with the dependent variable of each regression), we conclude: [1] the socio-cultural variables (ethnicity and education level) have no statistically significant effect on the applicability of punitive damages; [2] the *socio-political variables* (state political ideology) have no statistically significant effect, or a moderate one, on the applicability of punitive damages; [3] in principle, when there is a jury's *Bifurcate Trial on Punitive Damages*, the odds of applying punitive damages increase; [4] in principle, the larger the number of jurors on the jury (six, seven, eight, nine or twelve), the greater the probability of applying punitive damages (and vice versa).

On the other hand, with regard to the *amount of punitive damages*, we conclude the following. First, The amount of compensatory damages awarded influences greater the jury's decisions than the judge's ones. The goodness of fit of the jury's simple regressions are better than that of the judge's. Nevertheless, the judge's multiple regressions always explain the variability of the amount of punitive damages better than the jury's multiple regressions. It can be claimed that the goodness of fit of these judge's models are consistently much better than that of the jury's ones and that judges are more predictable in the calculation of the dollar award of punitive damages than juries. Second, the explanation of the variability of the judge's amount of punitive damages awards, are able to be improved with multiple regressions from 20% to 30% (unlike jury's ones: it can be improved only from 1% to 12%). Therefore, previous analysis conducted only with simple regressions may have biases and lead to misunderstandings about the predictability of the judge's and jury's admission of punitive damages. Third, with regard to judge's and jury's decisions, we conclude: [1] the greater the amount of compensatory damages, *ceteris paribus*, the greater the amount of punitive damages; [2] the larger the number of*winning plaintiffs*, the greater the likelihood of admitting punitive damages; [3] the non-legal variables about ethnicity and education level (socio-cultural variables), state political ideology (socio-political variables), and whether there are six, seven, eight, nine or twelve jurors (civil-jury-size variables) have no statistical effect on the applicability of punitive damages; [4] in principle, according to study 2001, when there is a *Bifurcate Trial on Punitive Damages*, *ceteris paribus*, the amount of punitive damages increases.

From the position of the law and economics theory, even if judge and jury seem to be equally unpredictable admitting punitive damages, the former acts much more reasonabily and predictabily than the latter, in calculating the dollar award of punitive damages.

Finally, with regard to the current debate that exists in the United States about whether or not juries should decide punitive damages, we believe that if the objective is to increase the predictability of those legal decisions, it is irrelevant —in principle— that the admission of punitive damages is dictated by judges or juries. However, it is desirable that the calculation of the dollar award of punitive damages be made only by judges.

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8. APPENDIX

Table A1

SPECIFIC SOURCES USED: MODEL JURY INSTRUCTIONS, RELEVANT JURISPRUDENCE, STATUES AND OTHER STATE LAWS

	Relevant jurisprudence, statutes and other state laws	Model jury instructions
AZ	Linthicum v. Nationwide Life Ins. Co., 723 P.2d 675 (Ariz. 1986). Rawlings v. Apodoca, 726 P. 2d 565 (Ariz. 1986). Wiper v. Downtown Development Corp. of Tucson, 732 P.2d 200 (Ariz. 1987). Ranburger v. Southern Pacific Transportation Co. 760 P.2d. 551 (Ariz. 1988). FDA-Approved Drugs: 1453 (1989).	Recommended Arizona Jury Instructions (Civil), Nº. 10C. 1990. Revised Arizona Civil Jury Instructions (Civil) 3rd ed. Office of the circuit Executive; Ninth Circuit Model Civil Jury.
CA	Boyes v. Evans, 14 Cal. App. 2d 472, 58 P.2d 922 (1936). Luke v. Mercantile Accept. Corp. of California, 111 Cal. App. 2d 431, 244 P. 2d 764 (1952). CAL. CIV. CODE § 3294(a) (apply to all the actions in which the initial trial has not commenced prior to January 1, 1987). CAL. CIV. CODE § 1710.1 (from 1987 until 1992).	California BAJI 14.71 (1977 Rev), 6th ed. Copyright, 1977 to 1979, the West Publishing Co. Model Jury Instructions. Punitive Damages - Recovery of and Measure. Copyright 1986 by West Publishing Co., Paul, Minnesota. and California Jury Instructions, Civil, Nº 14.71 (October 1992). California Model Jury Instructions, Civil, 7.12 (7th ed. 1986) Libel/Slander - Punitive Damages. California Jury Instructions, Civil 7.12 (Part 7. Intentional Torts; Defamation, Libel/Slander), (Part 14. Damages. C. Miscellaneous Damages Instructions) 9th Edition. West Group 2002.
CT	Merrills v. Tariff Mfg. Co., 10 Conn. 384 (1835). Hassett v. Carroll, 85 Conn. 23, 81 A. 1013 (1911). Collens v. New Canaan Water Co., 155 Conn. 477, 234 A2d 825 (1967). Le Blanc v. Spector, 378 F. Supp. 301 (D. Conn. 1973). National Semiconductor Corp. v. Allendale Mut. Ins. Co., 549 F. Supp. 1195 (D. Conn. 1982). Gionfriddo v. Avis Rent A Car System, Inc., 192 Conn. 280, 472 A.2d 306, 308 (1984). Freeman v. Alamo Management Co., 221 Conn. 674, 607 A. 2d 370 (1992). Hi-Ho Tower, Inc. v. Com-Tronics, Inc., 255 Conn. 20 (2000). CONN. GEN. STAT. § 14-295, and 52-240(b).	Connecticut Jury Instructions, 3rd ed., Volume I, Section 256 (1981)
FL	Winn and Lovett Grocery Co. v. Archer, 126 Fla. 308, 171 So. 214 (1936). FLA. STAT. ANN. § 768.72 (1986: the reform was amended in 1992). Asbestos/Silica Litigation Reform: HB 1019 (2005).	Florida Standard Jury Instructions in Civil Cases, Nº 6.12, was revised effective February 13, 1997. Florida Standard Jury Instructions in Civil Cases. Copyright 1967, 1970, 1974-95, 1997-98, 2000-01.
GA	Haugabrook v. Taylor, 168 S.E2d 162 (1969). Southern General Ins. Co. v. Holt, 416 S.E.2d244; 262 Ga.267 (1992). GA. CODE ANN. § 51-5-11 (1982), and 51-12-5.1. (1987-1997).	Suggested Pattern Jury Instructions, Volume I: Civil Cases, 3rd ed., State of Georgia.

HI	Howell v. Associated Hotels, Limited, 40 Haw. 492 (1954). Amfac, Inc. v. Waikiki Beachcomber Inv. Co., 839 P.2d 10, 74 Haw. 85 (1992), Kang v. Harrington, 587 P.2d 285, 59 Haw. 652 (Haw. 1978). HAW. REV. STAT. § 489-7.5 (2000).	Hawaii Civil Jury Instructions, 1999 Edition, Nº 8.12 / West's Hawaii Court Rules, Hawaii Jury Instructions, 1999 Edition, G. Damages - Measures and Elements of Damages.
IL	Mattyasovszky v. West Town Bus Co., 61 Ill. 2d 31, 330 N.E.2d 509 (1975). First National Bank of Des Plaines v. Amco Engineering Co., 32 Ill. App. 3d 451, 335 N.E. 2d 591 (1975). Teter v. Spooner, 305 Ill. 198, 137 N.E. 129 (1922). Illinois SB 1200 (1986). HB 20 (1995). The reform HB 20 (1995) is unconstitutional: Best v. Taylor Machine Works, Inc., 689 N.E.2d 1057 (Ill. 1997). 2-1115 ILL. CODE OF CIV. PROCEDURE (West 1994).	Illinois Pattern Jury Instructions -Civil 35.01 (2nd ed. 1971) /1995 Edition, Nº 35.01 / Illinois Pattern Jury Instructions -Civil Damages. 35.00. Punitive Damages (2000) and Illinois Pattern Jury Instructions Nº 35.01 /Civil 2nd Ed Copyright 1971 to 77. Contracts. 800.00 Fraud and Deceit. 2000 West Group. Contracts. 800.00 Fraud and Deceit. 2000 West Group.
IN	Taber v. Hutson, 5 Ind. 332, 61 Am. Dec. 96 (1854). Budget Car Sales v. Stott, 662 N.E.2d 638 (Ind. 1996). Erie Ins. Co. v. Hickman by Smith, 622 N.E. 2d 515 (Ind. Ct. App. 1993). IND. CODE § 4-4-34-2 (1984). HB 1741 (1995), effective July 1, 1995: IND. CODE ANN. § 34-4-34-2 (1995). IND. CODE ANN. § 34-51-3 (1998).	Indiana Pattern Jury Instructions, Civil, Volume I, 2nd ed., Nº 111.100 (1989) / Indiana Pattern Jury Instructions, Civil, Chapter 11 Damages Tortious Conduct. I Punitive Damages. 2002, Matthew Bender & Company, Inc., a member of the LexisNexis Group.
KY	K entucky Revised Statute Ann. § 411.184 and 411.186, effective July 15, 1988. Kentucky Revised Statute Ann. § 411.130 (1974) Kentucky Revised Statute Ann. § 411.184 and 411.186, effective July 15, 1988.	Kentucky Instructions to Juries, Section 39.15 (1990) /Part IV Other Civil Instructions. Chapter 39 Damage. Kentucky Instructions to Juries, 4th ed. Anderson Publishing Co. 1989.
MA	Boott Mills v. Boston & M.R.R., 218 Mass. 582, 106 N.E. 680 (1914). LaLonde v. LaLonde, 30 Mass. App. Ct. 117, 566 N.E.2D 620 (1991). MASS. GEN. LAWS ANN. ch. 229, 2(3) (West Supp. 1979) and MASS. GEN. LAWS ANN. ch. 140, 159 (West Supp. 1981).	Civil Instructions. Copyright 1988, 1989, 1995 Administrative Office of the District Court Commonwealth of Massachusetts. Massachusetts Superior Court Civil Practice Jury Instructions. Volume I, Chapter 3, Wrongful Death. Chapter 5. Volume II, Chapter 19. Civil Rights Actions. Copyright 1998, 2001 by Massachusetts Continuing Legal Education, Inc.
MI	Wise v. Daniel, 221 Mich. 229, 190 N.W.746 (1922). Currie v. Fiting, 375 Mich. 440, 134 N.W. 2d 611 (1965). Ray v. City of Detroit, 67 Mich. App. 702, 242 N.W.2d 494 (1976). Kewin v. Massachusetts Mut. Life Ins. Co., 409 Mich. 401, 295 N.W.2d 50 (1980). Durfee v. Newkirk, 83 Mich. 522, 47 N.W. 351 (1890). Michigan Stat. Ann. 27A.2911 (1980). Children of Chippewa, Ottawa and Potawatomi Tribes v. Regents of University of Michigan, 104 Mich. App. 482, 489, 305 N.W.2D 522, 529 (1981). Peisner v. Detroit Free Press, 68 Mich. App. 360, 242 N.W.2d 775 (1976), aff'd as modified, 421 Mich. 125, 364 N.W. 2D 600 (1984). Jackson Printing Co., Inc. v. Mitan, 425 N.W.2d 791 (Mich 1988).	Michigan Non-Standard Jury Instructions, Civil, Part II. General Civil. Chapter 11. Damages. Chapter 44. Plaintiff's Request. Michigan Law and Practice Encyclopedia, Chapter 7, Section 91-93 (1990).
MN	Wehrman v. Liberty Petroleum Co., 382 S.W.2d 56 (Mo. 1964). Beggs v. Universal C.I.T. Credit Corporation, 409 S.W. 2d 719 (Mo. 1966). Wisner v. S.S. Kresge Company, 465 S.W. 2d 666 (Mo. 1971). MacClellan v. Highland Sales & Investment Co., 484 S.W.2d 239 (Mo. 1972). Menaugh v. Resler, Optemetry, 799 S.W.2d 71 (Mo. 1990). MINN. STAT. § 549.20 (1978, 1986 and 1990).	Minnesota Jury Instructions Guides, Civil, 195 -Punitive Damages, 1988, West Publishing Co. Minnesota Jury Instructions Guides, Civil, 195 -Punitive Damages, was revised, effective September, 1992 and Jury Instructions Guides-Civil. Category 94. Punitive Damages. Copyright 1999 By West Group; Pocket Part Copyright 2002 By West Group.

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NJ	Leimbrugber v. Claridge Associates, 73 N.J. 450, 375 a 2d 655 (1977). State, Department of Environmental Protection v. Lewis, 215 N.J.Super 564, 522 A. 2d 485 (1987). § 2A:15-5.12. SB 1496 (1995): New Jersey SB 2805 (1987). N.J. STAT. ANN. § 2A:15-5.10 (West 1995), § 2A:15-5.11 (1995), § 2A:15-5.12 (1995), § 2A:15-5.13 (1995), § 2A:15-5.14 (1995), and § 2A:58C-5 (1987 and 1995).	New Jersey Model Jury Charges, Civil, Second Edition, Nº 6.40 (1983). New Jersey Model Civil Charges. 6.20 Damages-Punitive (for cases, other than products liability actions, filed on or after October 26, 1995). New Jersey Model Civil Charges. 6.20A Damages-Punitive (for cases, other than products liability actions, filed on or after October 27, 1995). New Jersey Model Civil Charges. 3.34 Products Liability (cases filed after July 22, 1987 and on or before October 26, 1995). New Jersey Model Civil Charges. 3.34 Products Liability (cases filed on or before October 27, 1995). New Jersey Model Civil Charges. 3.11 Defamation. C. Defamation Damages (Private or Public Defamation) (1/90; revised 3/02). Punitive Damages (for defamation actions field on or before October 26, 1995). New Jersey Model Civil Charges. 3.11 Defamation. C. Defamation Damages (Private or Public Defamation) (1/90; revised 3/02). Punitive Damages (for defamation actions field on or before October 26, 1995). New Jersey Model Civil Charges. 3.11 Defamation. C. Defamation Damages (Private or Public Defamation) (1/90; revised 3/02). Punitive Damages (for defamation actions field on or after October 27, 1995). New Jersey Model Civil Charges. 3.11 Defamation. C. Defamation Damages (Private or Public Defamation) (1/90; revised 3/02). Punitive Damages (for defamation actions field on or before October 27, 1995). New Jersey Model Civil Charges. 6.20B Punitive Damages against employer in Law against discrimination claims (11/1999).
NY	Russian Church of Our Lady of Kazan v. Dunkel, 67 Misc. 2d 1032, 326 N.Y.S. 2d 727 (1971), aff'd in part and modified in part on other grounds, 41 App. Div. 2d 746, 341 N.Y.S.2d 148 (1973), aff'd, 33 N.Y.2d 456, 354 N.Y.S. 2d 631, 310 N.E.2d 307 (1974). Cleghorn v. New York Cent. & Hudson Riv. R. R. Co., 56 N.Y. 44 (1874). Le Mistral. Inc. v. Columbia Broadcasting System, 61 App. Div. 2d 491, 402 N.Y.S. 2d 815 (1978). Loughry v. Lincoln First Bank, 67 N.Y. 2d. 369, 502 N.Y.S.2d 965, 494 N.E. 2d 70 (1986). Kalra v. Kalra. 149 A.D.2d 409, 539 N.Y.S. 2d 761 (1989). Giblin v. Murphy, 73 N.Y.2d 769,772 (1988). Simpson v. Pittsburgh Corning Corp., 901 F2d 277 (2d Cir 1990), cert. dism'd, 497 U.S. 1057, 111 S.Ct. 27, 111 L.E.d 2d 840 (1990). New York SB 7589 (1992).	New York Pattern Jury Instructions-Civil, Volume II Second Edition, Nº 2:278 (1991 Supp) and New York Pattern Jury Instructions-Civil, Third Edition, Nº 2:278 (2000) New York Pattern Jury Instructions- Civil. 2: 278. Damages - Punitive. New York Pattern Jury Instructions- Civil. 3:30.1 [Supplemental Charge] Intentional - Torts - Defamation - Punitive Damages.

NC	Hinson v. Dawson, 92 S.E. 2d 393 (N.C. 1956). Allred v. Graves, 261 N.C. 31, 134 S.E.2d 186 (1963). Clemmons v. Life Ins. Co., 274 N.C. 416, 163 S.E.2d 761, aff'd, 6 N.C. App. 708 (1968). Newton v. Standard Fire Insurance Company, 291 N.C. 105, 229 S.E.2d 297 (1976). Olivetti Corporation v. Ames Business Systems, Inc, 319 N.C.534, 356 S.E. 2d 578 (1987), reh'g deneid, 320 N.C. 639, 360 S.E. 2d 92 (1987). HB 729 (1995): N.C. GEN. STAT. § 10-15(b); N.C. GEN. STAT. § 1D (1995)	North Carolina Pattern Jury Instructions for Civil Cases, Nº 810.00, 810.01 (1986). North Carolina Pattern Jury Instructions for Civil Cases Nº 810.90. Punitive Damages - Issue of Existence of Outrageous or Aggravated Conduct. Nº810.93 Punitive Damages - Issue of Whether to Make Award and Amount. The North Carolina Pattern Jury Instructions are the product of the work of the Pattern Jury Instructions Committee, with support from the Institute of Government and the North Carolina Administrative Office of the Courts (use this instructions in conjunction with all claims for relief arising prior to January 1, 1996). North Carolina Pattern Jury Instructions for Civil Cases Nº 810.96. Punitive Damages - Liability of Defendant. Nº 810.98 Punitive Damages - Issue of Whether to Make Award and Amount. The North Carolina Pattern Jury Instructions are the product of the work of the Pattern Jury Instructions Committee, with support from the Institute of Government and the North Carolina Administrative Office of the Courts (use this instructions in conjunction with all claims for relief arising on or after January 1, 1996).
OH	Saberton v. Greenwald, 146 Ohio St. 414, 66 N.E. 2d 224 (1946). Saberton v. Greenwald, 146 Ohio St. 414, 66 N.E. 2d 224 (1946). HB 1 (1987). Ohio Revised Code § 2315.21 (1988 and 2002) § 2307.80 (2001).	Ohio Jury Instructions, Copyright 1997 Anderson Publishing Co. 23.71 Punitive damages: certain tort actions based on claims arising on and after 1/5/88 Ohio Jury Instructions, Civil, Nº 23.70, 23.71 (1990) and Ohio Jury Instructions, Civil, Nº 23.71 (1991). Ohio Jury Instructions, Copyright 1997 Anderson Publishing Co.
PA	Until January 24, 1997 (Pennsylvania).Martin v. Johns-Manville Corp., 508 Pa. 154, 494 A2d 1088 (1985). On November 26, 1996, Governor signed HB 2210 (1996) (effective January 25, 1997).	Pennsylvania Suggested Civil Jury Instructions, Nº 14.00, 14.02 (1984) 2d Ed., Copyright 2003 by the Pennsylvania Bar Institute. Pennsylvania Suggested Civil Jury Instructions, Nº 14.00, 14.02 (1984) 2d Ed., Copyright 2003 by the Pennsylvania Bar Institute.
TX	Lawson-Avila Const., Inc. V. Stoutamire, 791 S.W.2d 584, 594 (Tex. Ct. App. 1990). Punitive Damages Reform: SB 5 (1987). SB 25 (1995): TEX. CIV. PRAC. & REM. CODE § 41.003, 41.008 (1987 and 1995). Punitive Damages Reform: HB 4 (2003). TEX. CIV. PRAC. & REM. CODE § 41.003 (2003).	Texas Pattern Jury Instructions, Volume 8, Nº 14.55 (1990) and Texas Pattern Jury Charges, 8.4A Personal Injury Damages-Exemplary Damages (Causes of Action Accruing before September 1, 1995). Prepared by the Committee on Pattern Jury Changes, State Bar of Texas. Texas Pattern Jury Charges, 8.4A Personal Injury Damages-Exemplary Damages (Causes of Action Accruing before September 1, 1995). Prepared by the Committee on Pattern Jury Changes, State Bar of Texas. Copyright State Bar of Texas. Texas Pattern Jury Charges, 8.6B Personal Injury Damages-Exemplary Damages (Causes of Action Accruing on or after September 1, 1995). Prepared by the Committee on Pattern Jury Changes, State Bar of Texas. Copyright State Bar of Texas. Texas Pattern Jury Charges, 8.6A Wrongful Death Damages-Exemplary Damages (Causes of Action Accruing before September 1, 1995). Prepared by the Committee on Pattern Jury Changes, State Bar of Texas. Copyright State Bar of Texas. Texas Pattern Jury Charges, 8.6B Wrongful Death Damages-Exemplary Damages (Causes of Action Accruing on or after September 1, 1995). Prepared by the Committee on Pattern Jury Changes, State Bar of Texas. Copyright State Bar of Texas.

VA	Weatherford v. Birchett, 164 S.E. 535 (Va. 1932). Baker v. Marcus, 201 Va. 905, 114 S.E.2d 617 (1960). Freeman v. Sproles, 204 Va. 353, 131 S.E.2d 410 (1963). Giant of Virginia, Inc., v. Pigg, 207 Va. 679, 152 S.E.2d 271 (1967). Peacock Buick, Inc. v. Durkin, 277 S.E.2d 225 (Va. 1981). RF & P Corp. v. Little, 40 S.E.2d 908, 914 (Va. 1994). Punitive Damages Reform: SB 402 (1987): VA. CODE ANN. § 8.01-38.1. (1987) (CODE 1950, § 8-632; 1954, c. 333; 1977, c. 617.)	Virginia Model Jury Instructions, 26.128 (1987) and Virginia Practice Series TM, Jury Instructions. 23.17 Punitive Damages. 23.18 Wrongful Death Act 23.19 Burden of Proof. Chapter 46. Assault and Battery. 46.16. Punitive Damages. Chapter 48. Liber and Slander. 48.33. Punitive Damages. Chapter 49. Malicious Prosecution. 49.21. Punitive Damages.
WA	Spokane Truck & Dray Company v. Hoefer, 2 Wash. 45, 25 P. 1072 (1891).	Washington Pattern Jury Instructions - Civil. Washington Pattern Jury Instructions - Civil - 348.02. Civi Rights - Punitive Damages - Individual Defendants.
WI	Topolewski v. Plankinton Packing Co., 143 Wis. 52, 126 N.W. 554 (1910). Garcia v. Samson's, Inc., 10 Wis. 2d 515, 103 N.W.2d 565 (1960). White v. Benkowski, 37 Wis. 2 d 285, 155 N.W. 2D 74 (1967). John Mohr & Sons, Inc. V. Johnke, 55 Wis. 2d 402, 198 N.W.2d 402, 198 N.W.2d 363 (1972). Herrmeyer v. Kleeman, 76 Wis. 2d 410, 251 N.W.2d 445 (1977). Wangen v. Ford Motor Co., 294 N.W.2d 437 (Wis. 1980). Dalton v. Meister, 52 Wis. 2d 173, 188 N.W.2d 494, cert. denied, 405 U.S. 934 (1971). SB 11 (1995).	Wisconsin Jury Instructions, Civil, Volume II, Nº 1707 (1990) and Wisconsin Jury Instructions - Civil - 1707 Punitive Damages: Nonproducts Liability [for Actions Commenced Before May 17, 1995], Department of Law, University of Wisconsin - Extension, Madison, Wisconsin. Wisconsin Jury Instructions, Civil, 1707.A Punitive Damages: Products Liability [for Actions Commenced Before May 17, 1995], Department of Law, University of Wisconsin - Extension, Madison, Wisconsin. Wisconsin Jury Instructions - Civil - 1707.1 Punitive Damages: Nonproducts Liability [for Actions Commenced on or After May 17, 1995], Department of Law, University of Wisconsin - Extension, Madison, Wisconsin. Wisconsin Jury Instructions - Civil - 1707.2 Punitive Damages: Products Liability [for Actions Commenced on or After May 17, 1995], Department of Law, University of Wisconsin - Extension, Madison, Wisconsin.

NOTE.—As explained formerly, we do not include in this research project data about the states Massachusetts and Washington because their statutes prohibit, as a rule, punitive damages awards (with some exceptions for some type of cases). The specific sources mentioned in this table (except those of Massachusetts and Washington) were used to add information (about jury instructions, relevant jurisprudence, and statutes) to the samples provided by the National Center for State Court (used in this paper), according to each judge's or jury's decision. Additionally, we obtained valuable data from the following general sources: BMW of North America, Inc. v. Gore, 517 U.S. 559 (1996); State Farm Mutual Automobile Ins. Co. v. Campbell, 538 U.S. 408 (2003); Ghiardi, James D., and John J. Kircher, 1981. *Punitive Damages: Law and Practice*. 2 vols., Wilmette: Callaghan & Co (updated by pocket parts); Blatt, Richard L., Robert W. Hammesfahr, and Lori S. Nugent. 1991. *Punitive damages: A State by State Guide to Law and Practice.* St. Paul: West Pub. Co. (updated by pocket parts). Boston, Gerald W.1993. *Punitive damages in tort law* Deerfield, IL: Clark Boardman Callaghan (updated by pocket parts); Schlueter, Linda L. and Kenneth R. Redden. 1995. *Punitive damages.* 2 vols., 3rd ed., Charlottesville: Michie Butterworth (updated by pocket parts). John J. Kircher, and Christine M Wiseman. 2003. *Punitive Damages: Law and Practice*. 2 vols., 2nd ed., Eagan: Thompson West, West Group (updated by pocket parts).

Table A2

JUDGE'S AND JURY'S VARIABLES FOR THE APPLICABILITY AND THE AMOUNT OF PUNITIVE DAMAGES

Variables	Coding
Dependent variable for the logistic regressions	0 = "NO"; 1 = "YES"
Dependent variable for the simple and multiple regressions (variable transformed as the Neperian Logarithm of the amount punitive damages)	Quantitative variable
Negligence rule: contributory negligence	0 = "NO" (comparative negligence); 1 = "Yes" (contributory negligence rule)
Complicity Rule as a requirement for awarding punitive damages against the principal	0 = "NO"; 1 = "YES"
The allocation in favor of the victim is between 25% and 50%	Reference Variable
The allocation in favor of the victim is between 65% a 80%.	0 = "NO"; 1 = "YES"
The allocation in favor of the victim is 100%.	0 = "NO"; 1 = "YES"
Amount of compensatory damages (variable transformed as the Neperian Logarithm of the amount compensatory damages)	Quantitative variable
Type of case:	
Motor vehicle accident	Reference Variable
Dangerous building case	0 = "NO"; 1 = "YES"
Product liability case	0 = "NO"; 1 = "YES"
Intent tort case	0 = "NO"; 1 = "YES"
Medical malpractice case	0 = "NO"; 1 = "YES"
Professional malpractice case (other than medical malpractice case)	0 = "NO"; 1 = "YES"
Slander and/or libel case	0 = "NO"; 1 = "YES"
Other tort case (other than the ones that are include in the remaining variables)	0 = "NO"; 1 = "YES"
Fraude case	0 = "NO"; 1 = "YES"
The plantiff is a seller	0 = "NO"; 1 = "YES"
The plaintiff is a buyer	0 = "NO"; 1 = "YES"
Employment contract case	0 = "NO"; 1 = "YES"
Lease case	0 = "NO"; 1 = "YES"
Mortgage or foreclosure case	0 = "NO"; 1 = "YES"
Other contract case (other than the ones that are include in the remaining variables)	0 = "NO"; 1 = "YES"
Real property case	0 = "NO"; 1 = "YES"
Bodily injury is claimed	0 = "NO"; 1 = "YES"
Type of litigants:	
The defendant is an Individual only (or more than one)	Reference Variable
The defendant is a government, corporation, or hospital (or more than one)	0 = "NO"; 1 = "YES"
The plaintiff is an Individual only (or more than one)	Reference Variable
The plaintiff is a government, corporation, or hospital (or more than one)	0 = "NO"; 1 = "YES"
Individual plaintiff only vs. government, corporation, or hospital	Reference Variable
Individual plaintiff only vs. individual defendant only	0 = "NO"; 1 = "YES"
Individual plaintiff and non-individual plaintiff vs. individual only	0 = "NO"; 1 = "YES"
Individual plaintiff and non-individual plaintiff vs. government, corporation, or hospital	0 = "NO"; 1 = "YES"
Non-individual plaintiff vs. individual defendant only	0 = "NO"; 1 = "YES"
Non-individual plaintiff vs. government, corporation, or hospital	0 = "NO"; 1 = "YES"
Total number of plaintiffs	Quantitative variable
More than one plaintiff	0 = "NO"; 1 = "YES"
More than two plaintiffs	0 = "NO"; 1 = "YES"
Total number of defendants	Quantitative variable
More than one defendant	0 = "NO"; 1 = "YES"
More than two defendants	0 = "NO"; 1 = "YES"
Number of winning plaintiffs	Quantitative variable

More than one plaintiff winner	0 = “NO”; 1 = “YES”
More than two plaintiffs winners	0 = “NO”; 1 = “YES”

NOTE.—The information on the following variables is not available for the fiscal year 1991-92, therefore, these predictors cannot be included in the analysis of this annual period neither in the joint study 1991-92/1996/2001: Bodily injury is claimed, pwinners, “More than one plaintiff winner” and More than two plaintiffs winners. The "reference variables" are the categories of the observations omitted in the statistical models and represent the observations of the control-group. The following variables encode differently the same information of the observations; the regression analysis is carried out by the method of successive steps forwards, but it is not allowed to include simultaneously two or more variables from different groups of coding (e.g. A, B or C): [1] CODING A: Nonindivdf_0 / Nonindivdf / Nonindivplf_0 / Nonindivplf; CODING B: pair2_1 / pair2_2 / pair2_3/ pair2_4/ pair2_5 / pair2_6; [2] CODING A: ittotpl; CODING B: littotpl1; CODING C: littotpl2; [3] CODING A: littotdf; CODING B: littotdf1; CODING C: More than two defendants]; [4] CODING A: pwinners; CODING B: “More than one plaintiff winner”; CODING C: More than two plaintiffs winners.

Table A3

JURY’S ADDITIONAL VARIABLES FOR THE APPLICABILITY AND THE AMOUNT OF PUNITIVE DAMAGES

Variable	Coding
Bifurcate trial on punitive damages	0 = “NO” (single trial); 1 = “YES” (bifurcate trial)
Civil Jury Size:	
The litigants elect between 6 and 12 jurors	Reference variable
Six jurors	0 = “NO”; 1 = “YES”
Seven jurors	0 = “NO”; 1 = “YES”
Eight jurors	0 = “NO”; 1 = “YES”
Twelve jurors	0 = “NO”; 1 = “YES”
Verdict decision rule:	
A verdict is required in at least 3/4 of the jurors	Reference variable
A verdict is required in at least 5/6 of the jurors	0 = “NO”; 1 = “YES”
A verdict is required to be unanimous in all of the jurors	0 = “NO”; 1 = “YES”
State political ideology:	
The State Republican Party won the presidential election in 1992	0 = “NO”; 1 = “YES”
The Republican Party won the presidential elections in the state in 1996	0 = “NO”; 1 = “YES”
The Republican Party won the presidential elections in the state in 2000	0 = “NO”; 1 = “YES”
Percentage of winning the presidential elections in the state in the last 35 years by the Republican Party	Quantitative variable
Percentage of the state population ethnicity:	
Percentage of White	Quantitative variable
Percentage of African American	Quantitative variable
Percetage of native American and Alaska Native population	Quantitative variable
Percentage of Asian	Quantitative variable
Percentage of Hispanic	Quantitative variable
Percentage of other minorities (other than the ones that are include in the remaining variables)	Quantitative variable
Percentage of the level of education of the state population of 25 years old or over:	
Percentage of High School graduates or higher (25 years old and over)	Quantitative variable
Percentage of Bachelor's degree or higher (25 years old and over)	Quantitative variable

NOTE.—The information on the variable bifurcat is not available for the fiscal year 1991-92, therefore, this predictor cannot be included in the analysis of this annual period neither in the joint study 1991-92/1996/2001. The independent variable republican92 is only included in the annual model 1991-92, the variable republican96 is only entered model 1996 and the predictor republican00 is exclusively included in the model 2001. The "reference variables" are the categories of the observations omitted in the statistical models and represent the observations of the control-group.

Table A4

JURY INSTRUCTIONS ABOUT THE ADMISSION OF PUNITIVE DAMAGES

Variable	Coding
It is provided legal definitions of the requirements for the admission of punitive damages	0 = "NO"; 1 = "YES"
It is indicated that it is a discretionary decision	0 = "NO indication"; 1 = "YES"
It is not indicated whether compensatory damages are required	Reference Variable
It is indicated that compensatory damages are required	0 = "NO indication"; 1 = "YES"
It is indicated that compensatory damages are not required	0 = "NO indication"; 1 = "YES"
There is no indication about the purpose of punitive damages	Reference variable
It is indicated that the purpose of punitive damages is deterrence	0 = "NO"; 1 = "YES"
It is indicated that the purpose of punitive damages is punishment	0 = "NO"; 1 = "YES"
It is indicated that the purpose of punitive damages is deterrence and punishment	0 = "NO"; 1 = "YES"
It is indicated that the purpose of punitive damages is not punishment	0 = "NO"; 1 = "YES"
Clear and convincing evidence is required as the burden of persuasion. (The value "0" indicates that it is required the preponderance of the evidence as the burden of persuasion.)	0 = "NO (Preponderance of the evidence)" 1 = "YES" (Clear and convincing evidence)
There is no indication of the defendant's behavior required to the admission of punitive damages	Reference variable
An intentional act is required to de admission of punitive damages (malice, fraud or recklessness)	0 = "NO"; 1 = "YES"
Gross Negligence is sufficient for the admission of punitive damages	0 = "NO"; 1 = "YES"

NOTE.—The "reference variables" are the categories of the observations omitted in the statistical models and represent the observations of the control-group. The following variables are also included in the analysis corresponding to the amount of punitive damages (jury): "Clear and convincing evidence is required as the burden of persuasion"; "An intentional act is required to de admission of punitive damages (malice, fraud or recklessness)"; "Gross Negligence is sufficient for the admission of punitive damages". The data was obtained from different resources.

Table A5

STATE STATUTES AND RELEVANT JURISPRUDENCE ABOUT THE ADMISSION OF PUNITIVE DAMAGES

Variable	Coding
It is provided legal definitions of the requirements for the admission of punitive damages	0 = "NO"; 1 = "YES"
It is indicated that it is a discretionary decision	0 = "NO indication"; 1 = "YES"
It is not indicated whether compensatory damages are required	Reference Variable
It is indicated that compensatory damages are required	0 = "NO indication"; 1 = "YES"
It is indicated that compensatory damages are not required	0 = "NO indication"; 1 = "YES"
There is no indication about the purpose of punitive damages	Reference variable
It is indicated that the purpose of punitive damages is deterrence	0 = "NO"; 1 = "YES"
It is indicated that the purpose of punitive damages is punishment	0 = "NO"; 1 = "YES"
It is indicated that the purpose of punitive damages is deterrence and punishment	0 = "NO"; 1 = "YES"
It is indicated that the purpose of punitive damages is not punishment	0 = "NO"; 1 = "YES"

Clear and convincing evidence is required as the burden of persuasion. (The value "0" indicates that it is required the preponderance of the evidence as the burden of persuasion.)	0 = "NO (Preponderance of the evidence)" 1 = "YES" (Clear and convincing evidence)
There is no indication of the defendant's behavior required to the admission of punitive damages	Reference variable
An intentional act is required to de admission of punitive damages (malice, fraud or recklessness)	0 = "NO"; 1 = "YES"
Gross Negligence is sufficient for the admission of punitive damages	0 = "NO"; 1 = "YES"

NOTE.—The "reference variables" are the categories of the observations omitted in the statistical models and represent the observations of the control-group. The following variables are also included in the analysis corresponding to the amount of punitive damages (judge): "Clear and convincing evidence is required as the burden of persuasion"; "An intentional act is required to de admission of punitive damages (malice, fraud or recklessness)"; "Gross Negligence is sufficient for the admission of punitive damages".

Table A6

JURY INSTRUCTIONS ABOUT THE AMOUNT OF PUNITIVE DAMAGES

Comments	Coding
It is indicated that it is a discretionary decision	0 = "NO indication"; 1 = "YES"
It is required a just, fair, unbiased or a non-passionate decision	0 = "NO indication" 1 = "YES"
There is no indication about the purpose of punitive damages	Reference Variable
It is indicated that the purpose of punitive damages is deterrence	0 = "NO"; 1 = "YES"
It is indicated that the purpose of punitive damages is punishment	0 = "NO"; 1 = "YES"
It is indicated that the purpose of punitive damages is deterrence and punishment	0 = "NO"; 1 = "YES"
It is indicated that the purpose of punitive damages is not punishment	0 = "NO"; 1 = "YES"
There is no indication of whether the damages caused should be considered	Reference variable
The damages caused should be considered	0 = "NO"; 1 = "YES"
There is no indication of whether the defendant's conduct or motive should be considered	Reference Variable
Defendant's conduct should be considered	0 = "NO"; 1 = "YES"
The defendant's conduct or motive should be considered	0 = "NO"; 1 = "YES"
There is no indication of whether the duration of the activity, its concealment or the attitude to repair the damage should be considered	Reference variable
The defendant's length of the activity and its concealment should be considered	0 = "NO"; 1 = "YES"
The defendant's attitude to repair the damage should be considered	0 = "NO"; 1 = "YES"
The defendant's length of the activity, its concealment and his attitude to repair the damage should be considered	0 = "NO"; 1 = "YES"
The risk of the event (expected damage) should be considered	0 = "NO"; 1 = "YES"
The patrimonial benefits of the act should be considered	0 = "NO indication" 1 = "YES"
The total deterrence through other possible sentences should be considered	0 = "NO indication" 1 = "YES"
The aggravating and mitigating circumstances should be considered	0 = "NO indication" 1 = "YES"
There is no indication about whether the defendant's assets and / or their ability to pay should be considered	Reference variable
The defendant's assets and/or their ability to pay should be considered	0 = "NO"; 1 = "YES"
The defendant's assets and/or their ability to pay should never be considered	0 = "NO"; 1 = "YES"

NOTE.—The "reference variables" are the categories of the observations omitted in the statistical models and represent the observations of the control-group.

Table A7

STATE STATUTES AND RELEVANT JURISPRUDENCE ABOUT THE AMOUNT OF PUNITIVE DAMAGES

Comments	Coding
It is indicated that it is a discretionary decision	0 = "NO indication"; 1 = "YES"
It is required a just, fair, unbiased or a non-passionate decision	0 = "NO indication" 1 = "YES"
There is no indication about the purpose of punitive damages	Reference Variable
It is indicated that the purpose of punitive damages is deterrence	0 = "NO"; 1 = "YES"
It is indicated that the purpose of punitive damages is punishment	0 = "NO"; 1 = "YES"
It is indicated that the purpose of punitive damages is deterrence and punishment	0 = "NO"; 1 = "YES"
It is indicated that the purpose of punitive damages is not punishment	0 = "NO"; 1 = "YES"
There is no indication of whether the damages caused should be considered	Reference variable
The damages caused should be considered	0 = "NO"; 1 = "YES"
There is no indication of whether the defendant's conduct or motive should be considered	Reference Variable
Defendant's conduct should be considered	0 = "NO"; 1 = "YES"
The defendant's conduct or motive should be considered	0 = "NO"; 1 = "YES"
There is no indication of whether the duration of the activity, its concealment or the attitude to repair the damage should be considered	Reference variable
The defendant's length of the activity and its concealment should be considered	0 = "NO"; 1 = "YES"
The defendant's attitude to repair the damage should be considered	0 = "NO"; 1 = "YES"
The defendant's length of the activity, its concealment and his attitude to repair the damage should be considered	0 = "NO"; 1 = "YES"
The risk of the event (expected damage) should be considered	0 = "NO"; 1 = "YES"
The patrimonial benefits of the act should be considered	0 = "NO indication" 1 = "YES"
The total deterrence through other possible sentences should be considered	0 = "NO indication" 1 = "YES"
The aggravating and mitigating circumstances should be considered	0 = "NO indication" 1 = "YES"
There is no indication about whether the defendant's assets and / or their ability to pay should be considered	Reference variable
The defendant's assets and/or their ability to pay should be considered	0 = "NO"; 1 = "YES"
The defendant's assets and/or their ability to pay should never be considered	0 = "NO"; 1 = "YES"

NOTE.—The "reference variables" are the categories of the observations omitted in the statistical models and represent the observations of the control-group.

Table A8

CONTINGENCY SAMPLE: APPLICABILITY OF PUNITIVE DAMAGES (JURIES)

			Applicability of Punitive Damages		Total
			No punitive damages	Yes punitive damages	
Sample' annual period (all data)	Sample1991-1992	Recount	2589	176	2765
		Sample annual period (all data) (%)	93.6	6.4	100.0
	Sample 1996	Recount	2713	117	2830
		Sample annual period (all data) (%)	95.9	4.1	100.0
	Sample 2001	Recount	2707	147	2854
		Sample annual period (all data) (%)	94.8	5.2%	100.0
Total		Recount	8009	440	8449
		Sample annual period (all data) (%)	94.8	5.2	100.0

Table A9

DESCRIPTIVE STATISTICS: LOG PUNITIVE DAMAGES (JURIES)

	Sample' annual period (all data)			Statistic	Typ. Error
Log Punitive Damages	Sample1991-1992	Mean		.7083	.05277
		Confidence interval for the mean 95%	Lower limit	.6048	
			Upper limit	.8117	
		5% trimmed mean		.1235	
		Medium		.0000	
		Variance		7.700	
		Typical Desv.		2.77480	
		Minimum		.00	
		Maximum		17.16	
		Range		17.16	
		Interquartile		.00	
	Sample 1996	Mean		.4494	.04214
		Confidence interval for the mean 95%	Lower limit	.3667	
			Upper limit	.5320	

		5% trimmed mean		.0000	
		Medium		.0000	
		Variance		5.025	
		Typical Desv.		2.24161	
		Minimum		.00	
		Maximum		18.86	
		Range		18.86	
		Interquartile		.00	
	Sample 2001	Mean		.5754	.04793
		Confidence interval for the mean 95%	Lower limit	.4814	
			Upper limit	.6694	
		5% trimmed mean		.0075	
		Medium		.0000	
		Variance		6.558	
		Typical Desv.		2.56077	
		Minimum		.00	
		Maximum		19.71	
		Range		19.71	
		Interquartile		.00	

Table A10

DESCRIPTIVE STATISTICS: NEPERIAN LOGARITHM OF THE AMOUNT OF COMPENSATORY DAMAGES (JURIES)

	Sample' annual period (all data)			Statistic	Typ. Error
Neperian Logarithm of the Amount of Compensatory Damages	Sample1991-1992	Mean		11.0496	.03917
		Confidence interval for the mean 95%	Lower limit	10.9727	
			Upper limit	11.1264	
		5% trimmed mean		11.0722	
		Medium		11.0333	
		Variance		4.243	
		Typical Desv.		2.05980	
		Minimum		.00	
		Maximum		18.55	
		Range		18.55	

		Interquartile		2.54	
	Sample 1996	Mean		10.9519	.03900
		Confidence interval for the mean 95%	Lower limit	10.8755	
			Upper limit	11.0284	
		5% trimmed mean		10.9470	
		Medium		10.8867	
		Variance		4.305	
		Typical Desv.		2.07476	
		Minimum		.00	
		Maximum		17.59	
		Range		17.59	
		Interquartile		2.69	
	Sample 2001	Mean		10.7088	.04177
		Confidence interval for the mean 95%	Lower limit	10.6268	
			Upper limit	10.7907	
		5% trimmed mean		10.6967	
		Medium		10.5966	
		Variance		4.988	
		Typical Desv.		2.23344	
		Minimum		.00	
		Maximum		18.64	
		Range		18.64	
		Interquartile		3.00	

Table A11

CONTINGENCY SAMPLE: APPLICABILITY OF PUNITIVE DAMAGES (JUDGES)

			Applicability of Punitive Damages		Total
			No punitive damages	Yes punitive damages	
Sample' annual period (all data)	Sample 1996	Recount	1247	54	1301
		Sample annual period (all data) (%)	95.8	4.2	100.0
	Sample 2001	Recount	1060	47	1107
		Sample annual period (all data) (%)	95.8	4.2	100.0
Total		Recount	2307	101	2408
		Sample' annual period (all data) (%)	95.8	4.2	100.0

Table A12

DESCRIPTIVE STATISTICS: LOG PUNITIVE DAMAGES (JUDGES)

	Sample' annual period (all data)			Statistic	Typ. Error
Log Punitive Damages	Sample 1996	Mean		.4219	.05784
		Confidence interval for the mean 95%	Lower limit	.3084	
			Upper limit	.5353	
		5% trimmed mean		.0000	
		Medium		.0000	
		Variance		4.353	
		Typical Desv.		2.08642	
		Minimum		.00	
		Maximum		17.16	
		Range		17.16	
		Interquartile		.00	
	Sample 2001	Mean		.4411	.06412
		Confidence interval for the mean 95%	Lower limit	.3153	
			Upper limit	.5669	
		5% trimmed mean		.0000	
		Medium		.0000	
		Variance		4.551	
		Typical Desv.		2.13340	
		Minimum		.00	
		Maximum		14.91	
		Range		14.91	
		Interquartile		.00	

Table A13

DESCRIPTIVE STATISTICS: NEPERIAN LOGARITHM OF THE AMOUNT OF COMPENSATORY DAMAGES (JUDGES)

	Sample' annual period (all data)			Statistic	Typ. Error
Neperian Logarithm of the Amount of Compensatory Damages	Sample 1996	Mean		10.1497	.05232
		Confidence interval for the mean 95%	Lower limit	10.0471	
			Upper limit	10.2523	
		5% trimmed mean		10.1678	
		Medium		10.2488	
		Variance		3.561	
		Typical Desv.		1.88715	
		Minimum		.00	
		Maximum		17.14	
		Range		17.14	
		Interquartile		2.35	
	Sample 2001	Mean		10.1321	.05551
		Confidence interval for the mean 95%	Lower limit	10.0231	
			Upper limit	10.2410	
		5% trimmed mean		10.1362	
		Medium		10.1271	
		Variance		3.411	
		Typical Desv.		1.84691	
		Minimum		.00	
		Maximum		17.61	
		Range		17.61	
		Interquartile		2.25	