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Damage schedules & tort litigation in Spain

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A considerable amount of recent tort reform is tributary to the body of economic analysis of tort law performed in the second half of the last century. Analysts and tort reform proponents have made Society become more demanding on the joint performance of liability systems and relating insurance markets. Times when compensation was the only relevant dimension in liability performance analysis are gone by. Today, precaution incentives and side effects must also be taken into account prior to any reform. At the same time, those two goals can also be pursued by means of alternative schemes –namely no-fault plans-. So for a liability regime to be considered socially valuable today it must not just do a good job compensating victims and deterring injurers effectively, cheaply and timely, but it also has to do it better than alternative compensation and risk-control measures.

Scheduling personal injury awards are by all means the most innovative and crucial of those passed in Spain in many years. This paper aims to analyze this reform focusing one particular and central dimension: How do schedules for bodily injure awards affect tort litigation? This is approached by means of the well developed litigation models in Law & Economics[1], in an attempt to objectively identify the incentives, costs and final effects to be expected from this legal institution.

Some of the conclusions reached in this preliminary study threaten primary intuition, as well as what proponents –and the legislator itself- claimed to be one of its utmost beneficial effects: an immediate reduction in litigation rates.

[1] *Cfr*. COOTER, Robert & RUBINFELD, Daniel: "Economic Analysis of Legal Disputes and their Resolution", *Journal of Economic Literature,* núm. 27, september, 1989; GOULD, J.: "The Economics of Legal Conflicts", *The Journal of Legal Studies*, II, 1973; LANDES, William: " An Economic Analysis of the Courts", *Journal of Law and Economics*, abril, 1971; POSNER, Richard: "An Economic Approach to Legal Procedure and Judicial Administration", *The Journal of Legal Studies*, núm. II, 1973; SHAVELL, Steven: "Suit, Settlement and Trial: A Theoretical Analysis under Alternative Methods for the Allocation of Legal Costs", *The Journal of Legal Studies*, núm. XI, january, 1982; SHAVELL, Steven: "The Social Versus the Private Incentive to Bring Suit in a Costly Legal System", *The Journal of Legal Studies*, june, 1982; PASTOR PRIETO, Santos: *¡Ah de la Justicia! Política judicial y Economía*, Civitas–Ministerio de Justicia, 1993.

First, changes introduced in 1995 into the Spanish legislation are briefly analyzed for non familiarized readers. Then a standard analytical framework of dispute resolution allows to attempt an objective approach to the question. The multiple effects detected are systematized and presented separately, to finally put those together in pursuit of some concluding remarks on the theoretical net effect of the schedules on litigation, which cannot be conclusively held to reduce litigation rates.

Section I: Spanish Schedules: What is New and What Should be Studied

In short, this is a comparison between two alternative configurations of the tort system, particularly regarding the way damage awards are calculated:

- An open valuing system, with unconstrained judicial discretion to set the damage award on an *ad hoc* basis,
- Versus a reckoned one, in which the judge is constrained to just determine the kind and scope of the injury –or victim's profile in case of death-, and thereby mechanically assign the value in euros resulting from the legal tables and matrixes[2].

There's little place for discussion about the fact that such a relevant reform must affect the way cases are litigated, but that's not the point. Rather, we must determine in what directions and

[2] Sistema de valoración de daños corporales de la Ley de Responsabilidad Civil y Seguro en la Circulación de Vehículos a Motor –antiguo texto refundido en su día aprobado por el Decreto 632/1968, de 21 de marzo–, introducido como anexo a la Disp. Adic. 8ª de la Ley 30/1995, de 8 de noviembre, de Ordenación y Supervisión de los Seguros Privados.

extent that effect will take place. Unfortunately that discussion has not taken place before the law was passed in 1995. At the most, some intuitions and better or worse-meaning wishes where forwarded, claiming litigation rates would drop dramatically and their place would be taken by increasing out-of-trial transactions. Moreover, the legislator himself assumed without questioning those praises proceeding from the lobby of insurance companies, real supporters of this reform.

Therefore, a well based analysis is needed to determine the social desirability of such measure. The question is not only central within the Spanish legal system. I'm convinced of the international relevance of a well carried evaluation of such alternative –in the way New Zealand did, for instance[3]-, so other countries may choose the most convenient remedy for their recurrent problems in tort reform -particularly valuing damages for personal injury- taking advantage of the Spanish experiment.

So this is how come the real relevant issue about the sign and magnitude of the reform's effect on litigation inconceivably remains still unaddressed while the schedules are way to their 7th birthday. Unsurprisingly, such lack of analysis prior to it's implementation led our Supreme Court to be explicitly critic in several judgments, until the Spanish Constitutional Court finally declared some of the schedules to be against our Constitution in a conspicuous judgement in 2000[4].

Schedules are broadly used in many areas of risk all over the world but the Spanish system is the only one I know of where it is binding while associated with a traditional liability system.

	LIABILITY	**NO-FAULT COMPENSATION**
BINDING SCHEDULE	Spain	Sweden, Denmark, United States, Canada, New Zealand, Australia
GUIDING SCHEDULE	Belgium, Germany, France, Italy, Greece, Great Britain, Luxembourg, Portugal and Holland	
NO SCHEDULE	Austria, Ireland	

Sources: MCINTOSH and HOLMES; DE ÁNGEL YAGÜEZ; STOLL, REGLERO; and HUGUES and TOMADINI.

Law 30/1995, November 8, on Private Insurance Regulation, renamed the Law of Liability and Insurance for car accidents in force, and included a mandatory valuing system for harm caused to car accident victims. The most important feature of this new system is its binding character for the Judiciary regardless of the presence of liability insurance and of voluntary or minimum legal coverage. The judge only decides on the degree of bodily harm and uses the schedule as a guide according to the schedule's own relevance criteria. This includes information on the victim's seriousness of injury, age, and personal and family circumstances. The system is applied

[3] *Cfr*. PALMER, Geoffrey: *Compensation for Incapacity. A Study of Law and Social Change in New Zealand and Australia*, Oxford University Press, Wellington, 1979.

[4] See INDRET 10/7/00 for a critical analysis of than judgement.

regardless of insurance status (compulsory or voluntary) except in the case of malice; and includes together as a whole both pain & suffering damage and lost profit, but not material damage or medical costs (which are awarded independently). Three types of damage awards are used in Spanish schedules –death, permanent injury or temporary incapacity- with three schemes of basic compensation, to which practically identical factors of adjustment are applied.

DAMAGE AWARDS IN THE SPANISH SYSTEM, 1995

	Death	**Permanent incapacity**	**Temporary incapacity**
BASIC COMPENSATION	CAP I: Number of victims, relationship to the deceased, age of deceased	CAP VI: Seriousness of injury, CAP III: Age	CAP V A): Hospital stay, with or without lost working days
ADJUSTMENT FACTORS	CAP II, IV and V B[5]): Annual income and individual circumstances (preexisting handicap, only child, death of parents, pregnant mother and comparative negligence)		

This reform is the last step of a process of scheduling damages started in 1984, in which a series of continually improved schedules only served as non–binding guidance criteria.

1984	Valuation of personal injury manual (applicable to permanent incapacity) derived from the damage awards of victims with war-related injuries
1987	Order of March 16, *Ministerio de Economía y Hacienda* for mandatory liability insurance.
1989	Regulation of the Mandatory Insurance –*Seguro Obligatorio* (R. D. 2641/89)–: Schedules with categories derived from those in Labor law. As guidance in the area of mandatory insurance.
1991	Order of March 5, of the Ministry of Economics, practically the same content as the current one. Effect: guidance for a «recommended use» and COMPULSORY only for the calculation of technical provisions for insurance companies.

Legislator's motives to accomplish such a scheduling process are missing in the 1995 Law. Those only can be found in the cited Governmental Order of 1991. The schedule was initially presented as the perfect solution demanded by the «award lottery» that was causing problems of excessive uncertainty and costs, thereby compromising the solvency of insurance companies.

Not much emphasis, if some, was ever devoted to predict that effect prior to reform. Moreover, it remains still unaccomplished. So we still ignore the schedulle's real effects; not to say how they compare *vis a vis against* other possible solutions to the variability problem. The situation of variability reached in Spain in the eighties is comparable to that experienced by other countries in various areas of risk, markedly for automobile accidents.

THE TRADITIONAL (LACK OF) A SOLUTION: OPEN EVALUATION. Schedules are intended to provide a solution to calculate monetary compensation for damages that cannot be fully repaired *in natura*. Full compensation may be achieved for pecuniary damages, such as medical costs and lost profit, but pain suffering is difficult to compensate with a monetary payment since there's no straightforward reference for it in a market. Money only offers an adequate compensation for

[5] Declared partially unconstitutional by STC 181/2000.

pecuniary harm in accidents that cause a movement along the victim's utility curve, but not in those involving a shift displacing the victim to a curve situated at a lower level. As we know, a victim who suffers a serious personal injury with permanent impairment and other adverse effects on her health loses capacity to enjoy the goods and services that money provides. One can, to be sure, think of a teenager crippled as a result of an accident and think compare his ability to derive «utility» spending money on goods and services, and above all, to enjoy doing so before and after the accident. That can be easily explained as the accident displaces the victim from his/her previous utility function to a lower one, with less marginal utility. Given the assumption of risk-aversion, not even this last assumption of decreased marginal utility is necessary in order to cause money to loose its full restorative function.

The goal of full compensation –with the *restitutio in íntegrum* principle at the front of our tort system- together with an open system of determining damage awards intended to do so, seem to belong together in traditional liability systems. Far from solving the problem, such combination generate a paradox. At first, a generic legal principle of full compensation pass on to Judges the task of finding the amount of money to restore the victim to her pre–accident status. But then those Judges and Courts are left with no guidelines to appropriately measure monetary compensation for personal injury. The paradox consists on entrusting to the Judiciary an errand they cannot perform. At least, this is how things happen in Spanish positive law as interpreted by the Supreme Court.

Little discussion is to be held on the fact that Spanish –as well as many others- tort law is built upon a principle of full compensation: arts. 1.106 and 1902 of the Civil code of 1889; 100 of the Law of Criminal Prosecution of 1882; 109 of the Criminal Code of 1995 clearly point in that direction. Even the principle is hesitantly stated by the seventh general rule of the valuation system introduced in 1995 for automobile liability and insurance: "The amount of pain & suffering compensation is the same for all victims. The purpose of compensation for psychophysical harm is understood as to completely restore the victim's right to health..."

The Spanish Supreme Court (hereinafter, SSC) decisions have made a devoted effort to provide clear examples of the necessary union between open evaluation and full compensation, based on the erroneous view of the first as a prerequisite for the second. Take, for instance, the SSC First Chamber's Decision, of March 26, 1997. The case involved an automobile accident damage claim of 10,428,000 pesetas against the City Council of Palma del Condado. The claim was rejected on April 20, 1992. The Court of Appeals of Huelva, on March 1, 1993, partially reversed the decision that sentenced the defendant to provide a damage award of 2,250,000 pesetas plus interest (without directly including litigation costs). The SSC rejected the defendant's appeal and stated the following:

> "[T]he valuation of damages, in presence of serious personal injury or death, is not subject to statutory provisions of any kind, but left entirely to the Court's own discretion... the *ad hoc* calculation of compensatory damage in every particular case belongs to the core of jurisdiction. Judges shall determine damage awards case by case on an *ad hoc* basis, freely

> taking into account all the evidence brought to them and without being subject to any legal provision whatsoever."

Consequent to it, in order to avoid the immediate increase in litigation arising from the lack of objective criteria in this field, the system voids this cases access to the Supreme Courts, and even limits the Court of Appeal's –Audiencias Provinciales– chance to revise the amount set in First Instance. After all it is consistent with landing judges with the chimera of compensating pain & suffering, to assure total conceal. That is the way to preclude appeals, no matter what's been done. Reasonable and founded appeal is not possible in absence of any accepted tools for calculating damages but the Judge's own intuition.

At least such corollary of very narrow access to appeal and further revision of judgments is consistent with it's own paradox: if the law passes onto judges the chimera of finding an amount of money capable of returning injured or dead victims to their level of welfare prior to injury, it should at least protect that arbitrary judgment from being revised by any upper Courts.

SIDE EFFECTS. RESULTING PROBLEMS OF VARIABILITY. Arbitrariness results from this combination of full compensation assigned to the Judiciary with no other tools but open and unlimited discretion: damage awards vary unpredictably, producing the following problematic effects.

1. Inadequate compensation arising from either underestimation or overestimation of damages.
2. A distorted deterrence signal sent to potential injurers.
3. An increase of the liability system's costs, particularly litigation costs aimed to search for a liable party.
4. Payments take longer and in the end, fewer victims finally receive any sort of compensation.
5. An increased malfunctioning of the insurance market with resulting problems of cost and availability of insurance coverage.[6]

Although the little preliminary data available keeps us far from conclusive results, however, it points to the following directions:

- Damage awards do not seem to have risen disproportionately. Rather, most of its increase can be accounted for by the convergence with the amounts set from the European Union of the historically reduced compensations traditionally set in Spain.
- Insurance companies claim to have faced a judicial «compensatory lottery» though it has never been thoroughly measured or even empirically verified. The ratios confirm that variability existed but also suggest that it was not as unjustified or excessive as claimed. A simple comparison of variation coefficients does not yield significantly higher data than that computed by authors outside Spain.

[6] An alternative model of the way tort reform affects litigation is presented by BABCOCK, Linda & POGARSKY, Greg: "Damage Caps and Settlement: A behavioral Approach", *Journal of Legal Studies*, vol. XXVIII, June, 1999, though they specifically deal with the effects of caps on litigation, while I focus on schedules, counting on either pessimism or optimism.

- In the strong desire to place an upper limit on compensatory damages, schedule proponents took advantage of the confusion between variability and tendency to rise. However, these are separate problems that require separate solutions. Schedules are a good solution for variability but are too broad and excesive to control the rise of awards. Setting caps and ceilings as an upper limit would more effectively control this factor without side effects.
- The valuation system underestimates the harm caused to victims when assessing awards, which weakens the deterrence role of liability, as well as it undermines the goals of justice and compensation. Since the amounts set by the schedule for lost profit plus pain & suffering do not fully cover the former, more accidents can be expected in the future.
- The insurance industry continues to have the option of freely using contracts to adjust coverage levels or premiums. It's the car driver who's is required to be insured in Spain but companies are not forced to offer insurance, can choose their premiums and certainly do not have a must on unlimited coverage. The 1995 reform in Spain makes the unlimited coverage option a tricky one: no matter how much you pay in excess of you premium to assure unlimited coverage, this will irremediably be limited by law. This effect also isolates the Spanish insurance market from the rise of maximum limits set by the European Union.
- Based on preliminary data, the sector's variability and equilibrium levels have not improved significantly, nor have premium levels decreased since 1995. Spaniards may face a political stance of "bread for today and hunger for tomorrow." Demand will also decrease as the market begins to internalize the decrease on the magnitude of risk effectivle insured, mainly of the system's upper limit and minimal uncertainty, respectively. The final result will be less business in a market whose demand depends on risk and uncertainty.
- We do not have data to adequately assess the reform's effect on legal costs but indexes show that the reduction of costs occurred before schedules were used in 1995. And though we have no concluding evidence of its relation to this reform, accident rates are beginning to raise importantly.

However, there are aspects of the reform that could and should be improved:

1. Lost earnings is subject to the corrective and indirect factors –Tables II, IV and V– even when information is available on its magnitude. This voids a precise and quick calculation of such damages against common sense, social desirability and tort law's basic principles and goals. The Spanish Constitutional Court has used this argument to yield a verdict of unconstitutionality against part of the tables in 2000.

2. Pain & suffering should be separated from lost profit as different problems demanding so different sets of solutions. Unfortunately one cannot distinguish between pain & suffering or lost profit in 1995 tables, since both parts of compensation are mixed up without distinction. Additionally, we do not know where those lump sum amounts come from. All we know is that they are a transcription of the same ones in the government order of 1991 and the «Informe Seaida»[7]. This legally consecrates a common and highly criticized Court

[7] A referent schedule published by the Spanish division of the International Association of Insurance Law.

practice that contradicts the resolution 75/7, March 14, of the European Counsel's Committee Members.

3. The legislative strategy is inadequate for the following two reasons. First, for hiding a central reform of the liability system in the inside pockets of an administrative regulation of the insurance market. Second, for including every detail on the use of schedules in the restrictive format of a Statute. This raises the cost of reform too high. The texture of the norm is inadequate and the best proof is how this mistake has brought the debate on the desirability of schedules at the doors of the Constitutional Court.

Seven years after this schedules where given force –and an unconstitutionality verdict already rendered against it-, the best way for it's improvement is still timely reform, taking advantages of advances made in the use of schedules for pain & suffering. On the other hand, maintaining the current system as it is would turn its serious errors into endemic if not extend them to other areas of risk, where both potential tortfeasors and their insurers are willing to benefit from cuts in their liability.

With all of this in mind, there's little doubt that a reform was clearly needed, but not this particular one. Although the prior situation was bad –we have observed, however, that it had been exaggerated– the legislator should not assume that the numerous different types of compensatory damages should be grouped together under the conditions of a single schedule (which only some types of harm require).

More definite advances will be made if they are based, for example, on taking advantage of the skills developed to assess pain & suffering damages within a schedule. If a full compensation of lost earnings is also granted when possible, and statutory provisions only include the governing principles, these advances would be consolidated and others introduced, without a prohibitive cost. The achievements in the area of automobile accidents should be applied to harm caused in an accident of any type regardless of the scenario. In this way, once we overcome the errors currently caused by schedules, they will be good tools for the valuation, in general, of pain & suffering.

Let's now focus on one particular effect of this reform, namely the one that was presented by is proponents as lead benefit to be derived from it: the supposedly achievement of adequate rates of alternative dispute resolution rates.

Section II: How do schedules for personal injury awards affect the variables upon which resolution of legal conflicts are dependent?

A standard decisional model of litigation can be used to identify the effects of legal reform on dispute resolution. Such analytical tool offers a mean to describe the relationship between the way litigants choose to solve their conflict, that is their the demand for litigation –settlement versus trial–, as a function of a finite set of variables on which it depends:

$$D = f\ (Qe, Qo, P, C, A, N)$$

Where

D= Demand for litigation

Qo = Payment set for compensation, as estimated ex ante by the defendant

Qe = Payment set for compensation, similarly predicted by the plaintiff

Q= Payment actually set in trial, thus unknown for the parties until then

P= Objective probability of a plaintiff verdict, used when parties' estimates on it coincide, that is, whenever Po= Pe

C= Litigation cost in a trial, also used when parties' litigation costs coincide, that is, Co= Ce

A= Costs of negotiating and reaching a settlement out of Court, also assumed to be symmetrical: Ao= Ae

N= number of claims filed.

It is straightforward that the actual value of the payment the judge would set for compensation –Q– remains unobservable for both litigants throughout litigation: there is no way they can possibly know in advance what the judge would decide the injurer must pay, should the case finally end up in trial. Such value depends not only on the merits of the case, but also on the judge's own personal bias, the legal framework, availability of appeal instances, etcetera. This uncertainty makes necessary for the parties to base their decisions on estimates, though it's actually their lawyers knowledge and experience in previous cases that play a starring role at doing so. The spanish legal system's mandatory third party insurance coverage for drivers, jointly with the specialisation achieved through frequent agreements between many lawyers and insurance companies turn the former into real repeated players of this «game». Moreover those lawyers' incentives for litigating don't always go along with those of their clients.

There are two major ingredients underlying the formation of these estimates:

1) Available information on similar cases –precedents–. Which is highly dependent on the level of «noise» generated by variability in awards.

2) The attitude of the parties themselves, which as far as we are concerned in this paper shall be comprised to them being either optimistic or pessimistic.

This bias in parties' predictions has usually been considered to regard their estimates on the probability of prevailing in trial, but as will soon be shown we've taken optimism and pessimism into account as they affect not probabilities –Po and Pe– but estimates on damages awarded by the Courts, that is Qo and Qe.

The fact that the stakes in the case –Q– remain unobserved throughout the entire litigation process blocks the way for its use during that time, as a certain value that can be associated to a real number. This compels the parties to build and then use those aforementioned estimates or forecasts as proxies to the potential value of Q. Those predictions of the parties perfectly match the concept of a random variable. This allows us to consider the whole range of probable values as a probability distribution, so that:

Qe is the plaintiff's estimate of the judicial outcome,

Qo is the defendant's.

As both try to come as close as possible to the –unknown– future value actually set by the Court, Q, with the limited information available to each, they incur in a certain degree of error causing those estimates to become stochastic. That is,

$$Qe=Q+\varepsilon_e \text{ y } Qo=Q+\varepsilon_o. \text{ Where } \varepsilon_e \sim N(\mu_e, \delta_e) \text{ y } \varepsilon_o \sim N(\mu_o, \delta_o)$$

Two simple assumptions are made about those subjective estimates in order to make them easier to handle. Neither one seems to distort reality significantly, while they very much do make analysis a lot straightforward. These are:

1) Parties' predictions are treated as normally distributed[i] random variables that may, though don't necessarily have to share mean and variance values. The Central Limit Theorem applies easily due to the large amount of conflicts making the sample up.

$$Qe \sim N(\mu_e,\sigma^2_e)$$
$$Qo \sim N(\mu_o,\sigma^2_o)$$

2) Both predictions are probabilistically independent from each other[ii]. This assumption is not strictly necessary, but does make the handling of the difference of the two distributions a lot easier, without pulling the model away from the reality it represents. After making this second assumption, the difference between both parties' estimates depends only on their mean and variance, not on the covariance –the importance of that difference will soon be brought up–:

$$\text{Cov } [Qe,Qo] = 0$$

Settlement and trial. The rationale behind the model is in fact a rather straightforward and intuitive idea: there will be a settlement out of Court whenever the plaintiff's minimum request

does not exceed the maximum amount the defendant is willing to offer, both depending on the expected value given by each one to the final verdict, net of litigation costs.

For the plaintiff to be interested in a settlement offer, this has to match, at least, the amount he expects to win in trial, discounting the probability of that happening and net of litigation costs

$$\text{plaintiff's minimum willingness to settle threshold} = P*Qe-C+A$$

on the other side, the defendant will be willing to offer an amount up to what he thinks he can lose in trial, times the probability of that happening, plus the costs he would incur while trying to avoid that undesired outcome:

$$\text{defendant's maximum willingness to pay threshold} = P*Qo+C-A$$

Therefore, they can be expected to reach a settlement whenever the case meets the following condition:

$$P*Qe-C+A < P*Qo+C-A$$

This condition for settlement can be rewritten in terms of the predicted award, which represent the core of our analysis. Then there will be settlement whenever the probability –P– and the costs –C, A– relate to the predictions in the following way:

$$Qe-Qo < 2 * (C-A) / P$$

This expression of that simple idea highlights the great importance of the resulting function of subtracting both parties' estimates -hereinafter referred to as the «discrepancy»- to our analysis. Now both plaintiff's and defendant's decision about whether to file a suit, at first and whether to bring it to trial or settle an agreement out of Court instead, depend basically on the payment those parties predict they might face, on the probability of it being imposed and on the effort and resources they devote to achieve a favourable outcome. This is very helpful since new legislation basically affects the distribution of that discrepancy, and therefore all attention shall be directed to it by considering C, A and P to be constants in any certain case.

Once stated that estimates behave stochastically, it must be noted that the error in which parties incur when estimating the awards depends on two main features:

A) The foreseability of the compensation the judge is likely to set. That is, the availability and quality of information regarding previous judgements in similar cases.

B) The presence of pessimism or optimism in the formation of the predictions.

Let us now go back to the process of developing those estimates to then go on to see how it is affected by the aforementioned legal reform.

CHANGES IN Q. The most relevant effect is the one over the damage awards, more precisely, over the random variables by which parties try to approach to it, Qe and Qo. In order to focus on the changes caused by tort reform in the way Courts award damages, other variables of the function for the demand of litigation are assumed to be certain and known by the parties. The presence of optimism has traditionally been modelled as affecting P, the variable representing the parties' subjective estimate on probability of a plaintiff verdict. More precisely, optimistic plaintiffs tend to overestimate their chances of prevailing in trial; while optimistic defendants understate the probability of suffering a plaintiff verdict. This effect has largely been addressed by the literature.

I've concentrated on the random variables Qe and Qo, which are usually considered deterministic in traditional models. That implies other relevant parameters as wining probabilities, litigation or settlement costs being left aside so damage awards monopolise all the attention.

In order to make accurate comparisons among different quantities awarded under the two legal scenarios, before and after tort reform, we must assume to be comparing the same type of accident horizontally, that is to say that the victim's relevant features remain unchanged so we can concentrate on changes exclusively due to tort reform.

A)The liability regime prior to reform

Error 1: Optimism (distancing of the means of the estimates)

Judicial discretion offers an excellent breeding ground for the most typical error litigants tend to incur in the estimation of the stakes of the case. As a matter of fact it's lawyers who are broadly responsible for those estimations and have strong incentives to generate an optimistic bias; more so in Spain where their fees usually depend on the stakes of the case, but not on its outcome, leading to serious moral hazard problems.

Therefore optimistic plaintiffs tend to incur on systematic overestimation of the value of the future award; whereas an optimistic defendant will understate the expected trial outcome he would have to face, should that probability come to fact.

The consequence of these biases in the estimations is quite straightforward: it generates a separation of their distributions as both parties stand harder on their pre–trial negotiation positions, thus making the chances of reaching an out of Court agreement become slim. Obviously, pessimism plays the opposite role, bringing estimates together. In the model presented in this paper, optimism and pessimism have to do with the separation between parties' estimates as it affects the mean value of their distributions.

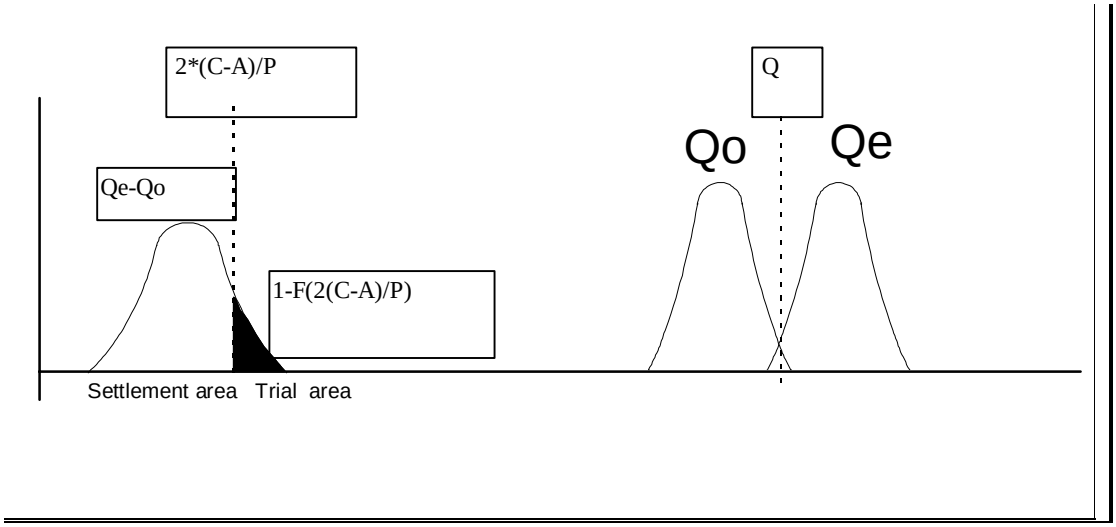
Determining whether optimism or pessimism in trial outcome estimations is the actual trend for a certain legal environment points out crucial. The first brings the parties' estimates apart from

each other increasing the positive difference between μ_e and μ_o which correspondingly does shift the discrepancy to the right, as it increases its mean value (μ_e-μ_o). Contrarily to that, pessimism reduces μ_e while it increases μ_o and this in turn increases the negative difference of the discrepancy, so it gets shifted towards the left. What the following Graphics actually represent is «symmetric optimism», in the sense that both predictions are equidistant from the final value taken by the award –Q– though always with the plaintiff's to the right and the defendant's to the left of the real Q. That equals to assume that both litigants are quantitatively as optimistic one each other. Undoubtedly, the more optimistic litigants become, the bigger the gap between them, and thus less likely shall they reach an agreement. The contrary assumption of pessimism would indeed add more ambiguity the model.

Error 2: Uncertainty about the expected award (high variance)

Informational problems surrounding the expected judgement get directly passed on to parties' estimates, thus striking the accuracy of their predictions. Such errors show up through the variances of those estimates, σ_e^2 σ_o^2 In absence of any objective guidelines to value damages arisen from serious injuries, the judiciary tend to produce erratic decisions. This is claimed to generate extreme differences between payments awarded for similar accidents, not only within the same legal system, but even within the same jurisdiction in short periods of time. This situation affects the distribution of Q –awards actually set for similar accidents– undermining its consistency by means of unpredictable variability, thus leading to extremely disperse shapes for the distribution of parties' previsions –Qe and Qo–, in short, high variances. Surprisingly, a first glance set of data show similar variation coefficients for spanish awards prior to reform and those set in the U.S. for pain & suffering alone[8].

Graphic 1



[8] *Cfr.* PINTOS AGER, Jesús: *Baremos, Seguros y Derecho de daños*, Cívitas & IUDEC, Madrid, 2000.

Graphic 1 shows both errors. The latter –error 2– consists on the unforeseability of estimates with skewed shapes on potential award in Qe and Qo density functions. This in turn makes most of the probability mass lie well apart from the mean values of both estimates. While the former error 1 –optimism– brings estimates apart from the central but unobservable value of the judgement actually passed for the case, Q, thus shifting the discrepancy to the right.

It is important for the clarity of our analysis to draw a clear distinction between these two effects –optimism and unforeseability– over the mean and the variance of the distributions of the estimates. The difference between the plaintiff's estimate –Qe– and the defendant's –Qo–, Qe–Qo is at the core of that analysis, and Graphic 1 thus sketches its appearance.

Since those estimates adopt the form of normally distributed probability functions, we know that the distribution of the difference between them, Qe–Qo, will also be another random variable with a normal distribution whose mean value will be the difference between the estimate's means, and whose variance is the sum of the estimate's variances. The reason why those estimates where assumed to be independent one each other was to avoid having to deal with the covariance[9] between them, which unnecessarily hinders the analysis.

$$Qe–Qo \sim N[(\mu_e–\mu_o),(\sigma_e^2+\sigma_o^2)]$$

In that distribution, the probability mass associated with the chances of that case ending up in a trial is represented by the black area, whereas the non–shaded area represents the probability of that case being settled. Put in an algebraic expression, and taking Qe–Qo=x, the probability mass of settling the case is equal to

$$Fx\,(2(c–a)/p)=\int_{-\infty}^{2(c–a)/p} 1/\sqrt{2\pi\sigma^2}\;\; e^{-(x–\mu)2/2\sigma^2}dx$$

That is, the area of the density function to the right of the critical point, 2(c–a)/p.

Social costs of variability. The whole situation described above matches the automobile accident liability regime in Spain prior to 1995, and entails several social costs, namely:

1. The use of Court verdicts for the resolution of conflicts that could have been more efficiently closed by out of Court settlements, and *viceversa*, are main relevant sources of the malfunction of the dispute resolution system as well as immediate causes of both private and social costs[10].
2. Among those, an excessively high litigation rate –or a suboptimal number of settlements– generates harmful side effects as delay and jamming in the Courts. Then accidents take up

[9] In fact, what that actually means is that Cov [Qe,Qo] = 0

[10] The goal of the legal system is know to be that of providing the optimal legal remedy to a conflict; not necessarily a Court judgement. Settlement or other alternative dispute resolution methods have proven to be more efficient in certain cases, this being superior to a formal judicial verdict.

Courts' time and resources for the resolution of disputes for which the most efficient solution is a different one, thus detracting them from cases that really deserve access to justice.

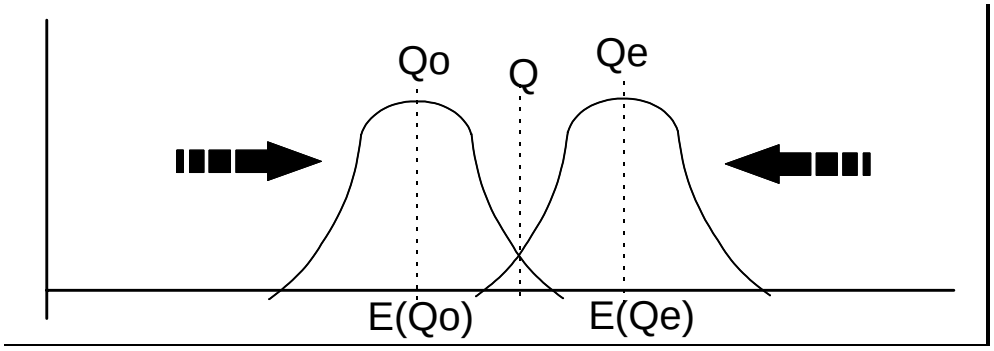
3. Litigation costs being significantly larger than those incurred when the dispute is settled also contributes to worsen the aforementioned costs[11], more so in Spain after the public component of litigation costs are mostly suffered by contributors since 1986.
4. The insurance market plays a central role here. Although there is a clear incentive for insurers to make the problem appear bigger that it is, the unforeseability of awards puts them in dire straits when they have to endow resources for the awards they'll have to pay for in the future. This is allegedly the case of the spanish automobile insurance industry during the eighties: From 183 companies in 1979 there where only 118 left in the sector by 1993, out of which only 92 made some profit. The results in 1990 where of 73.000 million pesetas lost by the entire sector, decreasing to 48.000 million pesetas for 1992. But those figures seem suspicious alone, with no further analysis since they very well could be the result of a selection process. The most inefficient ones just could be forced to leave a market as they fail to adjust premiums charged to their risks against which they offered coverage. This effect has recently been addressed and empirically tested by BORN & VISCUSI[12].

B) Effects of the legal reform capping and scheduling damages

EFFECT 1: Reduction of optimism (regrouping of the means)

Introducing a legal schedule that objectively reckons the award set for accident compensation reduces the grounds left for optimistic bias in the parties' predictions about the potential outcome of a trial. The immediate effect to be expected is the closing of the gap between plaintiff's and defendant's estimates about that outcome which implies both becoming closer to each other towards the certain value of Q.

GRAPHIC EF1

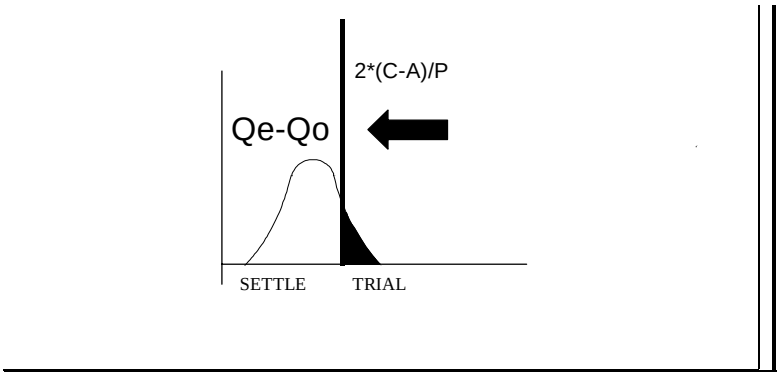


This convergence of the distributions is shown in GRAPHIC EF1.The table has caused a centripetal attraction force around point Q, thus causing the discrepancy –Qe-Qo– to shift to the

[11] That difference between litigation and settlement costs can be a source of undesirable incentives for potential injurers who receive inadequate deterrence signals, *céteris páribus.*

[12] BORN, P. y VISCUSI, W. Kip: "The Distribution of Insurance Market Effects of Tort Liability Reforms", *Discussion Paper N. 243, John M. Olin Center*, Harvard Law School, octuber, 1998.

left. This happens because the discrepancy's mean value is equal to the difference between those of the litigants' estimates and with that difference being reduced as a result of legal reform, the distribution is moved towards the left, thus rendering a greater probability mass to the left side –settlement– of the critical point, which remains in the same position. In short, the first partial effect in litigation one can expect from the promulgation of a schedule for damage awards points in the direction of a higher settlement rate.

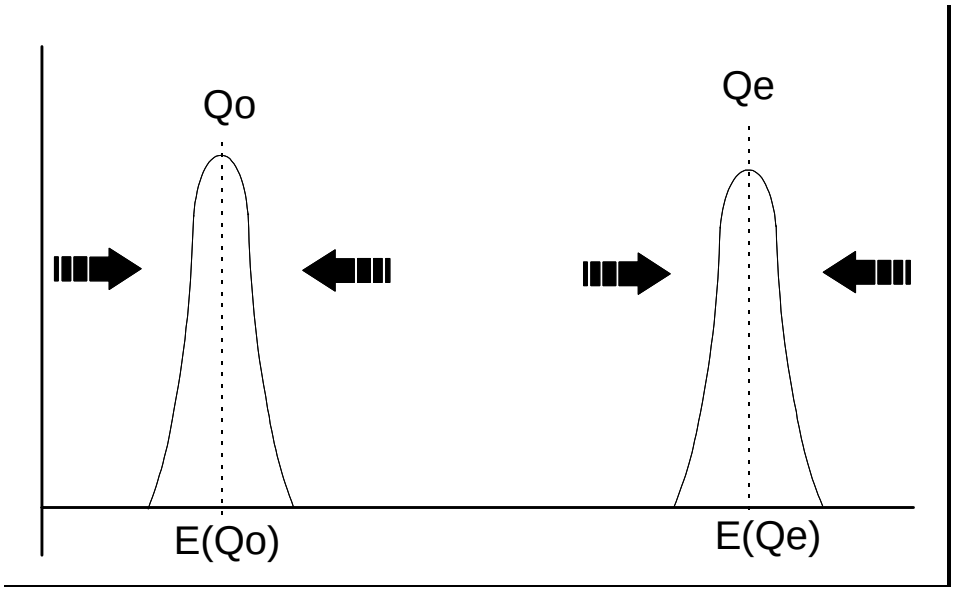


The contrary. It goes without saying that should pessimism be the case in litigants' estimates, then a schedule that corrects it would actually have the opposite effect, causing trial rates to rise as parties would tend to play harder in pre trial negotiations, thus narrowing the interval in which an agreement needs to be reached. This is how ambiguity shows up in the model starting from this first EFFECT 1.

EFFECT 2: More homogeneous awards (reduction of the variances)

It intuitively seems quite straightforward that scheduling awards will significantly reduce the dispersion of the real awards set by the Courts –Q– as well as the parties' estimates on them –Qe and Qo–. Accordingly, this will necessarily lead to a reduction in the variance of those estimates, as they must become centred closer to their mean values. That is exactly what GRAPHIC EF2 shows with more stylised distributions for Qe and Qo.

GRAPHIC EF2



As previously explained, if the discrepancy's distribution is

$$Qe-Qo \sim N[(\mu_e-\mu_o),(\sigma_e^2+\sigma_o^2)]$$

these parallel effects in the parties' individual estimates get in turn passed on to their discrepancy, which was previously defined as the difference between those estimates. Then ¿how will that change affect dispute resolution, that is, the settlement/trial rates?

As for EFFECT 1, the probability of settlement was made dependent on probability of winning and both litigation and settlement costs. We also know how that probability is distributed –normally–, so we can thus put those variables together and compare how they interact *céteris páribus* before and after the liability reform considered here. This in fact involves applying the litigation model presented in Section I to the changes in its variables described in Section II.

However, the remaining variables yield the highest probability of settlement when litigation is relatively expensive face to face to settlement, and the difference between those two costs is significant compared to the stakes of the case, that is, when

$$\text{Max}\left\{\frac{(C_e+C_o)-(A_e+A_0)}{Q}\right\} \Rightarrow \text{Min } D$$

Section I showed that for a case to be settled, the parties' predictions about its final outcome needed to relate to the costs of litigation and the probability of rendering a plaintiff verdict in the way shown by the following identity,

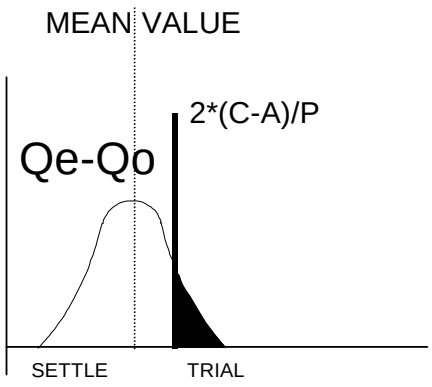
$$Q_e-Q_o < 2 * (C-A) / P$$

This means that the condition necessary for an out–of–Court agreement to take place is that the parties' discrepancy about the final award does not exceed the total litigation costs net of settlement costs and divided by the probability of a plaintiff verdict. Hereinafter that value 2*(C–A)/P shall be referred to as the «critical point», represented by a certain value lying on the horizontal axe of the discrepancy's density function, as a benchmark that will split that density function in two, resulting two cumulative distribution functions. Those two areas left at each side of the critical point each represent the probabilities of settlement and trial.

Ambivalence. Substituting judicial discretion for a tabular approach to damages should result in an increase on the quality of predictions about trial outcome and corresponding improvement of estimations. That particularly affects our analysis reducing variances in both estimates' density functions and therefore the discrepancy becomes more accurate as well. Changes in the subsequent probabilities of trial and settlement are to be expected after estimates become more stylised, as probability mass gathers up closer to the mean. But a problem arises when one tries to evaluate the effect of this change on the way disputes are solved: lt is not a one–way effect but a twofold one, depending on which side of the discrepancy's density function is cut by the critical point. This quandary can only be overcome by distinguishing two alternative scenarios. Otherwise, tort reform consisting in a personal injury schedule may either result in an increase of settlement rates or operate in the opposite direction.

SCENARIO A: Litigation costs are large compared to those incurred for settlement and/or probability of a plaintiff verdict is low, so that the point 2(C–A)/P exceeds the mean value of the discrepancy –lies on its right side–, even after being shifted to the left by EFFECT 1.

$2*(C–A)/P \in ((\mu e–\mu o), Max\{Qe–Qo\})$, graphically

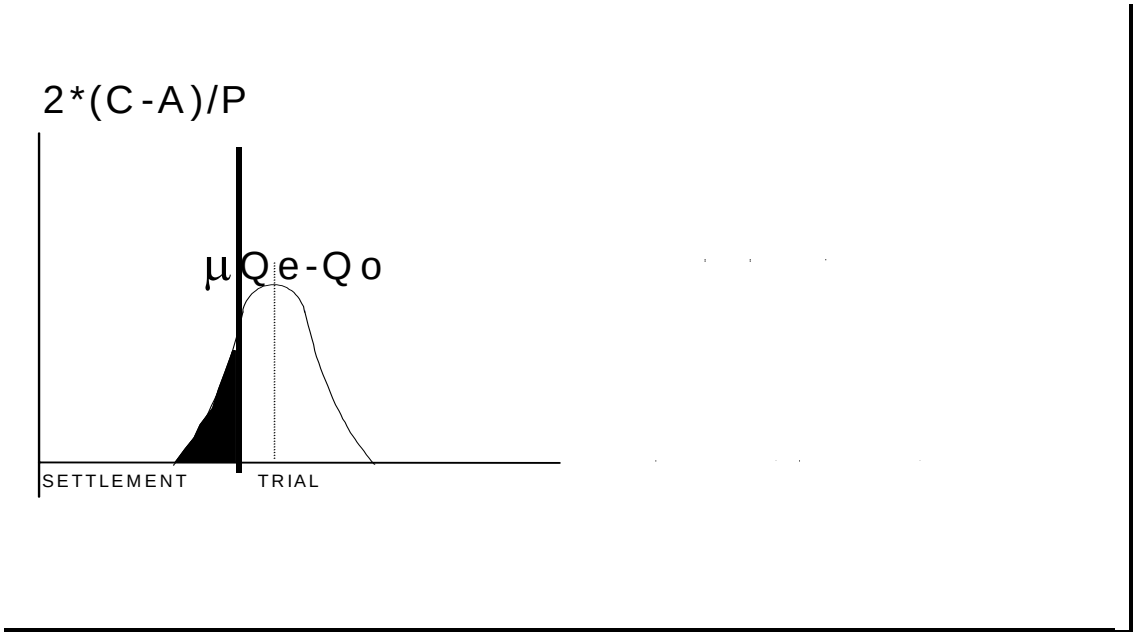


Then what EFFECT 2 is really doing, by stretching the distribution upwards and concentrating probability around the mean value of that distribution, is in fact switching some probability mass

from the right shaded side –p. of trial– to the left non shaded tail –settlement– of the discrepancy. Thus under SCENARIO 1, EFFECT 2 decreases the probability of the case ending up in trial and being this a dycotomic model, correspondingly reduces the chances of reaching an agreement. Therefore, if all other variables remain the same, *céteris páribus* this effect would add up in the same direction as EFFECT 1, both rendering a higher settlement rate as a results of legal reform.

SCENARIO B: When litigation costs are low and/or the chances of a plaintiff verdict are important the value of 2(C–A)/P is more likely to be smaller that the mean value of the discrepancy. SCENARIO B is characterised by the fact that the critical point 2(C–A)/P falls on the left tail of the discrepancy, even after EFFECT 1 has moved the distribution to the left. Under this assumption any reduction on the variance of the discrepancy steals probability mass from the left –settlement area– to the right side –trial– of the distribution area. GRAPHIC 3 describes this situation and substitutes GRAPHIC 2 when A,C and P and the estimates behave as follows:

$$2*(C–A)/P \in (\text{Min}\{Qe–Qo\}, (\mu e–\mu o)), \text{ graphically}$$



In the situation described as SCENARIO B, EFFECT 2 contravenes EFFECT 1 causing ambiguity to show up in the model. As the net effect of these two remain an empirical question demanding currently unavailable data, an increase in settlement rates cannot be attributed unquestionably to tort reform introducing a schedule for personal damage awards, contrary to what its proponents and the legislator held prior to its adoption.

Marginality and overall perspective. One must not forget that cases affected by this effect in reality are not all, but only those ones «in the limit». Those discrepancy distributions lying far away enough so they're not cut by the critical point are indifferent to tort reform's EFFECTS 1

and 2[13]. Contrary to what happens in those cases, these two effects tend to be more intense the more rigid the schedule is, to the extent they narrow judge's room for generating variability. An open schedule that, say only defines a set of scenarios for the judiciary to move freely within, can be expected to affect litigation relatively less than would a narrow one. For instance, while the spanish schedule of 1995 could give the impression of a narrow one on paper, the way judges tend to implemented it in day by day tort litigation turns it into a much broader legal framework than one might initially expect. As a matter of fact, diverging interpretations dash all aims put on this reform to restore tort litigation within minimum certainty requirements. It could be said that the enforcement vector of such reform is small. Fortunately, a Constitutional Court decision in june 2000 has just recognized the binding effects of the schedule for judges.

LITIGATION COSTS AND RISK AVERSION

Not even settlement –not to mention Litigation– is for free. Putting an end to a legal dispute is at least a time demanding activity. One doesn't need to resort to one of those notorious legal cases that bring parties into an endless labyrinth of instances and appeals to understand how expensive and stressing litigation can get. A handful of popular sayings illustrate those snags including one's lawyer's fees, legal experts asked to report their opinion in Court, time devoted, anxiety, restlessness, lack of sleep. Those are known to be considerable not only when one has to walk into the Courthouse, but also in those cases settled.

Those litigation costs –C– are intuitively in a negative relationship with the demand for litigation itself: the most expensive an activity is the smaller people's willingness to carry it out, and the most are willing to choose the alternative. The closest substitute for litigation is settlement, and so that explains why people tend to move to it as the cost of bringing their case to Court becomes a relatively more expensive alternative. That explains why C take a negative value in the plaintiff's minimum settlement petition while settlement costs –A– are positive. The plaintiff asks for an amount of money at least equal to what he expects to get out of trial, net of litigation costs he would not have to eventually incur then, plus settlement costs, thus transferred on to the defendant who makes the offer.

A personal injury schedule reduces both settlement and litigation costs, even if we assume it not to affect causation problems. Even then, the cost of valuing those damages is less in presence of a legal rule acting as a link between those damages attributed to the injurer and the amount of money the victim deserves as compensation. One must expect people to «buy» more court solutions to their problems as the «price» they pay for it decreases. For the same reason, settlement costs are lower when a schedule is used, thus providing a contrary incentive to settle. This is how again we must face conflicting effects, turning our theoretical model ambiguous once again.

Risk aversion as a way of optimism. As in general risk averse parties are those who prefer the most secure among several choices of the same expected value, when applied to defendants and

[13] Sort of speaking, because a normal function will always be cut by any point since its range goes from $-\infty$ to ∞. What this means is that it is not cut in a point relatively close to the mean, but in either side of the tails.

plaintiffs, this attitude towards risk results in a general preference for settlement as the certain alternative face to face the more uncertain trial outcome. Therefore these can be expected to be willing to settle for some half–way compromise and not to «continue gambling» to either get or have to pay a higher amount should the case be sentenced by a third party. Thus it can be said that their positions get closer as they ease their stances if pre–trial negotiations. How shall a schedule affect that attitude?

A tort reform embodying a tabular approach to previously unpredictable damage awards will tend to undercut open–ended variability, thus removing uncertainty from the parties' estimations on the final outcome expected in trial. All things being equal, lower levels of uncertainty about the stakes of the case will reduce litigants' aversion to that unknown outcome, since it is now more easily predictable by means of the schedule and judges allegiance to its values. That means turning trials into a less fearful alternative to settlement. Litigants develop more accurate predictions and thus they become relatively less afraid of jeopardising the certain amount they could assure in a settlement in exchange for more attracting prospects should they continue.

This way a schedule would in fact be undercutting risk aversion's effect on parties and thus making them more confident or optimistic on the expected uncertain alternative.

TO SUE OR NOT TO SUE

Once having sketched the effects of the new liability regime on the way disputes are solved –Q– it comes the time to tackle those over the number of legal claims actually filed, that is to say that the relevant parameter of the model shall now be N: the number of legal conflicts made explicit by the victims' decision to sue the injurer.

The analysis required to address this question is rather simpler than the one already shown in previous sections. The victim must establish a comparison between the expected value of a verdict rendered after trial and the costs –effort and resources– devoted to accomplish that favourable outcome, which can be presented in quite straightforward terms:

Accordingly to this simple scheme, the victim's decision about the legal claim will depend on the following identity. There are incentives for her to sue whenever doing so is cost justified:

$$C < P * Qe$$

Note that as done before uncertainty has been limited as to the amount eventually set in trial; not about whether that will be the outcome, as most litigation models usually do. This in fact may be put in terms of the victims' estimate on what she could recover:

$$Qe > C / P \Rightarrow \text{The victim decides to sue and thus become a plaintiff}$$

Since the effects of tort reform on estimates have already been defined, results here are a simplified version of what previously happened in this section.

EFFECT 1: reduction of optimism (decrease in the estimate's mean value)

Removing optimism away from the plaintiff's behaviour means he will not over–estimate the potential award or at least that he will do so to a lesser extent. Then the distribution of his estimate will shift towards the left, closer to Q and the effect on litigation is clear. Given the point C/P remains constant after legal reform then there will result more probability mass to the left side of the distribution, which happens to be the not filing zone. Again, this result is consistent with one's first intuition: fewer claims are expected to be filed since the subjective stakes decrease for the plaintiff. Of course once the cost reduction effects of the schedule are taken into account both collide against each other.

EFFECT 2: More homogeneous awards (reduction of the estimate's variance)

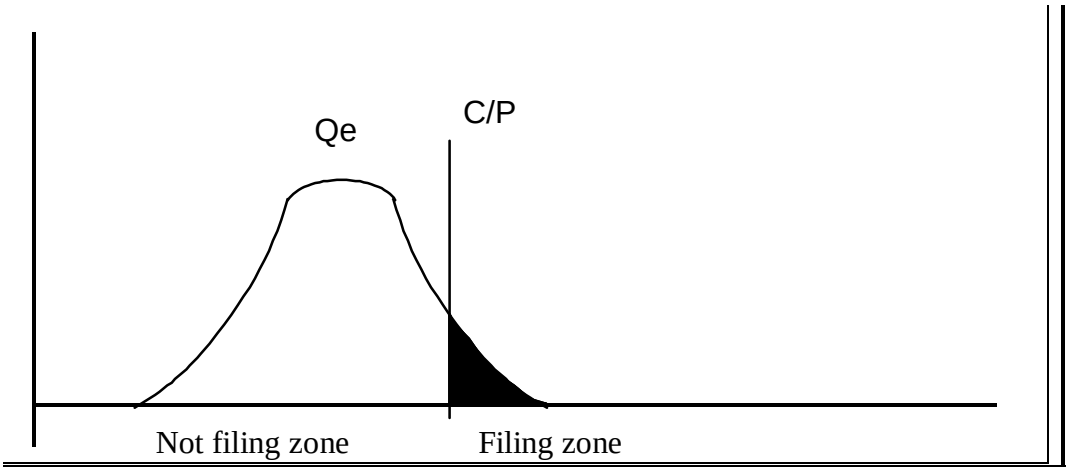
As Section II shows in detail, tables centre the random variable Qe around its mean value so that that estimates' distribution variance becomes smaller. Again this effect over N depends on the relative values of Qe, P and C which lead to the need of differentiating two alternative scenarios similar to those previously defined in this section:

SCENARIO C:

The costs are so high and/or the probability of a plaintiff verdict so low that C/P exceeds the mean value of Qe, that is,

$$C/P \in (\mu e, \text{Max}\{Qe\}); \text{ or more clearly, } C/P > \mu e$$

That places the critical point C/P on the right tail of the distribution so that once new legislation comes into force probability mass moves from the right to the left side of C/P. Being the former the not filing region, less claims should then reach the Courts. This effect adds up to the preceding one.

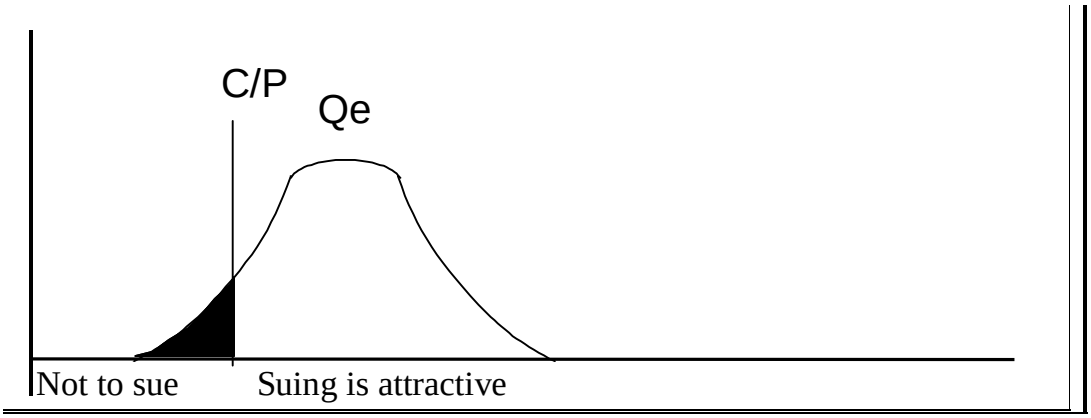


SCENARIO D

The costs are low and/or the probability of the plaintiff wining the case is high enough so that:

$$C/P < \mu e$$

This meaning the critical point falls now in the left –not filing– tail of the plaintiff's estimate distribution, thus a reduction of its variance removes probability mass and relocates it in the contrary, which is the situation in which filing a claim makes sense for the victim. This again brings ambiguity back to the model, as EFFECT 1 acts against this EFFECT 2 in SCENARIO D.



SECTION III: CONCLUDING REMARKS

Tort reform. Two legal settings have been compared here face to face for valuing personal injury compensation within the liability system. On one hand an open valuation system where the judge is granted wide powers to evaluate the scope of compensable damages without constraint. In the opposite there is a recent tort reform which recently came into force in Spain for traffic accidents. Under this new system awards are automatically reckoned by a set of legal tables or matrices, thus leaving the judiciary with extremely slim chances to stray away from that schedule.

Two Effects. This legislation affects dispute resolution by means of causing the following two effects in litigation:

> EFFECT 1: Removing optimism away from the litigants' predictions about compensation potentially awarded in trial make these more accurate in the sense that both parties' estimates become closer to reality in average.
>
> EFFECT 2: Reducing the random error litigants make when forecasting the amount they expect to be awarded by the Court. This leads to a decrease in the variances of their estimates.

Where do those effects arise? The aforementioned effects have their bearing on two of the variables that explain whether disputes are put an end by settlement or trial:

Q = Payment finally awarded for compensation by the Court

Tort reform's EFFECT 1 over Q is straightforward: more cases are solved by settlements instead of being brought to trial. But even that effect's sign depends on the assumption one makes about how parties develop their estimates. It only holds in case they incur in an optimistic bias; should pessimism be the case, a schedule would in fact come to reduce settlement rates.

EFFECT 2 over Q is twofold but it can be identified using litigation costs and probability of a plaintiff verdict as a benchmark to define two alternative situations:

A) If the difference between the plaintiff and the defendant estimate does not exceed in average the critical point 2(C–A)/P, then this EFFECT 2 consists on an increase of the settlement rate, adding up to the preceding ones. This is SCENARIO A:

$$\mu_e - \mu_o < 2(C-A)/P$$

B) If the situation happens to be the contrary –SCENARIO B–, that is parties disagree in mean values more than the point 2(C–A)/P

$$2*(C-A)/P \in (\mu_e - \mu_o, \text{Max}\{Qe-Qo\})$$

then the new regime increases the demand for trials and causes less cases to be settled out of Court. Then EFFECT 2 over Q is against some others already studied so ambiguity appears in the model.

N = Number of suits being filed as a result of the victim's –plaintiff– decision to sue the injurer –defendant.

EFFECT 1 over N mimics what happened with Q: it decreases the number of claims filed, which reduces the demand for litigation, but only once given that parties behave optimistically.

EFFECT 2 over N is also twofold and depends on the relative values of C, P and the plaintiff's Qe in similar terms:

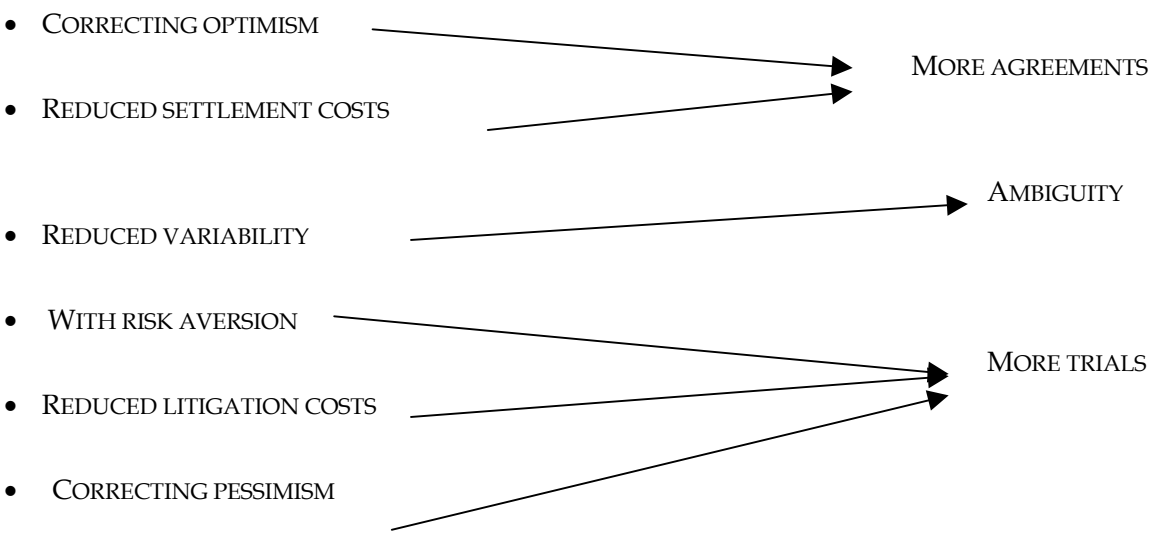
C) If $C/P > \mu e$ there will be less suits filed after damages are subject to legal provisions.

D) If $C/P < \mu e$ then the mitigation of the error caused by the legal table leads to an increase in the amount of cases where filing a legal claim becomes cost–justified to the victim. This brings ambiguity around again.

FINAL CONCLUSION

The analysis carried out in this paper points out that the so presented beneficial effect of the schedules on litigation is not as straightforward as its proponents, nor a first intuition show. Since forcing more settlements and less trials was meant to be one of the three major healing powers of this legal change in the legislator's agenda, the ambiguity shown by the model encourages a reconsideration of its social desirability and thus more attention should be put on its side effects.

SCHEDULE EFFECTS ON LITIGATION



[i] With density function $F(x)= 1/\sqrt{2\pi\sigma^2}\ e^{-(x-\mu)2/2\sigma^2}$.

[ii] Though some colleagues at the Área de Dret Civil Seminar pointed out the convenience of removing this assumption, I finally decided not to do so for the sake of making the paper simpler to non–economists. I willingly sacrificed that in order not to increase the stakes for lawyers who decide to read the paper.