On the Judicial Interest Rate: A Comparative Law and Economics Perspective

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ON THE JUDICIAL INTEREST RATE:
A COMPARATIVE LAW AND ECONOMICS
PERSPECTIVE

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Abstract
Although all legal systems use some form of pre-judgment or post-judgment interest, there is no substantive law & economics literature providing for a comprehensive theory on the impact, functioning and assessment of the judicial interest rate. Mainstream legal scholarship has usually dealt with it as having neutral effects on private and social costs.

In this paper we show that the issue is theoretically-wise far more complex and it has a definite influence on legal policy. Due to asymmetric opportunity costs for plaintiff and defendant, judicial interest rates may bring about improper delay of proceedings and/or decouple damages from recovery. Both effects influence the number of settlements and suits.

On this ground, we compare different institutional settings from an economic perspective and conclude that the appropriate mechanism depends on the alternative available policy instruments, namely rules of procedure, court fees or appropriate setting of damages. Moreover, we will suggest that abolishing the statutory setting of pre-judgment interest may be a worth considering proposal.

Keywords: litigation; pre-judgment interest; post-judgment interest; interest rate; decoupling; assessment of damages.
JEL: K41

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I. INTRODUCTION

According to general rules of procedure common to most countries, judicial claims that eventually resolve into monetary payments usually accrue some interest during the duration of the proceedings. Such interest rate has particular effects on the behavior of the defendant who must pay it and of the plaintiff who receives it.

The amount accrued as interest is usually a function of the time elapsed in trial and of a certain discount rate. Hereinafter we will call this rate judicial interest rate. Economically, the main role of the judicial interest rate is simple. Suppose plaintiff sues defendant for one thousand Euros of damages due to some specific wrongdoing. The value of such damages is determined on a specific time, presumably the moment the wrongdoing took place (but not necessarily since there could be a substantial time lag between the occurrence of the wrongdoing and the plaintiff’s realization of her losses). When the defendant pays the plaintiff, the value of such damages is calculated at a later date. Euros on the day the damage is produced and Euros on the day the damage is compensated are not the same. It is understood that the judicial interest rate should address this difference.

Suppose the loss for the plaintiff at the moment the wrongdoing took place is one thousand Euros and the discount rate is 10%. The simple approach is to say that the defendant should play one thousand and one hundred Euros to the plaintiff. The judicial interest rate merely reflects the discount rate. A statutory approach seems the easiest way to tackle this problem; a statutory interest rate equalizing the discount rate solves the need to accrue an interest that internalizes the discount rate.

In order to accomplish this economic role, the judicial interest rate is thought to be relevant in two ways. First, it is significant in relation to the discount the plaintiff bears in terms of Euros when the damage is produced and Euros when the damage is compensated by the defendant. At the same time, it produces a lump sum in reference to a particular calculation of damages. In our simple example, the discount rate is 10% which could merely be a savings interest rate and the lump sum amount is hundred Euros which reflects the gravity of the particular wrongdoing.
It is common to distinguish between *pre-judgment interest* and *post-judgment interest* in reference to time that elapses before and after judgment. Pre-judgment interest is justified by the delays in trial, which can be a function of litigation strategies but also other institutional features. Post-judgment interest usually refers to difficulties in enforcing judgment, including the possibility of appeals (whether frivolous or not).

Another important distinction is *statutory judgment interest* and *court-imposed judgment interest*. Statutory judgment interest is determined by law and, subject to statutory interpretation, fairly automatic and independent of particular court interventions. Court-imposed judgment interest is left to be decided by the court with few regulations imposed by the legislator.

Notice that the qualifying *judicial* in this context, however, does not stem from the nature of the authority who decides the value of that interest rate (a court or a judge, but also the legislator), but from the conditions in which it applies and its target, namely, an award resulting from a claim subject to judicial process. Hence, judicial interest rate can be determined either by the judge on a case-by-case basis or by some general rule of procedure.

The judicial interest rate has largely been regarded as a “natural” element of litigation. Mainstream legal scholarship has usually dealt with it as having neutral effects on the private and the social costs very much on the lines suggested by our simple example. It is commonly assumed that, in theory, the judicial interest rate merely internalizes the opportunity cost of delay in trial. As a consequence, the effect on the behavior of litigants should be fairly neutral. Obviously there are empirical questions in relation to the extent such interest rate is appropriately determined, but they do not challenge the main premise of the analysis.

In our view, however, the issue is certainly more complex. A neutral judicial interest rate does not exist in the sense that defendant and plaintiff have asymmetric opportunity costs. The behavior of the litigants is affected by the judicial interest rate in different ways. The inevitable consequence is that parties adjust their behavior to the particular setting of the judicial interest rate. Going back to our simple example; suppose plaintiff sues defendant for one thousand Euros of damages which is the value of the plaintiff’s loss when the wrongdoing took place. A year later, those thousand Euros will have a different monetary value for plaintiff and defendant depending on their discount rates and opportunity costs. Only by mere chance both parties have exactly the same discount rate. The interest rate of bank deposits or financial assets is a mere indication of an aggregated discount rate and risk, and not individualized to a particular defendant and plaintiff. Both plaintiff and defendant could use the interest rate of a risk-free financial asset (such as savings deposits) to measure opportunity costs. However, it is likely that in a vast majority of cases at least one side, if not both, have better
economic or financial opportunities. In other words, it is highly unlikely that plaintiff and defendant have both a discount rate given by 10% (the interest accrued by savings deposits in our simple example).

It is important to distinguish this (theoretical) insight from the empirical or practical issue, namely, the appropriate determination of the judicial interest rate. The correct determination of the interest rate is important in terms of private and social costs. An excessive rate as well as a defective rate will have implications for the behavior of litigants. However, our point is that even if we have the best way to determine a particular judicial interest rate, this rate cannot be neutral in the most general context.

There is no substantive law & economics literature providing for a comprehensive theory on the impact, functioning and assessment of the judicial interest rate. In order to provide for an economic analysis, we should first consider the possible relevant dimensions to evaluate the determination of a judicial interest rate.

From a pure litigation point of view, the judicial interest rate may yield incentives for the parties to delay the course of the proceedings. Consider our example for a moment. If a plaintiff has a loss of one thousand Euros and the judicial interest rate overcompensates for delay, she has an incentive to strategize and delay judgment at the expense of the defendant. If a defendant is liable to pay one thousand Euros and the judicial interest rate undercompensates for delay, he has now an incentive to delay judgment at the expense of the plaintiff.

Some delay is optimal in order to appropriately determine liability but, if excessively miscalculated, the judicial interest rate induces frivolous delay with an obvious social cost. Under some particular and probably unrealistic conditions, there could be a non-delaying judicial interest rate (that is, an interest rate apt not to create incentives to delay). However, in the most general and realistic setup, it is unlikely that we can find a non-delaying judicial interest rate.

The judicial interest rate influences not only the parties’ behavior during the process but it also impacts in some choices the parties have to make before litigation, including the very willingness to enter a lawsuit. Some decisions such as taking precaution to avoid tort liability or allocating resources across activities exposed to the risk of wrongdoing are clearly influenced by certain expectations concerning the judicial interest rate. In this regard, given the differences in oppor-

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tunity costs and the role of the judicial interest rate, we can see the similarity with the well-known decoupling effect.\footnote{Polinsky, A. Mitchell, and Yeon-Koo Che. 1991. “Decoupling Liability: Optimal Incentives for Care and Litigation” \textit{RAND Journal of Economics} 22:562-70.}

The decoupling effect emphasizes the merits of differentiating the amount of the damages paid by the defendant from the amount recovered by the plaintiff. The judicial interest rate creates a similar effect given that opportunity costs are asymmetric. Take again our example. If tort liability for a particular wrongdoing is enforced on spot, the defendant transfers one thousand Euros to the plaintiff who gets fully compensated. However, if tort liability is enforced with delay, the effective payment depends on the judicial interest rate. Suppose the interest rate is 10% for simplicity while the plaintiff has a discount rate of 12%. The defendant will pay one thousand and one hundred Euros to the plaintiff which is less than full compensation (which should be one thousand and one hundred and twenty Euros). It is equivalent to a situation where, if tort liability were enforced on the spot, the defendant pays more than what the plaintiff actually gets; the defendant pays one thousand Euros while the plaintiff gets nine hundred and eighty and two Euros.\footnote{By applying the net present value formula, $1100/1.12=982$.} This is a standard decoupling effect as generally recognized by the law and economics literature.

A different example would replicate the so-called reverse decoupling effect.\footnote{Garoupa, Nuno and Sanchirico, Chris William, “Decoupling as Transactions Tax”, 39 J. Legal Stud. 469 (2010).} Suppose now the interest rate is 12% for simplicity while the plaintiff has a discount rate of 10%. The defendant will pay one thousand and one hundred and twenty Euros to the plaintiff which is more than full compensation (which should be one thousand and one hundred Euros). As before, equivalently, if tort liability were enforced on the spot, the defendant would pay less than what the plaintiff actually gets; the defendant pays one thousand Euros while the plaintiff gets one thousand and eighteen Euros.\footnote{By applying the net present value formula, $1120/1.1=1018$.}

Delaying and decoupling effects created by the judicial interest rate discipline parties. Those effects, in turn, have a serious impact on settlements and lawsuits. Generous or insufficient judicial interest rates deter settlements for reasons similar to litigation delays. They also attract or deter lawsuits, depending on a particular judicial interest rate relates to the plaintiff’s discount rate and opportunity cost.

Once we recognize that opportunity costs are asymmetric and the determination of a judicial interest rate is all but obvious, the statutory policy approach is questionable. There is no guarantee, quite the opposite, that the legislator is the
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best placed actor to calculate the appropriate judicial interest rate. The intuition that a statutory interest rate would internalize the adequate discount rate is showed to be seriously flawed.

The discussion of the role and determination of a judicial interest rate is presented in two ways. One, from a law and economics perspective, we assess the efficiency of a particular interest rate. Should the interest rate reflect the opportunity costs for the defendant or for the plaintiff? Should it be somewhere in between? Another related aspect is, given the design of an efficient interest rate, should it be determined by the court or should it be imposed by legislation?

A second important focus of discussion is on comparative procedure. If there are enough procedural mechanisms to design efficient incentives ex ante and ex post facto, a judicial interest rate is irrelevant and should play no role. However, in a realistic scenario of limited procedural mechanisms, a judicial interest rate plays a relevant role. Nevertheless, we cannot dissociate this role from the institutional context, namely the structure of court fees, the determination of compensatory and punitive damages or other procedural mechanisms to incentivize appropriate delay. From this perspective, the common law and civil law traditions play an important role. They might have identical (or not strongly dissimilar) mechanisms to determine a judicial interest rate. Yet, if procedure is quite different in civil law jurisdictions vis-à-vis common law jurisdictions, the same mechanism could have very different efficiency repercussions.

We do not want to convey the impression that our two aspects (efficiency assessment of incentives and institutional context) are unrelated. They are actually interdependent. We cannot understand the efficient judicial interest rate while ignoring the institutional and procedural setup. However, for sake of exposition, we discuss them separately while the conclusions will make sense of these two ways of looking at judicial interest rates.

The paper goes as follows. We will start by framing the standard approaches to the judicial interest rate. In section III, we will draw a general theoretical framework for the judicial interest rate based on the law and economics model of litigation and civil wrongdoing. In section IV, we will sketch some guidelines to legal policy in terms of determining interest rates and procedural reform. Section V concludes the paper.

II. CONVENTIONAL APPROACHES TO JUDICIAL INTEREST RATES

Our starting point is the basic economic model. Detriment of wrongdoings is based on the behavior of injurer (defendant) and victim (plaintiff) but the harm is always suffered by the latter. Aside from possible refinements, the
basic economic model shows that correctly assessing the cost of harm is required to set the optimum level of care. The traditional literature implicitly assumes that a span of time between the occurrence of the harm and the recovery paid to the victim is unimportant. However, even if duration of proceedings is socially optimal, such span of time or delay naturally exists. Thus, there is more than one possible view concerning which moment should be taken as relevant in order to assess the true cost of a certain harmful wrongdoing.

In our view, the law and economics literature has ignored the role of judicial interest rates while they certainly matter and are relevant to shape effective deterrence of wrongdoings. Furthermore, as we already suggested, the economic analysis is more complex and nuanced than common intuition seems to suggest.

The legal approach to judicial interest rates by the more traditional scholarship is also quite problematic. According to the most traditional legal views, the cost of the harm must be pondered at the time the harm is suffered or (if progressive) consolidated. From then on, the goal should be to keep its actual value over the time, and a general judicial interest rate can and should accomplish such task. This approach was illustrated by our simple example which we can frame in the context of a unilateral accident. Recalling our simple example, let us suppose the cost of the harm, when done or consolidated, is one thousand Euros and the opportunity cost for the plaintiff is 10%. If the judicial interest rate is of 10%, it makes the plaintiff indifferent between being paid earlier or later. The question about which moment is relevant to determine damages is also trivially addressed by this reasoning.

However, if the plaintiff's opportunity cost is higher than 10% (i.e., of 15%), the example raises several possible approaches. For a more traditional approach, there would simply be no deterrence issue involving the defendant. Accordingly, for economic purposes, level of care imposed on the defendant must be set on the basis of a harm cost of one thousand Euros. The additional 5% over the judicial rate although implied a loss in utility for the plaintiff would only be on her own account. Rather than an explicit line of thought, the aforementioned approach is a widespread belief underlying a good part of the current literature and legal thinking. If we tried to reconstruct its conceptual underpinnings, two variants might complete the reasoning.

The first suggests the appropriateness of using averages in this field. According to this, if we have a generally applicable rate of 10% and two plaintiffs,  

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9 There are of course exceptions such as Rubin, Paul H. and Shepherd, Joanna M., “Tort Reform and Accidental Deaths”, *Journal of Law and Economics*, vol. 50 (May 2007).
one of them with an opportunity cost of 5% and another with a 15%, the gain of the first will compensate the loss of the second. Then, beyond any asymmetric distribution of private cost (which would indicate some unlikely biased calculation of judicial interest rates), the different interest rates would not raise any problem in terms of average social cost. Moreover, being the statutory mechanism cheaper in terms of administrative costs, this option would look, on this basis, theoretically sound and practically consistent with minimizing social cost.

An alternate justification might point to the causal apportionment of liability across parties. Although this line of thought has rarely been expressed in an open way, there are a few opinions, based on different national laws, which held this argument in such explicit way.\(^{10}\) Much more commonly, however, its acceptance is only and merely implicit. In pure legal terms, this view may be interpreted as tacitly assuming some particular practical approach to causal apportioning of liability. In this line, the extent of defendant causation would only go up to the moment the harm takes place or consolidates; in turn, any loss in utility brought about by discrepancy between the general judicial interest rate and a given individual plaintiff’s opportunity cost would be deemed belonging to the plaintiff’s losses. Individual opportunity costs diverging from the general rate would be a special kind of “freak cases” and, because of their unpredictability, must be placed outside the scope of defendant’s causation.

Both arguments, nonetheless, are seriously incorrect from an economic perspective. On the supposed appropriateness of an average rate, contrary to the intuition previously showed, the argument is not sound. In order to illustrate the counterargument, let us think of certain kind of actions bringing about a harm valuable in one thousand Euros, being the social cost of erring in the valuation of damages equal to the amount over or undervalued. Among the victims of this class of torts, let us distinguish two types of plaintiffs, having the members of the first group an opportunity cost of 15% per year, and the ones included in the second, 5%.

Hence, if the general judicial interest rate were set at 10% (the average of 15% and 5%) the error cost would be one hundred Euros (fifty Euros per type of plaintiff). Conversely, if the rate had been determined case-by-case and met the actual plaintiffs’ opportunity cost (that is, 15% and 5% respectively), the mean would have been the same (10%) but the error cost associated would have been

\(^{10}\) According to Argentina’s Supreme Court in "Y.P.F. c. Provincia de Corrientes" (Fallos, 315:158, 3-III-1992). See also footnote 11. In a similar line of reasoning, the Greek reporter professor Konstantinos D. Kerameus, states that earnings which significantly surpass the average should not be included within the defendant causal scope according to Greek law. European Centre of Tort and Insurance Law, Unification of Tort Law: causation, SPIER, J. (ed), Kluwer Law International, La Haya (2000).
zero. Thus, averaging is not an appropriate measure to approach minimization of social cost. In technical terms, what matters, here, is that the variance has a social cost and therefore the mean of the opportunity costs is inappropriate as a measure for determining damages.

Apart from the significant social cost imposed by variance, we must observe that general judicial rates, in the real world, are not even properly defined averages. The procedures in order to find a proper average and the subsequent actions needed to amend a statute every time a significant change on its calculation took place would raise the administrative costs to an extreme situation.

On the alleged causal apportionment, the economic treatment of “freak cases” is interesting and controversial, but we will not discuss that field in depth, in here. What makes inapplicable those arguments to this point is simply that we are not dealing with “freak” exceptional cases, but simple economic terms. Asymmetric distribution of opportunity costs is prevalent and not unlikely. It simply reflects that defendant and plaintiff are unlikely to have the same preferences, the same opportunities and the same budget constraint.

III. THE ECONOMICS OF THE JUDICIAL INTEREST RATE

(A) Delay

The excessive duration of judicial proceedings is a widespread concern all over the world. Numerous jurisdictions belonging to different legal and judicial traditions and families share a common concern about excessive delays.

The desirable duration of a particular legal proceeding is not an obvious concept. One standard way is to study the difference between the actual duration in practice and the formal duration according to the rules of procedure in the books. This line of research is mainly empirical and positive nature. It assumes that any delay beyond the procedural duration is improper which implicitly presupposes that the rules of procedure define the desirable duration. In this context, “excessive” has a reference point defined by rules of procedure which makes for difficult comparisons across countries or even across cases subject to different rules of procedure.

A second approach, echoed by many legal policymakers, emphasizes shortening judicial proceedings. Different mechanisms and diverse legal tools are

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considered to speed trials or settlements. This line of thinking, however, usually does not propose a firm criterion to distinguish between the appropriate length of judicial procedures and an excessive duration. Based on some rough intuitions or comparisons that speedier judicial proceedings are better, it operates as if the appropriate duration was a very short period of time. In fact, most of the work by legal policymakers gives not advice on how long the judicial proceedings should last if we were able to amend the rules or alter judicial practices at will. Minimizing duration as much as possible, embroiled in rhetoric of efficiency and cost-effectiveness, is obviously flawed since there is a clear and significant tradeoff between duration and quality of judicial proceedings that must be accounted for.

From an economic perspective, the adequate duration must be established by minimizing the social cost. Such approach makes the analysis conceptually easier. In short, the time of a particular proceeding is to be deemed excessive when, and only when, its marginal increase in time yields a marginal social cost. This statement assumes that every lawsuit and every proceeding can have a marginal social benefit. While duration improves quality and other legal considerations rather more than imposes social costs, we would expect a positive marginal net effect. Once social costs of delay dominate gains in quality, we suggest a negative marginal net effect. Every suit has a different adequate duration reflecting the merits, complexities and incentives induced to the litigators. A highly socially useful and complex lawsuit will demand a longer duration. A pure frivolous lawsuit should have zero duration.

Many factors can explain unjustified delay in litigation. The law and economics literature has a long tradition of considering possible roots for excessive delay. The judicial interest rate, however, has not been a matter of the special interest by scholars probably because it is perceived as a mere reflection of a simple net present value.

It is easy to see that the judicial interest rate can play a role on the incentives for each party to prefer a longer or shorter trial. This effect is usually more visible focusing on the defendant side since there is a direct opportunity cost in terms of making use of the award to be collected. The most obvious case arises when the judicial interest rate is considerably different from the rates practiced by the financial markets. We can understand a legal award as a loan the defendant gets from the plaintiff (although coercively rather than voluntarily). If the judicial interest rate is lower than rates practiced in the marked, such loan is a good choice for the defendant. However, if the judicial interest rate is higher, that same loan is an inefficient private choice since the defendant could finance his activities at a better rate in the market.

The opposite reasoning applies to the plaintiff. If the judicial interest rate is less than the rate she can get in the financial markets for supporting an external loan, delayed litigation is a bad investment. However, if it is more than the rate obtained in the financial markets, delayed litigation is a good opportunity from an investment perspective for the plaintiff.

Taking the interest rate fixed by the market, it is clear that either the defendant or the plaintiff can benefit from delayed litigation, while the other side loses, unless the judicial interest rate equals that of the market. Notice that in this discussion we have assumed that delayed litigation is as risky as some other alternative financial investment. Once we consider diverse risk exposures we must use the interest rate fixed by the market adjusted to a certain relevant level of risk. However, the main insight is not changed. Damages in litigation can be understood as a (risky) loan from the plaintiff to the defendant. Therefore, the judicial interest rate covers an opportunity cost reflecting the conditions of private financial markets.

Evidently opportunity costs in this context do not merely reflect interests practiced by financial markets. Plaintiffs and defendants can have particular risk preferences, unique investment opportunities, asymmetric access to financial and human capital that are not easily reflected on the financial interest rates (which

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13 During the so called “Convertibility Plan”, in force in Argentina during the 1990s, the Argentina Supreme Court ruled in favor of applying a uniform judicial rate to every monetary judgment corresponding to the rate paid by the state owned banks for the fixed term deposits (see “Y.P.F c/Provincia de Corrientes”, Fallos, 315:158, March 3, 1992). Nonetheless, by political and structural reasons, this interest rate was excessively low in comparison with the rate charged by the same banks to loans. A residual inflation (the “Convertibility Plan” was the instrument intended to fight against a previous hyper-inflation-crisis) aggravated this issue, making the real judicial rate extremely low. The conventional wisdom, in Argentina, was that such uniform judicial rate generated incentives for plaintiffs to delay since their judgment was significantly eroded with the passing of time.
are the outcome of an aggregated supply and demand for financial services). In these terms, the opportunity cost must reflect the best alternative use for time and money invested in trial.

In order to simplify and to capture all the range of situations involved, we must employ a more abstract notion of opportunity cost this way:

For the defendant, if his opportunity cost is higher than the judicial interest rate, he will prefer a longer process and pay later adjusting for the judicial interest rate. Conversely, if his opportunity cost is lower than the judicial interest rate, he would rather prefer a shorter trial with a prompt payment.

For the plaintiff, if her opportunity cost is lower than the judicial interest rate, she will prefer a longer process and get compensated later with a high judicial interest rate. On the contrary, if her opportunity cost is higher than the judicial interest rate, she would rather go for a shorter trial with payment without delay.

Given a certain judicial interest rate, defendant and plaintiff want a quick trial when the defendant’s opportunity cost is low and the plaintiff’s opportunity cost is high. The converse is true when the defendant’s opportunity cost is high and the plaintiff’s opportunity cost is low; both want to delay trial and payment. However, when opportunity costs are equally high or equally low, the incentives for both sides are not aligned since one party wants a speedy trial while the other would prefer delaying.

Delaying is not just a matter of reflecting differences between opportunity costs and judicial interest rate. Neither defendant nor plaintiff can simply delay to adjust awards, eroding (defendant) or accruing (plaintiff) monetary payments. There are a number of mechanisms and procedural rules that or condition deter strategic behavior aiming to delay judicial proceedings. Both sides do not have absolute control over duration and cannot behave freely in this regard. However, there is enough amplitude in relation to alternative potential litigation strategies. Given the need to establish the facts and promote quality in judicial proceedings, there are enough procedural rules that allow for time spending without an obvious manifestation of frivolous delay. To a certain extent and within reasonable boundaries, it is not easy to identify actions for mere unfair delay. Evidently the most generous is procedure in relation to allowing parties to file motions, require further evidence, adjourning trial, and so on, the less likely is that a strategy to promote delay can be detected by the court.

A strategy to delay is not costless. Therefore opportunity costs for plaintiff and defendant must also reflect the costs of engaging in frivolous delay. However, these decisions are solely determined by private costs. Each party does not care about the costs imposed on the other side and additional social costs. The party
deciding a delay looks at private costs and benefit, but not at social cost and benefit.

Under some condition, there is a judicial interest rate that deters frivolous delay.\textsuperscript{14} It must be the case that the opportunity costs for the defendant are significantly lower than the opportunity costs borne by the plaintiff. Such condition defines a \textit{non-delaying judicial interest rate}. Although possible in many particular cases, this condition does not seem very realistic. In fact, a more common situation may be where the opportunity cost borne by the defendant is larger than the opportunity cost for the plaintiff.

Why should society care about this beyond the interests of both sides? If delay is a mere question of private interests and procedure is flexible, it is conceivable that parties could negotiate delay of proceedings much the same way parties can negotiate a settlement. Within a framework of less flexible procedure, parties might not be in a position to negotiate delay that fully internalizes their private costs, so the observed duration of a judicial proceeding might not be efficient from the perspective of both sides. In fact, if a trial is fully paid by both sides, then the social cost should merely reflect the aggregation of private costs. In such context, the preference of the parties concerning delay should be fully respected (unless we consider some other significant externality which can be realistic in some contexts, e.g., revealing information about certain products or improving the environment). However, if a trial is not fully paid by both sides, that is, a trial is heavily subsidized by taxpayers (a realistic assumption), both sides will have distorted incentives which do not reflect the true opportunity costs. In such context, delay has an important social cost which can be changed when setting a particular judicial interest rate.

(B) Decoupling

The law and economics literature has developed an important insight known as the \textit{decoupling effect}. Usually damages paid by the defendant and recovered by the plaintiff are strictly equal. That has been referred in the economic literature as \textit{status quo litigation}.\textsuperscript{15} Thus, the already alluded “decoupling” con-

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\textsuperscript{14} The condition for both parties not waiting delay is given by $OC_d \leq JIR \leq OC_p$, where $OC_d$ is the defendant’s opportunity cost and $OC_p$ the plaintiff’s opportunity cost. Obviously it is required that $OC_d \leq OC_p$. If this condition is not satisfied, there is no judicial interest rate that can eliminate incentives for delay judicial proceedings. See Acciarri, Hugo A., Castellano, Andrea and Barbero, Andrea, "Delay in Lawsuits and Interest Rate", \textit{Latin American and Caribbean Law and Economics Association (ALACDE) Annual Papers}, Jan. 2007.

sists in separating damages to be paid by the defendant (more money) and recovered by the plaintiff (less money). The rationale for this is simple: if the amount recovered by the plaintiff is lower than otherwise, there will be fewer lawsuits since the expected gain has been reduced. However, in order to keep the same deterrence of wrongdoings, damages to be paid have to be increased in a sufficient way.

As a matter of fact, except when opportunity costs are fully equal for plaintiff and defendant, the judicial interest rate always leads to an implicit decoupling in recovery and damages. The reasoning supporting this statement is easy to understand. Unless the harm borne by the plaintiff is compensated on the spot by the defendant (or, more realistically, within a reasonable time), decoupling always takes place because opportunity costs are simply different for plaintiff and defendant. Consider a wrongdoing that causes harm of one thousand Euros. Suppose discount rates are 8% and 12% for plaintiff and defendant respectively. At end of trial, the value of such harmful wrongdoing is one thousand and eighty Euros for the plaintiff and one thousand and one hundred and twenty Euros for the defendant. Decoupling (or reverse decoupling) naturally emerges when discount factors differ.

There are two important implications from realizing the decoupling effect that a judicial interest rate causes.

First, it is unclear that the decoupling effect induced by a judicial interest rate is the efficient level of decoupling. Broadly speaking, the defendant should pay more than the plaintiff should receive while keeping deterrence unchanged. However, in relation to a judicial interest rate, it all depends on the opportunity costs. Managing a judicial interest rate to achieve the efficient level of decoupling seems difficult, even unfeasible when the opportunity costs, for example, impose reverse decoupling.

Second, in a more general setup, it is even unclear if there is an efficient level of decoupling. The reason is that decoupling reduces the aggregate welfare of the parties which might distort behavior much the same way as taxation.16

Our discussion indicates that while the judicial interest rate creates a decoupling effect (as long as both parties have different opportunity costs), it is unclear if this decoupling effect is efficient. By the same reasoning, using the judicial interest rate to manipulate the decoupling effect seems highly problematic and unrealistic.

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16 Id.
IV. GUIDELINES FOR LEGAL POLICY

According to our theoretical framework, the judicial interest rate is important to explain delays and decoupling. It also impacts on deterring wrongdoing and conditioning lawsuits. Those effects may be regarded as undesirable (when they tend to increase the social cost) or desirable (when they tend to reduce it). From a policy approach, we could be tempted to conclude that the goal is to find the appropriate judicial interest rate. Nevertheless, the institutional context and the available rules of procedure make the topic more complex.

The easiest approach would be for both sides to negotiate an interest rate that internalizes in the most adequate way the asymmetric opportunity costs (since they are in the best position to assess opportunity costs). Such negotiated interest rate could be part of the liquidated damages clauses (in contractual litigation) or of some early arrangement between plaintiff and defendant (in tort litigation). However, much the same way we do not expect settlements to be universal because parties cannot agree on compensation or on the delay of proceedings, they might also be unable to agree on the appropriate interest rate.

A second solution is to allow the court to set a judicial interest rate that reduces frivolous delay and imposes the appropriate level of decoupling. Presumably the court has more information than the legislator to set a case specific interest that addresses these goals (although the court is likely to have less information than the parties themselves). If there is a non-delaying judicial interest rate, the court is more likely to be able to determine it than a statute approach. A statute will typically propose a pooling interest, or at most a menu of interest rates that, as we have showed, can hardly be appropriate for all plaintiffs and defendants.

Allowing the courts to set the judicial interest rate might create some uncertainty that affects deterrence and the decision to file a lawsuit while a statutory interest is better anticipated by both sides. Furthermore, if courts are bad at identifying frivolous delays, they might err frequently punishing appropriate delays (thus, reducing the quality of trials) or permitting improper delays. Under such ineffective courts, a statutory interest rate could be better. However, this last mechanism has its own and, as we will see, usually more serious, drawbacks.

If we focus on delay and decoupling, those effects are likely to be better accomplished by different procedural mechanisms. Suppose the harm suffered by the plaintiff is one thousand Euros and the discount rate for both sides is 10% in the context of a simple unilateral accident. As we have discussed before, one thousand and one hundred Euros is the adequate compensation at the end of trial. However, these additional hundred Euros can be paid as interest as well as compensatory damages or as punitive damages. Punitive damages can be generally set by the court, therefore overcoming any difficulty than an interest rate could face if
regulated by statute. Punitive damages are likely to be more efficient in deterring frivolous delays by the defendant. In the same vein, a reduction in compensatory damages is likely to be more adequate in deterring frivolous delays by the plaintiff.

Consider now the role of a judicial interest rate in decoupling damages and recovery. Suppose that, for a harm valuable in one thousand Euros at the moment the compensation is paid and received, the defendant should pay one thousand and one hundred Euros while the plaintiff should receive nine hundred Euros only for an efficient decoupling. Rather that searching for a judicial interest rate, simply imposing court fees of one hundred Euros on both plaintiff and defendant achieves the targeted effect. It is more efficient and probably much cheaper to implement.

Court fees and appropriate setting of damages are certainly better than a statutory judicial rate. The reasoning is simple. Any statutory interest rate is set ex ante. Its final impact is determined by the proceedings’ length, which is partially indeterminate when the interest rate is set by the legislator. Then, while any ex post mechanism can properly account the actual duration of the suit in order to calculate intertemporal effects, no statutorily imposed rate can do that accurately.

A combination of variations on damages and court fees seems a more efficient mechanism than a judicial interest rate in reducing excessive delays and implementing decoupling. If so, using a judicial interest rate to incentivize plaintiff and defendant seems inconsistent with an adequate reform of civil procedure.

It is a common perception that civil procedure in civil law countries is less flexible than in common law countries. In the absence of variations in damages and relative discretion in court fees, using a judicial interest rate could be the only effective mechanism to deter delay and promote decoupling. However, as we have emphasized, the use of judicial interest rate as a policy mechanism would be a far second-best solution, only advisable in an extremely rigid procedural setup. Nonetheless, as we previously showed, this option is not theoretically feasible in a good part of real cases for achieving decoupling of preventing delay.

Hence, on these new bases, a first question can be posed in a twofold way, depending on the different kind of legal context. On the one hand, we may inquire what the best role of the judicial interest rate is, provided there are some competing devices in order to achieve the same goals at different costs. Another issue, intimately related with the former, would be (in each context) what the best way to rule on the matter is. This latter question points primarily to analyze the suita-

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bility of the statutory regulation of the judicial rate, as it is common in many systems.

In order to begin by the first question and its variants, let us assume a legal system where some substitutive instruments to deal with litigation costs are in force (as it is assumed it is the case in common law countries). In comparison to strategies *via judicial interest rate*, some of them may appear as more direct and flexible options in order to deal with the previously identified sources of inefficiency.

This, primarily because, as it was abundantly demonstrated in our theoretical remarks, there is a significant range of cases in which there is not even a judicial interest rate theoretically available in order to avoid either some or all the efficiency-issues implied. Showing that constraint, in turn, exposes the lack of effectiveness of strategies *via judicial interest rate*, for a broad range of cases. Additionally, in a real policy approach, even within the remaining realm of possibilities, setting a “perfect” rate, in order to achieve all the goals implied may be insufficient (magnitude-wise), in order to properly incentivize the process. This weakness arises in “possible” cases where the parties’ opportunity costs are properly aligned but the spread between them is too narrow to give a significant leeway. In these cases, the theory dictates that the judicial rate can only be set within that thin margin, what implies, in turn, that the difference between any of the parties’ opportunity cost and that rate will be still narrower. Thus, if some “noise” is present (some positive and relevant transaction costs), it may dilute any beneficial incentive-effect coming from the interest rate. As it was shown, either increasing or decreasing the value of the judicial interest rate beyond the boundaries of that leeway, in order to overcome the noise, would violate its condition of adequacy.

The explanation of this kind of disadvantages, as it was proven, lays in the bilateral or “coupled” nature of the judicial interest, since it is nominally the same (although with reverse impact) for both parties. In comparison, some competing mechanisms, e.g. court fees and penalties, are free from that constraint, since what a party pays by applying some of them (a positive sum), is decoupled of what her counterpart receives (usually zero).

Moving to a civil law scenario, and *mutatis mutandis*, the previous conclusions still hold. If the debate focuses on a traditionally shaped interest rate, intended as an *all-purpose-remedy*, even as a second best (facing the lack of other tools as a matter of fact), it is clear that its powers are modest, on the basis of the constraints previously discussed. Then, from a normative point of view, if something has to be amended, that is not primarily the role of the judicial interest rate, but much more profound institutional features of the civil law rules of procedure. In this line, the analysis of theoretical relations flowing around the judicial interest rate contributes to comprehend more clearly some sources of inefficiency and
would reinforce the convenience of allowing more and more flexible instruments devoted to deal with the social cost of litigation.

Hence, in each of both schemes, once excessively high expectations on the instrumental powers of the (traditionally set) judicial interest rate are abandoned, some issues still remain.

The first consists in taking into account the set of relationships flowing around the interest rate and parties opportunity costs in order to design and apply remedies other than the judicial interest rate, but equally dependant on those relations, and on the interest rate. Another, as we posed it in advanced, if the judicial interest rate cannot be an appropriate remedy for most of the inefficiencies of the process, it would be at least desirable, that it does not aggravate the problem. This last point straightforwardly leads to the issue concerning the most suitable mechanisms in order to set the judicial interest rate and its particulars.

As we have previously discussed, judicial interest rate is just a tool employed to deal with intertemporal dimension of process. Linking its nature itself to a widespread mechanism in order to set its value has obscured some effects intimately related to its play. Once the latter are systematically studied and unveiled, that mechanism shows up as a generally inefficient way to fulfill the roles the interest rate can properly do, with no gain on the field of those it hardly can achieve.

Being opportunity costs as idiosyncratic as damages are, if parties have no agreed on the point in advance, the court, not the legislator, is in the best position to rule on the point. According to this view, if we focus on the problem itself (intertemporal dimension of process) instead on the instrument usually employed to deal with it (judicial interest rate), we can see that the concept of interest itself, separated from the idea of harm’s cost, is not necessary, but merely customary. Hence, in all correctness, rather than looking for the best role for the judicial interest rate, it is preferable to study the best way to assess harm’s costs, properly including inter-temporal dimension. As soon as this view is accepted, statutory setting of judicial interest rate (at least in prejudgment phase) turns to be an option hardly consistent with minimizing social costs.

In the next paragraphs, on this basis, we will sketch some lines of policy applicable to different stages or cases.

First, parties are usually in the best position to calculate in advance the effects of the course of the time on their relationships. In this regard, many national or state laws simply enforce the provisions the parties have made in their con-
tracts on the point. However, many of them set some kind of caps to those private agreements, in different fashion.\textsuperscript{18}

There is a well known trend, developed over the centuries, in favor of limiting the private faculty to make agreements on monetary interest. Its treatment would be far beyond the aims of this paper, indeed. Nonetheless, inside that field there is at least a hint of interest specific to our goal. In short, we think that there is no reason to intervene on the interest that parties explicitly set in their contracts (or any other implicit device addressed to deal with intertemporal issues) other than the general reasons to intervene in contracts in general.

The key, in our view, is not related to the extent of the rate. In other words, there is no value in itself excessive or insufficient, but stipulations either enforceable or not. On the conditions to judge its validity, they are the ones usually employed to judge the enforceability of private contracts and agreements in general.

When these conditions are specifically applied to the issue of money interest and intertemporal issues in general, the only specific nuance to focus on would be certain computational “opacity” related to the final impact of interest clauses on the economics of the contract. In a matter broader than the issue of judicial interest itself, this point may explain some difference in the treatment of stipulations on the price and the provisions on interest in general. If a party sells a car at two thousand Euros, to be paid in a year’s time at a 30% of interest, the whole cost would be the same that if its price were of 2,524.27 Euros and the interest rate of 3%. However, in many countries’ laws, an interest rate of 30% per year might be regarded as excessive and unenforceable. Prices, unlike, are much less prone to be a matter of judicial intervention. Guesses on the rational of this trend may go from a pure prejudice based on tradition to interpretations based on the differential perception of simple price clauses and some complicated comprehension of interest terms. The former is clearly misguided. The latter, may be sound as far as the case shows the requisites to apply general rules tending to make some contractual terms unenforceable.

Nevertheless, whatever the underpinnings of those sorts of legal doctrines are, there is no reason at all to set general cups to private agreements on judicial interest. There is no value either fair or efficient in itself, but only enforceable or unenforceable contractual terms.

\textsuperscript{18} Some jurisdictions, as some American states, set explicit limits to parties’ freedom on the matter (e.g., Arizona, Arkansas, California, Indiana, et cetera). The same point is not explicit in other national laws, though judge has powers to reduce the interest rate agreed by the parties as pre-judgment interest.
Second, for non contractual cases, there is no conclusive reason to statutorily rule the prejudgment judicial interest rate. This claim may sound controversial. Nonetheless, once the role of the judicial interest rate is clearly understood, the conclusions on the matter may flow straightforwardly.

Let us start, then, by focusing on what the best role for the judicial interest rate in the prejudgment stage can be. As we have suggested, manipulating the judicial interest rate appears as a poor remedy in order to approach the efficiency, either in terms of delay or decoupling, although it has influence (certainly relevant, sometimes) in both of these goals. Moreover, for the reasons previously discussed, the strategies via judicial interest rate, in both areas, can be clearly overcome by other competing devices. However, there is a remaining role, traditionally attributed to the judicial interest rate which cannot be played by those kinds of tools: its function on quantifying the harm over the time. On this field, the prevailing usage of statutory judicial interest rates has shadowed the distinction between more than one issues co-existing in the matter. One of them consists in assessing the cost of certain harm at a date different from the time it was consolidated; other, the fact that any general discount rate can fulfill that role appropriately.

In a zero-transaction-cost world a general market discount rate could indeed fulfill that role. However, in the real world, a bundle of reasons hinder the work of any statutory judicial interest rate in order to meet that result. First, statutory judicial interest rates are usually not market rates, but government determined ones. Second, market rates may change in unpredictable moments and ways, whereas statutorily ruled judicial interest rates are in force for predetermined periods, each of them usually of a standard given duration. Third and the foremost, when transaction costs are present, there is no general rate which equals individual opportunity costs, simply because they are different each other and idiosyncratic. Hence, any generally applicable prejudgment judicial interest rate conveys an amount of error in the assessment of harm’s costs and then, a correlative social cost.

The last point deserves some special attention. In previous paragraphs we sketched in advance a possible reply on this contention, based on a more general argument of policy, which, in short, stands on grounds of the cost of the mechanism and the relative suitability of averages. According to this line of reasoning, two kinds of costs should be pondered. On the one hand, the aforementioned error cost; on the other, the administrative cost of the mechanism employed to set the judicial interest rate. For its advocates, the advantage of the statutory option

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19 Reductions applied to prejudgment interest rate as an implicit way of limiting liability (and their effects on specific matters) have been empirical studied, e.g., Rubin, Paul H. and Shepherd, Joanna M., “Tort Reform and Accidental Deaths”, *Journal of Law and Economics*, vol. 50 (May 2007).
would lay on the latter. Concerning the former, however, we showed that error costs related to this kind of pooling device are usually underestimated on the basis of a pair of technical flaws, which we called faith on averages and some mistaken causal exclusion.

A couple of remarks should also be of use on the case-by-case method. The first, suggests that the notion of prejudgment interest, as a differentiated procedural instance, is neither necessary nor probably the best option. On the one hand, because there is no need of a step of procedure other than the one addressed to prove the amount of damages; on the other, for there is no need to choose a unique rate, even implicitly, for the same lawsuit. The second suggests that the cost of proving and assessing the intertemporal development of harm might be not as high as it is deemed.

On the first, once the intertemporal role of prejudgment interest is separated from the mechanism customarily employed to deal with the intertemporal dimension, it looks clear that the issue is no more than a component of damages. Hence, its proof is not qualitatively different from ordinary components of compensation. Proof, as a phase of proceedings, is usually manifold and varied. Different instances of harm, in turn, can evolve at different rates, even within the same lawsuit. For instance, let us think of a physical injury whose costs were covered in its first phase, by taking a loan at a 10%. Then, a second kind of expenses (e.g. buying a wheelchair) financed by means of an additional loan taken at a 15%, since the first loan lowered the plaintiff’s solvency and correlatively increased the risk premium she had to pay.

This and many kinds of examples, show that any general and even, any unique prejudgment interest rate, is only a poor method to approach a dimension of harm’s costs, in reality. Case-by-case assessment, then, allows dealing with these peculiarities in a proper way, while no general statutory rate does.

May (allegedly low) administrative costs of statutory option compensate its drawbacks? The answer is not easy. It clearly depends on the relation between two set of costs: statutory mechanism’s administrative costs and error costs on the one hand, and the same for its rival.

On this field, it seems plausible to think that there are some easy hints to make administrative costs of case-by-case method low enough in comparison to its gains in accuracy. The most visible points to the usage of the rules of evidence and the facts the court must take judicial notice of. On the latter, the intertemporal change in the value of money is a fact notorious enough to conclude that it cannot be refuted and then, is apt to trigger the judicial notice rule. Moreover, some market interest rates which constitute the benchmark of any decision on the field had also been deemed a fact of the same nature. Specifically, it was held, e.g., that the
court must take judicial notice of a report from the U.S. Housing and Human Development Agency indicating a mortgage rate, because the historical interest rate information was provided by the federal government, the information was not subject to reasonable dispute and was capable of accurate and ready determination by resort to sources whose accuracy could not reasonably be questioned.20

On this ground, the cost of providing evidence by the plaintiff and also, of deciding, by the court, the intertemporal variation of harm’s costs may not be as significant as it may be deemed at first sight. The basic rule would be that when the plaintiff’s opportunity cost is close to the average rate in the market, the cost of proving intertemporal change will tend to be low. Nonetheless, even many instances of harm’s costs evolving at a rate highly different from the average will not, in turn, be excessively expensive to prove, since those cases are usually related to loans taken at an above prime rate and those circumstances may easily be proven by means of document evidence. Hence, the cases exceptionally demanding will be just a few.

Third, on post judgment interest a statutorily ruled and high rate may be preferable. Once a judgment is given and no further legal remedies or appeals may be made against it (i.e. a final judgment) the bases of the issue entirely change. Before judgment, the cost of the plaintiff’s harm remained disputable; after judgment, it is not. Up to the moment of judgment both parties have some part in the length of the proceedings and there is a tradeoff between the faculties

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20 In Estate of Osborn ex rel. Osborn v. Kemp, C.A. No. 3171-VCP, slip op. at 24-25 n. 95, Parsons, V.C. (Del. Ch. Aug. 20, 2009), aff’d, 991 A.2d 1153 (Del. 2010): “...Specifically, Osborn asks the Court to take judicial notice of a report from the U.S. Housing and Urban Development Agency, which indicates a mortgage interest rate of 10.625%. POB at 19. Under Delaware Rule of Evidence 201(b), a court may take judicial notice of an adjudicative fact if the judicially noticed fact is “not subject to reasonable dispute” and is “capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned.” D.R.E. 201(b). A party is entitled upon timely request to an opportunity to be heard as to 24 made by Kemp during the twenty year period from 1985 to 2005 at a discount rate of ten percent would yield an effective purchase price far less than $50,000. Moreover, the fact that Kemp presented no evidence that the lower purchase price reflected in his interpretation of the Contract bears any relation to a reasonable price for the Property further weakens his argument that the Contract should not be construed to require the payment of an additional $50,000. Second, Delaware courts apply the general principle of contra proferentum, which holds that ambiguous terms should be construed against their drafter.96 Because there is no dispute Kemp drafted the Contract, I will construe the ambiguous price term in the Contract against him.97 For both of these reasons, therefore, I find the Contract requires Kemp to pay an additional $50,000 to purchase the Property. The propriety of taking judicial notice and the tenor of the matter noticed. Id. Because this historical interest rate information was provided by the federal government, I find the information not subject to reasonable dispute and capable of accurate and ready determination by resort to sources whose accuracy cannot reasonably be questioned. In addition, Kemp did not object to this evidence. Therefore, I grant Osborn’s request and will take judicial notice of this information...”
of the parties in order to defend their rights and the time of the lawsuit; after the final judgment, the goal is merely for the defendant to swiftly fulfill her duty; additionally, avoiding any new litigation on the same matter.

Hence a high post judgment judicial interest rate may fulfill that role. On the one hand, it may be statutorily set, since meanwhile it is not possible predicting any individual case and averages are not the best measure of the social cost of this device, it is clearly feasible setting a value higher than the overwhelming majority of defendants’ opportunity costs. For the same reason, this general value can be statutorily ruled, capturing, then, the advantages of the reduced administrative cost of this kind of devices.

V. Concluding Remarks

We have started this article by noticing that judicial interest rates have not attracted a lot of attention. For law and economics, they seem uninteresting given what we know about optimal deterrence of wrongdoings. For the conventional legal scholarship, they merely implement a rule to calculate present values reflecting delays. Yet legal policymakers have used judicial interest rates to influence duration and length of legal proceedings.

Our critique of the current state of the art is presented by a simple example. Suppose there is a wrongdoing which causes harm valuated at one thousand Euros and the discount rate is 10%. Then the relevant value to generate compensation at trial is one thousand and one hundred Euros.

We have explained why this simple approach is flawed. First, when opportunity costs are asymmetric (and they are likely to be), a judicial interest rate will influence delays (beyond social optimality) and decoupling (damages paid by defendant and recovery collected by the plaintiff) which in turn will shape deterrence and litigation. An efficient judicial interest rate would have to take into account all these effects. Given the unrealism of such condition being satisfied, we are left with some second-best solution.

Second, there are many alternative mechanisms to determine delays and decoupling. If these mechanisms are used in adequate ways, a judicial interest rate would be trivial and unimportant. However, since these mechanisms also have significant limitations, a judicial interest rate plays an important role. We have argued that such observation is likely to be more important in civil law jurisdictions where rules of procedure are less flexible.

Third, the source of complexity in this context is asymmetric distribution of opportunity costs. Inevitably the best way to determine a judicial interest rate that internalizes these effects should be left to the parties. They have better infor-
mation about opportunity costs. However, in much the same way settlements fail, parties might not be able to agree on a judicial interest rate (due to significant transaction costs). We have argued the next best approach is to a court decided judicial interest rate. The benefits in terms of information and closeness to proceedings seem to outweigh possible costs of uncertainty and court error. Still statutory approaches seem more adequate for post-judgment interest where clearly the defendant merely seeks to postpone an established legal obligation established by a judgment.

Many jurisdictions struggle with excessive delays and consider variations on judicial interest rates as mechanism to deter congestion. We show that the effects are complex and could be counter-productive. Increasing judicial interest rates to punish incompliant defendants could result in frivolous delays sponsored by the plaintiff. Decreasing judicial interest rates to sanction incompliant plaintiffs could induce frivolous delays too, but this time supported by the defendant. If judicial interest rates are used to set appropriate delays, they might still cause too much decoupling or too much reverse decoupling which in turn could result in too many or too few lawsuits. Looking for the appropriate balance of all these effects is not easy in practice. Reform of judicial interest rates, in many circumstances, could result in aggravating rather than alleviating court congestion.

From a comparative law perspective, changing judicial interest rates should be discussed or considered in the context of alternative procedural reforms. Presumably the determination of compensatory and punitive damages could be designed to punish frivolous litigation strategies or determine the number of lawsuits to be filed. Court fees can be structured to achieve decoupling without need for adjustments of interest rate: the defendant pays court fees to the court and not to the plaintiff, and vice-versa, therefore doing the targeted decoupling explicitly and more directly. Procedural rules that allow courts to punish purely strategic delays without running into the complications of balancing the opportunity costs for defendant and plaintiff are likely to be more appropriate.

As we have said before, institutional context and design matter in terms of considering reforms on the determination of judicial interest rate. As the popular metaphor goes, when the furniture catches fire, the temperature of the room will significantly increase, but neither burning the furniture is a practical tool for heating the room, nor wetting the furniture a sensible mean to cool it down. Although the judicial interest rate lies within the core of a set of possible procedural mechanisms with relevant effects on litigation, strategies based on its manipulation might not have the expected effect, or even the desirable consequence.

We are not suggesting that the judicial interest rate is irrelevant, should play no role, and cannot be used for purposes of legal reform. The point is more nuanced. The judicial interest rate interacts with other available procedural me-
chanisms. In some cases, it is important to correct the judicial interest rate in order to improve litigation. In other cases, the judicial interest rate can be used to shape litigation and delays but it is not the most efficient policy instruments; identical or similar results could be achieved by other legal reforms at a lower cost. Finally, there are many cases for which manipulating the judicial interest rate is simply economically wrong because it will affect incentives incorrectly.

A similar reasoning has to be pursued in the context of court-based versus statutory mechanisms to set the judicial interest rate. Here, however, it could make a difference to distinguish between pre-judgment interest and post-judgment interest.

Pre-judgment interest should reflect the appropriate incentives for inducing efficient behavior in litigation. It is likely that the court is in a better position than the legislator to assess the opportunity costs of plaintiff and defendant. Furthermore, with a case specific interest case, the interest rate can be enforced as part of the substantial judgment. The interest rate can also easily reflect strategic and frivolous delays. There is a cost in terms of uncertainty for litigants that, on the other hand, would be minimized with a statutory determination of the judicial interest rate. We argue that, in the most reasonable circumstances, the benefit of setting an interest rate with more knowledge about defendant and plaintiff offsets the uncertainty cost borne by the parties.

A different reasoning might apply to post-judgment interest, where the concern is delay in payment and avoid further litigation resulting from frivolous appeals. At this stage, the damage to pay is already set and known by both sides. A statutory mechanism seems more adequate to deter excessive appeals and avoid further costly court intervention. Not only the cost of administration is lower; there are also advantages with respect to information, since it reduces uncertainty and clarifies the immediate costs of delaying payment.

Our article shows that an apparently trivial question (the role of the judicial interest rate) is highly complex. Legal policy implications are significant, in particular, reforms of judicial interest rate should avoid targeting delay because they might be counter-productive. Furthermore, depending on the institutional context, available procedural approaches, legal family (common versus civil law), judicial interest rates might deserve a different treatment.