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A Model for predicting Optimum Precautionary Level in Positive Economic Theory of Tort Law

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ABSTRACT

The Positive Economic Theory of Tort Law is the product of two great academics, Richard Posner and William Landes. Posner is a judge, while Landes is an economist. The Theory simply asserts that the optimal approach to view tort law is to assume that legislators enacted it to facilitate the efficient use and distribution of limited resources. A foundational economic notion that has been applied to tort law. The tort law system may become much more efficient and resilient by integrating economic principles of optimum precautions to liability standards. It will be attempted in this paper to integrate Ronald Coase's economic models into specific areas of tort law, particularly liability rules such as Negligence, Strict Liability, and Fault Liability, and it will also discuss the advantages of using economic models to better understand legal principles in Tort. However, prior to doing that, the study will seek to grasp the Economic Theory of Tort Law — How it evolved and the underlying assumptions behind the theories.

The author has conducted a strictly doctrinal investigation on the subject matter. The models developed have been corroborated in the context of logic, mathematics as well as the fundamental assumptions of economics and tort law as a whole.

Keywords: *Positive Economic Theory, Economic Analysis of Tort, Law and Economics, Coase Theorem, Optimal Precaution.*

I. INTRODUCTION

Since the mid-1960s, a multitude of research has been published that apply economic theories and models to the common law system - a collection of English and American judge-made laws, many of which are centuries old, that establish torts (civil wrongs that result in personal injury or property damage), contractual arrangements,

property, and a variety of many other areas of private behaviour. Remarkably, several of these analyses suggest that common law principles may be effectively interpreted by assuming that they had been created to promote economic effectiveness. This study will attempt to investigate the Positive Economic Theory, which was initially proposed by Richard Posner and has

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since gained widespread attention. According to Positive Economic Theory, the common law torts is best defined in terms of judges who developed the law by precedent-setting decisions in future cases aimed at promoting efficient resource allocation. A belief that judges make their decisions based on modern economic assumptions, such as a rational human encouraging the most efficient use of resources. This paper will attempt to comprehend the Economic Theory of Tort Law — how it developed and its common assumptions — as well as to integrate economic models into specific areas of tort law, particularly liability rules such as Negligence, Strict, and Fault Liability. It will also bring up the benefits of using economics to better understand legal principles in Tort.

II. THE EMERGENCE OF ECONOMIC THEORY IN TORT LAW

The positive economic Theory of tort law may be traced back to Jeremy Bentham, who integrated economics to non - market institutions. But the earliest economic scholastic treatment of tort law itself is contained in Justice O.W. Holmes' book *The Common Law*.² According to Holmes, the main distinction between negligence and strict responsibility as tort principles would be that the former offered some type of insurance. James B. Ames stated that the law was "utilitarian," albeit he simply did not specify the exact meaning of the term³, and Henry T. Terry said that the

standard for negligence was based on a balance of utilities.⁴ Yet these works make no mention of tort law establishing rules of behaviour that encourage effective resource allocation. While commentators acknowledged tort law's deterrence function, they did not link the notion that tort laws are founded on utilitarian values with the notion that liability deters action that is not utilitarianly defensible.

The legal realism era of the early 1920s saw a resurgence in tort studies. Legal Realists like Fleming said that it was foolish to speak about apportioning blame or to think that the law would have any impact on the number of accidents⁵; They were of the opinion that legal Theory had little bearing on the actual outcomes of cases. They were of the opinion that legal doctrine had little bearing on the actual outcomes of cases. As far as they were concerned, tort law's main duty was to provide social insurance. Based on the notion that injurers with "financial backing" should bear the burden of responsibility, they proposed eliminating defences like contributory negligence and assumption of risk that limited the scope of liability. Among the current proponents of legal realism are also proponents of "no-fault" compensation (effectively, obligatory accident insurance combined with the elimination or limitation of tort liability) and a sizable number of proponents of strict responsibility. A perspective that was diametrically opposed to Holmes' and one he was

² Holmes, Oliver Wendell, et al. *The Common Law*, (2009).

³ James Barr Ames, "Law and Morals," 22 Harv. L. Rev. pp. 97-110 (1908).

⁴ Henry T. Terry, "Negligence," 29 Harv. L. Rev. pp.

40 (1915).

⁵ Fleming James, Jr., "Accident Liability Reconsidered: The Impact of Liability Insurance," Yale L.J. pp. 549 (1948).

hostile to. He had argued against strict liability on the grounds that the state lacked the authority to provide insurance. Contemporary realists, on the other hand, only provide two options. They advocate either strict liability or no liability plus mandatory accident insurance, returning to the idea that tort law's sole purpose ought to be to offer insurance coverage to individuals who are uninsured against the danger of being hurt in an accident. Our current concern is not with the legal realists' normative approach but with their assumption that the legal system, in reality, deviates significantly out of its apparent functioning in accordance with legal doctrine.

The publishing of Ronald Coase's foundational paper on social cost⁶, as well as Calabresi's Article on Risk Distribution in tort law,⁷ marked the beginning of the third phase of tort study, which was characterized by an essentially economic examination of torts. The exploration begins with Bentham's assertion that humans ensure maximum utility in all spheres of life.⁸ Even though this suggests that liability rules may be utilized to influence the frequency of accidents, Bentham himself remained silent on this inference. The concept of social cost, sometimes known as external cost, as articulated by Pigou, is a far more obvious predecessor to the current approach of applying economics to torts.⁹ The use of social-cost analysis to tort law did not begin until the Coase and Calabresi papers. The most well-known aspect of Coase's paper is his

critique of Pigou's stance. Ron Coase demonstrated that if transaction costs are zero, the parties will negotiate themselves into a mutually advantageous and socially acceptable outcome regardless of legal entitlement of property. Calabresi was less interested in how courts used tort laws to internalize accident costs than he was in the concept itself. As was the case with Bentham in criminal law, Calabresi was more interested in constructing an effective structure of accident law from the ground up than he was in critiquing the existing system, though he eventually condemned the tort system for failing to fulfil economic efficiency requirements.¹⁰ The positive analysis of Calabresi's work has, nonetheless, made significant contributions, notably in connection to the difference between property rules and liability rules. And it was the work of these two experts that laid the foundation for the economic study of tort law that is presently being conducted. Particularly noteworthy is Coase's assertion that the Common Law serves as a framework for internalizing societal costs.

III. ASSUMPTIONS OF THE THEORY

The Theory is predicated on the assumption that the law of torts is best described as though the judges who developed the law via judgments that served as precedents in subsequent cases were attempting to promote effective resource allocation in their judgments. A frequent

⁶ R. H. Coase, "The Problem of Social Cost," 3 J. Law & Econ. 1 (1960).

⁷ Guido Calabresi, "Some Thoughts on Risk Distribution and the Law of Torts," 70 Yale L.J. 499 (1961).

⁸ Jeremy Bentham, "Fragment on Government and an

Introduction to the Principles of Morals and Legislation", (1789).

⁹ A. C. Pigou, "The Economics of Welfare", (1932).

¹⁰ Guido Calabresi, *The Costs of Accidents: A Legal and Economic Analysis*, (1970).

criticism about the Theory is that it makes exaggerated assumptions about how people act. This means that tort doctrines, even if they are well thought out in the abstract, do not actually have an effect on people's behaviour. Many say that most individuals are not even aware of these concepts and that conduct in the presence of risk is dictated by a regard for safety instead of a worry for the law and financial repercussions of one's actions. Furthermore, individuals do not have enough information about the probability of an accident to make well-informed decisions on prevention and mitigation. These arguments, which indicate that tort law is not really an efficacious tool of punishing inefficient conduct, are underpinned by a strong vein of scepticism about the deterring impact of law in general. However, when put to the test, this objection does not stand up. Furthermore, a large body of empirical and theoretical data shows unequivocally that the rigour and consistency of criminal sanctions have deterrent effects on violent crime.¹¹ Despite the fact that there has been little research on the deterrent impact of tort law, the available evidence indicates that tort law does have a deterrent effect.^{12,13} H. Latin offers similar arguments opposing tort liability's deterrent effect.

"The fact that some decision making undoubtedly occurs on the unconscious level in no way suggests that people can achieve optimal unconscious choices. Unless the unconscious

*mind is omniscient, possesses infinite computational and attentional capacities, and is free from cognitive biases, unconscious decision making could not possibly achieve maximizing results in all cases. To put it another way, there is no evidence and no reason to presume that the unconscious mind is superhuman."*¹⁴

This statement demonstrates a major misunderstanding about the economic approach to human behaviour: that its legitimacy is contingent upon the assumption that individuals must possess extraordinary mental characteristics. This is a widespread myth that is worth attempting to refute.

Economic models are usually based on unreasonable assumptions. For instance, the standard notion of a perfectly competitive market presupposes an enormously high number of enterprises producing the same product. It is predicated on the premise that no business can change market prices by adjusting its very own production and that neither purchasers nor vendors incur costs while searching for alternatives. These assumptions are often incorrect. Nonetheless, the model is fairly excellent at forecasting things like how the price of goodwill reacts to the application of an income duty. While more advanced models may provide even superior prognostications, the basic, implausible model performs fairly well.¹⁵

¹¹ David J. Pyle, *The Economics of Crime and Law Enforcement*, (1983).

¹² Richard W. Grayston, "Deterrence in Automobile Liability Insurance" (1971).

¹³ Elisabeth M. Landes, "Insurance, Liability, and Accidents: A Theoretical and Empirical

Investigation" (1982).

¹⁴ Howard A. Latin, "Problem-Solving Behavior and Theories of Tort Liability," 73 *Calif. L. Rev.* 677, 685 n. 46 (1985)

¹⁵ Jack Hirsh Leifer, "Price Theory and Applications" (3d ed. 1984).

IV. ECONOMIC MODELS FOR TORTS

Tort law is among the few aspects of law in which economic models may be used effectively. A tort is concerned with injuries and has significant economic ramifications. A very important study on tort law and economics was done by Calabresi happened in 1970. In it, he proposed a new way to think about tort law. Apart from ensuring justice, the purpose of tort law is to minimize the *social cost*, which is defined as the sum of total accident cost, administrative costs, cost associated with the equitable distribution of losses via insurance, and accident prevention costs incurred by both the Injurer and the victim. As a result, it is possible to deduce that the lesser the costs of harm caused by Tort or lesser the social cost, the greater effective the tort mechanism is considered to be.

The models will explore a model of an accident in which only two people are involved in order to make the assessment process easier for everyone. One is a perpetrator of injury, whereas the other is a victim or hurt. There are two types of choices that the parties must make. They must select how much caution they are willing to apply and how much activity they are willing to engage in. Therefore, it is reasonable to presume that accident prevention costs grow in direct proportion to the degree of care taken and that projected damages drop in direct proportion to the level of care taken but increase in direct proportion to the amount of activity the parties participate in.

V. SOCIAL COSTS MINIMIZATION

It is necessary to retain the model of optimal precaution in order to have a productive tort law system. The model's goal is to reduce the societal costs of accidents to the greatest extent possible. It is worth noting here that the term "precaution" applies to any action that reduces the likelihood of an accident occurring. In situations when transaction costs are substantial, tort liability might drive the wrongdoer to internalize the costs that they impose on the victim. This is how we can develop an ideal model of optimum precaution.

Allow p to represent the probability of an accident occurring and x to represent the level of precaution. Thus, $p = p(x)$ is a decreasing function of x . The function essentially calculates the likelihood of an accident based on the level of care exercised. As a result, increasing the precaution x reduces the likelihood of p and vice versa. Let I signify the cost of an injury sustained by the sufferer as a result of an accident. Now, let u denote the cost of each precautionary unit since taking precautions is expensive in terms of money, time etc. Now, we may multiply p with I to get an estimate of the expected damage caused by an accident in monetary terms. Due to the condition that p is equal to $p(x)$, the expected cost of accidents is $p(x)I$. To determine the cost of precaution, we simply multiply the level of precaution x by the cost of each unit of precaution u and obtain ux . We have received two costs as a

result of this, both of which may be graphed in this manner.

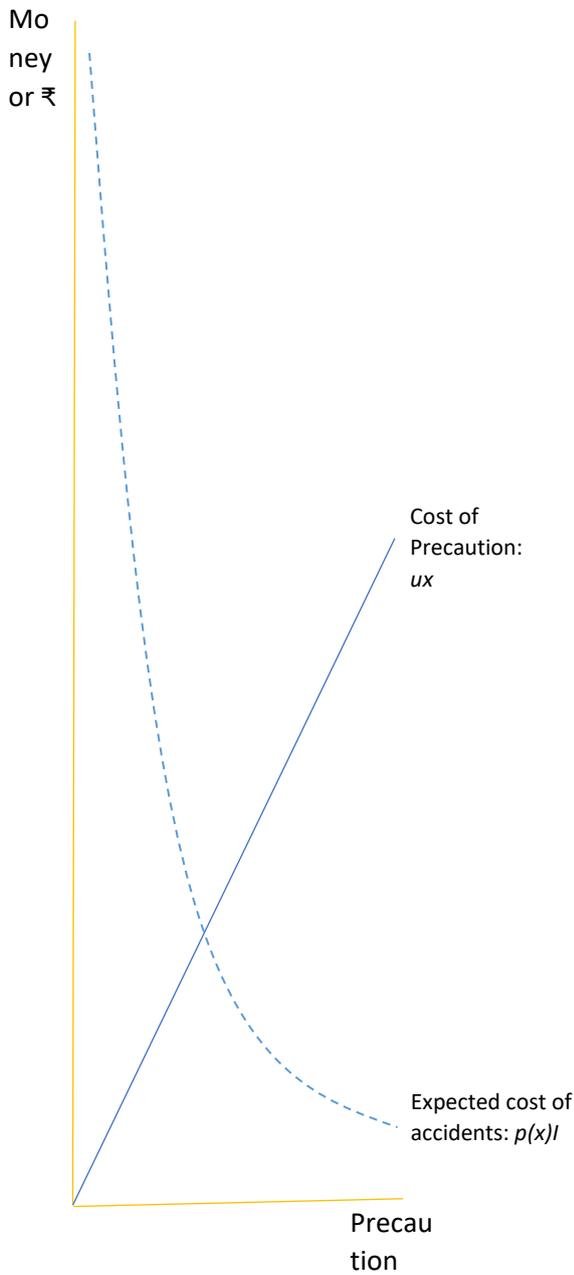


Figure. 1: Two Obtained Costs

As previously stated, the social cost is the total of the cost of accidents and the cost of precaution. Thus, to determine the social cost, we just

combine both of these costs, which will look like this.

Social Cost = $ux + p(x)I$

In the graph form, it will appear something like this:

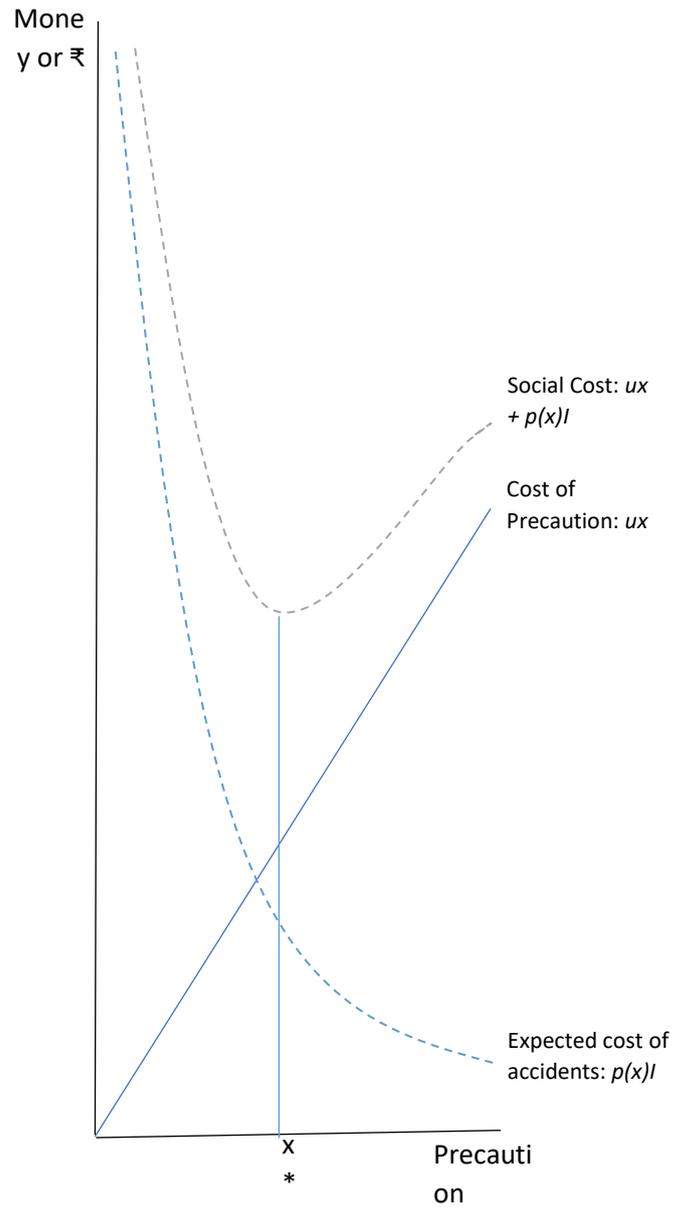


Figure 2: Obtaining Social Cost by adding ux and $p(x)I$

The Social Cost curve in the above graph is the addition of the Precaution Cost curve and Accident cost curve. The goal was to keep the societal cost to a bare minimum. As we can see, the social cost is represented as a U-Shaped curve, with the lowest point of the curve representing the smallest amount of social cost possible. To achieve our goal, we only need to take precautions in accordance with the relevant value provided forth by the x-axis of the graph and, therefore, the x^* . Essentially, if we take the x^* precaution, we may reduce the societal cost to the greatest degree feasible.

VI. ECONOMIZING: FAULT LIABILITY RULE

When it comes to economics, each choice is based on its rationality, and in economics, an act is regarded as rational whenever there is cost-justification for doing so. Because of this, it is axiomatic that when the cost of exercising precaution is less than the risk of harm, it is cost-justified to take precaution. Consider the following hypothetical situation. Assume there is a person called Mr I who is involved in an activity that provides a benefit of ₹100 and a risk of ₹60. Only a complete cessation of action may prevent an injury. Mr I would be unreasonable to forego a ₹100 advantage in hopes of avoiding a ₹60 expenditure. Giving up the advantage is not a prudent cost-benefit analysis but plain irrationality. Mr I would choose to sustain the harm and retain the ₹40 profit generated by the action.

Now consider the inverse situation. Assume a benefit of ₹60 and a cost of ₹100 for an activity.

The sensible response in this scenario is to forfeit the benefit, which is the cost-justified precaution. As a result, you will have to endure a ₹40 loss in order to engage in the activity. The critical element to remember is that this is what every rational individual would be doing if costs and benefits were solely applicable to him.

In situations when the costs and benefits are experienced by different parties rather than simply the same person, the same norm of reasonableness should be used. This is due to the fact that the rationality of a decision is evaluated in terms of its costs and benefits. Let us take a look at a hypothetical situation. If Mr I can save Mr V money on injury expenses by adopting precautions that are less expensive than Mr V's expected cost of an accident, Mr I's failure to take the precaution is not only irrational but also negligent. By the same logic, if Mr I can avoid causing Mr V harm only by adopting precautions that are more expensive than the expected cost of an accident, Mr I's omission to take these measures is not irrational, and therefore not negligent.

Because of Fault Liability, both the Injurer and the victim are incentivized to take reasonable precautions. As a result, we may infer that the fault liability rule is economically efficient and that it creates the ideal amount of precaution as well as the optimal degree of risk for the situation.

VII. ECONOMIZING: STRICT LIABILITY RULE

Given that a person facing strict responsibility would suffer the cost of his actions regardless of

whether he is at fault, one may conclude that a prospective injurer under strict liability would possess zero incentive to take precautions. However, this is a blatant fallacy.

To understand this, we can take a look at a hypothetical. Let's say Mr I is liable under strict liability for x amount of cost he has imposed on Mr V. Let's take x to be ₹1000. Let's assume wx as precautionary costs. Furthermore, by taking ₹800 worth of wx , Mr I can eliminate the chances of him imposing cost x on Mr V. Therefore, coming up with ₹200 extra in his hand. If he does not take precaution, then he is not acting in a rational manner, but the caveat is that he can still be considered rational by not taking precaution if the $ux > I$. Thus, although Strict Liability incentivizes the Injurer to exercise care, the Injurer will rather pay damages if taking the preventative measures are more expensive. For example, if Mr I is required to expend ₹1100 in preventative costs, but it is not cost-justifiable, he will instead pay the resulting injury cost of ₹1,000. As a result, even under the Strict Liability Rule, defendants are incentivized to implement preventative measures that are cost-justified.

VIII. FAULT OR STRICT LIABILITY

We might raise the following question: How do we determine between two particularly efficient liability rules, namely Fault Liability and Strict Liability? The answer to the issue is that the distributional ramifications of both laws are distinct. The costs of the Injurer's action are greater under strict responsibility standards than under fault liability rules since the Injurer is responsible for the injuries regardless of whether

he took any preventative steps. If we wish to see less of a certain action or believe people ought to incur a higher price for partaking in it, we have substantial grounds to choose strict responsibility for fault liability.

IX. ECONOMIZING: NEGLIGENCE RULE

For the sake of expediency in developing a model, we will assume that the simple negligence rule is followed. According to the simple negligence rule, the Injurer is only responsible for damages if he fails to follow the legal standard of reasonable care while causing the injury. In order to model, we must make a few assumptions that we have previously made. Let x be the amount of care taken by the Injurer, and x^* denotes the position on the x axis that corresponds to the lowest point on the Social Cost curve, which may be referred to as the optimal level of precaution. Let us assume s that the legally set standard of reasonable care, or at least the bare minimum level of care. The chance of an accident occurring is denoted by $p(x)$. The cost of damage experienced by the patient as a consequence of an accident should be denoted by I . And let ux represent the cost of each unit of precaution.

We can comprehend the rule of simple negligence and its application in this manner. It is reasonable to conclude that the damages are equal to I if $x < s$. However, using the same reasoning, we may conclude that if $x \geq s$, then the amount of compensation that the injured party must pay is nonexistent. Fundamentally, the condition stipulates that when the level of precaution x , exercised by the Injurer, is lower than the level of precaution mandated by law s ,

the Injurer must provide damages equivalent to the amount of injury caused to the victim, which is I . It is not necessary for an injurer to pay anything if the level of precaution x exercised by the Injurer is more than or equal to that required by the precautionary standard s .

This can be graphed in this manner

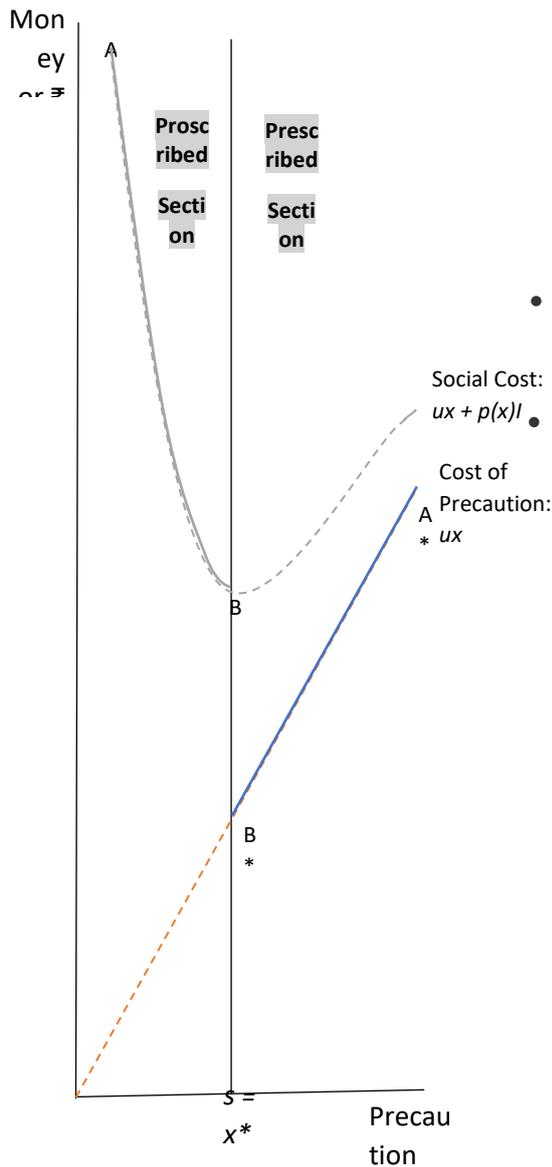


Figure 3: Obtaining Cost for the Rule of Negligence

We will make the assumption for the sake of this analysis that the minimal level of care established

by the legislation is equal to the optimum amount of precaution necessary to reduce the social cost by assuming that $s = x^*$. The proscribed section, on the left, relates to the amount of precaution that is insufficient in comparison to the optimal level of precaution, essentially $x < x^*$; s . The prescribed section, on the right, relates to the amount of precaution that is high in comparison to the optimal level of precaution. $x > x^*$; s . The vertical line that divides both of these sections denotes the most prudent course of action, essentially the $x = x^*$. The prescribed section, taking into account the Injurer's costs as a function of his degree of care, bears just the cost of measures taken as the Injurer is not liable. That is, he is solely responsible for the expense of the A^*B^* amount of precaution on the Cost of Precaution curve. In contrast, if an injury occurs in the proscribed section, the Injurer would be liable and would also be required to compensate the victim for his or her damage. It is for this reason that the expense of precaution as well as the cost of expected harm incurred by the victims should be included in the expected costs of the Injurer. As a consequence, AB is displayed on the Curve of Social Cost. As a result, under the negligence rule, the u-shaped curve represents the Injurer's projected expenditures. The slope of the curve was downward at the beginning of the curve because, as the precautionary unit is increased, the likelihood of an accident occurring and the estimated damage from an accident diminishes. The point on this curve where the Injurer's precaution (x) is equal to the minimal standard established by law is the lowest point on the curve (s). Therefore, the Injurer has a clear

incentive to set his or her precautions at this level in order to keep expenditures as low as possible.

A crucial question may arise now that we have shown that the Injurer has a clear economic incentive to maintain an optimum level of precaution: what incentive the victim has to maintain an optimal level of precaution. The solution to this question is, in a sense, axiomatic. As we have demonstrated, a rational injurer has an incentive to undertake efficient precaution by ensuring that his precaution is in accordance with the condition $x \geq s$. As long as the rational Injurer maintains his or her degree of precaution (x) above the standard established by law (s), the Injurer will not be held accountable for any injury caused by accidents. As a result, when the Injurer is not accountable, the sufferer is forced to shoulder the financial burden of the mishap. Essentially, it demonstrates that both the sufferer and the Injurer have an economic interest to take precautions.

X. ECONOMIZING: CONTRIBUTORY NEGLIGENCE

The Negligence rule manifests itself in a variety of ways. The rules for which we created the model above were governed by the rule of simple negligence. Wherein the Injurer is held accountable for the accidents he causes only when his level of precaution (x) fell below the legal standard (s). Contributory negligence is a highly prevalent defence in tort law. In which, the Injurer may avoid liability by establishing that the victim themselves contributed to their damage. This may be explained economically by demonstrating that the victim lacked the

precautions (x) mandated by the legal standard of care (s). The Injurer is only accountable for negligent conduct if he failed to exercise reasonable care in line with the legal standard of care and the victim exercised reasonable care. Essentially when $x < s$. However, if both the Injurer and the victim fail to take the necessary precautions, the Injurer is not accountable for the accident's expenses. The accident's financial burden falls entirely on the shoulders of the victim. Because the Injurer cannot be held accountable when the victim also contributes to the harm, the victim must bear some of the blame.

XI. BENEFITS OF ECONOMICS IN TORT LAW

The advantages of incorporating economic principles into tort law are numerous. We have the opportunity to enter a new domain of tort law in which we support the maximizing of societal benefits while reducing social costs. In addition, since econometrics and behavioural economics already deal with these problems, the advantages include cost savings when distributing damages and a better understanding of the law on more scientific and behavioural levels. Posner's premise that we must maximize efficiency will allow us to analyze policies, regulations, and legislation in a non-biased and purely theoretical way, allowing us to make more informed decisions. Us, led by intellectuals such as Shavel, Posner and Calabresi and economists such as Becker, Landes and Coase, is leading this new trend, and it is past time for India to follow suit.

XII. CONCLUSION

For the purpose of summarizing and concluding our findings, we looked at how classical economists such as Jeremy Bentham and others attempted to apply economics to the law. We then watched the birth of the Legal Realist movement in torts, followed by the economic movement in torts, and how the article by Ronald Coase has single-handedly transformed the area of tort law. Using the social cost function, which comprised of Precautionary Cost and the expected cost of accidents, we were able to develop a model for determining the best level of precaution. Afterwards, we applied these optimum precautionary models to liability laws, such as the rule of fault, strict responsibility, and finally, the rule of negligence. The researchers also determined how each system incentivizes individuals in order to adopt cautious actions in line with the best precautionary model.

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