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Economic analysis of tort liability

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Abstract
Tort law has been one of the first fields of law to be analyzed from an economic point of view. Tort law is majorly concerned with accidental injuries. Its purposes are twofold, *viz.,* to compensate the victims and to deter unreasonably dangerous behavior. The economic theory of tort law emphasizes on the deterrence aspect of tort law. It is based on the impression that liability for accidental injuries should be allocated, so as to minimize the expected costs of accidents, including the harm suffered by victims and the cost of precautions by injurers and victims. This work is an attempt to simplify some of the existing work on the subject. This work aims to analyze the tort liability from the economic point to view. This work does not take into account each and every concept of tort law into account but only a selection of them which are more directly related to the tort law than others and all of them come together cohesively to form a seamless body pf study as is the aim of this work This Work outlines a general economic approach of the tort law showing that all efficient rules must define negligent behavior as inefficient behavior and must hold an individual liable depending upon his liability. Further this work also provides a brief insight of product liability under the tort law from an economic point of view.

Keywords: accident, economic analysis, negligence, product liability, tort

1. Introduction
Economic analysis of law is a highly technical yet very efficient approach to study the law. This distinct approach of law has evolved from the works of Ronald Coase, Guide Calabresi, and Richard Posner and others. This school of thought links law with economic concepts. It advocated that law ought to be concerned with the promotion of economic efficiency, and the protection of value. The economic analysis of law seeks to apply the microeconomic theory to the legal rules and institutions. Law is divided into two classes, *viz.,* Private law and Public law. In the economic analysis of private law three bodies of law that are mostly private comes to picture, *viz.,* the Law of Property, the Law of Contract and the Law of Tort. Property law facilitates cooperation amongst individuals by defining rights, whereas contract law facilitates cooperation amongst individuals by enabling them to make credible commitments [1]. Both property law and contract law provide for an effective framework to deal with certain sorts of harm. But there still remains a gap area where property and contract law could not effectively provide for a remedy. For instance where A injures the reputation of B, neither the property law nor the contract law could give an effective remedy to the plaintiff as reputation is neither a property under the property law nor there is a mutual settlement between the two to constitute a contract. Thus, a third major body of private law comes to picture which deals with these *penumbral* areas where property and contract law fails to provide an effective private law remedy. Law of tort is one of the basic legal systems prevailing in today's world. People often tend to harm each other; however not every harm is so immense to constitute a crime. A tort is a private wrong and thus is an injury against a person and not against the state. According to Salmond "Tort is a civil wrong for which the remedy is a common law action for unliquidated damages, and which is not exclusively the breach of a contract or the breach of a trust, or other merely equitable obligation". Property law and contract law tends to facilitate people to cooperate over certain situations to avoid any harms. However, there are certain kinds of harms where the costs of bargaining, *or as Prof. Coase calls them transaction costs,* are so high that cooperation would turn out to be either impossible or uneconomical. For instance, it is impractical, on part of one individual, to negotiate or to come to a contractual relation with the all the people around to not to defame him. The transaction costs are so high that they preclude bargaining. Contract law concerns the relationships among people where the transaction costs are low. On the contrary, Tort law concerns those relationships where the transaction costs are high. The liability under the tort law is mostly compensatory in nature, where the *tortfeasor* is mandated to pay a suitable compensation to the plaintiff. The economic purpose of the tort liability is to induce the *tortfeasor* to internalize the costs of harm caused by him by making him to pay compensation to the victim. Not only does the tort liability act as a proper remedy for the plaintiff but it also acts as an effective deterrent for any future torts as when the *tortfeasor* internalizes the cost of harm in the shape of compensation to the victim, they have incentives to invest in the safety and precaution at efficient level. The economic essence of law of tort is its use of liability to internalize externalities which are created by high transaction costs [2].

2. An Economic Approach to Tort
A tort is an act or omission that gives rise to injury or harm to someone and amounts to a civil wrong for which courts imposes liability. In the context of torts,

[1] Cooper R. Ulen T. Law and Economics. Pearson Education Inc., New Delhi, 4th edn, 302.

[2] *Ibid.*

'injury' describes the infringement of any legal right, whereas 'harm' describes a loss or detriment in fact that an individual suffers.[3] The primary aims of the tort law are: to provide for a remedy to the plaintiff, to impose liability upon the *tortfeasor* and to deter others from committing such harm. Torts fall into the three general categories, *viz.*, intentional torts, negligent torts and strict liability torts. Intentional torts are wrongs that the defendant knew or should have known would result through his or her actions or omissions. Negligent torts occur when the defendant's actions were unreasonably unsafe. Unlike intentional and negligent torts, strict liability torts do not depend on the degree of care that the defendant used. Rather, in strict liability cases, courts focus on whether a particular result or harm manifested [4].

The traditional theory of tort stipulates three essential elements of a tort. These are:

1. the plaintiff must have suffered an injury.
2. defendant's act (or forbearance to act) must be the cause of the injury.
3. the defendant's act must constitute a breach of duty owed by him to the plaintiff.

Generally, every action for a tort must include all these three essentials. However, under principle of strict liability, even if only first two essentials are present the act shall still constitute a tort. An economic analysis of tort law mandates the economic scrutiny of these three essentials which is as hereunder analyzed.

2.1 Injury

Injury is the first element required by the plaintiff in order to sue the tortfeasor. Injury, simply stating, is an infringement of a legal right. Whenever a person infringes another's legal right, he is said to have committed an injury [5]. This refers to an act or omission that is, one must have done some act which one was not expected to do, or, one must have omitted to do something which one was supposed to do. This is 'wrongful' as there must have been a breach of duty which has been fixed by law itself. Such wrongful act when infringes someone's legal right it turns into an injury. In economic terms injury can be defines as a downward shift in a person's utility. This point can be illustrated with the help of figure 1.

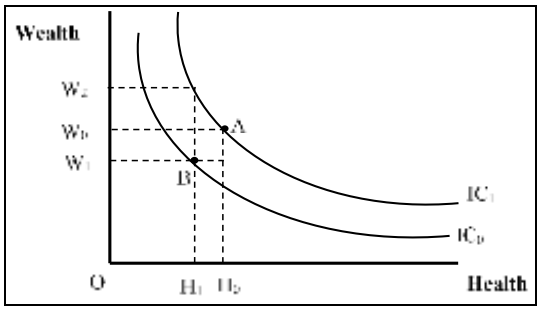

Fig 1: Utility function of Mr. X (illustration)

Figure 1 represents the utility function of Mr. X for two goods: Health and Wealth. IC_0 and IC_1 represent various combinations of the two that yields utility for Mr. X. Higher indifference curve i.e. IC_1 represents higher satisfaction. That is to say a combination at IC_1 gives Mr. X higher satisfaction as compared to any combination on the lower indifference curve. Suppose that Mr. X was satisfied at A point on IC_1 with the combination (W_0, H_0). Now if Mr. Y hurts Mr. X by giving him a punch on face. The injury caused by Mr. Y resulted in a downward shift of Mr. X's utility from point A to point B (W_1, H_1). That is to say Mr. X's wealth is reduced from OW_0 to OW_1 and his health from OH_0 to OH_1. This whole incident brings down the utility or satisfaction of Mr. X from point A to point B which is a combination on a lower indifference curve. The ideal of perfect compensation requires that Mr. Y should compensate Mr. X in such a way that that the latter's utility is restored to point A. Thus, the sum of damages that Mr. Y has to pay Mr. X as compensation should be such to restore Mr. X to his pre-injury position- A. Therefore Mr. Y should pay compensation to the tune of $[W_0\text{-}W_1]$ for the loss of wealth and $[H_0\text{-}H_1]$ for the loss of health.

Compensation amount = $[W_0\text{-}W_1] + [H_0\text{-}H_1]$

If Mr. Y causes such an injury to Mr. X which resulted in an irreparable damage to the latter, such that his health is permanently reduced to H_1, nevertheless, Mr. Y could compensate such damage by increasing his wealth not only to the pre-injury level but to even higher level W_2 to compensate the permanent health loss.

Thus, in economic terms, an injury is interpreted as a downward shift in the plaintiff's utility [6].

2.2 Cause

According to the traditional theory, the second element of tort is 'cause'. In order to maintain a suit for tort, the injury must have been the result of the act of the injurer. 'Causation' is an element common in all the three divisions of torts i.e. strict liability, negligence, and intentional wrongs. Causation has two prongs. Firstly, a tort must be the 'cause-in-fact' of a particular injury. Which means that a specific act, should actually have resulted in injury to another. In its simplest form, cause in fact is established by an evidence that shows that a tortfeasor's act or omission was a necessary precursor to the plaintiff's injury. Courts examine this issue by determining whether the plaintiff's injury would have occurred "but for" the defendant's conduct. That is '*but for A would B have occurred?'* If the answer is negative then A is the cause-in-fact of B. if the answer is in affirmative then A is not the cause-in-fact of B. That is to say if there is no other way that the plaintiff would have suffered the injury but-for the defendant's act then the latter has committed a tort and not the otherwise. When multiple factors have led to a specific injury, the plaintiff must prove that the tortfeasor's action played a substantial role in causing the injury.

Second, the plaintiff must establish that a particular tort was the 'proximate cause' of an injury before liability will be imposed. The term *proximate cause* is, in the opinion of many jurists, slightly misleading because it has little to do with proximity or causation. 'Proximate cause' confines the scope of liability to those injuries that bear some reasonable relationship to the risk created by the defendant. Proximate cause is assessed in terms of foreseeability. If the defendant

[3] Restatement (Second) of Torts § 7.
[4] Tort, Legal Information Institute. https://www.law.cornell.edu/wex/tort. 20 March, 2020.
[5] Singh A. An Introduction to Tort Law. Delhi Law House, New Delhi, India, 2nd Edn,14.
[6] Cooter R. *Supra note* 1,310

should have foreseen the tortious injury, then he or she will be held liable for that injury. If a given risk could not have been reasonably foreseen, then the 'proximate cause' has not been established, and liability will not be imposed.

As stated above, harm is the downward shift in a person's utility. It can also be said that someone harms a person when the variables controlled by him lowers the utility of someone else. The functional relationship of cause in law of tort is a variable controlled by one individual that appears in the utility function of someone else. For illustration, assume that Mr. Y enjoys listening to very loud music at his home. His utility function can be indicated as U_Y= f (M, and other things). On the other hand, Mr. X, Mr. Y's neighbor, is an old man and his utility depends upon health and wealth which can be indicated as U_X= f (H, W). Now suppose Mr. Y's continued listening to very loud music decreases Mr. X's health. It can be said that Mr. X's health is the decreasing function of Mr. Y's listening to very loud music i.e. H=f(M). Thus, the variable that Mr. Y controls, which is the music, lowers the utility of Mr. X, by reducing his health.

When the same variable appears in the utility or production function of different people, the function are said to be interdependent which constitutes an externality which in turn acts as an obstacle to reach an agreement or cooperation to set the interdependent variables at efficient value. 'Cause' in tort law thus involves an externality created by interdependent utility or production functions [7].

2.3 Breach of Duty

The Third essential element to constitute a tort is the breach of duty. The plaintiff has to demonstrate that there was a breach of duty that the defendant owed him and that breach of duty caused the injury to the plaintiff. The breach of duty may be intentional or unintentional. If the defendant intentionally breaches the duty then it would be referred to as Intentional Tort. On the other hand, if the breach of duty is unintentional that it would be referred to as negligence or accidental tort.[8] Apart of these, there is yet another category of cases where tortious liability can be incurred only on the basis of the first two element of tort, *viz.* Injury and Cause. The liability so incurred is termed as strict liability. Generally stating, the strict liability rule is applied to the cases involving a 'dangerous thing' or some 'non-usual thing' which escapes from the control of the defendant and causes injury to the plaintiff, even with the intention or knowledge of the former [9].

In order to avoid the breach of duty, a person must take precautions to maintain a standard of care not only towards one individual but towards the world at large. This is however, not possible to negotiate with each individual about his requirement of care. Thus the common law jurisprudence of "Reasonable standard of care" comes to picture. Every person is expected to maintain a reasonable standard of care to avoid any breach of duty toward the *rem* [10].

In order to avoid the breach of the duty a minimum standard of precaution is required to be maintained on the part of the defendant. Further, a legal standard if also set by the law which every individual must maintain. The most common example of the minimum standard fixed by the law can be the speed limits on the highways. If the defendant maintained the precaution equal to or more than the minimum standard set up by law then, he is not liable for the breach of duty. However, if the defendant failed to maintain that minimum standard set by law, he has breached the duty of care and thus is liable for tort. This can be explained simply with an example. Suppose that Mr. A maintained a standard of precaution x. The minimum standard fixed by law is ã. If Mr. A maintained a precaution less than ã (i.e. when $x < ã$) then Mr. A has breached the duty of care. On the other hand, if Mr. A maintained a precaution equal to or greater than ã (i.e. when $x \geq ã$) then Mr. A has not breached the duty of care and is thus not liable for tort.

3. Economic Theory of Cost of Tort Liability

The basic aim behind the economic analysis of tort liability is to determine the efficiency in the system of torts in a particular country. This is done by calculating the cost of injuries arising out of tort law [11]. Generally, these costs comprise of the following:

1. The actual costs arising out of a tort. These costs include:
   a. Medical and rehabilitation expenses
   b. Lost wages due to injury
   c. Cost of pain and suffering
   d. Damage to property [12]
2. The costs of the efforts and steps to prevent and avoid injuries i.e. the cost on precautions
3. The costs of administration and implementation [13]
4. The opportunity costs of goods and services lost due to the injury. Etc.

It can be said that the lower the costs of injury which arise out of tort; the more efficient the tort system in a country or region is. There are various ways in which these costs can be streamlined in an economy to make the tort system efficient.

3.1 Minimizing the Social Costs of Accidents

In order to maintain the efficacy of the tort system, the model of optimum care has to maintain [14]. The social objective of the model of optimal precaution is to minimize the social costs of accidents. In this context, precaution may be referred to as any behavior reducing the probability of an accident. When high transaction costs prelude private agreements, tort liability can induce the injurers to internalize the costs that they impose on other people. The economic model of optimum precaution can be framed in the following manner [15].

The probability of accidents, which is denoted by p, decreases when the precautions, denoted by x, are increased. Thus, it can be said that $p=p(x)$ is a decreasing function of x. If an accident occurs, it incurs costs as aforesaid. Let A

[7] *Ibid.*
[8] Epsten R. *A Theory of Strict Liability.* Journal of Legal Studies, 1973; 2: 151-204.
[9] Rylands v. fletcher (1868) LR 3 HL 330.
[10] Williams G. The aims of tort law- Current legal Problems. Sweet and Maxwell ltd.,1951.
[11] Economics of U.S. Tort Liability.https://www.cbo.gov/sites/default/files/108th-congress-2003-2004/reports/10-22-tortreform-study.pdf. 21st March, 2020.
[12] Top FAQ's in Tort Law. https://torts.uslegal.com/frequently-asked-questions-faq/. 21st March, 2020.
[13] Shwartz G. *The Ethics and Economics of Tort Liability Insurance*. Cornell Law Review. 1990; 76:313-365.
[14] *Ibid.*
[15] Cooter R. *Supra note* 1.

denote the monetary value of the harms caused by the accident. In order to estimate the 'expected harm that can be caused due to accident' in dollar terms, *p* is multiplied by *A*, which can be denoted as *p(x)A* and it is the decreasing function of *x* (precaution). In figure 2, precautions (*x*) is depicted on the x-axis and the y-axis indicates the dollar value including the expected harm from accidents (*p(x)A*). The *p(x)A* curve slopes downwards indicating that the expected harm decreases with the increase in precaution.

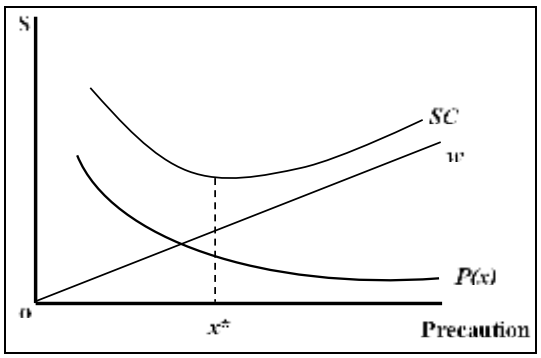

Fig 2: Social cost and Optimum precaution model

However, it must be noted that taking precautions often leads to loss of time, money and other things as well. Thus, per unit of precaution costs $*w*. Let *w* be constant and thus depicted by *wx* curve which denoted total amount spent on precautions(*x*). From figure 2 that two kinds of costs of accidents can be observed: Cost of precautions and Cost of expected harm. In order to obtain the estimated social costs of the accidents, denoted by *SC*, both these costs are to be added. Thus,

SC= wx + p(x)A

SC curve in figure 2 is the vertical addition of *wx* and *p(x)A* curves. Since *SC* curve is a U-shaped curve, the lowest point of the curve indicates the level of minimum social costs, corresponding to which is the precaution level *x** which indicates the optimum level of precautions required to be taken to minimize the social costs of accidents.

4. The Optimal Deterrence Theory

The problem of costly tort damages due to negligence, accidents and others can be mitigated by measuring the reasonable precautions that a person would take in a given situation to prevent a tort from taking place [16]. For many decades now, an economic analysis of tort law has been influential, especially in the US. The exponents of this approach perceive tort liability primarily as a mode of apportioning the costs of accidents. Their primary claim is that tort should be understood as aiming and targeting to minimize the sum of the costs of accidents and also the costs of avoiding them [17]. Shifting costs is itself costly therefore economic analysis begins with the question of 'when is it worth incurring costs in order to shift costs?'. The axiomatic answer is that it makes sense to incur costs in order to reduce costs only when doing so is itself cost justified.

4.1 Economic Interpretation of Fault Liability

Taking the relevant social problem to be the problem of costly accidents, economic analysts consider the paradigmatic tort to be that of *negligence*. The law holds a person to be negligent when that person imposes an unreasonable risk of injury or harm on another person. Further, imposing an unreasonable risk of injury is in turn a matter of failing to take precautions that a reasonable person would take [18].

A precaution is reasonable when it is *rational*; a precaution is rational when it is *cost-justified*; and a precaution is cost-justified when the cost of the precaution is less than the expected injury. The latter being the cost of the anticipated injury discounted by the probability of the injury's occurrence [19]. For illustration, suppose that Mr. A is engaged in an activity that carries a benefit of $500 and an expected injury of $300. The only way to avoid the injury is to stop the activity. *Ceteris Paribus*, Mr. A would be irrational to sacrifice a benefit of $500 in order to avoid a cost of $300. Foregoing the benefit would not be a cost-justified precaution; Mr. A would rather incur the injury and keep the $200 profit from the activity. Contrastingly, if the benefit is $300 and the expected injury is $500. Now under such circumstances, foregoing the benefit would be a cost-justified precaution. Mr. A would be irrational *not* to forego the benefit, since you would have to incur a $200 loss to engage in the activity. This is the calculation that a rational individual would make when the costs and benefits are his only.

When the benefit and the injury accrue to different parties, and not just to the same person, the same standard of rationality should apply. This is for the reason that the rationality of an action depends of the expected costs and benefits and not on their distribution [20]. If Mr. A can spare Mr. X some injury by taking precautions less costly than Mr. X's expected injury, the former's failure to take such precautions would be irrational, hence, unreasonable and thus negligent and Mr. A would be liable under fault liability. If the injury is governed by the rule of fault liability, its costs will be borne by the defendant and not by the plaintiff.

In fault liability rule particular, induces all rational persons: injurers and victims alike—to take all and only cost-justified precautions. If all prospective injurers behave rationally, losses will always lie where they fall: with victims. Rational victims will therefore approach all accidents assuming that they will have to bear the costs. But then they, too, will take all and only cost-justified precautions. So, the rule of fault liability is economically efficient: it produces an optimal level of risk-taking [21].

4.2 The Economic Interpretation of the Strict Liability Rule

Since someone facing strict liability will bear the costs of his conduct whether or not he is at fault, one might think that a potential defendant under the strict liability will have no incentive to invest in precautions. But this view is not correct. This can be easily explained with an example. Say

[16] Gopalakrishanan K. Legal Economics (Interactional Diensions of Economics and Law). Eastern Book Company, Lucknow,1998.
[17] Supra Note 8.
[18] Polsen A. *The Economics of Tort liability*. International Journal of Law and Economics,2003; 6: 168-199.
[19] Shavell S. *An Analysis of Causation and the scope of liability in the law of tort*. Journal of Legal Studies, 1980;9: 463-516.
[20] Polsen A. *Supra Note* 18.
[21] Polinsky M. Shavell S. *Should liability be based on the harm to the victim or the gain to the injurer?* Journal of Law, Economic and Organization, 1994;10:427-37.

Mr. A is strictly liable for some costs that he had imposed on Mr. X—costs of $500. Further, by taking $300 worth of precautions Mr. A might eliminate the chances of his imposing these costs on Mr. B. The rational choice for Mr. A is of course, to invest in $300 worth of precautions, since he comes out $200 ahead if he prevents the injury and thereby avoid liability for it. So even under the regime of strict liability, potential defendants have an incentive to undertake cost-justified precautions. It may also be noted that they won't take any precautions that are not cost-justified. If it would cost $550 to take a precaution that would eliminate the chance that Mr. A would suffer an injury with an expected cost of $500, he would prefer to pay the cost of injury than taking the precaution. So under a regime of strict liability, potential defendants, just like fault liability, have an incentive to take all cost-justified precautions.

In a vital respect, the plight of the injurer under the strict liability is akin to that of the victim under fault liability. If it is assumed that the injurer is rational then it can be inferred that under fault liability, he will take all cost-justified precautions. As a consequence, any losses that his conduct turns out to cause will lie where they fall, i.e. with the victim. This means that it can be characterized that the plaintiff as himself facing a sort of strict liability, namely, strict liability for losses not caused by another's fault. Strictly stating, this is a misnomer, since one cannot be liable to oneself, but the analogy is nonetheless helpful. The plaintiff cannot shift these losses to the injurer due to the fact that the injurer has cloistered himself from liability by taking the cost-justified precautions. The outcome is that, strict liability and fault liability both induce rational persons to take all and only cost-justified precautions. If efficiency requires that individuals take all and only cost-justified precautions, then strict and fault liability can both be efficient [22].

One may think that if both rules can be efficient, why might we prefer one to the other? Strict liability and the fault liability have different distributional consequences. Under the rule of strict liability, the costs of the defendant's conduct are higher than under the rule of fault liability. The defendant pays for the injuries he causes whether or not he has taken reasonable care to avoid them. The rule of fault liability elevated the costs of those who are injured (i.e. victims) relative to strict liability, since they are compensated for fewer accidents. So, if there is an independent reason to privilege the plaintiff's activity over the defendant's or vice versa, maybe it is wanted that less of the first activity occur or it may be felt that people should have to pay a steeper price for engaging in it. Therefore, there exists an independent reason to prefer strict liability to fault liability or vice versa.

4.3 Incentives of Precautions under the Negligence Rule

The simple negligence rule states that the one who injures is liable for damages if one did not take sufficient precaution as required to meet the legal standard of care. Just akin to the Fault liability and strict liability rule, the negligence rule also provides efficient incentives to the plaintiff and the injurer. This can be economically proved as following:

Assuming that:

x = level of precaution by the injurer

x^*= optimum level of precaution

$\tilde{a}$ = minimum standard of care fixed by law

$p(x)$= Probability of accident

A = Victim's accident losses

wx = cost per unit of precaution

If the level of precaution maintained by the injurer is less than the minimum standard fixed by law then the amount of damages to be paid by him would be equal to the victim's accident losses. That is to say if x is less than $\tilde{a}$ the damages will be equal to A. Further, if the level of precaution maintained by the injurer is equal to or greater than the minimum standard fixed by law then the amount of damages would be zero. That is to if x is equal to or greater than $\tilde{a}$ then the damages will be 0.

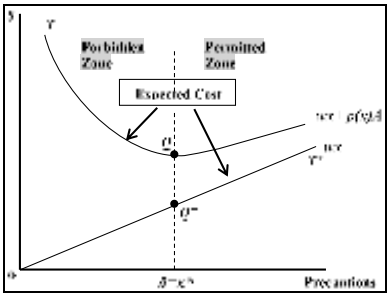

Fig 3: Expected Cost Under the negligence rule

Let's assume, for the simplicity of the study, that the minimum standard of care fixed by law is equal to the optimum precaution required to minimize the social cost, i.e., $\tilde{a}= x^*$. With this assumption, it is easier to combine the figures as presented in figure 3. In figure 3, the forbidden zone corresponds to the deficient precaution relative to the optimum level of precaution ($x < x^*$). On the other hand, the permitted zone corresponds to the excessive precaution relative to the optimum level of precaution ($x > x^*$). The dotted-line at the center of both the zones represents the optimum precaution ($x = x^*$). Considering the injurer's costs as the function of his level of precaution, in the permitted zone, the injurer is not liable and thus has to bear only the cost on precautions taken by him. That is has to bear only the cost of T^*Q^* precaution on the wx-Curve. Thus the expected cost in the permitted zone would be only the cost on T^*Q^* amount of precautions. On the other hand, in the forbidden zone, the injurer would be liable and therefore would have to pay the costs of injuries to the victim (TQ on the $wx + p(x)A$ curve). Thus, the injurer's expected costs in the forbidden area would include the cost of his own precautions+ the expected harm to the victim. Thus, under the negligence rule, the injurer's expected costs are indicated by the u-shaped curve. The curve initially slops downward as with the increasing precautions, the expected harm and probability of accident decreases. The lowest point on this curve occurs when the injurer's precaution (x) is equal to the minimum standard fixed by law ($\tilde{a}$). The injurer has the incentive to set his precautions at this level in order to minimize the costs.

Thus, under the negligence rule, with perfect compensation and legal standard equal to the optimum level of care gives the injurer an incentive to take efficient precautions [23].

The victim's incentive to take precautions under the negligence rule can be simply explained. As explained

[22] *Ibid.*

[23] Cooter R. *Supra note* 1.

above, the rational injurer takes efficient precautions ($x \geq \tilde{a}$) in order to avoid liability for the harms caused by the accidents. Consequently, when the injurer is not liable the victim has to bear the costs and thus, he has sufficient incentive to take precautions to avoid getting into an accident.

4.3.1 The Contributory Negligence Rule

The Negligence rule has several different forms. Under the aforesaid rule, the injurer is held liable for the accidents committed by him, only when his level of precautions (x) was less than the legal standard ($\tilde{a}$). However, under the law of tort, contributory negligence is a common defense. Under this defense, the injurer can escape the liability by demonstrating that that the victim himself contributed to the injury. Stating from the economics point of view, the injurer can escape his liability by demonstrating that the victim himself fall short of the precautions as required by the legal standard. The defense of contributory negligence incurs a legal standard of care and precaution upon the victim. When the injurer was liable for negligence ($x < \tilde{a}$) the injurer lacked to take the required precautions and the victim took efficient precautions in tune with the legal standard than the injurer is held liable for the accident and has to pay the costs thereon. However, when the injurer fails to take the required precautions as aforesaid, but so does the victim as well i.e. the victim also fails to take the efficient precautions ($x_i < \tilde{a}$) then the injurer is not liable for the costs of the accident. The Victim bears all the costs (100 % costs) of the accident. As when the victim himself is contributing to the injury the injurer alone cannot be held liable [24].

4.3.2 Comparative Negligence Rule

This rule holds that when both the parties are negligent and an accident occurs, then since both of them share the blame, they must also share the costs. Thus, under the comparative negligence rule, the costs of the injury are proportionately divided between both the victim and the injurer as a contribution of their negligence to the accident. For instance, if victim's contribution to the negligence is 40% and injurer's negligence is 60% then, the victim may recover 60% of losses from the injurer.

The fundamental difference between the contributory and composite negligence is that in the former, the victim is in any way negligent along with the negligence of the injurer and thus cannot recover any damages. However, in the latter, the victim is negligent only to a little extent and thus allowed to claim damages from the injurer to the extent of his proportion to the accident.

4.3.3 Composite Negligence Rule

When one person suffers an injury due to the contributory negligence of two parties, it is referred to as composite negligence. Under the composite negligence rule, two things are ascertained. First, the victim must have taken the required standard of precautions ($x_v \geq \tilde{a}$). Second, the precautions by the Negligent Party- 1 and Negligent Party-2 must be less than the legal standard ($x_1 < \tilde{a}$; $x_2 < \tilde{a}$). The Negligent parties are therefore liable to pay the costs to the victim in proportions to their amount of negligence.

[24] Swartz G. *Contributory and Composite Negligence: A Reappraisal.* Yale Law Journal. 1978; 87:697-727.

5. Product Liability: A Specific Issue in Tort Liability

Traditionally, under the common law of tort law, parties injured by a product defect could only sue the immediate vendor of the product and not anyone else. The original manufacturer was held to be too "remote" because he and the injured party were not in contractual "privity"; the classic statement of this principle is in the English case of Winterbottom v. Wright [25]. Gradually, the privity limitation was whittled away with time. The seller could be held liable towards a bystander if he knew that the product was dangerous for its intended use or otherwise, but failed to inform the buyer. Further he can be held liable if the article was considered 'imminently dangerous' to human safety. The privity rule was overthrown for "imminently dangerous" products in the New York case of MacPherson v. Buick Motor Co [26]. and imposed general liability for negligence on the defendant, the remote seller.

Over the time, jurists also lost faith in even this broader negligence liability. In the case of Escola v. Coca-Cola Bottling Co. of Fresno [27], the Hon'ble California Supreme Court Justice Roger Traynor, suggested that abandoning the negligence rule in favor of a rule of strict liability would do greater good. Traynor further argued that product manufacturers, were in a better position to design products to minimize losses, they were financially more able to spread losses, and a shift to strict liability would eliminate the proof complications inherent in negligence liability [28].

5.1 Product Liability in India

Products liability in India, apart from the contract-based remedies, is governed by the negligence [29]. Product liability governs the wholesalers, manufacturers, distributors, and vendors for the injury to a person or property caused by the imminently dangerous or defective products supplied, sold, and distributed by them. The objective of product liability laws is to help safeguard the consumers from dangerous or defective products, while holding stakeholders responsible for putting into the market place products that they knew or should have known were dangerous or defective [30].

In this context, the Hon'ble Supreme Court of India in M.C. Mehta v. Union of India has observed that:

"..there exists an absolute and non-delegable duty on the part of an enterprise which is engaged in the hazardous or inherently dangerous industry which has a potential threat to the health and safety of the persons working in the factory and residing in the surrounding areas and the towards community, to ensure that no harm results to any one on account of hazardous or inherently dangerous nature of activity which it has undertaken [31].

In the Bhopal gas tragedy case, the Supreme Court awarded Rs 2500 million as interim relief. The court observed that the measure of damages payable by the alleged tortfeasor has to be correlated to the magnitude and capacity of enterprise because such a compensation must have deterrent effect. The defendant Union Carbide Company was a

[25] Winterbottom v. Wright (1842) 10 M & W 109

[26] MacPherson v. Buick Motor Co. 217 N.Y. 382, 111 N.E. 1050 (1916)

[27] Escola v. Coca-Cola Bottling Co. of Fresno 24 Cal. 2d 453, 150 P.2d 436 (1944)

[28] *Ibid*.

[29] Gopalakrishanan K. Legal Economics (Interactional Diensions of Economics and Law). Eastern Book Company, Lucknow,1998, 482.

[30] *Ibid.*

[31] M.C. Mehta v. Union of India, AIR 1987 SC 1086.

financially-sound Corporation, having more than US 3 6.4 billion (i.e. Rs. 85l5 crores) worth of unencumbered assets [32]. In view of this factor and also the fact that most of the victims are workers and other economically weaker sections of the people who cannot afford to go through prolonged litigation in the judicial proceedings to recover compensation, the Government has passed 'The Public Liability Insurance Act, 1991'. In the statement of objects and reasons, it is stated that with the growth of hazardous industries, not only the workers employed in the undertaking but also the members of the general public have been exposed to risks of accidents. The victims generally belong to weaker sections who cannot afford to go through prolonged litigation in a court of law to recover compensation unless they are workers of the undertakings. Often the undertaking does not have enough resources to meet the obligations of compensating the victims. Consequently, the legitimate claims of person sustaining injury are not met. Therefore, the purpose of the legislation is:

"To provide for mandatory public liability insurance for installation and handling hazardous substances to provide minimum relief to the victims. Such insurance apart from safeguarding the interest of the victims of accident would also provide cover and enable the industry to discharge its liability to settle large claims arising out of major accidents. If the objective of providing immediate relief is to be achieved, the mandatory public liability insurance should be on the principle of 'no fault' liability as it is limited to only relief on a limited scale. However, availability of immediate relief would not prevent the victims to go to courts for claiming larger compensation. Central Government, State Government, State owned/controlled corporations of a Local Authority, must create an approved fund for meeting the liability. Elaborate procedure has been prescribed in the Act. However, due to its limited coverage and inadequate benefits, it falls much short of the objectives to be achieved by product liability legis1ation [33].

6. Conclusion

The Economic analysis of Tort liability influences the framing of legal rule which would encourage individuals to maximize the social benefits net of social costs, thereby reducing the economic costs of the tort liability while maximizing the benefits. Tort law, in its economic model uses liability to internalize externalities created by high transaction costs. The Model of Optimal Precaution is one of the tools which can be used to do this. The economic interpretation of strict liability, no liability and fault liability can help in allocating the specific costs of tort liability and the sums of compensation involved. The three negligence rules of contributory, comparative and simple negligence can help to determine which party the liability exactly fell on as sometimes even the injured may through his actions be responsible for his negligence.

The interrelation between economics and tort law is vast and is capable of vast applications in different ways in future which would be very beneficial. Many of these theories and concepts today have been put in use and practically applied to many different areas.

All of these applications and many other innovative combinations of the two fields of study will undoubtedly continue to shape new thinking in their respective fields and will have even wider use in the day to day life in future.

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