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The Problem of Internalization of Social Costs and the Ideas of Ronald Coase

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Abstract

This work examines the influence of Coasian thought on the analysis of the concept of externalities as used by economists and legal economists. Ronald Coase, a Chicago scholar, advanced a series of critiques of the Pigovian tax system; the theorem that bears his name is merely the best known. In his 1960 work, he sought to demonstrate that the internationalization of social costs was not always socially useful. In addition, he identified other institutional solutions to which systems can – and often do – resort. One of these solutions is to simply *authorise the harmful activity* without introducing mechanisms to internalize social costs. Beyond the abstraction of his ideas, Coase’s method of analysis has not had a great influence on economists’ thinking. His theorem, as it is commonly known, looks more like an elegant, abstract reflection than a tool for identifying institutional solutions to concrete societal problems.

Among legal economists, however, Coase’s teachings have had a greater influence. Unfortunately, even within this group of scholars, the conviction that external costs should, optimally, be internalized often emerges almost unconsciously in their literature.

The risk inherent in this attitude lies in the possibility of finding systems for internalizing social costs in legal institutions which do not appear to have such an underlying logic, as for example some kinds of tort liability.

INTRODUCTION*

The 1960 article by Ronald Coase, *The Problem of Social Cost*¹, begins as a critique of the thinking of Pigou, the father of Welfare Economics, as well as the Pigovian tradition. According to Pigou when faced with a harmful action, lawmakers should develop a mechanism to internalize the external costs. This would force the actor to consider in his cost-benefit analyses all the social costs associated with his activity, including those that fall on others. Pigou believed that this internalization could be best effectuated by imposing a tax equal to the external cost upon the actor. Since the actor would only have an incentive to conduct his activities up to the point at which his net benefit equalled the external cost, society would reach a Pareto-efficient situation.

Coase also recalls the *oral* Pigovian tradition according to which internalization of social costs associated with the actor's activity should have been possible to implement through the institution of civil liability. Theoretically, this regime, would force the actor to consider, in his own selfish calculations, external costs as well. These costs would be internalized to the extent that the compensation that the actor must pay equals the externality caused by him or her.

The logic of internalization of Pigou's followers therefore always led them to hold that for every harmful action it was necessary to come up with a mechanism suitable for ensuring that the actor would consider any external cost as his *own*. That it was necessary to force the actor to internalize the externality.

In his 1960 work, Coase makes a series of observations following this line of reasoning, and proposes others in his 1988 article.²

He wanted to demonstrate that the world in which every harmful activity has a tax or some other mechanism for internalising the external costs associated with it

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¹ Ronald H. Coase, *The Problem of Social Cost*, 3 *J. Law Econ.* 1 (1960), now in Ronald H. Coase, *The Firm, the Market and the Law*, Chicago: The University of Chicago Press (1988).

² Ronald H. Coase, *Notes on the Problem of Social Cost*, in *The Firm, the Market and the Law*, supra note 1 at 157-195

was unrealistic. He proposed that this abstract world could only exist in the minds of scholars, as a “blackboard economy,” as he said in 1988³.

In *The Problem of Social Cost*, Ronald Coase highlights the fact that legal rules govern harmful activities in a way that does not correspond to an internalization of social costs mechanism. Legal rules, in fact, normally authorize or prohibit certain activities. They do not allow the actor to carry out certain actions as long as he is willing to bear the consequences; consequences which may consist of paying a tax or compensating the harm.⁴

It may be said that law, even in promoting economic efficiency, performs an assessment of the social desirability or undesirability of a certain activity, which implies the actor's *direct* measurement of the private benefit and of the external costs deriving from that behavior.

The internalization mechanism has the great advantage of ensuring that the actor utilizes his own information to assess whether it is better to give up an activity, carry out that activity while taking precautions, or to carry out the activity without taking precautions. Thus, the private benefit, in the event that the external costs are perfectly internalizable through the tax or compensation for the harm, coincides with the social benefit.⁵

³ R. H. Coase, *Notes of the Problem of Social Costs*, supra note 1 at 59.

⁴ Legal rules that seem to incorporate the Pigovian logic of internalization of external costs are called, in the wake of the seminal work by Calabresi e Melamed, “*liability rules*” (Guido Calabresi and Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 *Harv. L. R.* 1089 (1972)).

⁵ Sometimes the expression “internalization of external costs” is used purely to indicate the fact that, through various mechanisms, the regulation ensures that human actions are carried out only up to the point where the social benefits equal the social costs. Hence this does not refer exclusively to the mechanism outlined earlier by virtue of which the actor's information is used to arrive at an optimum activity level. So if the regulation considers that the efficient level of a certain conduct is 3 (e.g., the owner of a dog may choose to go to the park three times a day), then it may impose a very high sanction not commensurate with the possible external harm against the subject who carries out that activity a fourth time. But in such a system we do not find those characteristics of the mechanisms of internalization which Pigou seemed to be thinking of: that is, attribution to the actor of the choice whether to bear the external costs or take precautions, or, finally, give up the activity. To me, it seems more appropriate to use the expression “internalization of social costs” to refer only to those mechanisms which utilise the private information of the subjects, impelling them to compare external costs, internalized through the negative consequences

Ronald Coase criticizes this mechanism championed by Pigou and his followers.⁶ The idea that goes by the name “Coase Theorem” is merely one of the observations that Coase makes about Pigou’s reasoning.⁷ The observation is in fact valid to the extent that the transaction costs are negligible. However, if we put *transaction costs* back into the analysis, Pigou’s reasoning appears to have some validity. If we hold that transaction costs cannot be left out, it’s then Coase’s other criticisms of the Pigovian tradition that need to be considered.

Coase’s intention was to show that there are institutional solutions other than the Pigovian tax system for promoting economic efficiency.

Legal rules can, for instance, facilitate negotiations among the parties.

But the main idea in Coase's work is that some harmful activities can be assessed by the legal system as *purely lawful*; without the provision of a mechanism for internalizing the external costs.

Coase makes four criticisms of the Pigovian tradition. These can be described as: “the reciprocal nature of the problem;” “Coase Theorem;” “joint causation of harm;” and “the costs of assessing and verifying external costs.”

1. THE RECIPROCAL NATURE OF EXTERNALITY

The first criticism is, as summarised by the Chicago economist, “the reciprocal nature of the problem.”⁸

Coase writes:

contemplated by the regulation, with the private benefits of the action. This conception of the mechanism of internalization of social costs seems to conform better to the idea Pigou expresses in his works.

⁶ In his works, Ronald Coase was often critical of the rule “price = marginal cost” championed by economists. Cf. Ronald H. Coase, *The Firm the Market and the Law*, in *The Firm the Market and The Law*, supra note 1 at 16 ff. We seem to find the same criticism of the idea that any harmful conduct should be carried out to the point where the social benefits equal the social costs.

⁷ In discussing a world without transaction costs, he states that “in reality, it does not seem worthwhile to waste time analysing (its) properties.” Ronald H. Coase, *The Firm the Market and the Law*, supra note 1 at 15.

⁸ Ronald H. Coase, *The Problem of Social Cost*, supra note 1 at 2.

“The traditional approach has tended to obscure the nature of the choice that has to be made. The question is commonly thought of as one in which A inflicts harm on B and what has to be decided is: how should we restrain A? But this is wrong. We are dealing with a problem of a reciprocal nature. To avoid the harm to B would inflict harm on A. The real question that has to be decided is: should A be allowed to harm B or should B allowed to harm A? The problem is to avoid the most serious harm.”⁹

Coase thus shows that externalities are the result of subjective rights.

Giving a right to a person allows him to cause harm to third parties. In his article, the Chicago economist uses his classic example to adumbrate this concept:

“I instanced in my previous article the case of a confectioner the noise and vibrations from whose machinery disturb a doctor in his work. To avoid harming the doctor would inflict harm on the confectioner. ... Another example is afforded by the problem of straying cattle which destroys crops on neighbouring land. If it is inevitable that some cattle will stray, an increase in the supply of meat can only be obtained at the expense of a decrease in the supply of crops.”¹⁰

Giving the confectioner the right to make noise allows him to inflict an externality upon the doctor. Recognising the doctor’s right to prevent the confectioner’s noise allows the doctor to inflict an externality on the confectioner. Likewise, authorising the cattle-raiser to invade the farmer’s cropland allows him to inflict harm upon the farmer. Recognizing the farmer’s right to keep animals from wandering onto his land allows him to harm the cattle-raiser. The difference lies only in the fact that, in the first case, the externality derives from an action which the subject takes, whereas in the second case the externality derives from the impediment created by the right.

Hence, Coase’s reflections highlight some gaps in the way economists reason.

⁹ Ronald H. Coase, *ID* at 2.

¹⁰ Ronald H. Coase, *ID* at 2.

Indeed, normally we think of an externality when we assume that a certain subject does not have the right to carry out a certain activity.

That means that mainly we imagine the existence of an externality only when a certain action may cause harm to others, not when a subject's action may prevent others from carrying out a productive activity beneficial to others.

For example, typically in analyzing problems associated with the use of property (in particular real estate), we think about the externality that arises when a subject invades the physical space of other people's property. However, we do not think of the external diseconomy that results when a subject prevents others from invading the physical space of his *own* property.

In addition, it is possible to develop Coase's thinking by considering some other examples: the production of emissions or the right not to have people passing through or parking on one's land both include the possibility of inflicting harm on others.¹¹ In the first case, the externality derives from the subject's action, an action whose effects have repercussions in the spatial sphere of others' property. In the second case, the externality derives from the prohibition established by the law and the action does not impact the spatial sphere of others' rights. In both these hypotheses, however, any protection of a claim by a subject involves a cost to others for which no recompense is paid, i.e., an externality.

Moreover, the right to fly over someone else's land is the source of an external cost; a sacrifice must be borne by the owner of the land. Notably, however, the right to prevent planes from passing over one's land also causes an externality; those interested in flying over the land experience a loss of utility.

Economists and jurists – this is one of Coase's lessons – should not remain tied to a predetermined concept of causality. Thus, a legally protected claim cannot simply be denied to the subject who “causes” the harm. The law must choose the

¹¹ The example of the right to prevent others from parking on one's land is proffered by Coase himself. See Ronald H. Coase, *The Problem of Social Cost*, supra note 44.

solution that ensures the greatest net social benefit even if this means that an action may impose a cost on others.¹²

In fact, property, or the very right to exclusive use of a thing, involves an externality; a sacrifice borne by the subjects who might have otherwise utilized the item.¹³

At this point, it is important to examine the verity of Coase's first criticism of the Pigovian tradition.¹⁴

Pigou and his followers believed that the introduction of a tax, or the provision of compensation for harm was the solution to the problem of external costs. The solution of an *absolute prohibition of the activity in question*¹⁵ is never addressed (at least explicitly) in Pigou's work.¹⁶

¹² This is the direction Italian law takes when, for example, art. 840 of the Civil Code stipulates that: "the owner of the land may not oppose the activities of third parties conducted at such a depth in the subsoil or at such a height in the overlying air that he has no interest in excluding them."

¹³ It could be said that the very idea of a legally protected claim arose because the exercise of a right normally involves a sacrifice for the other subjects (also including the *lost utility* of those who wanted to utilise the resource). It is however possible to imagine that an activity that does not cause any harm to third parties ought also to be subject to a legally protected claim. Think of a person who uses his own playstation at a time when no one wishes to use that playstation at the same time. Assume that the place occupied by that person does not interfere with anyone. In this case it can be stated that the individual's activity does not cause harm to third parties. However, it may be desirable to attribute *a right to that subject*, i.e., a legally protected claim, to avoid *rent seeking* activity: someone in fact might try to block the subject's activity for the sole purpose of taking over part of his wealth. Hence the need to prevent the carrying out of costly activities directed solely at redistributing wealth among associates may lead to attributing rights to activities that cause no harm to anyone.

¹⁴ Coase's analysis was followed up by a clarification in 1962 by Buchanan and Stubblebine, who distinguish between "*Pareto relevant externalities*" and "*Pareto irrelevant externalities*".

According to these two economists, a *Paretian relevant externality* is when the cost inflicted on third parties is greater than the net benefit obtained by the actor, and for which a mutually advantageous agreement would be possible. Thus when an actor obtains from an action a benefit of 5 while causing a damage of 10, we are dealing with a Paretian relevant externality. If the benefit is 10 and the harm is 5, then the externality is *Pareto irrelevant*. Only in the former case is there an inefficiency. Hence we must imagine that when economists speak of externalities, they mean to refer only to *Pareto relevant externalities*, it being socially *not desirable* to eliminate the others (James M. Buchanan and William C. Stubblebine, *Externality*, 29 *Economica* 371 (1962)).

¹⁵ A price could be paid for all externalities that are produced only in the event that the State, by means of Walrasian auctioneers, put up for auction all legally protected rights. In a system of laws in which some

Thus, at first glance it might seem that Coase's first observation on Pigou's thinking is off the mark. However, at closer reading, the Chicago economist's analysis sheds light on a situation that is normally neglected by the Pigovian approach. Where the law gives a subject the right to prohibit a certain activity the problem of externalities arises as it would in any other case, and it is possible that the private cost which the holder of the veto power manages to avoid by exercising his power is in fact lower than the lost utility for the subject who sought to carry out a certain action. Pigou seems to be referring in fact only to *activities* that cause harm to third parties.

How can we explain the fact that economists have not noted the possibility of inefficient results in this case, i.e., in the event that a subject has *the power to prevent a harmful activity*?

The answer can be found in the second criticism that Ronald Coase advances against the Pigovian tradition, a criticism represented by his well-known theorem.

2. EFFICIENCY IS EVER ASSURED: COASE THEOREM

Once we have revealed the reciprocal nature of externalities, it would seem that the solution to the problem of correcting external effects becomes more complicated. The solution *cannot* in fact lie in the *prohibition* of harmful activities, since such a prohibition would involve a social cost represented by the loss of benefits that such activities may yield. The solution lies in prohibiting certain harmful activities and authorising others, or in reducing those harmful activities to an optimum level.

rights are attributed directly to individuals, without their having to pay a price, there will be cases when a human behaviour that involves costs for third parties may be engaged in without there being negative consequences of any type for the injurer. It is then possible that private cost and social cost diverge (if the conditions required by Coase's theorem are not met).

¹⁶ Coase moreover notes that Pigou calls "anti-social" any human activity "that causes harm to anyone whosoever" (Ronald H.. Coase, *The Problem of Social Cost*, supra note 1 at 35).

However, this problem disappears in the presence of a particular condition identified by Ronald Coase, a condition consisting of the “absence of transaction costs.”

Thus, we come to the second idea presented by the Chicago economist in his 1960 article, consisting of the theorem that bears his name.

Coase did not formulate the theorem, however. In addition, it has multiple definitions.

One formulation that is however to be found in the Coase’s article can be presented as follows: in the absence of transaction costs, the harm caused to others by a subject’s activity also constitutes a cost for the actor – more precisely, an opportunity cost – represented by the missed gain obtainable through an agreement with the victim.

Private cost and social cost are thus equal, in the absence of transaction costs, since the cost incurred by another is a benefit lost for the actor. The externality is therefore always internalized in the form of a lost gain.

In order to keep the activity from being carried out, the victim would be willing to pay a sum equal at most to the harm which he would otherwise suffer if the harmful activity were carried out. Thus, in assessing whether it is worthwhile to carry out a certain harmful activity, the actor should consider the benefit he will lose if he decides to carry out the activity rather than come to an agreement with the victim to avoid the activity.

Coase’s theorem can also be described by saying that “in the absence of transaction costs, the right always ends up in the hands of the one who values it more.” Imagine the case where Tom, owner of a piece of land, has the right to prevent Dick from letting his herd of cattle graze on the land. Suppose also that Tom values that right more than Dick is willing to pay.

Here, the right being considered is not simply the right to let one’s herd graze; it is a two-sided right: the right to have one’s herd graze and the right not to have the herd graze on one’s own land.

The proposition that “the right always ends up in the hands of the one who values it more” indicates that since Tom holds the right not to have the neighbour’s herd grazing on his land, he will not grant it (since Dick will not be willing to pay the

minimum amount that Tom requires to grant it). However, if Tom did not hold the right to prevent the herd from grazing on his land, he would acquire it from Dick (since Dick is willing to grant it for a sum lower than the maximum amount that Tom is willing to pay; Tom “values the right more.”) Regardless of the initial attribution of rights, at the conclusion of any negotiations Tom will hold the right not to have the neighbour’s herd grazing on his land.

With regard to the right to conduct harmful activities, the assertion that, in the absence of transaction costs, the right will end up in the hands of the one who values it more means that these activities will be carried out if the actors value the right to perform them more than the victims value the right to prevent them, regardless of the right’s initial configuration.

Hence the right is double-sided. One may have the right to perform a certain activity, or the right to keep that activity from being performed. Coase’s theorem states that, in the absence of transaction costs and regardless of the initial attribution of claims, the right will *always* appear in the form that has the *greater value*.

Now we must determine whether Coase’s second criticism of Pigou’s thinking is on target.

It should be noted that the Chicago economist himself considered the world without transaction costs to be quite far removed from his own idea of the real world. So it can be said that, since transaction costs *do* in fact exist, and thus we cannot rely on private accords to correct externalities up to the efficient level, Pigou’s argument remains valid. In other words, since the prescriptions of Coase Theorem are not applicable to a world with positive transaction costs, externalities must be corrected through other mechanisms and cannot rely on negotiation between individuals.

Coase seems cognizant of this. Immediately after advancing the idea that became associated with his name, in fact, he formulates his third criticism of Pigou’s reasoning, represented by the problem of the “*joint causation of harm*.”

3. NOTHING WORKS: JOINT CAUSATION OF HARM AND THE PARADOX OF PERFECT COMPENSATION

Having shown the reciprocal nature of externalities and the non-existence of the problem when transaction costs are absent, Coase describes the problem represented by the *joint causation of harm*, which leads to what Robert Cooter would call the “paradox of compensation.”¹⁷

Coase asserts:

“Assume that a factory which emits smoke is set up in a district previously free from smoke pollution, causing damage valued \$100 per annum. Assume that the taxation solution is adopted and that the factory owner is taxed \$100 per annum as long as the factory emits smoke. Assume further that a smoke-preventing device costing \$90 per annum to run is available,. In these circumstances, the smoke-preventing device would be installed. Damage of \$100 would have been avoided at an expenditure of \$90 and the factory-owner would be better off by \$10 per annum. Yet the position achieved may not be optimal. Suppose that those who suffer the damage could avoid it by moving to other locations or by taking various precautions which would cost them, or be equivalent to a loss in income of, \$40 per annum. Then there would be a gain in the value of production of \$50 if the factory continued to emit its smoke and those now in the district moved elsewhere or made other adjustments to avoid the damage.”¹⁸

Coase thus highlights the problem by which the amount of harm deriving from a certain activity may depend also on the activity carried out by the victim, for which reason it seems that the optimal social solution would be to apply certain precautionary charges to the victim, or restrict his activity.

¹⁷ Robert Cooter, *Unity in Tort, Contract, and Property: The Model of Precaution*, 73 *Cal. L. R.* 1 (1985), p. 3.

¹⁸ Ronald H. Coase, *The Problem of Social Cost*, supra note 1 at 41..

Those cases in which the promotion of efficiency requires that the victim take some *measures* to mitigate the harm are usually termed: “cases of bilateral precaution” or “cases of *joint causation of harm*.”¹⁹

As Cooter notes:

“When each individual bears the full benefits and costs of his precaution, economists say value is internalized. When an individual bears part of the benefits or part of the costs of his precaution, economists say that some social value is externalized. The advantage of internalization is that the individual sweeps all of the values affected by his actions into his calculus of self-interest, so that self-interest compels him to balance all the costs and benefits of his actions. According to the marginal principle, social efficiency is achieved by balancing all costs and benefits. Thus, the incentives of private individuals are socially efficient when costs and benefits are fully internalized, whereas incentives are inefficient when some costs and benefits are externalized. In situations when both the injurer and the victim can take precaution against the harm, the internalization of costs require both parties to bear the full cost of the harm. To illustrate, suppose that smoke from a factory soils the wash at a commercial laundry, and the parties fail to solve the problem by private negotiation. One solution is to impose a pollution tax equal the harm caused by the smoke. The factory will bear the tax and the laundry will bear the smoke, so pollution costs will be internalized by both of them, as required by social efficiency. In general, when precaution is bilateral, the marginal principle requires both parties to be fully responsible for the harm. The efficacy condition is called double responsibility at the margin.”²⁰

¹⁹ Although the expression “cases of bilateral precaution” would seem to refer solely to those cases in whose presence it is desirable for there to be precautionary duties for the victim, the expression can however also be used in those cases in which it is socially useful to control the victim’s own level of activity.

²⁰ Robert Cooter, *Unity in Tort, Contract, and Property: The Model of Precaution*, supra note 18 at 3 .

Internalization through the mechanism of strict liability, a mechanism which some economists seem to point to as the solution to the problem of external costs,²¹ then seems in many cases inefficient. In fact, it is not capable of producing the optimal incentives for the victim.

As Cooter states:

«One problem with the combination of justice and efficiency, however, is that compensation in its simplest form is inconsistent with double responsibility at the margin. In the preceding example, justice may require the factory not only to pay for harm caused by the smoke, but also to compensate the laundry for the harm. Compensation, however, permits the laundry to externalize costs, thereby compromising efficiency. Thus a paradox results: If the factory can pollute with impunity, harm is externalized by the factory; if the factory must pay full compensation, harm is externalized from the laundry; if compensation is partial, harm is partly externalised by the factory and partly externalized by the laundry.»²²

The “paradox of perfect compensation” is explained as follows in a well-known textbook of economic analysis of law:

“Consider this paradox: (1) In order for the injurer to internalize costs, he or she must pay full compensation to the victim. (2) In order for the victim to internalize costs, he or she must receive no compensation for injurer. (3) In private law, compensation paid by the injure equals compensation received by the victim. Therefore, private law cannot internalize costs for the injurer and the victim as required for efficiency ... The paradox has a solution. In fact, efficient incentives do not

²¹ In his 1960 article, Ronald Coase makes his criticisms mainly against that system of internalization of social costs represented by the institution of tort liability. See Ronald H. Coase, *The Problem of Social Cost*, supra note 1.

²² Robert Cooter, *Unity in Tort, Contract, and Property: The Model of Precaution*, supra note 18 at 4.

require internalization of total costs. Instead, efficient incentives require the internalization of marginal costs.... This paradox points out a problem that afflicts all areas of the law.”²³

To examine this problem in greater depth, consider the following example: Dick takes his child to the park, and Tom takes his dog. If the dog bites the child, it can be said that Tom’s action has harmed Dick. Compensation, however, means that one’s own harm is turned into an externality, that is, into an external harm. If a system of strict liability exists, as in the example at hand, Dick’s decision to take his child to the park harms Tom.

Coase’s third criticism of the Pigovian tradition seems to address this issue in part: internalization through the mechanism of strict liability can in fact lead to inefficient outcomes.

But the double liability at the margin that Cooter speaks of can be achieved through various mechanisms. This result is ensured by the system of fault liability and strict liability combined with a defence, which may consist of the contributory negligence defence or the comparative negligence defence.

In this regard, however, two observations can be made:

- First, these systems do not achieve complete internalization of social costs. In the system of liability for negligence, the injurer does not internalize the external costs deriving from his diligent conduct; in the system of strict liability accompanied by a defence, the injured does not internalize the external costs due to conduct in compliance with the standard of diligence.

Consequently, in the presence of a system of liability for negligence, the harmful activity can be carried out up to an inefficient level; the actor will not compare his benefits with the external harm caused by his activity when the activity complies with the legal standard of diligence. In a system of strict liability accompanied by a defence the victim’s activity will be carried to inefficient levels; the victim will not compare his benefits with the harm that the injurer must bear by virtue of the benefits transfer carried out by the law.

²³ Robert Cooter and Thomas Ulen, *Law and Economics*, Second Edition, Reading (Mass): Addison-Wesley, 1995, p. 233.

- Finally, it's important to note that in these systems the traditional mechanism of internalization of external costs is absent. Indeed, the law directly assesses the level of precaution adopted by the subject (injurer and injured) and expresses a judgment that either penalises or approves the behaviour.

- In the case of liability for negligence, the injurer's diligent behaviour is *purely* lawful. The same must be said for the injured's behaviour in the case of strict liability. There isn't any system of internalization on external costs

However, the observations offered up to this point are valid only with regard to a certain system of internalization of social costs: the system that hinges on the aquilian liability of the actor.

Is this criticism also valid with regard to Pigovian taxes?

Such taxes create a system of *decoupled liability*:²⁴ both subjects, injurer and injured, bear the costs deriving from the harmful activity, as required by efficiency. The injurer bears the tax, whilst the injured bears the harm. It would seem then that Coase's third observation does not compromise the validity of Pigou's system. William Baumol came to this conclusion in 1972.²⁵

4. THE COSTS OF ASSESSING AND PAYING DAMAGES AND PIGOVIAN TAXES

Baumol's reasoning led to the widely held belief that the Pigovian tax mechanism was a usable instrument to pursue economic efficiency.

The three criticisms examined up to this point were not able to significantly weaken the validity of the Pigovian tax system: such taxes, in fact, do not involve

²⁴ A system of *decoupled liability* is a system in which the payment that must be made by the author of the harmful conduct differs from the payment received by the victim. In a Pigovian tax system, the amount received by the victim is zero. There are other cases in which *decoupling* occurs. For example, many American states provide that, when punitive damages are granted, only 67% of the amount paid by the defendant goes to the actor, while the remainder is assigned to the state. The concept of *decoupled liability* was introduced in 1980 by Warren Schwartz. See Warren Schwartz, *An Overview of the Economics of Antitrust Enforcement*, 68 *Geo. L. J.* 1075 (1980).

²⁵ William J. Baumol, *On Taxation and the Control of Externalities*, 62 *Amer. Ec. Rev.* 307 (1972).

absolute prohibition of certain activities, do not require that transaction costs be zero, and achieve decoupling.

Conscious of this, Coase responded to Baumol in 1988, developing new arguments.

His attention focused on the difficulty of assessing the social damages caused by a harmful activity.

Baumol's analysis had shown that the amount of the Pigovian tax had to be calculated by taking into account not only the actual harm but also the "reduction in the production value,"²⁶ making the regulator's work more complex. Coase underscored the informational problems a regulatory authority would encounter in setting a system of Pigovian taxes.

5. OUTGROWTHS OF COASE'S IDEAS

In the years following publication of *The Problem of Social Cost*, certain themes involving the problem of internalization of social costs were dealt with by some of the most eminent American legal economists.²⁷ This debate is still under way; its concepts are still being explored and new theories developed.

5.1 The contrast between regulation and civil liability in the work of Steven Shavell.

In the early 1980's, Steven Shavell analysed the problem of whether mechanisms for internalising social costs were efficient.²⁸ He pondered the relative advantages of civil liability versus direct regulation, and identified some general principles to guide the selection of a system.

²⁶ That is, the tax must be calculated taking into account the possibility that the victim may take efficient precautions or may reduce the harm by limiting or stopping his own activity.

²⁷ Cf. Steven Shavell, *Liability for Harm versus Regulation of Safety*, 13 *J. Legal Stud.* 357 (1984) and Robert Cooter, *Prices and Sanctions*, 84 *Col. L. Rev.* 1523 (1984).

²⁸ Steven Shavell, *Liability for Harm versus Regulation of Safety*, supra note 28.

According to Shavell, it is important to first assess the parties' awareness of the activity's degree of riskiness.²⁹ If the private parties have a higher degree of awareness than the regulator regarding the riskiness of a certain activity, then a mechanism for internalising social costs seems preferable to direct regulation.

This solution seems sensible in the event that the internalization mechanism consists of strict liability. However, it has the disadvantage of *always* requiring payment for damages, with the attendant administrative costs.

Liability for negligence does not have this disadvantage; under this type of regime, damages are only assessed in the presence of negligence.

However, liability for negligence requires that the court establishes the efficient level of prevention, thereby forfeiting the indirect use of the information possessed by the actor to determine efficient precautions. However, with regard to direct regulation, this evaluation should occur *ex post facto*, and the court could be sufficiently prepared to carry out such an analysis.

It bears repeating that the institution of liability for negligence involves certain activities, so long as they are carried out in compliance with the legal standard of diligence, being authorised by law, without any mechanism for internalising social costs being set up. This means that the activity level may be carried out up to an inefficient level.

The liability mechanism, according to Shavell, seems preferable to regulation even in the event that the administrative costs that the regulator must bear to ensure compliance with the regulation are high.³⁰ Even in this case, however, only liability for negligence, and not strict liability, can normally present a *clear* advantage over direct regulation. This is because only liability for negligence involves the finding of damages and the assessment of the optimal level of diligence being made in limited hypotheses (when the actor does not seem to be up to the standard of diligence). Strict liability instead requires the finding and payment of damages whenever the harmful event occurs.

²⁹ Steven Shavell, ID at 359.

³⁰ Steven Shavell, *Liability for Harm versus Regulation of Safety*, supra note 28 at 363.

The other two factors examined by Shavell are: 1) the possibility that the injurer is unable to pay the damages, and 2) the risk that the injurer manages to avoid being ordered to pay compensation for the damage.³¹

These two conditions may make direct regulation preferable to the mechanism of liability, whether liability for negligence or strict liability as the presence of either factor would diminish the subjects' incentives for taking precautions.

5.2 Prices and sanctions in Robert Cooter's thinking

That same year, Robert Cooter took up the conceptual difference between *prices* and *sanctions*.³²

According to Cooter, the *price* is the amount of money required by law for an allowed activity, while the *sanction* is the negative consequence associated with a prohibited activity.³³ In Cooter's analysis, he seeks to determine when a legal system concerned with economic efficiency should resort to *sanctions* rather than to *prices*. In Cooter's analysis only *prices* reflect the logic of internalization of social costs.

Initially,³⁴ Cooter adopts a paradigm to identify when a negative consequence established by a law can be called a *sanction* and not a *price*. He determines that a consequence is a sanction if: 1) a psychological factor of the act is relevant; and/or 2) a negative consequence is increased in the event that the harmful consequence is repeated.³⁵

³¹ Steven Shavell, ID at 360 and 363.

³² Robert Cooter, *Prices and Sanctions*, supra note 28 at 1523

³³ ID supra note 28 at 1523.

³⁴ ID supra note 28 at 1537.

³⁵ "The efficient price depends on the level of external harm, not on the actor's state of mind." Robert Cooter, *Prices and Sanction*, supra note 28 at 1537.

Cooter also identifies a more general rule for identifying sanctions: he states that, if the actor can take various levels of precaution, we are dealing with a sanction when the law creates a discontinuity, that is, a jump in the curve of the actor's expected costs such that, for the latter, if he acts as a rational and self-interested subject, he will take the desired precautions.

The problem with this definition is that for some behaviours it is not possible to identify a different series of levels of precaution, as for example parking in a prohibited zone. Cf. Robert Cooter, *Prices and Sanctions*, cit., p. 1527.

A fundamental difference between prices and sanctions is the elasticity of the behaviour as certain variables change. In the case of sanctions, the amount of precaution the subject takes is not very flexible in relation to change in the sanction, thus the behaviour is inelastic. This is because a change in sanction creates a discontinuity in the curve of the actor's expected costs; a discontinuity at the level of diligence desired by the system of law. The actor's behaviour is instead strongly *responsive* to changes in price, since this discontinuity is not present on the curve of expected costs.

On the other hand, as the level of precaution required by a law providing for a sanction changes, the subject's behaviour changes, since the subject is normally interested in conforming to the prescription. In the case of prices, though, a similar argument cannot be made, since there is no level of precaution required by the law.

This leads to some indications of *policy*: if the public authorities can determine, relatively precisely, the ideal level of precautions and at the same time can make mistakes in measuring the external costs, then the use of sanctions is surely desirable. In the event that the public apparatus is capable of successfully estimating the amount of the external costs and at the same time is unable to determine the optimum level of diligence, the use of a price system is desirable.

The "possibility of gathering information" must then guide lawmakers in choosing between prices and sanctions. The overall results arrived at by Cooter can be summarised in the following diagram:

We may also hold that we are dealing with a sanction in the event that the system of laws attributes to public officials the ability to prevent a certain act from being carried out. It cannot in fact be asserted that the law approves a certain behaviour if the subject is willing to bear the consequences, when a prohibitive power is attributed to certain subjects.

Best observer of social costs

Officials *Private* *Persons*

Best observer of social benefits	<i>Officials</i>	Legislative standard and sanction	Official subsidy
	<i>Private Persons</i>	Official price	Community standard and sanction

It may be observed that the mechanism of internalization of social costs is desirable only in one of the four hypotheses. More precisely, only when private persons are best observers of social benefits and official are best observers of social costs a system of prices is optimal.

It is worth noting that, in the context of tort liability systems, Cooter places compensation of damages for negligence among the sanctions, and objective liability among the prices, confirming the impossibility of finding a mechanism in this institution for internalising social costs.

5.3 Property rules, liability rules and subsequent interpretations.

Even before Shavell and Cooter turned their attention to the general problem of internalization of social costs, the acquired wisdom of the reciprocal nature of externalities, together with an awareness of the problem that transaction costs may pose in achieving an efficient solution, led Guido Calabresi and Douglas Melamed³⁶ to identify four rules relating to harmful activities that could be abstractly used to regulate such activities.

They are as follows:

³⁶ Guido Calabresi and Douglas Melamed, *Property Rules, Liability Rules and Inalienability: One View of the Cathedral*, supra note 4.

- **Rule 1:** the subject interested in the harmful activity does not have the right to carry it out and the potential victim has the power to prevent him from doing so.

- **Rule 2:** the subject interested in the harmful activity does not have the right to carry it out; however, the potential victim cannot prevent him from doing so if the interested subject pays the indemnity set by the courts or by law.

- **Rule 3:** the subject interested in the harmful activity has the right to carry it out and the potential victim cannot prevent him from doing so.

- **Rule 4:** the subjected interested in the harmful activity has the right to carry it out; however, the potential victim can prevent him from doing so by paying the indemnity set by the courts or by law.

Calabresi and Melamed determined that in order to achieve efficiency, it was necessary to prevent transaction costs from allowing externalities to exist. In the course of their attempt to remove the inefficiencies caused by transaction costs, they discovered possible criteria for choosing between rules 1 and 3 on the one hand, the so-called *property rules*, and rules 2 and 4 on the other, the so-called *liability rules*.

According to Calabresi and Melamed, the liability rules³⁷ are preferable when transaction costs are high, since private negotiation is prevented by them, whereas

³⁷ In the debate among legal economists, two different conceptions of *liability rules* seem to coexist. On the one hand, there are those for whom the *liability rules* are identified based on the *consequences* that the law attributes to a harmful behaviour: if these consequences specifically provides recovery, we are dealing with a *liability rule*. This approach runs into problems, however, in those cases in which the law can only provide for equivalent recovery, since compensation in specific form is materially impossible. This occurs, for example, when the effects of a harmful behaviour can be eliminated only for the future, not the present. Thus, in the case of an intolerable input, the injunctive remedy may be valid for the future, but for the behaviour already carried out the only sanction may be the payment of compensation for the harm. A classic hypothesis in which recovery in specific form is not possible is the death of a person.

On the other hand, there are those for whom identification of the *liability rules* must occur based on the assessment that the law makes, reconstructable by means of certain indices, regarding the social desirability or undesirability of the harmful act: thus we are dealing with a *liability rule* when, for the law, social welfare increases in the event that a subject, aware of the consequences befalling him by virtue of his carrying out some harmful activity, engages in that activity nonetheless.

The *liability rule* is therefore characterised by providing a certain *price* for an activity, but even the use of the term "price" may lead to misunderstandings: any cost deriving from a law can be considered the "price" which the subject must pay to carry out the activity covered by the law; however, it would seem more

the property rules are preferable when transaction costs are low (and, hence, negotiation is possible).³⁸

The liability rules thus reformulate the logic of internalization of social costs, although only in situations of high transaction costs.

Using the example given above, it is possible to see how the four rules can be applied. Dick accompanies his child to play in the park, while Tom takes his dog. There is a risk of harm caused by the dog possibly biting the child.

- According to the first rule, Tom may not take his dog for a walk in the park, and Dick may obtain injunctive relief. Tom may obtain the right to take his dog only through an agreement with Dick (the property rule).

- According to Rule 2, Tom may take his dog for a walk in the park but has to pay an indemnity to Dick, which indemnity may or may not correspond to the harm actually suffered by the child. In this way Dick's right is restricted without any need for his consent (the liability rule).

- According to Rule 3, Tom has the right to take his dog for a walk in the park. Since Dick is the one who must bear the harm that actually occurs, he may take his child to the park but at his own risk. He can acquire the right to have Tom not come to the park only through an agreement with Tom (the property rule).

- According to Rule 4, Dick may prevent Tom from coming with the dog by paying the amount predetermined by law or set by the court. In this way Tom's right is restricted without any need for his consent.³⁹

appropriate to use the term "price" when the law positively values the performance of that activity in the event that someone is willing to bear the consequences. This position can be explained with an example: the law may provide for a pecuniary sanction for the subject who travels a certain stretch of road closed to automobiles, or it might set a fare for those who intend to travel that stretch. In the first case, it can be said that social welfare does not increase when a subject engages in the behaviour of travelling the road even though he is aware that he will certainly be penalised; in the second case, it can be asserted that, when the subject decides to pay the fare and travel the road, social welfare undergoes a positive variation.

The writer is unable to provide adequate bibliographic references, since these remarks are more the fruit of conversations held with legal economists than the product of readings.

³⁸ No explanation is offered however regarding the cases in which rule 1 is superior to rule 3.

³⁹ Normally, in examples like this, we think it is Tom who causes the harm, because the harm falls on Dick.

The explanation offered by Calabresi and Melamed, as based on transaction costs, appeared misleading to some authors.⁴⁰

It has in fact been shown that in the presence of low transaction costs the efficient solution can also be achieved by instituting a liability rule. The parties can in fact negotiate by taking into account the rule of law, and thus reach the efficient solution.

In addition, it has been proposed that the discipline of *harmful externalities* be distinguished from that of *possessory interests*⁴¹. This distinction cannot be said to have been definitively formulated and merits further exploration; however, it is one more criticism against the Pigouvian logic of internalization of social costs.

Indeed, in the case of *possessory interests*, Kaplow and Shavell's analysis leads us to prefer property rules over liability rules. This is because the use of liability rules leads to significant undesirable effects when the appropriation of a *possessory interest* is reconnected to an indemnity or compensation that is *undervalued*.

The problem inherent in possessory interests is the possibility of the existing of a *common value component*. There is a common value component when a potential taker values an object for the same reasons of the owner. In this case, if the legal system gives an undervalued indemnity to the owner in case of takings, many forced transfers are destined to take place. In this case, the subject wanting to take possession of the property invests resources in a purely redistributive activity; for his part, the subject risking expropriation modifies his choices, orienting himself

But if we introduce a compensatory system by virtue of which Dick's harm is transferred to Tom, then it seems clear that Dick's actions cause harm to Tom. Therefore, the harm that Tom must bear depends either on Dick's decision to take his child to the park or on the measures that Dick takes to avoid or reduce the harm.

The situation is exactly turned around.

⁴⁰ Louis Kaplow and Steven Shavell, *Property Rules versus Liability Rules: An Economic Analysis*, 109 *Harv. L. R.* 713 (1996).

⁴¹ As explained by Steven Shavell and Louis Kaplow, *Property Rules versus Liability Rules*, supra note 41 at 716, note 2, "by the protection of possessory interests in things, we refer to the prevention of the unwanted transfer of possession of a physical object to a taker. By harmful externalities, we mean adverse outcomes that occur as a byproduct of an injurer's activity, a familiar instance being pollution caused by a firm's operations."

towards property that can be expropriated only with greater difficulty, and takes precautions aimed at avoiding the expropriation, thus bearing costs not corresponding to social benefits.

Therefore, mechanisms for internalising social costs, like the liability rules, do not seem desirable, even in the presence of high transaction costs.

6. CONCLUSIONS

Ronald Coase's intention when he wrote his 1960 article was to subject the Pigovian approach to the problem of externalities to a series of critiques. Economic thinkers have taken from Coase's work the idea that, in a world without transaction costs, Pigovian taxes and the mechanisms for compensating harm are useless. However, as the real world is a world with positive transaction costs, Pigou's reasoning was considered most valid. Coase's critique of Pigou's approach appeared nothing more than a refined theory in the textbooks of welfare economics. Ronald Coase's thinking is confined to the world of abstract ideas, and the prescription that every harmful action must be associated with a tax or mechanism for compensating the harm – a price, in other words – is still practicable.

Regrettably, some of Coase's other important observations have not managed to influence the thinking of economists.

In the light of the clarifications offered by him and other scholars, some of these concepts can be summarised as follows:

- The internalization of external costs through the mechanism of strict liability carries with it significant administrative costs, since the harm is not left on the subject who suffers it. This transferral requires information about the amount of external damages. This is information that a legal system may not have readily available and thus it may make mistaken assessments of this damage, resulting in inefficiency. Furthermore, the internalization of external costs through the mechanism of strict liability requires that a *defence* be introduced to encourage the injured to take precautions. This defence requires the legal system to make a

direct assessment of whether or not the optimal level of precaution was adopted by the victim. Finally, it is not suitable for maintaining the victim's level within the efficient level. The legal system may miscalculate resulting in inefficiencies.

- The internalization of external costs through Pigovian taxes does not present any of the drawbacks of the mechanism of strict liability, since it achieves *decoupling*, but it does carry with it heavy administrative costs and requires precise measurements of the external costs of harmful activities, which could be quite expensive.⁴²

- Human actions that produce benefits for the actor but which also cause external costs are the norm. The idea that every harmful human behaviour should be associated with a tax could lead to a need to tax a large number of human actions.

- But a system that authorises certain activities in compliance with certain protections (by setting a legal standard of diligence), or that allows certain behaviours that do not involve high levels of external harm, is not called upon to implement costly and imperfect mechanisms for measuring harm, or taxes.

In conclusion, it can be stated that Ronald Coase's analysis sheds important light on the functioning of legal systems: these systems, and those that seem to respond to a logic of economic efficiency, resort to solutions other than the internalization of social costs. For many activities they authorise or prohibit, they directly perform the assessment that economists would like to leave to the actors. At other times, they directly identify levels of precaution to which subjects must adapt themselves in order to avoid negative consequences.

⁴²Commenting on the thinking of Baumol, who had found Pigou's approach flawless, Ronald Coase expressed himself as follows:

"It is obvious that what Baumol intended when he said, "taken on their own terrain, the conclusions of the Pigovian tradition are in fact flawless," was that their logic was flawless, and that, if his tax proposals were carried out, even though that is impossible, the allocation of resources would be optimal. I have never dreamed of denying this. My point was simply that these taxation proposals are made of the stuff of dreams." (Ronald H. Coase, *Notes on the Problems of Social Cost*, supra note 1 at 185).

Legal systems resort more frequently to sanctions than to prices, to use Coater's language, and it may be said that the logic of jurists is often preferred to that of economists.