



Munich Personal RePEc Archive

Understanding "The Problem of Social Cost"

enrico baffi

University Guglielmo Marconi

2013

Online at <http://mpra.ub.uni-muenchen.de/45949/>

MPRA Paper No. 45949, posted 8. April 2013 04:17 UTC

UNDERSTANDING “THE PROBLEM OF SOCIAL COST”

Enrico Baffi

Università Guglielmo Marconi

ABSTRACT

This paper examines the positions of Coase and Pigou in regard to the problem of external effects (externalities). Assessing their two most important works, it appears that Coase has a more relevant preference for an evaluation of total efficiency, while Pigou, with some exceptions, is convinced that it is almost always socially desirable to reach marginal efficiency through taxes or liability. It is interesting that the economist of Chicago, who has elaborated on the renowned theorem, thinks that is not desirable to reach efficiency at the margin every time, and that it is often preferable to evaluate the total, which indicates the solution that is more welfare enhancing. A certain confusion in the work of Coase is noticeable. On one hand he criticizes Pigou for statements regarding the social desirability of relocating some industries away from the towns, and on the other hand, he suggests solutions that give an absolute right for an activity that is incompatible with the activity of another subject. In this way he eliminates the possibility of having a solution that is in accordance with Coase's idea, which stresses that any external effect is reciprocal. The adjective “reciprocal” means that damage to Y is the consequence of limiting the activity of Y in order to allow for the activity of X. The

opposite is also true: A benefit for Y causes damage to X.

Beyond this criticism, Coase's arguments against Pigou's tools are represented by the famous theorem, according to which a public intervention is not necessary in order to obtain efficiency when transaction costs are low. However, the theorem is not an idea that can be used to say that Pigou's methods are useless when transaction costs are high. Indeed, when transaction costs are high, efficiency cannot be reached through negotiations. Coase, nonetheless, rejects Pigou's tools for every situation. Through a deep examination of the paragraphs of "The Problem of Social Costs," it is understandable why Coase opposes Pigou's tools. First of all, he considers that the remedy consisting in the compensation of the victim. To Pigou's way of thinking, this is a strict liability rule. Coase states that the damage is caused by both parties, and, moreover, the amount of the damage depends on both parties. He understands that the compensation method described by Pigou can bring about moral hazards and, therefore, brings about new social costs.

Since the article was written in 1960, Coase's theory has been developed and has become a pillar of tort law and economics.

Pigou proposed a tax as an alternative remedy for external effects, which does not bring about a behavior of moral hazard, because the victim bears the expected costs. However, Coase is diffident in regard to the tax. His idea was not developed by other scholars in the subsequent years. Coase understands that efficiency should require a tax on the victim, so that the victim considers the increase of the costs of precaution for the injurer due to creating the nuisance. In other words, Coase understands that the tax does not produce the socially optimal activity level of the parties if the costs of precaution of the other party are not considered as a component of the tax. Therefore, Coase's belief is that the tools of Pigou create so many problems as to make them inefficient.

1. INTRODUCTION

Ronald Coase and Arthur Pigou have contributed considerably to the development of the vast field of economic science. Indeed, without their contributions, transaction cost economics, the economic analysis of law, and the new welfare economics might never have been developed.

Pigou published his last edition of *The Economics of Welfare* in 1932.¹ Three decades later, Coase sent his article on the problem of social cost to the press in 1960.² Although the two economists agreed on many aspects, such as the problem of the maximization of welfare and the proper functioning of market competition,³ Coase's article comes across as a strong criticism of Pigou's stance and the tradition that had developed around his writings. In fact, Coase strived to highlight a number of deficiencies in Pigou's arguments. He directed many critical comments at Pigou, one of which has subsequently been termed "Coase's Theorem."

¹Pigou A., *The Economics of Welfare*, 4th edition, Macmillan and Co Ltd, London (1932).

²Coase R., "The Problem of Social Cost," *Journal of Law and Economics*, Vol. 3 (1960) now published in Coase R., *The Firm, the Market, and the Law*, The University of Chicago Press, Chicago (1988). All quotes from Coase are from this publication.

³*Ibid.*, at 95

2. THE RECIPROCAL NATURE OF EXTERNAL EFFECTS.

In order to propose his general view of the problem of external effects, Coase strongly emphasized that a negative external effect is reciprocal in the sense that if the exercise of an activity is limited, a cost arises out of the non-exercise of this activity. Coase stated that Pigou and his followers were not aware of this aspect. In fact, such criticism did not actually concern Pigou and his oral tradition even though Coase placed great importance on this comment.

Pigou proposed taxes or compensation in the case of external negative effects. It is clear that he believed that a tax or a duty of compensation limited an activity that produced also benefits; otherwise, he would have listed activities that should be banned. Pigou imagined that one of his tools would have limited an activity, but only limited, because below a certain level of activity, it would be convenient to pay the tax or the compensation. However, if it were convenient to pay the tax or the compensation, then this would indicate that there was a private benefit greater than the tax.

In a number of cases it seems that Pigou goes against his own philosophy. For example, he proposed constructing factories away from towns. In this case, he seemingly attributed zero utility to the factories' activities, which he defined as "antisocial." For Coase this is evidence that Pigou had not recognized the concept of the reciprocal nature of the externalities. Nevertheless, Pigou's judgment may be an attempt to evaluate the efficiency on the total, which is similar to Coase's reasoning for other occasions, i.e., without looking at the conditions of marginal efficiency. In other words it is possible that Pigou, similarly to Coase, understood that the condition of efficiency at the margins is not always the most efficient solution for a problem of externality, because some new social costs can derive, as we will see, if the legal system tries to obtain that condition. Surely, Coase

moved beyond Pigou's ideas with regard to certain tendencies of how to work out the evaluation of the welfare on the whole and not on its margins. These tendencies were not characteristic of Pigou's work due to his intention to attenuate the exercise of a particular activity that also causes damages without completely eliminating the exercise of the activity of the injurer. Instead, the activity of the injurer is controlled so that the social marginal benefits coincide with the social marginal costs.

When Coase viewed total welfare, he also considered the efficiency at the margin, because in this way sometimes total welfare is maximized. However, he did not believe in Pigou's tools for welfare maximization, and when he perceived that a Pigouvian tool could have the consequence of producing social costs, he preferred an evaluation of the total. It becomes evident that Coase criticizes a method of reasoning that he used many times.

Moreover, Coase does not accept Pigou's tools, which are the best methods to achieve efficiency if we take into account the reciprocal nature of the external effect. In this way he refuses those tools that are the natural consequence of the idea of the reciprocal nature of external effects, which Coase stresses as a pillar of external effect understanding.

3 COASE'S ARGUMENTS CRITICIZING PIGOU: THE EQUIVOCAL EXPRESSIONS.

As previously mentioned, Coase interpreted Pigouvian thought in the sense that the English economist overlooked the reciprocal nature of externalities. Coase essentially focused on expressions used by Pigou, e.g., when he suggested that certain activities are antisocial and must be expelled from cities

The adjective “antisocial” undoubtedly is an unfortunate choice, but it points to the base of Pigou’s reasoning, which contains a simple opinion that sometimes an activity produces more benefit than another. Therefore, by making an evaluation of the totality, as Coase often does, the less useful activity must be excluded in order to prevent interfering with the more useful activity. At times, in fact, very rarely, Pigou evaluates the totality without verifying the conditions of efficiency at the margin, which is interestingly the method used more frequently by Coase. Pigou does not explain why he makes use of an evaluation on the total rather than on the margin, while Coase gives some justifications, even if it is difficult to understand in a clear way all the ideas on which Coase elaborates.

We can observe that Coase departs from the idea of the reciprocal nature of external effect.

In the following statement, Coase is still cautious:

George J. Stigler suggests the pollution of a stream. If one supposes that the negative effect is that of killing the fish, the problem to be discussed is as follows: is the value of the lost fish higher or lower than the contamination of the stream? *There is hardly any need to say that one has to consider this problem both within its totality and within its margin* [italics added].¹

This sentence provides evidence that Coase, quoting Stigler, develops the idea that it is

¹ Coase R., The Problem of Social Cost, supra at.96.

important to assure the conditions of efficiency of the margin, but his position changes in the subsequent pages of “The Problem of Social Cost.”

In the significant case of *Bass v. Gregory*², Coase is much more pointed. In this controversy, the defendant shut off a well from which beer fumes were emanating from a vent-hole for the plaintiff’s small beer producing operation. The defendant chose this action because he was nauseated by this smell. The plaintiff succeeded in winning the case by asserting that he had right of prescription.

An examination of Coase’s assertions brings the following declaration to mind: It is necessary to weigh the harm against the good that can be derived. In Coase’s thinking what must be decided is whether the advantages derived from preventing the damage is greater than the loss caused by the damage.

However, Coase in his work denotes a tendency to reason in the same way that Pigou reasoned and Coase criticized. It is a way of reasoning that wants to find the best solution based on the total and is not concerned with the result of efficiency at the margin.

In writing a comment about the decision he stated: “The economic problem is that of deciding which to choose a lower cost for beer and a worsened amenities in adjoining houses, or a higher cost of beer and improved amenities.”³ The well from which the smell of beer was emanating was connected to an underground channel from a small beer producing center. The judge declared that the defendant possessed prescription rights and was thus permitted to allow the smell to come out. Coase held that the problem in the case of *Bass v. Gregory* was that the fresh air from the well made the production of beer easier, but the sour air expelled by the well made life in the adjacent houses less pleasant.. It is important to note that Coase reasons in a way that had been previously made the subject of criticism when used by Pigou: he considers stopping the activity totally or allowing any level of activity. He does not try

² *Ibid.*, at. 112.

³ *Ibid.*, at 114.

to propose a solution that assures the efficiency at the margins. He looks at two possible solutions, each at opposite poles. The activity either must be completely stopped or it must be considered totally legal. It is the same line of reasoning used by Pigou when he suggested moving certain industries outside of the towns. In fact, it is a means of providing an evaluation that looks at the total, because an evaluation based on the obtainment of efficiency at the margin can determine some other costs so that the solution is not the best one, as we will see. But Coase does not give this explanation until he starts to speak about the Pigouvian tradition.

Coase could have raised the following two criticisms that Pigou would possibly have made: 1) One must, in fact, decide whether it was possible to dictate certain hours during which the fumes could be let out, thereby creating lesser damage, and 2) One could establish the maximum quantity of air than can be released. Moreover, the costs could be minimized by introducing other fine regulations. In other words, in this case it would be possible to find prescriptions that guarantee an equilibrium between marginal benefits and marginal costs. These are simple questions that could generate a solution that equals marginal benefits with marginal costs, but Coase did not consider them. The explanation is that Coase does believe that using the tools of Pigou to obtain the efficiency at the margin has the consequences that some distortions are produced so that the solution is not optimal.

Coase continues in the article to reason in the same way. He states:

The problem which we faced in dealing with actions which have harmful effects is not simply one of restraining the action of those responsible for them. What has to be decided is whether the gain from preventing the harm is greater than the loss which would be suffered elsewhere as a result of stopping the action which produced the harm.⁴

Coase's declaration cannot be considered inexact in itself, because alternative social

⁴ Coase R., The Problem of Social Cost, supra at 132.

organizations can provide major or minor social benefits. Nevertheless, it gives the idea that Coase does not consider Pigou's methods useful. Coase does not consider Pigouvian tools and does not follow Pigou's rigorous principle of seeking the conditions of efficiency at the margin using compensation for damages or Pigouvian taxes. Instead Coase, writing these declarations of principle, is saying the same thing the Pigou said when he proposed to take the industries out of the towns. That fact that he says that the solution is not restricting an activity, can be interpreted in the sense that Coase does not believe in the importance of the necessity of efficiency at the margin.

The last case considered by Coase is in regard to rabbits that go from one piece of land to another. This case provided a precedent, which is found in *Boulston v. Hardy*.⁵ In 1597, an action was brought by one landowner against a neighbor who raised conies, and these conies increased the number of rabbits and the damages for the actor. The ruling in the *Boulston* case⁶ determined that a landowner who harbors rabbits can never be liable. Damages remain on the neighbors' shoulders. Coase indicated that it would be undesirable if the legal system fixed the rule of liability at one pole, because from an economic point of view, fixing the rule at one pole would be inefficient. Therefore, he states, "Given that transaction costs make arrangements of rights impossible unless we know the particular circumstances, we *cannot say whether is desirable or not to make the man who harbors rabbits responsible for the damage committed by the rabbits on neighboring properties.*"⁷ Coase is very clear in this statement: The most efficient solution might be one that allows no limits on the harboring of rabbits. The cost suffered by the victim should be overlooked and efficiency could require a solution at one pole. Loyalty to the idea that since external effects are reciprocal an activity must not *be* banned or allowed totally is abandoned. Coase looks at the efficient solution, and does not consider the efficiency at the

⁵ *Boulston v. Hardy*, Cro Eliz, 547, 77 Eng. Rep. 216.

⁶ R. Coase, *The Problem of Social Cost*, supra at 144

⁷ *Ibid.*, at 147.

margin.

So, once the misunderstanding about the statements of Pigou is solved, we can consider the arguments of Coase against Pigou's thought. The first criticism is the famous theorem.

5. THE COASE THEOREM.

When an activity produces an external effect, Pigou thinks that a tax or a rule of liability must be introduced. Coase shows that in situations where transaction costs are low, the inefficiencies are resolved in a natural manner. For example, if a judgment does not recognize the right of A, which he values at 30, and recognizes the incompatible right of B, which he values at 50, the right remains the property of B. That is efficient.

Yet, if the court finds that the right belongs to A, who values it, as previously stated, at 30, and does not recognize the right of B, who values it at 50, B acquires the right from A. For judges it is not possible to push forward their own economic policy, because through negotiations the allocation of rights would always be the same. This fundamental observation constitutes the so called “Coase Theorem” and is tied to the reciprocal idea of external effects. To view the theorem in a simpler way, imagine that the use of the right by A gives a benefit to her of 30 and causes a damage to B of 50. If the right is assigned to B, he will not sell the right to A, because A can pay the maximum sum of 30 while the exercise of the right causes damage to B that is equal to 50. If the right is assigned to A, B suffers a damage of 50, while A has a benefit of 30. B will buy the right from A for a price that is between 30 and 50. The deal is convenient for both parties. Therefore, without regard to the initial allocation of the right, this right will always end to B. The benefit of one entails a cost for the other, and if the cost is larger than the benefit, there will be a reallocation of the right. Coase shows that damage to A is the consequence of a benefit to B and vice versa.

In this situation, the criticism of Pigou is that through the negotiation, the efficiency is reached, and Pigouvian methods are unnecessary. Pigou clearly stated that an activity should not be completely eliminated; but he proposed a tax or a compensation to obtain the efficient solution. Pigou did not discover that in situations where transaction costs are low, his tools are unnecessary.

Pigou did not determine that inefficiency can be eliminated through contracts between parties involved. Pigou did not discover what Coase would explain in his article. In this sense, as far as the situation in which transactions cost are low, Pigou is the loser.

So the first criticism is that with law transaction cost efficiency is reached through negotiations. This result partially explains Coase's diffidence regarding Pigou's ideas, and, as a consequence of this diffidence, the famous theorem teaches us that Pigou's methods are wrong when transaction costs are low. However, it does not say anything about the possibility of using Pigouvian methods when transaction costs are high.

So why did Coase reject Pigouvian tools in situations of high transaction costs? In other words, why did he refuse those tools that assure the efficiency at the margin and also when transaction costs are high?

6. THE MORAL HAZARD PROBLEM.

Coase presents cases in which the two Pigouvian systems give poor results. More specifically, Coase puts in evidence that the victim, when the legal system states that the victim of an activity should be compensated, does not take any kind of precaution in order to avoid or mitigate the damage. Indeed Coase explains that the externality is the production of the two activities of the two subjects and that the amount of the damage depends on both parties. Using the system of Pigouvian compensation, the victim is completely ensured against any damage the other party can cause, and for this reason nothing is done to avoid or mitigate damages. It is possible to say, synthetically, that the Pigouvian tool of compensation brings about a behavior of moral hazard on the part of the injured.

Coase asserts that the victim plays a role in the damages, and that role has a significant influence. Indeed, he showed the necessity of being clearly aware of the problem with regard to the case of rabbits that trespass onto a neighbor's property. He imagines that the possible solution is twofold. First, the activity must have as a consequence, an obligation to compensate the injured, and second, the activity must be completely legal. Coase's reasoning depends on the fact that he comprehends the moral hazard problem that can derive from Pigouvian rule of compensation, which is, in other terms, the strict liability rule. Undoubtedly, Coase is aware of the inefficiency of tort rule (pure strict liability rule) that is not present in Pigou's arguments. Pigou imagined a rule of pure strict liability, and strict liability is the cause of many inefficiencies.

In order to understand Coase's argument, he would contend that if one were to require the owner of the rabbits to pay the full compensation for the damage, the victim would ignore the fact that he was also partially responsible for the damage. Coase asserted that the negative external effect, in its totality, depends also on the action of the victim.

Recent tort doctrine states that the victim must also take precautions in bilateral accidents. Coase anticipated an important indication of law and tort law and economics. Years later scholars would discover the importance of simple negligence rules, rules of strict liability with a defense of contributory negligence and other tort rules that are socially desirable because they push victims to take precautions. Victims, under the strict liability rule, do not have the incentive to take precautions or to control their level of activity. A rule of strict liability pushes the victims to behave without considering the possibility to take precautions against the negative effects that come from the fields of the neighbor. Efficiency, instead, requires that the victims take precautions.

Coase states, “The reason is not that a man who harbours rabbits is solely responsible for the damage: the man whose crops are eaten is equally responsible.”⁸ Coase recognized an important aspect of the problem of precautionary costs that the victim should bear. Coase explains that externality affects are reciprocal. At one point he says that Pigou was wrong when he said that some industries should be moved out of the towns, and at another point he suggests methods to obtain efficiency similar to the ideas of Pigou, such as allowing without limits activities that cause damages. Indeed Coase maintains that a rule that permits a person to have as many rabbits as the owner wants could be efficient. This means that the owner could be allowed to increase the number of rabbits until the marginal benefit is zero. Since the neighbors suffer damages, accepting the idea that an activity that is incompatible with another one can be pushed until marginal cost is zero means that we are not considering the costs for the victim. For Coase it is clear that the neighbor suffers a cost when the owner of rabbits puts a great number of rabbits on the land, but Coase rejects the possibility that external effects are reciprocal, because he understands that is necessary to look at the total rather than at the margin to obtain the most desirable results.

However, this criticism is not sufficient to abandon Pigou’s ideas. Indeed the other

⁸ Ibid., at 146 s.

Pigouvian tool, i.e. the tax, does not create a problem of moral hazard. For this reason the criticism developed by Coase with regard to compensation cannot be applied to Pigouvian tax. Coase understands this aspect of Pigouvian tax and develops an argument of great importance. However, it is necessary to see whether Coase really understands the difference between tax and compensation. He states,

Since it has not been proposed that the proceeds from the tax should go to those who suffer the damage, the solution is not the same as that which obliges an undertaking to pay compensation for damage to the objects damaged by its actions, even if the two solutions were to be treated as identical.⁹

Coase's observation is correct, but something must be said in order to clarify his opinion. First of all, Coase began his article by examining the hypothesis of compensation of damages and then discussed the judgments that he considered socially desirable. These judgments assign a right to one party without indemnifying the other one. A similar situation is created by a Pigouvian tax, which provides the same solution, as in the case in which injurers are not obliged to pay compensation for damages to objects that are damaged as a result of their actions. The second aspect that emerges in this way of reasoning is that something very different exists between the two tools. With compensation, as we saw, the injured has no interest in taking efficient precautions, because she will be totally compensated. Therefore, a problem of moral hazard emerges and social costs increase. In the case of the Pigouvian tax, however, the injured bears the expected cost (she is not compensated) and, therefore, it is in her interest to take efficient precautions. Coase's criticism is of the compensation tool; it is not a criticism of the Pigouvian tax. This tool does not create a problem of moral hazard, so it can be used in order to obtain efficiency.

⁹ Ibid, at 151.

It is apparent that Coase clearly understands the difference between a tax and a compensation, but he rejects the second tool of Pigouvian tradition. He should be in favor of the Pigouvian tax. There are some passages in “The Problem of Social Cost” that seem to denote a Coase bias against Pigou. If this were true, the analysis of Coase should be considered unconvincing.

Indeed, he seems to rebuff some Pigouvian ideas that he determined to be correct. It appears that he tries to find arguments against Pigou’s tradition, even if Pigou’s tradition reflects his way of thinking.

With reference to the problem of the rabbits that invade another’s territory, Pigou allows one exception to his conclusion that there is a divergence between private and social products. He adds, “ ... unless... the two occupiers stand in a relation of landlord and tenant, so that compensation is given in an adjustment of the rent.”¹⁰ Here Pigou applies Coase’s theorem, i.e., transaction costs are low in the case of the landlord and tenant and one can thus negotiate until efficient levels are reached. Yet, instead of admitting that Pigou’s concept of costs of negotiation is correct, Coase puts forward a strong criticism of Pigou, proving that the problems of the rabbits arise generally between the landlord and the tenant. In this way, Coase affirms that the transaction costs are always high, even in a situation of bilateral monopoly, or he develops a criticism because of a bias against Pigou.¹¹

The injurer and victim, that is, the landlord and the tenant, can reach a mutually optimal solution for the problem of the rabbits through the contractual agreement, because transaction costs are normally low. This case resembles an application of Coase’s theorem in which the costs of transactions are low, thereby making an efficient agreement between the parties possible. Nevertheless, Coase does not agree with this approach.

¹⁰ Ibid, at 146 s.

7. COASE'S PERSONAL AND UNIQUE INTUITION

Up to now, Coase's thinking has been examined according to the instruments already known in the economic analysis of law. Coase is apprehensive regarding moral hazard and cannot rely on the tool of strict liability. We have seen that Coase does not agree with Pigou about the Pigouvian tax. We have also seen that some arguments suggested by Coase could indicate a bias in Coase's thinking. Does Coase then make a convincing justification to consider Pigouvian tax as not optimal?

In fact, Coase has an exceptional intuition about the use of the Pigouvian tax that must be further elaborated on by scholars. For example, he imagines a factory that has to pay 100 for the pollution it produces. But it can install a filter that costs 90. The choice of installing the filter appears to be the efficient solution. Nevertheless, it might not be. If the neighbors can move at the cost of 40, it would be more efficient for them to move rather than the factory purchasing and installing the filter. So, it would be efficient if these residents had to pay a tax equal to the cost of precautions at the factory; otherwise they would choose to stay there without considering the cost to the factory.¹² In this situation a Pigouvian tax does not produce an efficient result.

Coase's presented problem has wider implications. Should the injurer pay the precaution costs of the victim? If the injurer pays, she will bear the entire total social costs, so the level of activity will be efficient. Nevertheless, Coase understands that the victim should bear the cost of precaution of the injurer and so two taxes would be necessary.

Coase's concepts are very important. Only if victims pay for the costs of precaution that they cause to the injurer will they internalize all social costs. The same is true

¹² Ibid., at 151.

for injurers.

In conclusion it is important to consider that Coase puts forth that a party bears all social costs only if she also bears the costs of precaution of the other party; otherwise, her private costs do not equal social costs and the level of activity is excessive.

8. THE VARIOUS INSTRUMENTS TO PROMOTE EFFICIENCY

Prior to passing judgment on the instruments to correct the negative external effects, we should state that each of the authors in question offers two distinct methods. Pigou proposes compensation for damages and the Pigouvian tax; in contrast, Coase proposes negotiation between the parties and, even if he does not state so expressly, the evaluation of the total welfare of two incompatible activities. Even Pigou sometimes evaluates activities on the total. As for Coase, it might seem surprising that the author who has shown how the conditions of marginal efficiency can be achieved through negotiation and has developed the idea of the reciprocal nature of an external effect should then admit that the evaluations must be done within the total. The number of cases that Coase mentions is considerable, thereby seemingly confirming this conviction. As for Pigou, it could be surprisingly that economists who want to assure efficiency at the margins suggest looking at the total. However, both thinkers understand that looking at the margin is not *always* desirable, and a judgment based on the total is *sometimes* socially desirable.

9. CONCLUSION.

In his renowned article Coase criticizes the Pigouvian tradition. Many ideas are convincing, but his pessimism toward Pigouvian tools and their efficiency seems sometimes the consequence of a bias against Pigou. He considers some of Pigou's statements regarding some industries that could be antisocial, and states that the

external effect is reciprocal. For this reason an activity cannot be said to be antisocial. However, in the course of his reasoning Coase becomes more prone to make evaluations based on the total than Pigou, and making evaluations on the total means that the condition of efficiency at the margin is not respected and so an activity can be banned or fully allowed. In other words the principle of the reciprocal nature of external effect is abandoned many times by Coase.

Coase determined that the well-known theorem makes Pigouvian tools useless in reaching efficiency. Indeed efficiency is reached through negotiations. However, the theorem is not an argument against Pigou's methods when transaction costs are high. Indeed in these situations parties cannot negotiate.

Nonetheless Coase rejects Pigou methods. He discovers two problems with Pigouvian methods. In regard to compensation, the Chicagoan economist understands that a problem of moral hazard emerges. With this possibility of social loss, the compensation method does not bring efficiency. With respect to the tax, Coase needs to find other reasons against this method, because using this method does not compensate the victim.

Coase is of the belief that the Pigouvian tax is not sufficient if a legal system wants to promote efficiency. Indeed, with a single tax on the injurer the victim does not consider the cost of precautions that the injurer must bear. It is possible that the cost of precaution is larger than the cost of giving up the activity by the victim. So Coase understands that two taxes are necessary. More generally we can say that efficiency is obtained if parties also internalize the costs of precaution of the other party. The single Pigouvian tax does not promote efficiency.

There are fields that could be subject of important research in the future. It would be interesting to study if, theoretically, a tax really must be asked to victims of a negative externality in order to control their level of activity and, practically, if this solution is possible. Second, it's important to see if inefficiency asks for a tax on the injurer that

is not only equal to expected damage but of the sum of the expected cost as well as the victim's cost of precaution. So the same reasoning should be valid for both injurers and victims. Law and economics scholars, until now, do not have answers to these questions.

Bibliography

Coase R., The Problem of Social Cost, 1960, also in Coase R., The Market The Firm The Law, Chicago, 1988.

Pigou A. Some Aspects of the Housing Problem, in Lectures on Housing, DB. Rownstree and Pigou editors, Manchester, University Press (1914).

ID., The Economics of Welfare, IV ed., London, 1932.

Shavell S."Liability for Harm versus Regulation of Safety.",13 Journal of Legal Studies, 357(1984).