

Chapter 3

Resolving Disputes: The Problem of Social Cost

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 be allowed to harm A? The problem is to avoid the more serious harm.

—Coase (1960), p. 2

A town has a river running through it, with a running path and park along the river, a boat launch for kayaking and fishing, a water treatment facility, and a paper mill (see Yandle 1998). The paper mill produces products and sells them to consumers who value the products. This transaction defines the mutually-beneficial interaction between parties at the heart of human exchange. The paper firm earns profits from paper sales when its revenues exceed its costs, and paper consumers earn net satisfaction when they derive more benefit from the paper than the cost to them of purchasing it. Both parties weigh benefits and costs in making their choices over resource use.

If we examine the paper mill's production more closely, though, we see some costs that may not be reflected fully in the accounting costs we typically associate with such a calculation. For example, producing paper generates waste by-products. The firm competes for consumers' business, so it has strong incentives to minimize costs. Disposing of waste is costly, so the paper firm has an incentive to discharge its waste into the river if it can do so at no cost. That waste depletes oxygen in the water and is unattractive, so the

company’s “free” waste disposal may create costs that other river users have to bear. But because the paper firm does not pay for disposing of its waste in the river, neither the producer nor the consumer of paper, the two parties to the market transaction, bear that cost. Instead, the cost shows up in diminished enjoyment of the riverside park, less pleasant kayaking and reduced fishing, a lower quality ecosystem due to depleted oxygen, and additional costs of treatment for water consumption.

Coase called this problem “the problem of social cost” and wrote an article of the same name on the topic in 1960. How can people resolve conflicts over resource use when that use creates costs for people who are not party to the transaction? Coase used his approach of examining how people resolve such conflicts in reality to look at the history of how disputes were resolved in English common law, from grazing cattle eating a neighbouring farmer’s crops to industrial smoke harming nearby residents. One famous case is *Sturges v. Bridgman* (1879). In that case, a London confectioner used heavy machinery to make candy. The confectioner’s neighbour, a doctor, built a new room in which to see his patients. But the new room was subject to noise and vibrations from the candy-making machinery, which made it difficult for the doctor to use his own equipment with his patients. This case shares some of the same features as the above case of the paper mill on the river—conflicting uses of a shared resource—in this case, the surrounding air, which is being affected by noise and vibration.

Coase’s impetus to explore this question arose from the work of A.C. Pigou (1920), who in the 1920s developed much of the theory of welfare economics, which is still in use today. In the paper mill situation, Pigou’s “external cost theory” would start from the point that the paper mill is creating a cost and imposing it on others who are not party to the paper-making transaction. Therefore, the paper mill should pay for the harm associated with that cost. Pigou’s analysis implied a specific policy recommendation, specifically, a tax on paper to reflect the per-unit cost of the discharge into the river, or a regulation on the paper mill to induce it to incorporate the cost of its discharge into its accounting. Applying the same logic to *Sturges v. Bridgman* would result in an injunction on the confectioner, such as restricting the times of day he could

operate his machinery. This logic has come to be known as “polluter pays,” or that a party that creates a cost should be the one to bear it.

Coase looked at such problems differently, asking instead what the least-cost way of dealing with this problem was, assessing it as a problem of a conflicting use of a resource. This way of thinking about the problem identifies its property rights origins. While Pigou implicitly assumed that the “non-polluter” party has the right to be free from this harm, Coase instead acknowledged that in such cases the property rights definition is not necessarily clear, and that transaction costs limit the ability to define and enforce property rights.

The external cost problem

A related difference in Coase’s approach to the problem of social cost is to see the external cost problem as a *reciprocal* problem. In Pigou’s analysis, the paper mill creates the waste discharge, the confectioner creates noise, and those actions impose costs on others. Coase argued that this framing of the problem is incomplete, because it misses the fact that the parties impose costs on each other precisely because they have different uses of the shared resource when property rights are not sufficiently well-defined. The paper mill wants to use the river to discharge waste, while the water treatment plant wants clean water to process for consumption, and the kayaker wants an attractive and clean river for recreation. At its core the problem of social cost is a dispute over property rights: “For Coase, natural resource and environmental protection problems typically arise when there is a need to balance these conflicting interests. Whether an actor or group of actors is the ‘victim’ or ‘perpetrator’ of an ‘externality’ is fundamentally a question of who has the rights to engage in the activity concerned and if they wish to trade such rights for compensation” (Pennington 2015: 95). Coordination is difficult, and valuable resources become dissipated, because ownership is undefined. With there being no owner of the river (or the water that flows through it), the pollutant-emitting mill does not pay for the costs it imposes. Hence, bargaining over resource use, where the highest bid for the resource is identified, does not occur. The harmful effects from paper production may destroy clean water—even if clean water has a much greater social value.

Continue to consider the paper mill and the water treatment facility. The two parties can identify each other and the conflicting uses each wants to make of the river, so they can come together and figure out a mutually agreeable way to adjust their uses of the river. In the process of that bargaining, they identify a set of ways to do so, one of which is probably less costly than the others. Suppose they decide that the best way to deal with the waste is for the paper mill to install a new filter. Coase argued that bargaining is a process that enables parties to learn and discover and to create through innovation lower-cost ways of mitigating such costs. In contrast, the Pigouvian approach presumes that the regulator knows the relevant costs and benefits well enough to determine the exact tax to impose to elicit the exactly optimal amount of paper production. That presumption is unrealistic, as Pigou came to acknowledge later in his life.

After figuring out the best way to deal with the harm, the next logical question is, who pays for the filter—the water treatment facility or the paper mill? Where the law establishes property rights, it will be clear. If the mill has the right to pollute, the water treatment plant will pay. If the water treatment plant owns the water, the mill pays. Both parties have incentives to cooperate in enacting this solution if the cost of stopping the pollution is less than the value gained by allowing it to continue. Crucially, this is also the requirement for societal gains—that the benefits exceed the costs.

When property rights are ill-defined or transaction costs are high

Coase noted that such straightforward solutions might not unfold in cases where decision-making is decentralized, i.e., where property rights are not defined or in instances where transaction costs have kept the parties from making efficient bargains. In those instances, Pigouvian policies, such as a regulation mandating that paper mills install filters, might prove superior. But neither the market negotiation nor the regulatory approach is free. The two approaches should be compared and contrasted for their ability to foster social coordination, maximizing the value of the resources involved. We can think of a Coasean bargaining as a knowledge-generating process of negotiating mutually beneficial transfers of rights between parties.

Coase's insight builds on his earlier work by connecting transaction costs to the costs of defining and enforcing property rights—when defining

property rights is prohibitively costly or not feasible (as in, say, air pollution), bargaining to negotiate transfers of rights cannot happen. Property rights definition and enforcement costs are a category of transaction costs. Situations with low transaction costs are more likely to see welfare-enhancing bargaining, while high transaction costs can prevent such conflict resolution. An example of Pigou's that Coase discusses for other reasons illustrates the challenge of transaction costs: the operation of a railroad through rural land in the 19th century. Railroad companies purchased land and built rail networks to run trains pulled by coal-fired steam locomotives, which threw off sparks that could cause fires that destroyed some adjoining crops or woodlands. In a situation such as the transcontinental railroad in the United States, the railroad company operated over thousands of miles and could potentially emit sparks on land owned by thousands of different farmers. This situation and others like it present a considerable transaction cost challenge, one that is common in many situations where there is a conflict in resource uses.

In order for the farmers to bargain with the railroad over the rights to emit sparks and the rights to unharmed crops enough farmers would have to gather together to represent the interests of all affected farmers—in other words, the transaction costs would be high. In situations like these, the courts determine which party has legal liability for harms created, and enforce compensation if necessary. An overarching theme of Coase's work on social cost is that transaction costs are pervasive. Because of that pervasiveness courts are important institutions whose decisions have implications for both the efficiency of outcomes and the distribution of profits across parties. The law is an institution that can act to clarify property rights, as Coase notes in his Nobel address:

If we move from a regime of zero transaction costs to one of positive transaction costs, what becomes immediately clear is the crucial importance of the legal system in this new world. I explained in "The Problem of Social Cost" that what are traded on the market are not, as is often supposed by economists, physical entities, but the rights to perform certain actions, and the rights which individuals possess are established by the legal system. While we can imagine in the hypothetical world of zero transaction costs that the parties

to an exchange would negotiate to change any provision of the law which prevents them from taking whatever steps are required to increase the value of production, in the real world of positive transaction costs, such a procedure would be extremely costly and would make unprofitable, even where it was allowed, a great deal of such contracting around the law. (1992: 717)

Courts have an information problem, though: they may not possess all of the knowledge they need to be able to identify which party can avoid the harm at least cost, which is one reason why transaction costs influence outcomes. In a low transaction cost setting, parties can bargain to exchange rights to rearrange them if the court's assignment doesn't reflect the best feasible assignment of rights and liabilities ("contracting around the law" in Coase's words). When courts assign rights and liabilities in the presence of positive (and high enough) transaction costs, though, that assignment could prevent parties from reaching the efficient outcome because transaction costs prevent the parties from bargaining to exchange those rights and liabilities (Pennington, 2015: 97). In the farmer-railroad scenario, if the court assigned the right to emit sparks to the railroad and the cost of sparks to farmers was higher than their benefit to the railroad, then the efficient outcome would be for the farmers to pay the railroad to reduce their sparks. But the high transaction costs of organizing farmers to discover how high their cost is and to bargain with the railroad could prevent the transfer of rights to resolve the conflict.

The Coase Theorem

While Coase focused on the pervasiveness of transaction costs, his colleague George Stigler interpreted Coase's emphasis differently (see Posner's (2017) discussion). Stigler articulated what he called "the Coase Theorem": when transaction costs are zero, the specific assignment of legal liability or the definition of property rights does not change the ability of parties to achieve the most efficient outcome, although it will change the *distribution* of realized costs and benefits. In a situation where there are no transaction costs, the precise definition of property rights does not affect the ability of the parties to find the efficient distribution of rights and efficient use of the resource. In

that setting, the only effect that the specific property rights definition has is on the distribution of costs and benefits, not on the ability to achieve the most efficient outcome. Using the paper mill and water treatment plant example, if the efficient outcome is for the paper mill to install a filter, if they face no transaction costs then discovering that efficient outcome through bargaining is easy and costless. What the court's definition of rights and liabilities does in this case is to determine who pays for the filter that the paper mill installs.

Although Stigler's Coase Theorem has gathered considerable attention over the past four decades, it rather misses Coase's point that courts and legal precedent are important precisely because transaction costs are pervasive and often high enough to prevent mutually-beneficial exchange. "The So-Called Coase Theorem" (McCloskey, 1998) also misses the point to the extent that Coase's emphasis was not on idealized models with transaction costs assumed to be zero, but was entirely on real-world situations where coordination has to create feasible institutional frameworks to manage conflict resolution in the presence of positive transaction costs. Although it the Coase Theorem provides a concrete theoretical benchmark, focusing on the unrealistic zero transaction cost case is a bit too close to the "blackboard economics" that Coase so criticized.

"The Problem of Social Cost" is one of the most influential and widely-cited articles in economics, and its influence extends beyond economics and into law. Coase himself did not see the broader implications of his analysis; he was concentrating solely on the narrow application of his ideas to critiquing Pigou's externality theory:

I should add that in writing this article I had no such general aim in mind. I thought that I was exposing the weaknesses of Pigou's analysis of the divergence between private and social products, an analysis generally accepted by economists, and that was all. It was only later, and in part as a result of conversations with Steven Cheung in the 1960s that I came to see the general significance for economic theory of what I had written in that article and also to see more clearly what questions needed to be further investigated. (1992: 717)

The ideas Coase developed formed a foundation for the then-new field of law and economics, and created a research agenda for both law and economics and the field of property rights economics that would emerge in the 1970s. Those ideas have also been influential in environmental and natural resource economics by providing a rich theoretical framework for considering policy alternatives to command-and-control regulation or Pigou-style taxation.

The pervasiveness of transaction costs includes difficulty defining property rights, so there are resources and contexts in which groups of people use resources communally and have to figure out how to make the best use of them. Elinor Ostrom pioneered the comparative institutional analysis of situations with common pool resources, for which she was awarded the Nobel Prize in Economics in 2009. Consider the example of an agricultural village with an irrigation network, a situation that Ostrom analyzed in her 1990 book, *Governing the Commons*. If digging private wells and self-irrigating is either too costly or not feasible for individuals, then the people in the village will benefit from the alternative arrangement of a shared irrigation network. But in a shared network the villagers run into the problem that each of them has an incentive to draw as much water as possible, which can lead to scarcity and waste because the irrigation network is a common-pool resource. Ostrom identified the fundamental cause of the incentive problem as a lack of well-enough defined (imperfectly defined) property rights. In combining extensive field work and data with game theory (the irrigation situation is an example of a Prisoner's Dilemma, i.e., individuals in a group choose to act in their own self-interest—at the expense of the others—which does not produce the best outcome for everyone), Ostrom's insight was that the villagers evolved an institutional framework that enabled them generally to avoid the "tragedy of the commons,"—to avoid scarcity and waste—by developing a system of use rights to the common pool. To do so, they use governance to make the best possible use of the resource. This field of comparative institutional analysis builds on the institutional and transaction cost foundations in Coase's work, and applies Coase's approach of examining how people actually arrange their transactions, find approaches to reducing conflict, and develop welfare-enhancing governance institutions as a result.