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Ronald Coase: A Century of Economics

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Ronald Coase (1910-2013), the 1991 Nobel Laureate in Economics, is famous for his oft-quoted and just as often misunderstood "theorem." His seminal works on transaction costs, property rights, and regulation continue to stimulate a rich reflection in economics and beyond.

In 1991, Ronald Harry Coase was awarded the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel for "his discovery and clarification of the significance of transaction costs and property rights for the institutional structure and functioning of the economy." The Nobel Committee mentioned two articles that respectively introduced these concepts: "The Nature of the Firm" (1937) and "The Problem of Social Cost" (1960).[1] Each of these two articles did significantly contribute to renewing a subdiscipline of economic theory: the theory of the firm for the former, and the movement known as "Law and Economics" for the latter. This is why the economic, legal, and political literature has focused on these articles—often understanding them poorly—to the detriment of Coase's other contributions.

Coase lived more than a hundred years and wrote nearly a hundred academic papers between 1935 and 2013. He spent most of his career in two major institutions that were key to the development of contemporary economic theory: the London School of Economics (1932-

[1] Coase Ronald H., "The Problem of Social Cost," *Journal of Law and Economics*, 3, 1960, pp. 1–44, and "The Nature of the Firm," *Economica*, 4 (16), 1937, pp. 386–405. These two articles as well as the one on lighthouses that is mentioned below are reproduced in Coases's collection of essays *The Firm, the Market and the Law*, Chicago, University of Chicago Press, 1988. For an evaluation of the impact of these works, see E. Bertrand and C. Ménard (eds), *The Elgar Companion to Ronald H. Coase*, Cheltenham, Edward Elgar, 2016.

1951) and the University of Chicago (from 1964 until his retirement in 1981). He therefore had the opportunity to intervene in various economic debates of the twentieth century. Coase's contributions were important, and often critical, including of those who claimed to be inspired by him. They were highly consistent methodologically, since they purported to be "realistic," but also theoretically, since they were a continuation of his reflections on the notion of cost initiated in the 1930s.

What Costs Do Entrepreneurs Take into Account?

Ronald Coase was born on 29 December 1910 in a suburb of London, the only son of a modest family (his father was a telegraphist). Due to an important weakness in his legs, he first attended a specialized school for physically and mentally disabled children. Unable to pursue a degree in history because he had failed to study Latin, he enrolled at age 18 in the commerce program at the London School of Economics. There he studied law, statistics, and accounting. Yet it is Arnold Plant, an applied economist specialized in industrial organization and property rights, who introduced him to economic reasoning, the efficiency of the price system, and the problems of public intervention—which did not (yet) call into question the young Coase's socialist fervor. In addition, Coase attended the classes of Lionel Robbins, from whom he took the definition of economics as the science of choice.

At the end of his studies, Coase obtained a scholarship to travel for a few months in the United States (1931-1932). Struck by the variety of industrial structures, he decided to study vertical integration (the process by which a firm takes control over different stages of production of the same good): Why does a firm decide to manufacture an intermediary product instead of buying it in the market? Implicitly, what troubled Coase was the question of planning: Why do Western economists criticize the latter in the name of market efficiency, when in fact there exist islands of planning known as firms in our own market economies? Indeed, the firm is defined by a mode of resource allocation—namely, hierarchy or command—that differs from the market's—namely, prices. By studying company accounts and interviewing purchasing managers, Coase found an answer to his questions: The price system is sometimes too costly. Entrepreneurs who must acquire a product compare the cost of buying it in the market—which includes transaction costs (finding partners, negotiating with them, enforcing contracts)—with the cost of producing it in their own firm—which includes organizational costs (the coordination of additional activities). It is this idea that is developed in "The Nature of the Firm," an article that first went unnoticed.

After a stint at the Dundee School of Economics and Commerce (1932-1934), and then at the University of Liverpool (1934-1935), Coase returned as a lecturer to the LSE, which he had never really left. As part of Plant's circle (and in particular with Ronald Fowler and Ronald Edwards), he worked on a new approach to accounting aimed at convincing accountants to change their practice in order to become more useful to entrepreneurs. He enjoined them to take into account not the real cost of a decision (its monetary cost, which is objective and measurable *ex post*), but the subjective opportunity cost, which is the only relevant one to entrepreneurs. Austrian marginalists (such as Friedrich von Wieser and Carl Menger, whose influence at the LSE was transmitted through Robbins and Plant) had already shown that the relevant cost is first and foremost an opportunity cost, i.e., the benefits foregone when choosing a particular option. To this, Coase added (along with his circle at the LSE) that the opportunity cost is subjective: The only cost that counts in the decision is the opportunity cost anticipated by the producer, who faces uncertainty and is, moreover, influenced by non-monetary factors (for instance, he may or may not wish to sell his products to arms manufacturers).[2] This cost, then, is not measurable by an outside observer. Coase's argument had dramatic consequences for the marginalist theory of the firm—which had also been developed in the 1930s by Arthur Pigou, then by Joan Robinson, before becoming dominant. Marginalist theory conceives of the firm as a profit-maximizing producer, and therefore posits that its level of supply can be inferred from price. Yet if, as Coase believes, the decision is subjective, the economist cannot know the costs taken into account by the producer, and hence cannot predict supply: All the formulas deduced from profit maximization are unrealistic.

Coase was especially interested in the problem of monopoly, since he lectured on monopolies and public utilities at the LSE. Realizing that economists knew nothing of those issues in practice, he undertook historical studies to understand how national monopolies such as the BBC and the British Post Office had come into being, and to assess their functioning: He argued that nationalization had not had the desired results, and he challenged official justifications for these public monopolies. His research, however, was interrupted by the Second World War: He served as a statistician first at the Forestry Commission (1940-1941), and then at the Central Statistical Office of the War Cabinet until 1946. As he later explained, it is there that he became aware of the defects of public administration, which made him drift further away from the socialism of his youth. Fearing that Great Britain would become socialist, Coase finally agreed to leave London to join the University of Buffalo in the United States (1951-1958). After a year at Stanford, where he met Thomas Kuhn (whose influence on his works became palpable),

[2] Coase Ronald H., "Business Organization and the Accountant," a series of 12 articles published in *The Accountant*, xiii, 1938. This series appeared in a shorter version, with an introduction, in the collected volume edited by J. M. Buchanan and G. F. Thirlby (eds), *L.S.E. Essays on Cost*, London, London School of Economics and Political Science, 1973.

he joined the University of Virginia (1959-1964). He continued his research on broadcasting monopolies while in the United States.

The Coasian Invisible Hand

In the 1930s, Coase had undertaken historical studies of British public utilities, in particular of broadcasting institutions. When he emigrated to the United States, he focused on the history and functioning of US institutions of radio frequency allocation, including the Federal Communication Commission (FCC). He devoted an article to the FCC,[3] in which he notably criticized the justifications for the administrative allocation of frequencies and argued that these could be allocated efficiently via the price mechanism. Let us examine one of his examples: that of a cave. Regardless of how the law allocates the property right on this cave, the person who will end up acquiring it in the market, whether for storing bank records or for growing mushrooms, will be the one who is willing to pay the most for it. On the one hand, then, the final use of the cave is determined not by the law of property, but by market exchanges; on the other hand, this final use is the most efficient (the person who is willing to pay the most for the cave will make the most profitable use of it). The same would apply to radio frequencies if they were allocated by auction and not administratively. The fact that the use of the right to broadcast on a frequency can cause interference ("externalities" in the common parlance of economists) makes no difference.

Coase submitted his article for publication in the *Journal of Law and Economics*. Yet Aaron Director, editor of the journal, asked him to delete the passage that explicitly called into question the traditional analysis of externalities (developed by Arthur Cecil Pigou). Coase refused to do so. The article was published (in 1959), and Coase explained his position to George Stigler and Milton Friedman, among others, during a now legendary evening discussion at Director's home in Chicago. He convinced his audience in a few hours, and developed his argument in "The Problem of Social Cost," which was also published in the *Journal of Law and Economics* (in 1960).

Mainstream theory demonstrates that in the presence of externalities (when A's consumption or production has an impact on B's utility or production, without this impact being mediated through prices—typically, pollution), market equilibrium is not optimal (there is too much negative externality or, symmetrically, not enough positive externality) and public intervention becomes necessary. Coase argues, on the contrary, that if property rights (for instance, rights to emit pollution or to be protected from it) are clearly defined and allocated,

[3] Coase Ronald H., "The Federal Communications Commission," *Journal of Law and Economics*, 2, 1959, pp. 1–40.

then agents can exchange these rights until the optimal outcome is reached—as is the case for any good. There is then no need for regulations, taxes, or subsidies; it suffices to define and allocate rights concerning externalities. It does not even matter to whom they are attributed given that the outcome will be identical. All this is true on one condition: The costs of resorting to the market (as identified in "The Nature of the Firm") must be nil.

The "Coase Theorem": A Reasoning by Example

Coase's purpose is not to propose a universal solution to externalities, for all solutions, whether public intervention or the market, have costs. The most appropriate solution (the least costly relative to the benefits) therefore depends on the specificities of each situation—which is why Coase's argument relies on examples. One of the examples he drew from English Common Law was the 1879 case of *Sturges v. Bridgman*. A doctor had recently built his office at the back of his property, right next to a confectioner's kitchen. As the noise of the machinery made auscultation difficult, the doctor brought a legal action and won: The right to be protected from nuisance was granted to him. Coase notes that it is possible to rearrange the allocation of rights resulting from the legal ruling through negotiation between the parties. Suppose that the only possible solution is for one of the two parties to move to another location, and that the cost of moving is lower for the confectioner ($ 100) than for the doctor ($ 200). The confectioner will be willing to pay the doctor up to $ 100 for him to move, but the doctor will ask for at least $ 200 to do so: in this case, no exchange will be possible and the right will remain in the hands of the doctor. Coase then examines the opposite situation, in which the right to harm is attributed to the confectioner. Indeed, he insists on the reciprocal nature of the damage: The doctor is as responsible for the nuisance as is the confectioner, because if he did not practice in this location, there would be no nuisance. Coase then imagines a similar type of negotiation: The confectioner agrees to move to another location on the condition that the doctor pay him a sum greater than $ 100, which the latter accepts since he is ready to pay up to $ 200. In this case, the confectioner will sell to the doctor the right that was attributed to him for an amount between $ 100 and $ 200, and both will gain from the exchange—which will then be termed mutually advantageous. In the two examined cases, the confectioner moves to another location; the same outcome is reached regardless of the initial attribution of the right, and this outcome is socially efficient (i.e., it is the least costly of the two options).

Coase's argument is based on the implicit assumption that in the absence of transaction costs, all the mutually advantageous exchanges take place. The problem, which will not be developed here, is that the agents (the confectioner and the doctor) must first agree on a price

(between $ 100 and $ 200) for the exchange to occur. But nothing says that they will agree, even in the absence of transaction costs.

Coase's proposition was summed up by Stigler, in the third edition of his textbook *The Theory of Price* (1966), under the term "Coase Theorem." This designation may seem surprising: Coase's article does not formulate any theorem and uses only examples. More importantly, the main part of this article explores the consequences of introducing transaction costs in dealing with externalities. When these are not nil, the outcome of individual negotiations may be sub-optimal, in which case other solutions must be found: They may include regulation or the attribution of the property right to the person who values it the most. And the outcome is no longer independent of the initial allocation of property rights: It is the idea that the law has an impact on the economic outcome, which was for Coase the most important point of his article.

The "theorem" has since had a life of its own, making Coase and his 1960 article exceptionally famous in both economics and law. The "Coase theorem" brings forth important issues: It calls into question the traditional analysis of externalities and reasserts the efficiency of the market; moreover, it emphasizes the importance of introducing the concepts of transaction costs and property rights. The scope of these issues can be gauged by the number of controversies generated by the theorem: regarding the ideology it conveys (pro-market or socialist), its internal validity (true, false, or tautological), its empirical validity (confirmed or refuted), and the relations between law and economics that it underpins (interdisciplinarity or imperialism).

These 60 years of controversy, celebration, and criticism have turned the "Coase theorem" into a strange object of microeconomics, and this for three reasons. First, this "theorem" is not really one: Many articles have refuted it (for example, when information is incomplete), many others have tried to bring new evidence (for instance, by asserting that incomplete information is tantamount to introducing transaction costs), but most have agreed to call it a tautology, precisely because the assumption of zero transaction costs can be understood as subsuming all criticisms. Neither definitively proven nor definitively refuted, the "Coase theorem" is an argument that convinces rather than demonstrates; and this is probably the lesson to be learned from that nocturnal conversion of Chicago economists. Second, there is no unanimous formulation of this "theorem," which explains the different assessments of its validity. Its various formulations constitute so many interpretations of Coase's examples or assumptions. Third, the name associated with this "theorem," which assumes zero transaction costs, is inappropriate since Coase actually wanted to examine the impact of the presence of these costs in the real world.

Thus, the "Coase theorem" is one of a small set of economic ideas that have seemingly escaped the context or conditions in which they were originally formulated, and morphed through diffusing themselves according to their own self-propelling logic. Coase's article has thus

shared the same fate as John Maynard Keynes's *General Theory* and, even more distantly, Adam Smith's *Wealth of Nations*, which have been reduced, respectively, to the IS-LM model and the invisible hand.

The fact remains that the first major impact of the "theorem," and of the article that gave birth to it, was the transformation of the Law and Economics movement in the 1970s—a transformation that was jointly initiated by Guido Calabresi, Armen Alchian, and Harold Demsetz, and that included in particular Richard Posner's foundation of the economic analysis of law. In addition, the success of "The Problem of Social Cost" allowed for the rediscovery of "The Nature of the Firm." It thus made possible the emergence of new theories of the firm and, more broadly, the renewal—also starting in the 1970s—of institutionalist currents. Oliver Williamson, who was drawn to the 1937 article via his work on the 1960 article, made the concept of transaction cost famous, which earned him the Nobel Prize in 2009. And indeed, the 1960 article gives a better sense of the importance of the notion of transaction cost introduced in 1937, as well as of Coase's particular method, which he applied in both articles, namely the comparison between "institutional arrangements": All systems are imperfect, all of them have costs, and the choice of the most appropriate system depends on their comparative costs in each specific situation. In 1937, Coase compared the efficiency of the market and the firm—systems that are both costly and always imperfect; in 1960, he compared the market, the firm, and public intervention.

Anti-Interventionism in the Light of Lighthouses

When the University of Chicago Law School offered Coase a position in 1964, the University of Virginia did nothing to keep him because he was not a Keynesian (James Buchanan and Gordon Tullock later experienced the same fate). Coase was delighted to join the University of Chicago, where he was expected to serve as co-editor (then as editor) of the *Journal of Law and Economics*—a position he held until 1982. Having fully participated in the renewal of institutionalist theory, he became founding President of the International Society for New Institutional Economics in 1996. In 2012, he wrote his last book with Ning Wang on the capitalist transition in China. He died in Chicago on 2 September 2013, one year after Marian Hartung, the woman he had married in 1937.

In the second half-century, Coase continued to work on his favorite themes (regulation, industrial organization), to which were added more reflexive works on the nature of the firm, the state of the discipline, and the methodology and history of economic thought. All of these works took into account transaction costs, set out to compare institutional arrangements, and were

concerned with empirical relevance. Coase conducted numerous historical studies of regulation, and also edited several such studies for the *Journal of Law and Economics*. It is these studies of regulation that, as he put it, ultimately convinced him that public intervention generally does more harm than good. Coase indeed went a long way from the socialism of his adolescence to his membership in the neo-liberal Society of Mont-Pelerin (founded in 1947 on the initiative of Friedrich Hayek to defend the market economy and the values of the "open society")—a trajectory marked by Plant's teachings, Coase's own historical studies of public monopolies, his war experiences, and his studies of regulation in the 1970s.

Among these studies of regulation, one became famous well beyond academia: that on English lighthouses.[4] At least since John Stuart Mill's *Principles of Political Economy* (1848), the lighthouse has been cited as a public good calling for public intervention—the example having been taken up in Pigou's *The Economics of Welfare* (1920) and in Paul Samuelson's economics textbook (1948). The traditional arguments have referred to the impossibility of excluding from the light the ships that do not pay for it, and to the lack of rivalry in the consumption of this light (ships that benefit from it do not diminish the light available for others); in other words, they have stressed the lighthouse's features as a public good. Coase, however, describes in his article a system of lighthouse financing that existed in England and Wales from the sixteenth to the nineteenth century, in which private individuals took over the financing, building, and maintenance of numerous lighthouses. In practice, as early as the beginning of the seventeenth century, private individuals supported by petitions of seamen obtained patents from the Crown authorizing them to build lighthouses (with a monopoly on the site) and to collect the corresponding tolls (light dues levied in ports and calculated according to trip and tonnage). In the eighteenth century, lighthouses were built mostly by these private individuals, usually under a lease granted by the charity in charge of lighthouses, Trinity House. Coase concludes from this that economists are wrong to view the lighthouse as a classic example of a public good that can be provided only by the state. He regards it instead as an illustration of the flaws of the standard approach in economic policy, and, more generally, of economists' lack of concern for the real world. Ever since Coase, the lighthouse has gone from symbolizing the need for state financing of public goods to exemplifying both the private sector's ability to provide public goods and the flaws of economic policies based on the identification of so-called market failures (such as public goods or externalities). Coase's conclusion, however, has been challenged by historians, legal scholars, and economists: The English system was not private, but mixed; above all, it was costly and of poor quality, hence inefficient. These problems were solved by nationalizing the lighthouses in the nineteenth century: Between 1820 and 1842, Trinity House bought the private lighthouses at the request of the House of Commons.

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[4] Coase Ronald H., "The Lighthouse in Economics," *Journal of Law and Economics*, 17 (2), 1974, pp. 357–76.

Towards a Realistic Economic Theory

Although seemingly diverse, the vast majority of Coase's works rely on historical studies—from his studies of the 1930s on the firm to those he conducted from the 1940s to the 1970s on public utilities and broadcasting institutions, and to those of 2012 on the capitalist transformation of China. There is little trace in Coase of the formalization that characterizes contemporary economic theory; instead of general propositions, one finds mostly specific cases, historical studies, and, sometimes, first-hand empirical studies. Coase was nevertheless aware that the real world could not be observed without a theory (though he did not draw all the consequences from this), and actually advocated for a back-and-forth between theory and facts. It remains that he considered the economic theory of his period, or rather of the successive periods he lived through, as too abstract and too far removed from the real world, as dealing with exchanges between unreal humans assumed to maximize utility (an entity that does not exist) in a world of abstract institutions—in short, a theory in which "we have consumers without humanity, firms without organization, and even exchange without markets."[5] Coase often insisted on the need for further empirical work in economics; this is what distinguished him from other economists and what constituted the core of his criticism against them. He defined the task of economic theory as the understanding of the real economic system, and consequently opposed what he saw as the unrealism of mainstream microeconomics.

This desire to explain the real world stands in marked contrast with the Friedmanian instrumentalism claimed by most economists—including by Coase's "disciples" like Williamson and Posner, for whom a theory should be judged by the accuracy of its predictions and not by the realism of its assumptions. Coase wanted to build economic theory from historical studies that could ground realistic assumptions on the one hand (as in the case of the firm), and equally realistic policies—i.e., developed by comparing actual institutional arrangements—on the other (as in the case of broadcasting institutions). He also used empirical studies to refute mainstream theories and their conclusions for economic policy—as he did with that on lighthouses. Yet as can be seen in this last example, Coase's historical studies were also sometimes laden with theoretical and political assumptions

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[5] This quote is taken from Coase's introduction to his 1988 collection of essays, which constitutes an excellent summary of his thought on the key points discussed here.