

Proposal
The Coase Theorem at Fifty

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Email: steven.medema@ucdenver.edu. This proposal has evolved out of a much larger project examining the origins, diffusion, controversies over, and place of the Coase theorem in economics, law, and beyond — a project that will culminate in a book on the theorem. The financial support of the National Endowment for the Humanities, the Institute for New Economic Thinking, and the Earhart Foundation is gratefully acknowledged, as are the insights provided by a group of people far too numerous to list in this space.

Proposal

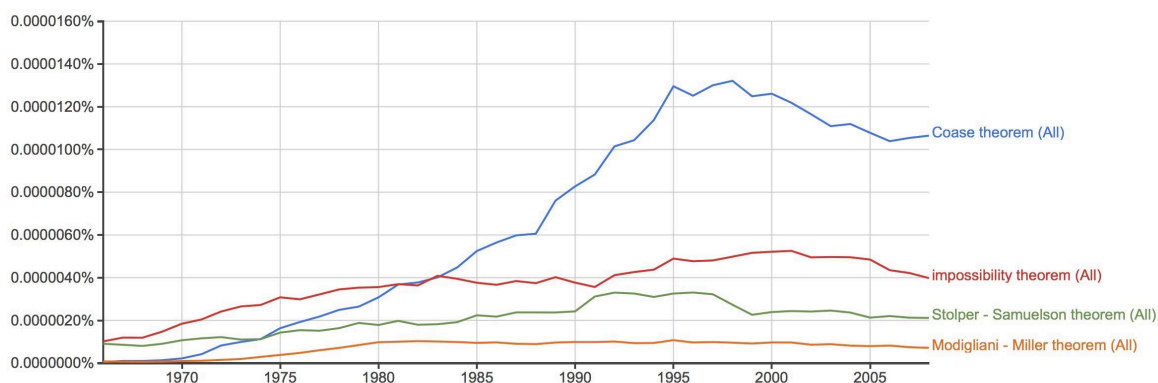
The Coase Theorem at Fifty

I. Introduction

The “Coase theorem” sits at once among the most influential and the most controversial ideas in the post-WWII history of economics.¹ Born out of the economic theory of externalities, its reach now extends to virtually every sub-field of economics and of law and, indeed, to fields of study across the academic spectrum and literatures around the globe.² Yet, its validity as a proposition in economic logic was for many years a bone of significant contention and, even today, is by no means universally accepted.

It would be standard at this point to make a statement of *the* Coase theorem, but that is rather problematic. Everyone knows about the Coase theorem but there is little agreement on what it is; some economists uphold versions of the theorem that other economists consider to be demonstrably false. The same cannot be said of the other famous “theorems” of economics, theorems that, as it happens, feature far less prominently in the literature than does the one that bears Coase’s name (figure 1). How, then, did we arrive at this position?

Figure 1
Citations to Famous Theorems in Economics, 1966-2008



Source: books.google.com/ngrams, accessed January 5, 2015

¹ The literature on the Coase theorem is voluminous. For overviews of the theorem from a variety of perspectives, see, e.g., Cooter (1982), Schwab (1989), Medema and Zerbe (2000) and Zelder (1998), as well as the essays reprinted in Posner and Parisi (2013). Coase’s own retrospective views are most expansively laid out in Coase (1988).

² The theorem has been discussed in journals ranging from the *Slovenian Law Review* to the *Korean Journal of Sociology*.

When Ronald Coase wrote “The Problem of Social Cost” (1960), providing a critique of the received theory of externalities, he did not intend to offer the world a theorem. He did not even consider the proposition we now know as the Coase theorem to be the article’s central insight. His discussion of negotiated solutions to externalities was little more than a convenient fiction designed to show the error of the equally fictional (in his mind) Pigovian tradition and to point the way toward a very different approach to thinking about externality theory and policy—one grounded in the costly nature of coordination. Coase penned not another word on the negotiation result for two decades.³ What we now know as the “Coase theorem” is very much a creation of the community of economists and legal scholars who undertook to analyze and apply Coase’s insight.

It was Coase’s University of Chicago colleague, George Stigler who gave the negotiation result its name—oddly enough in the 1966 edition of his textbook, *The Theory of Price* (1966, p. 113). Using Stigler as our guide, the year 2016 marks the 50th anniversary of the “Coase theorem” and serves as an appropriate time to take stock of its place in economic analysis. The theorem is, by any number of measures, one of the most curious results in the history of economic ideas. Its development was shrouded in misremembrances, political controversies, and all manner of personal and communal confusions and serves as an excellent exemplar of the messy process by which new ideas become scientific knowledge. There is no unique statement of the Coase theorem; there are literally dozens of different statements of it, many of which are inconsistent with others and appear to mark significant departures from what Coase had argued in 1960. The theorem has never been given a general formal proof and is often considered a tautology; yet it has been the subject of scores of attempts to “disprove” it in a stream of analysis and debate that continues to this day. The nature of its underlying assumptions is often said to make the theorem’s domain of direct applicability practically nil; yet, it has been invoked, criticized, and applied to legal-economic policy issues in thousands of journal articles and books in economics and law since it made its appearance in the literature in the 1960s (see table 1, below), as well as in journals spanning fields from philosophy to literature to biology. Though it is a positive statement without direct normative implications, it was both used as a justification for the application of economic principles in judicial decision making and viewed as an early salvo in what many perceive as a “Chicago-school”-driven neoliberal turn of economics—the last in spite of the fact that the theorem’s diffusion into the legal literature originated from well outside of (and, one could argue, to the left of that

³ Coase’s next commentary on the negotiation result came in Coase (1981), reacting to one of the many attempted refutations of the Coase theorem. Curiously, Coase was the editor of the journal in which both the critique and his reaction were published—the *Journal of Law and Economics*—and, in fact, published a host of articles that took up the negotiation result during his tenure as editor.

popularly associated with) Chicago and nearly a decade prior to the rise of “Chicago” economic analysis of law. It has been derided by liberals as conservative ideology and by some conservatives as liberal ideology. It was arguably a rather minor point in the author’s work but took on a life of its own in the hands of subsequent commentators.

Table 1⁴

Citations to the “Coase theorem” in Economics and Law Journals, 1960-2012

Years	Economics	Law
1960-1969	2	3
1970-1979	198	184
1980-1989	275	724
1990-1999	430	1362
2000-2009	376	1778
2010-2012	110	609
Total	1391	4860

Sources: Economics: dfz.jstor.org, accessed March 17, 2015; Law: heonline.org, accessed March 17, 2015.

The paper begins with a brief discussion of the road that led to the writing of “The Problem of Social Cost” and the early diffusion of Coase’s result into the literatures of economics and law. Section III then presents a litany of Coase theorems with a view to illustrating the theorem’s essential ambiguity, and attempts to distill both common elements and points of contention. A good deal of this ambiguity is the result of several major controversies over the Coase theorem that emerged between the late 1960s and the early 1980s, and these are the subject of section IV. The more recent literature has focused on the theorem’s domain of applicability. One aspect of this has been a wide-ranging set of “tests” of the theorem, through experiments, case studies, and econometric analyses. These

⁴ The numbers presented in this proposal are for illustrative purposes; the article would present a more broad range of data, drawn from my database including some 8000 items referencing Coase’s negotiation result. The economics citation count given here includes only JSTOR journals and so significantly understates the number of citations to the theorem in the economics literature during this period. The Hein database includes virtually all law journals and so provides accurate totals for that literature. It should also be noted the data given here includes only references to the “Coase theorem.” Given that the term “Coase theorem” took some time to catch on, there are many references to Coase’s result, particularly in the 1960s and 1970s, that are not captured in this table. Again, these would be included in any data reported in the article.

are discussed in section V. For some, the Coase theorem is an ideal type, one with no bearing on the world in which we live but suggestive of the possibility of efficiency-enhancing “Coasean bargains,” while for others it is a proposition with significant direct real-world relevance. These viewpoints come together in the literature examining how various property-rights structures and forms of transaction cost may impact the possibility of Coasean bargains, and this literature is taken up in section VI. Section VII examines the extension of the theorem’s insights to areas of economic analysis beyond its original base in externality theory proper. The concluding section provides an assessment of the legacy of the Coase theorem in modern economic analysis.⁵

In the pages that follow, I will provide a brief overview of the themes that will be taken up in each of these sections of the proposed paper.

II. The Road to the Coase Theorem

This section of the paper will develop the context within which the Coase theorem emerged. The discussion will begin with a brief overview of the literature on externalities prior to Coase’s writing. This will be followed by a discussion of how Coase came to develop his negotiation result as part of a larger project on the economics of broadcasting policy in Britain and the U.S., how that work led to the writing of “The Problem of Social Cost,” and the early reception accorded to Coase’s result in the economics literature. I will provide a brief sketch at this stage.

“The Problem of Social Cost” was written against the backdrop of the post-WWII theory of externalities and as an attack on the “Pigovian tradition” that this literature was said to reflect. Yet, the externality literature was extremely thin during this period and, in reality, was not targeted at the analysis of externalities per se, nor on policy measures to deal with them. Instead, the focus was on the efficiency properties of a competitive equilibrium system; externalities were simply one of the factors shown to impede the attainment of the theoretical optimum.⁶ Externalities themselves were generally considered, as Scitovsky (1954, p. 143) put it, “exceptional and unimportant.” That said,

⁵ It is impossible to contemplate the Coase theorem’s history without some attention to its influence within the legal arena. While that literature is far too vast to discuss at any length here, the analysis that follows will draw on the legal literature to the extent that it is relevant to our understanding of the theorem’s impact on economics.

⁶ Mishan (1965, 1971) provides useful surveys of this literature. Of course, the term “externality” did not make its first appearance in the literature until Francis Bator used it in the late 1950s (Bator 1957). Coase, for his part, never used the term, feeling that it implied the need for some sort of state action—a proposition that he rejected.

this literature does include a handful of statements regarding possibility of negotiated solutions to externality problems, including one by LSE's Ralph Turvey (1957), who had been Coase's student and laid out a result nearly identical to Coase's.

The path that led Coase to his negotiation result and to writing "The Problem of Social Cost" was anything but direct. When he returned to teaching at LSE following the war, he was assigned a course on the regulation of industry, which led him to undertake several studies of regulated industries in Britain—including the broadcasting industry. When he emigrated to the U.S. In the early 1950s, he continued this study of the political economy of broadcasting, eventually turning his attention to the U.S. Federal Communications Commission (F.C.C.) and its fiat-based method of allocating broadcast frequencies (Coase 1959). It was out of this work that the negotiation result first emerged (1959, pp. 25-27), as Coase attempted to make the case that the F.C.C should at least consider allocating frequencies through the marketplace and argued that the market *could* efficiently deal the the potential conflicting-use problems that were thought to pose a barrier to such an approach.

Coase, who was then on the University of Virginia faculty,⁷ submitted the F.C.C. paper to the *Journal of Law and Economics*, but its editor, Aaron Director, and other members of the Chicago faculty to whom Director showed the paper disagreed with Coase's conclusions regarding exchange-based solutions to the interference-externality problem and urged that this section of the paper be removed.⁸ Coase flatly refused and also asked for the opportunity to defend his position to the Chicago faculty. This defense, which has been described by Stigler (Kitch 1983; Stigler 1988), took place in Director's home and converted those assembled—a group that included Friedman, Stigler, Director, Harberger, Bailey, and a dozen others—to Coase's position. Director then urged Coase to write up the argument in a more general and expansive form, and article that resulted was "The Problem of Social Cost."

The earliest reactions to Coase's analysis came out of LSE, Virginia, and Chicago—that is, from within what was at that time the relatively small orbit of the recently founded *Journal of Law and Economics*, and the group of people who were otherwise well-acquainted with Coase and his work.⁹ The voices were almost uniformly accepting of Coase's result, and the literature evidences little hint of the controversy that

⁷ It is often not realized that Coase did not move to Chicago until 1964.

⁸ The objection to Coase's result has commonly been attributed to Reuben Kessel (Kitch 1983). I have copies of correspondence between Coase and Director that indicates that the disagreement was, from the outset, more widespread and included Director himself.

⁹ These schools were, of course, Coase's past, present, and future academic homes.

was to come.¹⁰ These treatments, though, had the effect of exposing a much wider audience to Coase's negotiation analysis, as a result of which it received much more extensive mention in the literature during the second half of the 1960s. Some concerns regarding the validity of Coase's argument began to emerge during this time, but the attitude was largely one of acceptance—though generally with an acknowledgment that it was largely irrelevant to the problems the authors were considering owing to the prevalence of transaction costs (Medema 2014a).

Coase's result also made its way into the legal literature in the mid-1960s, well before the modern economic analysis of law had entered the larger legal consciousness. Ironically, however, this entry point came at the hands of two of Coase's colleagues at the University of Chicago Law School—Walter Blum and Harry Kalven (1964)—who were critical of Coase's result and of its utility for legal analysis. Yale's Guido Calabresi, who spent the middle third of the 1960s engaged in a debate with Blum and Kalven over the insights that economics could offer the analysis of accident law, had a much more positive view of Coase's result, however, and the use made of it by Calabresi and by his students played a significant role in the diffusion of the theorem into legal analysis.¹¹

III. What is the Coase Theorem?

This section of the paper will present and discuss a litany of Coase theorems, drawn from the literature past and present. Doing illustrates up front the ambiguity surrounding the theorem itself and unsettled nature of the Coase theorem discussion throughout its history. In the process, this section sets up much of the discussion that will follow in subsequent sections of the paper.

A Litany of Coase Theorems

When wrapping up his analysis of negotiated solutions in the now-famous illustration of the rancher whose cattle trample a neighboring farmer's crops, Coase drew the following conclusion:

It is necessary to know whether the damaging business is liable or not for damage caused since without the establishment of this initial delimitation of rights there can

¹⁰ But see Wellisz (1964). It bears noting that Wellisz was on the Chicago faculty when he wrote the article but had moved to Columbia by the time it was published.

¹¹ Some would argue, in fact, that Calabresi's 1961 article, "Some Thoughts on Risk Distribution and the Law of Torts" (1961), which was originally written in the late 1950s and, like "The Problem of Social Cost," appeared in print in early 1961, states a version of the Coase theorem. See also Calabresi (1965a, 1965b) and Blum and Kalven (1967), as well as the discussion in Medema (2014c, 2014d).

be no market transactions to transfer and recombine them. But the ultimate result (which maximises the value of production) is independent of the legal position if the pricing system is assumed to work without cost. (Coase 1960, p. 8)

George Stigler's interpretation of Coase's finding, which he codified as the "Coase theorem," was much more tersely stated, calling to mind both the discussion of externalities in the literature of the 1940s and 1950s and the first fundamental theorem of welfare economics:

The Coase theorem .. asserts that under perfect competition private and social costs will be equal. (Stigler 1966, p. 113)

Since that time, the Coase theorem has been stated in dozens of ways, some of them permutations of what Coase argued in 1960 and others of Stigler's 1966 statement. A representative sampling of these theorem statements will be presented in this sub-section. One take on this variety of theorems is that many economists simply did/do not understand the Coase theorem. But that is to miss the historical point, for there has never been a singular "Coase theorem" to understand.¹² The lack of any generally accepted statement of the theorem played a major role in stimulating the controversies over it and in the nature of the back-and-forth debate over both the theorem's theoretical validity and its relevance.

Assumptions and Results

Coase's own statement of his negotiation result was grounded in three assumptions: perfect competition in the industries in which his two agents operated,¹³ zero costs associated with using the pricing system, and defined property rights over the relevant resources. He made no explicit assumption regarding individual behavior, nor did he provide what the modern economist would consider tight definitions of a costless pricing system or of the property rights requirements.¹⁴ As the litany of Coase theorems to be presented above will show, subsequent commentators have laid on a variety of additional assumptions including individual rationality, an absence of income/wealth effects, convex production/utility sets, and a universe of competitive markets. As we shall see, much of the controversy over the theorem has revolved around the content to be given to Coase's own assumptions, whether

¹² The same can be said for Adam Smith's "invisible hand," which has been given dozens of interpretations in the literature. See Samuels (2011).

¹³ This assumption, while not present in the passage quoted above, was made explicit by Coase at multiple points in his discussion. See Coase (1960, pp. 6-7).

¹⁴ Coase's 1960 statement regarding the nature of transaction costs was this: "In order to carry out a market transaction it is necessary to discover who it is that one wishes to deal with, to inform people that one wishes to deal and on what terms, to conduct negotiations leading up to a bargain, to draw up the contract, to undertake the inspection needed to make sure that the terms of the contract are being observed, and so on" (1960, p. 15).

the theorem requires additional assumptions to stand as a valid proposition in economic logic, and the consequences of introducing other assumptions deemed necessary to properly model the context with which the Coase theorem was perceived to deal.

Coase's 1960 statement also specifies two results that attend negotiated solutions to externalities. The first is that the outcome will be efficient, in the sense of maximizing the value of output, or what is sometimes known as the "efficiency thesis." The second, the "invariance thesis," states that the allocation of resources will be unaffected by the initial determination of rights/liability—that is, that a legal regime giving *B* the right to be free from harm will generate an allocation of resources identical to a regime that allows *A* the right to generate harm. The major emphasis in the early economics literature taking up Coase's result was on the efficiency thesis, a fact that is less surprising when one recognizes that the overarching question of the period was whether Pigovian instruments were or were not necessary to generate an efficient allocation of resources, the invariance thesis attracting significant attention only when the prospect of making victims liable for pollution damage reared its head in the 1970s. On the legal side, in contrast, the invariance thesis loomed large from the start, the question of the efficiency of legal rules being less important than the more basic legal question of the differential effects associated with an assignment of rights to one party rather than another.¹⁵ All of that said, one of the significant marks of distinction between various versions of the Coase theorem is between those that embody both the efficiency and invariance theses and those that include the efficiency thesis alone.¹⁶

IV. The Coase Theorem Controversy

Coase's result was taken largely at face value among those who discussed it in the literature during the 1960s, the prevalent view being that it was correct but largely irrelevant to whatever problem the author was discussing owing to the presence of negotiation-inhibiting transaction costs. The 1970s, however, brought an explosion of controversy over the Coase theorem, and this controversy had numerous threads. The most prominent set involved a series of debates over the theorem's correctness as a proposition in economic logic—debates which were played out in the profession's leading journals,

¹⁵ See, e.g., the references cited in note 11, above.

¹⁶ One of the questions that the litany of theorems raises is whether there is a demonstrably false version of the Coase theorem current in the literature. The answer is yes: The versions of the theorem that allow for positive (even if low) costs of transacting and posit both efficient and invariant outcomes. If the externality is continuous in nature, allocative invariance (in the sense of the identical Q^* level of output) will not obtain under alternative initial specifications of property rights.

including the *American Economic Review*, *Quarterly Journal of Economics*, and *Journal of Economic Theory*. A second centered on the theorem's relevance and thus whether, correct or not, it had a proper place in the economist's toolkit. Finally, there was a minor uproar over the theorem's perceived implications on the equity front, derivative of a sense the the theorem somehow legitimized holding victims liable for externality-related harm.

The debates over the theorem's correctness went to both the efficiency and invariance claims and were waged on numerous fronts: the presence of income effects and divergences between willingness to pay and willingness to accept payment (WTA v. WTP), the possibility of long-run entry/exit effects, the prior existence of rents, extortion/blackmail possibilities, free riding and various other forms of strategic behavior, and the roles played by non-separabilities and non-convexities in production and utility—the last of which moved the editors of the *Journal of Economic Theory* to insert *their own* note in the journal indicating that the “validity” of the Coase theorem had been “destroy[ed]” (The Editors 1977, p. 222).¹⁷

At the most basic level, these debates revealed a deep split within the economics profession over the Coase theorem's validity—at the very time, ironically, when the theorem was beginning to make its way into the broader textbook literature in economics (a literature that, as it happens, provided no hint of this controversy). But these debates also brought to the fore the competing notions of the context contemplated by the theorem and the assumptions underlying it—in short of what the theorem *actually said*.

This is perhaps most prominently reflected in the competing frameworks within which the theorem has been modeled. The first of these sets the theorem in the context of small numbers exchange. Some authors, following Coase, posit a smoothly operating exchange process, while others, drawing on game theory, argue that these small-numbers exchanges cannot be contemplated apart from the incentives that they offer for strategic behavior. The second broad modeling framework applied to the theorem, reflective of both Stigler's statement of the “theorem,” quoted above, and the traditional approach to modeling externalities, takes up the theorem as a proposition in the theory of competitive markets. Here, there are large numbers of externality-generating agents and victims, and market forces, rather than inter-agent negotiations, determine the prices that efficiently

¹⁷ It is obviously not possible to revisit all of the debates over the theorem in any sort of thorough fashion within the confines of this article, but this section will provide the reader with a good sense for the major points of contention and how these fed into the history of understandings of Coase's result. A handful of the relevant citations include Mishan (1971), Mummy (1971), Shoup (1971, 1972), Zerbe (1971), Demsetz (1971), Ng (1971), Regan (1972), Starrett (1972), Frech (1973), Gifford and Stone (1973), Daly (1974, 1975), Marchand and Russell (1973), Gifford and Stone (1975), Veljanovski (1977), Frech (1979), Aivazian and Callen (1981), Farrell (1987), and Conley and Smith (2005).

internalize the externality.¹⁸ The choice of framework within which to model the Coase theorem and the (often correlated) content given to the assumptions regarding transaction costs and property rights have driven understandings of the theorem and the conclusions reached regarding its validity and relevance—as well as leading, in the hands of some, to revised statements of the theorem itself.

Why did the Coase theorem provoke such controversy? The standard answer lies in the challenge that it posed to the Pigovian tradition. Yet, this Pigovian tradition, such as it was, had until the 1970s occupied a relatively minor place in the economics literature. The heightened attention given to the Coase theorem in the literature of this period was part of a significant increase in the emphasis on externalities generally, reflecting the profession's response to the growing societal concern with the problem of large-scale environmental pollution. While often (and correctly) associated with the emergence of the economic analysis of law, the Coase theorem also grew up alongside and within the emerging field of environmental economics. A concern that the Coase theorem could be used to justify leaving the resolution of large-scale pollution issues to negotiations between polluters and victims, with victims potentially being the ones liable for harm, played no small role in driving the assaults on the theorem during this period (Medema 2014b).¹⁹

Though the efforts to “disprove” the Coase theorem have by no means disappeared from the literature over the last two decades, the overt controversy has largely abated and such challenges as are offered to the theorem's validity tend to be shunted off to less prominent journals. Yet, the fact that attempts to “disprove” the theorem continue to appear is evidence for the uneasy place that the theorem occupies in contemporary economics, despite the fact that it now occupies a place in the bedrock of economic analysis, from the scholarly literature to the textbooks.

V. Testing the Coase Theorem

The last three decades have witnessed the development of an extensive literature, itself controversial, that purports to “test” the Coase theorem. It is rather odd to think in terms of “testing” a theorem. After all, given its premises, the conclusions follow as a matter of logic. But as we have already established, the Coase theorem is not your typical theorem.

¹⁸ So conceived, the theorem's invariance proposition can be said to capture essential symmetry features that have been a part of economic theory for a century or more, from the economic incidence of sales taxes to the effects of making workers or employers liable for workplace injuries.

¹⁹ The controversy over the Coase theorem within law also revolved around the further question of the extent to which economic reasoning could or should inform legal analysis.

A significant share of these tests have taken place in the lab, but the theorem has also been the motivation for a number of case studies and for econometric testing of allocative outcomes under alternative legal regimes. Once again, a brief sketch of the direction of the discussion is provided here.

The Coase Theorem in the Lab

The Coase theorem has featured prominently throughout the history of experimental economics (Svorenchik 2014), with the first experimental results being published in 1982 (Prudencio 1982; Hoffman and Spitzer 1982). Since that time, the theorem has had an ongoing presence in the experimental literature.²⁰ In the eyes of some, the lab offers an ideal venue for testing the theorem: low costs of transacting, relatively straightforward mechanisms for information dissemination, and so on. While many of the earliest experimental results were interpreted as providing support for the Coase theorem, a number of oddities emerged—including outcomes that while efficient, reflected less than fully rational behavior. More recent literature, drawing on advances made in experimental techniques in the years since the earliest studies of the theorem, has provided conflicting evidence regarding agent propensities to negotiate as the Coase theorem predicts.

The Coase Theorem in the World

The evaluation of whether the Coase theorem's predictions manifest themselves in real-world settings has been the subject of a variety of studies—perhaps most famously, Robert Ellickson's (1986) very Coase-esque study of cattle trespass law in Shasta County, California. But the attempts to assess Coase's result empirically actually began much earlier, with Steven Cheung's (1968) study of the merits of alternative tenancy arrangements and Thomas Crocker's (1971) analysis of small-scale pollution externalities. The theorem's relevance has also been put to the test in a variety of other contexts, utilizing more traditional empirical methods. These range from Vogel's (1987) study of the history of animal trespass law in California to Donohue's (1989) use of the data from the Illinois unemployment experiment (Woodbury and Spiegelman 1987)²¹ to evaluate the Coase theorem in the job search context. While most of these studies have been of the one-off variety, two rather lengthy streams of literature have evolved from this work.

²⁰ See, e.g., Hoffman and Spitzer (1985, 1986, 1993), Harrison, Hoffman, Rutström, and Spitzer (1987), Coursey, Hoffman and Spitzer (1987), Schwab (1989), Kahneman, Knetsch, and Thaler (1990), Spencer (2000), McKelvey and Page (2000), Archibald (2002), Shogren (2002), Bohm (2003), Arlen (2008), Cadigan (2009), Aivazian and Callen (2009), and Klass (2013). Other experimental studies of “Coasean bargaining” are examined in section VI.

²¹ See also Lindgren's (1989) response to Donohue.

The most prominent and longest-running of these efforts was stimulated by Becker, Landes, and Michael's (1977, p. 1114) suggestion that a change the legal regime governing divorce will have no impact on resource allocation—and, by extension, divorce rates—if the parties can negotiate at low cost. Becker, Landes, and Michael called this “an excellent illustration of the Coase theorem,” and their suggestion has given rise to a substantial literature debating the extent to which the move from fault-based to no-fault divorce has impact the divorce rate, as well as over whether the divorce context is a legitimate one in which to evaluate the Coase theorem's predictions.²²

One of the several precursors to Coase's negotiation result (this one from outside of the realm of externalities) was Simon Rottenberg's (1956, pp. 255-56) contention that the allocation of players across Major League Baseball teams under the “reserve clause,” which limited voluntary player movement, would be identical to that under a “free market.” Rottenberg's claim was later seized upon by Demsetz (Demsetz 1972, pp. 16-18) as an illustration of the Coase theorem. With the elimination of baseball's reserve clause in the 1970s, economists have attempted to test the theorem's predictions on this front, with a number of the studies finding that the allocation of the talent pool was unaffected by the demise of the reserve clause, as the Coase theorem predicts, but that player compensation levels increased.²³

* * *

What do we learn about the Coase theorem from these tests? Taken as a group, they provide a very mixed picture of the extent to which the theorem's insights translate into the real world. At the same time, however, these tests provide significant insight into the varying perceptions of the assumptions underlying and claims made by the theorem and, in particular, how differing views of the theorem's working assumptions have driven the conclusions reached as to the theorem's validity and applicability.

VI. The Coase Theorem and “Coasean Bargaining”

Some of the most interesting recent work on the theorem focuses on the extent to which its insights can be translated into the real world—that is on whether and under what conditions we can rely on “Coasean bargaining” to generate efficient, or efficiency-

²² See, e.g., Landes (1978), Peters (1986), Allen (1992), Peters (1992), Brinig (1993), Zelder (1993) Friedberg (1998), Wolfers (2006), Stevenson (2006), Genadek, Stock and Stoddard (2007), and Stevenson (2007).

²³ See, e.g., Hylan (1996), Krautmann (1996), Quirk (1999), Cymrot (2001), and Sanderson (2006).

enhancing (and perhaps even invariant) outcomes in response to ostensible market failures. For some scholars—those who see the theorem as a proposition allowing for positive, but low, transaction costs—probing this question goes directly to the Coase theorem and its applicability. For others—those who subscribe to a Coase theorem world of zero transaction costs—the Coase theorem represents an ideal type, correct in theory but irrelevant to the world in which we live. At the same time, however, it is suggestive of the possibilities of efficiency-enhancing negotiated solutions under conditions not too far removed from the frictionless world contemplated by the theorem. These competing visions of the theorem come together in a literature that explores the impact of transaction costs and alternative property rights/liability structures on the possibility of Coasean bargains.

This literature, too, has a number of different but intertwined threads. One strand takes up the question of how the introduction of certain forms of transaction cost impact the ability of parties to reach efficient negotiated settlements in both laboratory and natural contexts.²⁴ For example, Shogren, at times with various co-authors, has conducted experiments examining how delay costs and nonconvexities, each of which play a significant role in environmental contexts, and security of property rights influence Coasean bargaining in the lab.

A second, more theoretical strain examines how the form and structure of property rights may influence the possibility of Coasean bargaining,²⁵ in particular, through the effect of rights structures on the costs associated with transacting. Of particular import here is recent work by Merrill and Smith, which argues that Coase's conception of property as a bundle of rights—a view that harkens back to the legal realism of the first third of the twentieth century and the earliest days of law and economics—should be discarded in favor of the more traditional view of property as an *in rem* right to a thing, the effect of which would be to reduce transaction costs associated with the definition and enforcement of property rights and related information issues.

Finally, there is the longstanding question of a “normative Coase theorem,” one version of which prescribes assigning rights so as to minimize the costs associated with reaching efficient negotiated settlements.²⁶ The conventional wisdom, following the seminal work of Calabresi and Melamed (1972), has been that property rules are the

²⁴ See, e.g., Shogren (1998), Spencer and Shogren (2000), Zivin and Small (2003), Cherry and Shogren (2005), and Déprés, Grolleau and Mzoughi (2008).

²⁵ See, e.g., Johnson (1995), Croson and Johnston (2000) and Merrill and Smith (2001, 2011).

²⁶ Another, more general, version of the normative Coase theorem is that the legal system should attempt to mimic the outcome that would occur under costless Coasean bargaining.

optimal legal rule for situations involving low transaction costs, while liability rules should be employed in cases attended by high transaction costs. Recent work on this subject,²⁷ however, has called this conventional wisdom into question and has led to proposals for hybrid rules that may provide a greater stimulus for efficiency-enhancing bargains under various positive transaction cost scenarios.

Each of these literatures takes as given the basic premise of the Coase theorem—that, as Stigler put it in 1989, “Ronald Coase taught us, what of course we should already have known, that when it is to the benefit of people to reach an agreement, they will seek to reach it.” But as Stigler went on to point out, “Reaching agreement can be costly in time and other resources, so many potential agreements will not be achieved, but these unachieved agreements will have been inhibited by the smallness of the benefits or the largeness of the costs of agreement” (1989, p. 631). The question for these authors, then, is that of the extent to which institutions can be arranged to facilitate these private agreements and of the nature of the institutional forms. Ironically, after several decades of focus on the Coase theorem proper, this literature takes us back to some of the very comparative institutional questions that Coase was pointing to in “The Problem of Social Cost.”

VII. The Many Faces of the Coase Theorem

With the maturation and increasing acceptance of the Coase theorem have come a wide range of applications of it and, in particular, a move to extend its reach beyond the confines of externality analysis proper. This section will survey the “work” that the theorem is doing in contemporary economic analysis—the ways in which its logic and insights are being applied, the outcomes which it is said to explain, and its use as justification for various normative conclusions drawn across economic analysis.

While environmental and legal issues have long been the centerpiece of Coase theorem scholarship, its tentacles began to spread early on. Stigler suggested already in 1966 that the invariant incidence of a sales tax was consistent with the Coase theorem, and Calabresi argued in 1968 that the theorem’s domain was the entire realm of market failures. The theorem was one of the inspirations for Becker’s “Rotten Kid Theorem” and Fama and others have painted the Modigliani-Miller theorem as a special case of the Coase theorem. The most widespread applications of the Coase theorem’s insights, of course, have come in the realms of environmental economics and law and economics. In the

²⁷ See, e.g., Ayres and Talley (1995), Kaplow and Shavell (1996), and Luppi and Parisi (2010).

former case, the theorem has been used to provide grounding for remedies ranging from marketable pollution permits to rights-based solutions to small-scale externality problems—the focus being on efficiency-enhancing exchange as an alternative to direct regulation. On the legal front, virtually no area of law has been untouched by the theorem, with analyses focusing on the degree of insight that the theorem can provide for understanding the effects of alternative legal rules and regimes.

Recent years, however, have witnessed an increasing expansion of the theorem’s domain. The most extensive line of work on this front has come in the realm of political and constitutional analysis including in the possibility of a “political Coase theorem.”²⁸ Here, political decision rules occupy the place of property rights in the traditional Coase theorem context, and the analysis probes the extent to which efficient and invariant political bargains are likely to obtain. While Acemoglu (2003) argues that rent seeking and other inefficiency-generating features endemic to political processes provide little reason for confidence, Parisi (2003) suggests that analysis of a frictionless political world provides insights into rule-related reforms that could enhance the efficiency of the political decision-making process.²⁹ As was noted in the introduction, however, there is virtually no corner of economic analysis untouched by the Coase theorem, and this section of the paper will provide the reader with an overview with the ever-broadening range of its applications in areas including bankruptcy, development, finance, health economics, labor economics, demography, and urban economics. For some, the theorem speaks to the possibility of efficiency-enhancing negotiated solutions, while in the hands of others it is a proposition that predicts or explains symmetries across the spectrum. So conceived, Coase theorem has become a general proposition, akin to the law of demand, with wide-ranging application.

VIII. Conclusion

As the Coase theorem turns 50, its form and content are not significantly more stable than they were in the 1970s. Yet, it has become part of the fabric of economic analysis, invoked hundreds of times each year in the scholarly literature and treated in textbooks from the principles level on up. And despite Coase’s professed disinterest in the economic analysis

²⁸ See, e.g., Parisi (2003) and Acemoglu (2003), as well as Aivazian (1987), Sidak (1991), Bernholz (1997, 1999), and Acemoglu and Robinson (2001).

²⁹ This political/constitutional turn in the Coase theorem literature is all the more interesting because it represents a return to the context within which Coase developed his analysis when on the University of Virginia faculty with Buchanan and Tullock (1962), who were developing their exchange-based approach to politics and constitutions during the late 1950s and early 1960s.

of law and critical attitude toward the extension of the boundaries of economics generally,³⁰ the theorem has been one of the discipline's most influential exports.

In the hands of those who subscribe to the zero-transaction-costs Coase theorem, the theorem is a fiction, akin to an Arrow-Debreu world. Here, it becomes the starting point for conceptualizing problems of external effects, pointing to their origins in the absence of rights over the resources in question, and is suggestive of how the exchange process might be utilized to enhance the efficiency of resource allocation and of policy rules that might facilitate the attainment of outcomes that would be reached in this frictionless world, as well as of the broad range of situations when Pigovian remedies will be necessary. For those who subscribe to a positive transaction cost version of the theorem, it is a concrete, practical result, showing that under certain conditions we can expect agents to efficiently resolve externality problems via negotiation. It is, in short, a prescription for policy. In both instances, however, the Coase theorem has called attention to the role played by transaction costs and property rights in the operation of market and exchange processes, as a result of which economists have made some headway in understanding their nature and influence. All that said, the theorem continues to be controversial, for reasons both positive and normative. The looseness and ambiguity that continue to surround the concept of transaction costs and the perception that certain rights and actions should not be left to the determination of the marketplace are perhaps the chief culprits here.

The Coase theorem's emergence, as we have seen, was tightly linked to the reality of large-scale industrial pollution, a fact which accounts for much of the early opposition to and controversy over it. While the theorem, rightly or wrongly, is often considered to have provided the impetus for marketable pollution permits,³¹ one of its most significant legacies is in pointing to the pervasiveness of externalities, broadly conceived as interdependence effects, many of which are of a small-scale nature. The result has been, on the one hand, an exploration of how, in certain instances, individuals work out "private" solutions to these problems and, on the other, how one might design institutions that facilitate that process. If the Coase theorem is indeed a fiction, it has proven to be a most useful one, even if the controversies over it have, at times, generated more heat than light.

³⁰ See, e.g., Coase's comments in Kitch (1983, p. 192) and Coase (1978).

³¹ See, e.g., Tietenberg (2010).

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