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IN SEARCH OF SANTA CLAUS:  
SAMUELSON, STIGLER, AND  
COASE THEOREM WORLDS

STEVEN G. MEDEMA

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CENTER FOR THE  
HISTORY OF POLITICAL ECONOMY  
AT DUKE UNIVERSITY

## **In Search of Santa Claus: Samuelson, Stigler, and Coase Theorem Worlds**

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## In Search of Santa Claus: Samuelson, Stigler, and Coase Theorem Worlds

### Prelude

Dear Editor—

I am 8 years old. Some of my little friends say there is no Santa Claus. Papa says, "If you see it in *The Sun*, it's so." Please tell me the truth, is there a Santa Claus?

Virginia O'Hanlon

Virginia, your little friends are wrong. They have been affected by the skepticism of a skeptical age. They do not believe except they see. They think that nothing can be which is not comprehensible by their little minds. All minds, Virginia, whether they be men's or children's, are little. In this great universe of ours, man is a mere insect, an ant, in his intellect as compared with the boundless world about him, as measured by the intelligence capable of grasping the whole of truth and knowledge.

Yes, Virginia, there is a Santa Claus. He exists as certainly as love and generosity and devotion exist, and you know that they abound and give to your life its highest beauty and joy. Alas! how dreary would be the world if there were no Santa Claus! It would be as dreary as if there were no Virginias. There would be no childlike faith then, no poetry, no romance to make tolerable this existence. We should have no enjoyment, except in sense and sight. The eternal light with which childhood fills the world would be extinguished.

Not believe in Santa Claus! You might as well not believe in fairies. You might get your papa to hire men to watch in all the chimneys on Christmas eve to catch Santa Claus, but even if you did not see Santa Claus coming down, what would that prove? Nobody sees Santa Claus, but that is no sign that there is no Santa Claus. The most real things in the world are those that neither children nor men can see. Did you ever see fairies dancing on the lawn? Of course not, but that's no proof that they are not there. Nobody can conceive or imagine all the wonders there are unseen and unseeable in the world.

You tear apart the baby's rattle and see what makes the noise inside, but there is a veil covering the unseen world which not the strongest man, nor even the united strength of all the strongest men that ever lived could tear apart. Only faith, poetry, love, romance, can push aside that curtain and view and picture the supernal beauty and glory beyond. Is it all real? Ah, Virginia, in all this world there is nothing else real and abiding.

No Santa Claus! Thank God! he lives and lives forever. A thousand years from now, Virginia, nay 10 times 10,000 years from now, he will continue to make glad the heart of childhood.

Francis B. Church  
Editor of the New York *Sun* 1897

## I. Introduction

Paul Samuelson loved a good rhetorical flourish almost as much as he loved a good theorem. His writings are replete with both, and they were seldom devoid of meaning. One of the flourishes that Samuelson adopted in his later years involved applying the labels such as “Santa Claus economics” and “Santa Claus situations” to, as Wade Hands put it, “mathematical models with extremely strong and empirically unrealistic assumptions” (2016, 425). As Hands went on to emphasize in his wonderful essay on Samuelson’s use of this language to describe homothetic general equilibrium models, “Santa Claus economics” was not wholly, for Samuelson, a term of derision. Some Santa Claus models he found useful, others not. But there was one economic result that, in Samuelson’s view, could not be captured even in a Santa Claus world: the Coase theorem.<sup>1</sup>

In 1959 and 1960, Ronald Coase made Virginia, and Chicago, believe that there indeed is a Santa Claus. The gift was efficiency in the face of uncompensated spillovers—externalities—situations that, for more than a century, had caused economists to believe that the market system would fail to produce an optimum (Medema 2009). Serious existence questions had been raised by, e.g., J.S. Mill and Henry Sidgwick in the nineteenth century, but some persisted in their belief, pointing out that Adam Smith had told them so back in 1776. But then came Pigou (1920), with his contention that these divergences between private and social interests could only be resolved via direct state action. And he argued this to great effect. Arrow (1951) was forced to assume away externalities to prove efficiency in the marketplace, and subsequent work by Meade (1952) and Bator (1958) only reinforced Pigou’s finding. That there is no Santa Claus in these situations was taken as gospel even in Chicago (Stigler 1946), which makes crystal clear the extent of the problem. Any claims for Santa’s existence must satisfy certain marginal conditions, and there seemed to be no hope for that. At least not until Coase arrived at the North Pole.

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<sup>1</sup> Hands, by the way, does not mention Samuelson’s discussions of the Coase theorem in his article.

Coase's discovery came almost by accident. His analysis of the political economy of broadcasting was aimed at showing the inefficiencies of the existing regulatory structure, including the U.S. Federal Communications Commission's policy of allocating broadcast frequencies via administrative fiat. His sense that the market would be a more efficient mechanism for allocating frequencies, though, ran into the externality problem—the concern that, left to their own devices, broadcasters would overpopulate the best slices of the frequency spectrum, causing interference problems. Regulation had, for decades, seemed to offer the only way around this problem, but Coase (1959) argued that the market mechanism could do the trick if the government would only assign private property rights in those frequencies and permit their exchange. In fact, he said, it would not even matter to which party the rights were assigned. If the rights were not located where they were most highly valued, market exchange would move them there, assuming that the costs of movement did not get in the way.

Though Virginia had little difficulty accepting this argument, the same could not be said of Chicago.<sup>2</sup> As Stigler (1988) has told us, however, Coase managed to convert the Chicagoans to his way of thinking during a magical evening in Aaron Director's living room. This led Coase, at Director's urging, to write up a more expansive version of his argument in "The Problem of Social Cost" (1960), and the theory of externalities was forever changed. As Coase noted in summarizing his argument,

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

George Stigler, who was only too eager to believe in Santa Claus once presented with an

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<sup>2</sup>On Virginia, see Buchanan (1962, 341n.1). In conversations with this author some forty years later, Buchanan evidenced an almost "ho-hum" attitude toward what Coase had done in 1960.

argument he deemed credible, soon labeled this result the “Coase theorem,” and the rest is history.

Coase certainly did not see himself as laying out an important new proposition in economic theory—to say nothing of a ‘theorem’—when writing up his negotiation analysis and the result that flowed from it. One indicator of this is his failure (if it can be called that) to state clearly and precisely the details of the assumptions upon which his analysis rested. This task fell to others, just as had the working out of the unstated assumptions underlying Marshall’s analysis in the *Principles* (1890), the search for which occupied a generation of Cambridge economists during the first third of the twentieth century. Another is the absence of any “proof” in Coase’s article that would satisfy the strictures of modern economic thinking. Instead, Coase worked out his result through a series of illustrations and called it good. It may be that none of this would have mattered were it not for the growing societal concern with pollution and natural resource use, an issue that caused more and more economists to turn their attention to problems of externality. Coase’s result was caught up in this turn and even began to gain traction in certain quarters. Still, there were many who refused to believe, having absorbed the lesson that market forces simply could not deal efficiently with external effects.

And so a debate ensued, one that reflected and to no small extent was driven by both externality-related policy concerns and the ambiguities in Coase’s argument. The debate played out on several fronts and across the pages of the profession’s leading journals. One of the more striking features of this debate is the wide variety of models and theoretical frameworks used to discuss, evaluate, or otherwise analyze Coase’s result—an artifact of the aforementioned ambiguity in Coase’s reasoning. Some framed Coase’s result in a bargaining context and others in a competitive markets (both partial and general equilibrium) context. And players on both sides lined up with their demonstrations that the Coase theorem did or did not hold water. The parties involved in these debates, though, were often talking past each other, debating very

different environments and models, and on different terms. Stabilization was elusive. Those who, like Virginia, very much wanted to believe could certainly find reason to do so. For others, however, the theorem smacked more of the shopping mall Santa who reeks of alcohol and cigarettes.<sup>3</sup>

## II. Grinch<sup>4</sup>

To say that Paul Samuelson was not a fan of the Coase theorem would be something of an understatement. Though he mentioned Coase's result only a handful of times in his writings, the discussion was uniformly critical. It first caught Samuelson's eye already in the early 1960s—well ahead of most economists, it seems—and his reaction was anything but sympathetic. The occasion for his initial commentary was an essay titled “Modern Economic Realities and Individualism,” which found Samuelson taking issue with the excesses of the latter in light of the interdependencies associated with the former. One of those excesses was the abuse of Adam Smith's concept of the invisible hand which, according to the individualist's credo, tells us that “anything which results from voluntary agreement is in some sense, *ipso facto*, optimal,” obviating the need for government interference in the marketplace (1963, 130). Samuelson considered Coase's (1960) analysis of negotiated solutions to externalities emblematic of this misplaced optimism:

The view that R. Coase has shown that externalities—like smoke nuisances—are not a logical blow to the Invisible Hand and do not call for coercive interference with *laissez-faire* is not mine. I do not know that it is Coase's. But if it had not been expressed by someone, I would not be mentioning it here. Unconstrained self-interest will in such cases lead to the insoluble bilateral monopoly problem with all of its

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<sup>3</sup> Medema (2020) provides a discussion of these debates, as well as a wealth of references to related primary- and secondary-source literature. Other discussions, from somewhat different perspectives, can be found in Bertrand (2019) and Zelder (1998).

<sup>4</sup> For the uninitiated, see Seuss (1957).



indeterminacies and non-optimality. (Samuelson 1963, 132n)

In laying down this charge, Samuelson became the first to suggest, at least in print, that the emperor had no clothes—that the smoothly operating exploitation of gains from exchange contemplated by Coase made for bad economics and so led to seriously wrongheaded conclusions.<sup>5</sup> But given that the article appeared in *The Texas Quarterly*, a periodical “designed for the general literate reader,” and which strove “to seek a balance among the sciences, social sciences, humanities, and fine arts,” it should not surprise that it had no influence on the course of events.<sup>6</sup>

Four years later, however, Samuelson pressed the same point in his discussion of “The Monopolistic Competition Revolution” (1967), an essay in honor of Edward Chamberlin and dedicated to elaborating “some of the *theoretical* reasons why perfect competition provides an empirically inadequate model of the real world” (21). One of those reasons had to do with the insufficiency of such models for describing exchange outcomes in the presence of bilateral monopoly:

the rational self-interest of each of two free wills does not necessitate that there will emerge, even in the most idealized game-theoretic situation, a Pareto-optimal solution that maximizes the sum of the two opponents’ profits, *in advance of and without regard to how that maximized profit is to be divided up among them*. Except by fiat of the economic analyst or by his tautologically redefining what constitutes “nonrational” behavior, we cannot rule out a non-Pareto-optimal outcome. We can rule it out only by

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<sup>5</sup>That is, Samuelson recognized that strategic behavior possibilities imply a variety of potential equilibria, not all of which are efficient. This is all well and good. Whether it goes to the Coase theorem proper, however, is another story. See section V, below, as well as Medema (2020).

<sup>6</sup><https://tshaonline.org/handbook/online/articles/nnt01>, accessed May 20, 2020. Among its many illustrious contributing authors before it ceased publication in 1978 were Frank Lloyd Wright, Aaron Copland, Robert Penn Warren, Allen Tate, John Wain, J. W. H. Auden, and Lyndon B. Johnson. Samuelson’s paper was presented at a December 1962 symposium on individualism in twentieth-century America, organized for the American Studies Association of Texas. I thank Roger Backhouse for bringing this symposium information to my attention.

Humpty-Dumptyism. (35)<sup>7</sup>

Once again, Samuelson felt compelled to draw attention to the Coase theorem to illustrate his point:

Some readers have interpreted R. H. Coase ... as having shown how *laissez-faire* pricing can solve the problem of “externalities” and “public goods” harmoniously. The above analysis shows that a problem of pricing two or more inputs that can be used in common is not solved by reducing it to a determinate maximized total whose allocation among the parts is an indeterminate problem in multilateral monopoly. It should come as news to no economist or game theorist that duopoly, oligopoly, bilateral and multilateral monopoly are indeterminate in their solution. (36n.18)

Of course, a glance at the list of attendees at Director’s little soirée informs us that game theorists were in short supply that evening.

Given this attitude, it is no surprise that Samuelson did not elect to include a discussion of the Coase theorem in his best-selling textbook, *Economics*, until the 1985 edition. Coincidentally or not, this was when William Nordhaus joined him as a co-author, and well after it had become commonplace for textbook authors to take up Coase’s result within their pages. Time, though, clearly had not affected Samuelson’s attitude. Having established the externality problem and the potential for governmental corrective action, Samuelson and Nordhaus informed their readers that “A startling analysis by Ronald Coase suggested that voluntary negotiations among the affected parties [to an externality] would in some circumstances lead to an efficient outcome” (1985, 718). Such an outcome “might” occur, they said, “when there are well-defined property rights and the costs of negotiation are *low*” (718,

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<sup>7</sup> The relevant reference here is Lewis Carroll’s *Through the Looking Glass*: “‘When I use a word,’ Humpty Dumpty said in a rather scornful tone, ‘it means just what I choose it to mean—neither more nor less.’” See, e.g., <https://www.gutenberg.org/files/12/12-h/12-h.htm>.

emphasis added).<sup>8</sup> But Samuelson and Nordhaus strongly resisted the argument that efficient bargains *will* occur, basing their opinion on the same game-theoretic considerations that Samuelson had spoken of in the 1960s. In fact, their discussion of these concerns, elaborated in a footnote, is nearly as long as the in-text presentation of the theorem. But the lesson was clear and, lest the readers be inclined to give Coase's result actual credence, theoretical or otherwise, Samuelson and Nordhaus made sure to point out that "there is no theorem from game theory proving that an *invisible hand* will lead a pair or more of bargainers to the Pareto efficient level of pollution" (1985, 719n.6).

Apart from the textbook mentions, Samuelson left Coase's result alone for a quarter-century but then took it up twice in the first half of the 1990s. A 1993 essay on altruism and Darwinian selection finds Samuelson railing against the idea that the individual pursuit of self-interest, channeled through a Darwinian survival of the fittest process, generates outcomes congruent with the social interest. A goodly amount of self-interested behavior is "socially harmful, he said, and "this lack of congruence is not a freak of rare paradox." Indeed, it is congruence itself that is the rare bird, as reflected in the finding that "constant returns to scale *sans* externality *cum* perfect competition singularly entails Pareto optimality of prices" (1993, 145). That which survives, then, is not necessarily, or even likely, to be optimal:

Darwin's evolution is indeed mere sound and fury, signifying nothing normative, rather than denoting a process of meaningful Spencerian triumph. Natural selection is not an empty tautology about survival of those who survive. It is a lawful process subject to shrewd predictions and testable refutations. But in general it does not act to maximize any scalar magnitude. (145)

Social Darwinism, Samuelson argued, was nothing more than "a perverted borrowing from

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<sup>8</sup>Why Samuelson specified "low" transaction costs rather than, following Coase (1960, 2-8) zero transaction costs is a mystery, though this version of Coase's result was not (and still is not) uncommon in the literature. One possibility is that Samuelson wanted to make the theorem 'operational,' which would then more obviously allow him to register his concerns about bilateral monopoly.

what can be validly established for biology” and its imitation makes for very poor economics:

When I contemplate strong claims by a Richard Posner that law has evolved historically à la Pareto, or arguments that a Coase Theorem ensures that deadweight loss is at its feasible minimum, I fear that von Neumann and Morgenstern are spinning in their graves and Charles Darwin is wondering why he left his barnacles, pigeons, and earthworms. (145)

For Samuelson, then, the Coase theorem seems to have been little more than “a perverted borrowing from what can be validly established for” economics. Then again, a nodding acquaintance with Samuelson’s various commentaries on Chicago suggests that, in his opinion, there was a good deal of such perversion going on in Hyde Park.

It was not until 1995, in a symposium on the Coase theorem published in *Japan and the World Economy*, that Samuelson finally went to some lengths in spelling out the source of his uneasiness with Coase’s result. The issue, at one level, was its departure from the real world. But Samuelson had developed and proved all manner of theorems that entailed departures from the real world. With the Coase theorem, the issue was clearly something deeper.

Samuelson certainly understood what was at stake if the Coase theorem was correct. Yes, the theorem proclaimed the efficient resolution of externalities—a challenging enough proposition in itself—but its import went well beyond this: “Follow the bare-bones logic,” Samuelson said, “and *nothing institutional matters* in economics” (1995, 2, emphasis added). Indeed, this could well be the most important insight to emerge from Coase’s result. But Samuelson was mystified that anyone could, even in theory, buy into the logic that gets one there. Reminding his readers of the evening when Coase converted the skeptical crowd of Chicagoans to his way of thinking, Samuelson asked, “Did 21 savants buy this palaver?” (2)

The “dubious major premise of Coase argumentation,” from where Samuelson stood, was its wholesale glossing over of the enormous potential for strategic behavior within the

negotiation process (3). And once one grants this possibility, outcomes are indeterminate and, “generally speaking,” not Pareto optimal. Nor was Samuelson willing to buy claims that vague handwaving related to the shadowy and elusive assumption of zero transaction costs negated these issues. “[T]hat one can usefully capture the content of the game-theoretic interactions between ranchers and farmers or parent and child under the rubric of ‘transaction costs’” was, for Samuelson, nonsensical. “Is there some coherent proof that, without transaction costs, real-life rivals must find their way to Pareto-Optimal frontiers?” (4) Certainly not for Samuelson, who made clear that economists had already been told what is needed to guarantee efficiency:

*Only in certain Santa Claus situations*—constant returns to scale, infinite divisibility, free entry, dispersed ownership of each grade of factor, shared knowledge, complete markets—only then will Smithian self-interest be compelled to achieve Pareto-Optimality” (6, emphasis added).

It will not escape the reader that Santa, so conceived, bears a striking resemblance to Samuelson’s brother-in-law.<sup>9</sup>

What emerges, then, is this: The problems with the Coase theorem, as Samuelson understood it, went well beyond detachment from the real world. His position was that there *is no* Coase theorem, no Santa Claus world that, teamed with economic logic, can get us around the problems associated with strategic behavior. To suggest otherwise, for Samuelson, was simply a bridge too far.

### **III. Enter Rudolph: Guiding Santa’s Sleigh<sup>10</sup>**

George Stigler did believe in Santa Claus, at least post-1960. Of course, Stigler also announced to the participants in a bicentenary conference on Smith’s *Wealth of Nations* (1976) that ol’

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<sup>9</sup>That brother-in-law, of course, is Kenneth Arrow.

<sup>10</sup>The readers upon whom this reference is lost are encouraged to familiarize themselves with the classic television special, references to which can be found on the web.

Adam was “alive and well and living in Chicago” (Meek 1977, 3). It is important to remember, though, that Stigler was once in the same camp as Samuelson, the editions of his price theory textbook prior to 1966 laying out a fairly standard Pigovian story about externalities. But, like St. Paul on the road to Damascus, Stigler was converted and quickly became a zealous champion of the cause. Or, lest we confuse our Christmas stories, emerged as our Rudolph, with his illuminating nose, pulling Santa’s sleigh.<sup>11</sup>

It has been suggested that Stigler did *not* fully buy into Coase’s argument on that fateful evening at Director’s home. But whatever his initial reaction, there can be no question that Stigler came to embrace Coase’s result in the years that followed. In fact, he seems to have been mesmerized by it. It was Stigler, after all, who gave Coase’s result the name by which it has come to be known—the “Coase theorem”—in the 1966 edition of his price theory textbook (1966, 113). Two years later, he gave the theorem prominent play in a lecture at the University of Michigan Law School,<sup>12</sup> and over the next quarter-century he published a half-dozen papers that drew on the theorem. Beyond this, his 1988 *Memoirs* devotes the better part of a chapter to this topic—comparing Coase with Archimedes along the way—and his archives are littered with drafts of ideas, often fragments, related to the theorem that he set down on paper but never fully developed.<sup>13</sup>

What Coase had demonstrated, in Stigler’s view, was that “under perfect competition private and social costs will be equal,” a finding that, he noted for his student readers, is “more remarkable ... to us older economists who have believed the opposite for a generation, than it will appear to the young reader who was never wrong here” (1966, 113). But yet, Stigler continued, though the Coase theorem “seems astonishing ... it should not be.” In fact, he considered it nothing more than an illustration of some basic economic analysis long and

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<sup>11</sup> Stigler’s treatment of the Coase theorem is also discussed at length in Bertrand (2018), Marciano (2018), and Medema (2011).

<sup>12</sup> Memorandum from Richard Posner to George Stigler, 4 Jan 1971, George J Stigler Papers, Box 11.

<sup>13</sup> See Stigler (1988, ch. 5).

widely accepted in the field and thus a result upon which all economists should agree. After all, he pointed out, “Laws often prove to be unimportant“ when their effects are subjected to economic analysis, as illustrated by the the invariant economic incidence of a sales tax (113).<sup>14</sup> For Stigler, then, the Coase theorem was a revolutionary result that should not have been revolutionary. That it seemed so was only because the profession had been in the clutches of some bad economics.

Stigler was well aware that Coase’s result relied on the fiction of zero transaction costs, and he understood the implications of this assumption better than most. “The world of zero transaction costs,” he said, “turns out to be as strange as the physical world would be with zero friction.” In such a world, Stigler continued, “Monopolies would be compensated to act like competitors, and insurance companies and banks would not exist” (1972, 12). His 1988 commentary on the theorem fleshes this out even further:

Still, zero transaction costs are a bold theoretical construct. It implies, for example, that in buying an automobile one knows the prices all dealers charge (with no cost to anyone in time or money), that one is completely certain what all warranties for replacement of defective parts or provision of services mean and has complete confidence that they will be fulfilled (without controversy), and so on. Zero transaction costs mean that the economic world has no friction or ambiguity. (Stigler 1988, 75)

Yet, despite this severe detachment from reality, Stigler ascribed tremendous import to Coase’s finding. Why? Stigler does not tell us explicitly, but the reason seems clear when one examines the corpus of his writings: He saw in Coase’s result an extension of the first fundamental theorem of welfare economics, which demonstrates that perfectly competitive markets generate efficient outcomes (Arrow 1951). The first fundamental theorem, of course, assumed away externalities on the grounds that they are a barrier to efficiency. Yet, the Coase theorem

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<sup>14</sup>For the non-economist reader, the lesson here is that the effects of a sales tax on a good’s price and on the quantity of the good bought and sold will be the same whether the tax is imposed on buyers or on sellers.

suggests that externalities are no barrier at all.

The “theorem” label, then, was more than simply a manifestation of Stigler’s literary cleverness—though it certainly was that, in part. The correspondence between Coase’s result and the first fundamental theorem explains both Stigler’s terse wording, as against Coase’s more lengthy exposition of his result, and Stigler’s grounding of it in the assumption of perfect competition—not to mention his desire to codify the result as a “theorem.” This also helps us to understand why, though Stigler’s 1966 presentation of Coase’s result makes much of both the efficiency and allocative invariance principles, his “Coase theorem” does not—being content with the simple assertion that efficiency is assured. In Stigler’s hands, the “Coase theorem” is a result about the efficiency properties of competitive markets rather than, as it was typically interpreted at the time, a contribution to the theory of externalities *per se*.<sup>15</sup>

For Stigler, unlike for Samuelson, there *is* a Santa Claus world that will guarantee efficiency in the presence of externalities. Yet, having come this far, one might reasonably ask, “Does any of this matter?” After all, we are talking about Santa Claus worlds, with seemingly no bearing on the world in which we live and within which externality policy is made. As it happens, though, it *does* matter, and for reasons both theoretical and practical.

#### **IV. Whoville vs. Mt. Crumpit<sup>16</sup>**

The juxtaposition of Stigler’s view of the Coase theorem with that of Samuelson leaves us in a rather interesting position. For Stigler, the “Coase theorem” is a bargaining result that teaches us about the efficiency properties of competitive markets. Samuelson, on the other hand,

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<sup>15</sup>In recent years, the Coase theorem has become loosed from its original externalities context and is often seen as a general proposition about the efficiency of exchange and/or as a general invariance result. The latter is reflected in the propensity to view Ricardian equivalence, the Modigliani-Miller theorem, and other such invariance results as “special cases” of the Coase theorem. See, e.g., Allen (1999, 904-05) and (Medema 2020, 1089-90).

<sup>16</sup>Again, for the uninitiated, Whoville is a town full of believers in Santa Claus, and Christmas. Mt. Crumpit, which overlooks Whoville, is the home of the Grinch. See Seuss (1957). Any resemblance to certain ‘freshwater’ and ‘saltwater’ cities is purely coincidental.



rejected the Coase theorem precisely because an efficient outcome is assured only under the “Santa Claus” conditions of perfect competition, and the Coase theorem’s bargaining process is far-removed from this realm. How, then, do we reconcile, or at least explain, these divergent claims? And, in particular, how could Stigler simply assume that any necessary negotiations were likely to come off without a hitch—that bilateral monopoly problems and the like would not generate the inefficiencies which Samuelson considered inevitable? If Samuelson was correct in his assertion that the Coase theorem lies beyond even the reach of Santa Claus economics, Stigler was serving up nonsense on stilts.

Let’s begin with Stigler’s assessment of the discipline imposed on market participants by perfect competition. Those who fail to minimize costs do not survive, meaning that it is in the interests of those involved in externality situations to reach an agreement that exploits the gains from exchange. Indeed, the survival of at least one of them depends on it. This insight lies at the heart of Stigler’s attraction to Coase’s analysis. In a brief article published in the *Yale Law Journal* shortly before his death, Stigler opened his discussion by saying, “Ronald Coase taught us, what of course we should have already known, that when it is to the benefit of people to reach an agreement, they will seek to reach it” (1989, 631). This, then, was the fundamental insight to be taken from Coase. Though his target was undoubtedly the legion of theorem critics, Stigler’s elaboration on this point almost seems to have been pointed directly at Samuelson:

Does the proposition require proof? One would think not. It is similar to a proposition in international trade: The prices of internationally traded goods in two national markets will differ by no more than the cost of movement of the goods between the markets. Suppose that I started to test the proposition and found that a pair of prices differed by more than the costs of movement. I would immediately abandon the test and embark on lucrative arbitrage transactions. Similarly, if I found that Coase’s

famous grain farmer and cattle rancher were making foolish decisions with respect to the damage to grain from wandering cattle, I would buy the enterprises and reap a capital gain from efficient reorganization. (631)

This is all well and good, but not everyone is George Stigler. Though his argument does seem to guarantee end-state efficiency, it neatly sidesteps the actual negotiation processes that are so integral to Coase's result and were of so much concern to Samuelson.

But this is not the end of the story. To understand how Stigler got from *A* to *B*, we need to examine his treatment of the "perfect knowledge" requirement of perfect competition and how this—and deviations from it—relate to the negotiation processes contemplated by Coase. Note what Stigler says here:

If there is not perfect knowledge, there will be an array of prices at which transactions will take place, and almost all real markets display such an array. There will often be scope for higgling, and to this extent a situation termed bilateral monopoly arises. (1966, 88)

So far, he seems to be playing right into Samuelson's hands. But then Stigler goes on to note that,

if the scope for higgling is small, the departure from competition is small. (88)

Stigler allowed that the perfect knowledge assumption is almost always violated in the real world. The question is whether this entails any significant consequences. This, though, is where his assumption of perfect competition takes on an additional role. If the parties to the externality, whether Coase's rancher and farmer or the polluting factory and the laundry of externality illustration lore, sell their products in perfectly competitive markets, well-known market clearing prices serve as the key ingredients to the negotiation process, providing much of the information most relevant to negotiation. The scope for higgling is thus greatly reduced, meaning that "the departure from competition" will be "small." In short, we can rely on the

Coase theorem to generate efficient results in a world approximating that of perfect competition.

Even if one is willing to accept Stigler's logic here, however, we are still left with a result that applies only to that Santa Claus situation. This would seem to be rather poor grounds on which to anchor a theorem to which Stigler ascribed potentially wide-ranging relevance. For Stigler, however, the model of perfect competition was anything but a purely abstract, theoretical construct, as he made clear to the readers of his textbook:

If the reader bristles at the acceptance of assumptions such as perfect knowledge and complete product homogeneity, he is both wrong and right. He is wrong in denying the helpfulness of the use of pure, clean concepts in theoretical analysis: they confer clarity and efficiency *without depriving the analysis of empirical relevance*. He is right if he believes these extreme assumptions are not *necessary* to the existence of competition: it is sufficient, for example, if each trader in a market knows a fair number of buyers and sellers, if all traders together have a comprehensive knowledge so only one price rules. The reason for not stating the weakest assumptions (necessary conditions) for competition is that they are difficult to formulate, and in fact not known precisely. (1966, 89)

This suggests that, for Stigler, the model of perfect competition is neither a purely theoretical exercise nor a literal depiction of reality. Instead, it is a tool for analysis, one that combines "clarity and efficiency" with "empirical relevance," the latter because it gives rise to empirically testable propositions.

In Stigler's mind, at least, real-world markets tend to approximate the strictures of perfect competition sufficiently closely, in many circumstances, to make it a useful interpretive and prescriptive tool.<sup>17</sup> His attitude on this score is neatly captured in his discussion of Edward

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<sup>17</sup>A useful background discussion to this topic is found in Hammond and Hammond (2006). Of course, Milton Friedman's (1953) essay, "The Methodology of Positive Economics," also bears on all of this.

Chamberlin's monopolistic competition approach, which Stigler famously dismissed in a lecture given at the London School of Economics in the late 1940s:

Chamberlin's vision was clearly a legitimate way of looking at economic life. One may even argue that it was more congruent with untutored observation, and in this sense more 'realistic.' But these are points, not of unimportance, but of complete irrelevance, despite the part they played in securing popularity for his theory. (1949, 14)

Instead, he continued, the "paramount" question is whether "a theory incorporating this viewpoint contain[s] more accurate or more comprehensive implications than the neoclassical theory" (14). For Stigler the answer to this question was a resounding, 'No'—that despite its claims of greater 'realism,' the theory of monopolistic competition added little, if anything, to the standard competitive model as an explanatory or predictive construct. His 1966 defense of the competitive model, quoted above, is simply a restatement of the same point from a different angle.

Stigler's message, then, was this: The typical market is characterized by conditions that can be regarded as reasonable approximations of the competitive environment. The Coase theorem's efficiency and invariance claims hold under competitive conditions. Therefore, the Coase theorem tells us that externalities will be efficiently internalized in many real-world situations. So conceived, it combines "clarity and efficiency" with "empirical relevance," just as does the competitive model. And so Stigler called for empirical studies of the magnitude of transaction costs, doubtless in the hope that their findings would support his views of the theorem's practical utility (1989, 631).

Samuelson's view of the relative merits of the competitive and monopolistic competition frameworks could hardly have been more different, and the distinction sheds a good deal of light on their respective attitudes toward the Coase theorem. Samuelson had Stigler squarely in his sights when disparaging those who proclaimed the theoretical and

empirical virtues of the competitive model and made no bones about his dim view of Stigler's position:

If the real world displays the variety of behavior that the Chamberlin-Robinson models permit—and I believe the Chicago writers are simply wrong in denying that these important empirical deviations exist—then reality will falsify many of the important qualitative and quantitative predictions of the competitive model. Hence, by the pragmatic test of prediction adequacy, the perfect-competition model fails to be an adequate approximation. When Friedman claims (*Essays*, pp. 36-37) that a tax will have the type of incidence on the cigarette industry that it would on a competitive industry, he is at most showing that some predictions of the latter theory are adequate. To the degree that other predictions are falsified—consumer price approximately equal to marginal cost, advertising cost equal to zero—the competitive model fails the pragmatic predictive test. (1967, 21)

This inadequacy, Samuelson argued “forces us to work with some version of monopolistic or imperfect competition” (21). It was not sufficient—indeed, wholly wrongheaded—to take refuge in Santa Claus models when a superior alternative was close at hand:

Chicago economists can continue to shout until they are blue in the face that there is no elegant alternative to the theory of perfect competition. If not, the proper moral is, “So much the worse for elegance” rather than, “Economists of the world, unite in proclaiming that the Emperor has almost no clothes, and in pretending that the model of perfect competition does a good enough job in fitting the real world.” (21-22)

To stand with Chicago on this score, he continued, meant “taking the coward's way” out by avoiding the important and challenging questions that the economy puts squarely in front of us and “fobbing off in their place nice answers to less interesting easy questions” (22).

Our protagonists' respective attitudes toward perfect and monopolistic competition,

then, tell us a good deal about their views of the Coase theorem. It is safe to say that each applied the same set of methodological precepts to the Coase theorem as he did to his analysis of competitive markets. Just as we can assume that the competitive model is a useful (incredibly misleading) description of the operation of vast swaths of the marketplace, we can assume that the Coase theorem aptly describes (bears no correspondence to) many situations of externality. Stigler almost certainly would have agreed with Samuelson's (1963, 132n) contention that the "insoluble bilateral monopoly problem with all its indeterminacies and non-optimality" essentially forecloses the consummation of efficient bargains; the difference is in the domain that each ascribed to those insoluble problems. For Stigler, the prevalence of competitive markets largely negated such worries, allowing for his seemingly boundless optimism that agents would be able to higggle their way to efficient solutions in a wide variety of circumstances.

## **V. The Wonders that are Unseen and Unseeable in the World<sup>18</sup>**

It is not difficult to understand why Stigler wanted very much to believe in Santa Claus. Though many, and perhaps most, economists view the first fundamental theorem as a purely theoretical exercise (albeit a very important one), it was more than just this for Stigler. Given the practical utility he found in the competitive model, it reinforced a presumption of 'efficient until proven otherwise' for a wide range of market outcomes. In this sense, the Coase theorem is consistent with Stigler's (1961) pioneering analysis of information problems in economics. There, he showed that, once the costs of acquiring information are taken into account, "some important aspects of social organization take on new meaning" (1961, 213), with activities (such as advertising) often presumed inefficient now seen to in a different, more efficient light. One could argue that Stigler's Coase theorem in some sense did for externality problems what his 1961 article did for information problems, showing them to be less detrimental to

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<sup>18</sup> See "Prelude," above.

efficiency than commonly believed and, in the limit, of little concern.

The more difficult issue is getting at why Samuelson failed to believe. One can certainly sympathize with his concerns about realism; yet this only takes us so far, as Samuelson was all too eager to use unrealistic models in his own work. From models of international trade to his (co-)development of the efficient markets hypothesis, Samuelson showed himself time and again willing to theorize about frictionless worlds.<sup>19</sup> We can also grant his concerns about the vagueness surrounding the concept of transaction costs, but this does not preclude the serious theoretical probing of life in their absence—a world without frictions and where agents possess full and complete information. More to the point, under this and other restrictive assumptions, the efficiency and invariance claims made by Coase *are* valid:

*Theorem: If agents are rational and the costs of transacting are zero, resources will be allocated efficiently independent of how rights over those resources are initially distributed. Moreover, if utility functions are uniformly affine and the registration of subjective values is not wealth-constrained, this efficient allocation of resources is independent of the initial rights structure.*<sup>20</sup>

A world of zero transaction costs, as defined here, is characterized by fully specified property rights, transferable utility, and costless information. The last of these requires that all information relevant to the transacting process and its effects can be acquired costlessly by all individuals affected by the transaction. And given that information is costless, everyone possesses all relevant information, including knowing everything about everyone else.<sup>21</sup> In this “transactions costs-free fairyland,” as Alan Randall (1975, 741n.44) called it, the strategic

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<sup>19</sup> That is, one cannot simply write off Samuelson’s position as seeing transaction costs as endemic to the bargaining process. Transaction costs are also endemic to the market process—an ‘institutional’ feature of the world—but Samuelson was repeatedly willing to overlook them in that venue.

<sup>20</sup> Proof: For efficiency, see, e.g., Robson (2012) and Mas-Colell et al. (1995, 356-59). For invariance, see Bergstrom (2017). For a more fulsome defense of this version of the theorem, see Medema (2020).

<sup>21</sup> This is a roundabout way of saying that incomplete information and asymmetric information are manifestations of transaction costs.

behavior that so concerned Samuelson is impossible, or at least without effect. Is this unrealistic? Of course, but surely no more (or less) so than homothetic utility. A Santa Claus world indeed, but it *is* a Santa Claus world.

If we were to bring charges against Samuelson here, they would be for insufficient theoretical imagination. But that is a hard one to make stick, given the extent of Samuelson's endowment with that gift. It may be, though, that Hands' analysis of Samuelson provides us with an explanation here, just as it does for Samuelson's dim view of homothetic utility:

In the homothetic Santa Claus case, the competitive equilibrium is the unique social welfare maximum (associated with the utility function of the representative agent) and this is a much stronger defense of the free market than Samuelson believed pure economic theory could, or should, provide. As he noted in the final paragraph of his Nobel lecture (quoting Herbert Davenport): "There is no reason why theoretical economics should be a monopoly of the reactionaries ..." (2016, 431-32)

The Coase theorem undeniably provides a much stronger defense of the free market than do homothetic general equilibrium models, overcoming *all* of the classic objections to market failure—monopoly, externalities and public goods. The seeming inevitability of the last had been hammered home by Samuelson (1954; 1955) only a few years before Coase published his classic article, and utilizing arguments similar to those he later leveled against the Coase theorem. When it came to these classic market failure situations, it seems that Samuelson could not even allow himself to search for a North Pole, as if to admit the existence of a Santa Claus world here was to admit too much. Then again, Samuelson was anything but alone in this, perhaps because, like so many others, he feared the consequences that might follow if economists and policy makers began to believe too fervently.

## **VI. Yes, Virginia, There Is a Santa Claus**



“Anecdotes do not a science make,” as Samuelson pointed out in his 1995 discussion of the Coase theorem (Samuelson 1995, 4). The currency of stories about farmers and ranchers, physicians and confectioners, or polluting factories and laundresses is of little more value than the sight of a rotund, bearded fellow in a red suit at the local Macy’s in December, though each has the ability to deceive the innocent. But the reality that the farmer and the rancher may not be able to agree on the division of surplus and that the guy in the red suit goes home to Queens rather than the North Pole is no evidence against Santa Claus.<sup>22</sup>

Does it matter whether one believes in Santa Claus? Indeed it does, as the history of economics shows us time and again. Trim away the beards and remove the red suits, and you find Smiths, Says, Langes, Arrows, and even Keyneses. Each taught us, or allowed us, to see things in ways that we previously did not. And so too for the Coase theorem. Though for Samuelson this seems to have been little more than a reason to avert one’s eyes, the lessons learned from the literature of the last six decades suggest otherwise (Medema 2020). The Coase theorem at once alerted economists and others to the possibilities of markets and market-like mechanisms and to the forces that preclude their smooth functioning, or their functioning at all. Whether, when all of the effects are totaled up, Santa left economics a shiny new toy, a lump of coal, or some combination of these when he landed in Aaron Director’s living room is a matter of taste. What is unmistakable, however, is that economics would be very different if, instead, Santa had set down his sleigh 1000 miles away, in Cambridge.

“Alas! how dreary would be the world if there were no Santa Claus! It would be as dreary as if there were no Virginias.”

Or no Chicagos.

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<sup>22</sup> And while anecdotes may not “make” a science, they can certainly affect the path of its development, whether unintentionally or via their place in a narrative strategy. On the role of narrative in economics, see the forthcoming special issue of *History of Political Economy* dealing with this subject, edited by Mary Morgan and Tom Stapleford.

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