1

The Neoclassical Problem

INTRODUCTION

In this book, we provide the theoretical and operational foundations of economic property rights and provide multiple applications of the model. We argue that the organization of economic activity and resource allocation are best understood through the concept of ownership. In life, most things we consume are first produced in some way, shipped by often complex methods, and then sold to the ultimate consumers through a variety of methods. Every aspect of this production and exchange is organized around a series of owners. The pattern of ownership over the inputs and produced goods varies as dramatically as the types of goods that are produced and consumed. This pattern of ownership is not random, nor is it irrelevant. Indeed, it is just the opposite: The role of ownership is essential and necessary for any and all economic activity.

The neoclassical model at the core of most economic tool kits is extremely useful for analyzing how much of something gets produced, traded, and consumed – and at what price – and it dominates the way economists think about everything. However, it has nothing to say about ownership. An economist begins their training with a study of markets in a traditional supply and demand framework where everything there is to know, including prices, is implicitly determined at no cost. In this model, prices adjust instantaneously to ensure that markets clear. Moreover, every commodity in the model is perfectly and completely owned, and therefore ownership never varies in its strength and never matters. As a consequence, economists naturally default to thinking of prices as the sole means by which resources are allocated.

It is easy to see, however, that most commodities are not allocated by price alone, even in industries we think of as price-taking competitive. Waiting in line for restaurants, movies, or at the grocery store during the afternoon rush is common, and so allocation is partly determined by time. Waiting also takes

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place in the form of unemployment of both labor and capital, and wages and rental rates do not quickly adjust to eliminate the excess supply. Prices are not used to allocate places for cars on the highway, patients in an emergency room, grades in a classroom, ambulances for acute illness, police to a crime scene, verdicts from a judge, or fishing on the high seas. Even the simple purchase of oranges involves more than price alone; buyers exert some effort to examine the fruit in order to take the good ones and leave the poorer ones for others. And, within firms and families, direction – rather than prices – is the norm. Once we consider the actual *forms* of allocation, we realize that nothing is allocated purely by price.

When nothing is allocated purely and freely by price, then nothing is ever perfectly and completely owned. Every line of people announces that some valuable good of the seller is in the public domain and is now being captured by those willing to wait. Every time an orange is squeezed and taken, the consumer reveals that that particular fruit is of high quality and underpriced; therefore, the seller is not the full owner of that orange because he is unable to capture its full value.

Economists have been aware of this shortcoming of the neoclassical model as a description of reality for a long time, but many attempts to fix it have not been successful. Early attempts to deal with matters of alternatives to the price mechanism were considered an advanced subtopic in "price theory." This often amounted to dealing with production functions and altering cost-function models of the firm. It was not just *ad hoc* tinkering, but it treated ownership and its costs as a "black box," described by a simple technology or cost parameter. Within this framework, "better ownership" or "lower transaction costs" simply amounted to a shift in a demand or supply curve or a reduction in some type of friction cost. In these models, a reduction in, say trading costs, simply increased the amount of trade and reduced price spreads. There is nothing wrong with these "law of demand" or "tax analysis" applications; however, they hardly deal with the role of ownership. This type of framework does not look inside the box.

A more sophisticated, but also limited, means of addressing issues of ownership has been to consider only matters of *legal* ownership. Indeed, for most working in the area of "property rights" – especially in the growing empirical literature – ownership is often synonymous with legal rights.[1] In such

[1] This old and dominant tradition in economics possibly goes all the way back to Adam Smith who claimed in the *Wealth of Nations* that the sovereign's duty was to protect citizens from injustice and oppression by others, that is, enforce legal rights. Coase (1960) examined social costs in terms of legal liability rules that were synonymous with an allocation of ownership rights. Calabresi and Melamed (1972) understood ownership rights as either legal property rules or legal liability rules. Hernando De Soto (2000) popularized the idea that individual rights meant rights that are formal, legal, and backed by the state. Hodgson (2015) argued that fully developed legal systems that codify individual property rights are the source of growth and that creating legal property over debt was the source of growth after 1800. Even the most recent research treats property rights as legal rights. Behrer, Glaeser, and Shleifer (2021) consider

cases, "more and better ownership" often means strong state enforcement of legal rights; well-defined constitutions, titling systems, and other explicit delineations of legal authority; limits on eminent domain and restrictions on the powers of the state; and well-functioning courts, and legal systems of civil dispute resolution. These institutional features of property are extremely important; however, they capture only part of what ownership means, and they are ultimately institutional supports for the type of ownership that actually matters – economic property rights.

Over time, attempts to deal with the question of ownership and "property rights" led to the emergence of various subfields such as "law and economics," "contract theory," "organization theory," and "new institutional economics." On the one hand, work in these fields, as well as in other social sciences, recognized the presence of inconsistencies and problems with neoclassical modeling patchwork related to ownership. Considerable progress has been made in explicitly exploring the effects of positive information costs and the resulting positive transaction costs on behavior and on ownership and organization.[2] On the other hand, as a result of these different historical paths, a systematic body of knowledge to handle this problem is still lacking. Ideas, definitions, and models are often disparate or duplications, and there remains confusion over the relationship between fundamental concepts. It is common to see terms like "property," "governance," "institutions," or "organizations" being used without common meaning, theoretical foundations, or conceptual connection. This book addresses these issues and provides theoretical and operational foundations to the theory of economic property rights.

In doing so, we explain why the neoclassical model necessarily fails as a framework for understanding and explaining non-price allocations. We argue that three fundamental concepts – costly information, imperfect property rights, and positive transaction costs – are necessary and sufficient for a theory of organization and resource allocation. We show how these ideas clarify what lies behind other economic concepts like agency, rent seeking, shirking, moral hazard, adverse selection, etc. and reveal the common features they have. We also provide a property rights understanding of institutions and link this to the concept of economic property rights. This provides a missing link in the understanding of why institutions matter so much for exchange, production, and growth. In the end, we generate an operational model of the maximizing pattern of ownership, and this is able to explain the behavior that is generally inconsistent with the neoclassical model.

We begin in this chapter, however, with a discussion of the Coase Theorem. The Coase Theorem is well known, and a long trail of academic work exists

enhancing justice as equivalent to "securing property rights." For a survey of this particular literature, see Mijiyawa (2013).

[2] This literature is enormous and imposing, and we attempt no survey of it. Some surveys include Eggertsson (1990), Williamson and Masten (1999), Ostrom (2000), Mehrdad (2011), Locke (2013), and Alston *et al.* (2018).

that documents its history; some of it is critical of its various elements, and some of it defends its logic and conclusions. We, however, only focus on its logical implication for understanding property rights.[3] We are in agreement with Coase, who strongly believed that the Coase Theorem does not describe reality nor is it a useful policy tool.[4] Rather, the Coase Theorem makes it clear that the usual assumptions of the neoclassical model can *never* address the question of the organization of exchange and production, *and* it points to the source of this failure.

THE COASE THEOREM

Coase was an intuitive economist. In his 1959 article on the US Federal Communication Commission he pointed out, though practically almost in passing, that assets will be employed in their most valued use regardless of who owns them; that is, the allocation of assets is independent of ownership. Of all things, he illustrated the case via the use of a cave:

> Whether the cave is used for storing bank records, as a natural gas reservoir, or for growing mushrooms depends, not on the law of property, but on whether the bank, the natural gas corporation, or the mushroom concern will pay the most in order to be able to use the cave. (Coase 1959, p. 25)

In this passage, he subtly hints at a distinction between legal rights and economic rights – a distinction we will elaborate on in Chapter 2. It is worthwhile pointing out that when Coase brings up "law of property," he had in mind a matter of legal ownership.[5] Coase, like many others, thought of property as a "bundle of rights" assigned by law (either statutory or common law), and so Coase was stating that the pattern of legal ownership over the use of the cave is irrelevant to how it would be used. When the cave is owned, it gets used in a way that maximizes its value, and that method does not depend on who owns it when there is "... clear delimitation of rights" (1959, p. 25).

This statement struck many economists at the time as wrong or at best incomplete. Of course ownership matters! Coase famously presented his claim to a group of University of Chicago economists at the home of Aaron

[3] Medema, the world's expert on the history of the Coase Theorem, has extensively documented it in Medema (2020, 2021).

[4] In the introduction to his selected works and in reference to why he wrote what was to become known as the Coase Theorem, Coase states:

> My aim in so doing was not to describe what life would be like in such a world but to provide a simple setting in which to develop the analysis and, what was even more important, to make clear the fundamental role which transaction costs do, and should, play in the fashioning of the institutions which make up the economic system. (1988, p. 13)

[5] For Coase, legal ownership was all or nothing. He did not entertain the notion that something could be imperfectly owned, a critical distinction central to this book.

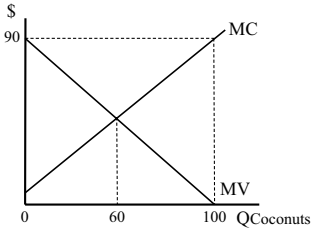

FIGURE 1.1 Ownership and optimal allocation

Director.[6] Over the course of an evening, Coase defended himself against the likes of George Stigler and Milton Friedman, and eventually won them over. This was followed by the publication of the *Problem of Social Cost*, which despite its flaws remains a watershed – though mostly misunderstood – paper in the development of the economics of property rights and transaction costs.

The first four sections of Coase's 1960 paper on social costs generated the result known as the "Coase Theorem." In this chapter, we explore this theorem and consider what it means for a theory of property rights. For the moment, it is sufficient for our purpose to recognize Coase's statements of "clear delimitation of rights" and "the pricing system works smoothly (strictly this means that the operation of a pricing system is without cost)" (Coase 1960, p. 2) to mean a world described by the neoclassical model.

Given that Coase's claim regarding the cave's use was made in the context of the neoclassical model (where all things are freely known), it is ironic that so many neoclassical economists who made the same assumption objected to it. Consider Figure 1.1, which is a stylized marginal value and marginal cost graph of coconuts for a fellow named Robinson Crusoe who lives alone, not in a cave, but on a desert island. Crusoe's marginal value of coconuts slopes downward, and as he collects them he has less time remaining for other activities, which raises the marginal value of other activities, making his marginal cost of collecting coconuts upward sloping. In this circumstance, Crusoe "owns" everything: his labor, the coconuts he collects, the other goods he consumes, his thoughts, and on and on. As the only person and sole owner on the island, Crusoe receives all of the benefits of his actions, and he bears all of the costs. Given his preferences, the optimal thing for Crusoe to do is to collect sixty coconuts where his marginal value equals his marginal cost.

Now suppose a second person named Friday joins Crusoe on the island, and suppose that Friday doesn't eat coconuts, but he (and not Crusoe) owns and collects them (at the same marginal cost). Again, it comes as no surprise that since Crusoe wants coconuts, he will engage in trade with Friday – after all, the price system on the island is assumed to work without cost. This trade takes place until the marginal conditions are equal, and once again the optimal

[6] This tale is told by Coase in Kitch (1983). See also McCloskey (1998) and Medema (2021).

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number of coconuts (60) are collected and traded.[7] As long as the willingness of Crusoe to pay is greater than Friday's marginal costs, it is in the interests of both to interact and trade with each other. Whether Crusoe "trades with himself" or trades with Friday is irrelevant. So far, so good.

However, following the Pigouvian tradition, the economics profession went astray when the situation differed only slightly. Suppose we go back to the original case where Crusoe is collecting and eating his own coconuts, but now the cost of collection (for some reason) is borne by Friday; that is, Crusoe is in a position to exert an "externality" on Friday. Traditionally, it was claimed that Crusoe would now collect and consume 100 coconuts because seemingly his marginal costs of collection are zero to him. In this case, we could think of Crusoe as not being liable for the costs he inflicts on Friday. Alternatively, we can think of Crusoe owning the right to collect as many coconuts as he wants without regard for others. Either way, it looks like the 100 coconuts being collected is different from the first two cases presented, and 100 is too many in terms of social welfare.

Coase's economic intuition allowed him to see through this problem and realize that just because Crusoe incurred no *expenditure* on the collection of coconuts, it did not mean that Crusoe ultimately did not bear the *costs* of collection. Just because the costs are borne by somebody else doesn't mean the costs do not exist. At 100 coconuts produced, the marginal cost of $90 to Friday exceeds the marginal value of zero to Crusoe, and so (just as in the case where Friday owned the trees) there are gains from trade to be realized. Friday can now pay Crusoe to reduce his production, and the gains from trade are maximized when the same sixty coconuts are collected. Friday's offer to pay for reduced collection is an opportunity cost to Crusoe. In this way, Friday "internalizes" the externality of Crusoe to achieve the optimal allocation.

Coase went on to point out that in general, had the tables been turned in terms of who held the ownership and liability, the outcome still would have been the same. For example, if Friday was able to dictate that Crusoe could not collect coconuts (or if Crusoe was liable for the harm caused), the interaction doesn't stop there. As Coase put it, the problem is reciprocal: Crusoe's willingness to pay for coconuts is a cost to Friday in placing the restriction on Crusoe. Since there remains gains from trade, the two exploit the situation, and again, the outcome is the same.

In each of the four cases just considered, the distribution of ownership varied but the total number of coconuts collected remained the same. The final allocation of goods did not depend on the number of people, how the costs and benefits were distributed, or if one person could initially select a specific quantity of collection (like 100 or 0). All that mattered were the economic

[7] A common objection is that Crusoe and Friday might haggle over the gains from trade, and therefore the optimal allocation might not arise. However, since prices are costless and apply to everything, the division of the gains are also priced and there is no bilateral monopoly problem (Allen 1997).

primitives: the value placed on coconuts and other goods and the costs of collecting them – as long as the "market worked freely." This independence result is called the "Coase Theorem," and it hinges on Coase's condition of "the operation of a pricing system is without cost." For the moment, we will assert this condition is equivalent to "zero transaction costs" and state the Coase Theorem as,

Coase Theorem: *When transaction costs are zero, the allocation of resources is independent of the distribution of property rights.*

In the context of the coconuts, this could be stated, "when the price system operates without cost the number of coconuts collected doesn't depend on who owns them." But it must be recognized that the general definition hides a great deal of conceptual complexity. It clearly rests on a precise definitional understanding of "transaction costs" and "property rights," and these will be dealt with in Chapters 2 and 3. For the moment, however, we put aside these issues and discuss the significance of Coase's idea for a theory of ownership.

THE COASE THEOREM: AN IDEA, NOT A REALITY

The name "Coase Theorem" is attributed to George Stigler. In highlighting this idea, Stigler (and many others) implied that it was a useful idea to understand reality, and that it was, in fact, an operational idea. It is nothing of this sort, however, because we do not live in a world of zero transaction costs.

Coase was appalled that his name was associated with the supposed applicability of this idea to the real world. To do so takes the idea out of the context in which it was written. In 1988, Coase wrote:

> The extensive discussion ... has concentrated almost entirely on the "Coase Theorem," a proposition about the world of zero transaction costs. ... the world of modern economic analysis. (p. 15) ... The world of zero transaction costs has often been described as a Coasean world. Nothing could be further from the truth. It is the world of modern economic theory, one which I was hoping to persuade economists to leave. (p. 174)

Coase was not articulating this particular property of the neoclassical model because he thought it was true of the world or a policy goal to aspire to. Rather, Coase was pointing out a *failure* of the neoclassical model. To him the idea that the distribution of ownership should be of no consequence in reality was absurd. Coase's point in his opening sections *Social Cost* was that because one type of ownership is as good as another in the neoclassical model, that model is *incapable* of explaining the distribution, or pattern, of ownership.

The Coase Theorem depends on the assumption of zero transaction costs. In 1960, Coase had stated that his argument rested on the assumption that the price system "worked without cost." Years later, he would acknowledge that his idea concerned a situation where "transaction costs, explicitly or implicitly, are assumed to be zero" (1988, p. 15). Therefore, transaction costs are a *necessary* component for any theory of ownership. If they are zero, ownership

doesn't matter; if they are positive, ownership does matter. Hence, the real point of the Coase Theorem is a methodological one: It tells us the critical element of a theory of ownership: the necessity of positive transaction costs.[8]

There have been many attempts to "test" the Coase Theorem. These take the form of examining whether or not any changes in some particular outcome arose based on changes in some type of ownership structure. These tests have examined, among other things, whether different farm contracts lead to the same level of crop production; whether payment bonuses going to employers doing the hiring leads to different levels of employment compared to cases where the bonus goes to the worker accepting the job; or whether free agency makes any difference in which teams professional athletes play for. Other types of tests have looked at whether neighbors bargain with each other when cattle go astray and destroy crops, or whether beekeepers and orchard owners are even able to contract with one another given the double externality of pollination and honey production. Sometimes results are found that are supposedly consistent with the Coase Theorem, but most of the time it is rejected (Bertrand 2019).

Such testing misses the point – the Coase Theorem is not testable. To test the idea, one would have to find a situation where transaction costs are zero. This never happens in the real world where transaction costs are always positive. Like the mathematical concept of infinity, the Coase Theorem is an idea, it is not a reality. But also like infinity, it is a useful idea.

THE NEOCLASSICAL PROBLEM

The Coase Theorem's usefulness comes from directing our attention to the problem caused by positive transaction costs. According to the Coase Theorem, when transaction costs are zero, resource allocation is independent of the allocation of property rights. The corollary of the Coase Theorem is that when transaction costs are positive, then the allocation of resources and subsequent levels of production do depend on the allocation of property rights. We will argue that the real world is characterized by the presence of positive transaction costs, and therefore the allocation of property rights in the world we live in is significant and has real consequences.

Despite not having defined transaction costs yet, let us consider some of the features of the neoclassical world and the role of prices. In the neoclassical model, prices are determined without cost and suffice for all allocation problems. These prices are determined by a fictional volunteer: the "Walrasian auctioneer," who instantly and perfectly sets prices to clear markets. However, in the real world, no such auctioneer exists and exchange normally requires additional costs to determine prices. Costly determination of prices means that often non-price allocation methods are used with (or instead of) prices, and

[8] Many have thought this point only holds if changes in income are ignored. This is flawed and results from an inadequate understanding of transaction costs. See Allen (1997).

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these methods often require corresponding organizations to function. But these organizations are also costly!

When equilibrium is disturbed, a new equilibrium is instantaneously attained under the neoclassical model because, given the volunteer auctioneer, the cost of adjustment – another feature of the neoclassical world – is zero. In addition, neoclassical commodities are made up of strictly identical specimens, people are fully informed regarding the exchanged commodities, the terms of trade are always perfectly clear, and trade is instantaneous. As a result, neither a buyer nor a seller ever has to make any effort or incur any cost of operating in the market other than for the buyer to dispense the appropriate money payment and for the seller to cede the appropriate units of the good.[9] Prices alone always suffice to allocate resources to their highest-value uses, even as conditions change.

However, in the real world, when equilibrium is disturbed, a price adjustment is not expected to be instantaneous. As long as prices are not fully adjusted to new conditions, the quantities demanded are not, in general, equal to those supplied. Any excess demand or supply means that some wealth can be captured by the transacting parties. Since the level to which this happens depends on the distribution of ownership, again, resource allocation is affected.

Where transaction costs are positive, a whole array of activities are required to effect exchange; money with which to pay the pecuniary price is, of course, helpful but definitely not sufficient. Because of the complexity of exchange, maximizing parties have many opportunities to act so as to gain from exploiting the discrepancy between the price actually charged and the one that would have achieved equilibrium, and their actions yield the new equilibrium.

To illustrate, consider some of the activities required to generate purchases in stores. Buyers must decide, among other things, where to shop, whether to shop during the busiest hours (when, at the going price, the quantity demanded exceeds that supplied), or at off-peak times (when the reverse is true). They must then obtain all sorts of information: identify the location of the desired merchandise; determine by themselves or with the help of the sellers if the items they seek are available; determine if they are of the appropriate quality; select the specimens they think are best; ascertain the price, over which they may haggle; and make payment, not necessarily in cash. In addition, they may have to take care of warranties and, on occasion, exchange the merchandise. Completing purchases, then, involves an elaborate set of operations. More important, these operations are costly, and they can be altered. For instance, at any particular time, a buyer may exercise return privileges more vigorously and a seller may be out of an item that is usually in plentiful supply, or may unexpectedly help carry the merchandise to a customer's car.

[9] This also implies that there can be no theft in the neoclassical model, either in terms of a small scale robbery or indeed a large scale war.

When the market-clearing price changes but the nominal price does not, buyers and sellers may still adjust in many ways. For example, a seller who is in control of the quality of the merchandise or of the number of cashiers per customer will adjust along such margins, especially the latter. Regarding the second margin, supermarkets often reduce the speed of service at rush hours. In general, sellers who choose not to adjust prices or who are prevented from adjusting them may still adjust along these and other margins. Given wealth maximization, the margins along which they will adjust and the corresponding effects on resource allocation are predictable. Despite these adjustments, it is possible to determine how equilibrium is attained. The parties will continue to adjust as long as they can realize net gains from the adjustments. Equilibrium is reached when no more such adjustments are available.

The point is, we can easily see that the real world is not characterized by a price system that works for free, either in terms of setting prices or adjusting prices to changing conditions. Costly determination of prices means that alternative methods of allocation might be used, and each alternative may lead to different levels of production and wealth. Once, the Pandora's box of positive transaction costs is opened, the Coase Theorem ceases to apply.

CONCLUSION

At the end of the day, Coase's analysis of a zero transaction cost world is intended as a *reductio ad absurdum*. That is, the implications of zero transaction costs are absurd. In such a world, any conflict can be handled equally well by any distribution of rights. Therefore, no distribution of rights has any purpose. Which means also that no norms, customs, laws, firms, organizations, or institutions have any purpose either. Without a purpose, such things should not even exist, let alone exist in any sort of systematic fashion.

Since these things clearly matter, transaction costs must be positive and they must provide the essential ingredient in any explanation of the allocation of resources and the formation of private orderings, organizations, and institutions. This fundamental conclusion is the essence of Coase's work, and therefore, the understanding of "transaction costs" and their relationship to "property rights" is the key to understanding the Coase Theorem and any theory of organization.[10] All of this is missed when the focus is on inappropriately applying the Coase Theorem to the real world.

Although the neoclassical model is often extended beyond the analysis of formal markets, it remains true that it can only address questions it was *designed for*; namely the study of quantities and prices. In the same way

[10] We do not want to minimize the other elements of the *Social Cost* paper. Coase's treatment of externalities and the incoherence of Pigouvian taxation are important; however, they simply are not germane to our analysis of property rights.

that the neoclassical model fails to explain *how* market exchange and production take place, it also fails to explain the organization of non-market sector behavior.

Moreover, the analysis of positive transaction costs and of property rights is not restricted to the market sector or market economies; on the contrary, it applies everywhere. Indeed, although a property rights analysis is often applied to the capitalist market system only, it is most useful (and the neoclassical model is least useful) in systems in which market prices are least used. As a result, examples in this book will often relate to governments. Governments clearly play a major role with regard to property rights, and they hold rights to various assets and directly participate in economic activities. We will examine other areas of non-market activity as well.