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WHAT ARE TRANSACTION COSTS?

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ABSTRACT

To the uninitiated, transaction costs are often mysterious at best and dubious at worst. Even among economists who use the term often, there are misunderstandings as to what transaction costs actually are. I argue that much of the transaction cost "image" is caused by the lack of a workable definition. In this essay, I define transaction costs as the cost of establishing and maintaining property rights. This definition illustrates that these costs arise out of more than information costs, that they are not just like taxes, and that they are necessary to explain any distribution of property rights.

I. INTRODUCTION

While economics is young compared to physics or chemistry, the branch of economics loosely called "transaction cost economics" is in its infancy. This youth may account for the clutter of ambiguous

terms, the absence of clear relationships, and the doubt that any real substance exists in the literature. But understandable or not, the muddle is frustrating. Consider the following terminology: agency costs, opportunism, bonding costs, monitoring costs, information costs, information impactedness, information asymmetry, signaling, sorting, measurement costs, enforcement costs, rent seeking, bounded rationality, shirking, property rights, moral hazard, internalization, transactional failures, self-selection, and inter/intraorganizational. Do these words, which encompass only a fraction of the terms used in the field, refer to the same phenomenon? Do any of them have operational content? Are they all "transaction costs" or something else entirely?

Williamson has charged, "there are too many degrees of freedom [in transaction costs]; the concept wants for definition."[1] In this essay, I take up Williamson's challenge and attempt to clear the air around the term transaction cost. I argue that, given the proper breathing room, the phrase is interesting and very much worth keeping alive. Although my official agenda centers on defining transaction costs, I spend some time arguing that those who originally wrote on the subject had similar implicit definitions in mind, and I examine the conditions necessary for a transaction cost problem to arise. Perhaps most important, I attempt to show why my definition is useful. Though this is not the first attempt to corner the elusive term, it may be the most explicit.[2]

I suspect that if one were to ask any economist what transaction costs are, most would claim to know. They would certainly be able to tell you that transaction costs are the costs of transacting. If pressed further, most could probably cite examples or perhaps identify some necessary conditions, as Alchian does in this example:

> (transaction) costs arise because of difficulties of communication, information collation, contract stipulation, ambiguities of entitlements or rights that might be traded. A host of activities are encompassed by the rubric 'transaction costs.'[3]

Such responses, however, do not define transaction costs. The literature on transaction costs is replete with papers which use the term and provide examples, but which never pause to define the phrase. Cheung has boldly claimed that "transaction costs and contracting will someday be regarded as a basis for analysis rivaling

marginalism in neoclassical economics."[4] Yet, one can hardly judge his prediction, since he fails to define what these costs are. In searching for a definition of transaction costs, the guiding principle should be what distinguishes these costs from all others. For if there is no distinction, there can be no difference in either analysis or in implications.

II. DEFINING TRANSACTION COSTS

The road to defining transaction costs requires a small detour to define the notion of property rights. Property rights, simply put, are one's *ability* to exercise choices over a good. Cheung (1970) was perhaps the first economist to argue that economic property rights refer to one's ability to transfer, to exclude others, and to derive income or utility from a good. Economic property rights are closely related to legal ownership in that if you have one right you usually have the other, but this is not always the case. I may legally own my car, for example, while at this very moment the wheel is in the hands of a thief.[5] But more important for the purpose of this paper are the following three points: (1) in the absence of property rights, there are no gains from trade;[6] (2) when property rights are complete, all gains from trade are maximized and the distribution of income is determined by the initial assignment of rights;[7] and (3) there is a continuum between (1) and (2)—that is, as property rights become better defined, the gains from trade increase.

When property rights are perfect, no unauthorized transfers in rights can take place (by definition), and as a result, no effort is made to steal or protect those rights.[8] When property rights are incomplete, wealth maximizing individuals will try to further establish their property rights, and resources will be devoted toward their capture: some rights may be stolen when the opportunity arises, and some resources will be used for protection. Thus, people exchange to generate wealth, but in the process, they must establish and maintain rights over their wealth. This leads to a definition of transaction costs.

> **Transaction costs** are the resources used to establish and maintain property rights. They include the resources used to protect and capture (appropriate without permission) property rights, plus any deadweight costs that result from any potential or real protecting and capturing.

Though it is difficult to pin down in the literature an official definition of transaction costs, this one is likely to exclude some behavior which is commonly considered to fall under transaction costs. The most widely accepted, though tacit, definition is that transaction costs are all costs that arise in an exchange. The major distinction between my definition and this more general one is the same as the distinction between costs arising from scarcity alone and the cost of protecting oneself from another. My definition has two advantages over the tacit one. First, it takes the emphasis away from frictional costs that are too easily confused with taxes or transportation charges. Frictional costs, such as weighing, are efforts to establish property rights, but so are other subtle forms of behavior, such as changing the structure of the contract. Second, by using a conceptual distinction, my definition forces clarification of commonly used terms such as "haggling" and "negotiation." To the extent that bargaining, haggling, and holdups are attempts to improve one's property rights, then by this definition they are transaction costs. Any frictional costs that are associated only with production (e.g., transportation costs) are not transaction costs.

Given this definition, transaction costs will arise in three situations. First, they obviously exist in coerced exchanges—better known as theft. The cost of locks, guard dogs, and hand guns, when used to deter a thief, and the cost of picks, mace, and more hand guns, when used to rob, are transaction costs. Likewise, all efforts to prevent or take advantage of appropriable rents, as in the famous Fisher body and General Motors case, are transaction costs.[9] Second, transaction costs arise in efforts to prevent or take advantage of free riding, as in the case of any public good. Finally, and most importantly, transaction costs arise in *all other exchanges*. In every volunteer exchange, an effort is made to capture the wealth of others and to prevent one's own wealth from being taken. Transaction costs are ubiquitous.

A.   Similar Notions of Transaction Costs

It requires some arrogance to suggest a definition for a term that has been used by great economists for over fifty years. In defining transaction costs, however, I am mostly organizing existing ideas in a more coherent and unified fashion. The value of this paper, as one transaction cost writer once said, "will therefore mainly depend upon its contribution to clear thinking."[10] Although my definition may seem narrow to some, I believe it is consistent with the definitions implicit in many major works involving transaction costs. In his 1960 masterpiece, Coase never defined transaction costs, but he clearly had the notion of establishing proper ownership in mind when he wrote:

> 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 ... to conduct negotiations ... to undertake the inspection needed to make sure that the terms of the contract are being observed ... (1971, p. 495).

As already noted, Alchian also suggested that capturing wealth and preventing its capture are at the heart of transaction costs. Other writers as well have come close to definitions like the one presented in this paper.

Cheung, for example, wrote:

> Included in the general term "contracting cost" are the costs of negotiating and the costs of enforcing the stipulations of the contract (1969, p. 16).

McManus wrote:

> I define the cost of enforcement to be the resource cost incurred to detect violations of behavior constraints (1975, p. 336).

Jensen and Meckling concluded:

> We define *agency costs* as the sum of:
> 1.   the monitoring expenditures by the principal,
> 2.   the bonding expenditures by the agent,
> 3.   the residual loss (1976, p. 308).

Goldberg defined transaction costs as:

> the difference between what could have been produced ... and what actually happened.... they are the opportunity cost of the world not being as nice a place as it otherwise might be (1989, p. 22).

Barzel, who perhaps comes closest to my definition, wrote:

> What is costly, however, is not the cheating *per se*; rather, resources are devoted to cheating and to its prevention which sharply distinguishes the outcome from that obtained in the Walrasian world (1985, p. 8).

And finally, Alchian and Woodward provided this interpretation of Williamson:

> transaction cost is more than the cost of finding other people, ...; it includes, almost to the extent of ignoring the former, the costs incurred in making contracts enforceable by law or by self-enforcement, and extends to the precautions against potential expropriation... (1988, p. 66).

In most of these passages, the term, transaction cost, is conspicuously absent. The words used in its place—inspection, enforcing, policing, measurement—all hint at the protection of property rights and implicitly recognize the threat of appropriation or theft. But whether this nomenclature causes or is caused by the misunderstanding of transaction costs is moot. The point is that it would be helpful to have one term to describe the costs associated with opportunities that arise in every exchange to gain at another's expense.

III. THE CAUSES OF TRANSACTION COSTS

The underlying theme in most attempts at explaining transaction costs is the notion of ignorance. Negotiation, fraud, communication, and contract stipulation all come about because knowledge is incomplete and not common. Though its importance is recognized by everyone, the role of information leads to a great deal of confusion in the discussion of transaction costs. I want to be very explicit in stating that information costs are a prerequisite to transaction costs and that the analysis must *start* with some form of the following assumption.[11]

Information regarding the number and levels of each good's attributes is not free.

The immediate implication is that information costs are a *necessary* condition for a transaction cost problem. Information costs, however, are not always transaction costs. For example, those costs incurred by acquiring knowledge over a good or attribute that is *independent* of an exchange—that is, costs which may take place without an exchange occurring—are information costs, not transaction costs. The acts of finding a trading partner, determining

the correct good for a particular need, or searching for the "best price" are information costs, not transaction costs. All kinds of behavior seems to depend on information costs and not transaction costs. Unemployment, search, and clearance sales are all events that only require costly information.[12]

It is necessary, however, to do more than assume costly information in order to generate transaction costs, because costly information merely makes for risky events. An additional assumption is required that enhances the problem of costly information.

Goods are not simple, but are vectors of variable *and* alterable *attributes.*

The distinction between variability and alternability can be thought of as those changes brought about by nature and by man. Consider the taxonomy of Table 1. God and the speed of light, for example, do not vary in nature, nor are they alterable by man. The weather changes constantly, but despite accusations against the Russians and rain dancers, weather storms are probably independent of human manipulation. It is difficult to imagine something that does not vary in nature but that can be altered by man—although Gertrude Stein must have thought a rose fit this category.

The distinction is important. When goods are both variable and alterable (and, of course, information is not free), then cheating becomes possible. Consider the purchase of an apple. Suppose apples never varied in nature, but could be manipulated in some way—for example, hollowing out the apple and filling it with foam. Could a merchant sell a foam-filled apple and not be accused of cheating? No, because any change in the quality of the apple is, by assumption, blamed on the seller. Likewise, if apples came in all different shapes, sizes, and insides, but were impossible to alter, then no suspicion of

Table 1.

	Alterable	Non-alterable
Variable	Everything else	Earthquakes Hurricanes
Non-variable	A rose is a rose	God

cheating would exist. All bad apples would be attributed to nature. When both conditions exist, that is, when a bad apple may be produced by the weather or the seller—only then can cheating occur without detection. That it is so difficult to think of examples of goods that are non-variable or non-alterable tends to imply that the possibilities of cheating, and therefore transaction costs, are ubiquitous. When a good contains attributes that are either alterable or variable, but does not contain both, then transaction costs are zero or negligible. Both alterability and variability are needed in order for transaction costs to arise, because these costs stem from the inability to attribute changes in product quality directly to random events or non-random exploitation.[13,14]

A. Bounded Rationality, Guile, and Asymmetric Information

I have argued that the necessary conditions for the existence of transaction costs are costly information and the variability and alterability of any good's attributes. Although few definitions of transaction costs can be found in the literature, one frequently finds assumptions for justifying their existence that parallel the notion of costly information, variability, and alterability. To the extent that these assumptions are redundant, the case can be made that one set should be settled on for clarity and economy. To the extent that they are different, they should be compared to determine which is most insightful.

Williamson, who has written more on transaction cost methodology that perhaps anyone else, begins not only with costly information but with Simon's notion of bounded rationality. Individuals are simply incapable of comprehending all information that is available to them, and as a result are ignorant of many things. In conjunction with this, Williamson adds the notion of maximization with guile. Although these two behavioral assumptions parallel the two assumptions made in this paper, maximization with guile is only possible when goods are alterable and variable. If only one of these conditions held (suppose goods were only alterable) it would not matter how cunning and deceitful people were—any failure to trade what is expected would be attributed to the seller, and therefore, any cheating would be detected.

Another justification for transaction costs was first put forward by Ackerlof (1970). With asymmetric information, information is not only costly, but more costly for some to acquire than others. Efforts to use advantages in information lead to transaction costs. Again, in order for the asymmetric argument to work one must assume that the quality of goods is both uncertain and subject to manipulations by humans. For example, suppose Albert knows more about an apple he is trading to Beatrice, and further, suppose apples do not vary in nature. If Beatrice knows what a generic apple is, then Albert cannot sell a low quality apple without detection. If Beatrice has no idea what an apple is, then the apple might as well be variable because Beatrice cannot attribute a bad apple to Albert. If Beatrice knows nothing of apples but learns about them over time, or if the apple is unalterable, then the asymmetric problem will be short-lived. In order to have transaction costs that continually arise, goods must be variable and alterable. Maximization with guile and asymmetric information both require this more primitive assumption.

IV. THE BENEFITS OF DEFINITION

A definition has value only to the extent it is useful. I have made the case that defining transaction costs as the cost of establishing property rights comes close to what Coase and others had in mind. But what of it? With this definition it is easier to understand the plethora of terminology that currently exists in the transaction cost literature. It is also possible to determine what costs are not transaction costs, and we can use this definition as the basis for theories of the firm, contracts, and general organization.

A. Clearing the Air

The introduction noted various terminologies, the meaning of which can now be clarified. Information costs are a necessary condition for a transaction cost, but they are not always transaction costs. Robinson Crusoe bore many information costs, but dealt with transaction costs only when Friday showed up. Information impactedness and opportunism are really synonymous for asymmetric information and maximization with guile; they are possible conditions for a transaction cost to arise, but they are not transaction costs. Shirking, moral hazard, adverse selection, rent seeking, sorting, signaling, and the like describe methods of exploiting

poorly defined property rights; they are not transaction costs. Although the resources used to engage in and prevent shirking, moral hazard, adverse selection, rent seeking, etc., are transaction costs. Measurement costs, enforcement costs, bonding costs, agency costs, monitoring costs, policing costs, and the like are different forms of establishing property rights, and are, therefore, all transaction costs. In many instances, it may be more illuminating to use these terms rather than the general rubric of transaction cost, but some of these terms are redundant or misleading, and are probably best left unused. For example, the term "opportunism" is just a descriptive way of saying that individuals maximize, but due to its pejorative connotation, it is often used in ways that imply some people are cheaters while others are not.

Market Failure and Second Best

Different branches of economics have different nomenclatures, and some of this language describes transaction cost issues. The first theorem of Welfare Economics states that when all markets exist, outcomes are feasible, and each agent is maximized in his budget set, then the equilibrium is Pareto efficient. It is understood that in a Walrasian equilibrium all inputs and outputs are owned completely and costlessly; that is, ownership is complete and transaction costs are zero. When markets do not exist, because of public goods, externalities, or other nonconvexities, it is common to say that market failure exists. A less negative description would simply recognize that property rights are incomplete and that transaction costs are positive. It is not that the market "failed," but rather that under the circumstances of positive transaction costs, a different type of allocation mechanism is required. As Coase showed, externalities and the like vanish when transaction costs are zero.

The theory of "second best" provides another example of positive transaction costs. When one market has distortions due to state intervention or "market failure," the efficient allocation of goods in other markets will not be the "first-best" marginal conditions of the Arrow-Debru world. Second-best outcomes, however, are again manifestations of positive transaction costs. Many input and output margins are not priced because the costs of enforcing ownership and trading on those margins are too great. When margins are left

unpriced, however, they are exploited; costly distortions result, and the outcomes are second best.

My point here is that many issues in economics are fundamentally transaction cost problems in that if transaction costs were zero (as defined here), these issues would not exist. Thus, another benefit to defining transaction costs is that it allows for the examination of various issues at a more basic level.

B.   Transaction Costs Are Not Just Like Taxes

Most economists are introduced to transaction costs through a textbook discussion of the Coase Theorem. Often couched between sections on public goods and externalities, students are boldly warned that the powerful result only holds for *zero transaction costs.* Usually there is no mention of what these costs are—they just exist in a big black box.[15]

Perhaps because of this black box introduction, two common post-Coase interpretations of transaction costs exist. First, transaction costs are often thought of in an all-or-nothing context; they either matter and are prohibitive or they are negligible and assumed to be zero. Second, transaction costs are often modeled to include only the rancher's effort to walk over to the farmer's house, the time and paperwork needed to reach an agreement, and the effort of walking back—costs that simply tax the transaction. Such an approach is misleading, because it creates the impression that transaction costs are equivalent to simple taxes and are, therefore, well understood. When transaction costs are treated as a tax, the analysis has no capacity for explaining the existence of specific contractual relationships—an excellent reason for looking at transaction costs in the first place.

The identification of transaction costs as a tax permeates economics. Hirshleifer (1980), for example, was careful to point out that if transaction costs are to have any significance, they cannot *just* mean "the cost of transacting." But after presenting the classic graphic supply and demand analysis of a tax he concludes,[16]

But a more generalized interpretation of the diagram is possible. We can think of it as representing the effects of *any* proportional transaction cost, not just a tax (1980, p. 237).

Along the same lines, Neihans states:

> [transaction costs] may be formalized in a 'transaction function' analogous
> to a production function.... In this respect transaction costs are analytically
> analogous to transportation costs ... (1987, p. 676).

Another example of a tax dressed in transaction cost clothing is the literature on the transaction demand for money. Here, a brokerage fee acts as a friction to influence cash balances. Although walking to the bank is costly, I quibble with calling a frictional tax a transaction cost.[17]

Associating transaction costs with taxes is just plain wrong. It implies transaction costs are simple, easy to observe, and that they influence only the *level* of trading. When transaction costs are equivalent to taxes, then they are simply ordinary costs that enter the cost function like all others. Further, in the conventional tax analogy, taxes are perfectly enforced—there is no tax evasion, smuggling, or change in the quality of goods as a result of the tax. In this sense, transaction costs are the opposite of a conventional tax. The problem with viewing transaction costs as just a tax is made clear in the following discussion on the Coase Theorem.

C.   Transaction Costs and the Coase Theorem

Coase (1960) argued that when transaction costs are zero, the gains from trade are maximized, independent of any initial distribution of property rights. But what does "zero transaction costs" mean without a definition? If transaction costs are just like taxes, then the Coase theorem would hold even when they are positive. Taxes are simply a way of redefining ownership rights, and if they are perfectly defined, then, by Coase, they can have no implication for resource allocation. The Coase theorem fails to hold when property rights are not perfect, but as argued, when this is true, effort is made to enhance or establish these rights. The cost of these efforts are transaction costs. The Coase theorem does not hold when a farmer can poison a rancher's cattle and get away with it.

But given this, transaction costs, as defined here, must be the source of any explanation for the distribution of rights. When the final allocation of goods is independent of the initial distribution of property, the choice of contractual arrangement is irrelevant, since all contracts are capable of achieving the same outcome at equal cost. However, contracts differ in costs because they provide different incentives; hence, transaction costs become a sufficient ingredient for understanding organizational choices, because when these costs are positive, individuals will contract in a way to mitigate them. For example, Midwest farmers lease land on either a cash rent or cropshare basis. In a world where all property rights are perfectly defined, it would not matter which contract was chosen. If a farmer tried to exploit the soil, the landowner would know immediately and the farmer would have to pay for the nutrients used. But once he must pay, his decision to use the soil is exactly the same as the landowner's. It is only when property rights over the crop and soil are imperfect that the choice of contract matters. Cropshare contracts may reduce the incentive to exploit the soil, while cash rent contracts may reduce the incentive to steal the crop.[18] Thus, depending on which problem is more severe, the choice of a particular contract acts as a substitute for direct monitoring.

My point is simply that the definition proposed here is consistent with this interpretation. Any definition of transaction costs that excludes efforts to create property rights or includes costs that arise only out of scarcity cannot be consistent with the Coase theorem.[19]

V.   CONCLUSION

What is the benefit of having a clear definition of transaction costs? Consider this paragraph that appeared in a recent paper on the Coase Theorem:

> Most expositions of Coase's argument focus on the inefficiencies that arise
> if tradable property rights are not clearly established, and then suggest that
> any other inefficiencies must result from imperfections in bargaining, due
> perhaps to holdouts or to transactions costs. But these vague terms are not
> very helpful, and, in practice, bargaining problems may be as important a
> bar to efficiency as missing property rights. We ask, then, what are the causes
> of imperfections in bargaining, how policy affects transaction costs, and when
> these problems are severe compared with some alternative ... (Farrell 1987,
> pp. 114-115).

This quote is a good example of how undaunted some are at using an undefined term. Here, despite just calling the term vague, Farrell indicates that he will ask how policy affects transaction costs.

Regardless of the point being made, note that property rights, bargaining, holdouts, and transaction costs are treated as four independent concepts. Incomplete property rights and transaction costs are two sides of the same coin; one cannot exist without the other. Bargaining and holdouts cannot exist in a world where property rights are perfectly defined. Farrell makes the error of treating these concepts as unrelated because they have never carefully been defined. Without a clear definition of transaction costs, it is impossible not be vague.

There is nothing magical about transaction costs. Every change is a contract and every contract implicitly or explicitly defines the attributes traded, the extent, timing, form of measurement, and the residual claimants. In doing so, every exchange has concomitant transaction costs, and these costs are considered in the decision over what type of exchange should be entered into. However, before these costs can enter our calculus, we must abandon the looseness of the term "transaction costs."

I have argued that transaction costs should be defined as the cost of establishing and maintaining property rights. This definition merits acceptance on several grounds. It relates the concepts of transaction costs and property rights and reasonably describes the examples of transaction costs put forward by classic transaction cost writers. It helps to distinguish and pigeonhole some of the terminology used in the literature of transaction costs, and it drives home the point that transaction costs are not simple taxes. Finally, the definition is consistent with the Coase theorem and, therefore, can be used to explain distributions of property rights. It is hoped that in doing this, some of the polluted air surrounding the phrase "transaction costs" will be removed.

ACKNOWLEDGMENTS

NOTES

1. Williamson (1979, p. 233). In a more dramatic fashion, Schlag (1989, p. 1676) announces that "the concept of transaction costs thus remains something of a black hole."

2. For other efforts, see Williamson (1979), Zerbe (1980), Alchian and Woodward (1988).

3. This is taken from "Some Implications of Recognition of Property Right Transaction Costs—Some Bases for Discussion at Interlaken" (c. 1964). Most of this paper was published in Alchian (1965).

4. Cheung (1983, p. 21).

5. It is essential to grasp the distinction between legal and economic rights in order to understand transaction costs. When William Blackstone spoke of rights, it was in terms of the law, and he repeatedly stated that these rights are as things should or ought to be. When Blackstone defines property rights, he says:

> The third absolute right; inherent in every Englishman, is that of property: which consists in the free use, enjoyment, and disposal of all his acquisitions, without any control or diminution, *save only by the laws of the land* [emphasis mine] (1803, p. 138).

In other words, property rights are constrained only by law for Blackstone. In contrast to this, economic property rights are closer to Hobbesian rights of nature. Hobbes states:

> A man therefore that hath another man in his power to rule or govern, to do good to, or harm, *hath right,* by the advantage of this his present power, to take caution at his pleasure, for his security against that other in time to come.... Out of which may also be collected, that irresistible might in the state of nature is right [emphasis mine] (1928, p. 56).

And later:

> When there appear no other signs that a man hath relinquished, or transferred his right, but only words; it behoveth that the same be done in words,... because words alone are not sufficient (1928, pp. 58-59).

Economic rights refer to your ability to exercise choices; legal rights refer to what choices the state is willing to support. The two are overlapping, but not identical sets.

6. If trade is defined as the transfer of property rights, then this first point is tautological.

7. This, of course, is the Coase Theorem, which some have criticized as being tautological as well (tautological means it is true).

8.   See Barzel (1985) for further explanation.
9.   Klien, *et al.* (1978).
10.   McManus (1975, p. 337).
11.   Barzel makes this same point:

the assumption of ... costless information of products, is the one allowing the Walrasian model to dispense with exchange costs (1985, p. 5).

12.   See B. Peter Pashigian (1988) or Harold Demsetz (1989), for examples of information costs without transaction costs.
13.   Variability and alterability are the essence of a transaction cost problem. For some examples see Eswaran and Kotwal (1985), Grossman and Hart (1986), or Grossman and Shapiro (1988). The distinction between variable and alterable can be traced to Knight (1971). Knight referred to events that occur with known and stable probabilities as risk, and situations of unknown probability distributions as uncertainty. McManus (1975) has argued that Knight's uncertainty is caused by opportunistic behavior. Following this interpretation Knight's uncertainty is a case where a good is both variable and alterable.
14.   Incomplete information along with variable and alterable attributes is necessary for cheating to occur through the alteration of goods within a *voluntary exchange*. When a transfer of property rights is *not* voluntary, then the good need not be alterable or variable. For example, transaction costs do exist with outright theft, the appropriation of quasi-rents, and free riding with public goods, even if there were no alterability or variability.
15.   The black box reputation is well known. The following quote is from the *Wall Street Journal*:

The basic problem is that any rule looks good if you make the right assumptions about transaction costs. These assumed transaction costs expand and shrink wondrously as the story goes along, like Alice, first so big they pop out of the chimney and then so small they creep under the door (1987).

16.   Nicholson repeats the sentiments of Hirshleifer:

To the extent that transaction costs are on a per-unit basis ... our previous taxation example applies exactly. From the point of view of the buyers and sellers, it makes little difference whether t represents a per-unit tax or a per-unit transaction fee ... (1985, p. 372).

17.   Alchian (1977) argues that money arises to avoid costly measurement and that money is only a commodity for which identification costs are *low* and low for *everyone*.
18.   See Allen and Lueck (forthcoming) for a more thorough discussion of land tenancy and transaction costs.

19.   Schlag (1989, p. 1675) underscores the importance of a consistent definition with the Coase theorem: "an overly expansive view of transaction costs threatens to make the Coase theorem tautological. On the other hand, an overly restrictive view of transaction costs can effectively invalidate the theorem." The definition presented here seems to pass Schlag's test in that it lies between the "Scylla of tautology and the Charybdis of invalidity."

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THE GLASS-STEAGALL ACT AND THE RISKINESS OF FINANCIAL INTERMEDIARIES

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ABSTRACT

The Glass-Steagall Act, which separates commercial- and investment-banking activities, was enacted, in part, to protect commercial banks from the risks associated with securities underwriting and thus preserve the financial integrity of the American banking system. Based on an analysis of the covariability of security returns, however, this study presents evidence of a portfolio effect; that is, if financial intermediaries engaged in both investment banking and commercial banking, they would not be much riskier than if they engaged exclusively in commercial banking. We, therefore, conclude that the Act, because of its anticompetitive restrictions, imposes costs on the capital-formation process without a corresponding benefit in the form of risk reduction.