



**FROM SMITH TO WILLIAMSON: The Relationship of Economic Theory and
Legal Theory Over Time**

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Introduction

This paper summarizes supplemental research undertaken in connection with a broader research project being conducted under the auspices of the Town+Gown program.¹ The broader research project consists of a comparative construction contract analysis that began with deconstructing the contracts in order to permit easy comparison of all contract provisions regardless of location in the original documents. The next phase is currently underway and involves an analysis of the deconstructed construction contract provisions based on an early survey project that identified certain contract provisions causing problems “on the ground.” These provisions fall into three main groupings: work scope definition clauses, change clauses and project control clauses.

This paper consists of a survey of both economic theory and contract theory, analyzing the connection between the two types of theories over time, and focusing on the distinction between complete and incomplete contracting, a critical classification in contract law theory. Economic theory has evolved over time from classical to neoclassical to transaction costs economic theory reflecting an evolution in thinking about what economists should focus on in the economic transaction as the economy and analytic methods have both become more complex over time. This evolution finds a parallel evolution in contract law theory as the contracts written and litigated have become equally complex, reflecting the transactions they memorialize. Although contract law is distinct from economic theory,

¹ <http://www.nyc.gov/html/ddc/html/design/tg.shtml>

there is a relationship between the two disciplines, each influencing and partly dependent on the other, with legal theory lending shape to elements of economic theory and vice versa. Contract law describes and, in some instances, defines, the transactions that economics study. Unfortunately, economics research typically does not address the general aspects of contract law theory as it has evolved because economists do not necessarily know the law of contracts, how contract provisions work in any document and how they can be enforced—lawyers are necessary to bridge the divide between the two disciplines: law and economics.² This paper attempts to lay bare certain assumptions embedded in related economic and contract law theories over time in order to facilitate economic-based analyses of contract provisions.

Complete and Incomplete Contracts

A primary classification in contract law theory is the distinction between complete and incomplete contracting.³ By way of brief summary, under a view of complete contracting, agents can write a contract that describes their actions, taking into account all the future contingencies that may influence their contractual relationship.⁴ In this context, there may be failure to reach the first-best outcome because of asymmetric information and different risk-preferences, but given the constraints (and a specification of the parties' bargaining power), the conclusion of a complete contract assumes there is a determinate preferred outcome on which the parties can coordinate without any problems.⁵ In short,

² Williamson, Oliver E. "Revisiting Legal Realism: The Law, Economics, and Organization Perspective." *Industrial and Corporate Change*. Vol. 5, No. 2, pp. 383-419, 384. (1996).

³ Hart, Oliver, Moore, John. "Incomplete Contracts and Renegotiation." *Econometrica*. Vol. 56, Issue 4, pp.755-785. (Jul. 1988).

⁴ *Id.*

⁵ Hart, Oliver. "Incomplete Contracts and Public Ownership: Remarks and an Application to Public-Private Partnerships." *The Economic Journal*. Vol. 113, pp. 69-76. (March 2003).

because all of the contingencies have been imagined, all of the responses to a changed environment have been imagined as well. The complete contract assumes parties to the contract have consented to all the terms of the transaction.

Conversely, under a view of incomplete contracting, it is acknowledged that some contingencies (e.g., information costs; limitations of natural language) are left out of contracts for many reasons, including inestimability. While it may be possible for parties to these contracts to agree on contract terms that are left out of contracts, these terms may not be enforceable by a third party, such as a court, because they have not been sufficiently defined or measured by the contract.⁶ In these cases, it may not be possible to sustain the first-best outcome, which is the outcome that unambiguously optimizes utility for both parties to the contract.⁷ Since complete contingent contracts cannot be written, parties to a contract may find it necessary to renegotiate their contracts after the contract has been signed, because they encounter states of nature about which the contract is silent or where the contract specifies insufficient terms.⁸

Complete contract theory relies on the legal fictions that expand the scope of consent (e.g., parole evidence, objective manifestations of consent) rather than conceding to the possibility of costly renegotiation. In other words, complete contract theorists argue that costly renegotiation is unnecessary given the existence of objective manifestations of consent; complete contracts are, therefore, efficient. By contrast, incomplete contract theory assumes that renegotiation is foreseeable. Because the renegotiation process can be foreseen

⁶ Schwartz, Alan. "Contract Theory and the Limits of Contract Law." *Yale L.J.* 541, 550 (2003).

⁷ See Chapter 1 Farnsworth, Edward Alan. "Farnsworth on Contracts, Vol. 1." *Aspen Law and Business*.

⁸ *Id.*

at the time of drafting contracts, the process itself does not involve costly bargaining; incomplete contracts are, therefore, efficient.⁹

Interplay of Economic Theory and the Law

Classical Economic Theory Classical economics focuses on the production and supply of goods and what helps an economy to grow. It emphasizes the bilateral aspects of transactions, and, thus, finds its underpinnings in contract law where at least two parties to a transaction agree to a set of fixed terms in order to maximize their rewards efficiently. Classical economic theory fits well with the notion of a complete contract. When an economic analysis proceeds directly to examine certain rules of contract law, such as the remedies for breach or the rights and obligations parties have when the terms of a discreet transaction change, that analysis is looking at a transaction in the classical economic theory paradigm.

The economic debate over which contract notion defines the most efficient negotiated bargain also represents a divide as to what conditions promote economic efficiency in a free society. Under nineteenth century economic conditions, contract law theory, informed by the classical economic theory paradigm, provided the legal underpinning of a dynamic and expanding free society.¹⁰ Moreover, law making devoted much of its energy to creating conditions for a market on which freely negotiated enforceable bargains could be made, based on the assumption that each party to an exchange seeks to maximize his own economic advantage on terms tolerable to the other party.¹¹ As the assumption goes,

⁹ Hart, Oliver, Moore, John. "Incomplete Contracts and Renegotiation." *Econometrica*. Vol. 56, Issue 4, pp.755-785. (Jul. 1988).

¹⁰ Farnsworth, Edward Alan. (1982). *Farnsworth on Contracts, Vol. 1*. Aspen Law and Business. Little Brown, pp. 21.

¹¹ *Id.*, pp. 9.

because of differences in value judgments and because of the division of labor, it is usually possible for each party to realize what is, for him, a substantial advantage. For example, when the baker provides the dentist with bread and the dentist relieves the baker's toothache, neither the baker nor the dentist is harmed.¹² The economist might add that society as a whole benefits, since such exchanges tend to transfer resources to their highest valued, most productive uses and tend to maximize the efficient use of economic resources. Furthermore, the resulting economic system was one in which the making of decisions was widely spread among individual members of society who controlled its resources.¹³ According to Adam Smith, it was this focus on freedom of contract, minimal regulation, and laissez-faire capitalism—or, as he called it, “the invisible hand” of economic self-organization from economic self-interest—that encouraged individual entrepreneurial activity during the nineteenth century.¹⁴ Nineteenth century economic theory promoted the complete contract as a concept because it allowed parties to bargain freely and, arguably, efficiently.

The tide in favor of freedom of contract began to change in the decade leading up to the twentieth century. Laissez-faire capitalism drifted towards economic nationalism¹⁵, partly to continue a robust recovery from the American Civil War, but also because legislators began to question the benefits of free trade.¹⁶ As E.A.J. Johnson wrote, “Americans agreed that economic interests were a legitimate concern of individuals and of the government and

¹² *Id.* pp. 9.

¹³ *Id.* pp. 19

¹⁴ *Id.* pp. 9.

¹⁵ The Term used to describe policies that emphasize domestic control of the economy, labor and capital formation by imposing tariffs and other restrictions on the movement of goods and labor. See LaHaye, Laura. “Mercantilism.” <http://www.econlib.org/library/Enc/Mercantilism.html>

¹⁶ Farnsworth, Edward Alan. (1982). *Farnsworth on Contracts, Vol. 1*. Aspen Law and Business. Little Brown, pp. 9.

that there should be equality in the sense that public policy should reflect the interests of all groups of citizens,”¹⁷ not just those citizens who successfully asserted their economic self-interests. To that end, political opponents of laissez-faire capitalism increased state control and regulation of goods and labor through legislation such as the Interstate Commerce Act of 1887, the Sherman Anti-trust Act of 1890, the Underwood Tariff Act of 1913, the Federal Trade Act of 1914, and the creation of the Federal Reserve System in 1913.

As regulatory government grew there was also a commensurate concentration of power away from the individual and towards a few corporations and more governmental agencies. This growth coincided with the diminution of the complete contract. Arguably, to the extent that state ownership of society’s resources comes to replace private ownership, the individual’s power to dispose of those resources is lessened, and the role of the contract for the non-owner is diminished.¹⁸ Even without assuming ownership of resources, government has, over time, restricted the individual’s freedom to contract. It may dictate all of the terms of the contract, as many of our states have for certain service areas such as public works in general and public transportation specifically¹⁹. Short of wholesale dictation of terms, the state may stipulate particular terms, or it may merely prohibit or refuse to enforce particular terms.²⁰ Critics of government regulation refer to the demise of freedom of contract as “contractual dirigisme,” where the state supplies the terms of the contracts for the allocation and production of resources instead of allowing the parties to bargain them out for themselves.

¹⁷ Johnson, E.A.J. (1973) *The Foundations of American Economic Freedom: Government and Enterprise in the age of Washington*. University of Minnesota Press, pp. 194-195.

¹⁸ Hart, Oliver. “Incomplete Contracts and Public Ownership: Remarks and an Application to Public-Private Partnerships.” *The Economic Journal*. Vol. 113, pp. 69-76. (March 2003).

¹⁹ Kostritsky, Juliet P. “Taxonomy for Justifying Legal Intervention in an Imperfect World: What to do When Parties Have Not Achieved Bargains or Have Drafted Incomplete Contracts.” *Wisconsin Law Review*. Vol. 2004. No. 2, pp. 323-377. (2004).

²⁰ *Id.*

Increased regulation did not absorb freedom of contract completely. The result was a mixed economy in which both the state and the private sector direct the economy.²¹

Arguably, the nineteenth century primacy of the complete contract survives in areas where the private sector dominates the mixed economy. Where private sector dominates, and the complete contract perspective prevails, ownership of resources does not matter because “an owner has no special rights since everything is specified in an initial contract (at least among the things that can ever be specified)”.²² However, where the public sector dominates through regulation, governmental agencies must prepare long-term contracts to limit the self-interested conduct that undermines public welfare. These long-term contracts—containing precise and comprehensive clauses—are inevitably incomplete because the original contract environment is sure to change throughout the life of the long-term contract. “In contrast, ownership does matter when contracts are incomplete: the owner of an asset...can then make decisions concerning the asset that are not included in the contract (the owner is said to have residual control rights)”.²³ As Oliver Hart wrote:

“...in a complete contracting world the government does not need to own a firm [or resource] to control its behavior: any goals—economic or otherwise—can be achieved via a detailed initial contract. However, if contracts are incomplete, as they are in practice, there is a case for the government to own an electricity company or prison since ownership gives the government special powers in the form of residual control rights”²⁴

²¹ Lewis, John P. “Our Mixed Economy.” *The Anitioch Review*. Vol. 10, No. 3., pp. 341-354. (Autumn 1950).

²² Hart, Oliver. “Incomplete Contracts and Public Ownership: Remarks and an Application to Public-Private Partnerships.” *The Economic Journal*. Vol. 113, pp. 69-76. (March 2003).

²³ *Id.*

²⁴ *Id.*

Because owners of an asset can exclusively complete the contract where the contract terms are incomplete, the economics of contract theory must account for the role of human behavior in the life of a contract. Owners are innately opportunistic; not focused on the first-best outcome when they are trying to compensate for sunk costs and unanticipated losses due to nothing more than the changing state of the world. History has proven that classical economics does not adequately account for the two types of uncertainty that are inherent in contracts, namely, uncertainty about the future state of the world and uncertainty about human behavior and the propensity for opportunism.²⁵ For this reason and others, neoclassical economic theory grew in the late nineteenth century; a century characterized by increased government control of goods and labor and a narrowing of a still robust private sector.

Neoclassical Economic Theory Economics is, according to one definition, the science that studies human behavior as a relationship between ends and scarce means that have alternative uses.²⁶ Classical economics relies on the so-called objective value of goods to establish prices for goods and services. CITE. By contrast, neoclassical economics (“NE”) pursues this study by means of supply and demand models that determine prices based on the subjective preferences of individuals (i.e., producers and consumers). *Id.* NE theory focuses on individual choices, subjective beliefs and the allocation of given resources among alternative uses. CITE. At its core, NE theory is a specific reductionist theory of human decision-making and rationality that is applied to economics. It accounts for the two types of

²⁵ Kostritsky, Juliet P. “Taxonomy for Justifying Legal Intervention in an Imperfect World: What to do When Parties Have Not Achieved Bargains or Have Drafted Incomplete Contracts.” *Wisconsin Law Review*. Vol. 2004. No. 2, pp. 323-377. (2004).

²⁶ Moehler, Michael and Brennan Geoffrey. “Neoclassical Economics.” *Encyclopedia of Political Theory*. Vol. II., pp. 946-51. (2010).

uncertainty in contracts that produce inherently incomplete contracts, namely, uncertainty about the future state of the world and uncertainty about human behavior.

First, uncertainty about the future state of the world and its relationship to NE is best understood through a brief discussion of Professor Ian R. Macneil's 1974 commentary, "Restatement (Second) of Contracts and Presentiation."²⁷ In his work, Macneil describes how the limitations of the individual psyche limit an individual's ability to represent the future state of the world in a contract. The limitations of the individual psyche are commonly described as "bounded rationality," the notion originally developed by Herbert A. Simon that one's ability to imagine all alternatives and the consequences of those alternatives is exceedingly bounded (or restricted) in relation to the complexity of the environment in which the individual lives.²⁸ Decision-makers, therefore, reduce the complexity of their future and present environments by simplifying the alternatives in order to create a satisfying contract. More importantly, bounded rationality limits an individual's ability to presentiate²⁹ or to create a fully contingent contract by representing all future event in the present contract document. These two limitations, effectively lead to inherently incomplete contracts, completed only through manipulations of the notion of consent (e.g., admissions of parole evidence, objective manifestations of consent). NE theory relies on the legal structure that, in theory, creates complete contracts by presentiating the contract terms that are unknowable or expensive to ascertain at the time the parties enter into a contractual relationship.³⁰

²⁷ Macneil, Ian. "Restatement (Second) of Contracts and Presentiation." HeinOnline 60 Va. L.Rev, 589 (1974).

²⁸ Simon, Herbert. "Rationality in Human Behavior." *Political Psychology, Special Issue: Political Economy and Political Psychology*. Vol. 16, No. 1, pp. 45-61. (Mar., 1995).

²⁹ According to Ian Macneil, *presentiation* is the manner in which a person perceives the future's effect on the present; but it depends upon events outside the individual psyche, events viewed as determining the future. *Restatement (Second) of Contracts and Presentiation*, HeinOnline 60 Va. L.Rev, 589 (1974).

³⁰ Macneil, Ian. "Restatement (Second) of Contracts and Presentiation." HeinOnline 60 Va. L.Rev, 589 (1974).

Second, uncertainty of the particular ways in which parties to a contract act opportunistically, often at the expense of the counterparty, explains further why parties are not able to achieve complete contracts.³¹ Absent uncertainty, there would be complete knowledge about the myriad forms opportunism would take over the life of the contract.³² Instead, the formed contract relies on generalized performance obligations—such as good faith and commercial norms—to govern behavior in contractual agreements.³³

It is worth noting that the possibility of a complete contract was more realistic in a simple, one-shot transaction where it was not necessary to anticipate events occurring over a long period of time.³⁴ The realization that such one-shot transactions are relatively rare in certain economies can also be traced to Professor Macneil's work.³⁵ The assumptions on which NE is based stem from recognition that long-term contracts pose particular problems in contracting. In short, NE is the twentieth century response to the uncertainty ignored in classical economic theory. It accepts that contracts are incomplete and that it is in the best interests of the parties and of society to manage uncertainty in contracts—when parties succeed in their contractual relationship, they are better off; the gains from exchange increase and the benefits of exchange to society are maximized.³⁶ A

³¹ Schwartz, Alan. "Relational Contracts in the Courts: An Analysis of Incomplete Agreements." *The Journal of Legal Studies*. Vol. 21, No. 2, pp. 271-318. (Jun. 1992).

³² *Id.* at 272.

³³ See Restatement (Second) of Contracts UCC § 1-304 (1979).

³⁴ Posner, Eric A. "A Theory of Contract Law Under Conditions of Radical Judicial Error." 94 *Nw. U.L. Rev.* 749, 751. (2000).

³⁵ Macneil, Ian. "Contracts: Adjustment of Long-Term Economic Relations Under Classical, Neoclassical, Relational Contract Law." 72 *Nw. U.L. Rev.* 854. Vol. 72, No. 6, pp. 854-905. (1978).

³⁶ Kostritsky, Juliet P. "Taxonomy for Justifying Legal Intervention in an Imperfect World: What to do When Parties Have Not Achieved Bargains or Have Drafted Incomplete Contracts." *Wisconsin Law Review*. Vol. 2004. No. 2, pp. 323-377. (2004).

brief digression into the fundamental assumptions of NE will better illuminate its relative success in completing inherently incomplete contracts.

The fundamental assumptions of NE include: 1. people have rational preferences among outcomes; 2. individuals maximize utility and firms maximize profits; and 3. people act independently on the basis of full and relevant information. Roy Weintraub summarized the theory best as a framework in which

“Buyers attempt to maximize their gains from getting goods by increasing their purchases until what they gain from an extra unit is just balanced by what they have to give up to obtain it. In this way they maximize ‘utility’ – the satisfaction associated with the consumption of goods and services. Likewise, individuals provide labor to firms that wish to employ them, by balancing the gains from offering the marginal unit of their services (the wage they would receive) with the disutility of labor itself – the loss of leisure. Individuals make choices at the margin.”³⁷

The NE theory, therefore, involves economic “agents,” be they individuals, firms or institutions, maximizing their rewards, subject to all relevant constraints.³⁸ Ronald Coase’s seminal work, “The Nature of the Firm,” expounded on the NE theory by using it to justify why and when organizations develop, or in other words, why economic agents choose to create organizations. In his estimation, “firms exist because they reduce transaction costs that emerge during production and exchange, capturing efficiencies that

³⁷ Weintraub, Roy E. “Neoclassical Economics.” *The Concise Encyclopedia of Economics: Library of Economics and Liberty*. <http://www.econlib.org/library/Enc1/NeoclassicalEconomics.html>

³⁸ Williamson, Oliver E. “The Theory of the Firm as Governance Structure: From Choice to Contract.” *Journal of Economic Perspectives*, Vol. 16, No. 3, pp. 171-195. (Summer 2002).

individuals cannot.”³⁹ He studied how organizations optimized rewards when constrained by costs, information, market prices and uncertainty.⁴⁰

As with the twentieth century, the twenty-first century promises to be a continuation of this mixed public-private economy. John Maynard Keynes, like Coase, adhered to a strong presumption that business organizations tries to maximize profits and individuals’ utility, but he left open how well they succeeded.⁴¹ According to Richard Posner, “Keynes wanted to be realistic about decision-making rather than explore how far an economist could get by assuming that people base decisions on a close approximation to cost-benefit analysis.”⁴² Coase proposed to abandon the assumption that an economic agent makes consistent choices.

These assumptions and theories matter most because classical and neoclassical economic theories draw criticism from transaction cost economics (“TCE”) as well as relational contract theory (“RC”). TCE and RC assume that the mixed and growing twenty-first century economy creates even greater complexity and uncertainty and an environment which neither CE nor NE can successfully explain because each theoretical framework leaves an all-or-nothing solution: the contract is complete or totally incomplete. The TCE approach takes into account how uncertainty and bounded rationality factor into contract-completeness levels and explains further why parties, organizations and agents continue to contract although full completeness is not possible.

³⁹ Coase, Ronald. “The Nature of the Firm.” *Economica*. Vol. 4, No. 16, pp. 386-405. (Nov. 1937).

⁴⁰ Cheung, Steven N.S. “The Contractual Nature of the Firm.” *Journal of Law and Economics*. Vol. 26, No. 1, pp. 1-21. (Apr. 1983).

⁴¹ Posner, Richard. “Keynes and Coase (Draft).” This paper was prepared for a conference on “Markets, Firms and Property Rights: A Celebration of the Research of Ronald Coase” held at the University of Chicago Law School on December 4–5, 2009. My discussion of Keynes draws on my article “How I Became a Keynesian,” *New Republic*, Sept. 23, 2009, p. 34.

⁴² *Id.*

Transaction Cost Economics

Transaction cost economics assumes that the complete-contract benchmark is unattainable. The vital question is not incompleteness in itself, but rather the reasons for which some contracts are more incomplete than others.⁴³

Before Coase published his seminal work, “The Nature of the Firm” in 1937, economic research was limited to the firm as a production function that focused on analyzing markets at the production level.⁴⁴ This theoretical construction made sense because early twentieth century economics was dominated by a price mechanism approach to economics—buyers and sellers focused only on supply and demand when negotiating the price of a good or service.⁴⁵ In every subsequent sale, buyers were free to change sellers whenever supply and demand dictated a change in price. Following World War I, however, it became increasingly clear that the price mechanism approach to economics was no longer an adequate model of how firms behaved.⁴⁶ Economists could not use the price mechanism approach to describe how buyers and sellers behaved beyond the point of sale, leaving open the question of why firms arise.⁴⁷

In contrast to the price mechanism approach, Coase’s theory of the firm pulled away from the firm as a production function towards the firm as a governance structure.⁴⁸ In “The Nature of the Firm,” Coase argues that the main reason to establish a firm, corporation or company is to avoid the transaction costs of consumers and suppliers negotiating the price of goods or services at every instance.⁴⁹ According to Coase, the firm provides a

⁴³ Al-Najjar, Nabil. “Incomplete Contracts and the Governance of Complex Contractual Relationships.” *The American Economic Review*. Vol. 85, No. 2, pp. 432-436. (May 1995).

⁴⁴ Coase, Ronald. “The Nature of the Firm.” *Economica*. Vol. 4, No. 16, pp. 386-405. (Nov. 1937).

⁴⁵ Coase, Ronald. “The Nature of the Firm.” *Economica*. Vol. 4, No. 16, pp. 386-405. (Nov. 1937).

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ Williamson, Oliver E. “The Theory of the Firm as Governance Structure: From Choice to Contract.” *Journal of Economic Perspectives*, Vol. 16, No. 3, pp. 171-195. (Summer 2002).

⁴⁹ Coase, Ronald. “The Nature of the Firm.” *Economica*. Vol. 4, No. 16, pp. 386-405. (Nov. 1937).

mechanism for buyers and sellers to enter into long-term contractual relationships that effectively limit (but do not eliminate) the instances that require complex and costly negotiation.

Transaction cost economics (“TCE”) states that the contractual completeness reflects a desire by the parties to save transaction costs by focusing more on a firm’s governance structure more than the motivations of individual agents. TCE aligns governance structures (e.g., markets, hybrids, firms, bureaus) with transactions.⁵⁰ It focuses on organizational transactions as its unit of analysis, incorporating the behavioral attributes of human actors, and the distinction between the institutional environment and the institutions of governance.⁵¹ In keeping with Coase’s work, Oliver Williamson argues that proper theory cannot be limited to the designation of price based on supply and demand, but must account for the behavior of “human actors as we know it.”⁵² In other words, it must embrace reality as we know it—i.e., incomplete contracting. The analytical dimensions for describing TCE include: (1) uncertainty, (2) frequency, and (3) the degree to which transaction specific assets are required.

Uncertainty

Uncertainty refers to any sort of unknown or unknowable variables in a transaction. A common facet of uncertainty arises when future changes in technology required for the transaction are unknown and could significantly alter the cost of the transaction or render the negotiated price of the transaction wholly moot.⁵³ Another facet of uncertainty arises in

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² Williamson, Oliver E. “Transaction Cost Economics: How it Works: Where it is Headed.” *De Economist*. Vol. 146, pp. 23-58. (1998).

⁵³ Gregory, Tom. “Transaction Cost Economics and Directions for Relational Governance Research.” *Proceedings of the Southern Association for Information Systems Conference, Atlanta, GA, USA*. Pp. 73-78. (Mar. 2011)

demand uncertainty, where variability exists in demand, even for frequent transactions.⁵⁴ Recently, Carson, Madhok and Wu further classified uncertainty as either volatility or ambiguity.⁵⁵ Volatility refers to the unpredictable rate of change such as a change in market demand or a change in supplier availability.⁵⁶ Volatility implies parties in a contract may need to adapt as the environment changes, and contracts should reflect conditions where renegotiation should be considered.

Ambiguity includes, but should not be limited to: “(1) lack of clear information; (2) uncertainty about the importance of environmental variables; (3) uncertainty of cause-effect relationships between variables; and (4) uncertainty about available courses of action and their potential effects.”⁵⁷ It is due to ambiguity that decision makers may arrive at different boundedly rational results. This inevitability of misperceived hazards implies that mechanisms that improve information quality or reduce forms of uncertainty will likely be cost-effective to the extent they reduce the governance of a transaction.⁵⁸

Frequency

Although transaction frequency is considered a dimension of TCE, in his analysis, Williamson only ever addresses frequent transactions.⁵⁹ There is little discussion or acknowledgment that optimal one-time transactions may exhibit different characteristics as compared with frequent transactions. Moreover, any characterization of one-time transactions as optimal would be more akin to the price mechanism approach to economics, not TCE.

⁵⁴ *Id.* at 73

⁵⁵ *Id.* at 73

⁵⁶ *Id.* at 74

⁵⁷ *Id.* at 74

⁵⁸ *Id.* at 74

⁵⁹ *Id.* at 74

Asset Specificity

The transaction-specific asset (meaning “the degree to which transaction-specific investments are required to realize least-cost supply,”⁶⁰) is the feature of TCE that Williamson devotes most of his attention. Williamson defines three types of asset specificity: (1) location specificity, such as when assets are located near each other to minimize costs; (2) physical asset specificity, where the assets have little value on their own, but have value only for their use in a transaction, such as specialized manufacturing parts that provide little benefit in another context; and (3) human asset specificity, meaning learned human skills used in a transaction.

In short, TCE argues that when it is more efficient for an organization to buy products externally or produce them internally, the decision of where to buy rests on the organizations desire to reduce transaction costs. Arguably, contracts that allow an organization to choose the most attractive alternative, given the current state of the world that minimizes total costs produces the most Pareto-efficient⁶¹ economy.

⁶⁰ *Id.* at 74

⁶¹ See Farnsworth, Edward Alan. “Farnsworth on Contracts, Vol. 1.” *Aspen Law and Business*; and Shavell, Steven, *Contracts*. New Palgrave Dictionary of Economics and the Law (Peter Newman, Ed.), May 1998. Available at SSRN: <http://ssrn.com/abstract=52360> or <http://dx.doi.org/10.2139/ssrn.52360>