

Is Opportunism Trivial?

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ABSTRACT

According to Transaction Cost Economics, opportunism is the principal tectonic force that shapes our economic landscape. But for the need to mitigate opportunism, some well-known features like the firm would not exist at all. Against this view, this paper argues that opportunism in contractual relations is relatively rare and even incomplete contracts are largely self-enforcing.

The problem of opportunism

Opportunism, according to Transaction Cost Economics (TCE), is the principal tectonic force that shapes our economic landscape. But for the need to mitigate opportunism, some well-known features like the firm would not exist at all; all transactions would be executed in the market (Williamson 1985: 66; 1993: 97). Firms and other key features of the landscape have been shaped by the need to protect contractual parties from opportunistic behavior.

Opportunism means the unprincipled taking advantage of the dependence of a partner in a transaction. In most collaborations, partners or collaborators expose themselves to the risk of being opportunistically “held up” or taken advantage of because they make themselves dependent on each other. Typically this dependence arises from so-called “specific” investments. By definition, specific investments are investments that are tailored to the needs or specifications of the collaboration, so their value depends on its continuation. For example, one partner may make a specialized complementary or otherwise irrevocable investment based on the other’s promises. It might invest some capital in a joint venture in the expectation that its partner will make available its intellectual property. Or it might build a factory at a convenient location to serve its partner’s needs. Or an employee might accept a lower wage while undergoing specialized training in the operation of his employer’s equipment in the expectation of receiving a higher wage when the training is complete. In all these cases, if the other partner terminates the collaboration, these specific investments will be worthless. “The fundamental concern of transaction cost analysis is to develop satisfactory safeguards to prevent the expropriation of the specific assets through hazards of opportunism” (Williamson 1985: 32).

Opportunism is a problem because it inhibits value-creating investments. Anticipating that they will be opportunistically held up, potential partners withhold investments that might have made both partners better off (Williamson 1975). The result is depressed specific capital formation, lower productivity and reduced social wealth.

This problem of underinvestment might be solved if the parties could credibly commit not to hold each other up. But the obvious solution of promising to honor the spirit of the contract is ruled out by TCE’s assumption that at least a critical mass of economic agents are opportunistic. On TCE’s view, talk is cheap. By definition, opportunists make self-disbelieved promises so long as it pays them to do so. As Thomas Hobbes said: “covenants, without the

sword, are but words and of no strength to secure a man at all.” Nor does third party enforcement of promises (say through the courts) work because contracts are necessarily incomplete. Consequently, TCE holds (in its pristine version at least) that there are no market solutions to the problem of opportunism. The only solution is a non-market one, namely vertical integration or the internalization of the transaction in the firm. To safeguard against such opportunistic behavior, parties select institutional arrangements so as to mitigate the expected total cost of consummating the transactions involved. Macher & Richman (2008).

Plan of this Paper. In this paper I question whether opportunism plays the role TCE assigns to it. Against TCE’s the view that the risk of opportunism pervasively or fatally undermines the ability of the parties to make credible commitments, I show that there is a wealth of literature, both empirical and theoretical, that establishes that such commitments are commonplace and largely self-enforcing. I stress that my discussion in this paper is limited to how cooperation is sustained in bilateral contractual relationships. Opportunism toward third parties (externalities) and collective action problems are outside the scope of this essay.

The rest of the paper is organized as follows. In Part 2, I take note of the proliferation of empirical anomalies for TCE’s claims regarding opportunism. I review evidence of widespread behavior that is inconsistent with the idea that opportunism is perceived as lying in ambush for economic actors.

In Part 3 I turn to the question of why there is this embarrassing gap between economic theory and everyday observation. This question beings me to the heart of my analysis. I argue that TCE’s solution to the problem of opportunism (viz., internalizing the transaction in the firm) is largely superfluous because there are already well-established mechanisms that already hold opportunism in check. To explore these mechanisms, I provide a brief overview of key findings from the vast body of work in evolutionary game theory. The problem of opportunism is essentially a Prisoner’s Dilemma; therefore the solutions to the PD that have been identified by evolutionary game theorists are simultaneously solutions to the problem of opportunism in an economy.

It is well-known that in the one-shot PD defection is the only Nash equilibrium. This accords with TCE. However, I note that the one-shot PD is an artificial construction. Things change “dramatically” when games are repeated, when prospective partners can learn about the reputations of one another, and where partners can elect not to interact with one another. In these

conditions, opportunism is a much diminished threat because its one-time advantages are generally outweighed by its costs in terms of forgone business. Simply put, the cost-benefit analysis of opportunism shifts against it. In these conditions, while cooperation is not inevitable, it is commonplace.

Part 4 of the paper addresses possible objections to this paper's thesis. There is no guarantee that repeated games and reputation will generate sustained cooperation, these forces may not prevent partners from renegeing in implicit contracts, computer simulations show that cooperation is not sustainable over the very long-run but instead is cyclical, and reliance on reputation to police behavior is complicated by the fact that parties cannot unambiguously recognize defection and cooperation. We then address these objections and show that they don't change the basic picture of how cooperation can dominate opportunism.

Part 5 argues that much of the economic analysis of opportunism is a dead-end because it models transactions as one-shot PDs. That choice artificially elevates opportunism to a major role. But it abstracts contracting decisions from the very factors that control opportunism. Extrapolating from one-shot PD is therefore very misleading.

My conclusion briefly considers the implications of this analysis for theory and research.

PART 2

The banality of cooperation

One of the puzzles of opportunism is that while theorists are grappling with the problem of opportunism, practitioners appear largely to have solved it. If opportunism remains a latent threat or stumbling block to mutually advantageous relationships, then why is the problem not more visible? Why do businesses devote relatively little attention or resources to mitigating the problem? Opportunism does not seem to be a salient consideration in contract planning by practitioners. Baker, Gibbons & Murphy (2002) analyzed nearly 12,500 biotechnology alliances in the pharmaceutical and biotechnology industries and conducted a series of detailed interviews with managers "who design, implement, consult to, and negotiate terms for these governance structures." They discovered that "[s]tandard ideas—such as inefficient hold-ups motivated by specific investments and inadequate investments motivated by bargaining over returns—played markedly smaller roles in what we heard from practitioners." This finding is not new. Recently,

the founder of transaction cost economics, the late Ronald Coase (2006) described how in his interviews with American managers in the 1930s, he found that they too discounted opportunism's importance. Some revisionist scholars – like Coase himself and Casadesus-Masanell & Spulber (2000) – question opportunism's role. In an acrimonious exchange with Klein, Coase disputed Klein's classic account of how opportunism played a part in the paradigmatic Fisher Body case. Casadesus too contested Klein's claim that holdup motivated GM's vertical integration into automobile bodies. "By making Fisher one of its divisions in 1926, GM included the company in its system of interdivisional coordination of inventories, production, and purchasing." In his classic study of contracting Macaulay (1963: 59-60) quoted one businessman who said he was "sick of being told, 'We can trust old Max,' when the problem is not one of honesty but one of reaching an agreement that both sides understand." None of the businessmen Macaulay interviewed thought that the lack of legal sanction made any difference: "You can settle any dispute if you keep the lawyers and accountants out of it. They just do not understand the give-and-take needed in business" (1963: 61).

Other anomalies too contribute to a sense of unease about the pivotal role assigned to opportunism. One is the casualness with which business people make specific investments. In the real economy, people and businesses routinely engage in unilateral or unprotected cooperation, in defiance of the teachings of the theorists. They make naked specific investments that Oliver Williamson would call "myopic", that is to say ones with few safeguards. And they are not taken advantage of. For example, see the revealing account of Kang et al. (2009) of Taiwanese OEM suppliers of electronic components, personal computers and devices who undertake unprotected unilateral specific investments. "[I]n practice, some firms make strategic investments specific to the transaction parties without being offered reciprocal commitments" (119). Kang et al. show that the suppliers undertake unprotected, unilateral specific investments when the investments yield economic spillover values for other transactions with the same exchange partners as well as for third party transactions. In other words, turning TCE on its head, a weaker supplier can increase the OEM buyer's dependency on the supplier by means of the supplier's specific investment. This is a quite different story of how specific investments may bond customers to their suppliers rather than expose the suppliers to hold-up. Rokkan et al. (2003) report a similar finding. Manufacturers invest in the training of independent distributors despite the risk of hold up. Precisely because the distributor has specific training, it can be more productive in its

relationship with the manufacturer. Even if the distributor has not borne any of the costs of training, it still shares in the resulting stream of rents generated by the training and won't want to jeopardize those rents by hold-up (Rindfleisch & Heide, 1997: 43). Hwang (2006) asks why the *ex ante* willingness to make specific investments varies if it exposes the investing party to possible holdup. Rather than jeopardize the relationship, specific investments prolong it.

Another striking anomaly for TCE relates to long-term contracts: Construing the theory's original intent, reliance on long-term contracts to manage transaction costs is prohibited. True, in recent years, long-term contracts have been domesticated by transaction cost scholars and lumped together with other arrangements under the rubric of hybrid "governance structures". But TCE is explicitly founded on the presumption that market contracting (as, say, by long-term contracting) is inadequate to protect specific investments. Williamson categorically ruled out contractual solutions because contracts are necessarily incomplete and so incapable of regulating all the possible contingencies that might arise. But even if complete contracts can't be written, the logic of TCE at least requires that the parties will seek to find as comprehensive and unambiguous a contract as possible in order to bind themselves. What is the point of a contract – in TCE's view – if not to tie the parties' hands? If opportunism is such a pervasive and ubiquitous threat, TCE predicts that contracts will be as complete and precise as economically feasible. So it is an anomaly that contracts are not infrequently dispensed with altogether or are left open or vague when they might easily be made more explicit. Or they take the form of vacuous promises to agree to agree. It is commonplace for contracts to be deliberately left incomplete by the partners. An example is what Bernheim & Whinston (1998) call "excessive incompleteness" or Scott (2003) calls "deliberately incomplete" contracts. As Macaulay (1963: 64) noted, "Businessmen may welcome a measure of vagueness in the obligations they assume so that they may negotiate matters in light of the actual circumstances". Parties commonly leave key terms of a contract unspecified. This tendency is hard to rationalize using TCE logic. These are deliberately indeterminate contracts and escape clauses (Crocker & Masten 1991). Recall that vertical integration is deemed necessary because bounded rationality and uncertainty make contracts unavoidably incomplete. But in these cases, contracts are *avoidably* incomplete. If risks of opportunism can be limited by contract, then why have they not been? This argues that the parties believe that they have little to fear from their partners' opportunism and contract renegotiation won't be exploited to shift the terms of the bargain in favor of the other party.

In the Japanese auto industry, contracts between the automakers and their suppliers “are short and remarkably imprecise, essentially committing the parties only to work together to resolve difficulties as they emerge. Indeed, they do not even specify prices, which instead are renegotiated on a regular basis. From the hold-up perspective, the prospect of frequent renegotiations over the prices of parts that are not yet even designed would certainly seem problematic” (Holmstrom & Roberts 1998). As Laura Poppo et al. (2008: 43) point out, many types of industrial exchanges are not characterized by long-term contracts, but instead by short-term (often one year) contracts or even handshake agreements (see Macaulay 1963).

Auto maker/assembler-supplier relations in the international auto industry have been closely studied. This work generally confirms some widely held perceptions of national differences between the US and Japanese auto industries. There is a consensus that specific investments are more common in the Japanese than other auto companies (e.g., Dyer 1996a, Ahmadjian 2006: 216; but see Miwa and Ramseyer 2000). But the Japanese case presents an anomaly for TCE because it predicts that the greater specific investments in Japan should lead to companies that are more integrated than their US counterparts (Dyer 1996a). The fact that it has not done so “is a particularly interesting finding since it contradicts received TCE theory which predicts that transaction costs increase as transactors increase their investments in specialized assets” (Dyer 1996a: 661). Indeed, in the case of Japanese subcontracting, according to Holmstrom & Roberts (1998: 81), the risk of opportunism should be aggravated by other practices. First, unlike their US counterparts, Japanese auto firms rely on their suppliers to do the design of the products they supply. Second, in Japan, suppliers own the physical assets, like dies, used to make a particular car part. These arrangements, they note, “would seem to present the automaker with temptations to appropriate the returns on these assets, once the supplier has made the [specific investment]. Moreover, because the Japanese auto manufacturers typically have a very small number of suppliers of any part, component or system, the supplier would also seem to be in a position to attempt opportunistic renegotiation by threatening to withhold supply for which there are few good, timely substitutes.” If not safeguards like vertical integration, then what inhibits opportunistic behavior in Japan? This anomaly has launched a flotilla of studies designed to explain why transaction costs are lower in Japan. But it is hard to find fault with Holmstrom & Roberts’s (1998: 81) conclusion that the Japanese subcontracting system “is directly at odds with transaction cost theory.”

Not only are contracts left incomplete, but in some cases the partners deliberately carve loopholes into them. One example of deliberate incompleteness is the phenomenon of gross inequity provisions in some long-term contracts. These are fairly vague provisions that allow one or both parties to reopen the contract by asserting that its continuance constitutes a gross inequity. Rather than trying to minimize renegotiations of contracts, these provisions deliberately encourage them. A majority of the long-term coal contracts studied by Joskow (1988) contain such provisions. Explicit provision for renegotiation may seek to avoid some of the costs associated with footdragging, delays, quality debasement and the potential for litigation as one party seeks to [overturn] the contract (Masten 1988: 192). Or compare the practice of firms issuing legally unenforceable "comfort letters" to prospective lenders has been explained as "a reputational signal that makes the agreements self-enforcing by establishing the party's obligations even if there is no formal enforcement mechanism" (Gilson et al. 2009). Such practices make no sense if the partners will opportunistically take advantage of it. See also Srinivasan & Brush (2006: 441) on the practice in Japan of signing flexible annual contracts that (1) provide the "general constitution" of the relationship and (2) are constantly adjusted and renegotiated (citing Dyer and Ouchi 1993, Nishiguchi 1994, Helper and Sako 1995). These may be confidence building measures, but plainly they cannot restrain hard-core opportunists. They would not be viable in a world of hard-core opportunists. As Klein (1996: 447) says, "in an uncertain world where complete contractual specification is costly, transactors use incomplete contracts that deliberately do not take account of every contingency. As a result, transactors knowingly leave themselves open to the possibility of hold-ups".

A related anomaly is the recent trend toward vertical disintegration of corporations (Gilson et al. 2009; Lamoreaux, 2004; Langlois, 2004). There has recently been an increase in outsourcing, contracting out, licensing, alliances, and dealing through the market rather than bringing everything under the umbrella of the organization (Holmstrom & Roberts 1998). But, absent a secular decline in specific investments, this trend does not fit TCE's predictions. As we have seen, TCE theorizes that vertical integration or internalization is a response to the risk of opportunism inherent in specific assets. So more specific investments are presumably exposing the economy to a greater risk of opportunism. Against TCE, Naomi Lamoreaux et al., see the new economy as a "shift away from coordination by managerial hierarchies in vertically integrated firms towards coordination through long-term relationships, based on 'informal

restraints on self-interested behavior,’ among networks of formally separate firms” (in Gilson et al. 2009: 445).

The discrepancy between the theory and practice of cooperation in the face of these contractual hazards is a source of embarrassment among some economists. Hirshleifer (1985: 55), in a piece on the “Expanding Domain of Economics” refers to this as one of his discipline’s “scandals.” The fact is that “a higher degree of cooperation takes place than can be explained as a merely pragmatic strategy for egoistic man.” Hodgson (2004: 401) notes that “[m]any critics argue that, in the real world, agents are not so opportunistic as Williamson would have it.” The world has proliferated anomalies for TCE. For example, in the United States, most employees are terminable at will, that is to say for good cause or bad cause or no cause at all, yet apparently most employees believe they only can be fired for cause. Plainly that belief could not survive if companies commonly abused their employees’ expectations. (Kim 1997; Freeman & Rogers 1999). In his review of contract enforcement in US labor relations, Michael Wachter (2004: 25-6) finds that, despite enjoying “enormous arbitrary discretion under employment at will few employers seem to make use of it.” Bernard Black (2001) notes that investors too appear to defy the theorists: “That securities markets exist at all is magical, in a way. Investors pay enormous sums of money to strangers for completely intangible rights, whose value depends entirely on the quality of the information that the investors receive and on the sellers’ honesty.” Paul Zak (273) points out that, “with only sporadic enforcement, most of the time most contracts are fulfilled—even in one-shot transactions.” These studies merely replicate the findings of Macaulay (1963) in the sixties and Adam Smith two centuries earlier. Smith considered keeping promises to be characteristic of commercial societies: “[W]hen the greater part of the people are merchants they always bring probity and punctuality into fashion, and these therefore are the principal virtues of a commercial nation” (quoted in Berry 1992: 81). Indeed TCE’s emphasis on the erosion or fragility of trust must puzzle anyone observing the recent subprime loan and banking crises. Despite the problem of credible commitment supposedly endemic to our economy, these crises seem to have sprung from an excess of credibility rather than a deficit. The same goes for everyday economic activity. To the naked eye, at least, trust seems ubiquitous. People routinely trust others to keep their promises and pass up opportunities to take advantage of others.

Empirical tests. My review has been largely impressionistic and unsystematic. In contrast, there have been a number of rigorous tests of the implications of TCE. These have generally been supportive of the theory. On the strength of these findings, Williamson (1999: 1092) has proclaimed transaction cost economics an “empirical success story”. A number of surveys have found that empirical studies tend to corroborate TCE’s predictions (Joskow (1988), Shelanski and Klein (1995), and Macher & Richman (2008)). Macher & Richman report “considerable support of many of the central tenets of TCE.” Two other surveys and re-examinations of empirical studies have reported “mixed” verdicts (David and Han (2004); Carter & Hodgson (2006: 462).

However Carter & Hodgson (2006: 462) point out that the results of tests of asset specificity, which seem to be among the more successful for TCE in empirical terms, are also consistent with what they call a “competence” approach. Carter and Hodgson re-examined studies that tested TCE’s basic claim – that vertical integration would be observed where there is asset specificity – and all twelve supported it. But they note that none of the empirical studies actually directly tested the main hypothesis or conjecture. In their words (2006: 474), a “serious concern is the lack of direct measures of transaction costs. In their absence, even where the results from the studies are consistent with the predictions of TCE, it would not demonstrate that the outcomes are necessarily associated with transaction cost minimizing behavior. The identified correlations might actually be consistent with an alternative theoretical explanation”. Specifically Hodgson (2004: 401) argues that Williamson overlooks several additional and likely sources of contract default” that cannot be ruled out a priori. These sources include “misinterpretation, misunderstanding or disagreement” (414). These factors may coexist with opportunism. Any assessment of the role of opportunism must await properly designed empirical tests. As a result, even these favorable results can’t definitively establish that the threat of opportunism explains the internalization of transactions in the firm.

PART 3

Why opportunism is an unimportant threat

The starting point for my own critique of opportunism is the observation that the problem TCE tries to solve is a form of the canonical Prisoner’s Dilemma (PD). As Kreps (1990: 101)

notes, the PD “is meant to represent the archetypal transaction with some element of moral hazard. A, say, must sink some resources into preparing for a transaction with B, who can (at personal gain) take advantage of A’s position to an extent that makes the entire thing un worthwhile for A.” (See also Nowak 2011: 27; Axelrod 1984: 9; and Hill 1990: 503).

The problem of opportunism or hold up in TCE is essentially or logically the same as the risk of defection in the classical PD. In the PD, “the pursuit of self-interest by each leads to a poor outcome for all” (Axelrod 1984: 7). An immense literature has been devoted to exploring the mechanisms that sustain cooperation in face of the PD. In this Part, I provide a partial and greatly condensed overview of what evolutionary game theory’s lessons about these mechanisms and I examine how they might apply in a business setting. Readers who are familiar with the work in evolutionary game theory may safely skip this Part.

The question addressed by game theorists has been, in Axelrod’s classic phrase, how to explain the emergence of cooperation among egoists. One of best known results of game theory is that if the players are purely rationally self-interested, the exchange takes place only once, and there are no reputational consequences, there is a unique equilibrium: No matter what the other player does, it is logical for you to defect (Nowak 29, 2011: 59).

Direct reciprocity. However, evolutionary game theorists have used mapped out a variety of mechanisms by which cooperation can get a foothold and expand. One solution to the PD is to repeat it. “Among the mechanisms to escape the clutches of the Prisoner’s Dilemma, the most obvious one … is simply to repeat the game” (Nowak 2011: 2). As Kreps (1990a: 102-3; see also Klein & Leffler, 1981, n. 11) says, if we assume a repeated or “iterated” game in which rationally maximizing players expect to meet each other in an indefinite number of future rounds, “[n]ow the analysis changes dramatically.” If there are repeated encounters between the same two players, and each player has a choice between cooperation and defection, then each player has the opportunity to punish previous defections. In this case “always defect” is no longer be a strictly dominant strategy. Rational players repeatedly interacting for an indefinite number of rounds can sustain the cooperative outcome. Direct reciprocity can lead to the evolution of cooperation so long as the likelihood of future encounters is high enough and the gain from cheating does not exceed the present value of cooperation.

Note that not only does repeating the game potentially solve the problem of opportunism by protecting the players from taking advantage of each other, but it does so *without expending transaction costs on writing and enforcing the contract*. “[S]imply by repeating the PD (with sufficiently high probability), we can avoid transactions costs entirely; [because promises in the repeated PD are] self-enforcing” (Kreps 1990: 103).

Indirect reciprocity. But cooperation can overcome defection in a PD, even if there is zero probability of the players meeting in a subsequent round, so long as other players can observe a player’s behavior and refuse to cooperate with her if she ever defects. (Hill 1990: 505) Just as a partner may establish a favorable reputation with her partner by consistently keeping its promises, so too that partner’s reputation may be observed by others. If a party expects to be rewarded by the same or other partners for cooperating, then her reputation becomes a valuable asset in the sense that it serves to attract additional business. Potential partners, in their turn, can have confidence in the promises made to them because they know that a breach of those promises will be costly to the promisor. The investment that the individual has made in building her reputation as being trustworthy and dependable is likely to be forfeited if it defects. It is obvious that this arrangement is self-enforcing. As Kreps (1990) points out, the nature of reputation is quite circular – “it works because it works: B guards a reputation because it influences future trading opportunities; it has this influence because B guards it.” (1990: 107). Evolutionary biologists call this indirect reciprocity. “Reputation allows evolution of cooperation by indirect reciprocity (Nowak 2006: 19). Natural selection favors strategies that base the decision to help on the reputation of the recipient. Theoretical and empirical studies of indirect reciprocity show that people who are more helpful are more likely to receive help. Natural selection favors strategies that base the decision to help on the reputation of the recipient. (See citations 20-8 in Nowak 2006).

Assortative interaction. In PD tournaments or simulations, cooperation also increases if one tweaks the game to make it more realistic. In the classical iterated PD, a player meets the same opponent over and over again and “everybody interacts equally likely with everybody else” (Nowak 2006). “Indeed, the folk theorem requires that a person repeat this encounter over and over against the same opponent.” Kreps 1990: 103. The effect of this feature is to artificially “rig” the PD against cooperation. But, as Nowak points out, in the real world games are voluntary. Simulations show that that if the rules of the game are tweaked and players can

choose to cooperate, defect, or not play at all, “then some level of cooperation usually prevails in dynamic oscillations” (Nowak 2006: 59). In one experiment, as Zak (2007) reported, “competition among traders quickly led to stable groups that maximized social surplus and worked of a fair division of it.” In lab studies, Brown and Zehnder (2007) allowed parties to choose their partners each period, leading to both long-standing relationships and improved cooperation, and Duffy and Ochs (2009) found greater cooperation in fixed pairs than in random pairs.

In summary, I have briefly described some of the more important mechanisms that restrain opportunism. The upshot is, as Nowak & May (1995: 76) say, that the “emergence and persistence of cooperative behavior is not at all unlikely provided the players meet repeatedly, recognize each other, and remember the outcomes of past encounters (so that they can implement strategies that retaliate for defections in previous meetings).”

PART 4

Objections to the thesis

I next take up some familiar objections the thesis that promises are largely self-enforcing and that opportunism is restrained by the fear of losing future business, either with the same partner or with others who are aware of one’s reputation. Again I cannot pursue the arguments in depth, but I convey their flavor and I suggest how the objections can be met.

Multiple equilibria. One common objection is that there is no guarantee that repeated games and reputation must generate sustained cooperation. Unlike single-play PD, there is no unique or determinate outcome. As Axelrod says, the “sad news [is] that there is not one best strategy” (Axelrod 1984: 150; Miller 1999; Hill 1990: 506; Nowak 2006: 18). Cooperation is only one of several possible outcomes in a repeated context (Fudenberg and Tirole 1991). But if there is an infinite number of equilibria, isn’t an opportunistic outcome be just as probable as a cooperative one?

Other discussions of this point tend to follow Kreps’ classic treatment, so I do the same. Kreps (1990: 103) uses a form of the PD to show how multiple equilibria are possible. He calls it the trust-honor game. He says: “The point is that each player has many feasible outcomes above the maximin point of zero that can sustain an equilibrium. The theory doesn’t say which will

emerge; it just says that the repeated character of the situation makes them possible outcomes” (Kreps 1990: 103). To show this, Kreps argues that one possible outcome of an indefinitely repeated game is that A will consent to an arrangement where B announces that she will cooperate for two rounds out of three but will defect every third time they meet. Kreps says that if A finds this statement credible, she will honor A’s “trust” if the gains (from two rounds) exceed the loss (in the third round), and so on in future rounds.

This is no place for a complete analysis, but this conclusion seems to reflect limitations of the game or the way the game is structured. In the trust-honor game, the result is suboptimal in that B gains only \$5 from the arrangement while A suffers a loss of \$15. But, in these circumstances, a rational B would find it more profitable to offer to cooperate every third round in return for a side-payment from A in the range of \$6-14. Kreps does not explain what prevents the parties from bargaining to the competitive equilibrium.

There is another problem with the Kreps’ hypothetical deal. It gratuitously assumes that B is a monopolist. That gives B the ability to dictate the contract terms to A. Kreps acknowledges this: “When a single B is the only possible trading partner for the As, then the economics of the situation suggests that this B will take maximal advantage of his or her power, just as any monopolist would” (1990: 107). (Though the last section showed a monopolistic B agreeing to a suboptimal outcome). But if we assume, instead, that there is competition among *a number of Bs*, then presumably any bargain reached will be set by market forces. A will shop around for the best bargain. In that case, the outcome equilibrium will be the market price. Kreps himself admits that “the equilibrium reached between A and between A and B is determined by their opportunities with other trading (1990: 103-4) partners.” The first fundamental theorem of welfare economics teaches us that the resulting equilibrium will be an efficient one. The upshot is that, at least in this exemplary case, the charge of indeterminacy does not stick.

In summary, I don’t challenge the claim that, as a general proposition, a repeated PD may have multiple possible equilibria. But, at least in a market context, rational parties should converge on an efficient outcome. Then reputational pressures should compel the partners to adhere to the terms of the bargain. In a competitive market, other things equal, more efficient equilibria should prosper and grow at expense of less efficient ones, absorbing more actors into them.

Why trust is necessary in organizations. I turn next to Gary Miller's (1999, 2001) critique of the view that promises are largely self-enforcing. Following Kreps, Miller offers some live cases purporting to show repeated games and reputational considerations are insufficient to hold opportunism in check. He believes that the firm's self-interest is insufficient to restrain it from reneging on implicit contracts with the employees and expropriating their specific investments (Miller 321). Miller makes several claims:

- (1) If employees anticipate that employers will be compelled by adverse economic conditions to break their promises to reward employees for their investments in firm-specific human capital, then employees will logically cut back such investments (2001: 319).
- (2) Changes in external economic circumstances may make the expected payoff from breaking its promises to employees "look especially inviting to the owner" (2001: 319).
- (3) Deferred compensation "offers a temptation to the owners: they can let employees work at low wages in the expectation of deferred compensation and then either fire them or simply refuse to pay the career-ending bonuses" (2001: 321).
- (4) Because of their preoccupation with short-term profit maximization, firms that are dominated by shareholders especially prone to break their promises to employees (2001: 321).

Plainly (1) is a standard end game scenario. If there is a sharp increase in the probability that the game will end, then, employees will logically cut back their "invest[ment] in relationship-specific human capital, to make a particularly valuable productivity-improving suggestion, or to put in any non-monitorable effort." (Miller 2001: 319). But that will have little to do with opportunism, and a lot to do with the fact that the specific investment will not be rational since it has value only in a going concern. It does not seem helpful to call this opportunism unless the firm has deliberately contrived its own insolvency (e.g., by taking on excess risk). (See Williamson 1993: note 9 for a discussion). In case (2) Miller changes the payoff structure so that it becomes profitable to defect. But, by doing so, he implicitly admits that, for opportunism to pay, there first has to be a drastic change in "external economic conditions" that was not contemplated by the parties. The terms of trade have to have shifted so much that the payoff

from cheating is so great that it is not offset by the loss of reputational capital. As Klein (1996: 444) says, “[h]old-ups occur when unanticipated events place the contractual relationship outside the self-enforcing range”.

In cases (1) and (2), the parties’ behavior is consistent with the predictions of game theory. In case (3), however, Miller does not offer any explanation for why a firm would be tempted to terminate its system of deferred compensation so long as that system “makes possible significant efficiency improvements” (321). It doesn’t make sense for a going concern to wantonly destroy one of its valuable assets. The same objection applies to (4). Miller admits that the shareholders’ opportunism has the result that they are the “least likely to receive the efficiency benefits of the deferred compensation scheme” (2001: 321) but he doesn’t offer any theory to motivate their short-sightedness.

Miller’s critique is revealing both for what it says and what it doesn’t say. It is well-known that lower probabilities of continuation lead to lower rates of cooperation (Gibbons & Henderson 2012; Dal Bo 2005). It is also logical that a rationally self-interested player defects if the value of defecting exceeds that of cooperating. But, by implication, Miller admits that, within those boundaries (i.e., where the probability that the relationship (say between a firm and its employees) will end is sufficiently small and the present value of cooperation is greater than the present value of defection), a rational firm has no incentive to opportunistically break its promises to its employees. This space corresponds to what Klein’s (1996) “self-enforcing range” of contractual relationships. It is of course an empirical question how big this space is, but based on the evidence I presented earlier I suspect that the great majority of contracts fall within it.

Miller tries a different tack in cases (3) and (4). He seems to jettison standard game theoretic assumptions like rationality and self-interest. His new tack depends on the assumption that shareholder-owners succumb to the temptation of short-run profits *even if that means they forfeit the greater efficiency benefits of the deferred compensation scheme*.¹ In other words, they act irrationally. His argument has the interesting corollary that the principal threat to employees comes not from employers’ pursuit of their rational self-interest but rather from their failure to follow their self-interest. In summary, Miller’s argument is that argument is that, just as repeated games do not guarantee that the players will cooperate, neither does the prospect of repeat

¹ As Matt Ridley (1997: 137) says, if Amartya Sen’s (1977) “rational fool” turns out to be taking short-sighted decisions “then he is not being rational, just short-sighted.”

business based on one's reputation with existing and future partners suffice to restrain opportunism. But a close inspection of his cases shows that these incentives in fact sharply restrict the scope for profitable opportunism.

One takeaway from this discussion is that it is a mistake to myopically extrapolate from game theoretic findings. Miller assumes repeated plays by two persons *who apparently don't have the option of terminating their relationship*. In the real world, non-cooperative relationships are likely to be broken off, whereas cooperative relationships are likely to be maintained. Not only that, but in a competitive context, non-cooperative relationships are likely to fail and/or be displaced by cooperative ones. Therefore, even if not compelled by game theory, there are good reasons for concluding that cooperation should become entrenched where the shadow of the future is long enough.

The nice don't inherit the earth. Another potential problem for the claim that promises are self-enforcing is the fact that computer tournaments and simulations show that cooperation is not sustainable over the very long-run. The nice don't inherit the earth. Indeed, ultimately niceness proves to be self-defeating. Cooperation may take off and be sustained for a while, but eventually it decays and is replaced by nasty, exploitative strategies. As Miller & Smith put it, "cooperation is not inevitable" (Miller & Smith 1993: 201). Evolutionary game theorists like Nowak have documented that there are cycles and that cooperation is not forever.

So are we predestined to eternally cycle back and forth between cooperation and a war of all against all? That would seem to be the gloomy prediction of the theory. But it applies only to the very big picture. To see how the prediction has limited application to our case, it is important to examine the mechanics of the breakdown of cooperation. The process is well-known. As Nowak (2011: 36) explains, nasty strategies succeed because nice strategies have succeeded too well. Thus, Axelrod's Tit-for-Tat (TFT) strategy eventually loses out to its nicer cousins that exploit TFT's fatal error of being too strict to tolerate the occasional mishap. As Nowak (2006: 15-16) puts it: "soon an Achilles heel of the world champion was revealed: If there are erroneous moves caused by 'trembling hands' or 'fuzzy minds', then the performance of tit-for-tat declines. Tit-for-tat cannot correct mistakes, because an accidental defection leads to a long sequence of retaliation." In contrast, TFT's successors never forget a good turn but occasionally forgave a bad one (Nowak & Highfield 2011: 36). But even these strategies, in their turn, are supplanted by even more lenient ones. Nowak & Highfield (36) say:

Ultimately the population becomes uniformly nice: all cooperate. The reason is that when everyone tries to be nice, forgiveness pays handsomely. There is always an incentive to forgive quicker and quicker because the highest rewards come from having many productive (that is, cooperative) interactions. Now at last defectors have a chance to rise up again, with the help of the right mutation. A population of nice players who always cooperate is dry tinder for an invasion by any lingering or newly emerged defector. In this way the cycle starts anew.

So, from our parochial perspective, we have little to worry about from these findings because we are nowhere near the nirvana of universal cooperation. In a mixed environment such as ours (i.e., comprising both opportunists and non-opportunists), “the various mechanisms discussed here tend to lead to cooperation” (Nowak 2006).

Noise. The strongest objection to my argument is that it assumes that parties can unambiguously recognize defection and cooperation. That is, it fails to allow for the ‘trembling hands’ or ‘fuzzy minds’ referred to by Nowak. David Kreps as usual offers one of the most thoughtful critiques of this assumption. He models the case as one “when one player cannot observe directly that the agreement is being carried out, and when this player can only rely on noisy, indirect observations....” (Kreps 1990 105). In the standard PD A knows what action B has taken. “If instead A only observes his own payoff, and if this payoff is not deterministic but is probabilistic, then A has to decide whether a bad outcome is due to B's defection or is explained by an unlucky draw. Faced with "noisy, indirect observations, the problem of finding self-enforcing arrangements is vastly more complicated" (Kreps, 1990: 105). Moreover, unforeseeability further compounds the difficulties: “by definition, it cannot be clear *ex ante* precisely what is called for in a contingency that *ex ante* has not been foreseen” (Kreps, 1990: 124; see also Williamson (1991) on the flaws in case for reliance on reputation). We saw that these same problems dethroned the winner of Axelrod’s tournament. TFT no longer triumphed when errors were introduced. It is too unforgiving. An accidental defection leads to a long sequence of retaliation” (Nowak 2006).

Noise unquestionably greatly complicates the task of using reputation to credibly commit. But it does not make it impossible. For one thing, it reinforces the criticality of repeated transactions. If outcomes are probabilistic, parties can't base their evaluations of other parties' trustworthiness on a single transaction. The evaluation is necessarily longitudinal. It also accentuates the importance of reputation since that rests on observations of the partner's behavior by different parties over a number of different transactions.

The question of how much the efficiency of the reputational marketplace is degraded by noise is ultimately an empirical question. But notwithstanding these problems, few observers question the importance of reputational considerations. Despite his professed skepticism about the effectiveness of reputation, Williamson also acknowledges the role played by reputation and repeat business in enforcing contracts. In his Nobel lecture (2009: 469), he notes that “[c]redible commitments sometimes come into place spontaneously, as where a history of good experience with a trader leads to a positive reputation effect”. He acknowledges (1985: 261) that a reputation for fairness enables a firm to contract on favorable terms in the future. And reputational considerations also play a crucial role in Williamson's (1993: 470) discussion of “calculative trust.” In this discussion, it is apparent that the inputs into the calculations of trustworthiness are predominantly based on judgments about the reputation and future business opportunities of the merchant bank (Hambros) and the ship owner (“That the merchant bank was best suited to bear the risk is, I conjecture, because it had the most knowledge of the ship owner and the best prospect of future business....”). Indeed, somewhat surprisingly, at one point Williamson (1985: 261) seems to sharply bound the domain or reach or zone of opportunism much as I have here. He concedes that the exploitation of specific investments of incumbent employees is effectively restricted to circumstances where “(1) firms are of a fly-by-night kind, (2) firms are playing end games, and (3) intergenerational learning is negligible.” Williamson also is familiar with Macaulay, whose micro or local economy is almost a paradigmatic case of the operation of the mechanisms discussed here.

Nevertheless, Williamson is reluctant to concede that reputation may limit the range of transaction cost economics. He praises reputation with a faint damn. He says (1985: 157) that “it would be a mistake ... to conclude that reputation effect mechanisms explain *most* of economic organization” (my emphasis). However, these *obiter dicta* about reputation are not incorporated into Williamson's formal modeling.

Objections don't carry the day. This brief overview can't definitively resolve this debate. But it suggests why the great weight of opinion in the academy is that the evolution of cooperation is explained in large part by the mechanisms I have described. The consensus spans theoretical and ideological divides. The forces I have described generally hold opportunism in check in the context of two person interactions or exchanges. It is generally accepted that high levels of cooperation can be sustained in such interactions. Only a sample. Bowles & Gintis (2009) (grudgingly?²) concede that "Repeated interactions do provide opportunities for cooperative individuals to discipline defectors and may be effective in groups of 2 individuals." It is probably unnecessary to multiply examples. So a few will stand for the universe of such claims. Earlier, I noted that Wachter (2004) reported that firms don't take advantage of the vulnerability of at-will employees. His explanation is that firms are deterred from acting opportunistically "because their bad play would eventually be discovered by the labor market and they would suffer reputational losses greater than their potential opportunistic gains" (21). This applies to contract law more generally too. Similarly Ronald Coase (1988: 33) said that "the propensity for opportunistic behavior is usually effectively checked by the need to take account of the effect of the firm's action on future business."

I give the last word on this subject to Steven Pinker. According to Pinker (2012), within evolutionary theory, "the mechanism of reciprocal altruism, augmented by reputation and commitment, provides a psychologically realistic and well-supported explanation of human social and moral life Social life provides ample opportunities for gains in trade (two agents are each better off if they exchange their surpluses and extend branches to rescue each other from drowning than if they let their surpluses rot and file their nails while the other drowned), as long as each protects himself against one-sided exploitation by the other. That protection can be ensured by remembering individuals and their past behavior, or asking around the grapevine, and selectively cooperating with those who are likely to reciprocate."

PART V

Contracting like there is no tomorrow

² Bowles & Gintis's article is "Beyond enlightened self-interest..."

We are now in a position to revisit one of the puzzles of this paper: If practitioners have already solved the problem of opportunism, then why are theorists still playing catch-up? I have argued that the salience of the problem of opportunism in TCE is a result of its choice to model transactions as one-shot prisoner's dilemmas. Instead of being embedded in ongoing economic relationships, the transaction is treated as having no past and no future. It is a disembodied, idealized, immaculate event. There are no other transactions between the same partners *or even with other partners*. In other words, by choosing a one-shot PD, theorists like Williamson pre-ordain the importance of opportunism, because they abstract and strip the transaction of all the factors that, in the real world, police opportunism.

In Williamson's (1985: 169) well-known chapter on hostages the assumption is a one-time sale and no expected future transactions and no harm to buyer's reputation. As Hill points out, "Williamson's model is a single-period model,... , and its predictions do not hold for the long run" (Hill 1990: 511; also Bachmann & Zaheer 2008). In such artificial circumstances, obviously, the risk of hold up is maximal. Not only that, but Williamson also assumes that, in the time since the agreement between the partners was inked, the terms of trade have in the meantime moved drastically against the seller and the buyer has the option of rejecting the good produced with the specialized investment. The buyer in Williamson's case leaves the seller in the lurch because, by the time of delivery, the price of the good made with inferior, general technology has fallen so sharply that it offsets the desirable price and quality features of the good produced with specialized technology by the seller.³

This choice has fateful implications. Given what we know about the one-shot PD, it condemns the project of solving the PD to failure. There is no contractual solution to the one-shot PD. As previously noted, if the transaction takes place only once, there is a unique equilibrium point, and that is mutual defection. Thus, the salience of opportunism is an artifact of the choice to model transactions as one-shot PDs. Since there is no tomorrow, there is no

³ Williamson's discussion does not note that specific investments *already* function as quasi-hostages because they generate rents for the collaboration. Therefore, for the hold-up model to apply at all, he has to rely on some external event or shock or surprise that changes the partners' relative bargaining power. Otherwise, within a wide range, cooperation will be rational.

incentive for the partners to exercise self-restraint today in the hope of more business tomorrow. Once replaced in context, in Kreps' word. Things change "dramatically." Even a transaction involving highly specialized investments can be seen to be protected by that context from opportunism. Most transactions tend not to be isolated -- especially not if they involve specific investments which, by their nature, tend to lock the partners into a stream of transactions.

Of course, Williamson is not alone in making the transaction his basic unit of analysis. Grossman and Hart (1986), too, do so "with a vengeance" (Kreps, 1990: 98). They "study the requirements for a particular (ideal) transaction and the way various institutional arrangements approximate these requirements. Theirs is not a theory of the firm per se..." (Kreps, 1990: 99). Oliver Hart (2001:8) acknowledges that the "property rights theory has in the main been applied to static or one-shot situations." Here, too, the outcome is driven by the bargaining model used by the theorists. Rajan and Zingales' model assumes two players who each make a single specific investment. The two parties – "players" – live in an eternal present with no past and no future. Therefore, they have no incentive to restrain their opportunism in the interest of preserving their cooperative relationship.

The problem these theorists try to solve for is matching the features of the transaction with the optimal organizational form or contract design – allocation of residual ownership rights, contractual design, governance mechanisms, etc. – for minimizing the risk of hold up. Of course, any abstraction by definition truncates reality. However, in this case I argue that rigor and mathematical tractability have been purchased at a particularly high cost in terms of relevance because the focus on the transaction excludes precisely the variables that do the work of restraining opportunism in the real world (see Michael Jensen 1998: 333).

These theorists' eyes are wide open to the risk they are running. Hart (1989: 1758) readily concedes that the formal models are "extremely rudimentary" and "capable of portraying hypothetical firms that bear little or no relation to the complex organizations we see in the real world". They are a "caricature" (Hart, 1989: 1775). Margaret Blair (1999: 85) admits that Rajan and Zingales (on whose work her own team production theory heavily depends) is artificial: "[T]heir model is still limited by the fact that it follows the two-period structure of most bargaining models. In such models, contracts are written, investment decisions are made, production proceeds, and rents are realized and divided up. There is no second round, let alone third or fourth or more rounds ..."

The theorists also readily admit that opportunism is exceptional in repeated games. Hart (2001:4) says that if trading is repeated infinitely often “trade at a high-quality level can be sustained.” Holmstrom (1999: 79) says that repeated games are a way of curbing opportunism. He asks: “What assures that [a firm’s owner] does not cheat on payments when performance meets the standard?” The answer is that, in a repeated game setting, an owner’s interest in its reputation may preclude opportunistic actions. Baker et al. (2002: 60) say that “at sufficiently low discount rates ownership is irrelevant because the first best can be achieved under [any arrangement] provided the parties value their reputations sufficiently.” Blair (1999: 85) notes that in Rajan and Zingales’ model, “there is no place in the model for reputations to be built up, or for learning from experience, or for investments made in previous rounds to expand the options for the participants in subsequent rounds.”

CONCLUSION

The conjecture of this paper is that opportunism is restrained primarily by the shadow of the future. The SOF comprises two elements: the prospect of repeat business with the same partner and reputational considerations that bear on the prospect of business with other partners. If we model transactions as iterated or repeated games with the same and other partners for an indefinite number of rounds, and if the partners can decline to interact with others, things change dramatically. The threat of opportunism is not eliminated, but it is cut down to size. Quite simply opportunism is no longer the omnipresent, ubiquitous threat that it is in theory that is based implicitly or explicitly on the one-shot PD. Transactions look different through the lens of repeated games.

Theory of the firm. Plainly, if my conjecture is correct, and opportunism is not the threat portrayed in TCE, then opportunism cannot explain the existence of the firm. We need an alternative theory of the firm. This underlines Hodgson’s admonition to us to explore other factors correlated with specific assets that drive the existence of the firm. Presumably the purpose of these arrangements would be coordination, not the suppression of opportunism. Crocker & Masten (1991: 95) made a similar point about the complexity of contracts: “it seems more appropriate to view contracts as means of establishing procedures for adapting exchange and resolving disputes rather than as pure incentive mechanisms.”

Trust theory. This point applies with equal force to the burgeoning literature on trust. If the threat of opportunism has been exaggerated, then the theoretical foundation trust theory needs to be re-examined. In trust research, trust has been conceptualized as an alternative solution to the problem of opportunism. Trust theorists have claimed that the “[s]uperior efficiency of inter-organizational relations that involve trust is simply that trust reduces the inclination to guard against opportunistic behavior” (Zaheer et al. 1998: 144; see also Barney & Hansen 1994). In this view, trust is an efficient substitute for governance structures and thus economizes on their cost. But this holds true only to the extent that there are incentives for the parties to act opportunistically in the first place. If my argument here is correct, then such incentives are rare and so *both* the firm/governance structures and trust can safely be dispensed with. The logic is isomorphic for both TCE and trust theory.

Research design. In Carter & Hodgson’s view (2006: 474), a “serious concern is the lack of direct measures of transaction costs.” Tests of TCE and trust theory are incomplete if they do not control for opportunism. In its place, in the standard tests, researchers have used alternative measures or proxies like specific assets. “Of the transactional properties that have been examined empirically, asset specificity, or the transferability of assets that support a given transaction to a different use or different user, is argued to be the most important … and has subsequently seen the most proliferations in the empirical literature” (Macher & Richman 2008). One partial solution is for researchers to make the calculations that participants in the market routinely make. That is to estimate the risk that a particular situation (party/transaction) is susceptible to opportunistic behavior by either party. That estimate will depend on factors like the size of the benefit from cheating, the expected value if the relationship is continued, the reputational costs from opportunism, etc. If the expected benefit of cheating exceeds the cost, then TCE predicts that the transaction will be executed within the firm.

Self-interest. If this paper has overarching themes, one is the paradox that self-interest is the strongest guarantee that business people will keep their promises. Self-interest is not only a potential threat to promises but also a potential guarantor of them. What more secure foundation for people’s promises than their self-interest? As Russell Hardin (1991) puts it: “You can more confidently trust me if you know that my own interest will induce me to live up to your expectation.” Men are led by an invisible hand to keep their promises to others and “promote and

end which was not their intention.” In this light, too, self-interest is a natural incubator of what we call the virtues or virtuous behavior (Maitland 1997, McCloskey 2010). Even if actors are not inherently disposed to act with integrity or virtuously, they will act *as if* they were.

Homo economicus. However the prognosis for *homo economicus* is dubious. Though I have made use of *homo economicus* for heuristic reasons, my analysis helps to highlight why *homo economicus* is such a poor replica of human nature or model of man. Simply put, even though *homo economicus* keeps his promises because he is rationally self-interested, he is at a competitive disadvantage (i.e., less “fit”) than rivals in whom reciprocity is hard-wired. “Since being chosen as a reciprocation partner is better than being shunned, this market sets up a corresponding pressure to stand up to such scrutiny, which can include actually *being* generous and trustworthy” (Pinker 2012). New “models of man” take into account the evolutionary advantages of reciprocity. As Randolph Nesse (2011: 144) says “In the PD constant vigilance is warranted. In contrast, social selection shapes extreme vigilance about how others are judging you”. The same point was made by Charles Hill (1990: 511) in his critique of TCE some 25 years ago: “If the wider context within which economic transactions are embedded is considered, it can be concluded that over time the invisible hand of the market favors actors whose behavioral repertoires are biased toward cooperation, rather than opportunism.” Another implication that many will welcome is that the dismal science is a little less dismal. The damaged self-image of human nature is partly rehabilitated. Opportunism is not endemic. Trust is widespread (perhaps excessively so, but that is another story).

Public policy. This analysis is not a vindication of pure laissez faire. Importantly, the argument’s focus is limited to contractual hazards. Even if opportunism toward a contractual partner is held in check by the prospect of repeat business with the same or different partners, these forces don’t protect third parties from harmful externalities. Nor do they offer any solution to the opportunism of free riders in the provision of public goods. But the analysis does support the classical liberal idea that government should interfere only on an exceptional basis with freedom of contract. If incomplete contracts are largely self-enforcing, then government enforcement is redundant.

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