Pushing the boundaries of Williamson's 'science of economic organization' - knowledge and pluralism challenges*

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Abstract

This contribution welcomes Williamson's invitation to continue to 'push the boundaries' of his 'science of economic organization', integrating economics, organization and law. The essay reviews the boundary expanding revisions of Williamson's model (by himself and others) highlighting the issues and areas where the integration with organizational and juridical theories has been more successfully performed, and areas calling for future research. A substantive proposition resulting from this analysis is that if the notion of contract is extended (using law more intensively), and if the notion of the firm is disentangled by that of hierarchy (using organization theory more intensively), the contractarian approach developed by Williamson becomes more robust in explaining and designing also knowledge intensive and pluralist forms of economic organization, and less specific to the vertically integrated and hierarchical industrial enterprises that stimulated its birth.

Key words: Governance mechanisms; Theory of the firm; Hierarchy; Hybrids.

Introduction

A great force of the theoretical framework that Oliver Williamson left in our hands and heads is its extensibility, together with his own rare and examplary activism in revising and extending his own model. One reason why what has become known as 'transaction cost economics' has been, and still is, such a 'progressive research program' is the transparency of its assumptions, that facilitates their eventual relaxation or partial modification in response to theoretical and empirical anomalies and challenges. In fact, the conclusive message by Williamson at the end of an inspiring interview released to JOIE (2007) has been: "I think that the new generation of scholars can recognize that their predecessors have made headway. But there are also limitations and big challenges ahead. So let's push the boundaries."

This type of invitation is by itelf a testimony of methodological honesty and an anticorp against the fossilization of orthodoxy. This essay is dedicated to taking stock of those extensions of

* A previous version of this paper has been presented in the Memorial Session for Oliver Williamson of the annual conference of the Italian Society of Law and Economics, December 2020

Williamson's analytic framework that have been realized by using advances in organizational and juridical thought, and to push the boundaries of Williamson's 'science of economic organization' (1993) somewhat further, by taking into account some of new challenges posed by contemporary economic organization. I shall use the terms 'science of economic organization' (Williamson 1993) or 'organizational failures framework' (Williamson 1975) - for referring to the whole research program, approach and legacy. I shall use the term 'transaction cost economics' (TCE) when referring to the sub-set of tools that has become codified as such. In fact, the first thing to say about TCE, in spite of this identifying label, is that it is not exactly an economics 'of' organization - where the disciplinary tools are drawn from economics and applied to organizations as objects of analysis. This is one of the key features that distinguish Williamson's 'theory of economic organization' from 'economic theories of organization' (as agency theory and property right theory). In fact, the idea is that «a science of organization is in progress in which law, economics, and organization are joined» (Williamson 1993). In that way, Williamson's work and legacy has also promoted the emergence of overdue connections between law and organization; as much as Williamson's work contributed to the passage from an 'economics of law' to an 'economics and law' – the type of approach forcefully called for by one of the fathers of that field (Calabresi 2016).

This said, there are areas and themes in which the economics, organization and law integration pursued by Williamson has been realized more clearly and successfully and others that would call for clarification and further work. One purpose of the present paper is to highlight and distinguish this unequal development in some key areas. In the discussion, only the (already challenging) problems posed by the interdisciplinarity of the research agenda to theoretical consistency, and those posed by an evolving reality to the prediction capacity of the model will be considered. Instead, no argument of alleged limitations in terms of 'neglect' of something will be. All models neglect something, and it would be too easy and anti parsimonious to extend a model by simply adding variables. Actually, it may be quite useful to see how far one can get by using only one type of explanans, 'ceteris paribus'. For example, the TCE predominant focus on solving conflicts of interest, has triggered a parallel exercise in suspending those considerations, for developing the implications of focusing only on knowledge problems and predictors. In turn, those parallel perspectives could eventually be made to converge by using those explanations in combination (Hodgson 1998).

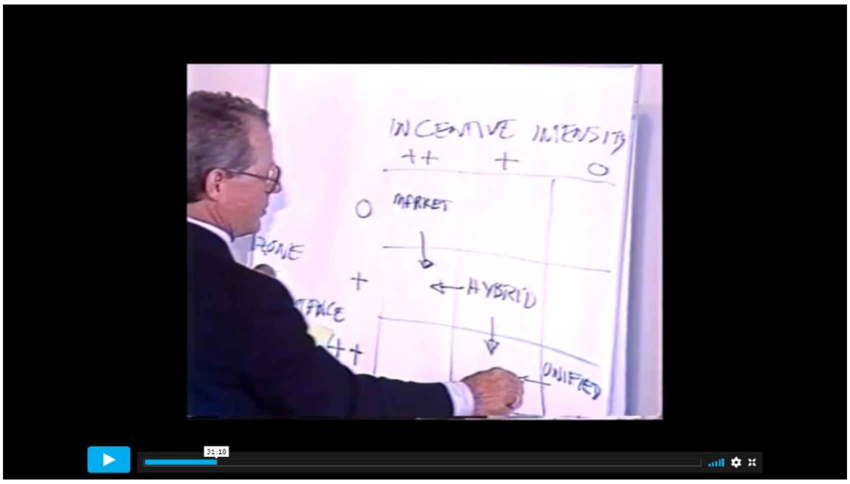
However, if and where a theory falls short from predicting what it was intended to predict, another possibility , or even intellectual duty, is to extend and revise the theory itself, before integrating it with other ones. Wiliamson's own work has been examplary in this respect: in fact many extensions of TCE have been realized in primis by himself, in response to the empirical and conceptual challenges emerged. These are the types of extension considered in the present essay: extensions and revisions, drawing on advances in organization and law, but used for extending the basic contractarian organizational failure framework. Already available extensions of this type are reviewed, others are called for. Among the challenges posed by the evolution of reality, the increasing knowledge intensity of the economy and the increasing quests for pluralism in governance are especially considered. My thesis will be that resolving some ambiguities present in Willamson's thought (as in any giant's thought, luckily) is the key for opening a door for proceeding in those directions. The most important first step across that door is to reconsider the nature and role of hierarchy, from which therefore I am going to start.

Disentangling Hierarchy and 'Unified Property'

In a very common interpretation, Williamson would have said that hierarchy and authority are essential features of firm organization. I am going to put this interpretation into question, and rather leverage on some interesting ambiguities and differences among parts of his discourse, for solving the contradictions that otherwise would arise between TCE and both organization theory and organizational reality.

In early presentations of his ideas, Williamson did not use the term hierarchy so intensively and exclusively as after the penetration of his 'markets and hierarchies' opposition (Williamson 1975) in the market for ideas. For example, in a seminar held in 1988, the then emerging Professor of Economics of Law and Organization at Yale sketched the matrix that can be seen in Figure 1.

Figure 1. A market versus unified ownership version of Williamson's framework
(*Video of presentation publicly available at the link https://vimeo.com/433651709)*



What he wrote to complete the threefold portfolio of structural alternatives, after markets and hybrids, was not hierarchy, but ‘unified property’. Although in the talk he often used the two terms interchangeably, the primary element is actually unified ownership, from which eventually hierarchical coordination may follow.

The important point to make is that hierarchy does not necessarily follow from unified ownership (nor unified ownership is a necessary precondition for the emergence of hierarchy; cfr Simon 1969). According to Williamson himself (diiferently from Coase), we can have entities that, in the course of being based on unified ownership, are not governed on the basis of authority relations, and do not even exhibit a hierarchical structure, as ‘collective enterprises’ (Williamson 1980). And in fact, in his later book bringing together his various contributions over a decade, Williamson (1986: 78-79) did expose his framework using the terms ‘Market governance’, ‘bi- and tri-lateral governance’ , and ‘unified governance’. The use of ‘hierarchy’ as a synonym of ‘firm’ included a couple of critical comparative judgments, on which Wiliamson did honestly work on, both in the just quoted paper and in the chapter on ‘peer group’ enterprises in Markets and Hierarchies, leading to the conclusion that authority based, hierarchical coordination is superior to joint-decision making, ‘committee’ coordination under ‘common’ conditions characterizing the transactions between ‘stages of production’.

But are those conditions that common? As the author transparently declares, the conditions include: divisible technology and separable stages of production; economies of specialization in the different stages; no innovation; and ‘randomly distributed’ workers' organizational preferences, not systematically favouring any particular form. Hence, what has been actually been demonstrated in the article is that in the classic stable conditions of industrial production (of the past century?) 'capitalistic governance' (unilateral unified ownership by financial investors cum coordination by authority) has performance advantages in terms of investment behavior, adaptiveness, and cost minimization over the alternative modes of governing an enterprise considered: namely, 'collective' and 'entrepreneurial ' modes, in which ownership is unified, but shared among other types of actors – providers of work, or a mix of work and investment. This does not exclude, but rather suggests that entrepreneurial and collective firms may be superior under other combinations of circumstances : less separables stages of production, product and process innovation, learning of outcomes and activity along the way, and defined systematic preference of labor providers over organizational arrangements.

Therefore, the fundamental threefold typology of forms – markets, hybrids, firms - would be more robust and would have better life expectancies if unified ownership is recognized as a necessary feature for having a firm, but not necessarily hierarchy, especially hierarchy based on authority (which is not the only type of hierarchy, by the way: e.g. we can have hierachies with principals at the 'bottom' and 'agents' at the top, as in 'representative bureaucracies') (Gouldner 1954). For example, the governance of emerging entrepreneurial, knowledge intensive firms would be unintelligible if we were to stick to the firm-hierarchy equation. Where is hierarchy in an entrepreneurial firm established by the prototypical three engineers around a project, and doing everything by themselves? That equation was permissible for talking about vertical integration in classic industrial enterprises. But it would unnecessarily reduce the capacity of the 'organizational failures framework' to interpret more innovative and knowledge intensive types of business organizations.

In addition, the identification between firms and hierarchies, and in turn of hierarchy with authority, generates quite a few barriers and problems in terms of integration with organization theory. More precisely, a view of firms as hierarchies is consistent with classic, universalistic, ideal-type Weberian organization theory; but certainly not with all modern, empirically falsifiable organization science. To start with, in fact, one of the main propositions of that science is precisely that hierarchical coordination comparatively fails under high uncertainty, in favor of mutual adjustment, horizontal coordination, and committee steering (March and Simon 1958; Thompson 1967). A proposition that partially contrasts swith the idea that hierarchy is 'the' adaptive response to uncertainty. That problem in fact, together with the empirical anomaly seen at the time in the peculiar architecture of Japanese firms, triggered a revision of the 'market and hierarchy perspective' undertaken by Williamson in collaboration with Ouchi, leading to add the ‘third type’ of ‘clan’ or ‘relational team’ form of coordination (Williamson and Ouchi 1981). The third mode of governance was assessed as fit to more intense, more knowledge based forms of uncertainty, as the non observability or measurability of performances. Hierarchical coordination was eventually repositioned as a mechanism that can deal with only intermediate levels of uncertainty (Ouchi 1980; Nickerson and Zenger 2004). On the other side, the consequences of such modifications on other parts of the model had not been fully considered. What that ‘reform’ implies for the notion of the firm emploied? Which notion of the firm is compatible with this extended typology of coordination and governance mechanisms? The answer can be that a notion of the firm as a roof of unified/shared property rights is compatible with the prospected increased variety of internal coordination mechanisms; while a firm equated to hierarchy is not.

The disentanglement of ownership structures from coordination mechanisms could strenghten the organizational failure framework also in other respects. In the first place, it would bring more logical consistency in both the main typologies used in that tradition. In fact, markets and firms are both complex multimechanism institutions that can be compared and hybridized. By constrast, ‘hierarchies’ or ‘bureaucracies’, and ‘clans’ or ‘relational teams’, are (sets of) coordination mechanisms that can be applied both within and between entities. And for the sake of logical consistency, the third element in this second typology of coordination mechanism, should be a set of ‘price-like’ coordination mechanisms - also applicable both between and within entities, via incentives, fees, queues and other price-like mechanisms - rather than the market institution. This conceptual clarification would in turn make the framework more compatible with the empirical evidence on contemporary organizational arrangements: in which, under a roof of ‘unified property’, price-like mechanisms are heavily infused (Zenger and Hesterley 1997), or ‘communitarian mechanisms’ are the key ‘glue’ (Masten 2013). Rather than ruling those combinations of mechanisms out (with a rather counterfactual ‘impossibility of selective intervention’ theorem; cfr Williamson 1991) those ocmbinations can actually constitute a further domain of fruitful application of the approach, leading to a notion of ‘internal hybrid’ that may be as fruitful as the notion of ‘external hybrid’ has been. After all, also external hybrids were dismissed as transitory ‘incoherent’ forms in early Williamson theorizing, with very similar arguments. Then, internal hybrids can be considered good candidates to the same destiny of rehabilitation and fruitful contribution to TCE extension.

In the next sections, it will be shown that disentanging ownership structure from organization structure, and the two interlocked typologies used in TCE, is a necessary step for unleashing other explanatory power enhancing extensions. In concluding this point, for the sake of fairness, it should be observed that Williamson's ambiguity on the nexus between firms and hierarchy is entirely understandable, as he did have a dual underpinning on the issue: on one side, the Coasian view of the firm as a 'command economy' and as 'the' alternative to the 'spontanous order' of markets; on the other side the Barnard's and Simon's view of hierarchy as one organizational coordination mechanism among others. But our and next generations of sholars are not obliged to carry this ambiguity on, and actually are better advised not to.

Hierarchy and the firm as third parties

Putting aside the firm-hierarchy equation, some reflections are offered here on the notion of hierarchy employed by Williamson, and why it is different from that used in other organizational economics models, most notably property right theory. The Williamsonian hierarchy is a Weberian hierarchy in many fundamental aspects [1]: Hierachy is an impersonal mechanism, effective for the coordination of a system, the custodian of a system of rules; a 'prosecution' of the external system of laws and courts into a private ordering with analogous architecture, devoted to solve disputes that are too specific for being heard and settled in the general legal system (Williamson 1993). The texture of that private order is therefore a 'legal-rational authority' complemented by, and resting on, a legal-rational set of rules.

If so, it is worth noticing that hierarchy is not the expression of the 'power' of one party over others: it is a 'third party' devoted to the interests of the system. Internal authorities have 'fiat' rights (and duties) similar to those of courts of law. Therefore, it is very different from how authority and hierarchy are intended in other strands of organizational and institutional economics. In particular, it differs from the notion that the 'fiat' capacity of internal organization, the famous 'glue' keeping the organization together, is bargaining power, as in Hartian 'property right theory': employees have incentives to comply with directions because the firm owns technical assets that they need to be productive, and can be 'selectively fired'

[1] On this congruence see the very instructive, seldom cited paper that Willimson presented at the EGOS (Eurpoean Group of Organization Studies) Colloquium in 1986 (published as Williamson 1988) in which he illustrates that his model conform to canons of functionalist explanation, i.e. it not a teleological explanation asserting that organizational choices are taken with the goal of cost minimization, but that structural alternatives having that property are superior. An understanding of this point in OT would have prevented much dialogue of the deafs with TCE.

(i.e. excluded from the use of the asset) if they do not comply (Hart and Moore 1990; Rajan and Zingales 1998). A more Marxian than Weberian view indeed (if we neglect the detail that, at the opposite of Marx, Hart and colleagues' conclusion is that such a power-based order is efficient). Hence, the 'irritation' provoked in the organizational field by the notion of 'fiat', due to an interpretation of it as an expression of 'domination' (e.g. Perrow 1981) could have been more properly reserved for other economic theories of the firm, rather than raised toward Williamson. The rational-legal view of hierarchy as a third party, characterizing organization theory and common to the milestone OT founding contributions by Weber, Barnard and Simon, is dominant also in Williamson.

This said and recognized, it may be recognized that the 'thirdness of hierarchy', present in both TCE and OT, is likely to remain incomplete and unenforceable, unless the firm itself is also conceived as a third person, a legal entity in which an internal legal-rational system of rules and courts can work properly. Then, it can be argued that a stronger link to the juridical foundation of the firm itself as a third party, is not only complementary but is even a necessary complement for a view of the firm as a rational-legal order. In fact, it is otherwise unlikely that 'managerial hierarchies' will behave as a 'court of last resort' for all participants, rather than as agents of one party (the party having decision right on directors' nomination and pay). The contributions in corporate law emerged in the 2000s (Hansmann et al 2006; Blair 2004, 2013) can provide such a complementary element. This is the answer that could be given to a further question posed in the JOIE 2007 interview to Williamson: "How would you go about including the evolution of legal doctrine, especially the evolution of the conception of legal entity status of the corporation into the transaction cost accounts?" A reconnection between the unified/shared property characterizing the firm with the legal status of firm as a 'third person' is not only possible, is necessary; especially if the internal organization has to be a rational-legal, constitutional system of rules and courts.

Reconnecting Chains and Pools

Selecting unified/shared property, rather than unity of 'command', as the fundamental trait of the firm, would also help in better interpreting hybrid forms. In fact , association-based and horizontally coordinated interfirm networks can be accomodated on a market versus unified/shared ownership continuum, but not on a market to 'hierarchy' continuum. The unfortunate consequence of looking for hierarchical elements in hybrids have included the temptation to multiplicate ‘entia praeter necessitatem’, postulating that networks are a third form on its own, just because of they often exhibit an all-to-all relational pattern (Powell 1997); or to analyze classic forms of enterprise as the cooperative firm as a hybrids, just because of “the joint allocation of rights and their mode of governance, dominated by the ‘one person, one vote’ principle” (Ménard 2012a).

The study of networks and hybrid forms has nevertheless been a major source of progress for TCE - thanks to, rather than in spite of, the frequent empirical ‘anomalies’ encountered on that terrain and the many ‘strange forms’ resisting to classification. The variety of forms has stimulated an unpackaging, articulation and operationalization of hybrids, necessary for explaining the ‘swallen middle’ (Hennart 1998), and actually for designing any inter-firm agrrement.

One challenge has been to articulate the notion of ‘hybrid’ in a set of discrete structural alternatives identifiable in the organization of an industry. Even though in the mid 80s the literature on hybrids was not articulated as it is now, one of the basic inputs came for Williamson himself (well before his 1991 paper on hybrids). In a seminar in the early 80s he drew on the blackboard the ‘continuum’ between market ad unified governance forms, specified roughly as follows:

Market contracting	Licencing	Sub-contracting	Franchising	Joint ventures	Integrated firm

Seen with OT eyes, what was immediately visible was the analogy and complementarity with the continuum of inter-organizational forms specified in the allegedly rival Resource Dependence perspective (Pfeffer and Salancick 1978), which in turn drew heavily on Thompson (1967). The analogy, or even equivalence was in the prediction that the stronger the interdependence among firms, and the uncertainty of the relation, the more powerful the integration mechanisms should be, up to a full integration within one firm (Barney 1990). The complementarity rested instead on a difference, in the specification of the forms, that in the Thompson-Pfeffer-Salancik formulation can be summarized as follows:

Independent Firms	Tacit coordination	Associations &Cartels	Interlocking directorates	Joint ventures	M & A Integrated firms

That is, while in TCE the specification of hybrid forms was all about ‘vertical’ semi-integration regulating exchanges (transactions), in OT the specification of hybrid forms was all about ‘horizontal’ semi-integration regulating the ‘pooling of resources’. The two continua converged and overlapped for the forms based on the unification of property rights, namely joint ventures and M&A – as it should be: in fact, proprietary integration into the same unit can internalize complex interdependences no matter whether sequential or pooled (and being based on unified property, equity joint ventures are in fact firms rather than hybrids, *cfr*: Hennart 2013).

The congruence in the predictors of growing degrees of inter-firm integration, coupled with the complementary difference in the specification of vertical and horizontal forms , was an ideal basis for integrating the two into a more complete model. A problem faced in trying to perform that integration though, revolved around the contractual foundations of inter-firm agreements. Contract theory was predominantly focused on transactional contracts, or even considered a contract as a governance mechanism typical of markets. Williamson (1979), building on Macneil’s (1978) contribution in law, provided an important extension of the notion of contracts, introducing ‘relational’ and ‘obligational’ contracts as the contractual and legal foundations of hybrids. Further extensions followed, clarifying the contractual foundations of horizontal hybrids and inter-firm alliance (e.g the edited volume by Reuer and Arino 2006). In those developments further contributions from law have been mobilized and used. In particular, the notion of costitutional contracts capable to regulate ‘on going cooperation’, and even to constitute ‘condominiums’ and ‘entities’ (Goldberg 1976; Vanberg 1986; Bottomley 1997) began to be used for completing the portfolio of the forms of contract underlying the different forms of hybrid arrangements. Ultimately, those advancements touched also the firm end of the continuum of possible contracts. In fact, a legally recognized, constitutional contract associating resources has the interesting property of not failing under strong uncertainty and asset specificity. Actually, it was ‘invented’ in history precisely for conducting risky and uncertain ventures in unchartered territories (Hodgson 2002; Brower 2005; Landes et al 2010). Therefore, it can be seen as the type of contract lying at the heart of the firm (as explicitely recognized in the Civil Law notion of the enterprise as a ‘contract of societas’) (Grandori 2010). In that respect a connection with law that includes Civil Law, and not only Common Law, has proven useful, as it articulates a notion of the firm as a proprietary contract of association, i.e. instituting the ‘unified/shared property’ caracterizing the firm. Arguably such a positive law notion - an enforceable contract, instituting rights and obligations - is stronger and clearer than postulating that the legal regime characterizing an integrated firm is rather a 'suspension of law': namely, a 'law of forebearance' (Williamson 1991) that in law is defined as a 'voluntary abstention from or postponement of the enforcement of a legal right'.

In conclusion, considering both transactional and pooled interdependence could lead us very far, and significantly extend the domain of a theory of economic organization originated with only 'vertical' exchanges in mind. Such a connection, achievable by infusing more contributions from organization and law, would also have the benefit of resolving some unnecessary tension between a transaction based and a resource based view of economic organization. I would even go as far as to say that the joint Nobel Prize to Williamson and Ostrom can be taken literally as an indication of possible jointness in theory, in a unified model of economic organization design. In fact, while Williamson set out to solve the problem of how to coordinate 'sequential' interdependence in chains of activities, Elinor Ostrom (1990) started with the problem of how to coordinate the 'pooled interdependence' generated by 'common-pool resources'. They were walking on the two different continua of transactional and associational contracts, and they correspondigly found and specified more vertical and more horizontal types of hybrids respectively: 'trilateral' (hierarchy assisted) and 'bilateral' contracts, more or less relational and obligational in the first case; 'constitutional agreements' (Ostrom 1990) established by contracts of association in which 'deliberate coordination' is achieved by 'policentric' joint decision making and 'committees' in the second case (Ostrom 2010).

The in depth empirical studies on the formation of inter-firm agreements even suggest that the two sets of transactional and associational contracts are actually treated in practice as a joint set for organizational choice: whether to exchange good and services (establishing a transaction) or to pool resources (constituting a 'common resource pool') is a frequent matter of discussion and negotiation, as it is the type of contract that should regulate the relation (e.g. a sub-contracting agreement or a consortium?). This observation suggests that another extension called for by both conceptual and empirical reasons, is to take into account that different parties often have different intrests over the governance structures themselves. That extension is possible, as illustrated in the next section.

Continua as Pareto frontiers of structural alternatives

In both TCE and OT the plurality of 'actors' and interests within a 'sytem' of action is recognized (Baudry and Chassagnon 2010). However, the possibility that those different preferences regard the governance and organization structure itself, and a negotiation analysis of the agreements giving raise to 'structural alternatives', is suprisingly seldom addressed. Empirically, instead, an issue frequently if not regularly encountered, when two or more firms consider what type of agreement may regulate their relations, is that they rank different types of contract differently because the agreement that minimizes the sum of production and transaction cost is different for the different parties. The empirical regularities can be stated as follows (Grandori 1991) : the more substitutable party is likely to prefer a more intergrated agreement, while the less replaceable party a less integrated one; the party with less bargaining power has reasons to prefer agreements closer to a 'resource pooling' association, as its governance is more 'parity based' or 'policentric', while the other party an exchange based contract, albeit relational and long-term, as this permits a more centralized governance and the appropriation of a larger part of the surplus. This has been found repeately in setting ranging from the organization of supply chains in various industries (automotive, textile, agri-food industries) to the organization of industrial projects in construction industries (subways, buildings, dams). But the same problem is recurrent and of paramount importance in employment relations (provided that the preferences of the more replaceable party, typically the workers, are not ruled out with assumptions like a 'random distribution of preferences' over employment contracts and work organization).

TCE could deal with those issues, if the assumption that there is only one best way of organizing a transaction, given the values of transaction parameters (uncertainty, specificity and frequency) is relaxed. Even if the independent variables (transaction or task parameters) are kept constant, if the total costs for different parties are different, at best we have a Pareto frontier of superior agreements, not one superior form. And as in any integrative negotiation of that sort, only employing some criterion of equity can close the problem down to one solution. By the way, framing the problem as a negotiation between parties with different cost functions and different preferences over contracts also provides a new explanation of hybrids and of their vast diffusion: hybrids are hybrids also as a result of compromise among parties whose preferences are oriented in opposite directions as to the degree of integration.

In addition, extensions of this type would make the 'organizational failure framework' more pluralist: both in the treatment of actors' preferences and in admitting the possibility of 'plural forms' and 'multiple equilibria' in the governance and organization of the same type of transaction (Ménard 2012b; Milgrom and Roberts 1995).

Non linear effects of transaction dimensions

Another class of empirical anomalies regard the conjectured relations between the core dimensions of transactions – specificity, uncertainty and frequency – and efficient organizational arrangements. For example, a frequently noticed 'anomaly' encountered in doing research on inter-firm network is that specific *and* uncertain transactions that are nevertheless often organized externally rather than internalized. How can it be accomodated? Various solutions have been proposed, entailing extensions of the boundaries of the framework in different directions, some considered and experimented by Williamson himself.

The first and foremost explanation, grounded in the wellknown Granovetter's observation that organizational economics models assume an 'under-socialized' view of economic actors and relations, has been to conjecture that the 'invisible hand' of social norms and social control sustain external market transactions (Brusco 1982; Baudry and Chassagnon 2010). Williamson did respond to that objection, by admitting that 'atmosphere' may modify the basic predictions of his model. However, although some lamented that Williamson did not pursue this idea further, that modification or 'extension' looks as a rather ad hoc hypothesis; hence it seems unsurprising that it was not so fruitful. A more parsimonious and falsifiable revision, developed years later, have been to consider the external arrangements sustained by social norms as a form of hybrid, in particular a hybrid between markets and 'relational teams' or 'communities'. However, in turn, this response would have implied to envisage hybrids among three forms – e.g. markets, bureaucracies and clans (Kolbjørnsrud 2018); or, as suggested above, hybrids between markets and a broader notion of the firm characterized by a wider set of mechanisms (or syndrome of attributes), including social norms (Grandori 1997).

Another, even more parsimonious revision would have been to revise the conjectures on the shape of the relation linking uncertainty, specificity and frequency with efficent governance structures rather than introducing further variables to adjust the predictions. In fact, in the basic model, there is an important limiting conjecture to which quite a few anomalies can be ascribed – not only the wide recourse to extenal organization in presence of asset specificity; but also the less noticed wide recourse to internal organization in the absence of it. That conjecture is the hypothesis that uncertainty and specificity have a positive linear relation with (the degree of) internalization. Williamson wrote as if uncertainty affected production and transaction costs in the same way and in the same direction (although in his 1981 exposition he said it was a working hypothesis for performing the analysis, i.e. the shape of the curves is not a fundamental assumption of the model). Furthermore, he gave over time increasing weigh and attention to asset specifity (AS) providing 'partial analyses' of the effect of AS alone on governance structures. On external organization, the linear relation hypothesis led to propositions such as that the presence of firm-specific investments beyond a certain threshold is a necessary and sufficient condition for integration. On internal organization it led to implication such as that only labor caracterized by firm-specific investments is candidate to long-term, protected employment contract and representation in firm governance, while for 'workers with general purpose skills and knowledge' no arrangement of that sort is in order because 'they can quit and be replaced without productive losses to either worker or firm' (Williamson 1986: 302). Some of main reasons for revising those linear hypotheses are summarized below.

- As to frequency and specificity, both may well support the exchange between separate partners, rather than causing its failure; as they can make the game more cooperative. In fact, specificity by definition generates rent; hence, it also generates incentives to cooperate for sharing it, rather than to defect; and the 'shadow of the past', and of the future, generated by frequent transactions, also increase the probability of cooperative rather than opportunistic behavior (Hill 1990). So, negotiation and game theoretic lenses would help also in redefining the effects of transaction specificity, and in downplaying the much debated 'assumption' of opportunism in the model[2]. It does increase the demand for 'deliberate coordination' but it does not seem sufficient to predict integration. Then, if so revised, the model would predict a lower probability of integration and a higher one of hybrid arrangements, becoming more consistent with observation. On the internal organization of unspecific resources, a negotiation and game theoretic version of the approach would explain widely observed phenomena as the association of highly replaceable 'general purpose' labor in unions in order to reduce their transaction cost and their exposure to occupational risk deriving from firm choices, and from the possibility of managerial opportunism. Williamson (1986: 303) actually opened a door in this direction, observing that 'Labor membership on boards of directors can be especially important during periods of actual or alleged adversity, especially when firms are asking

[2] In that discussion, Williamson made it clear that his proposition was not that all actors are opportunistic, but that they *can* be so, and that not knowing who the opportunists are, it is 'better' to treat them all as such. It can however been noticed that this statement include a minimax strategy. Therefore, to trust or not to trust can and should be endogeneized as a strategy, crucially depending on partner knowledge, as it has been done in some developments (Nooteboom et al 1997)

workers for give-backs. Labor's board membership might mitigate worker's skepticism by promoting the exchange of credible information".

- As to uncertainty, it has been observed that low predictability in the product demanded may actually make the externalization of production more convenient, if the lowering of production costs is much more pronounced than the raise in coordination costs (even in the presence of asset specificities and frequent transactions): this is how the 'outsourcing'and 'sub-contracting' movement, widely observed in many industries, can be and has been explained in terms of comparative efficiency (e.g. Mariotti and Cainarca 1986, more explicitely than others). But how the required amount of coordination can be achieved among separate firms?, Empirical research have shown that inter-firm contracts can actually include, in their clauses, almost the entire repertory of coordination mechanisms used in internal organization (Grandori and Soda 1995; Bernstein and Peterson 2020). However, a fundamental proposition of TCE is that there are limits to the degree of uncertainty that can be regulated by contracts among separate entities, even if we move this threshold upward to uncertainty that goes beyond volatility in demand and other aleatory variations in the 'state of the world', and involves lack of knowledge of the outcomes themselves, activities to be discovered, and unclear performances. This holds, however, if only transactional contracts, even if enriched in relational and obligational terms, are considered. If contracts associating resources, and eventually sharing property rights are contemplated, the picture change, and the otherwise 'puzzling' phenomenon of very complex alliances regulated by relatively 'simple' contracts explained (Al Najjar 1995): those contracts can be simple as they shift from the prediction of myriads of contingencies to the sharing of fundamental rights over associated resources (Lerner and Merges 1978).

Hence it seems that, in future research, the importance of uncertainty could be usefully re-evaluated, with respect to that of asset specificity. In fact, in studies where the magnitude of their relative effect on contractual structures have been tested on large databases, the empirical result has in fact been that that uncertainty and complexity related factors tend to be more important (Anderson and Schmittlein 1984; Grandori and Furlotti 2019). A further theoretical reason why this could be expected, often given in organizational and legal studies on contracts, is that contracts have important coordination functions, not only conflict resolution ones (Gulati et al 2005; Bernstein and Peterson 2020). If so, a sufficient reason for employing complex quasi-firm contracts between firms is that units-firms with different specialization have to cooperate or transact under task complexity (many items and intricated programming of activities), even though partner-specific investments are not of paramount importance.

Those considerations, and empirical evidence, suggest that the pendulum of the relative weigh assigned to the two core variables of uncertainty and specificity - that over time shifted toward the latter - may usefully turn in the other direction: explore the consequences of considering uncertainty more important than specificity and of considering more radical and knowledge based forms of uncertainty, rather than only the presence of 'unforeseable contingencies' on the road of realizing a known outcome.

Conclusions

In conclusion, in this essay I argued that a selective 'pushing of the boundaries' of Williamson's 'science of economic organization' can continue to bear fruits. Many extensions had been performed over the last decades, and it has been in an organizationally enriched version – early called for by various contributors in the Theory Development Forum dedicated by *Academy of Management Review* (AMR 1990) to the relations between OE and OT - that the organizational failure framework actually became widely used in organization and management. In this essay, the focus has been on extensions that in the course of integrating economics, organization and law to a larger extent, maintained the core spirit and contractarian approach of the original model. With an eye to implications for further research, they can be summarized as follows.

- Developing the notion of hierarchy as a 'third party' (already present since the beginning), and completing it with a notion of the firm itself as a third juridical person (thereby incorporating the insights from law on the nature of the firm).
- Enlarging the notion of contract and of the forms of contracting envisaged, acknowledging that contracts can not only regulate transactions and are not only part of the market 'syndrome of attributes', but can also regulate the association of parties, include voice based mechanisms and even establish entities (incorporating studies on contracts both in organization and law).
- Decoupling the coordination mechanism of hierarchy, and more generally the organizational structure of the firm, from the 'unified ownership' structure characterizing the firm (compatible also with non hierarchical coordination)

- Explicitely admit and model the differences in the systematic and rational (cost reducing) ranking of the possible 'structural alternatives' by different parties, rather than assuming them away.
- Explore the consequences of giving more weigh to uncrtainty, and consider stronger forms of uncertainty, as a driver of effective forms of economic organization, complementing the extensive work done by Williamson on the consequences of asset specificity. This can provide an 'organizational failure framework' more capable of analyzing the forms of economic organization of an innovative and knowledge intensive economy.

In conclusion, Williamson 'science of economic organization' is continuously showing great vitality and evolution capacity. Developed with vertical integration and relatively stable industrial production in mind (and in assumptions), it demostrated remarkable 'extensibility' to more complex conditions (through modified assumptions). The analysis conducted in this paper also revealed that disentangling 'unified property' and hierarchy – re-evaluating a distinction that was present in early Williamson's works – would be fundamental for unleashing other developments, as integrating Williamson and Ostrom, reconciling TCE with the modern legal notion of the firm, and better explaining the contemporary variety of forms of economic organization, beyond the 'managerial hierarchies' of large industrial enterprises of the past century.

References

Al-Najjar N.I. 1995 'Incomplete contracts and the governance of complex contractual relationships' *American Economic Review Papers and Proceedings* 85/2:432-36

AMR 1990 Theory Development Forum: Market discipline and the discipline of management. R.A. Bettis, L.Donaldson (eds) *Academy of Management Review* 15/3.

Anderson E., Schmittlein D.C. 1984 'Integration of the sales force: An empirical examination' *Rand Journal of Economics* 3: 385-395.

Arino A., Reuer J. J. 2006 (eds) *Strategic alliances: Governance and contracts.* Palgrave.

Barney J.B. 1990 'The debate between traditional management theory and oranizational economics: Substantive difference or intergroup conflict?' *Academy of Management Review* 15/3: 382-393

Baudry B., Chassagnon V. 2010 'The close relation between organization theory and Oliver Williamson's transaction cost economics: a theory of the firm perspective'. *Journal of Institutional Economics*, 6: 477-503

Bernstein L., Peterson B. 2020 'Managerial Contracting: A Preliminary Study'. Paper presented at the Annual Conference of the Italian Society of Law and Economics.

Blair M. 2004 'The Neglected Benefits of the Corporate Form: Entity Status and the Separation of Asset Ownership from Control' In Grandori A. (ed.), *Corporate Governance and Firm Organization: Microfoundations and Structural Forms*, New York: Oxford University Press.

Blair M. 2013 'Corporate personhood' In A. Grandori (Ed) *Handbook of Economic Organization. Integrating economic and organization theory.* Edward Elgar.

Brouwer M. (2005) 'Managing Uncertainty through Profit Sharing Contracts From Medieval Italy to Silicon Valley' *Journal of Management and Governance* 9(3-4): 237–255
Bottomley S. 1997 'From contractualism to constitutionalism' *Sidney Law Review* 19: 277-313
Brusco S. 1982 'The Emilian Model: Productive Decentralization and Social Integration", *Cambridge Journal of Economics*, n. 6, pp. 167-184.
Calabresi G. (2016) *The future of Law and Economics*. Oxford: Oxford University Press
Kolbjørnsrud, V. (2018) Collaborative organizational forms: on communities, crowds, and new hybrids. *Journal of Organization Design* 7: 11
Goldberg V.P. 1976 "Regulation and administered contracts" *Bell Journal of Economics 7*: 426-448
Gouldner A.W., 1954 *Patterns of Industrial Bureaucracy*, New York, Free Press
Grandori A. 1991 "Negotiating Efficient Organization Forms". *Journal of Economic Behavior and Organization* 16: 319-340.
Grandori A. 1997 "An Organizational Assessment of Interfirm Coordination Modes", *Organization Studies* 18/6: 897-925
Grandori A., Furlotti M. 2019 'Contracting for the unknown and the logic of innovation' *European Management Review* 16: 413-426
Grandori A., Soda G. 1995 "Inter-firm networks: antecedents, mechanisms and forms", *Organization Studies* 16/2: 183-214
Grandori A. 2010 'Asset commitment, constitutional governance and the nature of the firm' *Journal of Institutional Economics* 6/3: 351-375
Gulati R., Lawrence P., Puranam P. 2005 'Adaptation in vertical relationships: beyond incentive conflict' *Strategic Management Journal,* 26/5: 415-440
Hansmann H., Kraakman R., Squire R. (2006) "Law and the Rise of the Firm," *Harvard Law Review*, 119(5): 1333-1403.
Hart O., Moore J. 1990. 'Property rights and the nature of the firm'. *The Journal of Political Economy* 98(6): 1119-1158
Hennart J-F. 2013 'Internal and external hybrids and the nature of joint ventures' In A. Grandori (Ed) *Handbook of Economic Organization. Integrating economic and organization theory.* Edward Elgar.
Hill C.W.L., 1990 "Cooperation, opportunism and the Invisible Hand: Implications for Transaction Cost Theory, *Academy of Management Review*, 15, 3: 500-513.
Hodgson G.M. 1998 'Competence and contract in the theory of the firm' *Journal of Economic Behavior & Organization* 35 : 179-201
Hodgson G. 2002 'The Legal Nature of the Firm and the Myth of the Firm-Market Hybrid' *International Journal* of the *Economics* of *Business,* 9/1:37-60.
Hodgson, G. (2013). Editorial introduction to the Elinor Ostrom memorial issue. *Journal of Institutional Economics* 9/4:381-385
JOIE (2007) 'An Interview with Oliver Williamson' . *Journal of Institutional Economics,* 3/3: 373-386
Landes D.S., Mokyr J., Baumol W.J. (eds) 2010 *The invention of enterprise: entrepreneurship from ancient Mesopotamia to modern times.* Princeton University Press.
Lerner J., Merges R.P. (1998) 'The control of technology alliances: an empirical analysis of the biotechnology industry' *The Journal of Industrial Economics* XLVI: 125-156.
Loasby, B. (2015) Ronald Coase's theory of the firm and the scope of economics. *Journal of Institutional Economics* 11/2: 245-264.
Macneil I.R. (1978) 'Contracts: Adjustment of long term economic relationships under classical, neo-classical and relational contract law' *Northwestern University Law Review* 72:854-906
March J.G., Simon H.A., 1958 *Organizations*, New York: Wiley

Mariotti S., Cainarca G.C. 1986 ‘The evolution of transaction governance in the textile-clothing industry’ *Journal of Economic Behavior & Organization*, 7/4: 351-374.

Masten S. 2013 ‘The enterprise as community: firms, towns and universities’ In A. Grandori (Ed) *Handbook of Economic Organization. Integrating economic and organization theory.* Edward Elgar.

Ménard C. 2012a ‘Hybrid modes of organization: Alliances, Joint Ventures, Networks, and other ’strange’ animals’. In R. Gibbons, J. Roberts (eds) *The Handbook of Organizational Economics*, Princeton University Press.

Ménerd C. 2012b ‘Plural Forms of Organization: Where Do We Stand?’ *Managerial and Decision Economics* 34/3-5:124-139

Milgrom P., Roberts J., 1995, ‘Complementarities and fit: Strategy, structure and organizational change in manufacturing’. *Journal of Accounting and Economics* 19: 179-208.

Nickerson J.A., Zenger T.R. 2004 “Knowledge-based theory of the firm - A problem solving perspective” *Organization Science* 15(6): 617-632.

Nooteboom B., Berger H., Noorderhaven N. G. 1997 ‘Effects of trust and governance on relational risk’ *Academy of Management Journal,* Special Research Forum on Alliances and Networks 40/2: 308-338.

Ostrom E. 1990 *Governing the commons: the evolution of institutions for collective action.* Cambridge: Cambridge University Press.

Ostrom E. 2010 ‘Beyond Markets and States: Polycentric Governance of Complex Economic Systems ‘ *American Economic Review*, 100/3: 641-672

Ouchi W.G. 1980 "Markets, Bureaucracies and Clans", *Administrative Science Quarterly*, 25-129-141.

Perrow C. 1981 ‘Markets, hierarchies and hegemony’ In Van De Ven A.H., Joyce W.F. (eds) *Perpectives on organization design and behavior.* New York: Wiley.

Pfeffer J., Salancick G.R. 1978 *The external control of organizations: a resource dependence perspective;* Harper and Row.

Powell W. W. 1990 “Neither Market nor Hierarchy: Network Forms of Organization” in L.L. Cummpings, B. Staw (eds), *Readings in Organizational Behavior*, pp. 295-336. Greenwich, Conn.: JAI Press

Rajan R.G., Zingales L. 1998, ‘Power in a Theory of the Firm’ *The Quarterly Journal of Economics* 113/2: 387–432

Simon, H.A. 1969 *The Sciences of the Artificial.* Cambridge, MA: MIT Press.

Thompson J.D., 1967 *Organization in action*, New York: McGraw-Hill

Vanberg, V.J. 1994. *Rules and choice in economics*. London, Routledge.

Williamson O.E. 1975 *Markets and Hierarchies: Analysis and Antitrust Implications*, New York, Free Press.

Williamson O.E. 1979 "Transaction Cost Economics: the Governance of Contractual Relations"; *Journal of Law and Economics*, 22 october, pp. 233-261.

Williamson O.E. 1980 "The organization of work. A comparative institutional assessment", *Journal of Economics Behavior and Organization*, n. 1, 5-38.

Williamson O.E. 1981 "The economics of organization: the transaction cost approach", *American Journal of Sociology* 87(3): 548-577.

Williamson O.E. 1987 *Antitrust economics. Mergers, contracting and strategic behavior*, Blackwell, Oxford.

Williamson O.E. 1988 “The Economics and Sociology of Organization. Promoting a dialogue” In G. Farkas et al. (eds.) *Industries, Firms, and Jobs*. Springer Science, New York

Williamson O.E. 1991 "Comparative economic organizations: the analysis of discrete structural alternatives" *Administrative Science Quarterly*, 36(2): 269-296

Williamson O.E. 1993 "Transaction Cost Economics and Organization Theory", *Industrial and Corporate Change*, Oxford University Press, Vol. 2, No. 2, 107-156.

Williamson O.E., Ouchi W.G., 1981 "The markets and hierarchies program of research: origins, implication, prospects", in Van de Ven A.H and Joyce W.F. *Perspectives on Organization Design and Behavior*, pp. 347-370, New York, Wiley.

Zenger, T. R., Hesterley W.S. 1997 'The disaggregation of corporations: Selective intervention, high powered incentives and molecular units'. *Organization Science,* 8/3: 209- 222.