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**ASYMMETRIC CONTRACTING CAPABILITIES AND THE ENTROPIC EFFECT
OF LEARNING TO CONTRACT**

Working Paper

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Asymmetric Contracting Capabilities and the Entropic Effect of Learning to Contract

ABSTRACT

How do contracting capabilities affect contractual preferences and economic institutions? According to the learning to contract literature, contractual parties over time learn to discover more efficient ways of governing exchange relationships, thereby reducing transaction costs when governance structures are gradually better aligned with transaction attributes. However, the introduction of learning dynamics into transaction cost economics is also associated with an unexplored dark side. Parties in contractual relationships are likely to develop asymmetric contracting capabilities because of differential initial endowments and path-dependency in learning processes. We argue that asymmetric contracting capabilities function as appropriation factors that lead to a shift in the expected distribution of payoffs between the contracting parties, which affect incentive alignment and the parties' preferences over different contractual forms. A counterintuitive implication of the argument is that strong contractual learning dynamics may lead to exacerbated incentive conflict and less stable economic institutions.

Keywords:

Asymmetric Contracting Capabilities, Institutional Change, Learning to Contract, Organizational Capabilities, Transaction Cost Economics

The key proposition of transaction cost economics (TCE) is that contractual parties adopt the governance structure that best mitigates the structural hazards associated with the transaction being governed (Williamson, 1985). More recent research on learning processes in contracting extends this proposition by arguing that parties over time also learn to govern relationships in a more efficient manner by developing contracting capabilities (knowledge about “how much and what kinds of detail to include in a contract”), thereby reducing transaction costs and improving contractual performance by better matching transaction attributes with an appropriate contractual design (Argyres & Mayer, 2007:1060). Contractual choices that may be affected by the parties’ level of contracting capability involve which overall governance structure to use, such as market, hierarchy, and hybrid (Williamson, 1985, 1975); and the design of specific contractual clauses, such as duration (Crocker & Masten, 1988; Joskow, 1987), form of payment (Kalnins & Mayer, 2004), roles and responsibilities (Argyres & Mayer, 2007; decision and control rights (Malhotra & Lumineau, 2011; Weber, Mayer, & Macher, 2011), communication (Mayer & Argyres, 2004), contingency planning (Mayer & Bercovitz, 2008), and dispute resolution (Vanneste & Puranam, 2010; Ryall & Sampson, 2009).

Contractual learning typically results in the use of more specific and detailed contractual provisions (Langlois, 1992), which is associated with a more efficient, or less incomplete, design of *specific rights* in contracts (see Grossman & Hart, 1986). However, the literature also reveals limitations to these learning processes. Case studies demonstrate that learning to contract is often local, with limited foresight (Mayer & Argyres, 2004), and that contractual learning processes are sensitive to relational dynamics, negotiations, and shifts in bargaining power (Feams et al., 2008; Lumineau et al., 2011). In this paper we build upon the abovementioned literature by highlighting a largely overlooked dark side of the development of contracting capabilities related to the potential use of contracting capabilities for “offensive attempts to capture value from a contractual partner” (Argyres & Mayer, 2007:1074).

Specifically, we contend that economic actors, over time and due to differences in initial knowledge and path-dependency in learning processes (Argote & Miron-Specter, 2011; Cohen & Levinthal, 1990), are likely to develop *asymmetric contracting capabilities*. This occurs when parties in a contractual relationship significantly differ in their level of contracting capability. The development of asymmetric contracting capabilities alters actors' expectations concerning exchange outcomes: Actors with relatively stronger contracting capabilities will expect to be able to manipulate the terms and conditions of the contract in their favor, thus appropriating a larger share of the value created in the relationship than actors with relatively weaker contracting capabilities (Weber & Coff, 2023). We propose that this is likely to result in a shift in contractual preferences.

The mechanism linking asymmetric contracting capability to contractual preference is grounded in bounded rationality (Gigerenzer & Selten 2001; Simon, 1955). Contractual commitments are typically subject to differential interpretations by the parties (Gibbons, 2022), which may affect the “threat points from which the parties compete over the division of transactional surpluses” (Masten, 2022: 286). More specifically, we view contracts as negotiated and designed through a process of sequential search over a space of contractual terms that are either private or common knowledge among the contracting parties, where the set of contractual terms that are private knowledge correspond to the difference in contract capability. An actor with stronger contracting capability may choose to manipulate the design of contractual terms that are private knowledge to its advantage without the weaker party being able to detect such manipulations because of the weaker party's lack of knowledge about the terms being manipulated. A stronger party thus has an incentive to opt for contracts that include terms that are private knowledge, which it may manipulate to its advantage, whereas the weaker party has an incentive to exclude terms about which it lacks knowledge. We conjecture that this will shift preferences over different contractual forms, such that actors with relatively stronger

contracting capability are likely to prefer contractual designs based on specific contractual rights with high levels of complexity. Inversely, actors with relatively weaker contracting capability are likely to prefer simple contractual designs based on residual contractual rights that offer a more certain distribution of risk and payments, and alleviate constraints related to the actors' level of contracting capability.

We make three contributions to the literature on contractual design and learning. First, we suggest that learning to contract may, in addition to improving contractual performance (Mayer & Argyres, 2004; Langlois, 1992), also reduce incentive alignment between actors with differential knowledge. We thus supplement the existing literature by outlining a potential countervailing force to the progressive view of contractual and institutional development. Second, building on previous research on the manipulation of perceptions in contractual design (e.g., Weber & Coff, 2023), we address the issue of hardheaded foresight in the basic TCE model by investigating how bounded rationality and knowledge differentials in contractual negotiations may impact contractual preferences through the mechanism of value appropriation. Finally, we augment the contract design literature (e.g., Argyres, Bercovitz, & Mayer, 2007; Mellewig et al, 2007; Ryall & Sampson, 2009; Weber & Mayer, 2011) by proposing a new mechanism by which actors form contractual preferences concerning the use of simple/complex contracts and control/coordination-oriented terms.

LEARNING, HETEROGENEITY, AND CONTRACTUAL PREFERENCES

Much writing on governance choice rests on the assumption that learning dynamics, at least in the long-run, promotes the selection of comparatively efficient contractual arrangements (Foss & Klein, 2012; Langlois, 1992; Williamson, 1985). In other words, the more experience that is had in a market or organization, the more will the incentives of the actors be aligned as new

transaction cost economizing institutions are discovered and implemented.¹ While this progressive perspective on the organization of economic activity provides a valid account of how some markets develop under specific time frames, we argue that it is subject to important caveats related to the heterogeneity of economic actors and the effect of this heterogeneity on incentive alignment. In fact, a historical review of the many different institutions and economic systems that have persisted suggests that efficiency is generally not increasing in experience, but rather, that institutional complexity, which typically develops over time, is subject to decreasing returns (Demarest & Victor, 2022; Tainter, 1988). Overall, there appears to be significant countervailing forces at play on different institutional levels that over time reduce institutional efficiency. In this paper, we adopt a microlevel approach to this question and focus our attention on the role of actor-level heterogeneity and knowledge asymmetry in business relationships, and its impact on contractual preferences.

The Progressive Change of Institutions and Governance Structures

Learning processes in contracting and governance have been subject to substantial research in both economics and management. Different streams of the literature tend to highlight different aspects of the learning process. For example, a key question in economics-oriented research concerns the different types of equilibrating forces at play in economic systems, such as foresight, entrepreneurship, competitive selection, and learning. While an extensive review of this issue is outside the scope of the paper, there appears to be some consensus on the premise that economic organization over time progresses towards comparative efficiency and *constrained* Pareto optimality (although likely not reaching equilibrium, see Furubotn, 2001). Overall, learning processes appear as the most important mechanism for explaining how

¹ In line with Williamson's (2000:597), we use the term "institution" as referring to phenomena ranging from social embeddedness, formal institutional environment, to governance structures; while focusing our analysis on the level of governance structures (2nd order economizing). The use of the term is thus consistent with North's (1990: 3) definition of institutions as "humanly devised constraints that shape human interaction" (for a clarifying discussion of this definition, see Hodgson, 2006).

progressive economic change comes about (Loasby 2002). This position is captured well by Langlois (1992: 104-105) who states that over time “agents engaged in similar transactions will learn the typical outcomes of those transactions and will include increasingly more specific provisions in their contracts. As a result, a progressively greater part of the transactions can be handled through specific rather than residual rights [...] one would expect transaction costs to play a small role in the long run”.

As highlighted above, the mechanisms by which institutional and contractual change is explained, be it hardheaded foresight, market selection or learning, generally point in the same direction of progressively greater incentive alignment and efficiency. This raises critical questions concerning the mechanisms by which change comes about and to what extent there are countervailing forces that may undermine or reverse the development towards efficient institutions. One initial observation is that the progressive mode of explaining economic change, although encompassing a variety of digressions from orthodoxy, is fundamentally in line with the economists’ typical methodological toolbox with institutional change conveniently approximating the predictions of rational-choice based equilibrium analysis with only minor deviations (Roland, 2004). Adaptive change may include “mistakes”, be incomplete, and lag in relation to external conditions, but the baseline prediction of (comparative) efficiency remains. In contrast, institutions may also be modelled as grounded in endogenous processes involving the ongoing negotiations between heterogeneous actors with differential perception of each other and the environment (Aoki, 2007). One version of this theory of institutional change is aptly summarized by North (1990:16) as building on the notion that “[i]ndividuals act on incomplete information and with subjectively derived models that are frequently *erroneous*; the information feedback is typically insufficient to correct these subjective models. Institutions are not necessarily or even usually created to be socially efficient; rather they, or at least the

formal rules, are created to serve the interests of those with the basic bargaining power to devise new rules”.

There are likely many potential endogenous sources of institutional inefficiency and decay. In order to frame the more specific argument on this issue in a wider theoretical context, it may be useful to consider the proposed notion that economic systems, similar to physical systems, are subject to *entropy* (Georgescu-Roegen, 1971): Dynamic systems become increasingly disorderly with the passing of time unless low entropy resources are added from the outside (in which case the entropy increases in the surrounding system). While the physical law of entropy is most evidently illustrated in the economic processing and conversion of physical resources for the purpose of human utility (burning wood, coal, oil), this fundamental principle may arguable also be applied to other types of economic resources, such as the knowledge and socioeconomic ties through which institutions are sustained (see Auster, 1983).

Georgescu-Roegen (1971) wider arguments for the prevalence of entropy in economic processes is useful for directing attention towards a specific property of learning and knowledge acquisition: The private absorption, codification, and routinization of knowledge by an economic actor (that is, capability development) may be viewed as an entropic transformation process where the actor-level utilities of specialization and division of labor are acquired at the cost of increased heterogeneity, disorder, and asymmetry in the wider system. The transformation involves turning knowledge and social ties that are potentially generally available in the wider system into a specific, generally unavailable, and appropriable form (e.g., a proprietary, codified and routinized process). Building on Williamson’s (2000) multilevel framework of institutions, there is thus a sense in which the changes in lower institutional levels (e.g., actor-level capability), gives rise to increased entropy at higher institutional levels (e.g., incentive compatibility in governance structures).

Deisolating Learning in the Basic TCE Model

According to Williamson's (1985:41), economic actors can be expected to mitigate contractual hazards by "assigning transactions (which differ in their attributes) to governance structures (which are the organizational frameworks within which the integrity of a contractual relation is decided) in a discriminating way". It is the comparative-static application of this *dual alignment principle* that, according to the TCE, is the prime driver of the apparent multiplicity of economic institutions and contractual forms. The basic TCE-model is thus limited to explaining the marginal choice of governance structure based on comparative-static equilibrium. Staying within this framework means ignoring (or isolating) the impact of changing knowledge and the new incentives that might arise as a result of changing knowledge (Foss & Foss, 2000; Mäki, 2004). However, a growing body of literature have ventured out in this thorny terrain set on deisolating variables related to knowledge dynamics and learning in the TCE.

The introduction of history, learning dynamics, and path-dependence, into the explanatory apparatus of the TCE constitutes a significant break with the comparative static principles on which the basic TCE model is built. Hence, the enterprise involves rather overarching changes in the structure of the theory and the involved causal mechanisms. The issue revolves around *how* the dual alignment principle in the TCE operates to select comparatively efficient contractual forms. Three basic alternatives can be conceived: foresight, competitive selection, and adaptive learning. Williamson's (1996: 9) analysis seem to mainly be based on the notion that economic agents have the capacity to "look ahead, perceive hazards, and factor these back into the contractual relation". The reliance on foresight as the main causal mechanism has, however, been criticized by scholars who point out that this mechanism seems to be logically inconsistent with the theory's emphasis on bounded rationality (Dow, 1987; Furubotn & Richter, 1997; Hallberg, 2015).

Injecting an evolutionary mechanism into the TCE carries significant benefits in terms of improved logical consistency and a potentially wider set of explained phenomena (Furubotn &

Richter, 1997). Evolutionary change typically builds on a notion of competitive markets that over time select for institutions that are comparatively well-adapted to the external environment (Hodgson, 2013; Nelson & Winter, 1982). However, as in the case of foresight, there are several unresolved problems concerning how competitive selection may operate to weed out less adaptive contractual structures. A first problem concerns the amount of time that would be needed to for the adaptive deficiencies in a governance structure to significantly affect the performance of actors to a degree that they are eliminated or forced to abandon contractual practices. Further, as pointed out by Dow (1987), for a market selection mechanism to accurately predict in accordance with the dual alignment principle, the unit selected upon must be the one internalizing the resulting transaction costs. Whenever appropriability concerns impact the amount of transaction costs internalized by different actors, in other words, when there are asymmetries in bargaining power across the contracting partners, the link between market selection and comparative efficiency is weakened.²

Evolutionary change can also be grounded in organizational learning and the development of contracting- or governance capabilities. There is today a stream of empirical research on learning to contract in management that supports the notion that economic actors over time, and with increasing experience, grow progressively better at governing contractual relations. Generally, these studies show that contracts change in response to experiential learning and incrementally grow more complex and detailed in ways that are independent of transaction attributes. Individual studies highlight specific aspects of this learning process. For example, in their case study of learning to contract in the IT-industry, Mayer and Argyres (2004) particularly highlight the experiential, local, and incremental nature of contractual learning where the written contract functions as an important knowledge repository with little knowledge spillover between different projects or contracts. While the direction of contractual

² Bargaining power is defined as “the ability of one party to a contract to be able to influence the terms and conditions of that contract or subsequent contracts in its own favor” (Argyres & Liebeskind, 1999: 55).

change in their study is in line with the predictions of the basic TCE-model, they do not find that firms engage in extensive farsighted contractual planning.

In a study of two sequential alliance contracts, Feams et al. (2008) similarly find that learning in previous contractual processes trigger change in subsequent contracts, but that learning experiences may differ across parties, and that the type of contractual change that a party is able to affect depends on the strength of its relative bargaining power (actors with greater bargaining power are able to affect more of their preferred changes in subsequent contracts). In another study, Lumineau et al. (2011) find evidence of extensive feedback loops between learning, contractual design, and negotiations; where the nature of the transaction being contracted (e.g., transaction attributes) was incrementally renegotiated based on new knowledge about the contracting process, the parties, and transaction attributes. Together, the result of both Feams et al. (2008) and Lumineau et al. (2011) highlight the important observation that transaction costs are endogenously changed when economic actors use their unique bargaining position to actively “manipulate and shape the transactional environment to their advantage” (Jacobides & Winter, 2005:402)

The notion that contractual learning and capability development shapes bargaining power and contractual preferences has also received support in research outside the learning to contract literature. For example, studies show that firms in alliances often engage in what has been termed “a race-to-learn” that over time may prompt non-collaborative behavior that changes the attitude towards partners (Hamel, 1991). Naturally, negative shifts in attitude are likely to impact the potential longevity of the relationship. Interestingly, observations indicate that collaborations where the parties retain knowledge symmetry tend to be more long-lasting (Hamel, 1991; Inkpen & Beamish, 1997). Hence, an important take-away from the alliance literature is that the stability and incentive compatibility of contractual relationships is endogenously affected by relative learning speed and the associated bargaining power of the

involved actors (Lane & Lubatkin, 1998). Knowledge asymmetry, whether it arises from differential initial endowments, relative learning speed or absorptive capacity; typically has a negative impact on incentive alignment and contractual performance.

ASYMMETRIC CONTRACTING CAPABILITIES

In the following, we examine the impact of asymmetric contracting capabilities on contractual preferences. The unit of analysis is dyadic and potentially repeated transactions between buyers-suppliers, employer-employee, and contractual alliances between firms. The presentation follows three steps: First, an argument is presented as to why asymmetric contracting capabilities are likely to emerge over time. Second, we examine the potential effect on expected value appropriation. Last, we apply this incentive mechanism to a series of contractual situations in dyadic relationships to describe the effect on contractual preferences. It is important to note that we operate with a *ceteris paribus* assumption. Hence, the mechanisms we discuss are not necessarily dominant in determining contractual practices and actor preferences. Other factors, such as bilateral dependence (Williamson, 1985) and knowledge transfer (Langlois, 1992), are also important although not directly addressed in the paper.

Increasing Returns to Learning and Asymmetric Contracting Capabilities

Organizational learning may be described as a process resulting from experience, trial-and-error, the routinization of successful behavior (Argote & Miron-Spector, 2011), and the formation of individual cognitive representations of the environment, the aggregation of these individual cognitive representations to an organizational level, and the organization's ability to internalize and retain external knowledge based on prior internal knowledge levels (Cohen & Levinthal, 1990). These models of learning suggests that contracting capabilities are subject to endogenously driven variation caused by the internal attributes of the learning organizations and potentially differential contractual experiences (Feams et al., 2008). Initial variation in

choices, behavior, and experience sets an actor along a unique learning path or trajectory that may differ significantly across actors in terms of direction and strength. There are many different articulations of this fairly established notion in the literature. For example, Dierickx and Cool (1989:1507) suggest that the accumulation of knowledge and other asset stocks are subject to asset mass efficiencies where “adding increments to an existing asset stock is facilitated by possessing high levels of that stock”. Similarly, Cohen and Levinthal, (1990: 128) argues that the “ability to evaluate and utilize outside knowledge is largely a function of the level of prior related knowledge”. This implies a learning process that is subject to increasing returns, which may result in lock-in to a certain knowledge trajectory where asymmetries between actors increase over time (Arthur, 1989).

The prevalence of path-dependence and increasing return in contractual learning implies that the development of contracting capabilities will play out differently across economic actors depending on their initial endowment of contracting knowledge. Arguably, asymmetric paths will be present across firms within the same industry, and even within individual dyadic contractual relationships. The self-reinforcing nature of the relationship between the strength of contracting capability and the speed of learning suggests that if there is an initial asymmetry in contracting capability between contracting parties, this asymmetry is likely to grow larger over time because the returns to new contractual experience will be greater for the party with stronger contracting capability.

Asymmetric Contracting Capabilities and Expected Value Appropriation

The TCE and the learning to contract literature both build on the behavioral assumptions of bounded rationality and opportunism. Economic actors characterized in this way can be expected to leverage any form of relative advantage in contractual negotiations in order to secure contractual terms that are beneficial to their private interest (Makowski & Ostroy, 2001). Hence, economic actors can be expected to rely on potential superior contracting capabilities

to achieve distributional benefits grounded in the technical design of contracts (Choi & Triantis, 2012). This may include using its contracting capabilities for “offensive attempts to capture value from a contractual partner” (Argyres & Mayer, 2007:1074), but it may also involve more neutral forms of behavior, such as selectively suggesting contractual improvements that benefit one party more than another. One way in which the distribution of value in contractual relationships may change is through one party’s active manipulation of the other party’s perceptions of transaction attributes. This may, for example, include manipulations of the perceived level of asset specificity where sellers have an incentive to overstate asset specificity in order to gain higher prices, whereas buyers generally have the opposite incentive (Weber & Coff, 2023). According to Weber and Coff (2023), manipulations of perceptions grounded in bounded rationality, cognitive biases, and differential framing; are likely to go unnoticed by the other party because of the inherent malleability of perceptions, expectations of differential and uncertain negotiation outcomes, and the influence of other distorting factors, such as task novelty and complexity. Hence, there is arguable a significant grey area in contractual negotiations concerning what constitutes an offensive move to capture value. This grey area is likely to grow larger when knowledge differentials between the contracting parties are large. Analogous to the expected behavioral response to asymmetries in relationship-specific investments, actors can be expected to respond in an opportunistic way to the presence of an asymmetry in contracting capabilities.

The importance of extracompetitive factors, such as negotiation-/bargaining resources or appropriation factors, have been subject to examination in a stream of the strategy literature referred to as “value capture theory”. The theory builds on cooperative game theory (Neumann & Morgenstern, 1944), and sets out to model strategic interaction between economic actors based on the feasibility and stability of different value creating coalitions in freeform bargaining (e.g., Brandenburger & Stuart, 1996; 2007; Chatain & Zemsky, 2011; MacDonald & Ryall,

2004). The theory focuses on the amount of created value that different actors inside or outside a coalition can expect to capture or appropriate while remaining a feasible and stable exchange partner for other actors. The different factors that determine an actor's expected value appropriation include (i) the availability of substitutes (competition), (ii) differentiation (added value), and (iii) pure bargaining.

A focal actor's ability to negotiate a favorable contractual design without risking the feasibility and stability of the relationship with its contractual partners may be understood as a function of the perceived value creation that the focal firm offers relative other alternative contractual parties (e.g., its competitors). This is referred to as the actor's *added value* (Brandenburger & Stuart, 1996). That is, the created value that would be lost if the focal actor withdrew from the exchange coalition. However, added value only defines an upper limit on how much value an actor can appropriate in negotiations with other parties (Gans & Ryall, 2017). Value appropriation is thus, based on the competitive structure of the interaction in terms of available substitutes and added values, often indeterminate within a specified interval. To remedy this, it has been suggested that there exists an extracompetitive component that corresponds to the parties' ability to negotiate or bargain. This extracompetitive component has been referred to as appropriation factors (Lavie, 2006) and bargaining resources (Gans & Ryall, 2017). The impact of appropriation factors on value appropriation and financial performance has been empirically supported in studies of medical equipment transactions (Grennan, 2014), car dealerships (Bennett, 2013), and biotech-pharmaceutical alliances (Adegbesan & Higgins, 2011).

We propose that asymmetric contracting capabilities constitute an important appropriation factor in negotiations between contracting parties. There is arguable a significant grey area in contractual negotiations where the parties' ability to identify and draft favorable terms, and get these across the table in negotiations, is a key determinant of what contractual

solutions that are proposed. Boundedly rational actors that are at a knowledge disadvantage in contractual negotiations easily make erroneous decisions when drafting contracts, which may change the expected distribution of value between the parties in ways that favor the party with relatively stronger contracting capability. More specifically, contracts between boundedly rational actors are likely negotiated and designed through a process of sequential search over a set of potential contractual terms. These terms may fall into two categories: those that are common knowledge among the contracting parties and those that are private knowledge. The difference in contracting capability between parties correspond to the set of terms that are private knowledge. An actor with stronger contracting capability may use their advantage to manipulate the terms that are private knowledge. This manipulation is likely to go undetected by the weaker party because of their lack of knowledge about the terms being manipulated. Ultimately, this suggests a bias in which types of contractual forms that are likely to be proposed in contractual negotiations, where parties opt for designs that maximize their private payoff from the suggested design.

Expected Value Appropriation and Contractual Preference

In a zero-transaction cost world, economic actors have an incentive to immediately move to the efficient contractual form and share the resulting surplus from this move through some mechanism that makes all parties better off than when choosing a second-best contractual form (Coase, 1960). Naturally, there can be no meaningful notions of negotiation and bargaining under such conditions, and the type of problem analyzed in this paper, namely, the negotiation and differential design of contracts, would disappear. However, the pervasiveness of transaction costs throughout all domains of economic activity (Foss & Hallberg, 2014; Furubotn & Richter, 1997), allows for considering new forms of strategic behavior in contractual relationships that have received sparse attention in the TCE literature (see Gibbons, 2022). In this paper, we particularly highlight how asymmetry in contracting capability may allow actors with relatively

stronger capabilities to negotiate contractual designs and governance structures that selectively externalize cost and/or internalize payments. We argue that this has important repercussions for how contractual preferences are formed. Consider, for example, a situation where an asymmetry in contracting capability in a buyer-seller relationship allows a focal actor to almost fully appropriate the surplus associated with a less efficient contractual setup (an appropriation factor approaching one), while only appropriating a smaller share of the surplus associated with a comparatively more efficient setup (an appropriation factor approaching zero). We argue that the focal actor's preferences over different contractual designs will be shaped by expectations concerning the outcome of the contractual negotiations and the possibility of appropriating value under a certain contractual form.

According to Williamson (1985: 258), comparative efficiency rests on the assumption that “modes that are efficient under one distribution of income will normally remain efficient under another [...] mutual gains are potentially available whenever a move from a less to a more efficient configuration is accomplished, the incentives to choose the more efficient modes is transparent”. Hence, the prediction of comparative efficiency in models of contractual learning turns on to what extent it is possible for contractual parties to realize marginal private gains from renegotiating and designing new contracts until comparative efficiency is reached. Williamson's (1985) argument builds on the notion that actors are symmetrically hardheaded and design contracts based on extensive foresight (they have perfect and symmetrical contracting capabilities). This allows them to switch to the more efficient contractual form and share the surplus resulting from this move through some additional contractual mechanism, which specifies how the extra surplus resulting from the move will be shared. This level of symmetrical hardheadedness and foresight is, however, fundamentally inconsistent with models of bounded rationality, experiential learning, and the notion that actors differ in their level of contracting capability. Hence, in contrast, we conjecture that actors will prefer

contractual designs that allow them to maximize their expected private payoff, which by our assumptions is partly independent of the overall efficiency of the arrangement. This implies that economic actors in dyadic relationships with relatively weaker contracting capability are likely to prefer contractual designs with less risk and variability in payments that are also simple enough to alleviate constraints created by the actors' level of contracting capability. Inversely, economic actors with a relatively stronger contracting capability are likely to prefer contracts that involve high levels of variability in payoffs that are also complex enough to aggravate constraints created by the actors' level of contracting capability. In the following, we introduce three broad forms of contractual designs (complex market contract, hierarchy-based contract, and hybrid contract/alliance) and link preferences for each to the relative strength of an actor's contracting capability. We then conclude the section by analyzing the design of complex market-based contracts in terms of actors' preference for designing extensive control-oriented contracts.

Complex Market Contracts Versus Hierarchy-Based Contracts. The tradeoff or choice between markets and hierarchies is fundamentally one between autonomous and cooperative adaptation (Williamson (1996: 102-103): Markets are substituted by hierarchies when bilateral dependency and bargaining costs prevent comparatively efficient autonomous adaptation in markets. In an "pure" market setting, parties are subject to high-powered incentives and clearly delineated property rights, which allow for straightforward unilateral or autonomous adaptation of contractual relationships. Transactions in these types of "spot markets", where bilateral dependence and uncertainty are low, may simply be dissolved when misalignments are detected, and trading partners can subsequently be efficiently replaced via the price mechanism. Under these conditions there is little need for mutual adaptations, extensive forms of communication, and private ordering of disputes. Basic contract law and the courts are sufficient for enforcing the simple contracts needed for this type of exchange.

Contracting under these circumstances is thus straightforward and requires little capability on behalf of the parties beyond the ability to specify the exchanged good/service and price. However, when transactions involve solutions to more complex problems, especially involving bilateral dependency, market contracts tend to incorporate more elastic contracting mechanisms to allow for flexibility and bilateral adaptation of the relationship. The resulting complex market contract is one that, beyond specification of roles/responsibilities and payment terms, also include provisions for unexpected disturbances (contingency planning), explicit specification of control and decision rights (e.g., intellectual property), a framework for communication and information disclosure, and clauses regulating how disputes are settled (Williamson, 1996: 96). The term complex market contract is thus used in this paper to refer to contractual designs where the parties enter a more extensive contract, while remaining autonomous in terms of equity stakes, pooled resources/property rights, and wider obligations outside the specific domain of the contract (see Ménard, 2004). A fundamental characteristic of complex market contracts is that while the governed transaction may be complex and require an extensive contract, the individual parties absorb costs/revenues associated with the transaction according to the specific rights stated in the contract. Hence, the relationship does not involve unspecified residual rights and obligations of the kind that might arise as a result of unified or pooled ownership of assets or employment (see Grossman & Hart, 1986). The complexity of the contracting process is thus high due to a large variability in the distribution of payments and risk based on the outcome of negotiations and the design of the contract.

Hierarchy-based contracts differ significantly from complex market-based contracts in terms of the distribution of risk, the variability of payments between the parties, and contractual complexity. Characteristic of this form of governance is that the unified owner retains all residual contractual rights and absorbs risks associated with the transaction by means of simple open-ended contracts, such as ownership and employment. The type of cooperative adaptation

that is characteristic of this contractual form is attained by allowing for potential conflicts in the relationship to be resolved unilaterally by the owner or by managerial fiat. Cooperative adaptation is facilitated by low-powered incentives (e.g., flat compensation for services within a “zone of indifference”) and an associated pooling of risk in the hands of the employer (Williamson, 1996:99). The result is a contractual structure that is simple and transparent enough to alleviate constraints associated with the parties’ level of contracting capability because of the relatively more certain distribution of payments and risk.

The potential impact of variability in payment/risk and contractual complexity on contractual design is downplayed in the TCE by the assumptions that actors display symmetric risk neutrality and similar levels of hardheadedness (Williamson, 1985). Contrary to the above notion, differential learning and the development of asymmetric contracting capabilities imply that actors are likely to differ in their ability to handle complex contractual processes and design provisions that impact the distribution of payoffs/risk. We argue that such asymmetries will affect the expected distribution of value in contractual relationships as well as the incentives of the involved parties in terms of how they assess the risk and contractual complexity associated with different contractual designs: Economic actors with relatively stronger contracting capabilities will thus likely prefer complex market-based contracts, whereas actors with relatively weaker contracting capability will have a stronger preference for hierarchy-based contracts. This gives rise to a fundamental form of incentive conflict between actors with varying levels of contracting capability. Hence, we propose the following:

Proposition 1: The stronger (weaker) relative contracting capability held by a focal actor, the more likely is the focal actor to prefer market-based contracts (hierarchy-based contracts) over hierarchy-based contracts (market-based contracts).

Hybrid Contracts and Alliances. Hybrid contracts refer to contractual forms that include both market- and hierarchy-based elements. According to Williamson (1996: 107), as “compared to the market, the hybrid sacrifices incentives in favor of superior coordination among the parts. As compared with the hierarchy, the hybrid sacrifices cooperativeness in favor of greater incentive intensity.” The central characteristic of hybrids is that “the parties maintain legal control over their strategic property rights, thus remaining distinct residual claimants, while pooling part of their resources and related decision rights” (Ménard, 2022: 301). This allows the contracting parties to partly preserve incentives, thus facilitating autonomous adaptation, while enabling cooperative adaptations through contractual safeguards and an added administrative apparatus. However, hybrid contracts are generally more vulnerable to opportunism than markets and hierarchies because hybrid adaptations cannot be made unilateral, as in the case of market contracts, or through hierarchical fiat, as in the case of hierarchy-based contracts (Williamson, 1996:116). Instead, hybrid adaptations require mutual consent, which often require formalized contractual renegotiations. As a result, hybrids are particularly vulnerable to disturbances that require an adaptive response from the parties.

While there is a multitude of unorthodox forms of contracting that may be classified as hybrid, particular attention has been paid to the increased prevalence of strategic alliances and joint ventures, two closely related phenomena for which a relatively elaborate literature has developed in management (e.g., Dyer & Singh, 1998; Gulati & Singh, 1998; Oxley and Sampson, 2004). Research shows that alliances often prove to be unstable contractual arrangements that dissolve prematurely. According to Inkpen and Beamish (1997), the primary factor producing alliance instability is shifting bargaining power between partners that can be traced to asymmetric learning and knowledge, which change the dependency relationship between alliance partners. Generally, studies show that learning is significant in alliances (Anand and Khanna, 2000). This has prompted researchers to examine potential profit

differentials between partners in alliances. On this point, Kumar (2010) finds that firms entering joint ventures do in fact earn differential returns from the partnership depending on the partners' respective capability to extract value from the relationship based on their bargaining ability. Alliances attain their positive adaptive qualities at the cost of high levels of contractual complexity, which may require extensive capabilities on the part of the contracting parties in order to realize private gains from the contractual relationship. This may be contrasted with market contracts and hierarchical governance where transactional ambiguity is either handled by having the parties retain their outside options throughout the relationship, or by having the unified owner absorb uncertainty through asset ownership and open-ended employment contracts.

Naturally, the complexity and risk sharing element of alliances places very high demands on the design of the contract regulating the relationship, and thus also on the ability of the parties to effectively guard their private interest in the drafting and negotiation of the contract. First, an alliance does not in its basic form guarantee a certain internalization payoffs and risk. Rather, the distribution of payoffs and risk is up for grabs in the contractual negotiations and can go in either way depending on how well the different parties perform. Second, as mentioned above, alliances involve highly complex contracting where the contractual design and partnership outcome is likely to be severely constrained by the parties' level of contracting capability. Overall, this suggests that economic actors who possess relatively stronger contracting capability will be more likely to prefer the alliance structure over contractual designs that involve lower levels of variability in payment/risk and contractual complexity than actors with relatively weaker contracting capability. Hence, we propose the following:

Proposition 2: The stronger relative contracting capability held by a focal actor, the more likely is the focal actor to prefer alliance contracts over the market and hierarchy.

Control-Oriented Terms and Contractual Safeguards. There is a significant literature on the design, extensiveness, and level of detail of market-based contracts (e.g., Arino et al., 2014; Crocker & Masten, 1988; Elfenbein & Zenger, 2014; Joskow, 1987; Poppo & Zenger, 2002). The level of detail and content of market-based contracts can be dimensionalized in several different ways. For example, Argyres and Mayer (2007) distinguish between five different types of terms and clauses that typically make up a complex market-based contract (i.e., roles/responsibilities, communication, decision/control rights, contingency planning, dispute resolution). Other researchers focus on the function of different parts of the contract, such as coordination and control (Mellewigt et al., 2007). For the purpose of describing the different types of terms and clauses that typically make up a complex market contract, we rely on the differentiation between coordination-oriented contractual terms (such as roles/responsibilities, communication) and control-oriented terms (such as decision rights, contingency planning, dispute resolution). Separating coordination and governance oriented contractual terms enables a more nuanced discussion about contractual extensiveness based on the primary function of different types of terms and clauses, and thus also, the incentive of economic actors to push for more extensive contracts of a certain type.

Much previous research on contractual detail based on the TCE has focused on the link between specific transaction attributes and contractual design. However, endogenous drivers of contractual detail, such as learning and internal organization, have more recently also been highlighted in the literature. Key insights from this research are that contracts tend to become more extensive and complex over time in repeated transactions (Argyres, Bercovitz, & Mayer, 2007; Ryall & Sampson, 2009). We suggest that models of the design of complex market-based contract should be supplemented by a more nuanced understanding of how knowledge asymmetries between the contracting parties shape expected value appropriation and the incentive to engage in contractual development of coordination-oriented and governance-

oriented contractual terms, respectively. As a starting point for such an analysis, it is important to highlight the differential function of coordination- and control-oriented terms in contracts. Whereas coordination-oriented terms primarily serve the purpose of integrating activities across the contracting parties to achieve the agreed functionality of exchanged goods and services; control-oriented terms primarily serve as instruments for mitigating relational risks, such as opportunism, and regulating the distribution of payoffs between the parties (Mellewigt et al., 2007). Control-oriented terms are thus to a greater extent than coordination-oriented terms linked to questions concerning distribution and the expected value appropriation of the parties. Increasing the extensiveness and detail of these terms thus provides an opportunity to derive distributional benefits that may not be available to actors who lack the relevant knowledge about the design control-oriented terms. It is thus reasonable to expect that the incentives of actors to design contracts that includes more elaborate control-oriented terms will differ depending on their relative contracting capability: We argue that actors with relatively stronger contracting capabilities are likely to prefer contractual designs oriented towards more extensive and detailed control-oriented terms whereas actors with relatively weaker capabilities are likely to prefer more coordination-oriented contracts. The causal mechanism underlying this argument is similar to what has been proposed earlier in the paper: Control-oriented contracts elevate the potential variability of payoffs from the relationship as a function of the outcome of contractual negotiations, where actors are constrained by their relative level of contracting capability and ability to design terms and clauses that are aligned with their private interests. Hence, we propose the following:

Proposition 3: The stronger (weaker) relative contracting capability held by a focal actor in a dyadic relationship, the more likely is the focal actor to prefer control-oriented contracts (coordination-oriented

contracts) over coordination-oriented contracts (control-oriented contracts).

CONCLUDING DISCUSSION

This paper highlights an important caveat to consider when introducing dynamics and learning in models of economic organization and new institutional economics. The fundamental problem is that learning tends to give rise to heterogeneity and asymmetry, which typically impact incentive alignment negatively. We believe that this mechanism should be carefully considered in relation to specific contractual forms. In this paper, we have examined the comparative effects on preferences for markets, alliances, hierarchy-based contracts, and a limited set of design choices associated with complex market-based contracts.

Contribution and Implications

While there is a growing literature on complex contracting and hybrid governance structures (see Ménard, 2004; 2022), theorizing in the TCE appears to underestimate the complexities that arise when the price mechanism is supplemented by complex contracting and hybrid arrangements. In this paper, we particularly highlight how bargaining and appropriation factors are likely to play an elevated role in this institutional setting and shape the contractual preferences of economic actors. Many of the theoretical challenges associated with this issue have to date been effectively handled by constraining the analysis to a comparative static framework and building on a somewhat vague terminology that relegates the arguable dominant contractual form of hybrids to the position of a middle ground between the more carefully defined ideal forms of markets and hierarchies (e.g., Williamson, 1985; 1996). However, as we argue in this paper, theoretical challenges resurface when the comparative-static framework is abandoned and learning and knowledge dynamics are introduced. More specifically, our analysis makes three contributions the literature related to institutional entropy, contractual foresight, and actor-level heterogeneity.

Institutional Entropy. In addition to improving contractual performance through the use of more specific and detailed contractual provisions that are better aligned with transaction attributes (Mayer & Argyres, 2004; Langlois, 1992; Williamson, 1985), we argue that learning to contract and the development of asymmetric contracting capabilities also reduce incentive alignment between actors with differential knowledge. Ultimately, such a development may threaten the stability of contractual relationships and lead to the disintegration of economic institutions. Learning and knowledge development appears to be double-edged swords that, on the one hand, reduce transaction costs by allowing for relatively more complete contracts, but on the other hand also work to increase actor-level heterogeneity, which is associated with reduced incentive alignment. We thus supplement the existing literature by outlining a potential countervailing force to the progressive view of contractual and institutional development.

The growth of knowledge in a dynamic economic system goes hand-in-hand with the division of labor and specialization, which fundamentally changes the inherent bargaining power and incentives of economic actors (Michels, 1962; Pareto, 1980). This insight is at present not incorporated into economic theorizing where comparative efficiency is often upheld as the end point of learning and institutional development. The problem appears to persist independent of whether a theory relies on a causal mechanism of hardheaded foresight (actors directly select the comparatively efficient outcome); or if the theory adopts an evolutionary mechanism (the environment selects the comparatively efficient outcome). Naturally, as highlighted by extensive previous research, comparative efficiency plays an important role for explaining institutional development. However, future research should also include questions related to how institutional preferences are affected by actor-level knowledge differentials and the specific bargaining positions associated with these differentials. There is, for example, rich empirical evidence on the role of knowledge in shaping bargaining positions and preferences in firm alliances that is not sufficiently theorized and applied in other institutional domains.

Similarly, on a macro-level, there are different streams of empirical research that address how institutional preferences are affected by the distribution of knowledge and wealth in society (e.g., Piketty, 2014; Turchin, 2023). Overall, we believe that future research should be directed towards achieving better theoretical and empirical integration across these highly diverse domains.

Bounded Rationality and Foresight. In relation to the growing body of work on learning to contract, we highlight some of the potentially counterintuitive incentive effects that are associated with learning and bounded rationality. We find that moving bounded rationality from the back-seat to take on a more prominent role our theorizing of contracting involves asking some rather challenging questions concerning how selection criteria based on efficiency interact with bargaining power and the possibility of manipulating perceptions in contractual negotiations. Earlier contributions to this literature have already begun outlining an answer to this question. For example, notions such as bounded rationality-based conflict (Foss & Weber, 2016), interpretative uncertainty (Weber & Mayer, 2014), and contractual framing effects (Weber & Mayer, 2011), all point in a direction generally consistent with the argument that bounded rationality is likely to impact bargaining power by restricting perceptions and contractual choice sets, which in turn, will affect the incentives of actors to engage in particular contractual practices. However, while this research builds on a more extensive notion of bounded rationality than in the basic TCE model, it typically refrains from fully extending the application of bounded rationality to all relevant contracting domains (Foss & Hallberg, 2014), including contract negotiation and potentially differential bargaining outcomes. The parts of the literature that more explicitly does extend the bounded rationality assumption to the negotiation of contracts is more open to the notion that differential value appropriation under different institutional or contractual frameworks might lead to preferences and outcomes that are not comparatively efficient. This, for example, includes arguments that economic actors'

differential access to decision-supporting systems may impact governance choice (Hallberg, 2015) and that actors may manipulate their counterpart's perceptions of asset specificity in contractual negotiations in order to maximize value appropriation (Weber & Coff, 2023). Future empirical research should be directed towards further examining the relationship between bounded rationality, bargaining, and governance choice.

Knowledge Asymmetry and Contractual Preference. Last, we also contribute to the contract design literature by proposing a new knowledge-based mechanism by which actors form contractual preferences concerning the use of simple/complex contracts and control/coordination-oriented terms. Previously empirical studies suggest that parties with relatively stronger contracting capability “might be quicker to use the market to organize the marginal transaction” (Mayer & Argyres, 2004: 408) and that a contractual partner with “greater distribution of power is able to affect structural design more than the partner with less power” (Feams et al., 2008: 1073). Building on these findings, we specifically suggest that parties with relatively stronger contracting capabilities are likely to prefer more detailed, complex, and control-oriented contractual designs because such contractual designs will allow them to manipulate the terms and conditions of the contract in their own favor, and thus, appropriate a larger share of the value created in the relationship than actors with relatively weaker contracting capabilities. The divergence in preference across parties with differential levels of contracting capability will likely have a negative effect on the possibility of sustaining mutual agreement on contractual terms. Future empirical research on this topic may thus be oriented towards studying how the differential resourcefulness of actors (e.g., size, amount of experience, education) impacts contractual complexity, the prevalence of hybrid contracts and alliances, the number of control-oriented terms, and relationship longevity.

Conclusion

We propose an alternative perspective on how learning processes impact contractual preferences. The argument provides counterintuitive implications for the study of incentive alignment between contracting parties and the long-term consequences of learning for the pervasiveness of contractual hazards and transaction costs. More specifically, we suggest that parties in contractual relationships will as a result of differential initial knowledge and path-dependency in learning processes develop asymmetric contracting capabilities. This allows actors with relatively stronger contracting capabilities to influence the terms and conditions of contracts in their own favor and appropriate a larger share of the value created in the relationship than actors with relatively weaker contracting capabilities, which leads to a shift in preferences over different contractual forms.

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