Quasi-rents, Measurement Costs, Enforceability and Efficient Organizations

Autoria: Leonardo de Lima Ribeiro, André Carlos Busanelli de Aquino

Abstract

The paper draws heavily from Williamson and Barzel's theoretical propositions. Firstly it translates the measurement cost approach into a rule of thumb type of diagram and then mix it with the asset specificity approach to explain the choice of organizational arrangement. It thus suggests the possibility of merging both theories into a broader and nonetheless operational one.

I - Introduction

Various authors have tried to explain why firms choose different organizational arrangements. Williamson, Klein, Crawford, Alchian and Barzel have dedicated great part of their work to understand the use of alternative governance forms in reducing transaction costs. All of the attempts derive from Coase’s original insight, which acknowledges the existence of transaction costs in the first place and sheds light on the importance of economic organization. In fact, the authors start with a common hypothesis: Agents choose alternative organizational arrangements in a transaction cost economizing way.

Coase (1937) defines firms as nexus of contracts. For him, a firm is an institution modeled to reduce transaction costs. Alternative to managing a given transaction inside a firm is the market mechanism. In a zero-transaction-cost world, all transactions could take place by simple market transactions.

Transactions held in the market can take several forms, from the simplest caveat emptor transaction to contractually-complex long-term partnerships that are in essence very close to a vertical integration. As contracts are inherently incomplete (Coase, 1937), not every contingency can be predicted. This in turn has an impact both on the understanding and on the enforceability of the transaction terms.

Enforcement can take at least two complementary forms: (1) the parties give power to a third-party enforcer to decide on how the litigation should be resolved (e.g. courts, arbiters and others). The use of legal enforcement is costly and sometimes ineffectual and parties will usually develop alternative means of enforcement. This is referred to as (2) self-enforcement. An example is the threat of not paying for a given good or service if it does not correspond to agreed-upon specifications. But the self-enforcement also has its own costs.

Barzel (2003) identifies 4 alternative organizational arrangements. The limits of each are not clearly defined. Each uses different sources of enforcement to avoid opportunistic actions. Those are: (1) Vertical Integration, sometimes referred to as hierarchical organization or firm. (2) Long-term relationship, the same two parties repeatedly exchange goods and/or services. (3) Enforcement by contracts, when third-party enforcers are available to rule if a dispute arises and (4) Caveat-emptor transactions, when the good/service is bought in the actual
condition without any guarantee or safeguard. In this last case, only theft and fraud are enforced (op. cit.). Sometimes a third party can be employed to group buyers’ bids and sell the commodity according to a pre-defined formula. This is the well-known auction. All of the 4 mechanisms can be more or less supplemented by contracts.

Barzel’s insight is innovative because it relates the use of contracts to the measurement costs of attributes of whatever is under exchange. When these attributes are objectively measurable, it can be clearly defined on contractual terms. When attributes of subjective nature are under exchange, they are better enforced by long-term relationships. In other words, the use of contracts is a function of measurement cost \( mc \). As measurement costs rise, the use of contracts becomes costlier up to a point where vertical integration is a more efficient solution.

In this paper we follow the legal scholarship (Masten 1998) where contracts are defined as agreements that can be externally enforced by a third-party provided with police power. In other words, contracts are legally binding.

Williamson (1985) in his turn modeled the choice of arrangements as a function of asset specificity \( k \) and relative governance costs (ibid. 1989). By this simplification the author showed that as \( k \) increases, transact in the market becomes costlier, up to a point where vertical integration outperform other governance forms. The model seems to work fine to situations where the exchange is closely related to a given investment. However the theory is limited as Barzel (2003) points out. We will return to this point below.

Coherently, Barzel (op. cit.) claims the greater generality of the \( mc \) approach. Williamson (1996, 65) in his turn claims that it is rather complementary to his own work: “Plainly, an integrated treatment of governance and measurement is ultimately needed”. Alchian (1984, 39) agrees: “One might…define the firm in terms of two features: the detectability of input performance and the expropriability of quasi-rents of resources”.

We follow the hypothesis of complementarity and propose a merger of the two approaches, thus relating \( k \) and \( cm \) as variables of the same model. Although formalization is not our priority, the suggested diagram can be empirically tested.

The paper is divided as follows: Part I revises on some important concepts. Part II translates Barzel’s latest contribution in a diagrammatic way. Part III alters the diagram by bringing Williamson’s \( k \) into the discussion. Part IV concludes and suggests empirical work.

II – Relevant Concepts

Contractual completeness

As mentioned before, contracts are inherently incomplete. Completeness level can vary substantially. Some authors claim that this choice is open to parties and it is decided on economizing terms. For Hart (1987, 753) it is rational to leave some contingencies open to future discussion. Otherwise parties would spend excessive resources in trying to cover a large number of unlikely eventualities.

Crocker and Reynolds (1993) empirically tested the decision to leave contracts intentionally incomplete. The authors investigated Air Force engine procurement contracts and observed
that the degree of completeness reflected a desire by the parties to minimize the economic costs associated with contractual exchange.

The increase of contractual completeness does not come cheap. To achieve a higher level parties must hire specialized legal advisors, skillful economists, accountants, financiers and so on. And to insure that agreed-upon terms will be met, measurement systems and controls must be developed.

However, as the bounded rationality theory suggests, sometimes the incompleteness is just a result of human mistakes, not all contingencies can be anticipated and sometimes, important ones are left untreated. This adds to the cost of contracting.

According to Teece (1977), even if a level of total completeness could be achieved, the contract would still be opened to serious risks since sometimes they are not honored. To bring a contract to court costs both money and patience. Enforcement usually takes time to occur (Klein, Crawford and Alchian, 1978). Sometimes enforcement can turn out to be ineffectual.

**Enforcement**

The existence of transaction costs makes the monitoring and enforcement of all legal and contractual obligations an ever-present problem. Consequently, legal enforcement rules are usually supplemented by extralegal guarantee instruments such as threat of termination, hostages, collateral, tit-for-tat strategies, reputation, and so on (Furubotn and Richter 1998, 19). The private safeguards guarantees against opportunism from the contracting party when the legal system may be imperfect or the relevant information may not be verifiable by the courts.

Klein, Crawford and Alchian affirm that long-term contracts used to substitute vertical integration can take on two forms: (1) an explicitly stated contractual guarantee legally enforced by the government or some other outside institution, or (2) an implicit contractual guarantee enforced by the market mechanism of withdrawing future business if opportunistic behavior occurs. The last are part of the self-enforcement.

Self-enforcing agreements complement the set of legally enforceable terms. Usually the self-enforcement substitutes for costly legal enforcement. It can take several forms. Most of them operate under a long-term agreement framework, where parties can react to the other party opportunistic behavior. According to Furubotn and Richter (1998, 158) these are part of the Relational Contract Theory. Actually, most transactions concluded under this form are more or less firmly embedded in a structure of relations that transcends the discrete transaction. Williamson (1985) call it the private ordering. Some of the available strategies are:

- **Termination:** In order to be a credible threat, it must pay the party to really keep its word. For the parties the benefits from defaulting are always lower than the long-term benefits of honoring the contracts and agreements;
- **Hostages:** The use of specific assets to make credible commitments;
- **Collateral:**
- **Tilt-for-tat:** According to Axelrod (1984, 13), is a retaliatory strategy given symmetric information. Parties cooperate in the first move and then do whatever the other party did on the previous move;
Opportunism

Incompleteness of the contracts would not be much of a problem, where not for the existence of opportunism. There could be general reliance on incomplete contracts if economic agents were wholly trustworthy (Furubotn and Richter 1998). But as Williamson has argued (1985, 47) some individuals are likely to be dishonest in the sense that they may disguise preferences, distort data, or deliberately confuse issues. Humans are predispose toward self-seeking with guile (op. cit., 47). And it is normally very costly to distinguish opportunistic from nonopportunistic actors ex ante. Telser (1980, 29) has a different point of view. For him someone is honest only if honesty, or the appearance of honesty, pays more than dishonesty.

Bounded Rationality

Binding the two concepts: incompleteness and opportunism is the notion of bounded rationality. A concept broadly discussed by Simon (1987). A decision maker must spend time and resources to secure information and have limited ability to process data and formulate plans. Because of their human limitations, their restricted knowledge, and their tendency to make errors, real-world decision makers will always function inefficiently relative to the hypothetical decision makers of neoclassical theory.

Transaction Costs

Transaction costs are not completely recognized by neoclassical economists. But they arise whenever an exchange of goods, services or information takes place. Their magnitude surely affects the way in which economic activity is organized and carried out.

Hiring employees is an example of transaction cost. The firms must spend resources to make its offer reach the right public, it must them receive resumes in different forms and shapes, must decrypt it in a comparable way. Managers will them invite the best-fitted candidates to relative long interviews. Finally a contract must be agreed upon. If in one year this new employee decides to quit, the company will be forced to restart from the beginning.

From a property right approach, there are costs related to the definition and measurement of claims, plus the costs of utilizing and enforcing the rights specified. Costs of information and negotiation are part of the first category, although information is needed throughout the whole process.

According to Furubotn and Richter (1998, 45), the use of information is important for decision makers to avoid costly mistakes. As information is costly to obtain, there is an economizing rationale behind the idea of efficient information gathering.

The search and information costs impact the party both directly, and indirectly. Indirect costs arise for example when organized markets are created and fees are charged to those who want to trade. Communication costs are surely included in the direct costs. Communication efforts are needed both internally, when managers meet with each other and frequently write reports to communicate with other managers, and external parties. Every time a good or service is bought, information is gathered on prices. Them the quality must be tested and controlled for.

When defining claims, parties will incur in bargaining and decision costs, wherein the asymmetry of information is of great importance. Decision costs include the costs of making
any information gathered valuable (Furubotn 1998, 45). An example is the compensation paid to advisers and the costs of reaching decisions within groups (consensus is costly to obtain).

Enforcement costs are also based on information. Measuring the attributes of transactions in order to insure that agreements are respected. The supervision usually takes the form of audits. Parties also spend resources to protect their rights and enforce provisions. To Barzel (2003) there is a particular form of information cost called measurement cost, which is related to commodity’s attributes. In order to exchange, the individuals require information both about the commodities’ makeup and about the terms under which they are exchanged. The costs will vary on how the information is obtained and its level of accuracy.

As we discussed, there are various costs related to the use of the market mechanism. These are grouped into categories such as: (1) searching costs, (2) bargaining costs, (3) information costs, (4) policing/monitoring costs and (5) enforcement costs. Alternatively we can elicit: (i) Cost of preparing contracts (search and information costs narrowly defined), (ii) the cost of concluding contracts (costs of bargaining and decision making), (iii) costs of monitoring and enforcing the contractual obligations. Other relevant costs are the setting up, maintenance and changing of organizational design.

**Appropriate Quasi-rents and the specificity of assets**

As Klein, Crawford and Alchian (1978) suggest, the serious threats behind contractual rupture is the existence of appropriable quasi-rents. The amount of which can ignite the other party opportunism. They make a crucial assumption that asset specificity implicates on appropriable rents. As the amount of appropriable quasi-rents increase, the costs of a contractual transaction will increase more rapidly than the cost of internal arrangements.

A distinction should be made between quasi-rents and asset specificity. It is true that the later has an impact on the first. However, there are cases where the quasi-rents can be considerable and the asset has no specificity. An example is when an apartment is rented to a renter upon a contract that clearly defines an inflation index to the monthly-price. Despite a high inflation in a given period sometimes the landlord will be better-off accepting to keep rent at its original level, thus diminishing the real price paid by the renter. The landlord fears that the renter might quit the apartment, creating huge transaction and opportunity costs to the landlord.

Klein, Crawford and Alchian (1978) propose a distinction between quasi-rents and appropriable quasi-rents. For them, the first concept refers to the difference between the net present value of an asset in a given transaction and the salvage value if the asset must be sold to someone that will give a different use to the asset. The appropriable quasi-rent is the parcel of quasi-rent that the other party can extract from the contracting party.

Asset specificity is a reasonably clear concept. It refers to the degree to which an asset can be redeployed to alternative uses, without sacrifice of productive value. (Williamson 1996, 59). It has some relation with the notion of sunk cost. Examples are:

- Human asset specificity that arises in a learning-by-doing fashion;
- Site specificity (location): “Buyer and seller are in a cheek by jowl relation with one another, reflecting ex ante decisions to minimize inventory and transportation expense” Joskow (1985, 38);
• Physical asset specificity: One or both parties to the transaction make investments in equipment and machinery that involves design characteristics specific to the transaction and which have lower values in alternative uses (op. cit.);

• Dedicated assets: These comprise “general investments that would not take place but for the prospect of selling a significant amount of product to a particular customer. If the contract were terminated prematurely, it would leave the supplier with significant excess capacity (op. cit.);

• Brand name capital – Reputation, which value is highly specific to contract fulfillment by the firm, is analytically equivalent to a forfeitable collateral bond put up by the firm which is anticipated to face an opportunity to take advantage of appropriable quasi rents in specialized assets;

• Temporal specificity.

There are cases where the parties increase the specificity of the assets involved in the transaction so to safeguard against moral hazard. One example is the franchisee, which is asked to rent rather than own the land upon which the shop is built. Consequently it becomes very expensive to cheat since the franchiser can terminate the deal at any time (Klein and Leffler, pp. 1980).

Asset specificity not only elicits complex ex ante incentive responses but, even more important, it gives rise to complex ex post governance structure responses.

**Governance responses**

According to North (1990), the notion of organizations closely relates people and institutions. When people take advantage of the latter, it is called an organization. Other authors call it governance forms or organizational arrangements. In a zero-transaction-cost world, it does not matter which “governance structure” (Williamson, 1985) we choose – market or hierarchy”.

Contracts are instruments of governance. As contracts are costly to complete, whenever the attributes of the transaction for which they are used for change, the magnitude of those costs will vary. Sometimes the costs will be so relevant that it becomes inefficient to perform a given transaction under contractual agreement. Alternative governance takes place. The more the seller could gain by breaking his promise, the stronger the long-term relations must be, and the greater is the investment made in them (Barzel, 2003)

At a certain point, it is better (least costly) to vertically integrate the transaction inside a single firm. This decision has both costs and advantages. Starting with the latter, since the firm is the residual claimant of the whole, the threat of opportunism is heavily reduced. Nevertheless, the firm is creating agency costs and diluting the incentives for efficient production.

If contracts are costly to write and to enforce, so are alternative ways of organizing an economic activity. Each organizational form has particular costs and advantages. Putting transactions into the hierarchy of a firm has at least one evident cost: The incentives to reach higher performance are lower in a firm than it is true for the relationships in the marketplace. Shirking happens. Chandler (1977) has argued that it is costly to setup hierarchies and keep them running. So there must be ways of organizing production that are cheaper and this is exactly what governance means.
According to Coase (1937), transaction, coordination and contracting costs influence the decision of vertical integration. The governance costs can take the form of ex-ante protection against opportunism of the other party. Which is clearly a loss of efficiency, and not only a wealth distribution problem. Uncertainty can turn into costs of inventories (stockpiling), insurance contracts, and vertical integration.

Agency theory also highlights that the principal-agent relationship is costly. One of the premises behind the argument is the difficulty to monitor the agent’s behavior. What the principal really sees is only the output. But if outside disturbances affect the result, the agent may have valid excuses for the bad outcome. Consequently, the principal cannot precisely determine the causes of bad results (Jensen and Meckling, 1979). So the asymmetry of information is in the origin of the agency theory. It is reasonable to affirm that by day-to-day practice and involvement in his job, the manager can develop better information of what is really going on than most principals can.

Both market transactions and exchanges inside the firm are subjected to contracts. Coase (1937) defined the firm as a nexus of contracts. However there is a clear difference by the way contacts are enforced outside and inside the firm. Courts can barely enforce terms which relate to subjective attributes of exchange (Barzel, 2003).

Long-term relationships are also exposed to another type of agency costs. The representatives of the supplier and the buyer firms can establish a trustful relationship in a way that they are more interested in promoting their own interests than those of the relating firms. But this can be mitigated if, from time to time, new managers substitute the responsible for the contractual relationship. However this strategy is also costly. The new manager will have to learn what the former had already experienced. Meanwhile errors might occur.

To Williamson (1985), the lower the appropriable specialized quasi-rents, the more likely transactors will rely on a contractual relationship rather than common ownership.

As we have seen, there are costs of organizing activities in a production chain. Those costs seem to be closely related to the attributes of the products/services under exchange, attributes of assets involved, and known characteristics of the involved parties.

**Transaction-Cost Economics**

Transaction-cost economics is concerned particularly with the effect such costs have on the formation of contracts (Furubotn and Richter 1998, 31). The authors enlist the contributors of this area as Coase, Williamson, Alchian, Klein, Demsetz and Barzel.

Williamson (1985) has decoupled a transaction into three characteristics: (1) the specificity of the assets involved, (2) the uncertainty of the results and (3) the frequency of trade. Firms choose their organizational arrangements based on the level of the three variables. Transactions, which differ in their attributes, are assigned to governance structures, which differ in their costs and competencies, in a discriminating - mainly transaction cost economizing - way (Williamson 1996, 59). Asset specificity is introduced above, now we turn to the other two and then present a model of how $k$ influences organizational choice.

Not all of the characteristics are adequately modeled to explain the choice of alternative arrangements. Although empirical works have tested asset specificity, the study of the
frequency and uncertainty constitute a still much fertile field for theoretical and empirical studies.

![Comparative Governance Costs Diagram]

It is important noticing that when Williamson mention the market, he is not referring to a caveat emptor transaction nor an once-in-a-lifetime auction. He implicitly refers to long-term relationships between a firm (buyer) and its supplier (seller). And this relationship can be based at least partially in contracts that can be enforced by an outside party (courts or arbiters). The contractual nexus remains.

Smith (1976) has once written the following: The degree of specialization increases as the market itself increase. Thus more and more transactions take place in the marketplace. If quasi-rent is linked to the idea of differences of value perception between two agents that face the same good, thus, when more agents are present, the difference between any two tends to diminish. Coherently, Williamson and Teece correctly translate Smith’s proposition.

Here we can add a brief digression. As prices of machinery also decreases, the quasi-rents of the services provided by those machines also decrease while they become more and more available to customers. When we look back to the 1960’s, big companies used to have their own computers. Today, although virtually every white-collar has its own PC in front of their desks; those companies outsource part of their computational needs.

**Empirical works**

Following the works of Williamson, who pioneered and most importantly, formalized how asset specificity determines the choice of vertical integration, many empirical studies have emerged. Amongst other Palay (1981), Masten (1984) and Spiller (1985).

Usually applied to industries such as the coal mining (Joskow, 1985, 1987), the empirical studies where mostly limited by its own explanatory variable: asset specificity ($k$). In other words, the theory could only be applied to situations where $k$ is measurable. And under these circumstances it became clear that the higher the specificity of the assets involved, the higher the probability that the transaction be performed in the hierarchy of the firm. As $k$ becomes low enough, the transaction can take place in the market (see figure above).
III - Barzel and the measurement cost approach

Klein, Crawford and Alchian (1978) argued that costs of contractually specifying all of the important elements of quality vary considerably by type of asset. The higher these cost, the more likely that exchange will be vertically integrated.

To Williamson, “all measurement problems are traceable to a condition of information impactedness – which is to say that either (1) information is asymmetrically distributed between buyer and seller and can be equalized only at great cost or (2) it is costly to apprise an arbiter of the true information condition should a dispute arise between opportunistic parties who have identical knowledge of the underlying circumstances (Williamson, 1975, pp. 31-37). Interestingly, measurement problems with different origins give rise to different organizational responses. Thus, whereas team organization problems give rise to supervision, the classical agency problem elicits an incentive alignment response”. For him, reputation is a way of lowering quality uncertainty and the common ownership is the form of avoiding asset dissipation.

As Barzel (2003) noticed, Williamson’s theory is rather limited in what it deems subject to capture and it also tends to overlook methods besides vertical integration that may reduce the deadweight loss from capture (Barzel, 2003, pp. 22). Based on these observations Barzel proposes his theory on measurement costs.

Accordingly, the author argues that measurement problems are primitive to asset specificity (Barzel, 2003): "The existence of capture opportunities implies that (economic) property rights are not well delineated. When measurement is costless, writing and enforcing complete contracts is trivial, and ownership is well defined. Neither specialized assets' quasi-rents nor anything else will then be captured. Measurement, however, is costly and subject to error, so transactors are not certain how will fare in their exchanges; their economic rights are not well defined. Capture opportunities exist everywhere, and transactor will spend resources to capture what they can. This behavior characterizes any dispute, as dispute consist of the competition between parties to capture the difference in their valuation (or quasi rent) of the disputed entity".

Lowering measurement costs

The authors suggest that sometimes private institutions such as certification agencies or governmental intervention can lower the costs of doing business in the market, thus lowering the need of vertical integrate different phases of a production chain.

Signaling is a useful way of reducing measurement costs. According to Spence (1976, 592) For a signal to be effective, it must be unprofitable for sellers of low quality products to imitate it. Guarantees are good example, since the expected cost for producer is negatively related with the quality itself.

The Barzelian Diagram

The first diagram comes naturally from a review of Barzel (2003). Apparently, throughout the text the 4 governance forms are explicitly related to two variables named: measurement costs ($mc$) and importance/value of measured attributes. The first of the two is discussed above. The
second refers to the expected economic impact \((ei)\) caused by measurement errors on the level of a given attribute. When a transaction takes place, many attributes are under exchange. Accordingly, parties are expected to value attributes differently, based on their experience, needs, interests and so on.

Barzel (2003) reminds us that exchange may be governed by a variety of forms of enforcement. Most fundamental is the use of long-term relations. The other forms are those associated with caveat emptor and auctions, contractual relations enforced by the state, and transfers within organizations.

In the following diagram we dispose the 4 governance forms according to the level of variables, \(mc\) and \(ei\). When \(ei\) is high enough, the decision-maker will try to protect the transaction against opportunism. Thus if the attributes are objectively measurable, it will most probably be contracted for. As subjectivity takes place, \(mc\) grows and long-term relations emerge a complementary enforcement mean. The author also argues that the existence of valuable and difficult-to-measure attributes create incentives to vertical integration. But if measurement costs are low enough, then contractual relations will be superior to hierarchies.

In the situation where \(mc\) is low enough to allow verification ex-ante at reasonable cost, transactions can take place by auctions or caveat-emptor transactions. Especially when eventual measurement errors have little or no impact over economic outcome of exchange.

As discussed before, each governance form has different enforcement features. Consequently we prefer to employ new terms to describe them as it sheds light on the enforcement source of each. Vertical integration becomes hierarchical enforcement. Williamson (1996, 98) had already argued that enforcement rather than fiat power is what ultimately differs the in-firm relationship to a market relationship. Contractual relations are referred to as third-party enforced relationships since contracts are supposed to be taken to courts or arbiters should a dispute arise. Long-term relationship is mostly self-enforced, so we employ this concept. Finally we come to a situation where only basic enforcement is necessary. Under this condition the measurement costs are reasonably low and the economic impacts of measurement errors are relatively irrelevant.

### Measurement costs effects on organization

<table>
<thead>
<tr>
<th>(ei)</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
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<tbody>
<tr>
<td>(mc)</td>
<td>Low</td>
<td>Third-party enforced relationships</td>
<td>Hierarchical enforcement</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>Auction /Caveat Emptor (only fraud/theft enforced)</td>
<td>Self-enforced relationship</td>
</tr>
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![Diagram showing the relationship between measurement costs effects on organization]
But when we think about enforcement, the diagram is obviously incomplete because Barzel (2003) opted to describe enforcement as a feature of the chosen governance form. In our opinion, there is another variable called enforceability which influences organization as well. This is argued in the next session.

While Barzel (2003) focuses only on how measurement costs affect governance structures, the author explicitly acknowledges the existence and the importance of other variables besides cm. These are: costs of forming long-term relations, quality of contract enforcement by the state and the length of the chain of individuals through which the information passes (op. cit., n6).

The diagram is obviously limited since it places long-term (or frequent transactions) apart from the contractual solution. Nonetheless it translates Barzel's thought fairly well and provides the basis for finer adjustments.

Another missing variable is the uncertainty. We are not completely convinced that it is totally translated by the measurement cost concept.

IV - The proposition

After dealing with those caveats we propose a different diagram. It seems more robust in various ways: (1) Third-party enforced relationship (contracts) is complementary to self-enforced relationships in a sense that some attributes and terms can be enforced externally. (2) The enforceability of contracts is taken care of and is related to mc. (3) Williamson’s $k$ is present and partially affects uncertainty.

Furubotn and Richter (1998, 128) categorize the economic problems caused by transaction costs into: (1) asymmetric information and (2) transaction-specific investments. They implicitly suggest that measurement cost in one hand, and appropriable quasi-rents in the other are the main variables affected by the magnitude of transaction costs.

The idea behind the diagram is that Williamson’s $k$ does influence the choice of governance by making hierarchical enforcement more attractive when asset specificity rises. However when the decision is about choosing caveat emptor/auctions or contractual agreements, uncertainty alone will play a major role. In situations where $k$ is positive, uncertainty rises due to behavioral risk (the probability of opportunistic action).

We believe that uncertainty is a function of the inherent variability of commodity’s attributes and the likelihood of opportunistic behavior of the contracting party. States of nature, which is routinely included in uncertainty, was not recognized due to the lack of comprehension of this variable impact on relative governance costs.

On the horizontal axis, attention should be on measurement costs, which varies with the subjectivity of the transaction/commodity attributes. As we know, objective and verifiable attributes are easier enforced by third-party (in a fixed institutional framework). In other words, as measurement cost lowers, enforceability more likely grows. However there are situations, such as institutional change that can promote a change in enforceability independently from any movement in the $cm$ variable. For example, a new code of intellectual property right can bring in different rulings, raising enforceability of inventions.
In situations where $k$ and uncertainty are not sufficiently high to incentive the use of hierarchical enforcement (vertical integration), there will be a complementarity between self-enforcement and third-party enforcement; the relative importance of each will vary across transactions with different degrees of $cm$ and enforceability.

The blank spots in the northeast and southwest portions of the diagram are supposed to represent the nonexistence of feasible transactions. The later remembers Ackerlof’s market of Lemons (1970). It this situation asymmetrical information can pose threats to the existence of market transactions at all.

**Organizational arrangement and transaction characteristics**

![Diagram showing organizational arrangement and transaction characteristics]

**V - Concluding remarks**

As we proposed, there are advantages of merging the measurement cost approach with relationship specific assets theory. The resulting model should contribute to the understanding of Transaction Cost Economics, mainly to the study of governance forms.

The model is definitely not a final word. The identification of the key variables and their relationship is an ongoing discussion.

As suggestions for future research one can verify whether the increase in the quality of production standards (thus lowering the risk associated with quality variability), really increases the likelihood that buyers change suppliers more often as the model suggests.

Similarly, studies can identify the relationship between measurement costs and enforceability.

Another interesting proposal is to review Transaction Cost Economics' empirical findings and verify whether the newer model could justify reported inconsistencies between real data and TCE’s theoretical propositions.

**VI - References**


