

Chapter Three: Transaction Costs and Governance Structures in Agribusiness**3.1 Introduction**

The objective of this chapter is to illustrate how economic theory can provide a better understanding of transaction cost, as well as to explain the economics of organisation structure from a transaction cost theory perspective. The chapter, therefore, builds on the emerging importance of organisation structure and transaction cost as discussed in previous chapters. A further objective of this chapter is to provide a theoretical basis to develop a conceptual framework that can be applied to the analysis of the case studies.

The chapter commences by discussing the design of organisation structure as a component of management control systems (MCS). This section also discusses design in relation to developments in economic theory like organisational economics. The chapter then develops a resume of transaction cost theory to explain the economics of the firm in the context of its organisation structure. This section introduces the concept of a vertical co-ordination continuum of governance forms that can be used to coordinate economic activity. The characteristics of supply chain transactions are then discussed, before a transaction cost approach is developed, to demonstrate that the transaction characteristics of a supply chain influence the structure of the governance form that co-ordinates the respective activities. The chapter then employs a multiple economic theory approach to demonstrate how a range of social-historical variables influence the prevailing institutional framework of society that, in turn, provides unit level constraints to the transaction costs of the individual firm. Finally, a summary and conclusion are developed.

3.2 Economic Theory and the Design of Governance Structures

A primary objective of management is to integrate the design of governance forms with decision making and control motives (Dietrich, 2001). The design of governance forms plays a central role in the firm's ability to analyse performance and determine reward structures (Walker, 1998; Anthony & Govindrajana, 2001). Control systems are better able to demonstrate the economics of performance and structure if a theory of

the firm approach is incorporated in the design of these control systems (Dietrich, 2001; Walker, 1998). An understanding of the economics of the firm is especially important in the currently changing environment that has witnessed dramatic changes in information technology, more competitive markets, different organisation structures and new management practices (Burns and Scapens, 2000). Recent developments in economic theory, namely organisational economics, have provided an ideal opportunity to apply new approaches to understanding and evaluating the managerial and organisational environment of many industries that are undergoing structural change (Barry et al, 1992).

The theory of the firm attempts to explain the emergence, size, boundaries and performance of the firm (Rowlinson, 1997). A number of theories of the firm have been developed over time, however, Demsetz (1988) states that in two hundred years only two works have seriously challenged the neo-classic theory of the firm. They are the assumption of risk, uncertainty and profit by Knight in 1921 and a transaction cost approach of explaining the firm that was pioneered by Ronald Coase in 1937. Khalil (1996) adds a further challenge by including the work of Veblen in 1898 and Alchian in 1951 that sees the firm as a path dependent learning entity. Transaction cost theory has, largely, explained the relationship between the transaction characteristics of the firm and organisation structure (Coase, 1990; Williamson, 1979; 1981; 1988). Transaction cost economics has positioned itself in the centre of economic organisation theory and has been developed on the basis of the technical, human and behavioural nature of the firm, where the concepts of bounded rationality and opportunism are key factors that distance this theory from neo-classical economic theory (Groenewegen, 1996). Transaction cost theory assumes that economic actors will behave in an opportunistic manner if the circumstances of the transaction permit them to do so (Rowlinson, 1997) and that opportunistic behaviour, like dishonesty and exploitation, increases transaction costs for one of the parties involved. Conversely, the human behavioural characteristic of trust can reduce transaction costs (Akerlof, 1988; Dietrich, 1996; Gow et al, 1999; Fafchamps & Minten, 1999; Dean, 2000a) because trust eliminates opportunism. Trust, in this context, is a function of the cost of default, knowledge and emotional bonds (Adams & Goldsmith, 1999). Finally, transaction cost economics, like agency theory, has been developed on the basis of contract theory that sees the firm as a

"nexus" of contracts (Reve, 1995). Transaction cost theory, in this sense, can be likened to the theory of optimal contracts (Seifert & Priddat, 1995).

The emergence of organisational economics has been matched with higher levels of recognition of the importance of organisational architecture (Brickley et al, 2001). Organisational economics embraces a number of individual theories of the firm to explain the emergence, size and performance of the firm. Organisational economics has emerged out of the critiques of neo-classical theory where some schools of thought see these new theories as being compatible with neo-classical economics, whilst others totally reject this assumption (Rowlinson, 1997). Organisation economics, incorporating both managerial and behavioural theory, embraces a number of economic theories of the firm. These are transaction cost theory, game theory, agency theory, property rights theory and evolution theory. The resource based approach of strategic management theory is sometimes seen as a fifth school of thought in organisation economics. These schools of thought are not mutually exclusive and organisation economics is synonymous with the new institutional economics (Mahoney & Pandian, 1992; Foss, 1995; Rowlinson, 1997). Despite progress towards understanding institutions, they are still not fully understood because they are complex. They are complex because they are systems that recognise more than one ultimate principal and corporate situations are often simultaneously social and economic (Barney & Ouchi, 1988; Williamson, 2000). A single theory of the firm is simply unable to provide a comprehensive explanation and an integrated schema of theories is required to explain the emergence, size and performance of the firm (Groenewegen & Vromen, 1996; Pitelis, 1996; Williamson, 1996;2000).

3.3 The Economics of Governance Structure: A Transaction Cost Theory

Approach

This section illustrates from the literature how the use of transaction cost theory can be applied to select the optimum governance structure to co-ordinate a set of activities. A review of transaction cost theory is developed before discussing organisation structure and the characteristics of transactions. Transaction cost theory is then applied to demonstrate that the transaction characteristics of the firm, influence its choice of governance structure.

3.3.1 Transaction Cost Theory: A resume

A transaction is described as occurring when goods or services are transferred across a technologically separable interface where these interactions occur as a result of technology, the division of labour, locations, markets or people. One stage of activity terminates and another begins (Rowlinson, 1997). Transactions can involve discrete market transactions, hierarchical managerial transactions, recurrent contract transactions or relational transactions (Ring & van den Ven, 1992). Transaction cost is thus the cost of exchanging goods and services (Foss, 1995) and results from the search for information, the cost of measurement, contracting costs, monitoring costs and the cost of enforcing agreements. These costs can be extended to include the production facilities costs, the co-ordination costs and the communication costs of the firm (Pitelis, 1996; Cordella & Simon, 2000). Transaction cost can be viewed as the economic counterpart of friction in a mechanical system. Transaction cost theory assumes firms seek to reduce this friction which includes the costs of information asymmetry, bounded rationality, opportunism, identifying suitable trading partners, specifying and detecting quality and gathering information. Friction can be described, in this context, as costs that arise when individuals exchange ownership rights to economic assets and enforce their property rights (Rowlinson, 1997). Furthermore, friction includes determining contract terms, paying agent fees and negotiating, monitoring and enforcement costs (Williamson, 1981; Hobbs & Young, 1999). Transaction cost economics seeks to explain why some activities interface within the firm and others with the market and this theory suggests that the transaction should be regarded as the ultimate economic unit of analysis with respect to the theory of the firm (Coase, 1990; Williamson, 1986; 1988; Klein et al, 1988; Barney & Ouchi, 1988; Foss, 1995; Rowlinson, 1997).

The key features of transaction cost theory are based on the thought that specific institutional arrangements emerge in response to transactions in order to minimise cost and the development of a theoretical framework that could be subjected to empirical verification structures (Williamson, 1986; Williamson, 1996; Groenewegen, 1996). These key features view transaction cost economics as a micro-analytic approach to the investigation of the firm that incorporates the following assumptions, namely, the assumption of bounded rationality and opportunism, the economic

importance of asset specificity and a reliance on comparative institutional analysis rather than marginal analysis. Other features include the assumption of the firm as a governance structure rather than a production function and an emphasis on the ex post implications of contracting (Williamson, 1979). Additional key features are that the transaction is the basic unit of analysis and that transaction characteristics can be described in terms of their frequency, uncertainty or the degree to which they are determined by operational assets. It is, furthermore, assumed that governance forms display unique attributes of cost and competence and each governance form is supported by a distinctive form of contract law. Specific transaction characteristics are assumed to be better suited to certain governance forms in order to economise on cost efficiency (Williamson, 1996). The operationalisation of transaction cost theory is a key concept and involves characterising transactions and matching these to cost minimising governance structures (Williamson, 1986; Williamson, 1996; Groenewegen, 1996) where an understanding of the characteristics of transactions has contributed towards an understanding of the problems of designing an organisation structure (Joskow, 1988).

Transaction cost economics adopts a contractual approach to the theory of the firm and proposes that any issue that can be explained in terms of a contracting problem, can be evaluated in terms of transaction costs that are generated as a result of the exchange of goods and services involved (Williamson, 1979). Contract theory, thus, describes the firm as a nexus of internal and external contracts that co-ordinate activities both inside and outside the firm (Barney & Ouchi, 1988; Demsetz, 1988; Williamson, 1988; Reve, 1995; Groenewegen, 1996; Khalil, 1996; Zylbersztajn & Farina, 1999). Transaction cost economics can be likened to the theory of optimal contracts where the contracts are extremely sensitive to minor changes in the transactors' personal characteristics of risk, information, collateral and assets (Seifert & Priddat, 1995). Behavioural characteristics, like bounded rationality, result in incomplete contracts that cause hold ups that impact on transaction costs and require incentive and enforcement mechanisms (Zylbersztajn & Farina, 1999). Transaction costs in a contracting arrangement occur because of contractual hazards in the form of opportunism, uncertainty, bounded rationality and small numbers of players. These costs are also influenced by information asymmetry and asset specificity and specific transactions, in the form of contracts, are sometimes cheaper to internalise in the firm.

structure than conduct in the market place (Reve, 1995). Finally, transaction cost theory assumes that a distinctive form of contracting can be related to every governance form in a vertical co-ordination continuum of organisation structure alternatives that range from open market co-ordination to full vertical integration (Williamson, 1996).

Transaction cost theory has a number of limitations. The property of power, which is thought to impact on the emergence and efficiency of the firm, has not been properly incorporated in transaction cost theory (Pitelis, 1996). Power has been cited as a motive for human behaviour in the organisation (Zylbersztajn & Farina, 1999) and a critical dimension of ex post contractual relationships and, hence, transaction costs (Dietrich, 1996). This can be clearly demonstrated by rational capital market lenders who prefer to interact with organisations with undemocratic management structures because of the lower level of hazard. These type of organisations can thus secure capital at a cheaper rate than rival organisations that have democratic structures (Williamson, 1996; Pitelis, 1996).

This study argues that the use of transaction cost literature can be employed to better understand the economics of agricultural supply chains that include small-holder contracting arrangements. Firstly, contracting arrangements can use transaction cost theory as a basis to structure the contractual conditions. The conditions of the contract, the possibility of small farmer opportunism and moral hazard and the nature of the transactions between the parties, can all be evaluated in the context of transaction cost theory in order to minimise transaction cost, select the optimum organisation structure and ensure smallholder efficiency.

3.3.2 Transaction Cost Theory and Organisation Structure

A range of factors can influence the organisation structure of the firm and different organisation structures arise as a result of different strategies of growth (Pitelis, 1996). Four primary factors affect the organisation structure of firms, namely, the volume of production, the geographical dispersion of the operating units in the firm, the product range and the innovation of new products (Rowlinson, 1997) where the choice of structure is viewed as a strategic management option (Westgren, 2000).

Organising, furthermore, is the establishment of a framework within which required activities are to be performed and the designation of who should perform these activities (Drury, 1996). This framework includes both the firm hierarchy, encapsulated within the boundaries of the firm and the other activities in the supply chain. Organisation structure, therefore, also determines the manner in which certain activities, outside the firm boundaries, are co-ordinated with the activities performed within the firm hierarchy (Brickley et al, 2001). A supply chain can consist of a single firm that undertakes all the necessary activities, or, alternatively of a number of separate firms that are co-ordinated in some fashion. Table 3.1 illustrates a range of governance forms that can be employed to co-ordinate the activities of a supply chain. These governance forms can range from the spot market, where market forces co-ordinate the necessary activities, to fully internalised structures where the transaction is co-ordinated within the firm's boundaries. In the first instance, the co-ordination of the grower and the processor activities is the result of market related forces, whereas, in the second instance, the co-ordination of these activities is one hundred percent managed within the company hierarchy. Falling between these two extreme examples of co-ordinating economic activity, the firm can employ other alternative structures that include specification contracting, alliances, joint ventures and other hybrid structures (Mahoney, 1992; Hobbs & Young, 1999).

Table 3.1: Vertical Co-ordination Continuum

Co-ordination of supply chain	100 % market	Low-medium Managed	Medium Managed	High Managed	100 % managed
Governance Form	Spot Market	Specification Contracting	Strategic Alliance	Formal Co-operation	Full Vertical integration

Source: Petersen & Wysocki (1997; 1998)

This range of organisation structure options has expanded Ronald Coases's original assumption of either hierarchy or the market as the only governance form options (Barney & Ouchi, 1988). This range of structures, namely, the vertical co-ordination continuum, based on the work of Ronald Coase and Oliver Williamson, has become a central feature of transaction cost economics (Williamson, 1988; Petersen & Wysocki, 1997;1998; Adam & Goldsmith, 1999; Hobbs & Young, 1999; Barjolle & Chappius, 2000).

The structure of organisations becomes increasingly complex as the firm moves away from market based transactions towards full integration (Adams & Goldsmith, 1999). The vertical co-ordination continuum assumes that the production of goods is co-ordinated by a continuum of alternative governance forms that are adopted on the basis of their efficiency and that competition ensures organisations remain efficient (Barney & Ouchi, 1988). The boundaries of the organisation are, thus, a vital concept with respect to their impact on the efficiency of the organisation and the degree to which transactions are co-ordinated internally (Williamson, 1981). Firm size is a trade off between production efficiency and transaction efficiency for intermediate goods (Liu & Yang, 2000) where the limits to firm expansion are imposed by market competition among firms (Rosen, 1988). Some of the choices of organisation form involve hybrid structures where the boundaries of the firm are unclear. As an example, one form of hybrid, called a strategic fuzzy alliance, involves a structure where the boundaries between firm and the market are not clear and trust is a key factor that co-ordinates the actors (Adams & Goldsmith, 1999). Although a specific governance structure mode can normally be aligned with contract law, firm boundaries are fading as hierarchical systems exist across firm-market boundaries (Zylbersztajn & Farina, 1999) and a number of hybrid structures involve the joint use of assets (Westgren, 2000). In conclusion, well established legal systems in the Western world facilitate highly complex contracting (North, 1997) whilst poorly established property rights in many developing countries preclude this (Runsten & Key, 1996)

3.3.3 The Transaction Characteristics of the Firm

The characteristics of a firm's transaction's to secure goods and services are influenced by the degree of uncertainty relating to the transaction, the degree to which the transaction is influenced by the assets of the contracting parties and the frequency of the transactions. Combinations of these transaction characteristics of uncertainty, asset specificity, duration, flexibility and frequency, that occur within the institutional matrix of the firm, can, in turn, be matched with different contractual modes that range from classical to relational contracting (Williamson, 1988; Mahoney, 1992; Eggertson, 1995; Petersen & Wysocki, 1997; 1998; Zylbersztajn & Farina, 1999).

Uncertainty is sometimes regarded as the most critical transaction characteristic, with frequency the least critical and asset specificity impacting on both uncertainty and frequency (Williamson, 1988). Risk and uncertainty are directly associated with the duration of the contract, the information that is available and the level of control (Ring & van den Ven, 1992). Furthermore, incomplete information, information asymmetry and opportunism create uncertainty (Foss, 1995). These factors, in turn, impact on transaction cost because of the resultant imperfect information system (Cordella & Simon, 2000). The level of uncertainty can also be affected by the level of trust that exists between the contracting parties (Ring & van den Ven, 1992) as well as by commodity specific cycles that affect certain industries in cyclical patterns (Ruth & Cloutier, 1998).

The transaction characteristic of asset specificity could include specialised physical capital, site specific assets, human assets, co-ordination or temporal specificity requirements. The presence of these characteristics increases the possibility of opportunistic behaviour and, thus, the cost of contracting. In the case of temporal asset specificity, high levels of co-ordination cost are required in the input-output function that links the supplier and the manufacturer (Klein et al, 1988; Williamson, 1988; Foss, 1995). In all cases of asset specificity, a degree of dependency is induced into the contractual relationship (Petersen & Wysocki, 1998). Furthermore, the characteristics of the product can affect the related transaction dimensions. The drivers of product characteristics include a range of technological, regulatory or socio-economic factors that impact on its characteristics of perishability, differentiation, quality, and new consumer preferences. In this respect, perishability causes uncertainty for both buyer and seller, as well as an increase in transaction complexity and quality cost whilst product differentiation will require increased information and quality cost (Delgado, 1999; Hobbs & Young, 1999; Barjolle & Chappius, 2000). Transaction characteristics that involve technical change are becoming increasingly more complex with respect to the development and protection of new technology. In this respect, an additional characteristic of privacy can be added (Williamson, 1988). Other characteristics of transactions include task programmability and non-separability. Task programmability is the degree to which the agent's tasks can be broken down into finite observable outcomes, whilst non-separability relates to the characteristics of the output and

how easily it can be monitored. The higher the degree of programmability, the lower the level of supervision required and the higher the degree of non-separability, the more difficult it is to determine the unit of output. (Mahoney, 1992).

3.3.4 Matching Transaction Characteristics and Organisation Structure

The optimum choice of organisational structure incorporates both a strategic and an industrial organisation concept. These concepts include a structure that recognises the competencies of the firm, combined with a structure that co-ordinates the activities and resources of the firm in the most efficient manner. The optimum organisation structure is, thus, the most efficient match of competencies and activities that need to be co-ordinated both within, and outside the firm boundaries (Mahoney, 1992). Profit maximising firms will undertake those activities they find cheaper to administer internally rather than purchasing in the market (Klein et al, 1988). Transaction cost theory proposes that the selection of an optimum organisation structure, that will maximise the efficiency of the firm, is a result of matching the characteristics of its transactions with the most suitable governance form along the vertical co-ordination continuum. Table 3.2 demonstrates the operationalisation of transaction cost theory. Transaction cost economics seeks to explain why some activities interface within the firm and others with the market where this theory suggests that this choice is based on minimising transaction cost (Coase, 1990; Williamson, 1986;1988; Klein et al, 1988; Barney & Ouchi, 1988; Foss, 1995; Rowlinson, 1997).

3.3.4.1 The Operationalisation of Transaction Cost Theory

In response to the need to minimise transaction cost, transactions become increasingly internalised along the vertical co-ordination continuum as their characteristics of frequency, risk and asset specificity increase. The firm, in direct response to the increased levels of frequency, asset specificity and uncertainty, will move away from spot market trading, where market forces co-ordinate these transactions, to a governance form that, increasingly, internalises the transaction and incorporates higher levels of managed co-ordination (Ring & van den Ven, 1992; Groenewegen, 1996; Adams & Goldsmith, 1999). This concept attempts to match combinations of transaction characteristics with the most suitable governance

form along a vertical continuum of opportunities. Table 3.2 illustrates that as the level of transaction frequency, uncertainty and asset specificity increase from low to high, the most suitable choice of governance structure moves away from spot co-ordination market, namely, 0% managed co-ordination, to higher levels of managed co-ordination, namely, from 0% to 100%.

Table 3.2: Matching Transaction Characteristics with Governance Forms

Transaction Characteristic	Spot Market	Specification Contracting	Strategic Alliance	Formal Co-operation	Full Vertical Integration
Frequency	Low	Low-medium	Intermediate	Int.-high	High
Uncertainty	Low	Low-medium	Intermediate	Int.-high	High
Asset Specificity	Low	Low-medium	Intermediate	Int.-high	High
Degree of Managed Co-ordination	0%	Low-medium	Intermediate	Int.-high	100%

Source: Williamson (1988) and Petersen & Wysocki (1997;1998)

3.3.4.2 Contract Theory and Organisation Structure

In support of the relationship between the transaction characteristics of the firm and organisation structure, contract theory suggests the firm will position itself on the vertical co-ordination continuum on the basis of the degree of contractual hazard and the choice of governance form can thus be related to the choice of a contracting relationship (Williamson, 1988; Williamson, 2000). The choice of contractual form is, therefore, fundamentally dependent on the transaction characteristic of uncertainty between the parties. The degree of uncertainty is influenced by the frequency of the transactions and the degree to which the transactions are influenced by asset specificity. If some degree of uncertainty is assumed in the transaction, then the transaction need only be characterised in terms of frequency and asset specificity in order to match it with the most suitable form of contract.

Various forms of contracting are best suited to different levels of uncertainty. Since the firm has been described as a nexus of contracts (Rowlinson, 1997), these different forms of contracting can be related to the different governance structures along the vertical co-ordination continuum (Williamson, 1988). According to contract theory, classical contracting would be the most suitable contracting form for standardised transactions that are infrequent and involve a low level of asset specificity, uncertainty and trust. This form of contracting, in turn, is adequately accommodated in the

governance form of spot market transactions (Williamson, 1975, 1979; Mahoney, 1992; Adams & Goldsmith, 1999). Conversely, a neo-classical contracting structure is best suited to an arrangement where a substantial investment in set up costs has been incurred by one of the parties, as well as a degree of idiosyncrasy. This form of contracting would be best accommodated in an intermediate governance structure, like a joint alliance, where higher levels of managed co-ordination exist and it would be possible to customise the set of conditions (Williamson, 1979). Relational contracting is most suitable for a set of idiosyncratic transactions involving a high level of uncertainty, frequency, asset specificity and non standardisation. This form of contracting is best accommodated in governance forms with high levels of managed co-ordination like a formal alliance or full financial vertical integration (Williamson, 1975, 1979; Mahoney, 1992; Adams & Goldsmith, 1999).

3.3.4.3 Transaction Characteristics and Contract Structures

Transactions that involve high degrees of complexity, privacy and co-ordination are all more suited to higher degrees of managed co-ordination (Williamson, 1979) The operationalisation of transaction cost theory presumes that each set of matching conditions occurs under a given level of uncertainty, where an increase in uncertainty would tend to drive the need for higher levels of managed, as opposed, to market co-ordination (Williamson, 1979). Table 3.3 illustrates the relationship between the transaction characteristics of frequency, asset specificity and the most suitable contracting form where some degree of uncertainty is assumed. As frequency and asset specificity increase, the most suitable form of contracting moves from classical to relational. Governance structures along the vertical co-ordination continuum can, thus, be adopted on the basis of the characteristics of the contract (Williamson, 1975, 1988; Mahoney, 1992) where standardised transactions require less specific structures and are more suited to the market, whilst non standard transactions require structures with higher levels of internal co-ordination (Williamson, 1988).

Table 3.3: Matching Transaction Characteristics with Contracting Forms

	1. Low Asset Specificity	2. Mixed Asset Specificity	3. High Asset Specificity
Transaction Frequency			
1. Occasional	Open Market Co-ordination = Classical Contracting	Hybrid Structure for medium level of managed Co-ordination = Neo-classical contracting	Hybrid Structure for medium to high level of managed control = Neo-classical contracting
2. Frequent	Open Market Co-ordination = Classical Contracting	Hybrid Structure for High levels of managed control = Relational Contracting	Vertical Integration for 100% managed co-ordination = Relational Contracting

3.3.4.4 The Organisation Structure Function

The relationship between organisation structure and transaction characteristics, according to the literature (Barney & Ouchi, 1988; Demsetz, 1988; Mahoney, 1992; Foss, 1995; Groenewegen, 1996; Williamson, 1981; 1988; 1996; 2000), can be represented as follows:

$$OS = f(F, U, AS)$$

Where OS = Organisation Structure, F = transaction frequency, U = transaction uncertainty and AS= asset specificity.

In conclusion, the suggested relationship between the transaction characteristics of the firm and organisation structure has been overwhelmingly confirmed by empirical testing (Masten, 1996; Williamson, 1996; 2000).

3.4 The Economics of Transaction Characteristics

Although the literature has adequately demonstrated the relationship between the transaction characteristics of the firm and the necessary level of managed control, as demonstrated by its governance structure, the economics of the transaction characteristics are less eloquently explained. The economics of transaction characteristics can be demonstrated by a two stage process developed by Williamson (2000).

The first stage of this approach assumes that the history-natural conditions of a country influence the institutional framework and property rights economics of a society. The second stage then demonstrates how the institutional framework of a society influences the transaction cost of the firm.

3.4.1 A Multiple Theory Approach

The performance of the firm is subject to a wide range of institutions and market forces (Groenewegen, 1996; North, 1997; Williamson, 2000) and the emergence of firms calls for a different theory than the dynamics of existing firms (Groenewegen & Vromen, 1996; Williamson, 2000). Although performance is partially explained by the various theories, there is a realisation that no single theory of the firm is able to embrace the complexity of variables involved (Pitelis, 1996; Williamson, 2000). The concept of theoretical pluralism, therefore, demonstrates that a more integrated theoretical framework is required to fully explain the economics of the firm (Groenewegen & Vromen, 1996; Pitelis, 1996). This approach proposes that each of the theories of the firm contributes a partial explanation and that the individual theories can be consolidated to develop a more comprehensive economic theory to explain the emergence, size and performance of the firm (Groenewegen & Vromen 1996). Theoretical pluralism can only exist if the basic tenets of the various theories of the firm do not disagree with each other and this approach assumes that the individual theories of the firm each contribute a set of inclusive variables that can be linked.

Institutions are exposed to a wide range of forces that include changes in prices, population growth, military alliances, capital accumulation, demographics, technology and information management (North, 1997). Moreover, the impact of a country's property rights, customs, laws, culture and political structures need to be captured inclusively in economic theory that recognises and develops a formal multiple theory perspective to understanding the firm (Williamson, 1996; 2000; Doner & Schneider, 2000). Firms evolve under a wide range of selection pressures that include a set of interdependent institutions that are a function of both the formal and informal rules of societies. The firm, therefore, includes the formal organisation hierarchy, the institutional environment and the institution of the individual. Given the various levels of the institutions, the firm attempts to optimise efficiency under conditions of resource constraints, environment constraints and the behavioural constraints of bounded rationality, opportunism and self interest (Williamson, 1996; North, 1997).

The inadequacy of a single theory of the firm approach can be demonstrated in a number of respects. Firstly, the current theories of the firm cannot account for the asymmetry of power or purposeful action and there is a need to demonstrate a unique difference between commercial contracting and employment in order to determine the boundaries of the firm. It has been proposed that if suppliers become incorporated in organisational goals, this can be used as a guide as to whether or not to extend the firm boundaries to incorporate them (Khalil, 1996). Secondly, transaction cost economics introduces contractual phenomena under an economising lens that is characteristic of neo-classic theory by seeking to minimise cost as a result of adopting the most efficient structures. On the other hand, neo-classical economics seeks to maximise profit by the optimal utilisation of the current, static set of production techniques. In both cases, there is an underlying principle of cost minimisation (Williamson, 1979). Transaction cost theory thus subscribes to economising behaviour but modifies conditions where rational actors are replaced by bounded rationality and opportunism and perfect information is replaced by uncertainty. Furthermore, property rights theory, agency theory and evolution theory share an economising focus with neo-classical economics and transaction cost theory, but assume the same behavioural characteristic of rationality as neo-classical economics (Groerwegen & Vromen, 1996). In turn neo-classical economics has been subjected to modifications that its proponents argue, make it compatible with

new developments regarding the theory of the firm. Thus the maximisation of profits in neo-classical theory has been replaced by constrained maximisation that concurs with transaction cost theory which seeks to optimise the performance of the firm under a given set of conditions (Groenewegen & Vromen, 1996) Finally, the impact of competitive market forces shaping organisation structure in transaction cost theory (Williamson, 2000), subscribe to evolutionary theory (Groenewegen & Vromen, 1996).

3.4.2 The Williamson Three Stage Economising Model

Williamson (2000) proposes a multiple theory of the firm approach to explain structure and performance in Table 3.4. This approach is incorporated in an interdependent four level schema that sets out a three stage economising process for the firm. The four level schema includes the historical legacies-institutions of a society, the property rights-judiciary of a society, the transaction characteristics of the firm and the economics of the input-output function. Williamson (2000) proposes that the history of a society, regarded as the level one schema, evolves over a period of a hundred to a thousand years and results in embedded traditions, culture and norms that influence the economics of the level two schema. This level, namely the economics of property rights and the judiciary, evolves over a period of ten to a hundred years. First stage economising involves the firm attempting to influence the economics of level two schema. Both level one and two schemas provide inputs, or are explained by, principal agent theory, evolution theory, property rights theory and the resource based view of the strategic theory of the firm. These forces, in turn, impact on the transaction costs of the firm, namely, the level three schema. This schema views second order economising as the firm attempting to economise transaction cost under the conditions imposed by levels one and two. Finally, in level four, namely third stage economising, the firm will attempt to optimise the neo-classical type input-output production function under the constraints imposed by levels one to three (Williamson, 2000). This approach would suggest that the performance of the firm is a function of history, prevailing institutional structures, its governance form and the management of the input-output function. Under the assumptions of this four level schema, therefore, the organisation structure and input-

output function of the firm may not be optimal, but, given the circumstances, it cannot be more efficient (Williamson, 2000).

Table 3.4 Schema of Theories of the Firm.

Level 1: Social Theory: 100-1000 years	Level 2: Economics of Property: 10-100 years	Level 3: Transaction Cost Theory: 1-10 years	Level 4: Neo-classical Theory: Continuous
Customs	Formal rules of Game	Play of Game	Resource Allocation
Traditions	Property Rights	Contract	Prices, quantities
Norms	Judiciary	Organisation Structure	Incentive Alignment
Religion	Bureaucracy 1st order economising	TCE economics 2nd order economising	Optimisation 3rd order economising

Organisational economics has, largely, accepted many of the tenets of social and positive political theory. Organisational economics, moreover, does not assume that any individual theory of the firm provides a comprehensive explanation of the emergence, size, boundaries and dynamics of the firm. The individual theories of the firm contribute inclusive variables that, in many instances, are simultaneously included-accepted in alternate theories (Groenewegen, 1996; Pitelis, 1996). Behaviour, largely ignored in neo-classical theory that assumes hyper-rationality, has been a central argument in shaping transaction cost theory, principal-agent theory, property rights theory and strategic management theory. Human beings are considered to be prone to opportunism and, because of information asymmetries, to act in a boundedly rational manner. Their behaviour is assumed to be influenced by self interest, peer pressure, corporate culture, trust and power (Foss, 1995; Akerlof, 1996; Dietrich, 1996; Pitelis, 1996; North, 1997; Zylbersztajn & Farina, 1999; Dean, 2000a; Brickley et al, 2001). The concentration of industries, the barriers of entry to new firms, the lobbying power of the firm, the impact of regulation and the bureaucracy costs of the state are also assumed in various theories of the firm. In this respect, the evolution of structures, competencies, the level of competition and competitive advantage are developed by both evolution theory, game theory, agency theory and strategic management theory (Mahoney, 1992; Mahoney and Pandian, 1992; Rowlinson, 1997).

Although not specific to every industry, the transaction costs of certain firms are also influenced by the natural resources and certain exogenous physical variables (PHY)

that are not specifically incorporated in the assumptions of the Williamson (2000) model. These variables include geological, climatic and biological factors (Delgado, 1999; Rouse & Putterill, 2000).

3.5 The Extended Transaction Cost Function

On the basis of the explanation of Williamson (2000) the transaction cost function can therefore be expanded as follows:

$$TC = f(BEH, BARR, EQU, REG, ME, PHY)$$

Where TC = transaction cost, BEH = human behaviour, BARR = the historic concentration of industry-infrastructure, EQU = equity versus economic objectives of the players in industry, REG = government and international regulation, ME = macro-economic influences and PHY = physical variables like climate, soil, geology.

3.6 Summary and Conclusion

The chapter employed transaction cost theory to explain why organisation structure is a function of the transaction characteristics of the firm. The chapter also employed a multiple theory of the firm approach, suggested by Williamson (2000), to explain how variables in the prevailing institutional framework influence the transaction characteristics of the unit level firm. Furthermore, this chapter has complemented Chapter Two which demonstrated that one of the principal reasons for an increase in contracting was as a result of the need to reduce transaction cost. The economic theory of this chapter will provide the theoretical basis to construct a conceptual framework in Chapter Four.