LUND UNIVERSITY
School of Economics and Management

Formal Contracts and Institutional Norms in the Chinese Business Environment: An Empirical Investigation of the Manufacturing Sector

Author: Jacob Cawthorne
Supervisor: Professor Sonja Opper

Master Thesis
August 2008

Abstract:

Inter-firm contractual arrangements characteristically form the back-bone of a business relationship, and are facilitated by a mix of informal and formal governance structures. In the lead-up to and post WTO accession, the Chinese government implemented wide-ranging reforms to its business environment. As a result, the use of inter-firm contracts as a business norm has been influenced by legislative and policy-based changes to the formal institutional structure as well as the dynamic behaviour of informal business norms. The aim of this paper is to investigate the prevalence of formal contractual arrangements used by firms after two key events; the legislation of a new Contract Law and China's WTO membership. In particular, to facilitate this investigation, this paper will focus on the Chinese manufacturing sector and utilise a World Bank Investment Climate survey from 2003 in order to analyse four key elements that comprise many business relationships and influence inter-firm contractual behaviour, namely: the spatial distance between firms conducting business with one another, the use of trade credit, the presence of switching costs, and the market power of firms relative to their suppliers and customers. This paper finds that these four elements, given the prevailing institutional framework governing the Chinese business environment, do lead to a propensity for firms to engage in formal contractual arrangements. The overall implications of these results are far less explicit given the limited scope of the empirical analysis and the data set used. However, the results do indicate further and more thorough research is warranted, especially considering China's role on the global business stage.

Table of Contents

List of Figures

List of Abbreviations

BoD	Board of Directors
CCP	Chinese Communist Party
CCSIG	Convention on Contracts for the International Sale of Goods
GPCL	General Principles of Civil Law of China
IT	Incentive Theory
ICT	Incomplete Contract Theory
LAC	Legal Affairs Committee
NPC	National People's Congress
SEZ	Special Economic Zone
TCT	Transaction Cost Theory
TVE	Township Village Enterprise
UCC	Uniform Commercial Code
UN	United Nations
UNIDROIT	International Institute for the Unification of Private Law
WTO	World Trade Organisation

Chapter 1: Introduction

The Chinese business environment has long been dominated by informal business networks and a weak and unreliable formal system of economic governance, which stems from a poorly executed legal framework (Naughton, 2007; Wu, 2005; and Lau, Qian and Roland, 2000). The influences informal norms have on firm development, behaviour and performance for all organisational structures in transition economies are also well documented (Nee, 1998; World Bank, 1996) Informal business networks pertaining to the Chinese business environment, encapsulated by the term *guanxi*, are no different, and have been the feature of many in-depth studies that seek to account for the structure and dynamism of these networks and their influence on firm behaviour and performance (Standifird and Marshall, 2000; Xin and Pearce, 1996). The consideration of informal norms is pertinent to the study of the economic environment, especially when considering the absence or weakness of reliable and sustainable formal institutions to guide such business relations and practices. However, the Chinese business environment is not a static entity and is continuously evolving. During the past ten years, the prime influences driving the transformation of the Chinese business environment have been due to economic and legal reforms enacted as part of China's WTO preparation and accession, the country's further integration into the world economy, and increasing pressures for specialisation and division of labour which have risen from interacting with foreign firms and operating within the greater international business environment.

The question this paper addresses is:

As a result of specific changes to the institutional environment, does there exist a propensity for the use of business contracts as a formal norm, supported by prevailing informal institutional norms, in the Chinese business environment?

The two most significant events that precipitated these changes were the new Contract Law and China's WTO membership. The new Contract Law was legislated by the Chinese government in 1999, which established a new legal framework governing the business environment and gave political validity to formal contractual systems. This legislation, along with China's WTO accession two years later, marks the turning point of a period of significant change and development to the institutional environment that

governs the Chinese business arena.[1] Peng (2003) theorises a two-phase model describing institutional transitions: The initial phase is typified by the absence of formal rule-based supporting institutions, and reliance on informal networks to handle the institutional uncertainties dominates the economic environment; the final phase is characterised by a shift towards the acceptance and adoption of formal rules. These rules become more legitimate and gradually overcome the inertia of the incumbent institutions because the costs of using informal institutions outweigh their benefits due to increases in transaction complexity. Thus, formal institutions become more effective and ultimately dominate the economic governance system. This change to the institutional structure of the business environment will force firms who operate within it to adapt their behavioural patterns in order to confirm to and benefit from the new formal institutional environment.[2] Therefore, based upon the changes influenced by the new Contract Law and WTO membership, this paper will show that a significant shift toward the prevalent use of formal contractual arrangements by manufacturing firms in the Chinese business environment has occurred. This will be achieved by identifying factors relating to the firm, their business relationships, and the business environment that may lead to a proclivity for firms to conduct business via formal contractual arrangements. In order to do so, this paper will utilise transaction cost theory's approach to contractual arrangements within the broader scope of new institutional economic theory to develop a theoretical framework, and subsequently hypotheses with which to base an empirical investigation of contracting behaviour within the business environment. The empirical investigation will use a World Bank Investment Climate Survey, which was conducted in 2003 and hence allows for a significant period of time to have passed between the legislation of the new Contract Law and for Chinese firms to have made significant adaptation. This paper thus sets out two objectives: to show the prevalent adoption of business contracts by manufacturing firms under the guise of the new Chinese Contract Law as a formal norm and in relation to informal business norms; and to investigate firm-specific and environmental factors that make it more conducive to do so. To achieve these objectives, this paper focuses on four key factors that hypothetically influence formal contract usage in the business relationship between firms.

They are:

    a) The spatial proximity of supplier to buyer;

---

[1] As North (2005) warns, predicting the turning point at which this transition will occur is difficult because personal ties represent the ''genetic heritage'' of human beings, and are inherit in all forms of economic behavior.

[2] Avner Greif and David D. Laitin, "A Theory of Endogenous Institutional Change", *American Political Science Review* 98:4 (2004): 633-52.

b) The relative market power of the supplier/buyer base;

c) The presence of switching costs due to transaction-specific investments, and

d) The use of trade credit.

This paper is subsequently organised as follows: Section 2 establishes the conceptual framework which this paper will infer hypotheses from and base an empirical investigation on. This section will conduct an overview of contract and institutional economic theory, Chinese contract law and the Chinese business environment in order to establish a theoretical standpoint that describes the utilisation of formal contractual arrangements given the prevailing conditions of the Chinese business environment. Section 3 outlines the hypotheses to be tested, which stem from the theoretical framework of Section 2 and focuses on the aforementioned four key factors. Section 4 discusses the data set to be used and contains a description of the model, the variables used, and the results of a general statistical analysis. Section 5 details and discusses the results of empirical testing of the hypotheses based on regression analyses. Section 6 outlines a summery and discussion of the results in relation to the theoretical framework and hypotheses established previously in this paper, as well as potential implications.

There exist several key papers that focus on empirical evidence of shifts toward new formal norms (though not necessarily entirely away form respective informal norms) in the Chinese business environment, and their results are mixed. Guthrie (2001) found that many Chinese firms were less likely to employ informal network-based practices and instead are more likely to adopt business strategies and practices that are akin to foreign firms. Furthermore, Dieleman and Sachs's (2006) case study of a Chinese conglomerate in Asia showed that its strategic decisions had shifted from a reliance on personal and political ties to a greater reliance on formal business practices, such as the adoption of international best practices. Conversely, Zhou et al. (2003), using a survey of 620 firms taken in 1999/2000, highlight that informal business networks based on social relations still play a critical role in firm relationships and the use of contracts in China. Likewise, Zhou, Poppo and Yang (2008) conducted a survey of Chinese manufacturing firms and found that managers rely more on relational ties as asset specificity and uncertainty increase.

In terms of a general approach to formal and informal contractual arrangements, Zhou et al. (2003) also discuss the methods through which contracts are formed and maintained, and key influences on these

methods. Their paper analyses the interrelation of formal and informal contractual norms by conducting empirical research on how three mechanisms - economising transaction costs, network-based social relations and institutional links - affect inter-firm contractual relationships in: the choice of search channels for contractual partners; the formality and provisions in a contract; and the intensity of social interaction in contract implementation. This paper however will seek to identify factors that, based upon the prevailing institutional framework, drive firms to engage in formal contractual arrangements and not how they go about doing so.

There is nevertheless a wealth of research on the hypothetical framework concerning formal and informal norms in transition economies, as well as the causes and effects of their dynamic behaviour (Greif and Laitin, 2004; Aoki, 2001; Scott, 1995; North, 1990). Furthermore, there exists a body of research concerning quantitative and qualitative evidence of the effectiveness of informal business norms on contract enforcement in transition economies. For example, Gow and Swinnen (2000) focus on informal enforcement capital and contract enforcement in transition economies, and Gow, Streeter and Swinnen (2000) investigate how private contract enforcement mechanisms can succeed where public institutions fail, drawing on statistical data from a Slovakian company (Juhocukor A.S.). This paper thereby seeks to add to the literature concerning the evolution of the Chinese institutional framework and business practices towards the acceptance of formal contractual structures via empirical evidence of formal contractual use in the Chinese business environment. In addition, the results will give further credence to the evidence of the continued development of China's business environment towards a more mature, predictable and dependable entity. Furthermore, the results will be of benefit to the study of formal contractual arrangements and the institutional frameworks of other transition economies.

Section 2: Conceptual Framework

"The inability of societies to develop effective, low-cost enforcement of contracts is the most important source of both historical stagnation and contemporary underdevelopment in the Third World" Douglass North (1990, p. 54)

2.1 Contracts: The Notion of Contract in Economic Theory

In economic argot, a contract is often defined as an agreement under which two parties make reciprocal commitments in terms of their behavioural relationship with one another. Likewise, the contract is also said to ultimately serve as a tool of coordination, whose flexibility and adaptability allow it to be tailored to the exact conditions of its use.[3] Definitions of contract are plethoric, yet it is necessary to delve, albeit lightly, into this domain in order to establish a framework with which to make an appraisal and analysis of whether or not formal contractual arrangements are being adopted into the Chinese institutional framework. Henceforth contracts, in an inter-firm business context, are taken to represent durable and bilateral economic interactions that are prevalent across microeconomic strata, such as local, national and supranational markets, economic arenas and societies, and are pertinent to the understanding of economic behaviour within the decentralised economic system. Whilst the analysis of contracts in endogenous terms presents factors beyond its skeletal structure that must be accounted for, such as transaction costs, information costs, negotiation costs, incentives and property rights, these factors are also influenced exogenously by organisations and institutions. Economic theories that describe this influence also overlap with disciplines such as law, politics, organisational and management theory, sociology and anthropology.[4] Thus in order to analyse the question at hand, the form of the contract itself, factors endogenous to the formation and use of contracts, and those influences exogenous to the contract must be duly accorded.[5]

Contract theory has developed significantly over the past few decades. As such a number of key schools of

---

[3] Eric Brousseau & Jean-Michel Glachant, "Chapter 1: The Economics of Contracts and the Renewal of Economics", in *The Economics of Contracts - Theories and Applications*, ed. Eric Brousseau & Jean-Michel Glachant (Cambridge: Cambridge University Press, 2002), 10. Many scholars have noted that contracts, in reality, are by and large incomplete (Tirole, 1999).

[4] Legal theory has contributed a vast amount of effort to the conceptualisation of the contract, which has influenced and been influenced by economic theory. The concept of the contract from a legal perspective will be touched upon below, however it is beyond the scope of this paper to account for these theoretical differences and influences.

[5] Greif and Laitin (2004), through their game theory approach to institutions, argue that institutions go beyond the transactions they govern and, in support of Weingast (1996, p. 180), state that within this framework they are the endogenous variable which adjusts as exogenous circumstances change. The terms 'exogenous' and 'endogenous' are not used similarly here, instead they merely distinguish that which pertains specifically to the actual contract itself and that which shapes the act of contracting within the economic environment. Henceforth however, Greif and Weingast's use of the terms will be adopted.

thought concerning the characteristics of contracts in the economic environment have come to prominence. Brousseau and Glachant (2002) articulate three dominant theories: Incentive theory (IT), incomplete-contract theory (ICT), and transaction cost theory (TCT) – which are distinguished by differences in their underlying assumptions and thereby emphasise different problems. This paper cannot afford the space to enter into the more intricate aspects of these theories, but an overview of each is pertinent to the development of the theoretical framework of this paper.

IT proposes that there exists information asymmetry between any two contracting economic agents, but that the information available to these agents is 'complete' in the sense that while they cannot precisely predict a future that remains stochastic, they are aware of all the potential problems that may occur.[6] Whether or not the variable on which there is asymmetrical information can be manipulated during the exchange determines the structure of the incentive scheme proposed (adverse selection vs. moral hazard).[7] Thus, the under-informed party (the principal) implements an incentive scheme that either induces the informed party (the agent) to disclose information (adverse selection) by offering a 'selection of contracts', or coerces them to behave according to the under-informed party's wishes (moral hazard) such as via an incentive vs. insurance scheme. For example, the optimal output produced by an informed seller (the agent) for an uninformed buyer (the principal) can be realised if the agent discloses their information to the principal who then chooses the specific volume and compensation, or if the principal offers a selection of non-linear pricing-schemes and the agent chooses their preferred option within this selection.[8]

ICT, like IT, maintains that the contracting parties have perfect rationally. However, ICT contends that the complete contracting of parties' future actions is unachievable as no third entity (or institution) can successfully verify, *ex post*, the real value of some of the variables intrinsic to the economic interaction between the two parties.[9] ICT also assumes there is no asymmetry of information, and thus the fallacy of the 'judge' (or third-party enforcement mechanism) to value certain components renders the contract incomplete. This thereby sets up two contracting periods: investment and trade. Price and quantity of trade

---

[6] Brousseau & Glachant, "Chapter 1: The Economics of Contracts and the Renewal of Economics", 13-14.

[7] Brousseau & Glachant, "Chapter 1: The Economics of Contracts and the Renewal of Economics", 13-14.

[8] Eric Malin & David Martimort, "Chapter 10: Transaction Costs and Incentive Theory", in *The Economics of Contracts - Theories and Applications*, ed. Eric Brousseau & Jean-Michel Glachant (Cambridge: Cambridge University Press, 2002), 137.

[9] Brousseau & Glachant, "Chapter 1: The Economics of Contracts and the Renewal of Economics", 13-14; O.D. Hart & J.M. Moore, "Foundations of Incomplete Contracts", *Review of Economic Studies* 66:1 (1999): 115–39.

are the only two aspects verifiable in the second period (trade), which forms the basis of the initially non-verifiable investment to trade of the first period (investment). However, once this investment (realised in the first period) is known (in the second 'trade' period), along with the nature of the trade terms, the *ex ante* contracted terms of trade are potentially no longer optimal.[10] Thus renegotiation would be sought by at least one party and the incentive to commit to *ex ante* terms reduced. To combat this, a commitment constraining the scope of the *ex post* negotiations provides an incentive to each party to invest optimally *ex ante*.[11] However, issues concerning the applicability of this theory have been raised, including: the issue of assumed symmetry of information between parties (see: Salanié, 1997; Tirole, 1994; and Masten, 1999), and the assumption of bounded rationality on the judge, yet its absence for the contracting parties (see: Brousseau and Fares, 2000). Furthermore, ICT maintains an all or nothing scenario with regard to the completeness of a contract.[12] Most importantly, ICT does not explain why parties would make trade-offs regarding the incompleteness of the contract and thus assumes it to be exogenous.

TCT, unlike IT and ICT, relies on the assumption that all parties involved have limited capabilities to calculate, i.e. bounded rationality, and are not able to pre-empt the set of problems that may potentially arise from engaging in contractual arrangements. In addition, as with ICT, they are unable to compose complete contracts, but unlike ICT, TCT espouses a ranging degree of incompleteness (or completeness) regarding the contracts ability to precisely define the transaction and the means to implement it. Furthermore, as is also espoused within ICT, TCT deems institutions as the ultimate entity responsible for ensuring contracts are carried out, and that these institutions are also considered to have bounded rationality. In order to encourage coordination, despite the incompleteness of their contracts, parties make provisions, *ex ante*, for procedures that will dictate the actions of one another, *ex post*, and implement measures to ensure the *ex post* performance of their commitments.[13] Hence, the contract will allocate decision rights to: a) one, b) both of the parties (negotiation procedures), or c) to a third party (distinct from the judge); and put into place a series of supervisory and coercion mechanisms that will ensure the parties respect their

---

[10] Brousseau & Glachant, "Chapter 1: The Economics of Contracts and the Renewal of Economics", 13-14

[11] Hart & Moore, "Foundations of Incomplete Contracts", 115–139; S.E. Grossman & O.D. Hart, "The Costs and Benefits of Ownership: A Theory of Vertical Integration", *Journal of Political Economy* 94 (1986): 691–719.

[12] Jean Tirole, "Incomplete Contracts: Where Do We Stand?", *Econometrica* 67:4 (1999): 741-81; Stéphane Saussier, "Transaction Costs and Contractual Incompleteness: The Case of Électricité de France", *Journal of Economic Behavior & Organization* 42 (2000): 189–206.

[13] Douglas W. Allen, "Transaction Costs", in *Encyclopedia of Law and Economics*, ed. B. Boukaert and G. De Geest (Cheltenham: Edward Elgar Publishing, 1999), (0740) 893-926; Brousseau & Glachant, "Chapter 1: The Economics of Contracts and the Renewal of Economics", 16-18.

mutual commitments.[14] Thus, TCT describes how contracting entities balance commitment constraints, created to ensure the realisation of specific investments, with flexibility constraints which are needed due to their inability to accurately predict the optimal *ex post* coordination methods.[15] Hence, contractual completeness is endogenous to the act of contracting itself, and the level of completeness a balance between commitment and flexibility. Mechanisms of contract formation and enforcement espoused by TCT include: transaction-specific investments, private conflict resolution mechanisms and relationship-specific investments. Thus, TCT proposes such safeguards to protect parties from opportunistic behaviour and enforce a commitment to the contract through the incentive of saving on, or minimising, transaction costs. However, because such coordination is costly, the parties rely on consensus-driven mechanisms derived from the institutional framework which governs the economic environment.

Although the above theories complement and compete with one another in terms of their rationale for explaining contracts, this paper will rely heavily on TCT, i.e. the protection of property rights and the incentive to minimise transaction costs, in order to analyse the question put forward by this paper and establish a theoretical framework of contracting with which to investigate. However, as mentioned above, the governance structures (or 'the play of the game'; Williamson, 2000) of economic coordination through contracting are not only derived from the content of the individual bilateral arrangements themselves, but are also influenced by the communal (institutional) norms under which contractual arrangements subscribe. Hence, institutions govern the contracting schemata through which economic actors operate, and it is paramount, in order to fully appraise the nuances of composing and enforcing contracts in a specific economic environment, to understand these institutions. This paper will now turn to the concept of the contract and its relationship with the institutional environment.

2.2 Institutional Norms and Contracts

According to North (1990), understanding economic development is grounded in the idea that the rules and norms governing economic interactions are the most significant factors that determine an economy's performance. These formal rules and regulations and informal codes of conduct and behaviour represent, according to North, the institutions (either formal or informal) that constitute the "rules of the game in

---

[14] Brousseau & Glachant, "Chapter 1: The Economics of Contracts and the Renewal of Economics", 16-18.
[15] Malin & Martimort, "Chapter 10: Transaction Costs and Incentive Theory", 137.

society". Yet it is their intrinsic qualities as enforcement mechanisms that make institutions paramount in shaping both the behaviour of actors within the economic environment, and the environment itself.

Contract enforcement can be divided into self-enforcement and third-party enforcement. Self enforcement is predominantly found when information costs are low, transacting parties are located in close proximity, and repeat dealings are pervasive.[16] Self-enforcement is typical of spot-market transactions, for instance where commodities are sold and delivered almost simultaneously such as at contemporary commodity markets and traditional bazaars and souqs, or at the other extreme is internalised into formal organisations where hierarchical authorities establish stable relationships and dictate the rules of the relationship. According to Williamson (1985), the limitations of self-enforcement are realised when at least one party experiences the vulnerability of long-term non-simultaneous transactions. Such transactions are characterised by significant information, monitoring and enforcement costs, and hence high transaction costs. This, as a result, creates a significant need for credible third-party enforcement mechanisms to support and facilitate economic transactions of this nature. These mechanisms, what North calls institutions, reduce transaction costs through ensuring the protection of the property rights of economic actors and that contractual obligations are met.[17] However, further to the presence of such mechanisms, an implicit degree of trust is required, that is to say trust in the efficiency and effectiveness of the mechanisms (institutions) to ensure general compliance by all actors in a given market or business environment. Informal mechanisms may include reputation, kinship ties, loyalty, common beliefs, and at times ideological commitments.[18] However according to North (1990), while informal norms such as these can, depending on information costs, provide assurance of contract compliance, the problem posed by long-term non-simultaneous impersonal exchange without effective third-party enforcement still remains because of the persistence of "end game" problems. It is here that which North (1990) calls 'third-party enforcement' - the function of the state as a coercive force able to monitor property rights and enforce contracts effectively - becomes paramount.

Avner Greif (1997), however, argues that the formalised third-party enforcement espoused by North is not

---

[16] Douglass North, "Institutions, Transactions Costs and Economic Growth", *Economic Inquiry* 25:3 (1987): 420-21.
[17] Douglass North, "Institutions, Transactions Costs and Economic Growth", *Economic Inquiry* 25:3 (1987): 420-21.
[18] Douglass North, *Institutions, Institutional Change and Economic Performance*, (Cambridge University Press: Cambridge, 1990). Douglass North, "Institutions", *The Journal of Economic Perspectives*, 5:1 (1991): 97-112

absolutely necessary for the institutional framework that facilitates long-term non-simultaneous economic transactions to be efficient and effective. He argues that the legal system as an institution does not govern—directly or indirectly—many exchange relations in historical and contemporary market economies as well as in developing economies.[19] Greif's hypothesis follows Macaulay's (1963), and subsequently built upon by Klein's (2002), argument that self-enforcement is the preferred and most prevalent form of contract enforcement used by firms in the business environment. Thus, the two camps may be split conceptually into contract-formalist and contract-informalist.[20] One example of an informal third-party enforcement mechanism, as illustrated by Greif (1993), is the Maghribi trader's coalition. The coalition was founded in response to the problems of contract enforceability and coordination that arose from the complexities of long-distance trade between the Maghribi throughout the Mediterranean. Their trade was characterised by asymmetric information, slow communication technology, the inability to specify comprehensive contracts, and limited legal contract enforceability.[21] Hence, the Maghribi business environment was typified by high transaction costs and long-term non-simultaneous transactions. The coalition in turn was created to facilitate agency relations (between merchant and agent) and reduce agency costs and other transaction costs, promote efficiency, enable operation via agents throughout the trade arena, economise on negotiation costs, govern the transmission of information and the provision of services, and substitute for comprehensive contracts in the relations between a specific agent and merchant.[22] Thus, the coalition was an economic institution which governed the behaviour of the Maghribi traders and provided a medium through which an agent could, before receiving the merchant's capital, commit themselves *ex ante* to honour the contract *ex post*.

Despite the success of informal norms governing the Maghribi traders' business relations, Greif also speaks of the limitations of such informal norms. Specifically, Greif states that the same factors which ensured the coalition's sustainability also prevented it from expanding in response to welfare-enhancing opportunities, for instance trade with the Genoese traders, whom operated under a more formalised rule-based governance

[19] Greif, Avner. "Contracting, Enforcement, and Efficiency: Economics Beyond the Law", in *Annual World Bank Conference on Development Economics*, ed. Michael Bruno and Boris Pleskovic (New York: World Bank, 1997), 239-66.
[20] Michael Trebilcock & Jing Leng, "The Role of Formal Contract Law and Enforcement in Economic Development", *Virginia Law Review* 92:7 (2006): 1517-1580.
[21] Avner Greif, "Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders' Coalition", *The American Economic Review* 83:3 (1993): 525-548.
[22] Avner Greif, "Contract Enforceability and Economic Institutions in Early Trade", 525-548.

structure and hence overcame such limitations.[23] North also argues that although informal institutions can facilitate effective exchange without the use of formal contracts and governance structure where social networks are close and densely-knit, the ability to specialise production and support an effective division of labour is prohibitively difficult and expensive.[24]

Therefore, as is evident in both Greif's analysis of the institutions of historical trade systems through game theory and North's theory of institutions, transaction costs and property rights, informal norms can successfully form the basis of and govern a limited business environment characterised by spatial and temporal boundaries. However, facilitating low cost transacting and producing in a modern business environment classified by specialisation and division of labour over unbounded spatial and temporal dimensions requires the presence of effective formal institutional structures and governance.[25] Formal contracts and the contract law which governs them constitutes such an arrangement, however their effectiveness in application is co-dependant on the prevailing formal and informal institutions. Thus, the nature of implementing contractual arrangements is highly dependent on the real characteristics of the institutional framework, particularly the makeup of its failings. The reciprocity of influence by formal and informal norms on one another must be accounted for, whether they are congruent, decoupling or oppositional.[26] For as Macaulay (1963) and Granovetter (1985) showed, formal contractual relationships in business are embedded in social context. This paper will now discuss Chinese contract law as a formal institution before continuing with an analysis of the law and its influence on and behaviour within the greater Chinese economic environment.

2.3 Chinese Contract Law

On the 15th of March 1999, the *Contract Law of the People's Republic of China* (here within Contract Law) was passed by the national legislative body – the National People's Congress (NPC) – and took effect on

---

[23] Avner Greif, "Informal Contract Enforcement Institutions: Lessons From Late Medieval Trade", in *New Palgrave Dictionary of Economics and the Law*, ed. Peter Newman (London: Macmillan Press, 1998); Avner Greif, Paul Milgrom & Barry R. Weingast, "Coordination, Commitment, and Enforcement: The Case of the Merchant Guild", *The Journal of Political Economy* 102:4 (1994): 745-776; Avner Greif, "Political Organizations, Social Structure, and Institutional Success: Reflections from Genoa and Venice During the Commercial Revolution", *The Journal of Institutional and Theoretical Economics* 151:4 (1995): 734-41.

[24] North, "Institutions, Transaction Costs and Economic Growth", 420.

[25] North, "Institutions", 97-113; North, "Institutions, Transactions Costs and Economic Growth", 420-21. This view, held by North and Weingast, among others, is also promoted by economic organisations such as the World Bank and the IMF.

[26] Victor Nee, "Norms and Networks in Economic and Organizational Performance", *The American Economic Review* 88:2 (1998): 85-89; Greif & Laitin, "A Theory of Endogenous Institutional Change", 633-52.

the 1st of October 1999. According to Article 2 of the Contract Law, "A contract refers to an agreement that establishes, modifies or terminates the civil rights and obligations between subjects of equal footing; that is, natural persons, legal persons, and other organisations".[27] The Contract Law became the first unified piece of legislation governing contracts in China. It replaced the "Economic Contract Law", "Foreign Economic Contract Law" and "Technology Contract Law", whose provisions were often inconsistent and inefficient, and sought to subject all market players - including foreign parties - to the same set of rules.[28] Furthermore, the Contract Law is more flexible due to its inclusion of oral contracts, and more market-oriented than previous legislation, which was a major step in China's preparation for WTO accession.

Chinese Contract Law is predominantly based on French and German Civil Law, with influences from English and American Common Law more prevalent in the most recent incarnation. According to Mo (2006), this policy of using foreign law as a reference for the creation of domestic legislation has become a major strategy of Chinese legal reform. The Contract Law also takes provisions from international treaties and conventions in an effort to comply with the requirements of membership to international organisations and match internationally accepted practices. Examples include: Chapter 9 – Contract for Sales, Articles 17 – Withdrawal of Offer, 18 – Revocation of Offer and 31 – Acceptance with Additional or Modified Terms which are consistent with the Articles 15(b), 16(a) and 19(a and b) of the 1980 UN Convention on Contracts for the International Sale of Goods (CCSIG), the UNIDROIT Principles of International Commercial Contracts and the American Uniform Commercial Code (UCC).[29] A thorough investigation of the Contract Law is beyond the scope of this paper, yet some key features that specifically pertain to the use of formal contracts by firms under this new law will be discussed. These features are salient to understanding how such formal norms govern the Chinese business environment, and their interplay with informal business norms.

Arguably one of the highlights and most contentious features of the Contract Law is Article 4 which states "A party has, in accordance with the law, the right to voluntarily enter into a contract, and no entity or

---

[27] Xu Jing ed., *Zhonghua renmin gongheguo hetongfa* [Contract Law of the People's Republic of China], (Beijing: Law Press China, 2008), 1.
[28] Hugh T Scogin Jr & Brett D Braude, "New Contract Basics", *The China Business Review*, Washington: Jan/Feb 26:1 (1999): 36-42.
[29] Mo Zhang, "Freedom of Contract with Chinese Characteristics: A Closer Look at China's New Contract Law", *Temple International and Comparative Law Journal* 14:2 (2000): 239-40; Scogin Jr & Braude, "New Contract Basics", 36-42.

individual may unlawfully interfere with this right."[30] Unlike the previous laws governing contracts, which were influenced by state-directed economic policy and made no clear provisions for contract formation, the Contract Law expressly grants the right for parties to enter into contracts voluntarily and prohibits unlawful interference.[31] It is the first time in Chinese contract legislation that "party autonomy" is held as a general principle of contract. This right is a major achievement for free-market enterprise in the Chinese business environment. Nevertheless, there are some inherent discrepancies in the interpretation of this law. One issue is the absence of the terminology 'freedom of contract', which is commonly adopted in western legislation and has been reported as being included in earlier drafts of the law, but finally altered to read 'voluntarily enter'.[32] Another issue is that the Contract Law fails to stipulate specifically what constitutes unlawful interference, and to which law this clause refers to.

The absence of 'freedom of contract' from Chinese Contract Law is argued to stem from several factors. The most prevailing being that of the CCP's desire to fit economic reform within the framework of political power. This decision has been branded as making the principle of 'freedom of contract' in Contract Law embrace Chinese characteristics, which is supported by the Legal Affairs Committee (LAC) of the Standing Committee of the NPC's argument that the application of the freedom of contract clause is also not absolute in many of those countries which uphold it.[33] Despite this, many legal scholars argue that this clause does indeed embrace the concept of freedom of contract. Nevertheless, as Article 38 highlights, the CCP still has the right to impose its will on a given party through the contracting system. This may lead to, what Mo (2000) argues is, a continuation of past practices of 'marriages between parties' arranged by the relevant authorities. Article 4 also appears to restrict the behaviour of contracting parties in two ways. First, a contract must be entered into according to the law, and second, only unlawful interference is prohibited. However, it is unclear as to which law the parties must comply with and what constitutes unlawful interference. This issue is further compounded by several clauses within the Contract Law that leave the government approval process required for many contracts unaddressed, which consequently requires the

---

[30] Xu Jing ed., [Contract Law], 2.

[31] Mo Zhang, "A Closer Look at China's New Contract Law", 242-3. The Economic Contract Law (ECL), promulgated in 1981 before economic reforms were underway, directed that all contracts should meet the requirements of state policy or plan, and those that were inconsistent were thus void. This was amended in 1993 to account for changes to China's economic structure. However, none of the three laws governing contracts at the time contained provisions for dealing with contracts. Instead, they emphasised that contracts should be concluded in accordance with the principles of equality, mutual benefit, and mutual consent.

[32] Mo Zhang, "A Closer Look at China's New Contract Law", 243-4.

[33] Mo Zhang, "A Closer Look at China's New Contract Law", 242.

new and more complex Contract Law to rely on older and less comprehensive laws regarding these procedures.[34]

The Contract Law also sets out guidelines for contract formation, content and terms, termination or conclusion, and formal contest procedures. Article 12 describes the recommended, but not mandatory for contract validity, contents for contracts.[35] This clause allows for a degree of freedom regarding the format of the contract, which thereby inherently allows for a degree of incompleteness to occur when composing contracts. This is supported by Articles 61 and 62 which allow – once a contract becomes effective – that, should the terms regarding quality, price, remuneration or place of performance etc. become unclear, the parties may agree on supplementary terms through consultation, base new terms from the context of the contract, determine new terms via state standards or trade practices, or use market or state-directed prices accordingly.[36] Thus, contracting firms, *ex ante*, have provisions made for *ex post* performance. This conduct is explained by TCT and the desire to reduce transaction costs and protect property rights.

Articles 77, 78 and 79, which consider the modification of contracts, specify that such acts can be legally implemented via consensual consultation and negotiation between the contracting parties or their representatives.[37] This supports a key feature of TCT theory, the ability of contracting parties to renegotiate *ex post*. Article 128 states that the parties are free to determine their own course of dispute resolution, however, mediation and conciliation are the favoured means.[38] If the mediation proves fruitless, the parties may seek arbitration according to their arbitration clause, or seek litigation through the court system. Arbitration is conducted at an appropriate arbitration institution, usually located in a capital city, with the judging panel selected by the contracting entities. Thus, the Contract Law makes provision for private dispute resolution at various degrees of formality, in the sense that contractual information, arbitration rulings and the procedure itself is kept away from the courts and public scrutiny.

Article 7 concerns the completion of contracts, and stipulates that "The parties shall, when concluding and performing a contract, abide by the laws and administrative regulations and show consideration for social

---

[34] Scogin Jr & Braude, 'New Contract Basics', 36-42.
[35] Xu Jing ed., [Contract Law], 6.
[36] Xu Jing ed., [Contract Law], 30.
[37] Xu Jing ed., [Contract Law], 34-5.
[38] Xu Jing ed., [Contract Law], 57.

ethics such that neither party may disrupt the socio-economic order or damage public interests".[39] Of most interest here is the inclusion of administrative regulations and social ethics, the latter of which is not defined within the legal framework. The inclusion of these terms is significant for two reasons, firstly they potentially allow for political interference regarding the 'freedom of contract' issue, and secondly the embeddedness of the behaviour of economic actors in broader social ethics is made apparent. Thus despite the dictums of formal Contract Law, contracting parties must still abide by the informal guidelines and practices that constitute the informal institutions (i.e. social ethics here) of the business environment. The use of such terminology, along with *promptness*, *reasonableness* and *customary business practices*, is typical of western legislative terminology and is codified based upon long-standing business practices. However, such practices are new in China, especially considering the turmoil experienced during the 20th century, and thus the resulting vagueness in actual application is both, in the long-term a potential boon for flexibility and efficiency within the court system, yet in the short-term an overall detriment in terms of predictability for the business environment.[40]

2.4 Contracts and the Chinese Business Environment

The Chinese political and economic milieux has a historical legacy of bureaucratic regulation, which attempts to mirror the bureaucracy of the heavens, and as such makes the analysis and awareness of both the informal and formal institutional framework necessary for understanding China's contemporary business environment. Despite popular arguments to the contrary, some scholars have found that contracts and property rights were in use and upheld throughout the Qing Dynasty (1644-1911) and early years of the Republic Era (1914-1949). However, their definitions and applications differed to their western counterparts, e.g. the unit of ownership was usually the household and not the individual.[41] Since the PRC came to power in 1949, the concept of the contract was defined in legislation for the first time in 1986 as part of the General Principles of Civil Law of China (GPCL), with the new Contract Law marking the second occasion.

In 1978 the Chinese government instigated a set of reforms that sought to alleviate the failings of the

---

[39] Xu Jing ed., [Contract Law], 3.
[40] Scogin Jr & Braude, "New Contract Basics", 36-42.
[41] Madeleine Zelin, Jonathan K. Ocko and Robert Gardella ed., *Contract and Property in Early Modern China*, (Stanford: Stanford University Press, 2004).

socialist planned economy. These reforms initiated an evolutionary process of economic transition that has been more trial-and-error and piecemeal than orchestrated political planning, and continues to this day. These reforms can be characterised as: micro-management institution reforms (such as the household responsibility system); resource allocation mechanism reforms (such as the advent of non-state enterprises); and macro-policy environmental reforms (such as the dual track price system).[42] The changes to China's institutional framework are perhaps the most central and consequential feature of China's transition process.

The sensitivity of political and social stability and control to the CCP's position as the sole political entity led to institutional reforms being non-linear and piecemeal, at times proactive and at others reactive, and typically resulted in a mixture of progression and regression (Nee, 1991; Nolan, 1995). In particular, this conscious experimentation resulted in the emergence of multiple systems of business governance structures depending on the strengths and weaknesses of the informal and formal institutions prevailing at the time. The rise of township and village enterprises (TVE) and subsequently private enterprises constitutes such a reaction by the business community to changes to legal, political, and economic institutions. Despite the rapid progress these reforms have made to liberalising the business environment, the weakness of the legal institution both in terms of its framework and enforcement is still pervasive. China's membership in the WTO will eventuate in the performance of China's legal institutions being brought up to par with those mandated by the WTO, however the conflict of interest whereby the state uses legislation as an administrative tool coupled with what is predominantly unpredictable application of the law at the lower administrative levels is still rampant.[43] This uncertainty forces firms operating in the Chinese business environment to supplant weaknesses in the formal institutional environment with informal business norms.

The new Contract Law represents a major effort by the CCP to address the "depth deficiency" in relation to international standards, but it is also a firm commitment to further reform and to a market economy.[44] However, the absence of a consistently enforced legal framework largely prevents the CCP from being the credible third party enforcer of contracts that North's argument suggests is necessary for economic

---

[42] Justin Yifu Lin, Fang Cai and Zhou Li, "The Lessons of China's Transition to a Market Economy", *Cato Journal*, 16:2 (1996): 201-31.
[43] Scogin Jr & Braude, "New Contract Basics", 36-42.
[44] Shengming Wang, 'The Legislative Background, Guiding Ideology and Scope of Application of the Contract Law', *China Law*, 3 (1999): 54.

development. In addition to the various institutional weaknesses in the Chinese legal system, courts in China are generally known for a lack of both professional competence and independence from political interference. They also suffer from local and departmental protectionism in adjudication and enforcement of judgments, with judicial corruption also regarded as a serious barrier to the realisation of the rule of law in the Chinese society.[45] In contrast to this, the World Bank Enterprise Analysis Unit reported the following statistics (see Table 2.1) concerning the ease or difficulty of enforcing commercial contracts for 2007 in its *Doing Business Report 2008*.

Table 2.1: Analysis and Comparison of Performance of Contract Enforceability[46]

Indicator	China	Region	OECD
Procedures (number)	35	37.3	31.3
Duration (days)	406	549.8	443.3
Cost (% of claim)	8.8	47.8	17.7

The above statistics were determined by following the evolution of a payment dispute and tracking the time, cost, and number of procedures involved from the moment a plaintiff files the lawsuit until actual payment.

As the above statistics show, the performance of the Chinese legal system in 2007 in terms of contract enforcement faired better than the average for the region, and could be considered on par with international standards. It appears that the Chinese legal system has begun to benefit from further reforms, new policies and legislation enacted as part of China's WTO membership and continued fine-tunning of the new Contract Law. However, these statistics tell little of the situation in 2003 (when the survey used in this paper was undertaken) and do not encapsulate the entire institutional framework. Thus it would be difficult to assume many of the inefficiencies and weaknesses that have consistently plagued the legal system to be a phenomenon of the past.

Since the beginning of China's reforms, the relative absence of a predictable and independent legal framework through which businesses can operate has seen the adoption of an informal framework based upon networks (*guanxi*) to address the weaknesses inherent in the formal system.[47] Such a phenomenon is

---

[45] Trebilcock & Jing, "The Role of Formal Contract Law and Enforcement in Economic Development", 1517-1580.
[46] World Bank Enterprise Analysis Unit, from: http://www.doingbusiness.org/ExploreEconomies/?economyid=42.
[47] By no means does this imply that had China developed and implemented such a legal framework during the reform period

not unusual, as according to Granovetter (1985), economic transactions rarely transpire in an anonymous marketplace, rather, they are often "embedded" in social relations. This is particularly true in the case of contractual relationships which usually involve stable interactions among individuals such that "business relations are often intertwined with social relations, especially among business elites".[48] Thus, guanxi acts as an informal institution that supports business relationships in an environment characterised by the relative absence of a predictable and stable legal and regulatory environment by facilitating the cultivation of personal connections, and thus trust and predictability in long-term non-simultaneous impersonal business exchanges. Research on the prevalence of guanxi in the Chinese business environment is vast (see: Alston, 1989; Hall & Xu, 1990; Jacobs, 1980; Leung & Yeung, 1995; Lockett, 1988; Yang, 1994; Yau, 1988; Stanifird and Marshall, 2000; and Millington, Eberhardt and Wilkinson, 2006). In particular, Xin & Pearce (1996) found through independent empirical surveying and econometric modelling that particularistic personal relationships do behave as substitutes for formal structural supports in business relationships, especially for private enterprises. However, there have been an increasing number of economic transactions moving away from governance by personalised bureaucratic administration to impersonal contractual exchange. A series of interviews I conducted with company managers and legal scholars in Shanghai during April 2008 found a general consensus that guanxi was predominantly used by companies in terms of political connections with regard to business regulations, and was becoming far less important, though not unnecessary, to business-to-business relations.

Guanxi operates much like the Maghribi traders coalition, both are based upon repeated games where an individual's reputation is paramount to securing business. Furthermore, provided the threat of punishment applied by the group or network in the instance of unsavoury behaviour is strong enough, the network continues to function productively. The Chinese, like the Maghribi, are a collectivist society, which according to Greif (1993) and Hofstede (2001) relies on kinship ties and specific group dealings and has a much less pronounced need for formal and independent institutions. However, as Greif also made mention, such practices, i.e. informal business institutions, can limit the scope and scale of business activities and often entail high transaction costs. In particular, as the size and heterogeneity of a network increases the

---

that *guanxi* would not be employed, it merely highlights the fact that guanxi as an institution has meshed with formal business institutions, especially in the weaker areas.

[48] Mark Granovetter, 'Economic Action and Social Structure: The Problem of Embeddedness', *American Journal of Sociology*, 91:3 (1985): 481-510.

effectiveness of informal norms decreases and group monitoring and punishment becomes weak. Furthermore, once a network has been established a relative sunk cost is made, and it is difficult to back out of an arrangement. In addition, it is also difficult to do business with those who do not fall within the scope of one's network. These problems are becoming more prevalent in post-WTO accession China, especially as competition and cooperation with foreign firms increases, specialisation and a division of labour come to the fore of the Chinese business environment, and WTO regulations are further enshrined in legislation. Consequently, the transaction costs associated with reliance on informal institutions are rising and putting further pressure on the performance of firms and of the institutions themselves. Greif and Laitin (2004) argue that institutions can change due to endogenous processes, exogenous shocks, and combinations of both. The key determinant being that certain behaviours associated with an institution cease to be self-enforcing when observable or unobservable quasi-parameters change.[49] Thus, it is becoming pertinent to ask, are the pressures of a global business culture that supports contracts as well a level of business development unprecedented in Chinese history causing a shift toward the adoption of contracts as a formal institution as well as an informal institution? Furthermore, are weaknesses in the informal institutions governing business relationships causing a shift in behaviour as a result of an exogenous change (i.e. Contract Law) which is self-reinforcing?

This paper will investigate the prevalence of formal contractual arrangements between the supplier and purchaser in the Chinese manufacturing industry in order to ascertain if formal contracts are being used by Chinese firms, and if there are certain factors pertaining to the business relationship and environment that makes it more desirable to do so. Thus, this paper will highlight that a shift towards the adoption of contracts has occurred within the institutional framework that governs business relations in the Chinese manufacturing environment on the basis of firms seeking to minimise transaction costs, and having the requisite opportunities and motivations to do so.

---

[49] Greif and Laitin. "A Theory of Endogenous Institutional Change", 639-40. According to Greif and Laitin (2004, p. 639), quasi-parameters are neither parameters (as they are endogenously changed) nor variables (as they do not directly condition behavior). Furthermore, changes in quasi-parameters and their implications are not recognised by the economic actors, they have to be considered as parametric - exogenous and fixed - when studying the self-enforcing property of an institution in the *short run*, but as endogenous and variable when studying the same institutions in the *long run*.

Section 3: Hypothesis

The general proposition of this paper is that the adoption of formal contractual arrangements is taking place within the institutional framework of the Chinese business environment. In particular, this paper will focus on the manufacturing industry for its analysis. In order to test this proposition, four hypotheses are constructed based upon four key features concerning a firm's business relationships and the environment they operate within. These features generally articulate a preference for formal contract usage based upon the theoretical framework discussed previously, i.e. the prevailing institutional environment and the notion of minimising transaction costs and the protection of property rights as per TCT theory. Outlined below are the hypothetical variables that will be tested using proxy variables in Section 5 in order to show this shift, the results of which will be illustrated via the individual hypotheses relating to each variable. The hypothetical variables in question are: Proximity, Trade Credit, Switching Cost and Market Power.

3.1 Proximity

When transactions (involving physical goods) occur over a significant distance, they are inherently non-simultaneous and hence self-enforcement becomes difficult.[50] Informal third-party enforcement, such as informal networks, may also be ineffective on their own due to their weakness over large distances and the high associated information and monitoring costs.[51] Thus a third-party enforcement mechanism may be pertinent to facilitate the transaction efficiently and effectively. Formal contracts constitute such a mechanism. Furthermore, if the transaction is to be long-term with repeat dealings, then a formal contract and the associated governing framework can reduce the transaction costs involved. Dixit (2003) models this phenomenon using a Bayesian equilibrium and mathematically shows the tipping point whereby the costs associated with monitoring and enforcing contracts, based on the size of the subject group and distance between group members, become more for self-enforcing (or relation-based) governance structures than for formal (or rule-based) governance structures (see Figure 3.1 for a graphical representation).

---

[50] Oliver Williamson, *The Economic Institutions of Capitalism*, (The Free Press: New York, 1985).
[51] North, "Institutions, Transactions Costs and Economic Growth", 419-28.
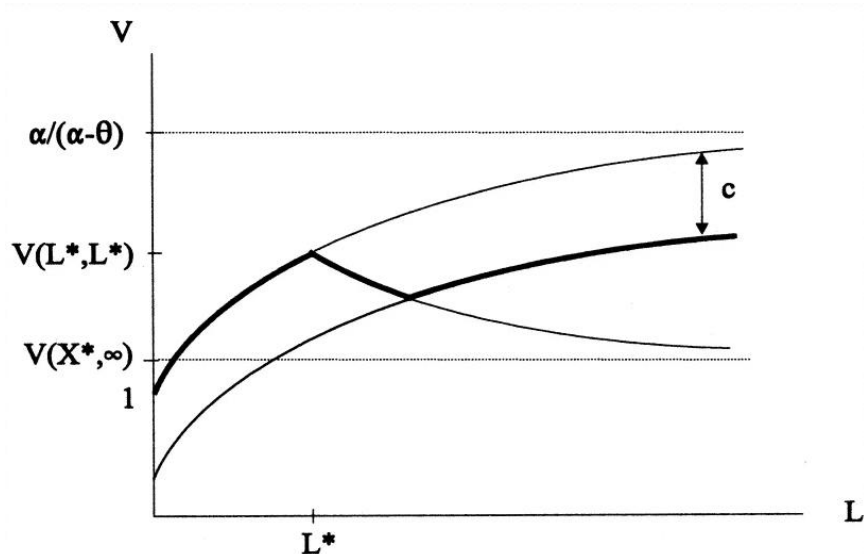
Figure 3.1: Optimal Enforcement Modes in Different-Size Worlds

The above figure shows the gross and net payoffs from external enforcement; these are the two parallel curves $V(L, L)$ and $V(L, L)-c$. It also shows a falling curve for self-enforcement beyond L^*, starting at $(L^*, V(L^*, L^*))$ and going to $(\infty, V(X^*, \infty))$. The thick curve in three separate segments is the payoff function that arises from choosing the better of the modes of enforcement for each L. Thus, when $L<L^*$ self-enforcement is globally effective and saves the detection cost c, so it is obviously superior to external governance. Beyond L^*, there is an interval in which the payoff from self-enforcement falls below the gross payoff $V(L, L)$ from external enforcement but remains above the net payoff $V(L, L)-c$ of that system.[52]

Although the rule-based governance structure entails high fixed-costs to establish and run the legal system and the information mechanism, once these costs have been incurred, the marginal costs of dealing with strangers and peripheral members are low. These costs however, continuously rise for relation-based governance structures as the group grows in size and heterogeneity. Hence, when the size and scale of a group of economic players is substantial enough, the costs borne by the individual members will be less if they defer to a formalised structure administered by a third party (provided one exists) than to solely depend upon relationship-based enforcement. Thus:

Hypothesis 1a: A large spatial distance between supplier and purchaser will have a positive effect on formal contracts being used to facilitate the transaction.

However, the Chinese legal system as a formal institution that enforces contractual obligations and protects

---

[52] Avinash Dixit, "Trade Expansion and Contract Enforcement", *Journal of Political Economy* 111:6 (2003): 1293-1317.

firm interests is at times weak and unreliable. Hence, Chinese firms will depend upon informal institutions such as guanxi to supplement for these weaknesses, especially when the transaction occurs between firms located in close proximity, and hence the costs of monitoring and enforcement are low.[53] As per Dixit's (2003) model, when the distance (i.e. the geographic or socio-economic distance) between economic actors pertaining to a group is small, the costs of a self-enforcing governance structure are less than for a rule-based system. Thus:

Hypothesis 1b: A small spatial distance between supplier and purchaser will have a negative effect on formal contracts being used to facilitate the transaction.

3.2 Trade Credit

Input suppliers play a significant role in short-term commercial lending. They not only sell goods and services but also in conjunction extend significant amounts of credit to firms they conduct business with.[54] Such contracts which incorporate trade credit formally and legally bind the terms for early payment discounts, their magnitude, the penalty for paying after the due date, the maturity of trade credit and the interest rates of the business relationship. This allows firms to formalise their relationship which consequently provides for a degree of strategic flexibility regarding delivery and payment while protecting each firm's property rights. Burkart and Ellingsen (2004) argue that this form of financing occurs because inputs are less easily diverted to other investments or business functions than cash-loans, and input transactions are more easily monitored by suppliers (who take part in them) than by banks. Hence the supplier has an *informational advantage*. A study conducted by Demirguq-Kunt and Maksimovic (2002) also revealed that trade credit is more prevalent in countries with less developed credit markets and poor legal institutions, which China can be categorised as having. Furthermore, firm access to credit from banks in China is very limited.[55] Thus, in business environments where trade credit is highly depended upon due to the inefficiencies of the financial market and difficulties acquiring a loan caused by bureaucracy and corruption, firms tend to rely more heavily on trade credit contracts. In addition, as according to Holmströms (1979) *Moral Hazard Theory*, a purchaser is more likely to repay a supplier than a bank as the supplier is seen as being strategic to the future success of the firm (buyer). Hence, formal contracts will be

---

[53] Nee, "Norms and Networks", 85-89.
[54] Mike Burkart & Tore Ellingsen "In—Kind Finance: A Theory of Trade Credit", *American Economic Review* 94 (2004): 569-590.
[55] Barry Naughton, *The Chinese Economy: Transitions and Growth*, (Cambridge, MA: MIT Press, 2007).

preferred when firms engage in non-simultaneous transactions that involve the use of trade credit, especially where access to other forms of credit is restricted and the business relationship is strategic and long-term. Thus:

Hypothesis 2: The use of incorporation of trade credit in the business relationship will have a positive effect on the use of formal contractual arrangements by firms.

3.3 Switching Cost

When firms engage in economic relations with one another, it can lead to one or both firms making an investment that is specific to the individual transaction at hand (or several within a broader spectrum).[56] This investment (i.e. a transaction specific investment), and the consequential business relationship, creates a switching cost whereby a firm which makes such an investment will incur a cost if it backs out of or terminates the business relationship early and/or seeks to redeploy the previously invested resources. Such an investment is, as espoused by TCT, a mechanism through which firms can compose and enforce contracts. This enables firms *ex ante* to balance flexibility and commitment to realising the investment and thus the transaction *ex post*. This type of investment can involve a degree of product specification, specialised training or the physical acquisition of land or capital, which ultimately has a 'binding effect' on the buyer to the supplier, or vice versa.[57] Thus according to inter-organisational exchange relationship theory business partners can become symbiotic, whereby either one firm or both in the relationship makes an investment in transaction-specific physical or human capital that pertains solely to the business of the other firm in the relationship.[58] This binding effect, through the support of the institutional environment, allows firms to protect the property rights of their investment(s). In addition, due to the more intimate nature of the relationship, firms are able to minimise transaction costs through their ability to better monitor the business transactions.

According to Xiao, Feng and Roche (2005), buyers primarily rely on contractual relationships to palliate uncertainties relating to switching costs and supplier performance, while avoiding the deterioration of their

---

[56] Oliver Williamson, "The Economics of Organization: The Transaction Cost Approach", *American Journal of Sociology* 87:3 (1981): 548-77.
[57] Charles C. Nielson, "An Empirical Examination of Switching Cost Investments in Business-to-Business Marketing Relationships", *Journal of Business and Industrial Marketing* 2 (1996): 38-63.
[58] Karen Cook & Richard M. Emerson, "Exchange Networks and the Analysis of Complex Organizations", *Sociology of Organizations* 3 (1984): 1-30.

relationships with suppliers through market. Hence the presence of switching costs favours contractual relationships between buyers and suppliers. Therefore if a firm makes a transaction specific investment (and thus by default a related switching cost), such as a specialised product or is the firm's major supplier or buyer, the business relationship between the firms will be governed by a formal contractual governance structure. Thus:

Hypothesis 3: The presence of one or more transaction specific investments in a business relationship, and hence a corresponding switching cost, will have a positive effect on the propensity for firms to employ formal contracts.

3.4 Market Power

According to Porter's (1980) *Five Forces Model*, the power of buyers and suppliers in a given industry and/or market has considerable effect on a firm's strategic position. Specifically, this power can come from the relative size and concentration in terms of numbers of suppliers to buyers (and vice versa). Thus, when suppliers (or buyers) are larger and more concentrated than buyers (or suppliers) they possess more power when dictating the terms and conduct of business relationships and transactions; i.e. there exists an unequal distribution of bargaining power.

Economic transactions that occur in the modern marketplace can potentially suffer from the opportunistic behaviour of one of the economic actors who takes part in it. A large amount of research originating from models based on TCT has focused on the possible hold-up problem associated with transaction-specific investments.[59] In this instance, after a firm invests in an asset with a low-salvage value and a quasi-rent stream highly dependent upon some other asset, the owner of that other asset can potentially hold up by appropriating the quasi-rent stream.[60] In such a case, if investments cannot be readily transferred between markets then investors will be exposed to the opportunistic behaviour of their counterparts. Jenkinson and Mayer (1996) highlight an example of an investment made by a car component manufacturer specific to a particular car producer. This opportunistic behavioural phenomenon will occur whereby if the producer decides to shift their source of supply to another

---

[59] Tim Jenkinson & Colin Mayer, "The Assessment: Contracts and Competition", *Oxford Review of Economic Policy* 12:4 (1996): 1-10.
[60] Benjamin Klein, "Transaction Cost Determinants of 'Unfair' Contractual Arrangements", *The American Economic Review* 70:2 (1980): 356-362.

component manufacturer then the first manufacturer may find itself with a redundant or near redundant investment. Anticipating this behaviour, the car component manufacturer may be reluctant to invest in the first place. Hence, long-term contracts can be utilised to provide some protection to the component manufacturer and encourage a transaction-specific investments that would otherwise not occur.

Therefore, if the number of suppliers/buyers a firm uses is large, the bargaining power of these suppliers will be low and thus the potential for opportunistic behaviour by the supply/buyer is also low. Thus the potential costs associated with opportunistic behaviour via hold-ups, price collusion and premature conclusion of the business relationship as a result of having made a transaction-specific investment are relatively lower; hence the prevalence to use contracts will also be lower. Thus:

*Hypothesis 4***:** A low degree of supplier/buyer concentration and power relative to a firm's own market position will have a negative on a firms prevalence for formal contractual use.

Section 4: Empirical Analysis

4.1 The Data Set

In order to investigate the prevalence of formal contractual arrangements between suppliers and buyers in the Chinese manufacturing industry, this paper utilises data from the World Bank Investment Climate Survey (ICS) 2003. In particular, the survey includes data concerning suppliers of the two most important inputs for each manufacturing firm. However, the reciprocal for that between the manufacturing firm and their buyers is not included. Thus, this paper will utilise three data sub-sets from the ICS. The first will focus on the relationship between the responder firm and the suppliers of their most important input, the second between responder firm and suppliers of their second most important input, and the third will take account of the relationship between the responder firm and their buyers.

The ICS classifies manufacturing firms under 11 loosely defined categories: Garment and Leather Products, Electronic Equipment, Electronic Parts Making, Household Electronics, Auto and Auto Parts, Information Technology, Food Processing, Chemical Products and Medicine, Biotechnology Products and Chinese Medicine, Metallurgical Products (Manufacturing and Tools) and Transportation Equipment (including Telecommunications Equipment). Although some of these categories fall outside traditional definitions of what constitutes a manufacturing firm, each category purchases inputs/resources, conducts a transformational process on a product(s) in order to add value for subsequent sale, and requires a significant investment in fixed capital to do so.

4.2 Problems with the Data Set

The data set consists of surveyed responses from 2,400 firms conducted by the Enterprise Analysis Unit of the World Bank. Although comprehensive in this case, the use of surveys for empirical analysis poses particular problems in terms of the validity and dependability of responses and the basic methodology of the questionnaire. For instance, the question which this paper uses as the dependant variable asks "Generally, do you enter into written contracts with your clients?", and is intended to elicit a yes/no response. Two issues arise here: First, the question only covers written and not oral contracts, and second the question is asked in general terms which allows for a wide breadth of interpretation and response; and

as can occur with all surveys, the responder may reply in accordance with what they perceive the surveyor wants or with an answer they believe they should respond with as opposed to describing the actual situation. Hence, the reliability of the responses can be called in to question and the dependability of the inferences made based upon this survey must be viewed with this issue in mind.

The use of variables with surveyed responses in percentages led to a distinct feature being observed concerning the distribution of the responses. As can be seen in Figure 4.1, the majority of firms rounded their response to their nearest figure that is a multiple of 5, i.e. 35, 40, 65, 80 etc. However, many firms also gave more precise figures such as 36.5, 41 and 87.5. Such a distribution may have caused some issues in the regression analysis and requires further investigation on the specific effects.
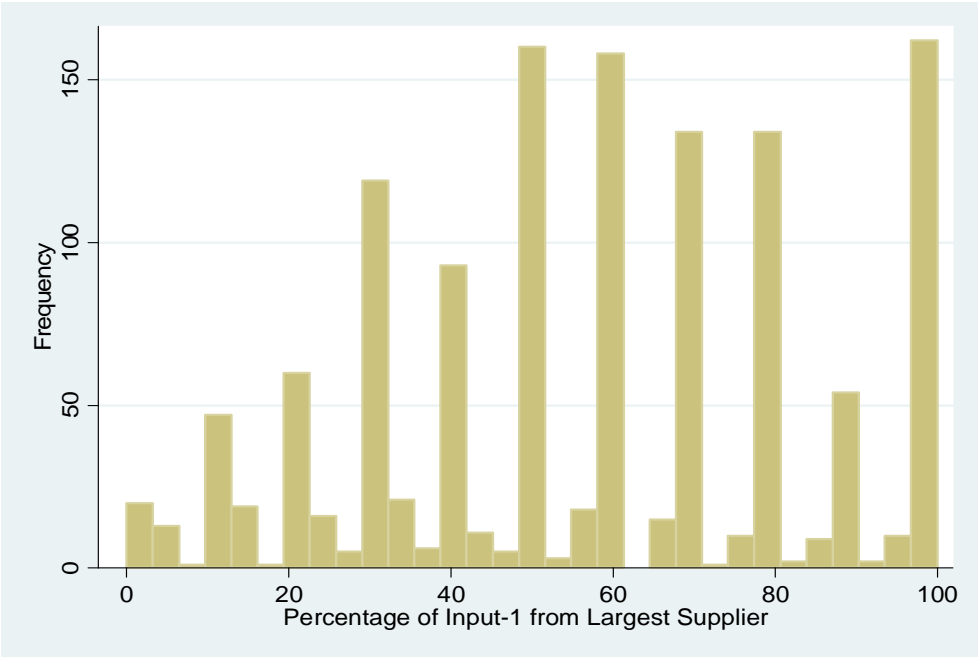

Figure 4.1: Frequency Distribution Table for the Variable 'Percentage of Input that comes from Largest Supplier'

4.3 Measures: Explanation of Variables

4.3.1 Data Sub-Sets 1 and 2: Responder-Supplier

Independent (Test) Variables

The variables to be tested in accordance with the above hypotheses are as follows:

Proximity: Supplier proximity is divided into five categories: district, city, province, country and overseas. These variables represent the proximity of supplier to purchaser and are measured in terms of the percentage of expenditure on inputs for each locale. The five variables are: proximity in the same district, proximity in same city (but different district), proximity in same province (but different city), proximity in same country (but different province), and proximity overseas. The mean value and standard deviation for each are: District Proximity (17%, 29.2), City Proximity (26.3%, 32.3), Province Proximity (17%, 25.1), Country Proximity (34.5%, 34.7) and Overseas Proximity (5.3%, 17.7).

Trade Credit: Is measured as the percentage of inputs from supplier (1 or 2 depending on the model) that a firm purchases on credit. Although this paper hypothesises that use of credit will lead to a proclivity for contract use, firms who have engaged in business for a long-period of time may feel that contracts are unnecessary and that the informal business relationship is sufficient enough to continue a sound business relationship. Thus the variable *business relationship*, being the logarithm of the business relationship period (measured in years), is included to interact with the *trade credit* variable to account for this. The mean value of the Trade Credit variable is 35% and the standard deviation 38.7 for input 1, and 35.3% and 39.7 for input 2.

Switching Cost: This variable is measured using a categorical variable that determines whether or not the firm in question is the most important customer of their most important supplier of input 1 or 2. Although a reasonable measure in that it indicates whether there is potentially a symbiotic relationship between the two firms, as both are one another's most important supplier/customer, the explanatory power of this variable is weak as it is a categorical variable and no mention is made as to what the response is based on, i.e. numerical data or the responder's perception. 837 firms responded 'no' and 637 with 'yes' to this question for input 1, and 877 with 'no' and 560 with 'yes' for input 2.

Market Power: Market Power is measured by three variables: *input availability*, which is the total number of suppliers a firm uses (for input 1 or 2), *input substitution*, the total number of suppliers of this input in the market, and *sourcing pattern*, the percentage of this input (1 or 2) that comes from the firm's largest supplier. The use of the latter two has an additive (or subtractive) effect on the influence of the total number of suppliers used by a firm. The mean value and standard deviation for each of these variables are

respectively: for input 1 (7.25, 36.2), (106.8, 601.8) and (56.9, 69.7); and for input 2 (6.3, 35.3), (163.04, 1767.4) and (57.6, 71.02).

Dependant Variable

The dependant variable to be measured is a firm's propensity to use contracts with their suppliers. This is a categorical variable, with 1,812 firms responding 'yes' and 398 responding 'no' for data sub-set 1, and 2,096 with 'yes' and 277 with 'no' for data sub-set 2.

Control Variables

This paper uses the following control variables to isolate the effects of supplier proximity, trade credit, switching cost and market power on the prevalence for manufacturing firms to use contracts with their suppliers.

Firm Age: The firm's age, logged, is used to control for the differences in a firm's business practices as influenced by their age. The data set reveals a variety of firm ages, from 3 years to over 50, with a logged mean of 2.43 years and a logged standard deviation of 0.8. In the context of China's business environment, older firms typically retain characteristics of pre- and early-reform period business practices whilst younger firms are likely to be more able to adapt to the changing business environment and adopt new business practices, such as formal contracts.[61]

Ownership Structure: State ownership (partial or full) plays a significant role in informal business networks in China. Firms with government ownership often have better access to capital, bank credit and resources, which is achieved via bureaucratic channels.[62] The percentage of a firm that is owned by the government or a government owned entity is used here to control for this effect. However, government policy advocates the use of contracts, thus those firms which fall under influence by the state and other regulatory bureaus will theoretically be forced into using contracts. Private firms, especially those smaller and with informal governance structures, are perhaps less likely to use contracts, owing to less influence by state regulation and local political influence. The mean value of this variable is 22% and the standard deviation is 40.2.

---

[61] Naughton, 2007.
[62] Victor Nee, "Organizational Dynamics of Market Transition: Hybrid Forms, Property Rights, and Mixed Economy in China", *Administrative Science Quarterly* 37:1 (1991): 1-28.

Governance Structure: The governance structure of Chinese listed firms is classed as being more *control based* as opposed to *market based*, though according to Naughton (2007) both systems of managerial oversight are weak. This is supported by a Shanghai Stock Exchange survey that found only 29% of managers cited the Board of Directors (BoD) as the most important internal constraining factor whilst 25.8% cited self-constraint.[63] This observation has two implications, the first being that managers have a large degree of freedom, the second that the BoD and managers themselves are the two most important internal constraints. Furthermore, the survey found that 79% of mangers found that product markets were the most important external constraining factor. Thus, in an industry typified by long-term non-simultaneous transactions, manufacturing firms that have a BoD will behave in accordance with the dictums of the market and thus will use contracts where contracts are prevalent, or indeed favourable because of the possibility of minimising transaction costs. The dummy variable representing whether or not a firm has a board of directors is used here as a proxy for governance structure, with 1,214 firms responding 'yes' and 1,186 'no'.

Firm Size: The expense, difficulties, and unpredictable outcomes of pursuing formal action against breaches of contract in China will force many small and medium size firms to rely more on informal networks and business relationships in order to monitor and enforce long-term business transactions. Larger firms, who possess the necessary clout to challenge contract breaches, will be more inclined to do so as the information and monitoring costs of contracts between supplier and buyer are lower than that for informal business relationships. Furthermore, firms of larger size will be able to realise a reduction in monitoring, negotiation, and information costs that come with the scale economies achieved through the use of formal contracts. The log of the previous year's (2002) fixed assets at book value is used as a proxy for firm size, and has minimum and maximum values of 0 and 17.5 respectively, a mean value of 8.75 and a standard deviation of 2.45.

Manufacturing Sector: The type of manufacturing sector a firm belongs to will influence the degree to which they will use contracts. Those that entail a large investment (especially transaction-specific) in capital will see a propensity towards contracts, especially where switching costs are high. 11 dummy

---

[63] Naughton, 2007.

variables that account for the various manufacturing sectors the firms surveyed belong to are used.

City: The city a firm is situated in will influence their acceptance or avoidance of formal contracts. Cities typically found along the eastern seaboard, are close to or are SEZs, or have a large number of foreign firms will show a propensity towards formal contract usage. This is due to the gradualist approach taken by the CCP in opening up the country – starting in the east and moving inland – to foreign and private firms, and allowing market-friendly reforms to be tested by local governments. [64] Furthermore, the decentralisation of power towards provincial and local governments has created a diverse range of business environments throughout the provinces.[65] 18 dummy variables that account for which city a firm is located in are used.

4.3.2 Data Sub-Set 3: Responder-Buyer

This regression will use the control variables as detailed above. However, due to differences in questions concerning the responder-buyer relationship in the survey, the dependant variable (whilst being the same question) differs with regard to values, and the questions pertaining to the responder-buyer relationship differ to those for the responder-supplier relationship. Thus alternative variables that best serve as proxies for the above hypotheses have been selected.

Independent Variables

Proximity: Buyer proximity, like supplier proximity, is divided into five categories; district; city; province; country; and overseas. These variables represent the proximity of the buyer to the surveyed firm, and are measured in terms of the percentage of sales for each locale. The five variables are: proximity in the same district, proximity in same city (but different district), proximity in same province (but different city), proximity in same country (but different province), and proximity overseas. The mean value and standard deviation for each are: District Proximity (17.4%, 30.4), City Proximity (24.3%, 31.5), Province Proximity (20.4%, 27.2), Country Proximity (28.8%, 35.2) and Overseas Proximity (9.07%, 26).

Trade Credit: The variable 'Do you offer your customers credit' is used to capture trade credit. The

---

[64] Naughton, 2007.

[65] H. Hendrischke & C. Feng, eds. *The Political Economy of China's Provinces: Comparative and Competitive Advantage* (London: Routledge, 1999).

responses were 1,430 for 'No' and 865 for 'Yes'. This differs from the Trade Credit variables for the responder-supplier data sub-sets, where the majority of responses where 'Yes'. The lack of data within the ICS to use as a variable to account for the period of time for which credit has been offered, or that the business relationship has existed, is problematic.

Switching Cost: The variable used as a proxy for switching cost is 'what percentage of your sales are made to you client's unique specifications (i.e. you cannot sell to other clients)?'. This variable captures the transaction specific investment made by the supplier (responder) firm in terms of human and physical capital needed to produce for the buyer firm. Hence a binding effect, and associated switching cost, between the two firms is apparent and accounted for by this variable. The mean value is 37.24% and the standard deviation 42.27.

Market Power: is measured by the variable *supplier base*, which is 'the number of suppliers the surveyed firm's largest buyer uses'. The responses range from 1 to 7100, with the average being 23 other suppliers. As is argued under the responder-supplier dataset variable, where there are fewer suppliers compared to buyers, the power to dictate terms for the suppliers will be higher and the switching costs for the buyers will also be higher. In addition, the variable *market competition*, 'how many competitors does the responder have in their main business line' will also be included, because, as mentioned previously, if there is a high degree of competition or a large pool of suppliers, the buyers will be better able to dictate terms. The responses have been pooled by the survey as follows: 1=(1-3), 2=(4-6), 3=(7-15), 4=(16-100) and 5=(100+), and have a mean of 3.82 and a standard deviation of 1.35. The two variables will have an additive (or subtractive) effect.

Dependent Variable

The dependant variable, as above, represents a firm's general tendency to use contracts with their customers (buyers). This is a categorical variable, with 2,096 firms responding 'yes', and 277 responding 'no'.

4.4 Statistical Analysis of the Data Set

As stated previously, this paper will test three models, two of which are identical save one key

characteristic and encompass the relationship of the surveyed firms with their suppliers. This is primarily due to the questionnaire having two responses for key test variables involving major inputs. Therefore, one model will focus solely on data for input 1, and the second for data on input 2. This provides an interesting opportunity to test whether or not the results are spurious by comparing the results of both models. The third model will analyse the surveyed firms' relationships with their buyers in an attempt to mirror the same results obtained from the previous two models, and further support the hypotheses.

4.4.1 Statistical Analysis

Categorical Variables

A necessary requirement in order to use a Probit model is that all categorical independent variables (here, governance structure and switching cost for sub-sets 1 and 2, and governance structure, switching cost and trade credit for data sub-set 3) have corresponding values with one another and the dependant variable (contract), and that there are enough present to run the regression. This condition is fulfilled for all categorical variables used, the results of which have been excluded for brevity.

Multicollinearity

In order to check for multicollinearity in the independent variables a program based on *variance inflation factors* (VIF) was used in conjunction with the statistical program Stata.[66] The results for data sub-sets 1 and 3 are presented below in Table 4.1, those for data sub-set 2 are not included for brevity as the results were similar to those for data sub-set 1 (which is to be expected). As a rule, a variable whose VIF values are greater than 10 or whose Tolerance (1/VIF) is lower than 0.1, may merit further investigation for the presence of collinearity. Based upon the results from Table 4.1A and 4.1B, it is obvious that the five proximity variables have an extremely high degree of collinearity, however when any one of the proximity variables are dropped the collinearity diagnostics improve such that none of the remaining proximity variables appear to suffer from excessive collinearity, nor any other independent variable. This problem of collinearity among the proximity variables will be dealt in the regression analysis section.

---

[66] UCLA Academic Technology Services – filename 'collin'. Cited: http://www.ats.ucla.edu/stat/stata/ado/analysis on 02/06/2008

Table 4.1A: Collinearity Diagnostics (Data Sub-Set 1)

Variable		VIF		Tolerance
Firm Age		1.37		0.7289
Ownership Structure		1.31		0.7663
Governance Structure		1.43		0.701
Firm Size		1.42		0.704
Proximity District[a]	1.04E+14		0	
Proximity City[a]	1.77E+14	(2.44)	0	(0.4092)
Proximity Province[a]	1.25E+14	(1.89)	0	(0.5289)
Proximity Country[a]	2.40E+14	(2.67)	0	(0.3746)
Proximity Overseas[a]	7.47E+13	(1.66)	0	(0.6019)
Line of Credit		5.66		0.1768
Business Relationship		1.05		0.9498
Switching Cost		1.12		0.8954
Input Availability		5.68		0.1761
Input Substitution		1.12		0.8954
Sourcing Behaviour		1.03		0.9753

[a] The figures to the right are those obtained when the proximity district variable is dropped.

Table 4.1B: Collinearity Diagnostics (Data Sub-Set 3)

Variable		VIF		Tolerance
Firm Age		1.4		0.7168
Ownership Structure		1.36		0.7358
Governance Structure		1.34		0.7454
Firm Size		1.43		0.7014
Proximity District[a]	2.82E+13		0	
Proximity City[a]	3.33E+13	(1.91)	0	(0.5233)
Proximity Province[a]	2.69E+13	(1.62)	0	(0.6164)
Proximity Country[a]	4.65E+13	(2.15)	0	(0.4644)
Proximity Overseas[a]	2.50E+13	(1.68)	0	(0.594)
Market Competition		1.14		0.8776
Trade Credit		1.03		0.9714
Switching Cost		1.06		0.9405
Supplier Base		1.01		0.9852
Business Relationship		5.68		0.1761
Sourcing Behaviour		1.04		0.9571

[a] The figures to the right are those obtained when the proximity district variable is dropped.

Furthermore, a check for the presence of collinearity between the dependant and independent variables is unnecessary as the dependant variable is binomial.

Heteroscedasticity

Due to the binomial distribution of the residuals, it is difficult to test for heteroscedasticity. Thus each Probit model will be regressed with robust standard errors. Furthermore, a Probit model that accounts for heteroscedasticity will be used when testing for robustness, the results of which are shown in the robustness testing section of this paper.

Correlation Coefficients

The pair-wise correlation coefficients are tabulated in Appendices A and B, with those that are significant highlighted with an asterisk (*). Most interesting is the large number of significant correlation coefficients in the dependant variable (contract) column. The Firm Size, Governance Structure, Country Proximity and Trade Credit variables stand out as potential predictors of contract utilisation.

Predicted Probabilities of Outcome for Test Variables

The statistical calculations of the predicted probabilities below show the probabilities of each respective independent variable for predicting a 'yes' (success) response for the dependant variable, i.e. "whether or not a firm generally uses contracts".

The Proximity Variables have the probability for predicting success at 0%, 50% and 100% expenditure as per Table 4.2.

Table 4.2: Predicted Probabilities of Contract Use for Proximity Variables (Supplier/Buyer)

Variable	Expenditure 0%		Expenditure 50%		Expenditure 100%	
City	0.8686	0.9208	0.9154	0.9271	0.9484	0.9330
Province	0.8683	0.9173	0.9263	0.9319	0.9624	0.9444
Country	0.8083	0.8917	0.9074	0.9388	0.9624	0.9681
Overseas	0.8868	0.9214	0.9239	0.9332	0.9510	0.9436

Despite these positive results, when considering how high they are across all measures these statistics appear potentially unreliable. This is perhaps due to the high degree of collinearity between the variables.

The Input Availability variable has the probability for predicting success for 1, 10, 100 and 360 suppliers as per Table 4.3.

Table 4.3: Predicted Probabilities of Contract Use for Input Availability

Variable	1 Supplier	10 Suppliers	100 Suppliers	360 Suppliers
Input 1 Availability	0.8986	0.8882	0.7422	0.1616
Input 2 Availability	0.9036	0.8903	0.6876	0.0499
Input Availability (Buyer)	0.9186	0.9207	0.9394	0.9712

As can be seen in the above table, the probability of contract use for firms with few suppliers is high (90%). However even as the number grows to 100 the probability is still significantly high, at approximately 75%. Once the number grows beyond 100, it drops significantly, with 360 suppliers having a probability of success of only 16%. This supports the hypothesis that firms with few suppliers will more likely use contracts when conducting business. However, the 14% drop between 10 and 100 suppliers is less than anticipated. However, for the Input Availability (Buyer) variable, the probabilities for contract use change little, which may be due to the fact that the variable considers only the largest Buyer, who consequently, due to their large size, would be more inclined to use contracts.

The Trade Credit variable has the probability for predicting success for 0%, 50% and 100% as per Table 4.4.

Table 4.4: Predicted Probabilities of Contract Use for Line of Credit

Trade Credit	Purchased 0%	Purchased 50%	Purchased 100%
Input 1	0.8328	0.9056	0.9518
Input 2	0.8412	0.9082	0.9516
Buyer	p(0) = 0.9068		p(1) = 0.9423

The probabilities of the variables for the responder-supplier relationship are also high. However, considering the total number of observations for firms that use contracts compared to those who do not is

6:1, this is to be expected. There is a approximately a 6% increase in the likelihood that firms who receive 50% of input as opposed to 0% will use contracts. This figure is less than what would be expected but still supports the hypothesis, especially considering the results for both inputs behave in the same manner. For the responder-buyer relationship, the trade credit variable is a dummy variable, however, the probability of a firm offering credit and using a contract is higher than not, which supports the hypothesis.

The Switching Cost variable has the probability for predicting success at the 0%, 50% and 100% levels (for the responder-buyer relationship), and a 'yes' (p(1)) and 'no' (p(0)) response (for the responder-supplier) as per Table 4.1.

Table 4.1: Predicted Probabilities of Contract Use for Switching Cost

Switching Cost	Made to Spec. 0%	Made to Spec. 50%	Made to Spec. 100%
Buyer	0.9113	0.9283	0.9428
Buyer is Main Customer			
Input 1	p(0) = 0.8659		p(1) = 0.9204
Input 2	p(0) = 0.8678		p(1) = 0.9311

As the above results show, switching costs will lead to a tendency for contract use. However, as before, the probabilities increase only marginally, thus their descriptive power, although supporting hypothesis 3, should be viewed cautiously. Especially considering the line of questioning used.

4.4.2 Supplementary Statistics

The ICS also includes data concerning the responder's perceptions on the predictability and reliability of the legal system to enforce and uphold the firm's contract and property rights. Detailed below are the results of an analysis of this data.
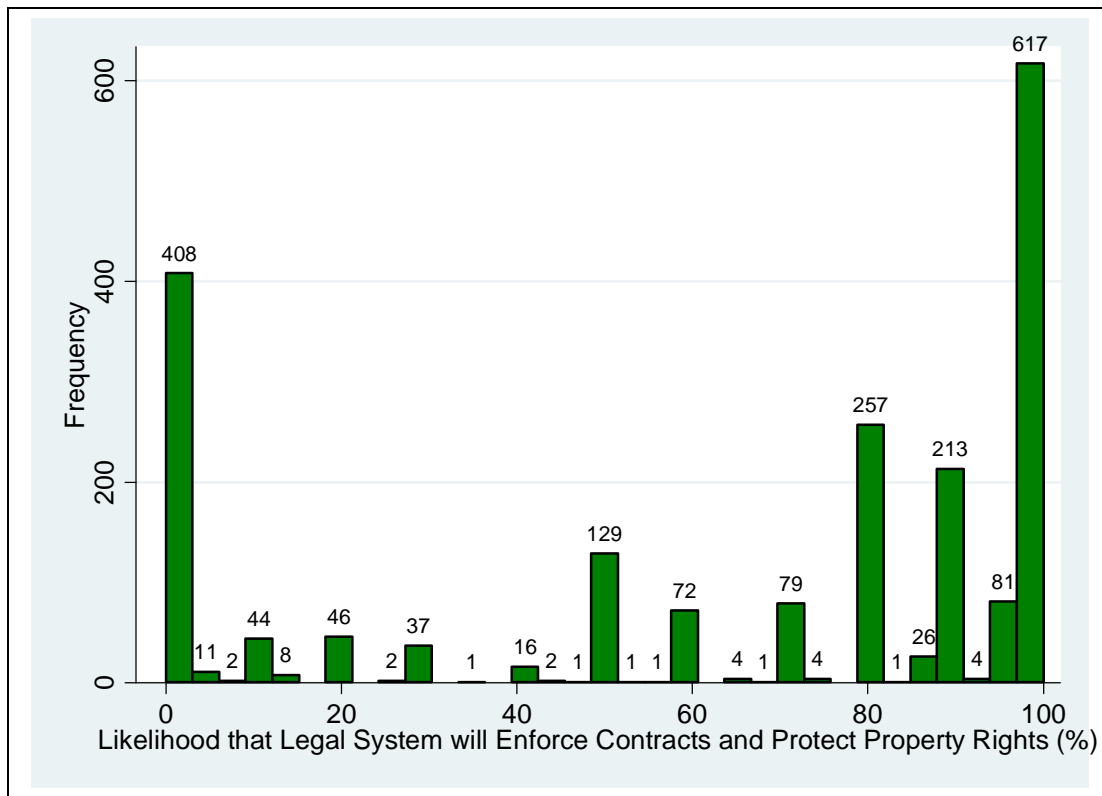
Figure 4.2: Perception that Legal System will support a Firm's Contracts and Property Rights in a Business Dispute

The above graph highlights a great discrepancy in the perception that the legal system will enforce and protect a firm's contracts and property rights. The two highest values are for 0% and 100%, highlighting how unpredictable the court system is perceived. However, the majority of responses were above 60%, highlighting a general belief that the legal system will support firms most of the time (mean = 63.9%). Furthermore, the pair-wise correlation coefficient of 'the perception that the legal system will enforce and protect a firm's contracts and property rights' and 'whether a firm generally enters into a written contract' (the dependant variable: responder-supplier relationship) is 0.024 and statistically significant, which highlights that despite this belief, many firms persist in using contracts. An investigation of the responder-buyer contractual relationship returns a similar result; the pair-wise correlation coefficient is 0.0346 and is significant.

The ICS also provides information on dispute resolution mechanisms opted for by the surveyed firms, highlighted in Figure 4.3, namely: court action, arbitration and negotiation.

The graphs below are numbered (1-6) left to right and top to bottom. The x-axis values are percentages.
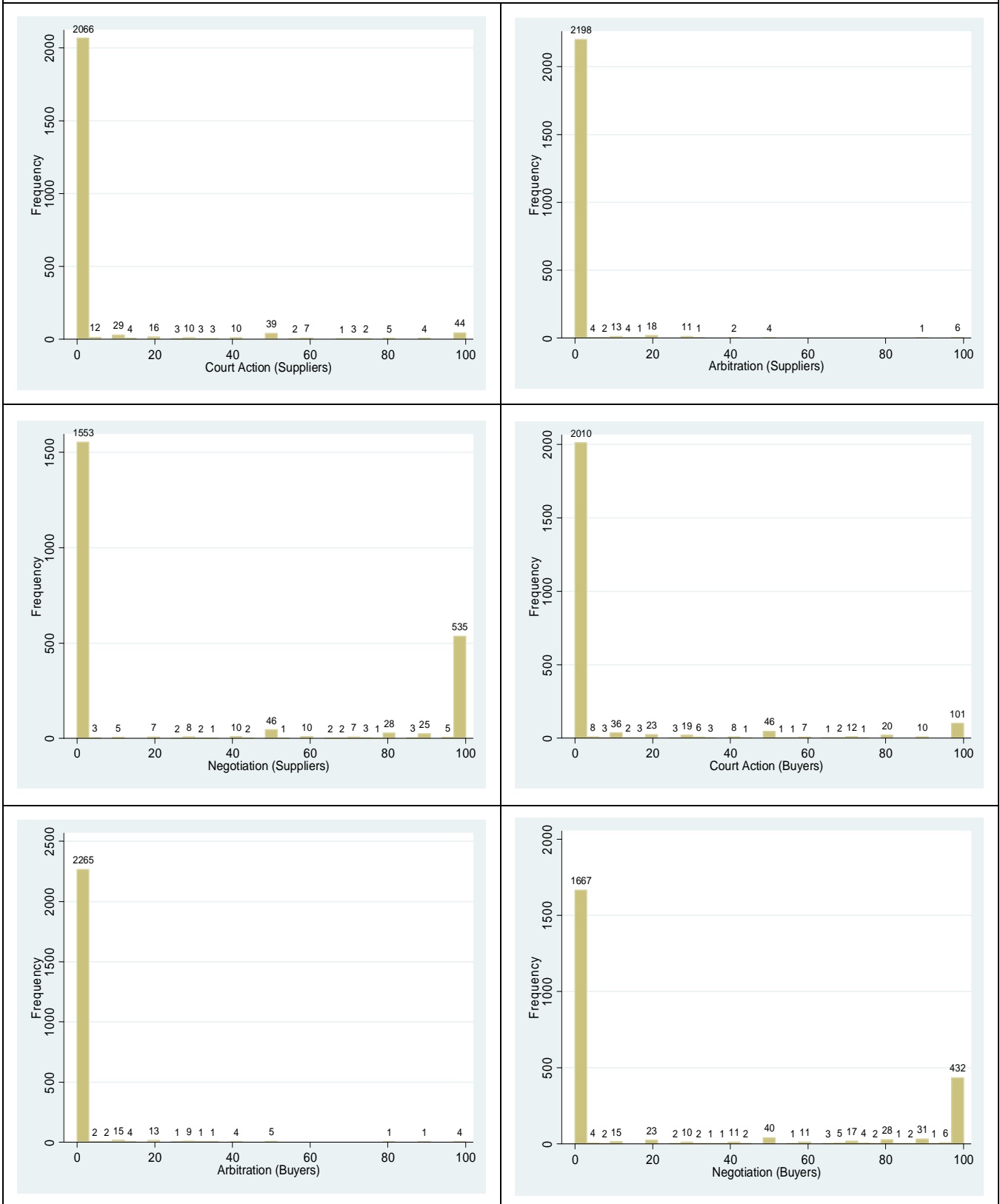
Figure 4.3: Graphs 1-3 Percentage share of disputes with suppliers that were resolved through court action, arbitration and

negotiation respectively. Graphs 4-6 Percentage share of disputes with buyers that were resolved through court action, arbitration and negotiation respectively

The data above highlights the degree to which negotiation as a means of dispute resolution is favoured by firms and is effective over arbitration and court action. This is an implicit facet of incomplete contracts, which is the ability and option for firms to renegotiate contracts *ex post*. However, arbitration proved the least effective method, perhaps highlighting the inefficiency of the arbitration system. This is significant as firms would typically prefer to avoid the costs and publicity of court action.

4.5: Analytical Model

The dependent variable to be tested is dichotomous, hence running a linear multiple regression using the ordinary least squares (OLS) method proves problematic. In particular, the residuals will take on a binary distribution and not a normal distribution, which is a prerequisite for the OLS method. Thus I have elected to use a Probit model, which has two advantages. First, as the dependant variables increase, $P_i = E(Y=1|X)$ never steps outside the 0-1 interval, and the second being that the relationship between the independent variables and the dependant variable is non-linear, thus as the independent variables increase or decrease, the dependant variable approaches 0 or 1 at a slower and slower rate. All testing will be conducted at the 5% significance level unless otherwise stated.

The model, detailed below, will be used to test three data sub-sets. The nomenclature used in Section 5 is as follows:

1) Model 1: Represents the model using data sub-set 1 (the responder-supplier relationship for input 1)

2) Model 2: Represents the model using data sub-set 2 (the responder-supplier relationship for input 2)

3) Model 3: Represents the model using data sub-set 3 (the responder-buyer relationship)

$$Y_i = \beta_0 + \sum_{j=1}^{n=k} \beta_j X_{ji} + \varepsilon_i \qquad \text{for all } i, \text{ and where } k \text{ is the number of variables corresponding to each}$$

respective data sub-set.

Section 5: Empirical Results

5.1 Regression Analysis: Data Sub-Set 1 (Responder-Supplier Input 1)

Model 1 was regressed using robust standard errors and included all the City and Sector dummy variables as well as the control and test variables. The City 5 (Dalian) dummy variable perfectly predicted success and was consequently dropped by Stata. The City 14 (Zhengzhou) variable was dropped due to collinearity.[67] Sectors 6 and 9 were also dropped due to collinearity. The City 9 (Jiangmen) variable was the only City variable with a significant test-statistic. No Sector variables were significant. The results, excluding City and Sector variables, are detailed in Table 5.1 below. Furthermore, the District Proximity variable was also purposefully excluded due to the presence of multicollinearity with the other proximity variables. This variable, however, will be included in a subsequent test in order to make an empirical analysis of *Hypothesis 1b*.

Table 5.1: Regression Results of Model 1 with Robust Standard Errors – Input 1

Variable	Coefficient	Z-Test Statistic
Firm Age	-0.11753	-1.48
Ownership Structure	-0.00076	-0.47
Governance Structure	0.40646	3.08***
Firm Size	0.15628	4.66***
Proximity City	0.00516	1.88*
Proximity Province	0.00668	2.25**
Proximity Country	0.00884	3.39***
Proximity Overseas	0.00459	1.02
Trade Credit	0.30031	2.35**
Business Relationship	-0.01318	-0.15
Switching Cost	0.00286	1.67*
Input Availability	-0.00656	-2.90***
Input Substitution	0.00005	0.51
Sourcing Pattern	-0.00003	-0.01
Constant Term	-0.94171	-2.53**

Dependant variable is whether or not a firm generally uses contracts

* Significant at 10% level   ** Significant at 5% level   *** Significant at 1% level

---

[67] Stata normally drops variables that perfectly predict success or failure in the dependent variable along with their associated observations. In those cases, the effective coefficient on the dropped variables is infinity (negative infinity) for variables that completely determine a success (failure). Dropping the variable and perfectly predicted observations has no effect on the likelihood or estimates of the remaining coefficients and increases the numerical stability of the optimisation process.

5.1.1 Results: Model

The Chi-squared test ($\chi 2$: 94.58) and p-value (0) indicates the model is statistically significant. However, only 852 observations were used (due to Stata dropping all corresponding observations for any single missing observation). The pseudo-R2 is 0.17, and although it is only an approximation (often regarded as a poor one at that) of the R2 found with the OLS regression, the figure appears to be a significant sign of the descriptive power of the model. An alternative measure of model fit is the ROC curve (Receiver-Operator Curve), which is detailed below in Figure 5.1. The area under the ROC indicates how well the model fits, with the ROC curve itself indicating how the probability of correctly predicting a 1 ('yes' response) is traded off against the probability of correctly predicting a 0 ('no' response). As can be seen from the ROC for the model using data sub-set 1, the area under the ROC is 0.753, indicating that the model is significant in its explanatory power, though not necessarily ideal.
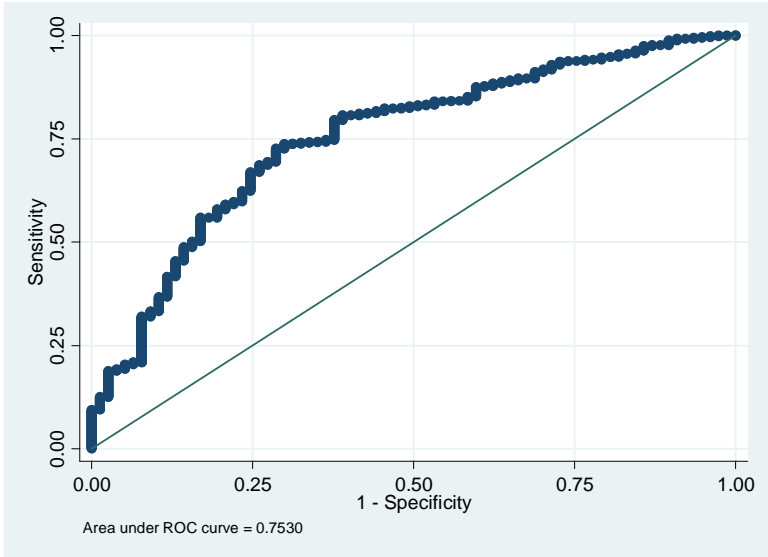
Figure 5.1: ROC Data Sub-Set 1

5.1.2 Results: Variables

The City Proximity variable is insignificant (but would be significant at the 10% level) yet its coefficient value is positive. The Province Proximity and Country Proximity variables are significant and have a positive influence on the dependant variable, as expected. However, the Overseas Proximity is insignificant. This may in part be to the majority of firms surveyed responding with zero percent for this variable; hence there were not enough observations to make any statistical inference. Otherwise, these results support the

hypothesis that the greater the distance between supplier and buyer, the more likely formal contractual arrangements are required and utilised. Based on these results, for firms whose suppliers are located in another province or within the same province but in a different city, the difficulties faced in supporting and enforcing informal business arrangements both in terms of cost and effort appear to necessitate the use of formal contracts. As Dixit (2003) showed, when the distance or heterogeneity of a business group becomes large enough, a tipping point based upon the institutional framework present will be passed thereby the costs associated with informal networks surpass those for a rule-based governance system. This is especially pertinent when the premise of minimising transaction costs is taken into consideration.

In order to test the individual Proximity variables, especially the District Proximity variable, and their influence on the model and dependant variable, each proximity variable was regressed individually with all other test and control variables in Model 1. The District Proximity variable is found to be statistically significant (-3.1) at the 1% level and the coefficient is negative. This supports *hypothesis 1b* that informal business networks operate best in a localised environment where repeat games can be effectively monitored by the group and information costs are low. Thus, the more suppliers a firm has which are located in the same district as it, the less likely it is to utilise formal contractual arrangements. The City Proximity variable is insignificant and the coefficient negative. The ambiguity of the result may be explained by the large size of Chinese cities and the increasing heterogeneity of the business environment. Thus a mix of personal informal networks may be utilised with formal business contracts relative to the mix of clientele (suppliers) of the firm in question. The Province Proximity variable is also insignificant, though the coefficient is positive. According to Appendix A, the City, Province and Country Proximity variables all have significant correlation coefficients, and when all three are included in the model the Proximity Province is significant. The Country Proximity variable is significant and positive, and is the most robust of the proximity variables. Our hypothesis supports this result, informal networks are inefficient on their own over large spatial distances, and hence formal norms such as business contracts are required in conjunction, or perhaps even as a replacement to facilitate economic transactions. The Proximity Overseas variable remains insignificant; the ambiguity of the result has been discussed previously. The significance of the test variables held up under each regression, the coefficient signs remained the same, and their values changed little.

The Trade Credit variable is statistically significant and positive. This is to be expected as establishing credit requires formal decisions concerning terms, payment schedules, penalties etc. which are all best agreed upon and enacted via formal contracts. Furthermore, contracts protect the agreement and support enforcement of terms and the protection of a firm's right to payment or delivery. The Business Relationship variable is insignificant with respect to its test statistic, and coefficient negative. The result lends some support the hypothesis that the longer the business relationship is the less likely formal contracts are employed. This is due to the influence of the long-standing cultural norm of informal business relationships. However, the Business Relationship variable is also significantly correlated with the Line of Credit variable (0.9034*), thus motivating its inclusion. Thus we see the use of trade credit as part of the business relationship being a significant driver of firms using contractual arrangements.

The Switching Cost variable coefficient was positive but only significant at the 10% level. The result highlights to some extent that if a firm is their buyer's most important supplier, the entrenched relationship demands a formal and concise governance structure and will result in a major switching cost if it is ended prematurely. Thus formal contractual arrangements will be preferred. As noted previously, the ability of this variable to capture the presence of a switching cost is questionable, and the reliability of this variable is uncertain as it is unknown as to whether it is based on numerical data or the interpretation of the responder. Additionally, it is a categorical variable which severely limits its descriptive power.

Input Availability is also significant and the coefficient negative, as expected. As the number of suppliers increases their power relative to their customers' decreases and thus formalising the terms and conditions of a business relationship becomes less of a necessity for the buyer (responder) firm to avoid opportunistic behaviour. The test statistics for the Input Substitution and Sourcing Behaviour variables are both insignificant. However the Input Substitution and Input Availability variable pair-wise correlation coefficient is positive and significant (0.08*), likewise the Sourcing Behaviour variable is negative and significant (-0.173*), hence motivating their inclusion in the model.

The control variables Firm Age and Ownership Structure are insignificant and have a negative influence on the propensity for a firm to use contracts. The negative values are congruent with our expectations, older firms in China are more familiar with the uncertain conditions of the reform period and as such the

informal norm of conducting business via informal personal networks is more entrenched in the firm's culture. An interesting variable to interact with Firm Age would be the manager's age or whether the manager received any (western) management education. Unfortunately such information is unavailable as it could shed light on whether there is a generational or educational influence on how contracts are viewed in the Chinese business environment. Ownership Structure follows a similar rationale, government involvement usually leads to a proclivity to use such networks or have informal business relationships imposed by bureaucrats. This appears paradoxical as it is a legal requirement for firms to use contracts in their business dealings, which firms with direct links to government bodies should be the most likely to adhere to.

Governance Structure and Firm Size are both significant and have a positive effect on the propensity for firms to utilise contracts (both are significant at the 1% level as well). Firms with a BoD are often more inclined to conduct business in a formal, structured and accountable manner. Larger firms are also more likely to use contracts, as formal management and accountability structures are usually a prerequisite for a successful large firm. Appendix A highlights a significant correlation between Firm Size and the presence of a formal governance structure (BoD).

5.1.3 Robustness Testing

This section will be broken down into three sub-sections; testing the City and Sector variables individually and their effects on the model; testing without robust standard errors; and testing with a Probit model that assumes heteroscedasticity.

5.1.3.1 Section 1: City and Sector Variables

All the City variables are insignificant except City 5. City 5 gives perfect success. As there are only 21 observations concerning City 5 (Dalian), the result is therefore more attributed to a peculiarity with the data than any special factors concerning the relationship between Dalian City and formal institutions such as contracts. It should be noted that Zhengzhou, Wenzhou, Shenzhen, Nanning, Nanchang, Kunming, Haerbin, Benxi and Changchun all have negative coefficients, while Xian, Wuhan, Lanzhou, Jiangmen, Hangzhou, Guiyang, Chongqing and Changsha have positive coefficients. No theoretical explanation can be found for these results except that it may be a result of the diversities created by the decentralisation of

decision-making power to the provincial and municipal governments throughout China as part of the second reform period (initiated in 1992).[68] The potential for testing with interactions between cities is hampered due to low numbers of observations. The results of the test variables remained significant as above, and changed little in size and sign for each regression.

When all sectors are included in the regression none are significant. However, when each sector is analysed individually the following results are obtained, as shown in Table 5.2.

Table 5.2: Sector Analysis

Variable	Sector	Z-Test
Sector 1	Garment & Leather Products	Insignificant
Sector 2	Electronic Equipment	Significant
Sector 3	Electronic Parts Making	Significant
Sector 4	Household Electronics	Significant
Sector 5	Auto & Auto Parts	Significant
Sector 6	Information Technology	Significant
Sector 7	Food Processing	Insignificant
Sector 8	Chemical Products & Medicine	Significant
Sector 9	Biotech Products & Chinese Medicine	Insignificant
Sector 10	Metallurgical Products (Manufacturing & Tools)	Significant
Sector 11	Transportation Equipment (including Telecom Equipment)	Significant

The coefficients for all significant variables were positive. The majority of sectors which can be argued to involve significant investments in large-scale machinery and processing facilities (i.e. large capital costs) are those that are significant. However it is difficult to infer the relationship this has on contract use as the size and scope of firms surveyed within these categories is too great. Once again the results of the test variables proved to be robust.

5.1.3.2 Section 2: Regression without Robust Standard Errors

If Model 1 is regressed without robust standard errors the returned z-values are slightly inflated, though there is no change to the results of the variables significant at the 5% level. The Chi-squared and pseudo R-squared values remained relatively unchanged. Thus, there may be some heteroscedasticity in the model, though due to an almost nil effect of testing without robust standard errors on the results of the regression,

---

[68] Naughton, 2007.

it is difficult to infer with confidence.

5.1.3.3 Section 3: Regression Assuming Heteroscedasticity

When heteroscedasticity is present but not accounted for in a regression model, it is known to inflate z-values and thus can cause an over rejection of the null hypothesis for each variable. Running regressions with robust standard errors can account for heteroscedasticity, especially if its behaviour is unknown or even whether it is present. As seen in Section 2, the results of the model hold up when robust standard errors aren't used. However, when a Heteroscedastic Probit model (assuming all variables suffer from heteroscedasticity) is used instead, only the Firm Size variable is significant and the model rejects the null of no heteroscedasticity at the 5% level based upon the likelihood-ratio test conducted by Stata.[69] However, when each variable is tested individually, Proximity Province and Country, Business Relationship, Firm Size and Firm Age are shown to potentially suffer from heteroscedasticity and the results gained from the original Probit model are supported.[70] Unfortunately, when a Heteroscedastic Probit model is run that assumes only the aforementioned variables suffer from heteroscedasticity, the results still do not support the findings of the original model from above. Hence, further analysis of the presence and effects of heteroscedasticity in and on the original model are required. However, as we are theoretically interested in how the independent variables affect the probability of contract use by manufacturing firms, and not in how the variance in this probability arises, we can treat heteroscedasticity as a nuisance factor and use robust standard errors for the empirical analysis.[71]

5.2 Regression Analysis: Data Sub-Set 2 (Responder-Supplier Input 2)

Model 2, using data-sub-set 2 (input-2) returns similar results as those gained for Model 1 using data sub-set 1 (input 1), yet there are some small differences. The results are presented in Table 5.3; with those for the City and Sector variables excluded as most are insignificant: City 5 – Dalian and Sector 8 – Chemical Products and Medicine were dropped as per reasons stated above; Sector 2 (Electronic Equipment) and Sector 5 (Auto and Auto Parts) were significant and had positive coefficients. The size of

---

[69] The use of this test result to determine whether or not heteroscedasticity is present was taken from: Thomas Cornelißen, "Standard Errors of Marginal Effects in the Heteroscedastic Probit Model", *Discussion Paper 320*, University of Hannover, August 2005.

[70] It should be noted that the Firm Size, Firm Age and Business Relationship variables are logarithms of the original data, which is known to help eliminate the presence of heteroscedasticity.

[71] Scott J. Long, *Regression Models for Categorical and Limited Dependent Variables* (London: Sage Publications, 1997).

the Input Availability, Country Proximity, and Trade Credit variables changed little, their coefficient signs remained positive and negative as per data sub-set 1, and their z-values were all significant. The Province Proximity and Switching Cost variables are almost significant at the 5% level.

When tested individually, the Proximity variables gave results as per those obtained for Model 1, which further adds credence to *hypotheses 1a* and *1b*, except that the Province Proximity variable was insignificant on all accounts, though its explanatory power increased when the City and Country Proximity variables were included (and was significant at the 10% level). The signs and sizes of the coefficients for the remaining variables did not change. The Chi-squared and pseudo R-squared values also remained similar to those for the regression for Model 1. Furthermore the ROC-area was 0.7732 (the graph has been excluded for brevity). Hence, again the test variables support the hypotheses and the results describe that the costs associated with relationship-specific information, monitoring and enforcement warrant the utilisation of formal contracts over an informal governance structure. The results gained using the data sub-set for input 2 (second most important input) support those obtained for input 1 (first most important input).

Table 5.3: Regression Results of Model 2 with Robust Standard Errors – Input 2

Variables	Coefficient	Z-Test Statistic
Firm Age	-0.12629	-1.49
Ownership Structure	-0.00097	-0.57
Governance Structure	0.36987	2.72***
Firm Size	0.16729	4.86***
Proximity City	0.00399	1.35
Proximity Province	0.00588	1.88*
Proximity Country	0.00787	2.98***
Proximity Overseas	0.00241	0.55
Trade Credit	0.36821	2.66***
Business Relationship	0.00251	0.03
Switching Cost	0.00332	1.91*
Input Availability	-0.00889	-3.45***
Input Substitution	0.00019	1.17
Sourcing Pattern	0.00017	0.08
Constant Term	-0.97467	-2.51**

Dependant variable is whether or not a firm generally uses contracts

* Significant at 10% level   ** Significant at 5% level   *** Significant at 1% level

The Model 2 results of the test variables gained above hold up under robustness testing. However some significant differences regrading the significance levels for the City and Sector variables were observed. With regard to the sector variables, although the results for the test variables changed little and thus the above results held up under testing, only sector 14 was significant. None of the City variables were significant and their coefficient signs were the same as for robustness testing for Model 1. Likewise the test and control variables remained unchanged. These results have been excluded for brevity.

If Model 2 is regressed without robust standard errors, the z-test values change little and in some cases are lower than when robust standard errors are used. This result lends support to the assumption that the model does not suffer from heteroscedasticity. Model 2 returns similar results as witnessed in the testing of heteroscedasticity for Model 1 when all variables are assumed to have heteroscedasticity and regressed with a Heteroscedastic Probit model. After testing each variable individually, the City, Province and Country Proximity, Input Availability, and Trade Credit variables were found to suffer from heteroscedasticity. When a Heteroscedastic Probit Model was run with only those variables assumed to be heteroscedastic, Firm Size, Governance Structure and Trade Credit variables where found to be significant, however neither the Input Availability, Province or Country Proximity variables were. As previously found, testing with and without robust standard errors indicated that these variables did not suffer from heteroscedasticity, but the results of the tests conducted in this section indicate that this may not be the case. However, as discussed previously, these results do not affect the overall objective of this paper, the model or variables used and furthermore the results can still form the basis for empirical analysis.

5.3 Regression Analysis: Data Sub-Set 3 (Responder-Buyer)

Model 3, that which accounts for the responders' relationship with their buyers (data sub-set 3), was regressed using a Probit model with all test and control variables included (as per the previous two models). In this case, the Sector 8 (Chemical Products and Medicine) dummy variable perfectly predicted success and was dropped. The Sector 11 (Transportation Equipment) variable was the only Sector variable with a significant test-statistic (-2.49), however the coefficient was negative. No City variables were significant. The results, excluding city and sector variables, are detailed in Table 5.4 below. Furthermore, the District Variable was also excluded, as above, due to multicollinearity with the other Proximity variables, and will

be included in a subsequent test in order to make an empirical analysis of *hypothesis 1b*.

Table 5.4: Regression Results of Model 3 with Robust Standard Errors - Buyer

Variables	Coefficient	Z-Test Statistic
Firm Age	-0.06566	-0.98
Ownership Structure	-0.00081	-0.65
Governance Structure	0.26999	2.62***
Firm Size	0.07132	2.96***
Proximity City	0.00251	1.32
Proximity Province	0.00389	1.88*
Proximity Country	0.00808	4.11***
Proximity Overseas	0.00098	0.45
Trade Credit	0.24427	2.51**
Market Competition	0.00171	1.36
Supplier Base	-0.00464	-0.12
Switching Cost	0.00239	1.98**
Constant Term	0.21521	0.73

Dependant variable is whether or not a firm generally uses contracts

* Significant at 10% level   ** Significant at 5% level   *** Significant at 1% level

5.3.1 Results: Model

The Chi-squared test ($\chi 2$: 66.2) and p-value (0) indicates the model is statistically significant. The number of observations used was 1,559, which is double that for the previous two models. The pseudo-$R2$ is 0.1 with a p-value of zero, which although significant, does not explain as much as our previous models. It's descriptive power however is supported by the ROC which is presented below in Figure 5.2, and has an area of 0.7089, less when compared to those for data sub-sets 1 and 2, but still significant.
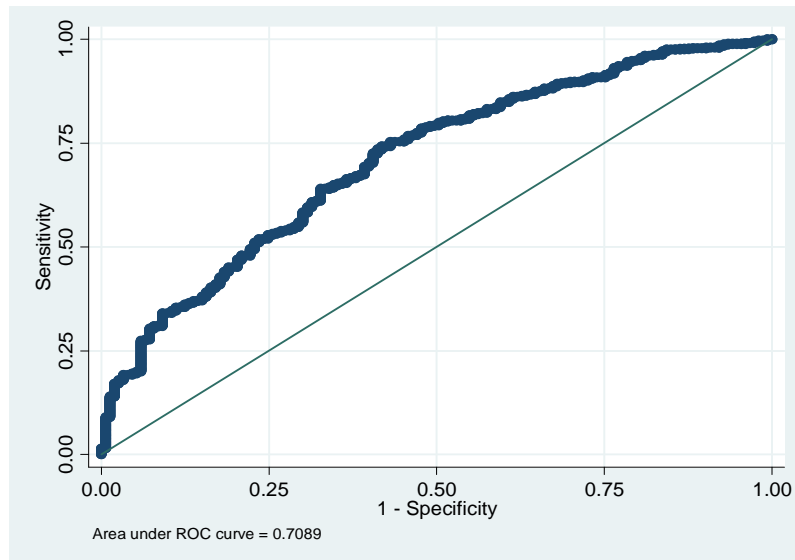
Figure 5.2: ROC Data Sub-Set 3

5.3.2 Results: Variables

The result of the Model 3 regression for the Country Proximity variable is significant and positive, and the Province Proximity variable is positive and significant at the 10% level. These results support those gained above for the responder-supplier relationship. Likewise, the City and Overseas Proximity variables are insignificant. These results give further credence to the hypothesis that the distance between two firms engaged in a business relationship will have an effect on their propensity to use contracts in order to reduce transaction costs and protect their respective property rights.

The results for the responder-buyer relationship in terms of testing the Proximity variables individually are similar to those obtained for the responder-supplier relationship. The District Proximity variable is significant (-3.16) and negative, thus the more buyers a firm has in the same locale as themselves the less inclined they are to utilise contracts. The City Proximity variable is insignificant but negative however, and as above, is perhaps a reflection of the heterogeneous nature of business environments among and within cities. The Province Proximity variable is significant at the 10% level and positive, as in the previous two data sub-sets, and the Country Proximity variable is significant (3.65) and positive, likewise the most robust of the proximity variables. As in Appendix A, Appendix B highlights the high degree of collinearity between the proximity variables. However, when the Province and Country Proximity variables are included together, the Province Proximity variable is still insignificant (unlike data sub-set 1) yet improves

in terms of its explanatory power. The Overseas Proximity variable is insignificant and negative. These results further support *hypotheses 1a* and *1b* and the results obtained from Models 1 and 2, that the distance between supplier and buyer will have a significant effect on their propensity to use contracts. The significance and results of the other test and control variables held up throughout.

The Trade Credit variable is statistically significant and positive as expected; firms that offer trade credit are more inclined to enshrine the relationship and govern it through formal contractual arrangements. The Market Competition and Supplier Base variables are both insignificant, however the Market Competition coefficient is negative and the supplier base positive. The result of the Market Competition variable, although insignificant, supports our hypothesis that the more competitors a firm has, the more power their buyers will have. This is also supported by the Supplier Base variable hence motivating their inclusion in the model. The Switching Cost variable is also significant and positive, adding credence to the corresponding hypothesis that a transaction-specific investment (by way of unique product specification) will drive firms to engage in formal contractual arrangements. Such an arrangement, supported by the institutional environment, will allow firms to better monitor the transaction at hand, protect their investment and subsequently realise its full potential.

The Trade Credit and Market Competition variables have significant correlation coefficients with the dependant Contract variable, however the Supplier Base variable does not. This is also true for the Supplier Base variable's pair-wise correlation coefficients for Market Competition and Trade Credit (which are also insignificant), lending support to the findings of the above regression analysis. However, we would expect to see a degree of correlation and a significant z-test statistic based upon our results from the previous two data sub-sets. This isn't the case, and further investigation is warranted as to ascertain why this is so. The most obvious factor may be that the actual variable used only accounts for how many other suppliers the *largest* buyer of the responder firm uses. Hence, this variable may not fully capture the true situation. Nonetheless, no other data was available in the survey to account for the number of other suppliers all the responders' buyers use. As in the previous two data sub-sets for Supplier Proximity, the Buyer Proximity variables are significantly correlated with one another and with the dependant and control variables, as well as the Market Competition and Trade Credit variables here. This also lends support to the results of the above regression.

The control variables Firm Age and Ownership Structure are insignificant and have a negative influence on the propensity for a firm to use contracts. This result is similar to those obtained for Models 1 and 2, which concerned a firm's relationship with their suppliers. The negative values are also congruent with our expectations. Governance Structure and Firm Size were both significant and have a positive effect on the propensity for firms to utilise contracts (both are significant at the 1% level as well).

5.3.3 Robustness Testing

5.3.3.1 Section 1: City and Sector Variables

Benxi (-3.51) and Zhengzhou (-2.94) are the only two City variables that are significant. Both are negative implying an aversion to the use of contracts. The remaining City variables are all insignificant, with Wenzhou, Chongqing (previously positive), Guiyang (previously positive), Shenzhen, Nanning, Nanchang, Kunming, Hangzhou (previously positive), Haerbin, and Changchun all giving negative coefficients, while Dalian, Xian, Wuhan, Lanzhou, Jiangmen, and Changsha returned positive coefficients. These results are generally similar to those obtained previously, with Benxi and Zhengzhou the standout variables. Once more, no theoretical explanation can be found to conclusively support these results. Likewise the test variables remained significant and changed little in sign and size during the regressions.

When all sectors are included in the regression only Sector 11 is significant. However, when each sector is analysed individually the following results are obtained, as shown in Table 5.5.

Table 5.5: Sector Analysis

Variable	Sector	z-test
Sector 1	Garment & Leather Products	Insignificant
Sector 2	Electronic Equipment	Insignificant
Sector 3	Electronic Parts Making	Insignificant
Sector 4	Household Electronics	Insignificant
Sector 5	Auto & Auto Parts	Insignificant
Sector 6	Information Technology	Insignificant
Sector 7	Food Processing	Insignificant
Sector 8	Chemical Products & Medicine	Insignificant
Sector 9	Biotech Products & Chinese Medicine	Insignificant
Sector 10	Metallurgical Products (Manufacturing & Tools)	Insignificant
Sector 11	Transportation Equipment (including Telecom Equipment)	Significant

The results obtained here differ radically to those of Model 1 but match those obtained for Model 2. Once more, only Sector 11 (Transportation Equipment) is significant. This may be due to differences in the relationship between the responder and their purchasers than that of their suppliers, especially if the main market is retail (or that their buyers are retailers). Further investigation of these results is warranted, however, the information to do so is lacking within the survey. Similarly, the test and control variables remained significant and changed little in sign and size during each regression.

5.3.3.2 Section 2: Regression without Robust Standard Errors

As occurred when testing Model 2, testing without robust standard errors for Model 3 returns z-values almost identical to those obtained when testing with robust standard errors. The Chi-squared and pseudo R-squared values also remained relatively unchanged. This result, as with that which was observed for Model 2, supports the assumption that the variables do not suffer from heteroscedasticity.

5.3.3.3 Section 3: Regression Assuming Heteroscedasticity

As seen in the results of Section 2, the model holds up when robust standard errors aren't used. If a Heteroscedastic Probit model is used (assuming heteroscedasticity for all dependant variables) instead, none of the variables are significant. However, the likelihood-ratio test gives a Chi-squared value of 13.11 and p-value of 0.158, which indicates the null hypothesis of no heteroscedasticity cannot be rejected at the 10% level. This test was also conducted for all variables individually, none of which could reject the null hypothesis of no heteroscedasticity. Despite this result which indicates heteroscedasticity is not present, like those for Models 1 and 2, cross-sectional data is known for exhibiting heteroscedasticity. Therefore, further analysis of the presence and effects of heteroscedasticity in and on the original Models (1, 2 and 3) may be required.

Section 6: Discussion and Conclusions

Have the pressures of a global business culture which supports contractual arrangements and a level of business development – typified by specialisation and division of labour – unprecedented in Chinese history, caused the adoption of contracts as a formal institution? Concurrently, has the informal institutional framework adjusted according to these changes to support formal contractual arrangements? Furthermore, have weaknesses in the informal institutions governing business relationships led to a shift in firm behaviour as a result of an exogenous change (i.e. Contract Law) that is self-reinforcing? The results gained from the empirical analysis conducted in Section 5 indicate that this shift is indeed in transition, although it is very difficult to argue that a complete transformation has occurred. The formal institutional structure has changed significantly and the informal norms that permeate throughout this framework are adjusting, albeit slowly, to support these changes. China's membership into the WTO and the reforms pre- and post-accession, especially the legislation of the new Contract Law, has changed the institutional framework and thus the parameters that govern economic relationships within the Chinese business environment. According to a vast body of research conducted on Chinese businesses, in particular inter-firm business relationships and informal networks, the Chinese business environment is argued to take strength from these informal business networks due to the ineffectiveness of more formal governance structures. However, China's continued integration into the ever increasingly globalised business environment has created factors that the more traditional governance and networking systems cannot efficiently deal with. Concurrently, further market-based reforms to the formal institutional environment, led by the new Contract Law, have redefined the formal institutional framework and thus forced firms to adapt to these changes in order to take advantage of the new 'rules of the game'. This in turn has subsequently influenced the informal institutional structure. A dynamic description of the scale and scope to which this has occurred cannot be made from the evidence gained above, however some of the pieces are now available and offer a static picture of the dynamic process that is underway.

This paper focused on four key elements of business relationships and the environment they take place in for the manufacturing sector in China. By no means are they a comprehensive overview of this environment; however they do afford an interesting glimpse of behavioural patterns and characteristics

present during the survey period, i.e. 2003. The four factors were the relative distance between firms conducting business with one another, the use of trade credit, the presence of switching costs (based on transaction-specific investments) as a part of the business relationship, and a firm's relative market power. In addition, the use of three models based on three data sub-sets taken from the original data set has afforded an opportunity to make comparisons across these sub-sets in order to investigate whether there is a general pattern in the results gained for each sub-set.

The Proximity hypotheses (1a and 1b) state that the greater the distance between buyer and supplier the more likely formal contractual arrangements will be utilised. The premise being that the costs associated with efficiently and effectively monitoring behaviour and acquiring related information concerning the transaction and specific business partners increase with distance. Thus, if these costs are borne solely by an informal institutional framework, which will typically involve a mix of self and informal third-party enforcement mechanisms, the efficiency and effectiveness will be greatly reduced as it is the individual firms who must bear them. However, a reliance on a formal institutional framework, despite the high initial fixed costs, will offer better efficiency and effectiveness in terms of monitoring and information costs and consequently better protection of property rights. Furthermore the opportunity to capitalise on minimising transaction costs will be a significant motivation. That is not to say that the informal institutional framework becomes obsolete, merely that it will support the formal institutional governance structures that act as the pillars of the relationship. For, as Granovetter (1985) argues, economic actions are embedded in social norms; the former does not occur in isolation of the later. This paper found that the greater the distance between supplier and buyer, for all models, the higher the propensity for the firms to engage in contractual arrangements.

The Trade Credit hypothesis (2) states that the use of trade credit as part of the transactions that characterise the business relationship between two firms will lead to a deference toward the use of formal contracts. Trade credit offers a means for firms to maintain higher levels of liquidity and better utilise cash resources, especially where loans are difficult to obtain. When trade credit is offered, firms typically use contracts in order to formalise the details of payment, penalties, interest rates etc. When a legal system that enforces such arrangements is present, and when the costs of enforcing such an arrangement informally are high due to spatial distance or market size, formal contracts offer an efficient means of credit arrangement.

This paper found that the offering of trade credit is a significant determinant of whether a firm also employs contracts to govern their business relationships.

Hypothesis 3 articulates that a business relationship typified by the presence of a switching cost will see deference to the use of formal contractual arrangements. When a firm makes a transaction-specific investment, the need to guarantee the ability to obtain all possible rents from the investment through the business relationship is high. However, so too is the possibility that the business relationship can end prematurely if only one firm in the relationship is required to do so. When both firms make such an investment a formalised arrangement, such as a contract, which dictates the terms and conditions of the transaction(s) will be sought after by both parties. This arrangement will ultimately protect the property rights of both parties and consequently contribute to minimising the costs of the transactions at hand. However if only one firm makes such an investment, such an arrangement is particularly vital. The need for this firm to ensure the full potential return on their investment is paramount, which a formal contractual arrangement can secure and enforce. The results above highlight that the presence of switching costs in a business relationship will see an adoption of contractual arrangements to secure the right of return on the investment. Although informal networks may prove sufficient, the costs involved in terms of monitoring and enforcement are significantly high such that to do so would be a deterrent to making the investment in the first place. Thus formal contractual arrangements support firms making a transaction-specific investment by diluting the uncertainties concerning the protection of their property rights and their ability to realise the full potential return on investment.

Hypothesis 4 states that the relative power of a firm to its suppliers and buyers in a given market will influence whether or not a firm is likely to utilise contracts as part of their business relationships. The ability of firms to behave opportunistically, based on their relative size and concentration within a market, is the determining factor here. When a firm's suppliers or buyer are larger and more concentrated they consequently will possess an advantage in terms of information concerning the multitude of business relationships within the market, as well as the ability to 'bully' suppliers or customers through price collusion, hold-ups or the threat of terminating the transaction; thus they have a bargaining advantage. In such a case, firms potentially exposed to such behaviour will seek to formalise their relationships with the stronger positioned firms, and thus secure the life of the relationship and avoid the potential for

opportunistic behaviour by their counterparts. The results of the analysis conducted above show that when the number of suppliers a firm uses is small, especially so when the total number in the market is similarly few, formal contracts will be used to secure the business relationship, thereby offering a degree of leverage to those firms in the weaker position and thus protecting them to some extent from opportunistic behaviour.

Although the results at hand bode well for the hypothesis that contractual arrangements are being utilised by firms in the Chinese manufacturing industry, the lack of specificity concerning the dependant variable is most problematic. The articulation of a general adaptation of contract use in the line of questioning greatly reduces the reliability of these results. However, given that a general consensus among the three data sub-sets was found, further studies using more precise data would be beneficial to the investigation of contractual arrangements and formal institutions in the Chinese business environment.

The results of the empirical analysis are interesting with regard to their indication that contractual arrangements are utilised more than common perception would indicate, especially when seen in the light of minimising transaction costs and the interplay between the formal and informal institutional frameworks. With continued improvements to the reliability and efficiency of China's formal economic and business governance structures, the adoption of business process and behavioural patterns that maximise gains and minimise costs will be made by players within the economic arena. The effects of pressures for specialisation and division of labour, in concert with the Chinese governments drive to consolidate state-owned enterprises and achieve economies of scale, will continue to test the limits of informal governance structures, especially on their own, and consequently mould them according to the dictums of the formal institutional framework. Informal networks and their related institutional norms will continue to serve a purpose and evolve with the changing socio-economic environment. However, the implications of China's formal institutional framework must be accounted for in terms of its relation to its informal counterpart, and as primary determinant of the 'rules of the game'.

Bibliography

Allen, Douglas W. "Transaction Costs." In *Encyclopedia of Law and Economics*, edited by B. Boukaert and G. De Geest (0740) 893-926. Cheltenham: Edward Elgar Publishing, 1999.

Alston, J.P. "*Wa, Guanxi, and Inhwa*: Managerial Principles in Japan, China, and Korea." *Business Horizons* 32:2 (1989): 26-31.

Aoki, Masahiko. *Comparative Institutional Analysis*. Cambridge, MA: MIT Press, 2001.

Brousseau, Eric, and Jean-Michel Glachant. "Chapter 1: The Economics of Contracts and the Renewal of Economics." In *The Economics of Contracts-Theories and Applications*, edited by Eric Brousseau & Jean-Michel Glachant, 9-29. Cambridge: Cambridge University Press, 2002.

Burkart, Mike and Tore Ellingsen. "In—Kind Finance: A Theory of Trade Credit." *American Economic Review* 94 (2004): 569-90.

Cook, Karen and Richard M. Emerson. "Exchange Networks and the Analysis of Complex Organizations." *Sociology of Organizations* 3 (1984): 1-30.

Cornelißen, Thomas. "Standard Errors of Marginal Effects in the Heteroscedastic Probit Model." *Discussion Paper 320*. University of Hannover, August 2005.

Demirguc-Kunt, Asli and Vojislav Maksimovic. "Firms as Financial Intermediaries: Evidence from Trade Credit Data." *Working Paper*. University of Maryland, 2002.

Dieleman, M. and W. Sachs. "Oscillating Between a Relationship-Based and a Market-Based Model: The Salim Group." *Asia Pacific Journal of Management* 23:4 (2006): 521–536.

Dixit, Avinash. "Trade Expansion and Contract Enforcement." *Journal of Political Economy* 111:6 (2003): 1293-1317.

Gow, H.R. and J.F.M. Swinnen. "Private Enforcement Capital and Contract Enforcement in Transition Economies." *American Journal of Agricultural Economics,* 83:3 (2001): 686-90.

Gow, H.R., D.H. Streeter and J.F.M. Swinnen. "How Private Contract Enforcement Mechanisms Can Succeed Where Public Institutions Fail: The Case of Juhocukor A.S." *Agricultural Economics* 23 (2000): 253–265.

Granovetter, Mark. "Economic Action and Social Structure: The Problem of Embeddedness." *American Journal of Sociology* 91:3 (1985): 481-510.

Greif, Avner. "Informal Contract Enforcement Institutions: Lessons from Late Medieval Trade." In *New

Palgrave Dictionary of Economics and the Law, edited by Peter Newman. London: Macmillan Press, 1998.

Greif, Avner. "Contracting, Enforcement, and Efficiency: Economics Beyond the Law." In *Annual World Bank Conference on Development Economics*, edited by Michael Bruno and Boris Pleskovic, 239-66. New York: World Bank, 1997.

Greif, Avner. "Political Organizations, Social Structure, and Institutional Success: Reflections from Genoa and Venice During the Commercial Revolution." *The Journal of Institutional and Theoretical Economics* 151:4 (1995): 734-41.

Greif, Avner. "Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders' Coalition." *American Economic Review* 83:3 (1993): 525-48.

Greif, Avner and David D. Laitin. "A Theory of Endogenous Institutional Change." *American Political Science Review* 98:4 (2004): 633-52.

Greif, Avner, Paul Milgrom and Barry R. Weingast. "Coordination, Commitment, and Enforcement: The Case of the Merchant Guild." *The Journal of Political Economy* 102:4 (1994): 745-776.

Grossman S.E. and O.D. Hart. "The Costs and Benefits of Ownership: A theory of Vertical Integration." *Journal of Political Economy* 94 (1986): 691–719.

Guthrie, D. *Dragon in a Three-Piece Suit: The Emergence of Capitalism in China*. Princeton, NJ: Princeton University Press, 2001.

Hall, R.H. and W. Xu. "Run Silent, Run Deep - Cultural Influences on Organizations in the Far East." *Organization Studies* 11 (1990): 569-576.

Hart, O.D. and J.M. Moore. "Foundations of Incomplete Contracts." *Review of Economic Studies* 66:1 (1999): 115–39.

Hendrischke, H. & C. Feng. ed. *The Political Economy of China's Provinces: Comparative and Competitive Advantage*. London: Routledge, 1999.

Hofstede, Geert. *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations*, 2nd edition. Sage Publications: California, 2001.

Holmström, Bengt. "Moral Hazard and Observability." *Bell Journal of Economics* 10 (1979): 74–91.

Jacobs, J.B. "The Concept of *Guanxi* and Local Politics in a Rural Chinese Cultural Setting." In *Social Interaction in Chinese Society*, edited by S. L. Greenblatt, R. W. Wilson and A. A. Wilson, 209-236. New York: Praeger, 1980.

Jenkinson, Tim and Colin Mayer. "The Assessment: Contracts and Competition." *Oxford Review of Economic Policy* 12:4 (1996): 1-10.

Klein, Benjamin. "Chapter 4: The Role of Incomplete Contracts in Self-Enforcing Relationships." In *The Economics of Contracts-Theories and Applications*, edited by Eric Brousseau & Jean-Michel Glachant, 55-68. Cambridge: Cambridge University Press, 2002.

Klein, Benjamin. "Transaction Cost Determinants of 'Unfair' Contractual Arrangements." *The American Economic Review* 70:2 (1980): 356-362.

Lau, Lawrence, Yingyi Qian and Gérard Roland. "Reform Without Losers: An Interpretation of China's Dual-Track Approach to Transition." *Journal of Political Economy* 108:1 (2000): 120-43.

Lin, Justin Yifu, Fang Cai and Zhou Li. "The Lessons of China's Transition to a Market Economy." *Cato Journal* 16:2 (1996): 201-31.

Leung, T. and L.L. Yeung. "Negotiation in the People's Republic of China: Results of a Survey of Small Business in Hong Kong." *Journal of Small Business Management* 33:1 (1995): 70-77.

Lockett, M. "Culture and Problems of Chinese Management." *Organization Studies* 9 (1988): 475-496.

Long, Scott J. *Regression Models for Categorical and Limited Dependent Variables*. London: Sage Publications, 1997.

Macaulay, Stewart. "Non-Contractual Relations in Business: A Preliminary Study." *American Sociological Review* 28:1 (1963): 55-67.

Malin, Eric, and David Martimort. "Chapter 10: Transaction Costs and Incentive Theory." In *The Economics of Contracts-Theories and Applications*, edited by Eric Brousseau & Jean-Michel Glachant, 137-154. Cambridge: Cambridge University Press, 2002.

Masten, S.E. "Contractual Choices." In *Encyclopedia of Law and Economics*, edited by B. Boukaert and G. De Geest. (4100) 25-45. Cheltenham: Edward Elgar Publishing, 1999.

Millington, Andrew, Markus Eberhardt and Barry Wilkinson. "Guanxi and Supplier Search Mechanisms in China." *Human Relations* 59:4 (2006): 505-31.

Mo, Zhang. "Choice of Law in Contracts: A Chinese Approach." *Northwestern Journal of International Law & Business* 26:2 (2006) 289-333.

Mo, Zhang. "Freedom of Contract with Chinese Characteristics: A Closer Look at China's New Contract Law." *Temple International and Comparative Law Journal* 14:2 (2000): 237-62.

Naughton, Barry. *The Chinese Economy: Transitions and Growth*. MIT Press: Massachusetts, 2007.

Nee, Victor. "Norms and Networks in Economic and Organizational Performance." *American Economic Review* 88:2 (1998): 85-89.

Nee, Victor. "Organizational Dynamics of Market Transition: Hybrid Forms, Property Rights, and Mixed Economy in China." *Administrative Science Quarterly* 37:1(1991): 1-28.

Nielson, Charles C. "An Empirical Examination of Switching Cost Investments in Business to Business Marketing Relationships." *Journal of Business and Industrial Marketing* 2 (1996): 38-63.

North, Douglass. *Understanding the Process of Economic Change*. Princeton and Oxford: Princeton University Press, 2005.

North, Douglass. "Institutions." *The Journal of Economic Perspectives* 5:1 (1991): 97-112.

North, Douglass. *Institutions, Institutional Change and Economic Performance*. Cambridge University Press: Cambridge, 1990.

North, Douglass. "Institutions, Transactions Costs and Economic Growth." *Economic Inquiry* 25:3 (1987): 419-28.

Nolan, Peter. *China's Rise, Russia's Fall: Politics, Economics and Planning in the Transition from Stalinism.* Basingstoke: Macmillan, 1995.

Peng, M.W. "Institutional Transitions and Strategic Choices." *Academy of Management Review* 28:2 (2003): 275–296.

Porter, Michael .E. *Competitive Strategy*. The Free Press: New York, 1980.

Salanié, B. Contract Theory: A Primer. MIT Press: Cambridge, MA, 1999.

Saussier, Stéphane. "Transaction Costs and Contractual Incompleteness: The Case of Électricité de France." *Journal of Economic Behavior & Organization* 42 (2000): 189-206.

Scogin Jr, Hugh T. and Brett D. Braude. "New Contract Basics." *The China Business Review* Washington: Jan/Feb 26:1 (1999): 36-42.

Scott, W.R. *Institutions in Organizations*. Thousand Oaks, CA: Sage Publications, 1995.

Standifird, Stephen S. and R. Scott Marshall. "The Transaction Cost Advantage of Guanxi-Based Business Practices." *Journal of World Business* 35:1 (2000): 1-42.

Trebilcock, Michael and Jing Leng. "The Role of Formal Contract Law and Enforcement in Economic Development." *Virginia Law Review* 92:7 (2006): 1517-1580.

Tirole, Jean. "Incomplete Contracts: Where Do We Stand?" *Econometrica* 67:4 (1999): 741-81.

Wang, Shengming. "The Legislative Background, Guiding Ideology and Scope of Application of the Contract Law." *China Law* 3 (1999): 54.

Weingast, Barry R. "Political Institutions: Rational Choice Perspectives." In *A New Handbook of Political Science*, edited by Robert Goodin and Hans-Dieter Klingemann. Oxford: Oxford University Press, 1996.

Williamson, Oliver. "The New Institutional Economics: Taking Stock, Looking Ahead", *Journal of Economic Literature* 38:3 (2000), 595-613.

Williamson, Oliver. *The Economic Institutions of Capitalism*. New York: The Free Press, 1985.

Williamson, Oliver. "The Economics of Organization: The Transaction Cost Approach." *American Journal of Sociology* 87:3 (1981): 548-77.

World Bank. *From Plan to Market: World Development Report 1996*. Oxford: Oxford University Press, 1996.

World Bank Enterprise Analysis Unit, from: http://www.doingbusiness.org/ExploreEconomies /?economyid=42, cited 02/06/2008.

Wu, Jinglian. *Understanding and Interpreting Chinese Economic Reform*. Singapore: Thomson, 2005.

Xiao, B., Y. Feng and E. Roche. 2005. "Uncertain Switching Costs and Purchase Decisions in Electronic Markets." *Annals of Operations Research*, 135: 179-196.

Xin, Katherine R. and Jone L. Pearce. "Guanxi: Connections as Substitutes for Formal Institutional Support." *Academy of Management Journal* 39:6 (1996): 1641-1658.

Xu, Jing. ed. *Zhonghua renmin gongheguo hetongfa* [Contract Law of the People's Republic of China]. Beijing: Law Press China, 2008.

Yang, M.M. *Gifts, Favors and Banquets: The Art of Social Relationships in China.* Cornell University Press: New York, 1994.

Yau, O.H.M. "Chinese Cultural Values: their Dimensions and Marketing Implications." *European Journal of Marketing* 22:5 (1988): 44-57.

Zelin, Madeleine, Jonathan K. Ocko and Robert Gardella, ed. *Contract and Property in Early Modern China*. Stanford: Stanford University Press, 2004.

Zhou, K.Z., L. Poppo and Z. Yang. "Relational Ties or Customized Contracts? An Examination of Alternative Governance Choices in China." *Journal of International Business Studies* 39 (2008): 526–534

Zhou, X., X. Zhao, Q. Li and H. Cai. "Embeddedness and Contractual Relationships in China's Transitional Economy." *American Sociological Review* 68:1 (2003): 75–102.

Appendix A: Correlation Coefficients for Responder-Supplier Variables (5% Significance Level)

	Contract	F. Age	F. Size	Gov. St.	BoD	District	City	Prov.	Country	O/S	Supp. B	Mkt.C.	Sour. B.	T. Crdt.	Bus. Rel	Swch C.
Contract	1															
Firm Age	-0.034	1														
Firm Size	0.226*	0.269*	1													
Gov. St.	0.005	0.413*	0.261*	1												
BoD	0.18*	-0.285*	0.188*	-0.2960*	1											
District	-0.166*	0.015	-0.118*	0.0068	-0.105*	1										
City	-0.079*	0.0383	-0.125*	0.0178	-0.147*	-0.2333*	1									
Province	-0.023	-0.002	-0.006	0.0017	-0.011	-0.2242*	-0.243*	1								
Country	0.198*	-0.013	0.131*	0.03	0.141*	-0.3946*	-0.457*	-0.247*	1							
O/S	0.0605*	-0.066*	0.168*	-0.1047*	0.181*	-0.1384*	-0.194*	-0.119*	-0.1286*	1						
Supplier B	-0.005	0.021	0.015	-0.0119	0.044	0.0157	-0.014	0.004	0.0096	-0.021	1					
Mkt. Comp.	-0.03	-0.022	-0.015	-0.0236	0.052	0.0354	-0.026	0.078*	-0.0549	-0.006	0.0800*	1				
Sourcing B	0.034	-0.004	0.072*	0.0262	-0.006	-0.0114	-0.042	-0.0335	0.0302	0.063*	-0.1729*	-0.0628	1			
T. Credit	0.102*	-0.034	0.203*	-0.0176	0.13*	-0.0649*	-0.021	-0.08*	0.0710*	0.094*	0.0074	0.0121	0.0132	1		
Bus. Rel.	0.085*	0.199*	0.202*	0.1205*	0.034	-0.0641*	-0.100*	0.016	0.0861*	0.062*	0.0256	0.0325	0.067*	0.0571*	1	
Switch. Cost	0.111*	-0.092*	0.212*	-0.0334	0.131*	0.032	-0.087*	-0.031	0.0331	0.071*	0.0233	0.0212	0.0273	0.1444*	0.1276*	1

Appendix B: Correlation Coefficients for Responder-Buyer Variables (5% Significance Level)

	Contract	F. Age	F. Size	Gov. St.	BoD	District	City	Prov.	Country	O/S	T. Credit	Mkt. C.	Supplier B.	Swch C.
Contract	1													
Firm Age	-0.0826*	1												
Firm Size	0.0953*	0.2685*	1											
Gov. St.	-0.0695*	0.4129*	0.2612*	1										
BoD	0.1651*	-0.2846*	0.1879*	-0.2960*	1									
District	-0.1379*	0.007	-0.1116*	0.0479*	-0.1189*	1								
City	-0.0699*	-0.0057	-0.1743*	0.0164	-0.1325*	-0.1914*	1							
Province	0.0375	-0.0035	-0.0902*	0.0017	-0.0470*	-0.2514*	-0.1702*	1						
Country	0.1370*	0.0314	0.2371*	0.0292	0.1389*	-0.3607*	-0.4185*	-0.2342*	1					
O/S	0.0203	-0.0402	0.1104*	-0.1175*	0.1613*	-0.1867*	-0.2454*	-0.2289*	-0.1793*	1				
T. Credit	0.1039*	-0.0371	0.0960*	-0.0537*	0.1196*	-0.0694*	-0.0909*	0.0048	0.1242*	0.0155	1			
Mkt. Comp.	0.0201	-0.0103	0.0796*	-0.0113	0.038	-0.0116	-0.0071	0.0001	0.025	-0.0132	-0.0263	1		
Supplier B.	-0.0441*	0.0187	-0.2220*	-0.0048	-0.1581*	0.0701*	0.1450*	0.1132*	-0.2569*	-0.0291	-0.0482*	0.0402	1	
Switch. Cost	0.0591*	-0.0517*	-0.0711*	-0.0908*	0.0179	0.0234	-0.0339	-0.0634*	-0.0981*	0.2097*	0.0068	-0.0279	-0.026	1