EMBEDDEDNESS AND CONTRACTUAL RELATIONSHIPS IN CHINA'S TRANSITIONAL ECONOMY

XUEGUANG ZHOU
Duke University

WEI ZHAO
Duke University

QIANG LI
Tsinghua University

HE CAI
Zhongshan University

Interfirm contracts represent common economic relations in the marketplace; they are also deeply embedded in social relations and social institutions. In the context of China's transitional economy, this study examines how three mechanisms—economizing transaction costs, network-based social relations, and institutional links—affect interfirm contractual relationships in (1) the choice of search channels for contractual partners, (2) the formality and provisions in a contract, and (3) the intensity of social interaction in contract implementation. Empirical evidence is drawn from information collected on 877 contracts from 620 firms in two Chinese cities, Beijing and Guangzhou. The authors find distinct roles of social relations, institutional links, and regulatory environments in the initiation of contractual partners and the forms of contracts adopted, whereas transaction-specific factors play a significant role in the intensity of social interaction in contract implementation. These findings suggest the interplay among economic calculativeness, social networks and institutional links, and the complementarity in the underlying theoretical ideas.

INTERFIRM CONTRACTS represent durable, bilateral economic relations that are prevalent across markets, economic arenas, and societies. Such contracts specify, in the most transparent form, an anticipated *economic* transaction—a purchasing order, a lease, or an agreement of service to be provided, with specified deadline, quality, and price—agreed upon voluntarily between the economic actors. Without the anticipated *economic* exchanges, there is no need for contracts to establish and maintain such bilateral relationships between firms. In this sense, contractual relationships are the most crystallized economic relations common in the marketplace.

On the other hand, as Macaulay (1963) showed, contractual relationships in business are often carried out and maintained not on a legal basis but through informal social relations. These observations highlight several key and unresolved issues in explaining the embeddedness of economic actions in social relations. For example, Macaulay uncovered widely shared norms and expectations that circumscribe appropriate business practices. But where do these norms come from? Are they sustained by economic incentives that can be explained by an economic logic in anticipation of future returns (e.g., the reputation effect)? Or are they based on social processes outside the immediate realm of eco-

Direct all correspondence to Xueguang Zhou, Department of Sociology, Duke University, Durham, NC 27708 (xzhou@soc.duke.edu). We thank Lisa Keister, Nan Lin, Mark Mizruchi, Ezra Zuckerman, and the *ASR* reviewers and Editors for their helpful comments. This project is supported in part by a grant from the CCK Foundation and by research funds from Duke University to the first author.

nomic transactions? A more general question is: To what extent, and in what manner, do social relations affect economic transactions?

We examine how social relations and institutions affect durable, bilateral economic transactions in the form of interfirm contracts. Our study contributes to embeddedness argument in two ways: First, we enrich the "embeddedness" idea by not only considering network-based social relations, like those emphasized by Granovetter (1985), but also by explicitly incorporating and demonstrating the role of institutional arrangements as an important basis for economic relations. Second, we sharpen the analytical power of the concept of embeddedness by considering and contrasting transaction cost–based, social relation–based, and institution-based mechanisms. In so doing, we direct attention to the specific forms and conditions within which economic actions are embedded in social processes.

We examine the transitional economy in the People's Republic of China. Since the 1980s, China has been undergoing fundamental institutional transformations. Along with these changes, firms that used to be controlled by the command economy now engage in market transactions. The active role of the Chinese state and local governments, the variety of forms and property-right ownerships among firms, the institutional legacies of the command economy, the emergence of market institutions, and the prevailing clientele-based social relations in the prereform and reform eras all provide a rich institutional context to theorize about and empirically study interfirm contracts in a transitional economy (Bian 1997; Guthrie 1997, 1999; Keister 1998, 2001; N. Lin 1995; Naughton 1995; Nee 1989, 1992; Oi 1999; Walder 1986, 1992, 1995).

We first identify three mechanisms underlying contractual relations and the theoretical logics in these lines of reasoning; on this basis, we derive hypotheses from these arguments by discussing their implications in China's transitional economy. Second, we report on an empirical study of contractual relationships guided by these hypotheses. Our empirical study is based on patterns of contractual relationships drawn from 877 contracts by 620 firms in two Chinese cities.

EXPLAINING CONTRACTUAL RELATIONSHIPS: THREE MECHANISMS

Contractual relationships are broadly defined as formal or informal agreements between two firms regarding a business transaction over a time span. Contracts result from the separation of time between the order and the delivery of a product or service: A contractual relationship is one particular form of economic transaction. Before we consider the specific mechanisms operating in such relationships, we highlight the characteristics of interfirm contracts as one distinct form of economic relations.

THE CONTRACTUAL RELATIONSHIP: AN ANALYTICAL FOCUS

Let us begin with the two ideal types of economic relationships popularized by Williamson (1975)—markets and hierarchies. At one extreme, markets represent economic transactions among anonymous actors guided by price. In this ideal scenario, there is little need for any relation other than the calculativeness of the transacting parties. At the other extreme, economic transactions can be internalized into formal organizations in which hierarchical authorities establish stable relationships and dictate patterns of interaction (e.g., employment relationships between managers and employees; internal transfer relations among subsidiaries). Many economic relations fall somewhere along the continuum between these two ideal types. Strategic alliance, for example, often involves interdependence and hierarchical coordination in bilateral relations (Gulati 1995b); mergers and acquisitions are shifts from interfirm market relationships (e.g., resource exchange or competition) into formal hierarchies.

An interfirm contract in our study represents a form of economic relationship that is closer to markets than to hierarchies. It differs from spot-market exchange because it often involves continuous interactions between the two contractual parties in the implementation process. It also differs from long-term interorganizational or business group relations (Baker, Faulkner, and Fisher 1998; Keister 2001; Mizruchi 1992) in that

the kinds of contracts we study involve specific resource exchanges (goods or services) through the price mechanism rather than through collaboration between firms.

As Granovetter (1985) has noted, however, seldom do economic transactions take place in an anonymous marketplace; rather, they are often "embedded" in social relations. This is particularly true in the case of contractual relationships that often involve stable interactions among individuals such that business relations are often "mixed up with" social relations and that "business relations spill over into sociability and vice versa, especially among business elites" (Granovetter 1985:495–96).

In this study, we use the contractual relationship as an analytical focus to examine how economic relations are embedded in social relations and institutions. We organize our theoretical discussions in terms of three distinct mechanisms that underlie contractual relationships: (1) economic calculativeness in the form of economizing transaction costs, (2) network-based social relations, and (3) stable institutional links. By mechanisms, we refer to plausible causal relationships that might explain the associations between observable social facts. Even when we observe the presence of social relations in business transactions—such as trust, norms, and social interactions—it remains to be explained which specific mechanisms induce and shape the role of social relations in such instances. For example, it is often observed that interpersonal friendship is present in business relations. The link between these two social facts may be due to different mechanisms: economic calculativeness, cultural norms, the presence of social networks, or some combination of these mechanisms. Seen in this light, our task is not only to identify the presence of social processes but also to explain why we observe such empirical patterns.

THREE MECHANISMS

ECONOMIZING TRANSACTION COSTS. According to the neoclassical logic, the central problem the *homo economicus* faces is that of optimization—finding the most efficient way of allocating resources to achieve his or her desired objectives (utility). This principle also guides his or her choice of contractual relationships.

Recent economic studies have focused on *the minimization of transaction costs* as a mechanism for explaining different types of contractual forms and practice. Economic activities incur transaction costs, one of which is the cost of designing contracts to deal with the complexities and unforeseen contingencies in business transactions. Contractual relationships emerge in those circumstances where economic exchanges move away from spot markets and rely on the contractual partners' commitment to promises about future actions. The contractual parties face a set of new issues: asymmetric information between the two parties, difficulties in measurement and enforcement, and consequent opportunistic behaviors. As a result, the classical model of contracts is no longer meaningful and gives way to relational contracts (Macneil 1978). As Williamson (1985) put it: "The organizational imperative that emerges in such circumstances is this: Organize transactions so as to economize on bounded rationality while simultaneously safeguarding them against the hazards of opportunism" (p. 32). In this framework, the specific forms that a contractual relationship takes depend on the transaction costs involved (e.g., transaction-specific assets) and the kinds of contractual governance or safeguards that are available.

To illustrate this line of argument, consider the kinds of transaction costs an electrical power company faces in purchasing coal. Because of transportation costs (a type of transaction cost) it is economical for the power company to locate its facilities near a coal mine. However, there is a potential "hold-up" problem in that the coal mine has an advantage in renegotiating the terms of transaction once the power company has invested in building its facilities. Both the search for an appropriate contractual partner and designing contracts for future contingencies incur enormous transaction costs. According to transaction cost economics, then, contractual relationships that emerged under these conditions should take distinct forms to minimize such costs. Indeed, as Joskow (1987) has shown, the duration of contracts between coal suppliers and electric utilities tends to be long-term—in response to rela-

tion-specific investment and potential hold-up problems (see Shelanski and Klein 1999 for a review of similar empirical studies).

To what extent does this line of argument apply to *transitional economies* like China's? Under the command economy in China, government agencies played the most important role in resource allocation; firms had low autonomy in decisions regarding production and resource exchange. But even under the command economy there were extensive, lateral transactions among firms that sought resource supplies outside of the plan (Berliner 1957; Kornai 1980; Walder 1989). As a result, considerable transaction costs were involved in resource exchanges and in interfirm relations.

Since the 1980s, all state and collective firms have gained much greater autonomy in operational decisions. Also, a variety of new types of firms emerged in China, such as private firms, foreign firms, and more recently, stock-sharing companies. More important, the nature of interfirm relations has evolved over time. Whereas in the command economy, interfirm relations were mainly among state or collective firms and were subject to close administrative supervision, by the late 1990s most interfirm transactions took place through price mechanisms in the marketplace. In this light, our research question is: How would an economic logic explain contractual relations between firms in a transitional economy, especially in light of transaction cost arguments?

SOCIAL NETWORKS. As Macaulay (1963) showed, business partners frequently resort to informal, social interactions to maintain bilateral relations, to carry out contract implementation, and to respond to unforeseen contingencies. An insight from the embeddedness argument is that economic transactions are conditioned by particularistic social relations that may be at odds with the logic of the ubiquitous market (Granovetter 1985). Stable network-based interaction patterns create social structures and identities for economic actions; indeed, markets can be seen as stable self-reproducing role structures (White 1992). This line of argument predicts variations in economic transactions that are not captured by the logic of transaction cost. One's particular network ties may provide precious information in job searches and internal employment relations (Burt 1992; Fernandez and Weinberg 1997; Granovetter 1974), in "socially structured prices" (Baker 1984), in the acquisition of financial resources (Uzzi 1999), and in the formation of strategic alliances between firms (Gulati 1995a; Gulati and Gargiulo 1999). Recognition of the social network leads researchers to treat network ties and positions as the focus of analysis and to highlight patterns of economic relations that are more stable than can be explained by variable transaction costs.

The implications of embeddedness arguments for contractual relationships are straightforward. Contracts involve bilateral relations that move away from the ideal type of markets. Information problems arise both in searching for a contractual partner and at contract implementation. Social relations play an important role in overcoming these problems: They help transmit information and manage uncertainty; they open up new opportunities; they reduce transaction costs of designing complex contracts through the development of trust and alternative enforcement mechanisms (e.g., reputation, norms). In this light, network-based social relations can be seen as an important mechanism that generates variations in interfirm relationships (Rangan 2000; Uzzi 1996, 1997).

We suspect that social networks play an even more important role in organizing economic activities in transitional economies. The high uncertainty characteristic of transitional economies is likely to reinforce the cultivation of social networks. Scholars have emphasized that the management of uncertainty in the business environment is the main impetus for the development of firm strategies in diversification, in forging stable business group relations, and in cultivating social relations in these economies (Bian and Qiu 2000; Burawoy and Krotov 1992; Guthrie 1999; Keister 2001; Stark 1996).

INSTITUTIONAL LINKS. It is a truism that organizations, in order to survive, must adapt to and exchange resources with external environments. The institutional theory of organizations calls attention to the institutional environment—consisting of rules, norms, and roles enforced through legal or social sanctions—that regulates organizations and provides stable institutional bases

for their behavior (DiMaggio and Powell 1983; March and Olsen 1984; Meyer and Rowan 1977). As Fligstein (1996, 2001) showed, political authorities establish rules and regulations, and provide enforcement mechanisms, that greatly facilitate market-building. Even in market societies, technological changes and markets are deeply embedded in social relations, especially in relations with governments. Obviously, the very presence of formal contracts presumes some legal and political institutions that support, regulate, and enforce these contracts. Research in this area has shown the importance of legal and institutional environments on the forms and contents of contractual relations (Stinchcombe 1990; Suchman 1995).

At the center of the institutional arrangements in China's transitional economy are various types of institutional links between firms and political authorities, especially in the form of different property-right relationships among firms (Walder 1992). Variations in these institutional links have several important implications: As Walder (1995) argued, institutional arrangements in China involve direct administrative intervention, similar to "corporate hierarchies," by local governments that have both financial and nonfinancial interests in the firms in their jurisdiction. Local governments often adopt differential policies toward different types of firms with respect to their property-right relationship. Moreover, in China's transitional economy, firms also experience varying effects of marketization processes; different institutional ties (e.g., business groups among state firms) may allow firms to adopt different strategies to mitigate risks (Guthrie 1999; Keister 2001; Nee 1992; Peng 2001).

Consequently, different types of firms may have distinct behavioral patterns in contractual relationships. First, different firms experience different resource and regulatory constraints based on their institutional links. For example, state-owned firms are most sensitive to state regulatory influences because of their close administrative and institutional ties to government agencies: Senior managers in these firms are appointed by the supervising agencies and internal operations are subject to routine inspections by the supervising agencies. In contrast, private firms tend to be much more remote from such influences because of their weak institutional links to the government. In between there are collective firms, which are often not under the direct control of the government but often have close links with local governments. In the reform era, a new type of "hybrid" firm has emerged (e.g., "stock-sharing" firms) that has characteristics of transitional organizational forms; their behaviors are often similar to those of private firms.

Second, different property-right relationships also entail different incentive structures in managing business relations. Because they have close ties to political authorities, state firms may rely more on administrative channels in managing the business environment, whereas private firms may have a strong incentive to cultivate informal social relations. Therefore, we would expect systematic behavioral differences across types of firms.

There are also institutional pressures common to all firms that are likely to generate similar behaviors among firms. In contrast to other transitional economies where the dismantling of the socialist state left a political vacuum, the Chinese state and local governments have been, and still are, the driving force in economic transformation (Naughton 1995; Shirk 1993) and in affecting individual life chances (Zhou, Tuma, and Moen 1996; Zhou 2000). The central government has been at the center of legal reform (Lubman 1999), thereby providing a nationwide legal framework for contractual relationships. In 1981, at the beginning of the economic reform, China enacted its first Economic Contract Law—a set of legal rules governing the formation and implementation of economic contracts. In subsequent years, separate legislation was passed with regard to economic transactions between domestic and foreign firms (in 1985) and technology transfer and cooperation (in 1987). Contract laws in labor relations were also implemented since the 1980s (Guthrie 1999). In 1999, a new, comprehensive contract law took effect that provided a uniform legal framework for contracts in the area of economic transactions. With changes in central-local government relationships and fiscal reforms, local governments have been playing an especially active role in managing the

business environment and promoting economic development in their jurisdictions (Oi 1999). In this light, we suspect that there is a strong regulatory environment for interfirm contractual relationships.

Finally, institutional legacies may also play an important role in this regard. Despite the tight control in central planning, what Walder (1989) has called "non-market exchange relationships" between firms was rampant even in the prereform era. Economic shortages forced firm managers to adopt various strategies to meet target production levels in the plan (Berliner 1957; Kornai 1980). Accordingly, firms had to take the initiative to secure materials not only by forging vertical ties with their supervising agencies but through extensive interfirm relations with other suppliers or customers (Walder 1989). An important implication of these relations is that the pervasiveness of network-based interfirm relations was the outcome of the particular institutional arrangements of the command economy. These institutional legacies set the stage for the contractual relationships in our study.

CONTRASTING THE THREE MECHANISMS

The contrasts among the three mechanisms—transaction costs, social networks, and institutional links—reveal the conditions under which they take effect and the analytical power these mechanisms provide to explain economic actions.

In transaction cost economics, the paramount consideration is the minimization of transaction costs associated with contractual relationships. Because transaction costs are contingent on specific transactions, it is not surprising that the transaction is the unit of analysis. From this perspective, we derive the following general proposition: *Forms and practices of contractual relationships are governed by contract-specific economic considerations, such as transaction-specific investment, risks, and assurance.*

In contrast, the embeddedness (social networks) argument posits that network-based social relations influence economic transactions in several ways. Social relations may affect access to information and opportunities; they may mitigate risks and uncertainty associated with transactions or firms; they may also shape particularistic features of transactions. These considerations lead to the following proposition: *Where economic actors are embedded in social relations, contractual relationships vary systematically with types of social networks around actors, even after controlling for transaction-specific factors.*

Institutional theory emphasizes the stable behavioral patterns that are induced and constrained by institutional links. Seen in this light, the organization of economic activities is structured by social institutions and varies with institutional links. Thus, different types of firms with distinct property rights are likely to have different relationships with political authorities and face different regulatory and resource constraints. *We expect that contractual relationships vary with firm ownership, above and beyond variations in transaction specificities or in network ties.*

These three mechanisms may coexist with and complement one another: It is not difficult to imagine scenarios in which all three shape contractual relationships. For example, institutional environments and institutional pressures are often sustained through and spanned by social networks; in the meantime, individual behaviors and patterns of embeddedness are induced by social roles based on an institutional logic (Montgomery 1998). Similarly, a critique of the undersocialized economic argument does not deny the role of economic incentives and calculativeness in organizing economic activities. In fact, most discussions of social networks or institutional imitation start from the recognition that self-interest is an important incentive for individuals or organizations to deliberately cultivate social ties or to adopt institutionalized practice.[1] Our task

[1] Institutions are also important in transaction cost economics, as in Williamson's (1985) discussion of "governance structures." We depart from Williamson in two respects. First, we see institutions as generated by processes that are not always consistent with the efficiency principle. As a result, the presence of institutions requires consideration of alternative explanations. Second, there is an inherent tension between stable governance institutions and transaction-specific considerations. We emphasize behavioral consistency and stability based on institutions and identity, whereas transaction cost considerations

is to examine the conditions in which these mechanisms take effect and how they interact in the emergence of economic institutions in China's transitional economy.

CONTRACTUAL RELATIONSHIP IN EMERGING MARKETS IN CHINA: HYPOTHESES

We now consider the empirical implications of the three mechanisms discussed above in the context of China's transitional economy. We focus on three research issues: (1) the initiation of contractual relationships and the search channels for contractual partners; (2) forms of contracts, such as the formality and provisions specified in the contract; (3) the intensity of social interaction in contract implementation.

Choosing Contractual Partners

We first consider the initiation phase of a contractual relationship: How do firms search for their contractual partners? Broadly speaking, these are instances of the initiation and formation of economic relationships between firms. The search processes may be mundane and routine, or they may involve extensive strategic planning. Conventional economic analysis starts in the marketplace: Firms search for partners based on information transmitted through price and market performance, and the process is governed by competitive market mechanisms. However, the nature of contracts—the dependence on promises about future actions—invites precontract adverse selection problems (i.e., opportunistic behavior in information manipulation) and post-contract hold-up problems. Firms need to develop strategies and use the resources at their disposal to deal with these problems. It is here that social networks and social institutions become important in the formation of interfirm relationships. The choice of search channels allows us to identify how different mechanisms enable firms to deal with these two types of problems.

To be specific, consider the following two factors that are likely to affect a Chinese firm's search effort: First, there are differential costs and benefits associated with these search channels. Open information in the marketplace (e.g., product quality, advertisement) is the least expensive method, but probably is less valuable as it is available to everyone; private information acquired through social networks is valuable, but also is more expensive to acquire. Second, firms are endowed with different economic, social, and institutional resources prior to the economic transactions we study. In view of the property-rights relationships among the firms, a large, state-owned firm in China is likely to have privileged access to government agencies that is not available to other firms; private firms likely have fewer institution-based resources and must rely more on network ties. In this sense, different firm ownership may capture distinct institutional links for resources that affect the choice of search channels. Here both the institutional mechanism and considerations of transaction costs lead to the following empirical implication:

Hypothesis 1a: State-owned firms tend to use more institution-based channels (e.g., government sponsorship or open information), whereas private firms tend to use more particularistic (e.g., network-based) channels in the search for contractual partners.

But the logic of transaction costs pushes us a step further. Central to Williamson's (1985) theoretical framework is the idea that the contractual relationship should vary with the risks involved in specific transactions. That is, risks are part of the transaction costs that need to be dealt with in the design of contracts. Suppose a firm is engaged in two contractual agreements with different stakes. Contract A involves minimal stake and risk—that is, a contractual failure does not cause much damage to the firm; Contract B, however, involves a larger stake (e.g., significant contract-specific investment that cannot be salvaged if the contract fails). If we operationalize "risk" as the size of the contracted value relative to the total sale (service) by the firm, our argument implies that the larger the relative size of the contract, the more dependent the firm is on the contract and the higher the risk involved. In such cases, transaction cost economics im-

would allow more situational (or transaction cost-related) "optimization."

plies that the firm would design these Contracts A and B differently, with considerably more search effort being exercised for Contract B. Therefore, it is the relative stake (i.e., the risk), not the absolute size of the contracted transaction, that matters. In this light, a more stringent test of the transaction cost argument predicts that:

Hypothesis 1b: For transactions that involve a higher stake (e.g., a larger proportion of contract value, or greater resource dependence), particularistic search channels are more likely to be used, other things being equal.

FORMS OF CONTRACTS: FORMALITY AND PROVISIONS

Contracts can be formal or informal; they may contain or omit various provisions, such as stipulations about price, quality, deadlines, and safeguards. The forms that contracts take provide information about the basic characteristics of contractual relationships, and different mechanisms may generate different contractual forms and provisions. If, for example, the making of contracts is governed by the principle of minimizing transaction costs, then the forms and provisions should be contingent on contract-specific economic factors. The riskier a transaction, the more stake a transaction has, the more effort will be given to the design of the contracts in order to mitigate uncertainty and ensure anticipated economic benefits. Therefore, we expect that:

Hypothesis 2a: Forms of contracts vary with contract-specific factors, such as risk and stakes. Specifically, the more risk and stakes involved, the more likely that specific provisions are present in contracts and that contracts take the formal form.

In contrast, the embeddedness considerations point to the possibility that social relations may mitigate risks involved in business transactions by transmitting private information and by developing trust and other safeguard devices. For instance, contracts initiated through social networks may contain rich information about the attributes of the contractual partners, thus reducing the need for designing formal and detailed contracts. In this light, we expect to find a causal relationship between the presence of prior social relations and the form of contracts:

Hypothesis 2b: Because the presence of social relations decreases information problems, contracts initiated through social networks tend to be less formal than those initiated through open information.

We now consider the effects of the institution-based mechanism. Given their varying institutional links with the central and local governments, different types of firms are likely to be exposed to different regulatory and administrative interventions (Walder 1995). We can distinguish several regulatory regimes: (1) State firms are closest to the central authority and are under tighter scrutiny of the government agencies. Therefore, they experience a similar regulatory environment. Interestingly, as far as contractual relationships are concerned, foreign firms may also be sensitive to these regulatory policies. (2) At the other extreme are private firms, which are most remote from administrative fiats and regulatory influence. (3) Other types of firms—collective firms, hybrid firms—are situated between these two scenarios. Therefore, the immediate institutional environment may vary systematically with firm ownership:

Hypothesis 2c: Firms that have close institutional links with regulators (e.g., state firms) are more likely to adopt formal contracts and provisions than those that are remote from state regulation (e.g., private firms).

In addition, several institutional sources may also generate similar behaviors in the adoption of written contracts. First, the institutional legacies of interfirm relationships in the prereform era may have provided a repertoire of behavioral patterns that facilitated the diffusion of written contracts in the reform era. Second, the active role of the government, at both central and local levels, may also have led to a relatively uniform regulatory environment in terms of reinforcing formal, written contracts among all types of firms. For example, many managers in

our interviews were keenly aware of the regulatory requirements imposed on written contracts in recent years. In this light, we propose:

Hypothesis 2d: In China's transitional economy, there is a high rate of adopting formal contracts and provisions, regardless of organization ownership, type of social relations, or transaction-specific factors.

Maintenance of Contractual Relationships: Intensity of Social Interaction

As Macaulay (1963) and Granovetter (1985) have observed, contractual partners cultivate social relations, and business relations and social relations often benefit one another. Social relations are used to solve problems informally and to develop trust as a basis for business transactions. But it is important to recognize that investment in social relations also incurs costs. Time spent with business partners in social settings is time away from families and other business opportunities. So we ask what factors contribute to a firm's investment in social interaction: Do social interactions vary with contract-specific transactions, with types of prior social relations, or with institutional factors? Here, the three mechanisms lead to different empirical implications.

Transaction cost theory offers a straightforward answer: If social relations are instrumental in solving information and uncertainty problems and investment in social relationships is costly, then patterns of social interaction should be consistent with, and proportional to, transaction-specific factors. In other words, a firm would invest more in social interaction only when the economic stake is high.

Hypothesis 3a: The intensity of social interaction in the implementation phase is proportional to risks associated with specific contracts: The higher the risk, the more intense the social interaction.

In contrast, the embeddedness argument allows for the possibility that the intensity of social interaction is affected by types of social relations. For instance, it is conceivable that the two parties to a contract have already established good social relations and that they continue their social interactions independent of their business transactions. Moreover, the *present* social relations may come from strong ties formed *in the past*, regardless of present business transactions. This is an important idea for empirical study because it implies that the observed intensity of social interaction may not be caused by economic or instrumental considerations. Following this logic, we expect some loose coupling between the intensity of social relations and the particular economic transactions under contract:

Hypothesis 3b: The intensity of social interaction in the implementation phase increases among those partners whose contracts are established on the basis of particularistic social relations.

Finally, there are considerable differences in incentives in the management of interfirm relations among different types of organizations. Different property-right relationships may have cultivated varying responsibilities among managers in charge of interfirm relations across different types of firms. For example, a private entrepreneur is likely to have more incentive to care about firm performance (e.g., to achieve best contractual results) than would a manager in a state firm. Moreover, a private entrepreneur is likely to invest more effort in maintaining interfirm social relations because of the lack of institutional protections. These considerations suggest that the intensity of social interaction may vary with firm ownership:

Hypothesis 3c: The intensity of social interaction varies with different types of work organizations. In particular, private firms are likely to invest more in social interaction than do state firms.

RESEARCH DESIGN

Data

The data for this study were collected between 1999 and 2000 in two Chinese cities, Beijing and Guangzhou. Collecting information on business contracts presents several challenges. First, there is no ready informa-

tion on the universe of contracts among firms from which we can design sampling procedures. Second, it is difficult to obtain access to firms, especially to information regarding business transactions. Because of these difficulties, we were unable to follow random sampling procedures to select our sample. Instead, we employed several sources to identify and interview respondents who have information on interfirm contracts related to their companies (usually top managers or those working in marketing or purchasing departments): (1) We used our personal ties (e.g., relatives, acquaintances, schoolmates, and colleagues) to introduce us to those who have knowledge of interfirm contracts. (2) We selected graduate students or trainees (some from industries) in our collaborating institutions to identify those working in industries that have knowledge about interfirm contracts. (3) We asked some government agencies (e.g., trade unions, government bureaus in charge of certain industries or businesses) to introduce us to managers they know (usually at business conferences) and invited them to cooperate with us in interviews. (Government officials were not involved in selecting specific firms or interviewees; nor were they present at the interviews.) (4) We attended business gatherings and conferences and interviewed those who were willing to cooperate with us. The majority of the cases were collected using the first two sources. The questionnaires were completed through face-to-face interviews by trained interviewers.[2]

We asked each respondent to answer a series of questions on one or more (up to five) "formal or informal business agreements" in the firm about which he or she has relevant information. We intended to collect multiple contracts within a firm so that we could distinguish firm-level factors and contract-level factors on a rigorous statistical basis. In most cases, the interviewee provided only one contract, either because he or she had knowledge of only one contract or did not want to provide additional information. Thus, we were able to collect a total of 877 contracts established by 620 firms.[3]

Compared with other studies of interfirm contracts (see Masten 1996), the contracts in our study cover a range of industries rather than a single industry. This makes our findings less dependent on idiosyncratic industrial settings, but it also introduces contextual variations (especially variation across technologies, products, and market structures) that must be controlled for in statistical modeling. In addition, because of the difficulties accessing information on contractual relationships, our data collection process relied on availability and accessibility rather than on a random sampling scheme. We tried to minimize the problem of potential bias by adopting diverse ways of identifying and contacting potential respondents. The various sources used in data collection introduced randomness in the selection of respondents and firms that enter our sample, thereby reducing potential systematic bias. We conduct statistical analysis, including statistical inference and hypotheses testing, under the assumption that the observations are drawn based on the conventional random sampling procedure. But we must be cautious in generalizing our findings to the population and to other settings.

Comparing our data with official statistics for Beijing and Guangzhou showed that state firms and hybrid firms are overrepresented in our sample, and collective firms are underrepresented. The firms in our sample are concentrated in heavy industry, light industry, retail, and service sectors because of data accessibility. Also, because we asked the interviewees to describe one or more contracts, there is potential selection bias in the selection of certain type of

[2] Most studies of transitional economies rely on either detailed case studies (e.g., Stark 1996; Wank 1996) or official statistics (Peng 2001). Guthrie (1999) and Keister (2001) reported data for firms using stratified random sampling or the entire population of business groups, but they did not collect detailed, confidential information on business transactions. In China, government sponsorship or the involvement of official research institutions may provide access to firms. But, given the sensitivities involved in business dealings (e.g., kickbacks), the informants are less likely to provide honest information in interviews that are sponsored by official sources than through informal channels like ours.

[3] These contracts are between the 620 focal firms in our data set and other firms that are not included in our sample.

contracts. One possibility is that large, formal contracts are more likely to be recalled. The distribution by the relative size of the contracts in our sample does not suggest systematic bias in this regard. Another possibility is that more recent contracts are likely to be presented; indeed, most contracts in our sample were signed since 1995. Appendix A provides an assessment of the quality and representativeness of our sample and the characteristics of the informants. Our data set provides valuable information in an economic arena that has not been explored previously, and our assessment indicates that the data quality is reasonably good in terms of its representativeness of major industrial categories and types of firms. However, given the limitations noted above, our study should be viewed as exploratory and our findings as suggestive rather than conclusive.

Dependent Variables

We focus on three aspects of contractual relationships:

(1) Choice of search channels for contractual partners. We asked respondents to identify, from a list of sources given in the questionnaire, the channels that they used to search for contractual partners: media, advertisement, open trade information, social network, self-initiative, collegial referral, and government sponsorship. Because firms could use multiple channels, we asked them to list all the ones they had used. We further asked the respondents to identify the most effective search channel among those they had ever used. We combined the first three categories (media, advertisement, and open trade information) into one category of "open information."

(2) Contractual forms and provisions. We asked respondents to identify whether certain provisions were included in the contract being described. We listed a set of typical contractual provisions (volume, quality, price, deadline, and safeguards) and asked whether they were present in (or absent from) the contract, and in what form (certified legal documents, written documents, oral agreement, or no record at all). We constructed a binary variable by combining "certified" and "written" documents into one category, "formal contract" (coded 0), and "oral" and "no record" into the other category, "informal contract" (coded 1).

(3) Intensity of social interaction in contract implementation. We asked respondents a series of questions about various aspects of their social interactions with their contractual partners *after* the contract was signed.[4] We constructed a Likert scale of the intensity of social interaction by adding the values of all items together; values ranged from 8 to 32.

INDEPENDENT VARIABLES

Based on our theoretical interest, we use three sets of covariates to explain the contractual relationships under study.

(1) Institutional attributes. We use a set of dummy variables to indicate the *firm ownership*: state firms (the reference category), collective firms, hybrid firms, private firms, foreign firms, and a residual category of "other firms." Firm ownership provides information on the institutional links of these firms to central and local governments and other institutional environments. State-owned firms have strong institutional ties to the political authority; private firms and hybrid firms are most distant from government directives. Collective firms often have close ties with local authorities. Foreign firms include American and European firms and those from Hong Kong and Taiwan.

We distinguish the following broadly defined *industrial contexts*: (1) heavy industry, (2) light industry (the reference category), (3) retail (including the food industry), (4) construction (including transportation and communication), (5) service, and (6) a residual category of "other industries." Industrial context variables capture both institutional and contractual attributes. We also included the logarithm of firm sales (in ¥10,000) in the model estimation, which is used mainly for statistical control.

[4] These items were a holiday visit, a sick visit, help in private matters, eating together, a home visit, attending entertainment together, attending a party together, attending a trade meeting together. Interactions were rated on a scale from 1 to 4 (no, occasional, often, routine).

We use an indicator variable (Guangzhou = 1) to control for contextual variation by *city*.

(2) SOCIAL RELATIONS. We use a dummy variable to indicate whether the firm had a *prior acquaintance* with the contractual partner before the current contractual agreement ("yes" = 1). Such an acquaintance suggests a recurrent relationship.

We asked about the *duration of the prior acquaintance*: How long (in months) had the firm known its contractual partner before the current contract? This variable gives us a measure of the strength of prior business or social relations.

In the analyses of contract forms and implementation, we use a set of dummy variables to indicate the type of *search channels* used for that contract. This variable captures different types of relations between contractual partners at the beginning of the contracts.

(3) CONTRACT ATTRIBUTES. We distinguish the following *types of contracts*: (a) sale (the reference category), (b) purchase, (c) service, and (d) a residual category of "other types."[5]

A variable measuring *contract value as percent of the total sales* gives a measure of resource dependence, especially the stake involved in a business transaction, for this contract. The larger the percentage, the higher the risk in the contractual relationship.

Contract duration provides information on the risk of "hold-up" problems in the contracts. Long duration tends to make both parties to the contract more vulnerable to the other side; but it may also facilitate the development of social relations over time.

The *number of contractual partners* for the same product (service) produced (or purchased) by the firm gives another measure of resource dependence between contractual partners. If the number of partners is more than 10, this measure is truncated at 10 to avoid artificial effects of extreme values.[6]

Finally, a note on missing values. We asked respondents to answer a variety of questions about the specifics of the contract and firm-level attributes of both parties to the contract. Some respondents were unable to answer all questions, hence there are missing values for some of the key variables. Given the dearth of information on contractual relationships, we wanted to use as much information as possible from the data we gathered. For this reason, we include those cases with missing values on three variables (firm sales, contract value as percent of the total sale, and number of contract partners) in our analyses by adopting the following strategy: We created a unique code for those cases with missing values on a variable and included this indicator variable in model estimation. This strategy is analogous to allowing for a different regression line for (thus statistically controlling for) those cases with missing values on that variable. This strategy allows us to use information on other variables for this group of cases in our statistical analyses.

METHOD

The first two dependent variables, the choice of search channel and form of contract, are constructed as binary variables; the third variable, intensity of social interaction, is a continuous variable. In addition, an important feature of our data is that some of the firms in our sample have multiple contracts. This data structure requires that we adopt models that can deal with clustered observations.

For this reason, we use the generalized estimation equation (GEE) approach (Diggle, Liang, and Zeger 1994) to model the binary dependent variables. The GEE approach allows for covariance among clustered observations and has the advantage of not requiring parametric assumptions about the form of the covariance structures among contracts within a firm. The β-vector is estimated by solving the estimation equation

[5] The distinction between "sale" and "purchase" is based on the focal firm's side of the contract.

[6] Some firms have a large number of contractual partners. Because this variable is used to measure resource dependence in contractual relationships, we reason that the number of contractual partners beyond a certain threshold (more than 10) would indicate that the firm has very weak dependence on that particular partner and contract.

$$U(\beta) = \sum \left(\frac{\partial \mu_i}{\partial \beta} \right)' [V_i(\alpha)]^{-1} (y_i - \mu_i) = O_p,$$

where μ_i is the expectation of y_i (the dependent variable), which is linked to a linear combination of the covariates and the corresponding estimates through the logit function. The estimated variance is robust for clustered observations.

For the analysis of the intensity of social interaction, we estimate a mixed regression model:

$$Y = \mathbf{X}\beta + \mathbf{Z}\gamma + \varepsilon,$$

where Y is the dependent variable, $\mathbf{X}$ is the vector of the covariates to be estimated, and $\mathbf{Z}$ is a vector of variables with random effects (unspecified in our model). The covariance matrix is specified to allow multiple contracts within a firm to co-vary with each other. The ε is assumed to be independently and identically distributed (i.i.d) after these model specifications.

RESULTS

BACKGROUND

The two cities, Beijing and Guangzhou, represent two distinct institutional environments for industrial organizations: Beijing, the capital and the political center, is more sensitive to government interventions and changes in political atmosphere. In Guangzhou, where the earliest economic reforms took place, government is relatively weak and indirect in everyday life. Table 1 reports selected attributes of contracts, firms, and patterns of contractual relationships in these two cities.

Structural differences between the two cities are reflected in the distribution by firm ownership. Beijing has a higher percentage of state firms (40 percent) than does Guangzhou (31 percent), but Guangzhou has a higher percentage of private and foreign firms (21 percent and 12 percent) than does Beijing (19 percent and 7 percent). These distributions are consistent with the general observation that Guangzhou is a more marketized city than Beijing. The total distribution by industry shows that light industry (consumer product manufacture) (35 percent) and retail business (22 percent) are the main industries in our sample, and heavy industry (15 percent) also has a significant presence.

Most contracts in our sample were carried out in recent years (90 percent of the con-

Table 1. Descriptive Statistics: 620 Firms in Beijing and Guangzhou, China, 1999 to 2000

Covariate	Total	Beijing	Guangzhou
Number of firms	620	291	329
Number of contracts	877	460	417
Firm Ownership (Percentage)			
State	35.7	40.2	30.7
Collective	10.9	10.2	11.8
Hybrid	19.6	17.4	22.1
Foreign	9.4	7.2	11.8
Private	19.8	18.9	20.9
Other	4.2	6.1	2.2
Firm sales (log) (¥10,000/year)	7.5	7.2	7.8
Industry (Percentage)			
Heavy industry	14.8	17.6	11.8
Light industry	34.8	28.9	41.3
Retail	21.8	19.8	24.0
Construction	8.4	7.4	9.6
Service	9.4	11.5	7.0
Other	8.9	14.8	2.4
Percent prior acquaintance (yes = 1)	60.9	60.2	61.6
Duration of acquaintance (mean/month)	15.3	20.1	10.1
Type of Contract (Percentage)			
Sale	60.5	60.2	60.9
Purchase	17.1	16.7	17.5
Service	13.9	15.2	12.5
Other	8.4	7.8	9.1
Contract Attributes			
Percent contract value (mean)	9.4	9.1	9.7
Contract duration (mean/month)	14.4	14.4	13.2
Number of contract partners (median)	4.0	4.0	4.0

Note: Firm ownership was based on information at the time of contract formation.

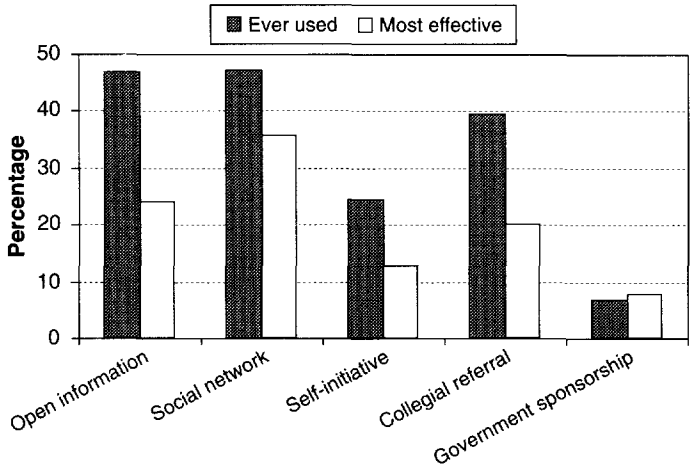

Figure 1. Percentage Distribution of Search Channels

tracts began after 1995), thus the attributes of these contracts and firms reflect recent changes in China's transitional economy. The average duration of the contracts is about 14 months, but duration varies greatly across contracts, ranging from within 1 month (close to a spot-market transaction) to a long-term relationship of more than 10 years. The transaction in each contract is, on average, about 9 percent of the total sales (or purchase, or service) of the same type of products (or services) in the firm. On average, there are four contractual partners for the same product (or service) by a focal firm. A large percentage of these contracts (61 percent) are with partners that the firms have dealt with before, indicating that contractual relationships tend to be associated with prior acquaintance from recurrent social or business relations.

These patterns show diverse types of firms and contractual relationships in China's transitional economy. Firms differ in their institutional links; contractual relationships also vary by duration, risk, as well as prior relations. These characteristics allow us to examine how the distinct processes of theoretical interest affect various aspects of contractual relationships.

Initiation of Contractual Relationships: Choice of Search Channel

The choice of search channel reveals several aspects of the underlying processes in contractual relationships: (1) It provides clues to the distribution of information available to different types of firms, and (2) it allows us to identify various mechanisms that induce different firm behaviors in developing interfirm relations.

How do firms search for contractual partners? A firm may have at its disposal a variety of search channels, ranging from the most universalistic (information transmitted through markets, such as advertisements and media publicity) to the most particularistic (such as those based on social networks). We may consider these search channels in three dimensions. We treat "open information" (media, advertisement, trade information) as indicating market-based, "social network" as social relation-based, and "government sponsorship" as institution-based search channels. Figure 1 shows the distribution of the use of these channels. The shaded columns indicate the frequencies with which these channels are used.[7] Social network (47.1 percent) and open information (47.0 percent)[8] are the most frequently used search channels. The collegial referral category is ambiguous: In some instances, it may involve personal connections; in others, it may be business-related

[7] Because firms can use multiple channels, the percentages do not sum to unity.

[8] The percentage in this column might be inflated because it is a combination of three separate categories—advertisements, media, and trade information—that individuals can choose simultaneously.

connections. Government sponsorship is a unique institutional channel that plays a minor role (6.6 percent), indicating that interfirm business transactions occur largely outside governmental fiat in recent years.

The unshaded columns in Figure 1 indicate the frequency associated with "the most effective" channel identified by respondents for the contract in question. Social networks, again, are recognized as the most effective channel by the largest percentage of respondents (35.6 percent). Open information and collegial referral are the next two most effective channels, while self-initiative and government sponsorship are viewed as the least effective channels.

These patterns indicate that the ongoing institutional transformation in China has generated a variety of interfirm relationships. Firms tend to use a wide range of channels in their search for contractual partners, but the widespread use of social networks points to the important role of social relations in initiating contracts. In contrast, the role of government in forging contractual relationships appears to be minor.

What determines the choice of search channels for business partners? Are the observed variations induced by institution-based, relation-based, or transaction cost-based mechanisms? To address these questions, we focus on the respondent's choice of the most effective search channel. We estimated a GEE model in which we used a set of theoretically related covariates to predict a firm's most effective search channel. Table 2 reports parameter estimates of the models. The parameters refer to the effects of the corresponding variables on the log-odds of choosing the channel listed in that column relative to all other channels.

OVERALL PATTERNS. The intercept in each column of Table 2 refers to the overall log-odds of choosing that channel relative to all other channels for those sale contracts by state-owned firms in light industry in Beijing. The intercepts across these columns show that social network is the most effective search channel, as indicated by the largest, positive, statistically significant intercept. In contrast, there is no overall difference between using open information and using alternative search channels. Self-initiative and collegial referral are the two least effective search channels. There is also a lower probability of choosing government sponsorship compared with other alternative channels. These overall patterns are largely consistent with those shown in Figure 1.

INSTITUTION-BASED SEARCH CHANNEL. The choice of search channel varies systematically across organizations with different institutional links. On one hand, all firms use open information in a similar manner, as indicated by the fact that there are no statistically discernible differences among types of firms, except for collective firms. On the other hand, there are clear patterns in the use of other channels. Overall, state firms (the reference category) and foreign firms tend to have similar behavioral patterns, as indicated by the nonsignificant effect of foreign firms across search channels. As we speculated, state firms and foreign firms may be located in similar institutional environments, especially with regard to the regulatory environment. In contrast, in other search choices (self-initiative, collegial referral, and social network), firms that have weak institutional affiliations—collective firms, hybrid firms, and private firms—tend to behave similarly, as indicated by the direction and statistical significance levels of the coefficients associated with these covariates. Understandably, private firms have a significant and lower probability of using government sponsorship as an effective channel. These patterns are consistent with Hypothesis 1a—that different institutional links induce distinct firm behaviors.

There is no significant difference between Beijing and Guangzhou in search channel use, indicating that the availability and choice of search channels are affected by the broader institutional context that spans both cities rather than by contextual differences between the two cities.

TRANSACTION-BASED FACTORS FOR SEARCH CHANNELS. Hypothesis 1b predicts that transaction-specific factors play an important role in the choice of search channel. Here we assume that firms anticipate transaction-specific attributes as they search for contractual partners. The results show that the variables associated with type of contract have only sporadic significant effects and that the variables measuring contract-specific factors do not have systematic,

Table 2. GEE Coefficients Predicting the Search Channel of Contractual Partners: 620 Firms in Beijing and Guangzhou, China, 1999 to 2000

	Search Channel									
	Open Information		Collegial Referral		Self Initiative		Social Network		Government Sponsorship	
Covariate	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)
Intercept	−1.219	(1.527)	−6.904**	(1.697)	−7.763**	(1.881)	2.946*	(1.362)	−6.926*	(2.965)
Firm Ownership										
Collective	.576+	(.317)	−.764+	(.460)	−.908+	(.496)	.358	(.309)	.199	(.529)
Hybrid	.332	(.259)	−.640*	(.293)	−.677+	(.352)	.595*	(.245)	−.241	(.465)
Foreign	.130	(.358)	−.055	(.376)	−.297	(.450)	.321	(.359)	−.738	(.665)
Private	−.128	(.320)	−.089	(.311)	−.707+	(.414)	.678*	(.270)	−1.289*	(.628)
Other	.003	(.496)	−1.536*	(.770)	.041	(.610)	.710+	(.425)	−.985	(.738)
Guangzhou	.290	(.209)	−.112	(.235)	−.422	(.283)	.090	(.193)	−.130	(.355)
Firm sale (log)	.045	(.045)	.057	(.053)	.102	(.062)	−.206**	(.051)	.022	(.089)
Industry										
Heavy industry	−.027	(.291)	−.511	(.369)	−.529	(.365)	.475	(.321)	−1.538+	(.802)
Retail	.171	(.256)	−.429	(.298)	.166	(.323)	.169	(.239)	.352	(.431)
Construction	.635+	(.342)	−.101	(.407)	−.400	(.474)	.274	(.333)	−1.492	(.991)
Service	−.234	(.409)	−1.529**	(.558)	−1.625*	(.790)	.415	(.333)	1.194*	(.522)
Other	−.096	(.428)	−.169	(.396)	−.061	(.448)	−.130	(.364)	.614	(.601)
Type of Contract										
Purchase	−.200	(.238)	.699**	(.244)	−.363	(.318)	.096	(.233)	−1.012+	(.573)
Service	−.676+	(.349)	−.143	(.390)	−.518	(.510)	.776**	(.258)	.156	(.440)
Other	−.326	(.355)	−.318	(.437)	−.547	(.498)	.279	(.301)	.678	(.489)
Percent contract value	−.003	(.021)	−.076	(.128)	−.062	(.120)	−.203	(.148)	.102**	(.025)
Contract duration	.020	(.059)	−.144	(.106)	−.114	(.077)	.042	(.053)	.104	(.073)
Number of contract partners	.009	(.029)	.034	(.031)	−.049	(.039)	.006	(.024)	−.012	(.046)
Number of contracts	877		877		877		877		877	
Number of events	192		159		102		284		61	
Log-likelihood	−446.5		−389.1		−292.5		−509.5		−189.1	
Degrees of freedom	21		21		21		21		21	

Note: State firm is the reference category for firm ownership, light industry is the reference category for industry, and sale is the reference category for type of contract. Three indicator variables for missing values for percent contract value, number of contract partners, and firm sales(log) are also included in the model.

*$p < .05$ ** $p < .01$ (two-tailed tests)

+$p < .05$ (one-tailed tests)

significant effects. Overall, there is no evidence that transaction cost factors affect the choice of search channel.

In sum, the choice of search channel reflects strong effects of distinct institutional links among types of firms. For instance, private firms are more likely to see social networks as the most effective channel in the search for contractual partners; state firms and foreign firms appear to behave in similar ways in their choice of search channel. Sporadic evidence notwithstanding, the effects of contract-specific factors are neither salient nor systematic. The evidence shows

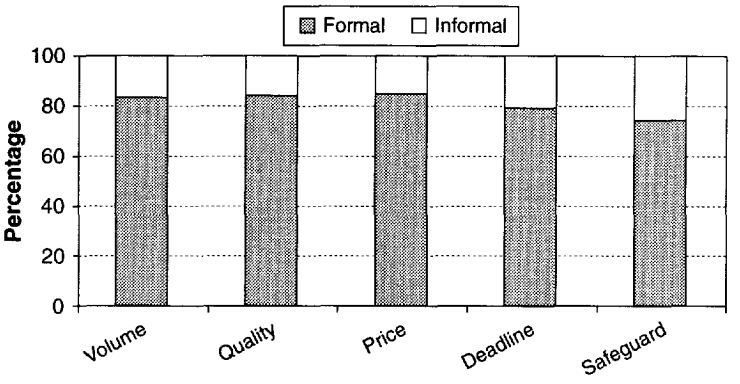

Figure 2. Percentage Distribution of Contractual Provisions by Formality of Contract

that the initiation of contractual relationships is strongly influenced by variation in institutional links, whereas transaction-specific factors do not play a major role in the search for contractual partners.

Choice of Contractual Forms and Provisions

Contracts can vary in many ways: They can be formal or informal, and the provisions can vary from one contract to another. An examination of these variations provides clues to the nature of these contracts and the mechanisms that generate them. Figure 2 shows the formality of selected provisions in the contracts under study. Formal, written contracts cover a high percentage (more than 75 percent) of each provision.

One source of similar behaviors in the adoption of written provisions is the institutional legacy of widespread interfirm relations before the reform era. These early practices provided a repertoire of behaviors and expectations that facilitated the diffusion of contractual relations in recent years. Another source is the role the state has played in developing a regulatory institutional environment in recent years. Since the 1990s, especially since the passage of the comprehensive contract law, the government launched large-scale media campaigns to promote the importance of contract laws. Bookstores were full of educational materials on contract laws, and special training programs were set up in large cities for legal services. Moreover, government regulations *require* that firms use formal contracts in their business dealings. In some industries, government agencies (e.g., the Ministry of Construction) even designed standard contractual forms for the whole industry. We also found evidence of such normative and coercive environments in our interviews. In many cases, the respondents' reaction to our inquiry about contractual relationships reflected the norms and expectations developed in the institutional environment: "Everyone uses formal contracts nowadays." "We are state-owned firms. We use formal, legal business procedures." One manager in a state-owned firm said: "We use formal contracts and sometimes take our contractual partners to the court. Most of the time we do not expect to get any tangible outcome from court decisions. But court decisions will put it on record that the contract failures are not the result of our irresponsibility or acceptance of bribes."

We now examine factors that contribute to variation in the forms and provisions in interfirm contracts. Table 3 reports the parameter estimates of the models. The dependent variable is the binary variable that takes the value of 1 if the contractual form for the provision in that column is informal (or absent), and 0 if it is formal. The large magnitudes and negative signs associated with the intercepts indicate that, other things being equal, there is a high probability of using a formal agreement in recording these provisions. We should keep in mind that the estimated model accounts for relatively small variation in the dependent variable.

Institutional Factors. In contrast to the patterns in search channels, with minor exceptions, all types of firms behave similarly in their choice of forms and provisions

Table 3. GEE Coefficients Predicting the Likelihood of Having Informal Agreement in Contracts: 620 Firms in Beijing and Guangzhou, China, 1999 to 2000

	Contractual Provision									
	Volume		Quality		Price		Deadline		Safeguards	
Covariate	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)
Intercept	−7.638**	(1.968)	−2.285	(2.362)	−5.750**	(2.154)	−8.245**	(2.058)	−4.758*	(1.890)
Firm Ownership										
Collective	−.751+	(.449)	−.848+	(.479)	−.176	(.418)	−.382	(.374)	−.241	(.396)
Hybrid	−.541+	(.325)	.060	(.359)	−.197	(.348)	.066	(.311)	.224	(.319)
Foreign	−.588	(.436)	−.112	(.535)	−.116	(.430)	−.342	(.433)	.065	(.408)
Private	−.138	(.320)	.731*	(.336)	.278	(.334)	.189	(.326)	.371	(.329)
Other	−.532	(.670)	−1.257	(.890)	−.868	(.664)	−.573	(.628)	−.902	(.577)
Guangzhou	.045	(.253)	.259	(.282)	−.316	(.272)	−.097	(.240)	−.498*	(.243)
Firm sales (log)	−.222**	(.067)	−.261**	(.077)	−.174*	(.068)	−.201**	(.060)	−.190**	(.057)
Industry										
Heavy industry	−.264	(.397)	.267	(.521)	−1.093*	(.527)	−.815*	(.415)	−.072	(.380)
Retail	−.046	(.281)	.349	(.289)	.053	(.301)	.040	(.263)	.162	(.264)
Construction	−.524	(.570)	−.701	(.730)	−1.540+	(.794)	−2.227**	(.861)	−1.150*	(.537)
Service	.490	(.405)	1.450**	(.426)	.841*	(.404)	.346	(.399)	.796*	(.405)
Other	−.044	(.485)	.969*	(.445)	.245	(.420)	.015	(.406)	−.651	(.401)
Prior acquaintance	−.277	(.240)	−.329	(.245)	−.445+	(.245)	−.460*	(.219)	−.501*	(.210)
Duration of acquaintance	.004	(.003)	.006*	(.003)	.004	(.002)	.007**	(.003)	.003	(.002)
Search Channel										
Government sponsorship	−1.166+	(.648)	.023	(.580)	.220	(.558)	−.365	(.507)	−.211	(.552)
Collegial referral	.052	(.359)	.566	(.406)	.515	(.399)	.683*	(.344)	.376	(.322)
Social network	.355	(.309)	.771*	(.341)	.751*	(.345)	.775*	(.306)	1.058**	(.283)
Self-initiative	.466	(.416)	1.061*	(.462)	1.436**	(.430)	1.135**	(.403)	1.389**	(.369)
Type of Contract										
Purchase	.418	(.302)	.404	(.310)	.547	(.343)	.411	(.302)	.519+	(.265)
Service	−.578	(.405)	−.055	(.404)	.266	(.390)	−.103	(.367)	−.559	(.375)
Other	−.440	(.528)	.631	(.454)	.120	(.452)	.175	(.388)	−.467	(.440)
Percent contract value	−.852	(.631)	−1.332	(.980)	−.738	(.512)	−.775+	(.445)	−.309	(.282)
Contract duration	−.062	(.118)	−.019	(.112)	.049	(.077)	.176*	(.070)	−.143	(.113)
Number of contract partners	.065*	(.032)	.028	(.035)	.027	(.034)	.090**	(.031)	.001	(.029)
Number of contracts	760		756		760		756		750	
Number of events	124		119		114		158		191	
Log-likelihood	−298.8		−274.4		−273.8		−330.7		−355.6	
Degrees of freedom	27		27		27		27		27	

Note: State firm is the reference category for firm ownership, light industry is the reference category for industry, open information is the reference category for search channel, and sale is the reference category for type of contract. Three indicator variables for missing values for percent contract value, number of contract partners, and firm sales (log) are also included in the models.

*$p < .05$ **$p < .01$ (two-tailed tests)

+$p < .05$ (one-tailed tests)

in their contracts, as indicated by the preponderance of statistically nonsignificant coefficients associated with firm ownership. This is remarkable given that different types of firms have distinct governance structures and face different risks. For instance, administrative interventions by the government are the strongest in state-owned firms; but the extent of such interventions is much weaker in other types of firms. Nevertheless, all firms behave similarly in adopting contractual forms and provisions. The significant effects of firm size (firm sales volume) indicate that large firms (most of them are state firms) are more likely to use formal contracts.[9]

SOCIAL RELATIONS. Network-based relations show interesting patterns of effects. Prior acquaintance is more likely to lead to written contracts for three of the five provisions we analyzed. Duration of acquaintance increases the probability of having informal provisions, but it does not have a significant effect on most provisions. For example, for the deadline provision, the odds for firms with a prior acquaintance to adopt informal provisions is 37 percent less likely ($\exp[-.460] = .63$), compared with firms with no prior acquaintance. It would take more than four years ($.007 \times 53$ months = .37) of acquaintance time to offset this negative effect. These patterns imply that, when firms meet their partners for the first time, they are more likely to use informal contracts to initiate business transactions. We speculate that this is a trial stage involving relatively small deals. The use of informality signals some sense of trust that may facilitate future interactions. But once they are beyond this trial stage, firms are more likely to use formal provisions. Only after there have been long-term relationships (of 4 to 7 years) will the form of informal contracts prevail. In other words, for those with recurrent relationships, it takes a long time before both sides develop the strong social relations that allow informality in their business transactions. This pattern contrasts sharply with Uzzi's (1996) finding in U.S. markets, where business relations tend to be formal (calculative) first but become informal after an initial "trial" period.

The choice of search channel also has significant effects on contract provisions. Compared with using open information as the search channel (the reference category), contracts that are based on social networks have a higher probability of adopting informal forms on most provisions. This is consistent with the embeddedness idea that social relations, by providing private information, reduce the demand for formal contracts. It is interesting that the effects of self-initiative are similar to those of social network. We suspect that the self-initiative search channel may have captured the firm's unique search effort in information acquisition. As a result, both social network and self-initiative have similar information advantages in contract design.

CONTRACT-SPECIFIC FACTORS. There is at best sporadic evidence of transaction-specific effects as predicted by transaction cost logic. For instance, the probability of informality in deadline provisions increases with a larger number of contractual partners and longer contractual durations, and decreases with higher stakes (the percent contract value). However, except for the deadline provision, there is no clear evidence that contract designs are contingent on transaction-specific factors.

To sum up, the evidence shows that the institutional context plays a critical role in the adoption of formal agreements on the observed provisions. Within this context, variations in social relations have significant effects as predicted by the network-based embeddedness argument. But the magnitudes of effects by the social relation variables are relatively minor, given the high probability of adopting formal agreements for these provisions. That is, variations in social relations offer a statistically significant, but substantively weak, explanation of contractual forms and provisions; transaction cost considerations are even less relevant.

[9] Guthrie (1999, chap. 7) found noticeable differences between western firms and Hong Kong/Taiwanese firms in the specification of arbitration clauses in their joint venture contracts with Chinese firms. Our analyses found no statistically discernible differences between these two types of firms as compared with state firms in the adoption of formal provisions in contracts. As a result, we did not separate these two types of foreign firms in our analyses.

Determinants of the Intensity of Social Interaction

Our previous analyses uncovered the important role of social networks on the search for contractual partners and on the adoption of contractual provisions. Now we examine how social interactions are carried on to maintain contractual relationships after the contract is signed. We asked respondents about the frequency of interactions at a variety of "social occasions" between the two contractual partners. On this basis, we constructed a Likert scale measuring the "intensity of social interaction."

We estimated a mixed regression model of the logarithm of intensity of social interaction, which adjusts for the clustering of multiple contracts within a firm. We estimated a set of nested models to assess the contribution of sets of theoretically related covariates separately. The results are reported in Table 4.

As the log-likelihood statistics indicate, all four nested models show a significant improvement in model fit over their respective previous model. There are only relatively minor changes in the effects of these covariates across the four models. This is evidence that these four sets of covariates have distinct contributions (or lack of contribution) that are not confounded with other sets of covariates. We focus our interpretation below on the final model (Model 4).

The Role of Institutions. We find no significant effects of institutional links by firm ownership. The only consistent finding is that hybrid firms have a higher intensity of social interaction than do state firms (the reference category). We suspect this is because hybrid firms are close to markets and they have more incentives to invest in social interactions (private firms also have a positive, though statistically insignificant, effect). Overall, firms' institutional links do not have significant effects on patterns of social interaction in contract implementation. The intensity of social interaction in Guangzhou, on average, is higher than that in Beijing. If we assume that Guangzhou is more marketized, then this finding suggests that social interactions are not a substitute for market mechanisms; rather, the two complement each other.

Significant variation in the intensity of social interaction is found across industries. Contracts related to products in heavy industry and in retail business tend to involve less social interaction than those in light industry (the reference category). Clearly, patterns of social interaction are contingent on the specific industrial context. Unfortunately, we are unable to examine these contingencies in detail because of the coarse nature of industry information in our data. We use this set of variables mainly for the purpose of statistical control.

Social Relations. An important implication of the embeddedness argument is that particularistic social relations generate variations in economic transactions. Such relations should be reflected in patterns of social interaction in contract implementation. We measured particularistic social relations in three ways: (1) the most important search channel used by the focal firm, (2) prior acquaintance with the contractual partner, and (3) duration of prior acquaintance. As Table 4 shows, prior acquaintance increases social interactions in contract duration. That is, if the contract is based on recurrent relationships, there is a momentum to continue and reinforce social interactions in contractual implementation, other things being equal. But duration of prior acquaintance does not have a significant effect. Nor does the choice of search channel that initiated the contractual relationship.

The Role of Contract-Specific Factors. The most salient findings for this analysis concern the role of contract-specific factors. We find strong evidence that the intensity of social interaction is affected by contract-specific factors. All contract-specific factors show significant effects, and they are consistent with the predictions by transaction cost considerations. The stake of business transaction, as measured by percentage of the contract value in total sales, increases the intensity of social interaction. Contractual duration also increases the intensity of social interaction. This result may reflect a continuous effort by the firms to resolve unforeseen contingencies through relational contracts. Furthermore, an increase in the number of contractual partners significantly reduces the intensity of social interaction, as resource dependence is lessened.

Table 4. Parameter Estimates of a Mixed Model Predicting the Intensity of Social Interaction in Contractual Relationships: 620 Firms in Beijing and Guangzhou, China, 1999 to 2000

	Model 1		Model 2		Model 3		Model 4	
Covariate	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)
Intercept	2.837**	(.126)	2.571**	(.174)	2.582**	(.172)	2.490**	(.183)
Firm Ownership								
Collective	.015	(.041)	.018	(.041)	.029	(.040)	.010	(.039)
Hybrid	.083*	(.034)	.084*	(.035)	.073*	(.034)	.064+	(.033)
Foreign	−.002	(.043)	−.016	(.043)	−.027	(.042)	−.013	(.041)
Private	.050	(.035)	.054	(.035)	.058+	(.035)	.056	(.034)
Other	.203**	(.061)	.194**	(.062)	.175**	(.060)	.181**	(.058)
Guangzhou	.108**	(.025)	.093**	(.026)	.084**	(.025)	.072**	(.025)
Firm sales (log)	.009	(.006)	.009	(.006)	.009	(.006)	.010+	(.006)
Industry								
Heavy industry	—		−.062	(.041)	−.078+	(.040)	−.078*	(.039)
Retail	—		−.078*	(.031)	−.065*	(.030)	−.051+	(.029)
Construction	—		−.033	(.045)	−.032	(.043)	−.053	(.043)
Service	—		−.004	(.047)	−.022	(.046)	−.035	(.047)
Other	—		−.110*	(.044)	−.108**	(.043)	−.098*	(.042)
Prior acquaintance (yes = 1)	—		—		.153**	(.025)	.149**	(.025)
Duration of prior acquaintance	—		—		.000	(.000)	.000	(.000)
Search Channel								
Government sponsorship	—		—		−.012	(.050)	−.038	(.049)
Collegial referral	—		—		−.042	(.035)	−.028	(.034)
Social network	—		—		.035	(.030)	.034	(.030)
Self-initiative	—		—		−.076+	(.040)	−.081*	(.039)
Type of Contract								
Purchase	—		—		—		−.108**	(.030)
Service	—		—		—		−.024	(.036)
Other	—		—		—		−.173**	(.043)
Percent contract value	—		—		—		.006+	(.004)
Contract duration	—		—		—		.033**	(.008)
Number of contract partners	—		—		—		−.010**	(.004)
Number of contracts	659		659		659		659	
Log-likelihood	−138.0		−132.3		−105.2		−72.7	
Degrees of freedom	8		13		19		27	

Note: State firm is the reference category for firm ownership, light industry is the reference category for industry, open information is the reference category for search channel, and sale is the reference category for type of contract. Three indicator variables for missing values for percent contract value, number of contract partners, and firm sales (log) are also included in the model.

*$p < .05$ **$p < .01$ (two-tailed tests)

+$p < .05$ (one-tailed tests)

As far as type of contract is concerned, purchase contracts involve less social interaction than do sale contracts. This is consistent with the characteristic of buyers' markets in China in recent years where, because market supplies exceed demands, more effort is required in social relations on the sale side of a transaction than on the purchase side. Overall, the intensity of social interaction is proportional to the risk involved in specific economic transactions. For transactions that are simple, less risky, and less resource dependent, there is significantly less investment in social interaction. These findings show that investment in social interaction is instrumental in contract implementation, but is less relevant to institutional links or prior social relations.

DISCUSSION AND CONCLUSION

Using interfirm contractual relationships as our analytical focus, we examined how different mechanisms—economic calculativeness, social networks, and stable institutional links—affect durable, bilateral economic relations in China's transitional economy. Our empirical study has investigated three selected issues of contractual relationships: (1) the choice of search channel for contractual partners, (2) form and content of the contract, and (3) the intensity of social interaction in contract implementation. We enrich the embeddedness argument by explicitly incorporating the role of social institutions in the marketplace, and by highlighting the complementary and reciprocal interplay among different mechanisms in economic activities.

(1) Social relations. Previous research has shown that social relations are used to manage uncertainty and complexity in economic transactions. In transitional economies, firms face high uncertainty and volatility in their business environment; in response, they develop various strategies to manage business relations (Guthrie 1999; Keister 2001; Stark 1996). Thus, our study reveals that social relations play a critical role in interfirm relationships. First, a large proportion of firms identify social networks as the most effective way of finding business partners, indicating the importance of social relations in the initiation of business transactions. Second, social network channels also help explain variations in the contractual forms and provisions adopted: Contracts initiated through social networks tend to have a higher probability of having informal provisions than those based on an open information search channel. Third, prior acquaintance increases the intensity of social interaction in contract implementation, controlling for transaction-specific factors.

However, there are limits to the role of social relations in economic transactions: Network ties play statistically significant but a substantively minor role in the choice of contract forms and provisions. There is also evidence that social interactions are used instrumentally in contract implementation. These findings suggest that the use of social networks is not idiosyncratic to the Chinese context; rather, these instances closely resemble those found in industrialized market societies.

(2) Institutional links. A central characteristic of the institutional arrangements in China is the variety of property-right relationships among different types of firms. In China's transitional economy, different firms experience different pressures from market competition and political authorities. Our findings show that the effects of these varying institutional links are especially prevalent in the choice of search channels for contractual partners. Consistent with distinct institutional pressures, state firms and foreign firms show similar behavioral patterns in the use of search channels, whereas hybrid firms, collective firms, and private firms are similar in their preference for social networks, self initiative, and collegial referral as search channels. We suspect that this pattern reflects different institution-based resources and constraints.

We also found widespread adoption of a range of formal provisions in contracts, as indicated by the absence of firm ownership effects and the large proportion of contracts with similar forms and provisions. These patterns are so broad that they also transcend particularistic transaction-specific or network-specific factors. How do we interpret these similar behaviors across firms in the use of formal contacts? There are several possible institutional sources. First, regulatory pressures from government agencies

may have forced firms to comply with these regulations. For example, we learned in our interviews that government regulations required that state firms use formal contracts. Government agencies in some industries (e.g., construction) even developed standard contracts for firms to use. Local governments are also actively involved in promoting formal contracts as regulatory devices. Second, the widespread adoption of contracts may also reflect the institutional legacy of lateral relationships among firms in the prereform era, and these early experiences may have facilitated the diffusion of such practices. In this light, what we have observed may indicate the continuity and reinforcement of existing social institutions.

We may also interpret the persistence of network-based interfirm relations over time in this light. Patterns of particularistic social relations are often cultivated on the basis of stable institutions that give meaning to forms of business relations and economic transactions (Dore 1983; Hamilton and Biggart 1988; Zelizer 1994). The pervasive use of social networks before the reform era and in the reform era suggests the importance of institutional environment. The widespread nonmarket exchange relationships in the prereform era was an institutional consequence of the shortage economy (Walder 1989); similarly, the role of social networks in the reform era reflects variation in institutional links among firms, as in the choice of contractual partners.

(3) TRANSACTION COST FACTORS. According to transaction cost economics, contracts are about economic transactions and should reflect risks, governance, and safeguards involved in business transactions. We find significant effects of transaction-specific factors in the intensity of social interaction *after* a contract is signed. That is, the intensity of social interaction in the process of contract implementation varies systematically with contract-specific factors. More important, these variations cannot be satisfactorily explained by either the institutional or network factors in our model. This set of findings implies that social interactions commonly observed in economic spheres are to a large extent instrumental in ensuring the success of the business transactions. On the other hand, the economic calculativeness argument also needs to be carefully qualified: Contrary to the expectations from transaction cost considerations, transaction-specific factors do not play a significant role in the choice of search channels, nor do they affect the formality or provisions in these contracts.

These apparently disparate characteristics of contractual relationships can be synthesized from the point of view of the firms who seek and engage in bilateral business relations: As firms begin to engage in business transactions, they use the institutional channels at their disposal to search for contractual partners, because there are privileged resources and information associated with these channels. Firms with weak institutional links (e.g., private firms) must resort to informal, social networks. As firms design contracts, they draw on their past experiences in forging interfirm relations and respond to regulatory pressures that require firms to use formal contracts in business transactions. Finally, after the contracts are established, firms strategically invest in social interaction to ensure smooth contract implementation.

What emerges from the preceding descriptions is a behavioral model of the firm in which various mechanisms—constraints by institutional links, the use of social networks, and efforts in economizing transaction costs—generate different firm behaviors. The firm in this model is subject to bounded rationality and does not always know the best alternative, nor does it optimize opportunistically in the marketplace. Instead, the firm is path-dependent in that it relies on (and is thus constrained by) institutional legacies and its institutional links in its search for business partners, while paying little attention to the specific attributes of the transactions involved. In most cases, the firm adopts formal contracts regardless of variation in the specifics of business transactions. To manage an uncertain and volatile business environment, the firm uses social networks to search for partners and to maintain bilateral relations. In all these instances, while pursuing self-interests, the firm takes advantage of available institutional links and social relations to manage its business environment, with the unwitting consequence of being further

constrained by them, and of perpetuating institutional continuities.

This view of the firm provides a perspective on theoretical issues for understanding institutional changes in China's transitional economy. One central issue is the relative roles of emerging markets and existing social institutions in the transformation process (Nee 1989). In the industrial arena, it is obvious that the transformation of the command economy and the emergence of markets have provided both push and pull factors leading firms to move away from the command economy and to engage in marketplace activities. Ironically, firms' efforts to manage uncertainty in their business environment and to make use of the resources available to them have a tendency to renew and reinforce existing social relations and institutional links. That is, the market-induced behaviors of the firm provide the microfoundation for the institutional changes that are path-dependent upon, and evolve with, existing social relations and institutions. This interpretation is consistent with the empirical evidence in recent studies of China and other transitional economies (Bian 1997; Burawoy and Krotov 1992; Guthrie 1999; Keister 2001; Nee 1992; Oi 1999; Stark 1996; Walder 1995, 1996).

Granovetter (1985) developed his seminal thesis of the embeddedness of economic actions in *particularistic* social relations. Subsequent research on the role of network-based social relations in economic activities has supported the importance of these theoretical ideas. Our study has contributed to the embeddedness argument in two ways. First, we have explicitly incorporated the role of social institutions in the explanation of economic actions, and our study has demonstrated that we can take institutions seriously and avoid the problem of the over-socialized theorizing rightly criticized by Granovetter (1985). Indeed, it is these institutional links that generate different pressures on firms and induce distinct firm behaviors in China (Walder 1995). Second, by contrasting the multiple processes active in forging contractual relationships, we have sharpened the analytical power of the embeddedness concept by highlighting the *conditional* nature of the underlying mechanisms and the associated theoretical ideas. For instance, although social institutions play an important role in explaining firm behaviors, institutional links cannot explain variation in the intensity of social interaction in contract implementation. Similarly, while Macaulay's (1963) study emphasized the pervasiveness of informal social relations in contractual relationship, our findings show that social interactions are used instrumentally and that they vary with the type of business transaction. We believe that a better understanding of the conditions in which these mechanisms take effect will improve their explanatory power and facilitate theoretical development in economic sociology.

Xueguang Zhou *is Professor of Sociology at Duke University. His current research examines interfirm contractual relationships and changing employment relations in China's transitional economy. In addition, he is studying the institutional logic of reputation-building in the marketplace. He recently completed a book manuscript on the impact of macro-political processes on individual life chances in urban China during the years from 1949 to 1994.*

Wei Zhao *is a Ph.D. candidate in the Department of Sociology at Duke University. His research interests focus on the areas of economic sociology, organizations, and social stratification. His dissertation reports on a study of reputation phenomena in two organizational fields: the wine industry and academia. He continues his research on Chinese organizations and management. His publications have appeared in* Research in Social Stratification and Mobility *(vol. 19, 2002, pp. 339–75) and in an edited book manuscript (*Educational Reform in China*).*

Qiang Li *is Chair and Professor in the Department of Sociology, Tsinghua University in Beijing. His research interestes include social stratification and mobility, labor markets, and urban sociology. His recent research projects have focused on changing boundaries of social stratification and social groups in China's economic transformation.*

He Cai *is Professor of Sociology at Zhongshan University in Guangzhou. His research focuses on the area of organizations and economic sociology. His recent publications have examined changes in employment relationships and in workers' attitudes in organizations during China's reform era. He is conducting extensive case studies of interfirm relationships in China.*

APPENDIX A

Data Collection

This appendix provides detailed information on the data collection process and discusses issues related to data quality.

DATA COLLECTION

Because of difficulties in gaining access to confidential data, and because of the lack of information on the universe of business contracts, we were unable to follow random sampling procedures to select our sample. Instead, we adopted a convenience sampling method, which led us to collect data in several industries.

We also collected information on the characteristics of the informants. Their average age was 37 at the time of interview; most were male (81 percent) and had "some college," formal college, or higher education (70 percent). At the time of interview, 20 percent worked as an "ordinary manager," 29 percent were "mid-level managers," and 39 percent were "high-level managers." An additional 10 percent held professional jobs in their companies (ordinary, mid- or high-level professional). The median tenure in their current companies is 6 years. The median years in their current managerial (professional) position is 4 years.

Prior research on firms in transitional economies is most often based on case study methods. In reviewing the major studies that used survey methods, we found that none used detailed and sensitive information on business transactions (e.g., Guthrie 1999; Keister 2001; Stark 1996). Studies based on systematic data generally used official statistics or other secondary data sources (e.g., Bachman 2001; Ding 2000; Granick 1991; Y. Lin and Zhu 2001; Peng 2001; Spenner et al. 1998). These, like the survey studies, had available only general information on firms, not the detailed information on economic transactions and social relations required by our study.

SAMPLE REPRESENTATIVENESS

Our data were not drawn randomly from the population of firms (or contracts) in these two cities. To evaluate the representativeness of our data, then, we examined the distribution of firms with respect to (1) firm ownership and (2) industrial location. Table A-1 compares the distribution of firms in our sample with official statistics for Guangzhou and Beijing. Note that the official statistics were not always consistent throughout our categories and we have made adjustments in grouping categories. The discrepancies in sample statistics between Table 1 and Table A-1 is due to the fact that Table 1 is based on information at the time of contract formation, and Table A-1 uses information at the time of interview. In Table A-1 we also made adjustments to parallel official classification of industries. Detailed information on the comparison is available from the authors.

Table A-1. Percentage Distribution of Firm Characteristics for the Sample Compared with Official Statistics

	Beijing		Guangzhou	
Measure	Our Sample	Official Statistics	Our Sample	Official Statistics
Firm Ownership				
State-owned	35	28	26	10
Collective	9	32	11	39
Hybrid	24	15	28	24
Foreign	7	6	13	5
Private	18	12	22	22
Industry				
Heavy industry	18	11	12	6
Light industry	21	11	38	27
Retail	20	28	24	24
Construction	7	6	10	6
Service	12	12	7	14
Other	22	32	8	23

Notes: Our data were gathered in 1999 and 2000. Official statistics are from the Statistical Yearbook of Beijing (1999) and Statistical Yearbook of Guangzhou (1999). See text for definitions of firm ownership and industry.

With regard to firm ownership, our sample overrepresents state firms and hybrid firms compared with the official statistics, and collective firms are underrepresented. The overrepresentation of state firms and hybrid firms reflects the fact that researchers and interviewers have better access to these types of firms. The proportions of private firms and foreign firms in our sample are comparable with official statistics. The underrepresentation of collective firms is somewhat surprising. Our speculation is that, because of the rapid changes in China's organizational reforms, many officially labeled "collective firms" may in fact see themselves nowadays as private firms or hybrid firms when interviewed in our data.

Hybrid firms include those whose property-right ownership is ambiguous and often involve both public (state-owned) and private (or foreign investment) ownership. This is characteristic of transitional firms: Some were previously state-owned firms but are in a process of being privatized; others are nonstate firms that involve multiple sources of ownership (jointly financed by several sources).

With regard to type of industry, Beijing and Guangzhou show distinct patterns in the official statistics, and these differences are also reflected in our sample. Heavy industry and light industry are overrepresented in our sample, relative to the official statistics, because firms in these industries tend to

be large and provide better accessibility. The patterns across other industries in our sample are more or less comparable with official statistics, with some variation between these two cities and a higher percentage of "other industries" in official statistics.

Because we did not use a random sampling procedure, the distribution of firms by type of ownership and industrial setting reflects firms' accessibility. Overall, however, the distributions do not indicate any serious bias in our sample. The overrepresentation of state firms and hybrid firms and large firms (in heavy and light industries) also coincides with the fact that these firms tend to have durable, bilateral relations due to the nature of their products and institutional context.

OTHER SELECTION BIAS

In addition to the issue of sample representativeness, there is also a potential bias in the selection of specific contracts by the interviewees. In our questionnaire, we explicitly asked about "formal or informal business agreements" so as to include both formal and informal contracts in our sampling frame. We also tried to use the term "business agreement" and avoid using the word "contracts" which in Chinese often connotes "formal contracts." However, we had to rely on the interviewees to choose the specific contract(s) to report. A firm typically has many contractual partners. When an interviewee recalls a particular contract in our interview, the saliency of certain types of contracts may influence his or her selection of that contract for presentation, thus introducing potential selection bias.

One potential bias is that larger, more formal contracts are more likely to be selected, partly because such contracts are more salient and easier to recall, and partly because formal contracts are more "legitimate" to present to the outside world. To investigate this issue, we examined the distribution of the size of the contracts as measured by the percentage of the value of the contract in the total production (or sale) of the same products in the focal firm. The distribution by quartile is as follows: Q_1: 2 percent; Q_2: 10 percent; Q_3: 25 percent; Q_4: 100 percent. That is, about half of the contracts (Q_2) made up less than 10 percent of the total sales of that product. And 75 percent of the contracts (Q_3) made up 25 percent or less of the total sales for the firm. Thus, most contracts in our sample are relatively small in their relative value to the focal firm.

We cannot rule out the possibility that recall bias contributes to the high percentage of formal contracts in our sample. But the fact that there is a high proportion of formal provisions even for those contracts that involve small stakes is consistent with and reinforces our theoretical arguments that the formality of contracts is not conditioned on contract size. Hence, it is less likely that the high formality in contracts in our sample results from selection bias in recall.

We recognize that our data collection methods are unconventional, and we do not have independent information to ascertain or rule out the potential bias introduced in the data collection process. Given these limitations, our study should be treated as an exploratory study and the findings reported should be interpreted as suggestive rather than definitive.

REFERENCES

Bachman, David. 2001. "Defence Industrialization in Guangdong." *The China Quarterly* 166:273–304.

Baker, Wayne E. 1984. "The Social Structure of a National Securities Market." *American Journal of Sociology* 89:775–811.

Baker, Wayne E., Robert Faulkner, and Gene Fisher. 1998. "Hazards of the Market: the Continuity and Dissolution of Interorganizational Market Relationships." *American Sociological Review* 63:147–77.

Berliner, Joseph S. 1957. *Factory and Manager in the USSR*. Cambridge, MA: Harvard University Press.

Bian, Yanjie. 1997. "Bringing Strong Ties Back In: Indirect Ties, Network Bridges, and Job Searches in China." *American Sociological Review* 62:366–85.

Bian, Yanjie and Haixiong Qiu. 2000. "Social Capital of the Firm and Its Significance" (in Chinese). *Chinese Social Science* 2:87–99.

Burawoy, Michael and Pavel Krotov. 1992. "The Soviet Transition from Socialism to Capitalism: Worker Control and Economic Bargaining in the Wood Industry." *American Sociological Review* 57:16–38.

Burt, Ronald. 1992. *Structural Holes*. Cambridge, MA: Harvard University Press.

Ding, X. L. 2000. "Systematic Irregularity and Spontaneous Property Transformation in the Chinese Financial System." *The China Quarterly* 163:655–76.

Diggle, Peter J., Kung-Yee Liang, and Scott L. Zeger. 1994. *Analysis of Longitudinal Data*. Oxford, England: Clarendon Press.

DiMaggio, Paul J. and Walter W. Powell. 1983. "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields." *American Sociological Review* 48: 147–60.

Dore, Ronald. 1983. "Goodwill and the Spirit of Market Capitalism." *The British Journal of Sociology* 34:459–82.

Fernandez, Roberto M. and Nancy Weinberg. 1997. "Sifting and Sorting: Personal Contacts and Hiring in a Retail Bank." *American Socio-*

logical Review 62:883–902.
Fligstein, Neil. 1996. "Markets as Politics: A Political-Cultural Approach to Market Institutions." *American Sociological Review* 61:656–73.
———. 2001. *The Architecture of Markets.* Princeton, NJ: Princeton University Press.
Granick, David. 1991. "Multiple Labour Markets in the Industrial State Enterprise Sector." *The China Quarterly* 126:269–89.
Granovetter, Mark. 1974. *Getting a Job.* Cambridge, MA: Harvard University Press.
———. 1985. "Economic Action and Social Structure: The Problem of Embeddedness." *American Journal of Sociology* 91:481–510.
Gulati, Ranjay. 1995a. "Does Familiarity Breed Trust? The Implications of Repeated Ties for Contractual Choice in Alliance." *Academy of Management Journal* 38:85–112.
———. 1995b. "Social Structure and Alliance Formation Patterns: A Longitudinal Analysis." *Administrative Science Quarterly* 40:619–52.
Gulati, Ranjay and Martin Gargiulo. 1999. "Where Do Interorganizational Networks Come From?" *American Journal of Sociology* 104:1439–93.
Guthrie, Doug. 1997. "Between Markets and Politics: Organizational Responses to Reform in China." *American Journal of Sociology* 102: 1258–304.
———. 1999. *Dragon in a Three-Piece Suit.* Princeton, NJ: Princeton University Press.
Hamilton, Gary G. and Nicole Woolsey Biggart. 1988. "Market, Culture, and Authority: A Comparative Analysis of Management and Organization in the Far East." *American Journal of Sociology* 94:52–94.
Joskow, Paul L. 1987. "Contract Duration and Relationship-Specific Investments: Empirical Evidence from Coal Markets." *American Economic Review* 77:168–85.
Keister, Lisa A. 1998. "Engineering Growth: Business Group Structure and Firm Performance in China's Transition Economy." *American Journal of Sociology* 104:404–40.
———. 2001. "Exchange Structures in Transition: Lending and Trade Relations in Chinese Business Groups." *American Sociological Review* 66:336–60.
Kornai, János. 1980. *Economics of Shortage.* New York, NY: North-Holland Publication.
Lin, Nan. 1995. "Local Market Socialism: Local Corporatism in Action in Rural China." *Theory and Society* 24:301–54.
Lin, Yi-min and Tian Zhu. 2001. "Ownership Restructuring in Chinese State Industry: An Analysis of Evidence on Initial Organizational Changes." *The China Quarterly* 166:305–41.
Lubman, Stanley. 1999. *Bird in a Cage: Legal Reform in China after Mao.* Stanford, CA: Stanford University Press.
Macaulay, Stewart. 1963. "Non-Contractual Relations in Business: A Preliminary Study." *American Sociological Review* 28:55–67.
Macneil, Ian R. 1978. "Contracts: Adjustments of Long-Term Economic Relations under Classical, Neoclassical, and Relational Contract Law." *Northwestern University Law Review* 72:854–906.
March, James G. and J. P. Olsen. 1984. "The New Institutionalism: Organizational Factors in Political Life." *American Political Science Review* 78:734–49.
Masten, Scott E., ed. 1996. *Case Studies in Contracting and Organization.* New York, NY: Oxford University Press.
Meyer, John W. and B. Rowan. 1977. "Institutionalized Organization: Formal Structure as Myth and Ceremony." *American Journal of Sociology* 83:340–63.
Mizruchi, Mark S. 1992. *The Structure of Corporate Political Action: Interfirm Relations and Their Consequences.* Cambridge, MA: Harvard University Press.
Montgomery, James. 1998. "Toward a Role-Theoretic Conception of Embeddedness." *American Journal of Sociology* 104:92–125.
Naughton, Barry. 1995. *Growing out of the Plan: Chinese Economic Reform, 1978–1993.* New York, NY: Cambridge University Press.
Nee, Victor. 1989. "A Theory of Market Transition: From Redistribution to Markets in State Socialism." *American Sociological Review* 54: 663–81.
———. 1992. "Organizational Dynamics of Market Transition: Hybrid Forms, Property Rights, and Mixed Economy in China." *Administrative Science Quarterly* 37:1–27.
Oi, Jean. 1999. *Rural China Takes Off.* Berkeley, CA: University of California Press.
Peng, Yusheng. 2001. "Chinese Villages and Townships as Industrial Corporations: Ownership, Governance, and Market Discipline." *American Journal of Sociology* 106:1338–70.
Rangan, Subramanian. 2000. "The Problem of Search and Deliberation in Economic Action." *Academy of Management Review* 25:813–28.
Shelanski, Howard and Peter G. Klein. 1999. "Empirical Research in Transaction Cost Economics: A Review and Assessment." Pp. 89–118 in *Firms, Markets, and Hierarchies: The Transaction Cost Economics Perspective*, edited by G. R. Carroll and D. Teece. New York, NY: Oxford University Press.
Shirk, Susan L. 1993. *The Political Logic of Economic Reform in China.* Berkeley, CA: University of California Press.
Spenner, I. Kenneth, Olga O. Suhomlinova, Sten A. Thore, Kenneth C. Land, and Derek C. Jones. 1998. "Strong Legacies and Weak Mar-

kets: Bulgarian State-Owned Enterprises During Early Transition." *American Sociological Review* 63:599–617.

Stark, David. 1996. "Recombinant Property in East European Capitalism." *American Journal of Sociology* 101:993–1027.

Stinchcombe, Arthur L. 1990. *Information and Organizations*. Berkeley, CA: University of California Press.

Suchman, Mark C. 1995. "Localism and Globalism in Institutional Analysis: The Emergence of Contractual Norms in Venture Finance." Pp. 39–63 in *The Institutional Construction of Organizations,* edited by W. R. Scott and S. Christensen. Thousand Oaks, CA: Sage.

Uzzi, Brian. 1996. "The Sources and Consequences of Embeddedness for the Economic Performance of Organizations: the Network Effect." *American Sociological Review* 61: 674–98.

———. 1997. "Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness." *Administrative Science Quarterly* 42:36–67.

———. 1999. "Embeddedness in the Making of Financial Capital: How Social Relations and Networks Benefit Firms Seeking Financing." *American Sociological Review* 64:481–505.

Walder, Andrew G. 1986. *Communist Neo-Traditionalism*. Berkeley, CA: University of California Press.

———. 1989. "Factory and Manager in an Era of Reform." *The China Quarterly* 118:242–64.

———. 1992. "Property Rights and Stratification in Socialist Redistributive Economies." *American Sociological Review* 57:524–39.

———. 1995. "Local Governments as Industrial Firms: An Organizational Analysis of China's Transitional Economy." *American Journal of Sociology* 101:263–301.

———, ed. 1996. *China's Transitional Economy*. New York, NY: Oxford University Press.

Wank, David L. 1996. "The Institutional Process of Market Clientelism: Guanxi and Private Business in a South China City." *The China Quarterly* 147:820–38.

White, Harrison C. 1992. *Identity and Control: A Structural Theory of Social Action*. Princeton, NJ: Princeton University Press.

Williamson, Oliver E. 1975. *Markets and Hierarchies*. New York, NY: Free Press.

———. 1985. *The Economic Institutions of Capitalism*. New York, NY: Free Press.

Zelizer, Viviana A. 1994. *The Social Meaning of Money*. New York, NY: Basic Books.

Zhou, Xueguang. 2000. "Economic Transformation and Income Inequality in Urban China: Evidence from Panel Data." *American Journal of Sociology* 105:1135–74.

Zhou, Xueguang, Nancy B. Tuma, and Phyllis Moen. 1996. "Stratification Dynamics under State Socialism: The Case of Urban China, 1949–1993." *Social Forces* 74:759–96.