Management and Organization Review 5:3 353–374
doi: 10.1111/j.1740-8784.2009.00154.x

Prior Ties, Shared Values and Cooperation in Public–Private Partnerships

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ABSTRACT Based on social exchange theory, we propose and test the mediating role of formal and informal contracts in linking cooperation characteristics of prior ties and shared values among partners to cooperation success in the public–private partnership context. Results from a survey of 244 partners in public–private partnerships in the medical and healthcare fields in China revealed that both formal and informal contracts mediate the relationship between cooperation characteristics and cooperation success. We discuss the theoretical and managerial implications for public–private partnership research and practice with a specific focus on the Chinese context.

KEYWORDS formal contract, informal contract, prior ties, shared values, social exchange theory

INTRODUCTION

A public–private partnership (PPP) refers to a long-term development and service project between the government and a private partner (Maskin & Tirole, 2008). Compared with the more traditional forms of cooperation, such as firm alliances, PPPs have three distinct features. First, the partners in a PPP do not share a common ownership structure: one side is a publicly owned organization, such as the government or a nonprofit organization (NPO), while the other side is a privately owned organization, such as a business enterprise. Therefore, they tend to pursue different operating and strategic goals. Second, while traditional collaborations typically involve private goods as output, PPPs' outcomes are always public or quasi-public goods and services for the welfare of a third party. This third party may be society at large but is usually not the direct client of either partner. Third, PPPs usually remain in effect between specific partners for long periods of time.

Though distinct, the idea of a PPP is closely related to the concept of firm alliance. A firm alliance is a form of inter-organizational cooperation involving multiple enterprises (Anand & Khanna, 2000). Alliances have become an impor-

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tant research topic that has been analyzed through a range of theoretical perspectives (Baum & Oliver, 1991; Colombo, 2003; Harrigan, 1985; Kogut, 1988; Osborn & Baughn, 1990). The similarities between PPPs and firm alliances allow us to apply concepts and research from the extensive literature on firm alliances to the studies of PPPs. Nevertheless, these comparisons are ultimately limited by the three features listed above that distinguish PPPs from traditional alliances. Compared with the research on firm alliances, there is a dearth of in-depth, systematic research on PPPs (Bettignies & Ross, 2004; Hart, 2003; Martimort & Pouyet, 2008; Reich, 2002). In addition to filling this gap in the research literature, understanding PPPs is also of practical importance. China urgently needs to develop public services, yet it faces enormous pressure on funding and lacks effective methods of development. Thus, research on PPPs and an exploration of their potential are of both practical and theoretical significance.

In this study, we focus on the three features unique to PPPs while drawing on firm alliances literature and applying social exchange theory to understand the factors conducive to the cooperation success of PPPs. We identify two main cooperation characteristics, prior ties and shared values between the partners, which will enhance cooperation success through the mediation of formal and informal contracts. We test this mediation model using a sample of PPPs from China's medical and healthcare industries. We conclude by discussing the implications of our findings for PPP theory and practice.

THEORETICAL BACKGROUND AND HYPOTHESES

Luo (2008) argues that the greater the differences in organizational nature between two partners, the more possibilities exist for opportunistic behaviour in the partnership. Given that a PPP is an alliance between two very different kinds of organizations, it is particularly important for each partner in the PPP to be on guard for any opportunistic behaviour perpetrated by the other partner. For this reason, a formal contract through a series of written agreements can clearly specify the required degree of cooperation and inter-organizational integration (Frankel, Whipple, & Frayer, 1996; Reuer & Arino, 2007). Bucklin and Sengupta (1992, 1993) have also argued that a written contract would allow an opportunity to design desired patterns of each partner's behaviour and to extract penalties from failures to perform. Therefore, at the very least, PPPs may make use of formal contracts to decrease the probability of opportunistic behaviour between the partners.

From the perspective of social exchange theory, it is necessary to take into account informal contracts, also known as implicit contracts (Klein, Crawford, & Alchian, 1978; Marcus, 1987). Blau (1964: 91) defines social exchange as 'voluntary actions of individuals that are motivated by the returns they are expected to bring and typically in fact bring from others'. He considers social exchange a continuing, reciprocal process in which actions are 'contingent on rewarding

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reactions from others' (Blau, 1964: 6). Social exchange behaviours are characterized by trust and reciprocity (Das & Teng, 2001, 2002), which are informal and implicit, akin to an informal contract. Informal contracts are unwritten agreements between partners that cannot be enforced by formal authority. Rather, these contracts depend on each partner's 'desire to create and maintain a positive reputation for integrity and fairness and build trust' (Frankel et al., 1996: 49, citing Barney & Ouchi, 1986, and Larson, 1992). Based on this definition, informal contracts can be an effective alternative to written contracts insofar as they encourage mutual interest without written legal obligation or enforcement by a third party. Partners in a PPP can demonstrate their commitment to the partnership by investing in the cooperative project without a formal written contract and, in doing so, expect each other to demonstrate such trust and good will in return.

Cooperation Characteristics and Cooperation Success in PPPs

In the context of firm alliances, theorists have focused on the 'interactive nature of cooperation between organizations' (Saxton, 1997: 443), highlighting factors important to achieving and maintaining cooperation between organizations. For example, Parkhe (1993) focuses on the history of trust between partnered organizations while Gulati (1995) and Levinthal and Fichman (1988) stress prior ties between the partnered firms. We call such factors 'cooperation characteristics'. We focus on two cooperation characteristics – prior ties and shared values between partners (Saxton, 1997; Young-Ybarra & Wiersema, 1999) – because PPPs generally last a long period of time and involve multi-stage, long-term cooperative relationships between fixed partners. Further, by definition, PPPs involve a partnership between two structurally different organizations with different strategic and operational goals, so the extent to which they share values becomes particularly important for their cooperation success.

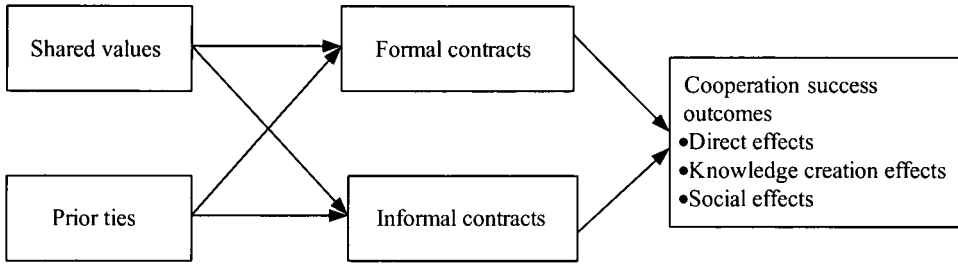
Jacobs (1982) has identified the importance of prior ties between two people for social relationships. These include the same family, hometown, region, school, or place of work as a basis for building positive relationships at the interpersonal level. Inter-organizational relationships can be cultivated when two or more organizations share a common background (usually in the same industry), have a similar approach to a project, or hold similar views concerning the direction of their industry. A common background also is likely to be associated with shared values. Prior ties and shared values are the foundation upon which a cooperative relationship can be established among partners.

China is a rapidly developing country and is one of the fastest growing emerging economies. As such, certain characteristics of emerging economies will have implications for the use of contracts between partners. Brown (1997: 23), as discussed in Luo (2006: 121), suggests that 'contracts are crafted and subsequently ignored far more often in emerging economies than in developed economies'. Luo (2006: 121)

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Figure 1. A mediation model on the antecedents of cooperation in public–private partnerships



has pointed out that, 'In emerging markets, governmental regulations are much more variable, market information is more difficult to verify, and legal systems designed to protect and enforce contracts are much weaker.' Therefore, in the Chinese context, prior ties can be used as an index to evaluate the quality of past transactional behaviour. For an organization engaging in a partnership, it may be safer to cooperate with a partner with which the organization has previously had a pleasant experience.

Cooperation success between parties in PPPs in China can be measured in three possible ways: direct effects, knowledge creation effects, and social effects (Hardy, Phillips, & Lawrence, 2003). Direct effects mainly involve the acquisition of resources for and improvements to the partnership's core operations. These effects usually result from informational and personnel communications between partners as well as changes in the scale or the scope of cooperative projects. Knowledge creation effects involve learning, the transfer of knowledge, and innovation, which emerge from the information shared through the collaboration and learned by each partner's staff. This information can lead to innovations in management, shifts in services provided, and perhaps even changes in society or government policy. Finally, PPPs are different from firm alliances in that they have social effects. PPPs focus on commonwealth and positive externality, and they pay more attention to the social influence of their collaborative projects and contributions to society. Therefore, the social effects of PPPs involve the ways in which their collaboration affects society and other outside parties. These three outcomes and their antecedents (i.e., cooperation characteristics) are depicted in Figure 1 with the two contract mechanisms as mediators.

The Main Effects of Shared Values and Prior Ties on Cooperation

The concept of shared values was first proposed by Barnard (1939, as discussed in Chu, 2001: 86), who suggested that 'an organization can minimize the divergent interests by socializing its members to have a common set of values and goals'. Shared values among partners help to establish trust and reciprocity, thereby

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increasing the amount of appropriable knowledge, which, in turn, increases the likelihood of positive cooperation outcomes. Many theoretical and empirical studies have shown that shared values among organizational members can enhance an organization's performance (Chu, 2001; Nohria & Ghoshal, 1994; Posner, Kouzes, & Schmidt, 1985).

Extending this idea from the intra-organizational to the inter-organizational context, we propose shared values between partners as one of the most relevant factors affecting the success of PPPs. London, Rondinelli, and O'Neill (2005) have vividly considered cross-sector alliances as 'strange bedfellows'. As previously mentioned, PPP partners' differences in ownership and organizational goals make shared values especially important for PPP projects. According to social exchange theory, the more values partners share (e.g., similar blueprints for the future or similar operational modes), the more solid their foundation for exchange will be, making it easier to communicate with each other. They will exhibit a higher quality of reciprocal behaviour towards each other, leading to better collaborative outcomes.

Prior ties refer to the previous history of a particular relationship (Cook & Emerson, 1978; Jacobs, 1982). Similar to what occurs between individuals, organizations can improve their understanding of one another through previous collaborative experiences. Based on social exchange theory, more ties may imply more instances of repeated interaction (Rempel, Holmes, & Zanna, 1985) with a given partner, which can provide more information about the nature of the other partner. Thus, assuming that their prior interaction has been positive (otherwise they would not enter into a new relationship or maintain an ongoing relationship), the familiarity of partners with each other makes them more willing to cooperate. Previous research has shown that shared past interaction increases the performance of future collaborations (Neves & Caetano, 2006; Zollo, Reuer, & Singh, 2002). Moreover, if the partners identify themselves as being in a friendly or amicable collaboration, each partner may be less inclined to act opportunistically (Parkhe, 1993).

Based upon the above analysis, we propose these hypotheses:

Hypothesis 1: Shared values between public–private partners will relate positively to cooperation success (gauged by direct effects, knowledge creation effects, and social effects).

Hypothesis 2: Prior ties between the public–private partners will relate positively to cooperation success (gauged by direct effects, knowledge creation effects, and social effects).

Formal and Informal Contracts as Mediators

In firm alliances and other traditional alliances, it is assumed that the more partners share values and a history of collaboration, the more trust exists

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between them, and the less they may feel the need for formal contracts. Therefore, they are more likely to rely on informal contracts. However, for cross-sector alliances like PPPs, there may be differences in values and goals as well as a significant imbalance in the bargaining power between the partners. Given the government's power, it is likely that the private partner will be less powerful than the public partner in a PPP.

This gap in bargaining power inevitably leads the weaker side to feel inequity and insecurity about the protection of their rights and values. When such power imbalances exist, it is more likely that the stronger partner (public/government) will compensate the weaker side (private enterprises) by designing a more complete contract to increase the trust of the weaker partner. This may decrease any potential concern of unfairness and motivate all actors to invest more in the collaboration. A detailed contract functions as a reference point for determining the explicit range of behaviour that partners hope to accomplish (Hart & Moore, 2008) and signalling that both sides intend to engage in fully reciprocal behaviour.

Anderlini and Felli (1994) argue that formal contracts help minimize the possibilities for opportunism. Formal contracts also restrict each partner's behaviour within a certain scope, thus regulating how and to what extent partners' benefit within that scope (Eisenhardt, 1989). This helps to reduce transaction costs related to inter-organizational cooperation and to mitigate conflicts among partners, which strengthens cooperation outcomes (Joskow, 1987). In sum, formal contracts may help engender trust between partners.

Shared values can also lead to trust, which reinforces the use of informal contracts for three reasons (Gillespie & Mann, 2004; Nohria & Ghoshal, 1994). First, partners with shared values can more easily communicate with each other due to their similar backgrounds and expectations. This communication is further facilitated by the fact that the partners need not exchange certain information as a result of implicit understanding embedded in the shared values. Second, partners who share values are more likely to make commitments to one another prior to formal cooperation, which facilitates the establishment of trust. Third, PPPs are formed by independent organizations and, as separate entities, usually operate without a high degree of hierarchical control. Since the partners come from public and private sectors, they may have divergent interests or goals. Therefore, contracts may be more or less constrained in this kind of cross-sector alliance, leading to incomplete contracts. Thus, the partners may rely on informal contracts to reduce behavioural uncertainty in the PPPs.

Buckley and Casson (1988) and Muthusamy and White (2005) note that cooperative relationships among partners foster a climate of openness, trust and, to some extent, reciprocity. Trust or reciprocity among partners mitigates unequal feeling and facilitates knowledge creation, and these partnerships are, therefore, more likely to result in positive outcomes. For these reasons, we posit that informal

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contracts increase cooperation success in PPPs involving partners with shared values. Based on the above, we propose the following:

Hypothesis 3a: Formal contracts will mediate the positive relationship between shared values among partners and cooperation success in PPPs (gauged by direct effects, knowledge creation effects, and social effects).

Hypothesis 3b: Informal contracts will mediate the positive relationship between shared values among partners and cooperation success in PPPs (gauged by direct effects, knowledge creation effects, and social effects).

Prior ties can also influence the use of formal and informal contracts. The more extensively the partners have collaborated in the past, the more frequently they will cooperate and share information. This lowers the probability of asymmetric information within the PPP. Specifically, partners will be more open about potential conflicts, they will work together to develop better directions for the future, and they will be clearer about what they want. Consequently, parties may develop detailed formal contracts as a result of the open discussion process.

We also predict that prior ties among partners may strengthen or facilitate the trust and reciprocity necessary for informal contracts. Prior ties among partners lead to successive collaborative relationships, each of which causes the partners to place more trust in each other. Empirically, Gulati (1995) argues that firms with prior collaborative experience tend to form non-equity alliances rather than equity alliances. This is consistent with the conclusion of Dyer (1997), who investigated a network of Japanese automakers. He identifies repeated relationships as the reason why inter-firm alliances in Japan have lower transaction costs than alliances between counterpart firms in the United States. The more extensive their prior ties, the more the partners trust one another and rely on informal contracts. Hitt, Bierman, Uhlenbruck, and Shimizu (2006) found that increased levels of interaction over time are positively related to contracts involving larger sums of money. Their results suggest that continuing interactions lead to greater trust; hence, partners are more willing to enter into larger financial contracts with each other. Cooperative ties over a long period of time help to foster trust as well as enforce the function of informal contracts.

Prior ties also foster the development of inter-organizational routines, which lessen the need for detailed formal mechanisms to monitor and coordinate the relationship (Poppo & Zenger, 2002). As one partner engages in successive cooperative relationships, it can decrease the time spent developing an understanding of the other partner's background, management style, working procedure, and corporate culture (Noble & Jones, 2006). In this way, each partner enjoys reduced monitoring and coordination costs. Prior ties among partners create the trust and routines that form the foundation of informal contracts. We thus propose the following:

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Hypothesis 4a: Formal contracts will mediate the positive relationship between prior ties among partners and cooperation success in PPPs (gauged by direct effects, knowledge creation effects, and social effects).

Hypothesis 4b: Informal contracts will mediate the positive relationship between prior ties among partners and cooperation success in PPPs (gauged by direct effects, knowledge creation effects, and social effects).

METHODS

We collected data using a survey of public–private partnerships in the medical and healthcare fields in China. Data collection began in September 2006 and concluded in January 2008. Our procedure comprised three stages: preliminary interviews, a small-scale pilot survey, and the final survey. Specifically, from September to December 2006, we conducted in-depth interviews with 36 key individuals, including the principals at the China Hospital Association (CHA), the China Medical Association (CMA), the China Pharmacists Association (CPA), the China Pharmaceutical Industry Association (CPIA), Xian Janssen Pharmaceutical (XJP), and other pharmaceutical enterprises participating in PPPs. During the pilot test, we designed a questionnaire based on the interviews, and we distributed it to 75 individuals engaged in PPPs. The respondents were managers selected from both the public and private sectors. We asked respondents to identify any ambiguities in the terms, concepts, meanings, and issues presented in the survey. A Chinese professor conducted face-to-face interviews with some participants. Minor changes in the wording of the Chinese version were made based on the initial interviews and the pilot study.

Sample and Procedures

The main survey was administered from May 2007 to January 2008. The questionnaires were sent to respondents in both private and public sectors. Private sectors included various types of firms such as state-owned firms and privately owned firms; public sectors included government-related institutes and various NPOs.

Based on a list of projects provided by the International Communication Center of the Ministry of Health, we sent out 169 questionnaires to partners from public organizations and received 124 returned questionnaires (a 73.4 percent response rate). This return rate is significantly higher than the rates usually reported in similar inter-organizational studies (e.g., 27 percent in Heide & Miner, 1992). Of the 124 returned questionnaires, 20 were invalid due to incomplete information. The final number of valid questionnaires, therefore, was 104, resulting in an effective response rate of 61.5 percent for complete questionnaires.

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We sent 256 questionnaires to various types of pharmaceutical enterprises participating in PPPs (representing the private side of partnerships), including state-owned pharmaceutical enterprises, privately owned firms, and joint ventures. We received 159 returned questionnaires, which is a 62.1 percent response rate. Of these 159 questionnaires, 19 were invalid due to incomplete information. Thus, the final number of valid questionnaires was 140, with an effective response rate of 54.7 percent.

The respondents of the questionnaires were the principals of each public organization and the CEOs of each enterprise. We required these principals and CEOs to have worked for more than six years in their respective organizations to ensure that they were sufficiently knowledgeable about PPPs and the organization's history of previous partnerships.

The potential for non-response bias was assessed using the procedure discussed by Armstrong and Overton (1977). We performed t-tests to compare respondents versus non-respondents in terms of organization size and organization age. These tests indicate that there were no statistically significant differences ($t = 0.93$, $p > 0.10$). Thus, we conclude that non-response bias did not occur in this sample.

Measures

We developed the survey instruments in English and then translated them into Chinese; two bilingual Chinese professors crosschecked both versions. We employed back-translation in order to verify the accuracy of the translation and to correct any discrepancies that were identified. We provided a seven-point Likert-type scale for the responses; answers included 1 = 100% disagreement, 2 = 80% disagreement, 3 = 60% disagreement, 4 = neutrality, 5 = 60% agreement, 6 = 80% agreement, and 7 = 100% agreement.

Prior ties. We measured this construct with two indicators based on three items. Consistent with Gulati (1995) and Anderson and Weitz (1989), respondents were asked whether their organization had previously partnered with their current partner. The present study included two additional items regarding prior ties, assessing the respondent's feelings about the cooperative experience with the partner in question as well as his or her familiarity with the partner's cooperative history. One indicator is the average of two items; the other indicator is measured with one item. The reliability (Cronbach's alpha) for the three-item measure is 0.73.

Shared values. This scale, adopted from Morgan and Hunt (1994) and Young-Ybarra and Wiersema (1999), was based on four items that asked respondents to indicate the similarities between their organization and its partner for a variety of organizational attributes, including long-term understanding of industry develop-

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ment and short-term intentions pertaining to the cooperative project in question. Two indicators (with two items each) were used to measure this construct and each indicator is the average of two items. The reliability (Cronbach's alpha) for this scale is 0.86.

Formal contracts. Consistent with Dyer and Singh (1998) and Jap and Ganesan (2000), respondents were asked to respond to five items that reflected the degree of formal contracts involved in their partnership, including the contents of detailed rules, explanations regarding potential contingencies, conflict resolution, and responsibilities and duties of each partner. We used two indicators (one indictor with three items and another indicator with two items) to measure this construct. Each indicator is the average of items. The reliability (Cronbach's alpha) for this scale is 0.78.

Informal contracts. We drew measures of informal contracts from the inter-organizational relationships literature (Tsai & Ghoshal, 1998; Uzzi, 1997). After modifying the statements to reflect the nature of public–private partnerships, respondents were asked to rate three statements reflecting their organization's informal relationship with their partner organization. Two indicators (one indicator with two items and another indicator with one item) were used to measure this construct. The reliability (Cronbach's alpha) for this scale is 0.78.

Cooperation success. We measured this construct with three indicators: direct effects, knowledge creation effects, and social effects. Three items were used to measure direct effects, four items were used to measure knowledge-creation effects, and the social effects were measured using four items. All items were from Hardy et al. (2003). The reliabilities (Cronbach's alphas) for the three scales are 0.77, 0.83, and 0.81, respectively.

Control variables. We included two indicators of organizational characteristics as control variables: size and age of the partnering organizations. Regardless of whether the organization is in the public or private sector, the larger the organization's size, the more likely it is to have opportunities to be involved in PPPs or be engaged in collaborations (Noble & Jones, 2006). In addition, the larger the organization, the more likely it is to have a comprehensive set of values (Anand & Khanna, 2000), thus making it more likely to achieve better outcomes (Saxton, 1997). *Organizational size* was measured as the number of full-time employees. We measured organizational size on a five-point scale according to the number of employees, which was divided into five categories: less than 100 = 1, between 100 and 200 = 2, between 200 and 500 = 3, between 500 and 1000 = 4, or more than 1000 = 5. Scholars have noted that organizational age is associated with the emergence of prior ties and shared values among partners (Hodge & Greve, 2007).

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Organizational age was measured on a five-point scale as the years since the founding of the organization in China and divided into five categories: fewer than 5 years = 1, 5–10 years = 2, 10–15 years = 3, 15–20 years = 4, and more than 20 years = 5.

We used factor analysis to test the reliability and validity of the scales. Appendix I lists the items of all the scales and their reliability estimates.

Analyses

We used structural equation modelling (SEM) with latent constructs to test the hypotheses. The LISREL program (Jöreskog & Sörbom, 2001) was used to perform the SEM analyses. We assessed the fit of the measurement model, followed by the test of the structural model (Anderson & Gerbing, 1988; Wu, Tsui, & Kiniki, in press). Following Wu et al. (in press), an unmeasured common method variance (CMV) factor was included in the structural model based on a procedure described in Podsakoff, McKenzie, Lee, and Podsakoff (2003) to partial out method variance. Due to identification issues, we ran the models with a CMV factor. χ^2 difference tests showed that the model with CMV factor fit the data equally as well as the model with no CMV factor: χ^2diff (11) = 16.58, n.s. Since the CMV factor did not change the results of the structural model, we report the results below without the CMV factor.

In order to assess the fit of the model in Figure 1, we used confirmatory factor analyses (CFAs) and several goodness-of-fit indices, as suggested in the SEM literature (Jöreskog & Sörbom, 2001). We used LISREL 8.5 (Jöreskog & Sörbom, 2001) to conduct a CFA of the five variables in our study. Table 1 presents the CFA results. As shown, the hypothesized five-factor model fit the data well ($\chi^2 = 46.76$, d.f. = 34; comparative fit index [CFI] = 0.98; incremental fit index [IFI] = 0.98; root mean square error of approximation [RMSEA] = 0.04), providing evidence of the construct distinctiveness of prior ties, shared values, formal contracts, informal contracts, and cooperation success outcomes.

Table 2 presents the zero-order correlations among variables in this study. As this table shows, prior ties and shared values were related separately to formal contracts, informal contacts, and to the three types of cooperation outcomes. Formal contracts and informal contracts were also each related to the three types of cooperation outcomes in PPPs.

RESULTS

The results of the full structural model are presented in Figure 2. Results reveal that the model fits the sample data well: $\chi^2 = 69.34$; d.f. = 55; CFI = 0.97; IFI = 0.97; RMSEA = 0.04. All six hypothesized structural paths are statistically significant. Shared values are positively related to formal contracts ($\beta = 0.57$,

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Table 1. Comparison of measurement models

Model	*Factors*	χ^2	*d.f.*	$\Delta\chi^2$	*RMSEA*	*CFI*	*IFI*
Baseline model	Five factors	46.76	34		0.040	0.98	0.98
Model 2	Four factors: prior ties and shared values were combined into one factor	101.44	38	54.68***	0.088	0.96	0.96
Model 3	Four factors: formal contracts and informal contracts were combined into one factor	210.04	38	163.28***	0.16	0.94	0.94
Model 4	Three factors: prior ties and shared values were combined into one factor; formal contracts and informal contracts were combined into one factor	262.29	41	215.53***	0.17	0.93	0.93
Model 5	One factor: prior ties, shared values, formal contracts, informal contracts, and cooperation success were loaded onto one factor	575.14	65	528.38***	0.19	0.85	0.85

Notes:
*** $p < 0.01$.
d.f., degrees of freedom; RMSEA, root mean square error of approximation; CFI, comparative fit index; IFI, incremental fit index.

Table 2. Correlations among major variables

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1. Organizational size	1.00								
2. Organizational age	0.59***	1.00							
3. Prior ties	−0.01	−0.04	1.00						
4. Shared values	0.06	0.16**	0.32**	1.00					
5. Formal contracts	−0.11*	−0.01	0.44***	0.55***	1.00				
6. Informal contracts	0.07	0.11	0.59***	0.56***	0.38**	1.00			
7. Direct effects	−0.13	−0.08	0.33***	0.42***	0.48***	0.47***	1.00		
8. Knowledge creation effects	−0.05	0.01	0.27***	0.38***	0.51***	0.55***	0.67***	1.00	
9. Social effects	−0.02	0.02	0.39***	0.34***	0.40***	0.43***	0.55***	0.65***	1.00

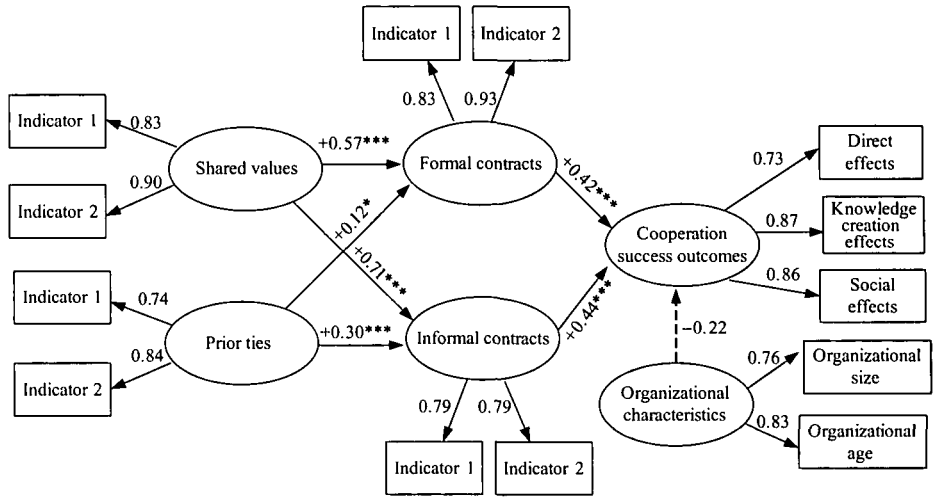
Notes:
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

$p < 0.01$), which are further associated with cooperation success outcomes ($\beta = 0.42$, $p < 0.01$), supporting Hypotheses 1 and 3a. Shared values are positively related to informal contracts ($\beta = 0.71$, $p < 0.01$), which in turn positively influence cooperation success outcomes ($\beta = 0.44$, $p < 0.01$), supporting Hypotheses 1 and

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Figure 2. Results of the structural equation model (SEM) with latent constructs



Notes:
N = 244. Standard factor loadings and path coefficients are presented. All factor loadings are significant at the 0.05 level.
* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

3b. Prior ties are positively related to formal contracts ($\beta = 0.12$, $p < 0.10$), which are further associated with cooperation success outcomes ($\beta = 0.42$, $p < 0.01$), supporting Hypotheses 2 and 4a. Prior ties are also positively related to informal contracts ($\beta = 0.30$, $p < 0.01$), which in turn positively influence cooperation success outcomes ($\beta = 0.44$, $p < 0.01$), supporting Hypotheses 2 and 4b. The control variables are not significantly related to cooperation success outcomes.

DISCUSSION

In this study, we hypothesized that prior ties and shared values among public–private partners would enhance cooperation success through the use of formal and informal contracts. We focused our analysis on PPPs in the medical and health fields in China. Our results show that prior ties and shared values among partners positively relate to cooperation outcomes. Furthermore, the effect occurs via formal and informal contracts, which mediate the three kinds of cooperation outcomes. This study offers important contributions, as discussed below.

Theoretical Implications

This study makes three specific contributions to the social exchange theory of PPPs. First, while the social exchange theory approach delineates concepts such as trust, dependence, and reciprocity, it does not explicitly indicate what factors act as the

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antecedents of trust and reciprocity. In this paper, we argue that, in the specific context of PPPs, shared values and prior ties among collaborating partners are two important factors influencing interactive behaviours. We also posit the functional mechanisms underlying this relationship. In brief, we maintain that, since prior ties and shared values are positively related to cooperation outcomes in PPPs and since this positive relationship is facilitated by formal and informal contracts, social exchange is greater between partners with more prior ties and more shared values.

Second, we combine the three features of PPPs that distinguish them from other firm alliances to establish a coherent framework for understanding PPPs from the perspective of social exchange theory. Because partners in PPPs have different organizational structures and belong to different sectors, enterprises and NPOs have a history of being on different sides of the proverbial argument (Gray, 1985). In firm alliances, two partners with shared values or prior affiliation are likely to depend on informal contracts rather than formal contracts. In PPPs, however, formal contracts can serve as a reference point on what partners should do and ensure reciprocity between the stronger and weaker sides, in order to decrease any inequity in their interaction. Therefore, in PPPs, formal contracts are as equally important as informal contracts. PPPs tend to involve long-term, multi-stage collaboration among specific partners. From the perspective of social exchange theory, we argue that prior ties among partners can be taken as an index that may proxy for a partner's organizational reputation. In the context of PPPs, the outcomes involve not only private benefits for individual partners, but also public benefits for society at large. We believe that direct effects can be manifested as explicit outcomes, which can easily be accomplished using formal contracts. By contrast, knowledge creation and social effects manifest in implicit and tacit forms; therefore, they are more reliant on informal contracts to guarantee that they are completed as promised.

Third, we analyzed the actual conditions of PPPs in the pharmaceutical sector in China and use our findings to modify the traditional wisdom of social exchange theory to make it suitable for the Chinese context. Our interviews indicate that the Chinese government plays a more dominant role than previously considered (Xin & Pearce, 1996). An imbalance exists in pharmaceutical PPPs between the public and private sectors, and this generates a feeling of inequity in the enterprises involved in these PPPs, which highlights the importance of motivating both partners to establish a truly reciprocal relationship in the form of written formal contracts. However, in the Chinese context, the infrastructure for enforcing written contracts does not always function well, and so relationships (*guanxi*) play an indispensable and pivotal role in the operations of PPPs in Chinese society.

Limitations and Future Research Directions

The current study has several limitations. First, one of this study's methodological problems is its reliance on individuals as information sources. We cannot rule

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out possible individual biases despite all attempts to remove them using statistical tests. Future work is needed to collect data from multiple sources (group and individual), which would allow the application of both subjective and objective measures and thereby improve the validity and reliability of the measurement. Furthermore, future research should involve surveying public- and private-sector organizations in pairs in order to examine whether cooperation characteristics in PPPs exert asymmetrical effects on the two sectors and to analyze how each sector's response to the challenges inherent in PPPs affects the outcomes of the partnership.

A second limitation is that we tested the model on a relatively small sample drawn solely from the pharmaceutical industry in China. We believe that the length of the questionnaire probably reduced the response rate. Therefore, future research should use larger sample sizes, and it should examine other industries to cross-validate our model in different settings.

Third, although we analyzed the underlying mechanisms mediating the relationship between our two cooperation characteristics and resulting cooperation outcomes, we did not examine which factors play a moderating role in this relationship. For example, where imbalances of position or bargaining power exist among partners, what factors will determine whether the stronger side manifests friendly behaviour and exhibits reciprocity to the weaker side through formal contracts? To what degree will this kind of reciprocity moderate the relationship between formal contracts and cooperation outcomes in a PPP?

Fourth, we assume the contracts, formal or informal, are of sufficient quality. In other words, this study does not consider variations in the quality of the contracts. For example, we assume (based on our measurement) that formal contracts being enforced are detailed or comprehensive. We further assume that informal contracts are of high rather than low quality due to good communication between the partners. Studying the quality of the contracts could be an important subject for future research.

Practical Implications

When forming cooperative relationships, especially when choosing partners, it is important for managers to focus on two cooperative characteristics: shared values and prior ties. In order to enhance cooperation outcomes of PPPs, the development of collaborative relationships should be established on the basis of the ex-ante cooperative experience and shared values among partners. In situations where partners with prior ties are unavailable, managers should be particularly aware of the potential disadvantages of cooperation with 'strangers'. When partnerships with unknown organizations are necessary, managers are advised to form partnerships based on the shared values of beneficial cooperation, since this can help compensate for the lack of a prior relationship.

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Further, organizations either in the public sector or private sector should push for more complete contracts at the outset of the relationship in order to ensure a more harmonious union in the long term. Nevertheless, the enforcement of a formal contract depends on the institutional environment and each partner's behaviour. Thus, it is important to foster favourable interpersonal relationships between inter-sector alliances in order to reinforce trust and reciprocity, which, in turn, will lead to better outcomes.

CONCLUSION

We focus on the three features unique to PPPs while drawing on firm alliance literature to study PPPs from the perspective of social exchange theory. Our empirical analysis of PPPs from China's medical and healthcare industries suggest that PPPs' prior ties and shared values will enhance their cooperation by increasing their control of the relationship through the use of formal and informal contracts. These results inform PPP theory and practice. We hope this research will help China effectively develop the public services it so urgently needs.

NOTES

The authors thank Anne Tsui, Xiaoping Chen, and Karin Heffel Steele for their constructive comments on earlier versions of this paper. The authors are also grateful for the comments and suggestions from the two anonymous reviewers.

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APPENDIX I

Reliability and Validity of Scales

Items	*Prior ties*	*Shared values*	*Formal contracts*	*Informal contracts*	*Cooperation success outcomes*		
					Direct effects	*Knowledge creation effects*	*Social effects*
1. Before this project, my partner had frequent contact with us	0.80						
2. It has always been pleasant during the cooperative history between us	0.88						

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APPENDIX I (cont.)

Items	*Prior ties*	*Shared values*	*Formal contracts*	*Informal contracts*	*Cooperation success outcomes*		
					Direct effects	*Knowledge creation effects*	*Social effects*
3. My partner is familiar with my prior cooperative experience	0.88						
4. My partner and I both have reached a consensus on industrial development		0.91					
5. My partner and I both have common intentions pertaining to this cooperation		0.89					
6. Even though there exists some inconsistency about short-term goals between us, it will not cause a big conflict		0.76					
7. My partner and I are both prepared to find common ground in the cooperation		0.81					
8. There are prescribed, detailed rules in the contract in order to constrain each partner's behaviour			0.89				
9. Each partner has already considered the contingencies that might emerge in the future at its best and has made an exhaustive explanation in the contract			0.91				
10. Cooperation will not be set up unless all details about cooperation have passed the regulations in the contract			0.84				
11. There are explicitly prescribed institutions and measures to resolve the disputes and conflicts between partners			0.93				
12. There are well-specified responsibilities and rights for each partner			0.86				

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APPENDIX I (cont.)

Items	*Prior ties*	*Shared values*	*Formal contracts*	*Informal contracts*	*Cooperation success outcomes*		
					Direct effects	*Knowledge creation effects*	*Social effects*
13. Partners will communicate with each other about events and changes that will affect collaboration effects				0.87			
14. Each partner has devoted itself to mutually beneficial improvements, not only to its personal benefit				0.89			
15. The advice proposed by my organization in cooperation is always supported by the other partner				0.89			
16. Compared with before, the size of cooperation has had a huge change					0.91		
17. Compared with before, the area of cooperation has had a huge change					0.93		
18. Through the cooperation, performance in my organization has been greatly improved					0.78		
19. Through cooperation, my organization has obtained new and important information from the other partner						0.83	
20. Through cooperation, my organization has obtained related management skills from the other partner						0.93	
21. Through cooperation, my organization has accomplished management innovation (better management methods)						0.95	
22. Through cooperation, my organization has realized service innovation (better service methods)						0.94	

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APPENDIX I (cont.)

Items	*Prior ties*	*Shared values*	*Formal contracts*	*Informal contracts*	*Cooperation success outcomes*		
					Direct effects	*Knowledge creation effects*	*Social effects*
23. Through cooperation, more new partners have come to participate and engage in this project							0.86
24. Through cooperation, this project has acquired stronger influence and power in the industry							0.92
25. Through cooperation, this project has obtained more care and support from other organizations							0.90
26. Through cooperation, this project has received a large amount of approval and praise in the industry							0.93

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Manuscript received: December 7, 2007
Final version accepted: June 17, 2009
Accepted by: Xiao-Ping Chen

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https://doi.org/10.1111/j.1740-8784.2009.00154.x Published online by Cambridge University Press