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Does Negotiation Matter for Business Relationship? A Study of Credible Information Disclosure and Perceived Fairness

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**ABSTRACT**

Negotiations tend to influence long-term business relationships. This paper investigates the role of perceived fairness of the exchange in forming these relationships. The impacts of fairness have been under-investigated in business exchanges. The paper proposes a research model that has perceived fairness at its core. Experiments were conducted in two multi-bilateral negotiation settings with different information disclosure strategies. The results suggest that the decision to reveal the best offer to participants affects perceived fairness. Furthermore, the perceived fairness has a positive impact on business relationships. The findings suggest important implications for the strategic role of information revelation by businesses.

**KEYWORDS:** perceived fairness, electronic negotiations, multi-bilateral negotiations, experimental studies

**INTRODUCTION**

Electronic markets are complex economic, social, and technological aggregates, which connect industrial buyers and sellers globally. As economic aggregates, they may implement such market mechanisms as catalogues, auctions and negotiations. These mechanisms control access to and regulate the execution of transactions and allocate welfare. E-markets are socio-economic institutions providing places where traders meet, interact, establish relationships, and engage in transactions (Wang & Archer, 2007). They are also technological constructs that connect different organizations and individuals (Bakos, 1991). They integrate many components in order to implement a technological infrastructure and provide information and functional services (Choudhury, Hartzel, & Konsynski, 1998).

The activities within the e-markets are organized around exchange, e.g., in form of goods, information, or services (Grieger, 2003). The operation of e-markets requires institutional infrastructures, including law, regulation, and dispute resolution (Bakos, 1991). E-markets allocate welfare and produce social outcomes. Each exchange episode can influence the relationship between participating businesses (Håkansson, 1982). Thereby, solely focusing on their economic aspects would be insufficient for guiding system design and business practices.

Focusing on B2B relationships, this study argues that fairness is a critical aspect for assessing allocation of welfare by the participants of exchange. It suggests that the perception of fairness resulting from negotiations will influence business relationships. The implementation of fairness principles in e-market and mechanism design can enhance participants' fairness perceptions. Although fairness has been intensively investigated in organizational studies, it is rarely examined in the context of business negotiations (Diekmann, Soderberg, & Tenbrunsel, 2013).

The current study conducted an enriched economic experiment involving e-procurement. The experiment used a business procurement scenario, in which one buyer would negotiate with several sellers. A contract would be assigned to one of the sellers. In the experiment, two types of multi-bilateral negotiations were implemented. The first type included non-verifiable negotiations, where participants exchanged messages and offers. The second type featured verifiable negotiations, where the current best offer received by the negotiation host was automatically revealed to all participants. The experimental results show that sellers' fairness perceptions indeed have impact on business relationships. Verifiable negotiation helps to enhance non-winners' fairness perceptions, when the disclosure of current best offer does not result in significant difference of buyers' revenues. The findings of the current study have important implications to both system designers, as well as business practitioners.

## **RESEARCH BACKGROUND**

### **Exchange and Business Relationship**

Exchange is an essential part of the relationships between industrial buyers and suppliers. Early view about business relationships heavily drew on Economics. It was assumed that independent firms conducted discrete transactions in impersonal markets. From this perspective, firms have two main tasks, i.e., organize production within hierarchies and obtain value by exchanging goods and money in markets (e.g., Coase, 1937). Williamson (1979) espoused this stream of thought by pointing out that transaction cost determines the boundary of firms.

Exchange is a critical activity not only in Economics, but also in social life. Social exchange theory places exchange in a social psychology context and recognizes more resources (e.g., status, information, money, goods, and services) that are exchanged in social relationships (Cropanzano & Mitchell, 2005). Adopting a process view, the Industrial Marketing and Purchasing (IMP) group developed an interactive model describing business relationships. The relationship between two firms can be characterized by a series of exchange episodes. Four elements are involved in each episode: product/service exchange, information exchange, financial exchange and social exchange. In their view, the economic exchange in industrial market is barely an isolated activity. Repeated exchange episodes may trigger institutionalization and adaptations that characterize long-term relationships (Håkansson, 1982). The interactive model of IMP group was further extended to Actor-Resource-Activity model, which can be applied to analyze network effects (Håkansson & Snehota, 1995). The IMP approach highlights the dynamic processes of learning and value creation. At the same time, it introduces and acknowledges the importance of individuals in forming and managing business relationships.

### **Fairness and Negotiation**

Although fairness is important for both individuals and society, the systematic development of this concept did not start until the mid-20th century. Homans (1961) laid out the theoretical

foundation of social exchange theory by drawing on the economic notion of exchange and operant psychology. He argued that fairness is the instrumental motive that drives exchange. Adams (1965) further developed the notion of distributive fairness and proposed the equity principle (i.e., the comparison of input-outcome ratios of each exchange participant). Later, alternative principles were proposed including equality, need, and generosity. Studies have shown that people adopt different principles in fairness judgements. The adoption is often contingent on factors such as self-interest, social relationships, culture, and situational needs (Welsh, 2003). Thibaut and Walker (1975) highlighted procedural fairness by examining third-party dispute resolutions (e.g., mediation and arbitration), which in general have two stages: a process stage and a decision stage. They found that disputants were willing to give up some control in the decision stage, which produced the outcomes, if they retained control in the process stage, in which they had chances to voice their issues and concerns. This finding suggests that disputants see a resolution as a fair one if they perceive that they had been in control of the process. Leventhal (1980) introduced procedural fairness into organizational research and proposed normative principles. Bies and Moag (1986) enriched the fairness notion by introducing interactional fairness. They pointed out the importance of interpersonal treatments in the implementation of procedures that produce fairness perceptions. Greenberg (1993) continued along the similar lines, while suggesting separation between informational and interactional fairness. He argued that these two classes represent the social aspects of fairness that correspond to distributive and procedural fairness respectively.

Negotiation and bargaining have been used to study fairness in the participants' behaviors. Ultimatum and dictator games are frequently used in this respect (Diekmann, et al., 2013). Studies of ultimatum and dictator games revealed a weakness of the rational behavior model by showing that people, as social animals, are not as highly selfish as to claim excessive surplus. Fairness is an important element influencing both people's behaviors and judgement.

It has been found that fairness plays an important role not only in distributive but also in integrative negotiations. Albin (1993) showed that negotiators often referred to fairness when evaluating alternatives for a solution, coordinating expectations, and making consensus regarding an agreement. The adoption of fairness principles enhanced mutual responsiveness and thereby facilitated negotiation processes. Empirical results also show that fairness helps to increase the chances for mutually beneficial agreements, enhances durability of agreement, and promotes sound interpersonal relationships (Albin & Druckman, 2010). Procedural fairness enhances the acceptance of negotiated agreements and increases the potential for better negotiation outcomes in dispute resolution (Hollander-Blumoff & Tyler, 2008). It also contributes to more constructive problem-solving and integrative outcomes (Wagner & Druckman, 2012).

### **Challenges and Opportunities**

Exchange episodes join industrial buyers and sellers in both discrete transactions and long-term partnerships (Håkansson, 1982). Economics provides model and instruments that help understand and examine exchange and related results. In practice, industrial buyers and sellers need to balance between two concerns: economic results and relational impacts. Solely focusing on economic results may not be sufficient to guide business practice. Recently, there has been growing interest in developing socio-economic exchange theories that can better satisfy business needs (e.g., Bunduchi, 2008). Economics community also actively integrates social and behavioral findings to develop more robust models that can better explain economic phenomena. Despite these movements, the joint-venture of economics, behavioral science, and social science is undoubtedly challenging.

One of the hindrances preventing the joint-venture is lack of contextual richness in economic studies. For instance, abstract goods or services are often used in these studies. Market participants are expected or incepted to be self-interested and fully rational. The current study attempts to add the concept of fairness on top of economic theory of market exchange, in order to explore the possibility that the “socio-economic” exchange approach can better address business concerns.

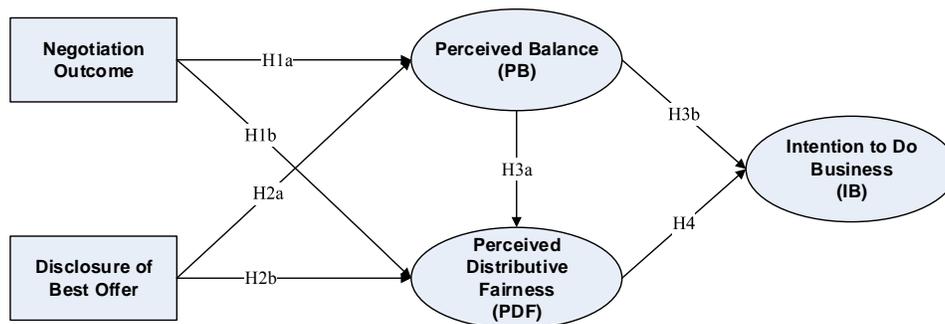
Despite the importance of fairness, understanding of the roles of fairness in business negotiations is quite limited (Diekmann, et al., 2013). Most studies of fairness in negotiations focused on bargaining in games (Engel, 2011; Güth & Tietz, 1990), dispute resolution (Hollander-Blumoff & Tyler, 2008), international trade (Albin & Druckman, 2014), and political negotiations (Wagner & Druckman, 2012). In business negotiations, fairness may not only influence process and outcomes, but also have an effect on the business relationships. Therefore, studying fairness in business negotiations will have both practical, as well as theoretical implications.

**RESEARCH MODEL AND HYPOTHESES**

The current study aims to investigate the impact of fairness on business relationships in procurement negotiations. Negotiations enable rich social interaction between the parties involved. However, research of the effect of information disclosure in negotiations is scarce. To the best knowledge of the authors, Thomas & Wilson (2002, 2005) conducted two procurement experiments comparing four exchange mechanisms, including two negotiations (i.e., multi-bilateral negotiation and verifiable multi-bilateral negotiation) and two auctions (i.e., reverse first-price and second-price auctions). They found that verifiable negotiations generated higher price (or lower revenue to the buyer) than non-verifiable ones, although the difference was insignificant.

The above study shows that credible information disclosure may influence negotiation processes and outcomes. Credible disclosure of the current best offer can be regarded as an implemented condition of procedural or informational fairness in negotiations, if the information reflects facts and is revealed in an appropriate, accurate and unbiased manner. The disclosure of current best offer in negotiation is comparable to English auction or the “known-pie” ultimatum game with full division message.

Figure 1: The research model



Drawing on multiple streams of literature, a research model has been constructed (Figure 1). The model has two independent variables and three subjective constructs. Disclosure of the best offer and negotiation outcome are the independent variables. Participants' fairness perceptions are restricted to distributive fairness since obtaining value is the key objective of businesses. Perceived distributive fairness (PDF) is adopted to capture participants' perceptions of distributive fairness. Perceived balance (PB) is adopted to capture negotiators' perceptions of negotiation outcomes. Four principles (i.e., equity, equality, need, and generosity) used for judging distributive fairness were identified. In market encounters, the last two are not much applicable. When key information (e.g., cost or reservations) is kept private in market encounters, equality principle would be appropriate to use. Intention to do business (IB) is adopted as an indicator of the impact on business relationship. Behavioral intention has been shown as a very strong predictor of actual action (Fishbein, 1979).

Economics theories, game theory, and negotiation analysis often expect that market participants are driven by their goals of achieving the best individual outcomes. The expectation has been empirically confirmed, while deviations may systematically take place. Studies of ultimatum game found similar results. Empirical study comparing negotiations and auctions also show that market participants are indeed motivated to obtain better outcomes (Yu, Kersten, & Vahidov, 2015). Two hypotheses regarding the impact of negotiation outcome are stated as follows.

H1a: Better negotiation outcome leads to increased perceived balance.

H1b: Better negotiation outcome leads to increased perceived distributive fairness.

By the negotiation outcome here we mean the utility of the achieved agreement to the individual negotiator if such agreement is reached. The outcome will be equal to zero if the agreement is not made. The details are discussed in the "measurements" section. The disclosure of best offer in negotiation is an implemented fairness condition. Economic theories posit that competition and self-interest behavior will drive exchange results to the equilibrium in a market. However, studies of ultimatum games show that people are not solely self-interested. Fairness motives may influence their decisions. Some studies suggest that the allocation of the pies will be more balanced between proposers and responders when more information is disclosed (Roth, Prasnikar, Okuno-Fujiwara, & Zamir, 1991; Straub & Murnighan, 1995). Similarly, other findings suggest that price is more favorable to competing sellers in verifiable negotiations compared to non-verifiable negotiations (Thomas & Wilson, 2002, 2005). Thus, we propose the following hypotheses.

H2a: Disclosure of best offer leads to increased perceived balance.

H2b: Disclosure of best offer leads to increased perceived distributive fairness.

Perceived balance is adopted to capture participants' assessment of the allocation, because equality principle will have stronger effect in market encounters. When participants perceive the allocation as more balanced, they will feel the distribution of value is fairer (and less unfair). In turn, these perceptions will influence participants' behavioral intention to do business with the counterpart in the future.

H3a: Perceived balance positively influences perceived distributive fairness.

H3b: Perceived balance positively influences intention to do business.

H4: Perceived distributive fairness positively influences intention to do business.

## METHODOLOGY

### Experiment and Data Collection

An experiment was conducted to test the hypotheses. The study is based on the economic experiments of (Thomas & Wilson, 2002, 2005) and focuses on only two mechanisms, i.e., multi-bilateral negotiation and multi-bilateral verifiable negotiation. The experiment enriches the economic experimental settings in several aspects. First, the negotiations involve multiple issues. Second, a business case was provided to participants. The case contains rich information about the negotiation issues, business objectives, and context. Third, the valuation between the buyer and sellers on some issues are not fully opposite, which opens a possibility of improving joint gain between the buyer and sellers.

A procurement case involving one buyer and multiple sellers was used in the experiment. The case describes a milk producing company (buyer) that requires a logistics provider (seller) to sign a contract for transportation services. The company approached several providers and invited them to participate in a negotiation. The conditions for three issues need to be established in a contract, including standard rate of transportation, rush rate for unexpected delivery, and penalty for non-delivery or delivery of spoiled goods. Each party was given a set of value schemas, representing individual private preferences. Each party was given a reservation condition, indicating the minimum value at which a party can make an agreement. The reservation conditions of sellers jointly determine the winner of a negotiation from the economic aspect (it is the one that has the lowest reservation condition). The quasi-linear scoring function was interpreted as revenue.

An e-negotiation system was used in the experiment. The system supports web-based multi-bilateral negotiations, where users can exchange messages and offers. The experiment had two treatments. One treatment included regular multi-bilateral negotiations without revealing current best offer received by the buyer (non-verifiable negotiation). The other one used the same mechanism plus an extra feature of revealing current best offer (verifiable negotiation). Undergraduate students from four countries (Canada, Poland, Taiwan, and China) were recruited as participants, and they had to conclude their negotiations in ten days.

### Measurements

Let's assume a contract contains  $M$  (non-zero) attributes. Let  $X_j$  denote the set of all possible values of attribute  $j \in \{1, \dots, M\}$ . An offer can be described as an  $M$ -dimensional vector  $x = (x_1, \dots, x_m)$ , while  $x_1 \in X_1, \dots, x_m \in X_m$ . Each negotiation instance will be conducted bilaterally between a buyer and multiple sellers. Suppose there is one buyer  $b$  and  $I$  sellers ( $I > 0$ ;  $i \in \{1, \dots, I\}$ ). Let  $\theta_b$  denote the value schema of buyer  $b$ , while  $\theta_i$  denote the value schema of the seller  $i$ . The value schemas of the buyer and sellers can be mapped to a specific value function (or scoring rule):  $V(x, \theta)$ ,  $\theta \in (\theta_1, \dots, \theta_i, \theta_b)$ . Only one seller can be chosen as the winner at the end of each negotiation. The achievable outcome (or revenue) of the sellers and the buyer can be presented in this formula:

$$u_i(x, \theta_i) = \begin{cases} v(x, \theta_i), & \text{if an agreement is reached;} \\ 0 & , \text{if no agreement is reached.} \end{cases} \quad i \in \{1, \dots, I, b\}$$

A questionnaire was administered to the participants after they concluded their negotiations. Four constructs were operationalized with self-reported survey questions in the form of seven-point Likert scales that had anchors varying from “Strongly disagree” to “Strongly agree”. In total eight questions were used. The instruments measuring PDF were adapted from (Kim & Leung, 2007). The instrument for PB and IB were newly developed. The whole set of questions can be found in Table 2.

## RESULTS

### Descriptive Statistics

In total, 553 participants registered for the negotiation experiment. Before the registration, a number of potential participants from multiple groups was estimated. According to the estimation, two small groups were selected to take the role of buyers. The other groups would be the sellers. After the registration, these participants were randomly matched up into 109 negotiation instances according to the pre-selected role for each group. The negotiation instances included 54 non-verifiable negotiations and 55 verifiable negotiations. Each participant could participate in the experiment once. Within each negotiation instance, one buyer negotiated with several sellers. Most negotiation instances had four or five sellers. Only few had six sellers. Most of the participants were between 20 and 30 years old. A data screening has been conducted. Instances and related data were removed if any of three problems had been detected: 1) technological errors had been reported; 2) instance had inactive sellers; and 3) instance had unusual outcomes (i.e., the seller obtained 100% of achievable value and the instance ended in the first two days).

Table 1: The descriptive statistics of samples

Treatment		Non-verifiable Negotiations	Verifiable Negotiations	Overall
Number of instances		47	48	95
Female		113	94	207
Male		94	108	202
Number of participants		207	202	409
Seller's revenue	Mean	29.96	33.98	31.99
	Median	28	32	30
	Maximum	71	66	71
	Minimum	10	10	10
	Standard deviation	13.421	14.195	13.89
Buyer's revenue	Mean	77.15	75.74	76.44
	Median	77.50	80	79
	Maximum	93	94	94
	Minimum	50	50	50
	Standard deviation	12.165	12.068	12.071

After cleaning, 96 negotiation instances were left: 47 non-verifiable negotiation and 48 verifiable negotiations. The participants included 95 sellers and 409 buyers. The effect of the number of sellers was examined by checking correlations between the number of sellers in each negotiation instance and revenues on both seller and buyer sides. No significant effect was found. The current data analysis focused on the seller side. Among the 409 sellers, 245 completed the questionnaires. Table 1 shows the descriptive analysis of the effective samples for this study.

### Refining Subjective Instruments

Before refining the instruments, MANOVA tests were conducted to test the group homogeneity of subjective variables against a set of control variables, such as gender, age, English proficiency, and experiences with similar systems. No significant effect was found to be related with these variables.

A confirmatory factor analysis, using EQS 6.1, was carried out with the maximum likelihood method. The factor model has an appropriate goodness of fit (NFI=.990, GFI=.979, AGFI=.956, CFI=.998, IFI=.998, SRMR=.016, and RMSEA=.034). The normality of the measurement, factor loadings, and largest standardized residuals had been checked. No item was eliminated. Thus, the model was accepted as the final factor model.

Table 2: The factors, items, and reliability of subjective measures.

Items	Factor Loading	Cronbach's Alpha	Rho
<b><i>Intention to do business (IB):</i></b>		0.972	0.973
I intend to do business with the buyer.	0.961		
I predict that I will do business with the buyer.	0.940		
I plan to do business with the buyer.	0.981		
<b><i>Perceived balance (PB):</i></b>		0.939	0.939
I believe that the achieved revenues were balanced between the buyer and seller sides.	0.901		
I believe that the achieved revenues were evenly allocated between the buyer and seller sides.	0.940		
I believe that the achieved revenues were symmetrically distributed between the buyer and seller sides.	0.903		
<b><i>Perceived distributive fairness (PDF)</i></b>		0.919	0.925
The achieved results were fair to sellers.	0.920		
As sellers, we obtained what we should get.	0.925		

Table 3: The AVEs and shared variances of factors.

Factors	IB	PB	PUF
IB	<b>0.923</b>		
PB	0.270	<b>0.837</b>	
PDF	0.367	0.514	<b>0.851</b>

The measurement reliability has also been tested. The factor loadings, Cronbach's alpha and reliability coefficient Rho are reported in Table 2. All the indices of each factor were greater than 0.7. The discriminant validity of the subjective measures was examined by following the recommendation of Fornell (1981). Comparisons between shared variance of factors and AVE (Average Variance Extracted) were conducted. The values of AVE and shared variance are reported in Table 3. All the values of AVE are above 0.8.

We noticed that PB and PDF are highly correlated and share high covariance. However, we accepted PB and PDF as two separate factors for several reasons. First, this result is in line with the theoretical prediction that PB and PDF should strongly correlate with each other. Second, their shared covariance (i.e., 0.514) is just marginally greater than the recommended value of 0.5. Second, the AVE of each factor is much higher than the shared covariance.

### Research Model Testing

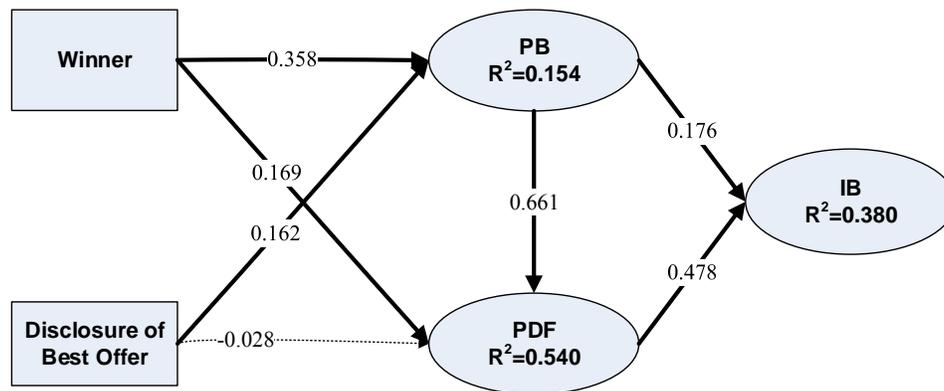
The testing of the research model has been conducted using the data collected from the seller side (i.e., the multiparty side). In the current study, the differences of reservation conditions of sellers were set to be small, which was expected to reduce the direct impacts of relative market positions. Before testing the research model, examination on achievable revenue on both buyer and seller sides have been conducted. A Mann-Whitney U test was conducted to compare buyer and seller revenues between treatments. The results showed that verifiable negotiations lead to insignificantly lower revenue on buyer side (1-tailed  $p = 0.243$ ), which is consistent with past studies (Thomas & Wilson, 2002, 2005). The effect of treatment on sellers' revenues is marginally significant (1-tailed  $p=0.074$ ).

Exchange episodes produce discrete revenues for participants. Thus, the effect of negotiation outcome needs to be examined in several tests. Empirical results show that participants of exchange episodes strongly responded to the contingency of whether they had won the contract (Yu, et al., 2015). Three tests have been conducted. The first test included all sellers (test 1). The independent variables in the first test were two coded categorical variables: disclosure of best offer and winner. The variable of disclosure of best offer was coded to be 1 for verifiable negotiations and 0 for non-verifiable negotiations. The variable of winner was coded to be 1 for winners and 0 for non-winners. The second test (test 2) was conducted among winners, in which sellers' revenues could be treated as a continuous variable. The third test (test 3) was conducted among non-winners, whose revenues were all zero.

A structural equation model was specified in accordance with the research model in test 1 (see figure 2). A MIMIC method was adopted. The testing results showed a good fit of the model (NFI=.986, GFI=.975, AGFI=.954, CFI=.999, IFI=.999, SRMR=.038, and RMSEA=.018). Significant paths and related testing results are presented in Figure 2.

The results show that the variable winner has significant effects on PB and PDF. Thus, win-or-loss contingency indeed has strong impacts on negotiators' subjective responses. The coefficient of the path from winner to PDF is positive. Thus, the hypotheses of group H1 were all supported. The variable disclosure of best offer has significant effect on PB and non-significant effects on PDF. These results indicate that disclosure of credible information will enhance sellers' perceived balance. The hypothesis H2a was supported. PB has significant effect on PDF and IB. The hypotheses of group H3 were all supported. PDF has positive effect on IB, i.e., the hypothesis H4 was supported.

Figure 2: Research model testing results



Test 2 used a path analysis among winners because it helps to increase the statistical power and reduce the overall number of paths. In this test, the sums of the values of items representing each factor were used. In variance analysis, the use of sum score to represent factors is deemed an appropriate, or even a preferred technique (DiStefano, Zhu, & Mîndrilă, 2009). Among winners, achieved revenue can be treated as a continuous variable. Thus, variable of the negotiation outcome in this test is replaced with revenue. An extra path between disclosure of best offer and revenue was added in order to test whether disclosure of credible information may help sellers obtain better outcome.

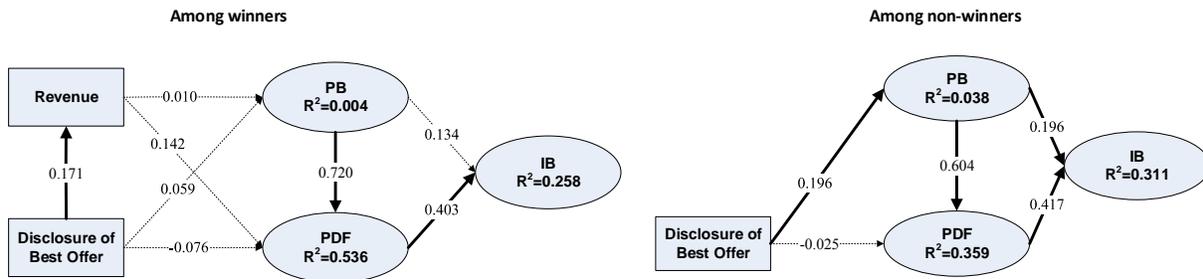
The results showed a very good fit (Chi-square = 1.217 with 2 degree of freedom, probability value for chi-square = 0.54417, NFI = 0.983, CFI = 1, GFI= 0.992, AGFI=0.941, IFI = 1.011, RMSEA =0, and 90% confidence interval of RMSEA was between 0 and 0.218). The coefficients for the paths contained in the model are presented in Figure 5. The significant paths (at 5% significant level) are highlighted.

The results of the path analysis show that disclosure of best offer slightly helps to increase sellers' revenues. However, both disclosure of best offer and revenue have no significant effects on PDF and PB. Thus, among winners, the hypotheses of group H1 and H2 were not supported. PB has a significant effect, which supports H3a. PDF has a significant effect on IB, which supports H4a.

Test 3 used another path analysis conducted among non-winners. A similar model is fit in order to compare the results with those of test 2. The model also used the sum score of factors. Among non-winners, achieved revenues were all zero. Thus, the variable of the negotiation outcome in this test was removed. The maximum-likelihood method was used as well. The

results showed a very good fit (Chi-square = 0.131 with 1 degree of freedom, probability value for chi-square = 0.71735, NFI = 0.999, CFI = 1, GFI= 1, AGFI=0.996, IFI = 1.006, RMSEA =0, and 90% confidence interval of RMSEA is between 0 and 0.141). The coefficients for the paths contained in the model are presented in Figure 3. A significant effect of disclosure of current best offer on PB was found, which supports hypothesis H2a. PB had significant effect on both PDF and IB, which support H3a and H3c. PDF has a significant effect on IB, which supports hypothesis H4a.

Figure 3: Path analyses among winners and non-winners



## CONCLUSION

The current paper discusses the role of perceived fairness in business negotiations. Research model was introduced with two independent variables, including negotiation outcome and disclosure of the best offer. The testing results of the research model showed several interesting findings. First, the relationships between PB, PDF, and IB are consistent with the theoretical analysis of negotiator’s fairness perception. In market exchange, the allocation of values of buyers and sellers is substantive. Particularly, equality principle seems to be the main principle adopted by negotiators. Therefore, PB is the key construct that influences negotiators’ fairness perception (i.e., PDF).

Second, the results of test 1 showed that win-or-lose contingency have a strong impact on negotiators’ fairness perception. This result is consistent with the findings of (Yu, et al., 2015). The results of test 2 show that revenue has no significant effect on PB or PDF. Combined with the results of test 1, this finding shows that winners’ fairness perceptions heavily depends on the win-or-lose contingency. The actual achieved revenue may not be a fundamental factor shaping the negotiators’ perceptions of fairness. These findings highlight a possibility that winners may not reasonably assess fairness in negotiations.

Third, the disclosure of current best offer in negotiations indeed has an impact on negotiators’ fairness perceptions. The results of test 1 show that the disclosure of current best offer influences negotiators’ perceived balance. The results of test 3 show a similar relationship among non-winners. These results are useful for both system design and strategy management. They indicate that implementing fairness in negotiation can help enhance business relationships.

Fourth, the disclosure of current best offer in negotiations has limited effect, although it significantly affects negotiators' fairness perceptions. Test 3 shows that the explained R-square of PB is 0.038, which is very marginal. Test 2 shows that explained R-square of PB is 0.004. In these two tests, the explained R-squares of PB are much lower than that of test 1 (i.e., 0.154). Similarly, the explained R-squares of PDF in both test 2 (i.e., 0.536) and test 3 (i.e., 0.359) are lower than that in test 1 (i.e., 0.540). In both test 2 and test 3, negotiation outcome either has no significant effect or is not relevant. In contrast, the variable of winner in test 1 has stronger effects than disclosure of current best offer (please check the path coefficients in test 1). These results suggest that the effect of win-or-lost contingency on negotiators' fairness perception dominates the effect of the disclosure of current best offer. This finding has an important implication to business practices. Revealing credible information during negotiation helps to enhance business relationship. At the same time, the potential benefits may be overridden by the win-or-lose contingency. Thereby, negotiation hosts may benefit more if they organized their negotiations in a way that other participants do not know that they are competing with each other. However, the achievable effect is also questionable if competition is removed from negotiations. These and other related questions need further investigation in future research.

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