

On Power in Bargaining

An Experimental Study in Germany and the People's Republic of China

by

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Keywords: experimental economics, video experiments, bargaining power, outside options, Chinese German cross-cultural study

JEL classification number: C78, C91, C92, O57

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We experimentally study the influence of bargaining power, defined by outside options, on negotiation outcomes. Our analysis is based on bargaining choices, and video taped in-group discussions. We compare two treatments characterized by high and low power asymmetry run at Bonn University, and did not find evidence that power differences are reflected in bargaining outcomes. Running the high asymmetry treatment in the People's Republic of China shows, however, that more powerful players are able to enforce significantly higher payoffs in China than in Germany. Video tapes reveal that German participants in the weaker position do not accept the power relation given by the experimental setup whereas Chinese subjects do.

1. Introduction

Bargaining and negotiation is one of the most frequent phenomena in social interactions. In most situations and especially in business life, distributive tasks are to be solved, e.g. negotiating on the allocation of a sum of money like profits, rewards or costs. The power available to a negotiator is one factor to affect his performance. The balance of power between the negotiators have been shown to influence bargaining outcomes in studies of behavior in experimental and real bargaining situations. A key characteristic of a bargaining relation is that the power of the parties involved may differ (e.g. recruiters of firms vs. candidates for open positions, low-standard vs. highly-specialized enterprises, large vs. small nations) which, consequently, might influence bargaining outcomes. One important determinant for differing bargaining power is the availability of options outside the existing bargaining relation being more profitable for one party than for the other.

Analyzing bargaining behavior without taking into account power relations leaves out an important feature of social interactions. The economic bargaining literature mainly focuses on symmetric power situations, however, (see for instance Roth, 1995, for an overview on the studies on ultimatum bargaining following Güth et al., 1982, and Rubinstein, 1982). Only a few studies incorporate power disparity into their analysis (c.f. Selten, 1981, Knez and Camerer, 1995; Buchan et al. 2004). Power has been operationalized in negotiation studies as differences in players outside options or alternatives.

In this paper, we focus on the influence of bargaining power - defined by outside options in case of non-agreement – on bargaining outcomes. We investigate an experiment based on Selten's (1981) model where players are represented by groups of participants. We com-

pare two treatments characterized by high and low power asymmetry run at Bonn University and contrast the findings with the results of the high asymmetry treatment conducted in a totally different cultural environment, namely the People's Republic of China.

The analysis is based on two sources of information: bargaining choices and discussions that have been video taped during the bargaining sessions. By using these verbal data, choices can be interpreted in a more authentic way since we can draw on the argumentation of participants and are not restricted to one's own intuition concerning subject's motives. Moreover, motivational influences can be traced that do not show up in offers or final results but are revealed by the in-group discussions. This is especially important for explaining possible cross-cultural deviations.

The aim of this paper is to achieve greater clarity concerning the important question of whether power influences bargaining and if culture matters in this context. Specifically, we are concerned with the power perceptions experimental subjects have in distributive tasks.

We found that more powerful players are able to enforce significantly higher payoffs in China than in Germany. Video tapes reveal that the behavioral disparity can be attributed to different lines of reasoning in the two subject pools. German participants in the weaker position do not accept the power relation given by the experimental setup and take the Equal Split as their reference point. Chinese subjects in the weaker position acknowledge the given power asymmetry by basing their bargaining behavior on a Split-the-Difference argument.

The paper is organized as follows: In Section 2 we discuss determinants for power and cultural differences in the perceptions of power. In Section 3 we describe the video method, and in section 4 we state experimental design and procedure. Section 5 reports the results. Section 6 concludes.

2. The impact of power in bargaining situations

The power available to a negotiator is one factor to affect his performance as has been shown in a variety of studies (c.f. Thibaut and Kelley, 1959, Kelley and Thibaut 1979, Komorita and Kravitz 1979, Fisher and Ury 1981, Neale and Bazerman 1991). One source of power that has received much theoretical and empirical attention is the value of an option a bargainer has outside the existing relationship should he or she fail to reach an agreement. The rationale behind this assumption is the following: if a player has a very unattractive alternative he should theoretically be in a less powerful position than a player with a more attractive outside option since it is less unlikely that he is willing to leave the

negotiation (Pinkley et al. 1994). Differences in players outside options have been frequently taken to characterize power disparities (see Selten, 1981, Kuon and Uhlich, 1993 in characteristic function experiments, Binmore et al. 1989, 1991, Knez and Camerer 1995, Buchan et al. 2004 in ultimatum game experiments and Pinkley et al., 1994 in free-form face-to-face bargaining experiments).

Outside options are not the only source of bargaining power, however. In the social psychology literature, additional grounds for bargaining power have been identified characterized by the bargaining process, i.e. the way how bargainers react to each other's offers. Gruder (1970) points out that each player is able to affect his/her opponent's payoff just by the choice of their offers, a successful settlement being contingent on both players' agreement. Camerer (2003) remarks that offers and counteroffers are a language with nuance and cultural variation. Attributing power only to the player with the higher outside option would neglect an important aspect of the nature of power since the less powerful partner in terms of outside options might possess bargaining power higher than a comparison of outside options indicates.

In addition to the extra-personal constituent of power manifested by outside options, an intra-personal factor has shown to be an essential aspect of power. This is the feeling of power or strength (c.f. McClelland, 1975). This finding is important with regard to the perception of power. In a bargaining context, for instance, the relative power as characterized by outside options may not substantiate in a similar feeling of superiority or subordination by the more powerful or less powerful partner, respectively. This may affect negotiation behavior in that the stronger partner does not fully exploit his bargaining power, and the weaker partner does not accept the power relation as given by the situational context. We will come back to this point when discussing the results of our experiment.

The experimental literature models subjects as inequity averse agents (see Fehr and Schmidt, 1999, and Bolton and Ockenfels 2000). Subjects feel a loss in utility if they receive more or less than their counterpart. These models are based on data mostly gained in Western countries. Moreover, they in general do not refer to asymmetric situations.

It has been highlighted that power and perceptions of equity and fairness are highly interdependent. Selten (1978, 1987) points out that interpreting equity merely as a norm of distributive justice (cf. Homans 1961, Adams 1965) may be too narrow a view. An equitable distribution might rather assess the power situation than convey a perception of justice.

How well do findings on negotiation behavior based on Western research tradition generalize to negotiators in the People's Republic of China? Chinese-Western cross-cultural

business studies maintain cultural differences in negotiation and decision making to exist which appear to be a function of the Confucian value system and the Chinese socio-economic structure (c.f. Tung 1989; Child and Marcoczy, 1994; Boisot, 1994; Trommsdorff and Wilpert, 1994). These differences persist despite changes in the political system (Hofstede, 1980; Chinese Culture Connection, 1987; Huang et al. 1997).

Research in cross-cultural psychology has shown, as well, that decision models based on a Western cultural research tradition seem not adequate for explaining Chinese decision making behavior (Leung and Bond, 1984; Chiu 1990; Bian and Keller, 1999; Zhang and Yang 1998,). In the traditional Chinese culture there are no absolute standards of value, as compared to the absolute rules on which Westerners tend to orientate. Chinese culture is situation-centered and choices are greatly influenced by the situational context.

A characteristic most important in differentiating between Western and Asian cultures is the relative dominance of individual versus collective interests (Hofstede, 1980; Triandis et al., 1990). In individualistic cultures, typically found in Western Europe and North America, individual interests tend to prevail over group interests. Individualists are more concerned with the relation of their own behavior to their own needs, interests and goals, emphasis is placed on the attainment of self-determination being apparent in the self-seeking behavioral traits of self-reliance and independence (Leung and Bond 1984).

In collectivist cultures like China, there is a strong desire for behaviors such as attention to role and hierarchy. Confucian thought maintains the stability of society being based on unequal relationships between people (Buchan et al., 2004). This results in the acceptance of the power relation in a given situation, for instance in a social relationship like a bargaining situation. Relative to Germans or Americans, Chinese people tend to be more accepting of inequities in power among members of society. This also shows up in the relative position on Hofstede's (1980) scale of power distance. Countries with a Confucian background¹ have an index of 15-16 (Hong Kong), 13 (Singapur), and 29-30 (Taiwan) whereas Germany has an index of 42-44 based on 53 participating nations.

3. Method

Questionnaire studies, computer and paper-and-pencil experiments concerned with decision making often simply document the decisions made. If a researcher is interested in the decision *process*, however, and wants subjects to spontaneously verbalize their arguments, it may be of

¹ PR China was not included at the time of the study.

importance to also observe subjects during the decision making process. One approach is to let several subjects act together in a group and have them solve a common decision task, discussions within the groups being recorded for further evaluation.

In social psychology experiments, groups of subjects have frequently been used as decision making units many of such experiments having been documented by audio or video recording (e.g. Bakeman 2000). The advantages of the video technology making it feasible to focus on particular aspects of observable behavior (Kerr et al., 2000) led the video method being introduced into experimental economics (Hennig-Schmidt, 1999, see also Li et al. 2001, Hennig-Schmidt and Li, 2002).

In the experiments reported here, the video method was applied within the framework of the following design. Three subjects acted together as a group in arriving at a consensus decision. They played against another group of three persons, the two groups together forming a dyad. The intra-group discussions were video taped, the inter-group contacts were anonymous, the experimenter transmitting each of the decisions made to the other group. The video-taped discussions were transcribed verbatim by graduate students specially trained and instructed in this task. The transcripts were then used for further evaluation.

The reliability of verbal data obtained by introspection has been questioned (Nisbett and Wilson, 1977). Yet, there appears to be broad consensus within social psychology regarding behavioral observation and the evaluation of verbal data thus obtained being important research methods (Reis and Judd, 2000) that provide information often not available or noticeable by other methods. Recently, economists have also noted the advantages of the video methodology², and video recording has been increasingly used in experimental economics (Hennig-Schmidt, 2002; Bosmann et al., 2005; Rockenbach et al., 2002).

The video methodology is an extremely well-suited method for cross-cultural research (Kerr et al., 2000; Smith 2000; John and Benet-Martinez, 2000). Running video experiments with exactly the same experimental design in different cultures allows *direct* cross-cultural comparability of discussions and arguments. These verbalizations not only refer to the same well-defined experimental context, but, and this is more important, they, within this experimental context, refer to identical situations in the countries investigated.

The video method also has a number of drawbacks, however. For one thing, experiments are costly since the same number of independent observations in group experiments requires three times as many participants as in individual experiments. Thus, as in group experiments

² According to Loomes (1999) the use of audio and video recording represents a real challenge for experimental economics in the future.

generally, the number of sessions is usually less than in the case of individual experiments (see also Kerr et al., 1996). Also, even a few observations yield a large amount of material to be evaluated, especially in experiments with repeated interaction between opponent groups. In the present case, there were 45 hours of video recordings both of the Chinese and the German Experiment (in the following *C-Ex* and *G-Ex*, respectively). Transcribing and evaluating such amount of transcripts are extremely time-consuming. There is a tradeoff between statistical requirements and the need of handling such a profusion of material. For this reason, the number of *independent* observations was limited to 9 for *C-Ex*, and to 6 for each of two treatments in *G-Ex*³. These frequencies are sufficient for non-parametric statistical tests, and are in line with those in other group experiments (see e.g. Bornstein and Yaniv, 1998; Goren and Bornstein, 2000).

4. Experimental design and procedure

The game played in the present video experiment is a two-person characteristic function game (Selten 1981). It comprises a situation where two players, player 1 and player 2 in the following, anonymously bargain on the distribution of a given amount of money, the coalition value $v(12)$, by alternating offers. Decision options of the players are: making a proposal, shifting the initiative to make a proposal, accepting a proposal, and breaking off the negotiation (for the English translation of the introduction see Appendix A). The bargaining time and the number of offers is not restricted, and no bargaining costs (e.g. discount factor) exist⁴. If players agree on an allocation they receive the amounts they agreed upon. If they do not reach an agreement and take their outside option instead, they receive a conflict payoff $v(1)$, $v(2)$, respectively, with $v(1) > v(2)$, and $v(1) + v(2) = v(12)/2$. In *G-Ex*, the German treatment, a high (H) and a low (L) power asymmetry treatment was played (with H(igh) and L(ow) referring to the ratio $v(1)/v(2)$), and are denoted GH and GL. In *C-Ex*, the Chinese treatment, only the H-treatment was played, denoted ChH in the following. Thus our treatment variables are high and low power asymmetry and culture. Table 1 shows the treatment conditions.

³ There being an additional 8 observations involving experienced subjects. This material will not be evaluated in the present paper.

⁴ One important reason for not introducing restrictions of this kind was our interest in subjects' verbalization of arguments. We wanted to give them extensive opportunity to discuss all possible aspects of decision making. For *C-Ex* we had to introduce a time limit in some sessions. Due to extensive negotiations, (the first session lasted nearly 4 hours) and organizational requirements (some sessions had to be run in the evening and the buildings were closed at 11 p.m.), after 2.5 hours of bargaining (the longest time period in *G-Ex*) participants were informed that they would be paid their outside options if they did not reach an agreement within the next 20 minutes.

Table 1: Treatment conditions

	GH/ChH	GL
$v(12)$	320	320
$v(1)$	128	96
$v(2)$	32	64
Relation of bargaining power	4/1	3/2

Throughout the remainder of the paper proposals, agreement and disagreement outcomes will be stated in terms of player 1's payoff. Proposals made by player 1 will be called demands, those made by player 2 will be termed offers. Payoffs are occasionally abbreviated P .

A total of 124 students participated in the present experiments. *G-Ex* was run in *BonnE-conLab*, the Laboratory of Experimental Economics at the University of Bonn. 70 students participated, majoring in law, economics, and humanities. *C-Ex* was run at Sichuan University, Chengdu, PR China. Here, 54 students took part, majoring in economics, mathematics and natural sciences.

The experimental procedure used was identical in Germany and China. Subjects were recruited by campus advertisements promising monetary reward for participation in a video decision-making task. Upon registering, participants signed an agreement that video tapes could be used for scientific purposes. They were assigned to rooms separate from each other such that participants of different groups did not meet. Although registration was arranged that three subjects played together in a group, due to now-show ups two groups in *G-Ex* consisted of only 2 people (see Table 2). Groups were assigned randomly to be players 1 or 2.

Upon arrival, participants were seated in front of the video camera such that all verbal and nonverbal expressions could be recorded. The video camera was switched on when the session started. All students were handed the introduction which was read loudly by the experimenter (Hennig-Schmidt in Bonn, Li in Chengdu)⁵. Participants were requested to carefully read it again and to ask questions which were answered. Subjects were fully informed on all features of the experimental design. There was no face-to-face contact between players 1 and 2, decisions being transmitted via the experimenter. The presentation to the subjects was context-free and did not refer to any real world situation. The instructions have been translated into Chinese using the back translation procedure described in Brislin (1970).

⁵ Hennig-Schmidt as the principal investigator was present at both *G-Ex* and *C-Ex*.

Table 2: Characteristics of experimental design and subject pool

Game	Number of subjects	Average length of session	Payment range, (average payment) in DM/ RMB	Subject pool	Number of groups (group size)
<i>G-Ex</i>	70	71 min	3.20 – 18.50 (14.00)	economics, law, humanities	22 (3), 2 (2)
<i>C-Ex</i>	54	174 min	9.60 – 62.40 (42.67)	economics, math, natural sciences	18 (3)

Participants were motivated by financial rewards according to their performance. The monetary reward was calculated to equal the hourly wage in a typical students' job, ranging from DM 15 (Euro 7.5) to DM 20 (Euro 10) in Germany and RMB 35 to 45 in China. For each point retained by his/her group, each group member was paid DM 0.10 in *G-Ex* and RMB 0.30 in *C-Ex*. Average payments approximated DM 14 (7.8\$) in *G-Ex* and RMB 42 (4.6\$) in *C-Ex*. In case of break off, the conflict payoff for less powerful players paid them a parsimonious meal at the students' restaurant in the respective universities. For further characteristics of the experimental design see Table 2.

5. Results

5.1 In-cultural comparison

Players' task of maximizing their payoff when bargaining over $v(12)$ should induce them to settle at an agreement higher than their outside option. Which allocations might attract player's attention? Predictions are not clear cut. Three possible answers to this question merit special attention, all predicting different outcomes.

- (1) Players agree on the *Equal Split* (ES). With this outcome, the outside options $v(1)$ and $v(2)$ are ignored and power asymmetry is not accounted for. Each player receives $\frac{1}{2}v(12)$ in both, GH and GL, hence $P_{GH} = P_{GL}$.
- (2) Players in both treatments agree on *Split the Difference* (SD). With this outcome, final payoffs reflect power asymmetry. Player 1 receives $v(1)$, player 2 receives $v(2)$, and the remainder of the coalition value is split equally. Player 1's final payoff is $[v(12) + v(1) - v(2)]/2$ and player 2's payoff is $[v(12) + v(2) - v(1)]/2$, hence $P_{GH} > P_{GL}$.
- (3) Players in both treatments agree on the *Proportional Split* (PS), final payoffs displaying the original power relation. Player 1's final payoff is $v(1)v(12) / [v(1) +$

$v(2)]$ and player 2's payoff is $v(2)v(12) / [v(1) + v(2)]$. Players' final payoffs mirror the asymmetry in power as given by the outside options. Hence $P_{GH} \gg P_{GL}$.

See Table 3 for numerical values of ES, SD, and PS in GH (ChH) and GL, respectively.

Table 3: Predictions on final payoffs

	GH/ChH	GL
Equal Split	160	160
Split the Difference	208	176
Proportional Split	256	192

SD is the Nash bargaining solution (Nash, 1950) with the status quo located at $(v(1), v(2))$. Also, it is an equitable allocation according to Selten's (1978, 1987) general equity principle. SD predicts $P_{GH} > P_{GL}$. Binmore et al (1989), however, in a model termed *Deal Me Out*, argue against SD and in favor of ES as a realistic predictor. Although SD appears to be attractive because a larger outside option seemingly confers greater bargaining power, a bargainer can use his power only if he/she threatens to take the outside option. Such a threat would be only credible if conflict payoffs are higher than what players can expect with zero-outside options, i.e. the Equal Split. Since in our treatments $ES > v(1) > v(2)$, outside options should be of no relevance and outcomes are to be expected at ES.

PS is not discussed in the relevant economic literature on bargaining as a possible candidate for final outcomes. Equity theory, however, predicts a distribution proportional to inputs or contributions of the persons involved (Adams 1965). If players perceive outside options similar to inputs and care for equality of shares, their settling at PS is not totally unlikely.

The above predictions anticipate outcomes at specific values. Yet, deviations might occur for the following reasons. For one thing, it is well-known that subjects have a tendency to settle on deals in round numbers (Selten 1987). Furthermore, even if players 1 strive for outcomes fully accounting for power asymmetries (SD and PS, respectively) they might well be willing to settle at lower outcomes since SD and PS involve a large discrepancy in payoffs which players 2 might not be willing to accept. This might be even more the case, because the experiment lasts for a non-specified number of alternating proposals. We therefore do not expect settlements exactly at ES, SD or PS.

Figure 1 shows absolute payoffs, Table 4 displays payoffs and agreement shares in both treatments. As can be seen from Figure 1, in three sessions no agreement was reached (one session in GL, two sessions in GH), payoffs being lower than ES. In one GL-session players

settled exactly at ES. Moreover, there is a concentration of outcomes in a rather small range not too far away from ES, both in GH and GL.

Figure 1: Payoffs in G-Ex

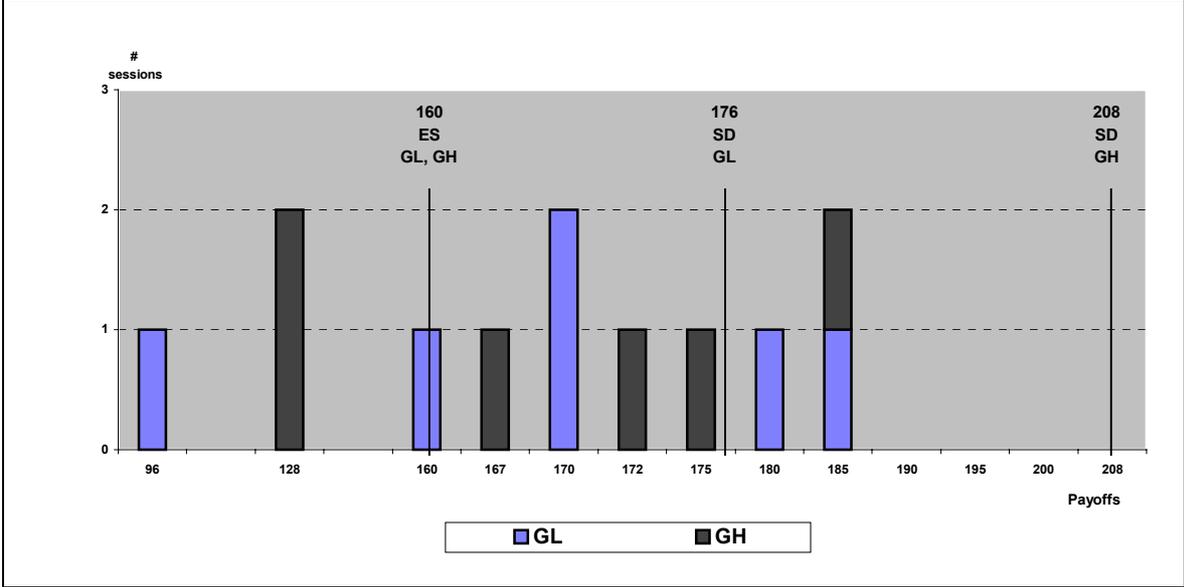


Table 4: Average payoffs in GH and GL

	GH (standard deviation)	GL
average total payoff	159.17 (24.85)	160.17 (32.62)
average agreement payoff	174.75 (7.59)	173.00 (9.75)
average agreement share	0.5461 (2.371E-02)	0.5406 (3.046E-02)

RESULT 1: Agreement payoffs in GH and GL do not differ.

Support. On average, players 1 achieve almost the same total and agreement payoff in GH and GL. They settle at about 54 percent of the coalition value in both treatments (Table 4). Using a Man-Whitney-U test, the null hypothesis that agreement payoffs in GH do not differ from GL cannot be rejected ($p=0.397$). There is no evidence in the data that players 1 in agreement sessions are able to negotiate higher payoffs in the high asymmetry than in the low asymmetry power treatment. The same is true if in non-agreement sessions instead of outside option payments player 1’s lowest demands and player 2’s highest offers are analyzed.

Table 5: Comparison of treatments in *G-Ex*

Measures of bargaining behavior	GH vs. GL
Agreement payoff	n.s.
Highest offer	n.s.
Lowest demand	n.s.

* Mann-Whitney-U-test, 10% one-tailed; ** Mann-Whitney-U-test, 5% one-tailed; n.s.: not significant according to Mann-Whitney-U-test.

Discussion

Our analysis of *G-Ex* shows the divergence in power relations having an influence neither on bargaining outcomes nor on highest offers nor lowest demands. The analysis of the transcripts provide a mayor reasons for this result. Players 2 do not acknowledge the given power asymmetry, neither in GH nor in GL as stated clearly in all but one sessions.. In both the high and low power asymmetry situation, players 2 evaluate bargaining success in terms of *deviation from the Equal Split*. Players 2 argue in the spirit of *Deal Me Out* (Binmore et al. 1989) that threatening to abandon negotiation is only credible when this is more profitable than to continue. Since players 1 are hold to be payoff-oriented, outside options are not relevant in situations where offers are larger. Certainly, to keep players 1 at the negotiation table and to compensate for the effort of reaching an agreement, a bonus has to be paid on top of outside options giving them not less than ES.

In section 2, we discussed that the feeling of possessing power is an important characteristic of power. We further pointed to the fact that actions and reactions during the bargaining process are an additional source of power. As could be seen from the transcripts, players 2 do have a feeling of power. They are fully aware that players 1 are dependent on the consent of players 2 in order to be able to gain a higher payoff than the outside option. And, most importantly, players 2 can (and did in two cases) punish players 1 by initiating a break off.

As to players 1, the transcripts reveal their insisting on receiving *more* than players 2, i.e. more than ES. They perceive themselves more powerful because of higher outside options.

One player 1 group, for instance, initiated a break off because they were not conceded more that ES. In 11 out of the 12 player 1 groups, the minimal requirement to reflect power differences is stated to be an outcome higher than a fifty/fifty split. During negotiation, six out of the 12 player 1 groups formulated outside-option-based aspirations on final payoffs (PS in 2 GL-groups, SD in 4 GH-groups). Two groups in GH trying to enforce these high outcomes ended up facing a break off.

It appears, that players 2 are responsible for players' 1 relatively low payoffs. They seem to enforce their perception of power symmetry on the bargaining process.

5.2 Cross-cultural comparison

Collectivism of a culture leads to different styles of reward allocation. Leung and Bond (1984) found Chinese subjects to follow the equity norm more closely in dividing a group reward than the individualistic American subjects. Buchan at al. (2004) found similar differences in the ways Japanese and Americans view social power. We therefore expect that negotiation behavior in Germany and China will differ in that Chinese players 1 achieve higher payoffs than German players 1.

Figure 2: Payoffs in C-Ex and G-Ex

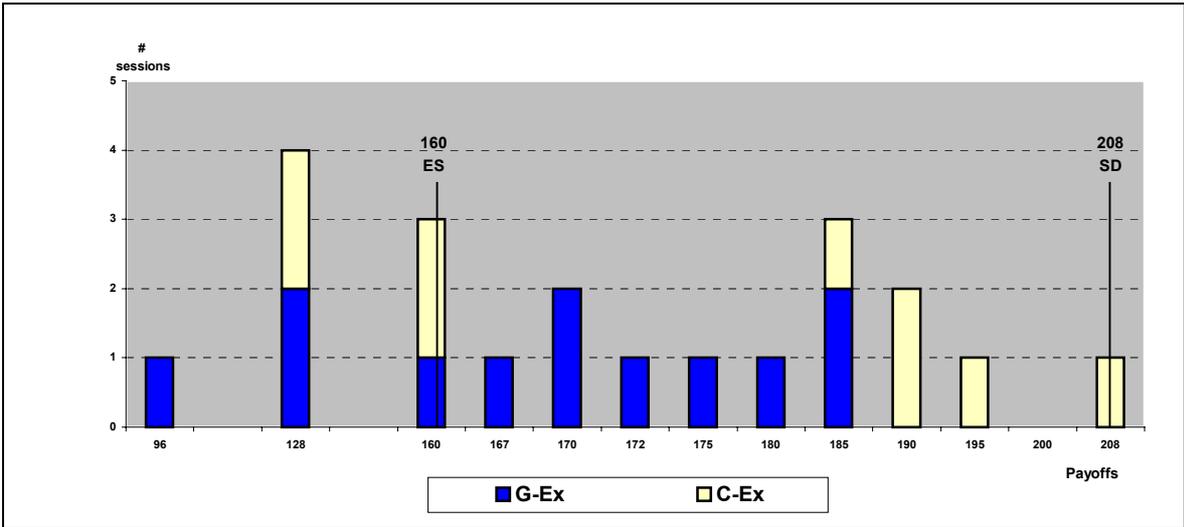


Figure 2 shows absolute payoffs, Table 6 displays payoffs and agreement shares in C-Ex and G-Ex. The analysis in G-Ex has shown that differences in power asymmetry do not induce a corresponding difference in bargaining outcomes. We, therefore, treat the data in GL and GH as being drawn from the same population and in the following compare the data from C-Ex with the pooled data of G-Ex. As can be seen from Figure 2, in two of the C-Ex sessions no agreement was reached (payoffs < 160).

Table 6: Average payoffs in C-Ex and G-Ex

	<i>C-Ex</i> (standard deviation)	<i>G-Ex pooled</i>
average total payoff	171.56 (29.16)	159.67 (27.65)
average agreement payoff	184.00 (17.90)	173.78 (8.36)
average agreement share	0.5750 (5.593E-02)	0.5431 (2.614E-02)

RESULT 2: *Agreement payoffs in C-Ex are higher than in G-Ex.*

Support. On average, players 1 in *C-Ex* achieve a substantially higher total payoff than players 1 in *G-Ex* (Table 7). They settle at about 57 percent of the coalition value compared to 54 percent in *G-Ex* (Table 6). Using a Mann-Whitney-U test, we found significantly higher agreement payoffs in *C-Ex* than in *G-Ex*. The same holds for the other measures of bargaining behavior, i.e. highest offers resp. lowest demands ($p \leq 0.02$).

Table 7: Comparison of C-Ex and G-Ex

Measures of bargaining behavior	<i>C-Ex</i> vs. <i>G-Ex</i>
Agreement payoff	<i>C-Ex</i> > <i>G-Ex</i> **
Highest offer	<i>C-Ex</i> > <i>G-Ex</i> **
Lowest demand	<i>C-Ex</i> > <i>G-Ex</i> **

** Mann-Whitney-U-test, 5% one-tailed;

Discussion

In *C-Ex* high power asymmetry *does* lead to higher bargaining outcomes for the advantaged player in comparison to *G-Ex*. What do the transcripts tell us about the motivation of the Chinese participants? Even though deviating perceptions on the relevance of outside options with regard to payoffs can be found in *C-Ex*, too, there is a marked difference. Players 1 not only insist on receiving more than players 2 because of their higher outside option. Their principle of assessing the profitability of the deal is the surplus they receive *in addition to their outside option*. They are not satisfied with a slight bonus on top of ES. They insist on the given power asymmetry, their bargaining behavior being based on a Split-the-Difference argument. Moreover, they are able to enforce their power perception.

Players' 2 line of reasoning is similar to that of players 1. They also argue in terms of surplus. They assess the success from the negotiation by comparing the profit both players receive *in addition* to their outside options, basing their behavior on a Split-the-Difference argument, as well. Players 2 thus accept the given power asymmetry.

Our analysis shows that Chinese players take bargaining power explicitly into account. Since the reference point of both types of players is Split the Difference, Chinese players 1 strive for higher final payoffs and players 2 concede higher final payoffs than the German participants do.

6. Conclusion

The main subject of this paper is whether bargaining power defined by outside options influences bargaining outcomes. The answer is not clear cut and seems to depend on the cultural background. In *G-Ex*, different power relations do not have an influence. The comparison with the Chinese experiment shows a significant difference, however. Video tapes reveal that the behavioral disparity can be attributed to different lines of reasoning in the two subject pools: Most German participants do not draw on the given power relation. They take the Equal Split as their reference point. Chinese subjects apply the given power asymmetry, their bargaining behavior is based on a Split-the-Difference argument.

The main result of our paper is that the significance of outside options differ in both subject pools. The disparity in outside options does not constitute a corresponding perception of power disparity with German subjects whereas Chinese participants take the power asymmetry as given. This result conforms to predictions based on Hofstede's power distance measure. It seems that behavior in our experiment nicely reflects the cultural background of our experimental subjects.

Apparently, environmental conditions influence perception and behavior. Culture certainly is a crucial factor, promoting an egalitarian perspective as in most groups of *G-Ex* or a hierarchical viewpoint as in *C-Ex*. Culture also seems to have some bearing on how theory is modeled. The work of Binmore et al. (1989, 1991, 1998) but also the assumptions on inequity averse subjects in the models of Fehr and Schmidt (1999) and Bolton and Ockenfels (2000) are examples of the egalitarian viewpoint. Business studies (Child and Marcoczy 1994, Trommsdorff and Wilpert 1994, Huang et al. 1997) as well as investigations of moral behavior in Chinese society (Wilson 1981, Young 1981) stress the respect for hierarchy and dominance in all dimensions of life to be an important influencing factor on Chinese behavior.

Appendix

Introduction to subjects

You participate in a bargaining experiment where two groups negotiate with each other. To evaluate the communication process within the groups the experiment is recorded on video.

The goal of the game is to maximize your own profit while bargaining on a coalition value.

The game ends if one group accepts the proposed division of the other group, or if one group breaks off the negotiation. If there is an agreement, each member of the group receives the payoff the group agreed upon. If there is a break off of negotiations, each member of the group receives the guaranteed payoff for his/her group (the alternative).

I will now explain the negotiation process from the bargaining protocol. The other group received an identical bargaining protocol.

You have been randomly chosen to make the first (second) proposal. A money payoff, called the coalition value, amounts to 320 points. If there is a breakoff of the negotiation, the guaranteed payoff for group 1 is 128 (96) points and the guaranteed payoff for group 2 is 32 (64) points.

Please discuss which of the following four decision alternatives the group is to be choosing, and please discuss also the reasons why the group chooses just this decision:

1. You make a proposal on the division of the coalition value to the other group. The proposal has to be nonnegative and integer-valued.
2. You shift, i.e. the initiative to make a proposal passes to the other group without your making a proposal.
3. You accept the proposal of the other group.
4. You break off the negotiation.

Agree upon one of the four possibilities. Write down the result of your discussion into the column of the protocol that is provided for your group. Each member of the group has to confirm this entry by his/her signature. Your proposed allocation of the coalition value will then be transmitted to the other group.

Following each bargaining round please fill in one copy of the questionnaire. It will be collected afterwards.

After having finished the experiment each member of the group will be paid either the accepted share of the coalition value or the guaranteed payoff for his/her group. Each point is worth 0,10 DM (0.3 Yuan).

Try to maximize your own profit!

There is no time constraint.

Are there any questions?

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