Bargaining Power – Measuring it's Drivers and Consequences in Negotiations

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Abstract. In this study, the authors carried out a laboratory experiment with professionals of purchasing departments and examined the effects of negotiation power on the outcome of distributive bargaining. The participants took over the role of buyers and sellers alternatively. Power was operationalized in terms of BATNA, time pressure, asymmetric information and self-constraint based on the different theoretical concepts of power applied in social sciences. The results support the influence of the individual factors as predicted by theory to a very large extent. Especially BATNA, time preferences and information differences have a great influence on negotiation outcomes. Hence, the main purpose of the present paper is to develop a basis for a more consistent operationalization of drivers of bargaining power and its influence on negotiation performance.

Keywords: Negotiation · Bargaining · Power · Time pressure · BATNA

1 Introduction

It is widely known that negotiation performance depends to a large extent on the distribution of bargaining power between negotiation parties. However, up to now there is no comprehensive understanding regarding the key elements of bargaining power and their interrelation, power is typically regarded as a vague concept [1]. In fact, given the variety of concepts of power in general and of bargaining power in particular [2] many researchers see an increasing need for operationalizing power in a more context-specific way [3].

In his seminal book, Howard Raiffa defines the "**B**est **A**lternative **t**o a **N**egotiated **A**greement" (BATNA) as a key element of every negotiation because negotiations will only lead to a result if the parties find an agreement between their perceived BATNAs. Generally, Raiffa shows that the better your BATNA the better your power position in the negotiation [4, 5]. We, as well as most other researchers, agree with this perspective to form the basis for the discussion. Beyond that, however, it is not well understood so far, what defines the exact outcome between the two BATNAs of the bargaining parties and which other elements of bargaining power help either party to claim a bigger share of the bargaining "pie". In his standard work on negotiation analysis, Raiffa describes

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power as "a multifaceted concept", where advantageous alternatives, information or even skills, but also other factors play an important role [5]. We would like to develop a better understanding of which factors are key in driving one's party's bargaining power beyond improving your BATNA. In other fields of social research, there are several important scientists who identified relevant approaches to define power such as the psychologists French and Raven [6], sociologist Emerson [7] and later the economist Galbraith [8]. Regarding power and influence in negotiations, important contributions from an economic or game-theoretic perspective have been made by Nash [9], Schelling [10], and on behalf of Rubinstein [11]. The first attempt to connect the independent research streams, game-theoretic research and behavior-related research, was conducted by Howard Raiffa, who is considered the father of negotiation analysis by many experts in this field [12]. In this paper we follow Raiffa's footsteps and try to assess power as a multidimensional concept which can only be understood by combining the insights of various research streams.

The following research paper focuses on distributive, two-party negotiations as typically seen between seller and buyer, irrespective of the fact whether it is a single- or a multi-dimensional negotiation. In order to gain a better understanding of bargaining power, the paper begins with a short comparison of the existing definitions of power in social interactions and the identification of their possible impact on negotiation performance in a standard distributive two-party negotiation scenario. Based on this we will develop a synthesized concept of the key factors driving negotiation power and we will present some first empirical data to support our concept. Against this background, the main objective of the present paper is to understand how changing the bargaining power setting impacts the negotiators performance. In order to gain profound insights, we want to derive valuable implications for the buying and selling practice, as well as for the understanding of the concept of negotiation power in general.

2 Theoretical Background

Power has been defined by the sociologist Max Weber as: "*the possibility of imposing one's will upon the behavior of other persons*" [13, p. 324]. This definition fits into the typical distributive bargaining context, where the negotiators strive to maximize their individual utilities. Before focusing on a distributive negotiation context it needs to be clarified what is meant by "negotiation". Voeth and Herbst offer a comprehensive definition that describes negotiation as a process that entails following attributes: (1) Involvement of multiple parties; (2) Goal congruence; (3) Conflicting parties; (4) Zone of Possible Agreement (ZOPA); (5) Interactive process [14]. Bazerman and Neale speak of distributive negotiation when referring to negotiations about a single issue [15, p. 16]. This key characteristic of distributive negotiations is reflected by a statement of Walton and McKersie stating that distributive negotiation deals with an issue whereas integrative bargaining deals with problems [16]. A well-known example for distributive negotiation are price negotiations [15, p. 72]. The objective of a party involved in distributive negotiations is to claim a greater part of the negotiation outcome and consequently: *"One party's gain is the other party's loss."* [15, p. 72]. In this situation the questions, who has how much bargaining power, and how can we evaluate

the parties' bargaining power beyond the parties' BATNA. Even though the term was coined by Fisher and Ury [17], Bazerman and Neale offer a comprehensive definition: *"the lowest value acceptable to you for a negotiated agreement"* [15, p. 68]. The concept of BATNA is not uncontroversial because one's individual BATNA does not need to be congruent with the reservation price as other factors such as time pressure or relationships do not affect the party's BATNA but the reservation price [18]. Still, Sebenius argues that the BATNA plays a tactical role because it changes over time and the active search for alternative agreements can improve the BATNA and, thus, the negotiation situation [19]. In addition to this, it is true that BATNA can have a significant influence on power in negotiations [20]. Assuming that the initial situation for two negotiators is the same, the party with the better BATNA claims more of the subject [5].

There have been numerous approaches to define power. The most commonly used definition in social research has been introduced by French and Raven in 1959, when they originally identified five bases of social power: reward, coercion, legitimate, expert and referent [21]. This concept has been enhanced by Raven and other authors to a concept of six bases of power (including informational power) and further differentiating the individual components, for example into personal and impersonal reward and coercion. Based on the concept, series of articles evaluate the impact and importance of bases of power in differing contexts [6].

Although the term bargaining power is frequently used, only few others have tried to translate the French and Raven definition of power into the typical bargaining context. Lewicki et al. propose a concept of the following five sources of power: Informational, Personality, Position-based, Relationship-based and Contextual. In their concept, the term position-based power includes both legitimate power such as formal authority as well as resource-control as a basis for reward power [22]. Contextual power includes the concept of a BATNA as well as cultural definitions of power. In addition, further meaningful approaches to build a more holistic model of bargaining power have been made by Kim and Fragale [2] and Kim et al. [23]. Unfortunately, there has been little to no follow-up on their work, and no empirical testing of their models in a typical buyer-seller negotiation context.

Independently of the French and Raven approach the famous economist Kenneth Galbraith developed an alternative approach to define power by reducing power in social or economic interaction to only three instruments [8]: (1) Condign power (force based on the prospect of punishment); (2) Compensatory power (force based on the prospect of any reward or compensation); (3) Conditioned power (force in the belief that the effect will be virtuous or proper). In addition to these three instruments, he defines three sources of power: personality, property and organization. In daily life, power is typically enforced by combining sources of power with instruments of power (e.g. property with compensatory power or organization with conditioned power). Galbraith even states that never in the consideration of power is only one source or one instrument at work [8].

Whereas the Galbraith approach to power contains some straightforward parallels to French and Raven, e.g. reward and compensatory power and condign power and coercive power, a significantly different access to power has been given by Emerson and his power dependence theory [7] which was adopted by many other researchers,

such as Bacharach and Lawler [24]. In the center of Emerson's concept is the idea that the power P of actor X over actor Y is equal to and based upon the dependence of actor Y upon X [7].

$$Pxy = Dyx. \tag{1}$$

$$Pyx = Dxy. \tag{2}$$

This is obviously an important approach to negotiation, which needs to be considered, since negotiations typically involve two parties which both have some sort of shared goal and hence, the power of both parties needs to be considered. Basically, Emerson already prepared the ground for the BATNA concept as he concluded that in order to rebalance a power relationship an important approach is to either cultivate or to deny the alternative sources that both sides have to achieve their personal goals [7]. This is basically the same approach given by most negotiation experts when recommending improving one's BATNA as an important step to improve one's bargaining position. However, considering Emerson's findings (or further elaborations such as those of Kim, Pinkley and Fragale) [23] in the specific context of buyer-seller negotiations, a specific challenge arises: Each party's dependence in a buyer-seller negotiation is in its center dependent on the difference between the final price agreed and their BATNA. Emerson defines the dependence of actor X upon actor Y as being directly proportional to X's motivational investment in goals mediated by Y. In a buyer-seller context with the focus on the price negotiation, the goals mediated by the negotiation are the individuals' shares of the surplus from the negotiation. These, however, depend on the final price agreement [7]. If the final price is very close to the BATNA of party X the surplus X gains from the agreement are very small. Hence, its dependence on a negotiated agreement should be small as well. Accordingly, the dependence becomes very large when the expected surplus from the negotiated agreement increases. This means that in basically every buyer-seller negotiation each party's negotiation power is naturally limited by the fact that the more power one side applies successfully to drive the price towards its preference, the less benefit and hence the less dependence of the other party remains. Basically, we see that Emerson's approach to power confirms what is considered common knowledge in negotiation literature today: The fact that the BATNA is a key driver of negotiation power.

H1: The BATNA is a key element of negotiation power as negotiators with an improved BATNA will realize a larger share from the initial ZOPA.

In addition, Emerson states that the other opportunity the parties have to rebalance the power relationship is to change their motivational investment into the goals mediated by the cooperation between party a and b [7, 24]. This is also considerably important for negotiators: The less you care about the agreement in a negotiation, the more power you have. First, you appear to have a high BATNA and second, you lose dependence on the other side and a negotiated agreement. In fact, this second line of thought appears to be consistent with the behavior of many negotiators to underrepresent their interest in an agreement and to act as if they would be well off without an agreement as well [25]. This finding is also consistent with the game theoretical

perspective on bargaining games. In a Nash bargaining situation both parties have a strong incentive to display less gain or utility increase from the bargaining solution than they actually do have [26].

Taking this thought even further, it shows that Emerson's approach is also consistent with Nobel laureate Tom Schellings' most prominent finding on power in negotiations. He states that one's power in negotiations depends on one's ability to bind oneself on certain constraints ("the power to constrain an adversary rests in the power to bind yourself") [10]. Imposing oneself a credible amount of self-constraint is nothing more than a reduction in one's own motivational investment. Apparently, one side is willing to give up a negotiated solution as long as certain constraints are not fulfilled. In a buyer-seller negotiation context this constraint is often given as a certain prerequisite, e.g. each side tries to impose the other side's acceptance of its corporate terms and conditions as a binding constraint for any further negotiation. In ongoing negotiations, one side may show reduced motivational investment by threatening to break up negotiations if a certain price level is not set. Basically, this element of negotiation power is also consistent with French and Raven's definition of "Coercive Power" [21, p. 253] or Galbraith concept of "Condign Power" [8, p. 23] as far as these concepts can be applied in a buyer-seller situation where we assume that the biggest possible threat is to withdraw from the negotiation. Fortunately, the influence of coercive power and threats is also confirmed as an important part of bargaining games by game theorists. John Nash included threatening strategies into his classic bargaining model already in 1953 [25].

H2: Coercive power is a key element of negotiation power. If one party can more credibly threaten to withdraw from a negotiated agreement under certain constraints, it will realize a larger share from the initial ZOPA.

An important aspect of the French and Raven power concept, which is not reflected by Emerson and which does not appear either in Galbraith's anatomy of power, is the importance of information. In fact, informational power was not included in the very first concept of 1959, however, it was included in a later publication by Raven in 1965. Raven described informational power as the ability of an agent to bring about change through the resource of information [21]. Economists and game theorists have established an extensive toolset to analyze negotiations with complete information, however, they do struggle with the prominent situation of two-sided incomplete information. The Myerson-Satterthwaite theorem shows by the means of game theory that there is no efficient solution for a simple two-party distributive bargaining situation as long as each side has secret reservation values [27]. Incomplete information is seen by economists as a key source of inefficiency as it might cause delays in the negotiation or even a break-up in a situation where a positive zone of potential agreement exists [28, 29]. Solutions for bargaining games with complete information were developed by Nobel laureates Nash [9] and later Harsanyi [30]. However, most buyer-seller negotiations are taking place in a set-up with incomplete information, since typically both sides do not know the exact reservation value or BATNA of the other side. In a situation, where one side has more precise information about the other side's reservation value or BATNA, this side is clearly at a more advantageous position [31]. Too much of complex algebra is not required to reason that both Raven's concept of informational power and game

theoretic results underline that information is an important element for defining negotiation power.

H3: Informational power is a key element of negotiation power. If one party is better informed about the other party's reservation values or BATNAs than the other party, it will realize a larger share from the initial ZOPA.

Within the game theoretic literature one of the most important models for non-cooperative bargaining games was developed by Rubinstein [11]. In his analysis he confirms on a very general level that in any distributive negotiation the party with the higher time preference is at disadvantage compared to another party with lower time preference [32]. Aspects of different time preferences are not found so far in social-psychological approaches to power as in those of French and Raven or Emerson. Nonetheless, the ability to wait plays an important role for negotiators, which has also been recognized by Raiffa [5]. Surprisingly, there is little empirical analysis on the interplay between power resulting from a BATNA and power resulting from different time preferences [23].

H4: Time is a key element of negotiation power. If one party acts under less time pressure, relative to the time pressure of the other party, it will realize a larger share from the initial ZOPA.

3 Empirical Study

3.1 Methodology

Negotiation Setting. As stated above, the paper strives to close the existing research gap concerning the impact of changes in the negotiation setting on the negotiation outcome. In the review "*Thinking Back on Where We're Going: A Methodological Assessment of Five Decades of Research in Negotiation Behavior*", Mestdagh and Buelens showed that in the last 40 years negotiation research was mostly conducted with student populations (approx. 80%) and with only 5% of practicing managers and private sector employees [33]. Also Herbst and Schwarz pointed out that "*only 3 percent of empirical negotiation-related studies are based on the experience of practicing manager*" [34, p. 148]. For instance, in their review Eliashberg et al. demand more practitioner-researcher interaction to address the areas neglected so far [35]. To address this shortcoming the study at hand was conducted in the course of an executive education program. The training was designed in order to enable the participants to understand that only marginal changes in the negotiation setting may have a tremendous impact on the negotiation outcome. Over the period of two years, ten to twelve participants per program were invited to join the negotiation experiment. In each experiment the participants were randomly assigned to dyads of buyers and sellers, negotiating 4 rounds to test each of the hypothesis in one specific round with a different negotiation partner and changing roles, so that there is no learning effect or is minimized. In total 130 participants (37.7% female and 55.4% male, 6.9% have not specified) joined and the results of 65 dyads per hypothesis can be analysed.

The demographic characteristics, e.g. age, sex, nationality and educational background, were randomly mixed in the dyads.[1]

Negotiation Task. Over four negotiation rounds with varying settings, as described below, the participants had to negotiate in the role of buyer or seller. Before the one-to-one negotiation started, the participants were briefed by a lecturer about the task. Although the negotiators were instructed to maximize their benefits, an agreement was not required, which means that the negotiation could end without an agreement. Buyer and seller received information about their exit points/reservation values for the below mentioned subjects of negotiation. Still, within the exit points it was not a prerequisite that an agreement needed to be reached. The participants had to negotiate a three years' contract which was supposed to represent a typical negotiation situation between an automotive supplier and an automotive producer. Irrespective the fact that in real-world setting automotive producers often have higher bargaining power the negotiation setting was simplified assuming that seller and buyer have the same initial position.

Negotiation Rounds. The negotiation rounds were manipulated according to one individual power lever:

- In the first experiment (BATNA) the buyer's negotiating power was reinforced with an alternative offer, so that the buyer had a concrete second offer comprising the pricing, start of delivery and payment terms.
- In the second negotiation experiment (additional information) both negotiating parties received specific information on their counterpart that was valuable to the negotiation process. The information revealed to the buyers was more important since the suppliers' manufacturing cost calculation was given.
- In the third negotiation experiment (time pressure) the negotiating power of the participants was restricted due to time pressure. The time pressure was induced by the amount of time participants were given to reach an agreement and the opportunity to get points withdrawed by time limits exceeded. In this experiment the buyer was under higher time pressure than the seller. The buyer had 10 min to reach an agreement and the seller 14 min. The negotiation setting simplifies and assumes that there is no difference of negotiation power due to the relationship between automotive producer and automotive supplier.
- In the fourth negotiation experiment (self-constraints) the sales representative had received a letter from his boss to his customers, who threatened to shut down production if no agreement at a high price level would be reached.

Every negotiation experiment was supposed to take 15 min. Negotiators were not forced to reach an agreement after the 15 min. Prior to the experiment the set-up was

[1] As part of the executive education program the participants were between 20 and 50 years old. Mainly German participants, but a certain percentage had a foreign background (French, English, Persian, Sri Lanka, American, South African). With regard to the educational background the groups were also mixed starting from people with a formal job training and ending with people with a Master degree. In each experiment the participants negotiated with a different participant in every round. The assignment was completely random with regard to demographic characteristics.

tested with an open end scheduled. It showed, that given the simple set-up, 15 min were sufficient.

Negotiation Performance. A scoring system was implemented in order to assess an individual's performance. In each round a maximum of 10 points could be reached. The performance was measured as a percentage of the ZOPA that could be claimed by the negotiator. For instance, a buyer who is able to claim 100% of the ZOPA is rewarded with 10 points in this negotiation round. In order to increase the competitive behavior of the participants and their strive for claiming as much as possible, they were incentivized by selecting the best negotiator at the end and by chocolate coins that they would receive for every point achieved.

3.2 Results

In order to answer our four hypotheses, we conducted a variance analyses (ANOVA) to examine the effects of our manipulations on the negotiators' outcome. Dyads which did not reach an agreement were removed from these analyses.

Our results of the study are represented in the following table. Table 1. presents the total dyads, means of ZOPA realized in percent, standard deviations, F-statistics and p-values of the dyads.

Table 1. ANOVA score table

Hypothesis	Manipulation	Total dyad	Mean buyer (SD)	Mean seller (SD)	F-ratio	p-value
H1	BATNA	64	64.09 (29.51)	34.94 (28.89)	31.90	<.001***
H2	Self-constraint	61	47.22 (38.53)	52.64 (38.03)	.61	.437
H3	Information	64	62.58 (29.89)	37.20 (29.76)	23.17	<.001***
H4	Time-pressure	65	34.54 (19.03)	65.38 (18.99)	85.57	<.001***

*p < .05 **p < .01 ***p < .001

Effects of Alternatives on the Bargaining Power and on the Negotiators' Performance. H1 states that the BATNA is a key driver of negotiation power and negotiators with an augmented BATNA will realize a larger share of the initial ZOPA. The ANOVA revealed that the buyer's negotiating power was reinforced with an alternative offer and that the buyer was able to settle a beneficial agreement (Buyer: $M = 64.09$, $SD = 29.51$; Seller: $M = 34.94$, $SD = 28.89$; $F(1, 126) = 31.90$, $p < 0.001$). Thus, our hypothesis H1 is confirmed.

Effects of Self-constraint on the Bargaining Power and on the Negotiators' Performance. In H2, we proposed that coercive power is a key element of negotiation power, therefore, if one party can threaten to withdraw from a negotiated agreement under certain constraints more credibly, he or she will realize a larger share of the initial ZOPA. The results in Table 1 do not support our Hypothesis H2. The findings indicated that there were no significant differences between the participants ($M = 52.64$, $SD = 38.03$) versus ($M = 47.22$, $SD = 38.53$), $F(1, 119) = 0.61$, $p < 0.437$.

Effects of Additional Information on the Bargaining Power and on the Negotiators' Performance. H3 proposes that informational power is a key element of negotiation power and assumes that if a single party is better informed about the opposing party's reservation values or BATNA's than the other party about his or her, he or she will realize a larger share of the initial ZOPA. The ANOVA on this information index yielded a main effect of the participants' informational power and indicated that a buyer with additional information reached higher results ($M = 62.58$, $SD = 29.89$) than the seller ($M = 37.20$, $SD = 29.76$), $F(1, 126) = 23.17$, $p < 0.001$. H3 is thus supported.

Effects of Time Pressure on the Bargaining Power and on the Negotiators' Performance. As expressed in H4, time is a key lever of negotiation power and negotiators with relatively low time constraints are able to claim a larger share of the ZOPA than negotiators under high time pressure. The negotiating power of the participants was restricted due to time pressure and the buyer who was under higher time pressure than the seller obtained lower results than his counterpart. The ANOVA showed the following results: ($M = 65.38$, $SD = 18.99$) versus ($M = 34.54$, $SD = 19.03$), $F(1, 128) = 85.57$, $p < .001$. Therefore, H4 is supported.

4 Discussion

Findings. In the research at hand we tried to close the gap between theoretical models and the practical implementation of negotiation by examining the levers of bargaining power, a key driver of negotiators' performance. It goes without saying that negotiation power plays a crucial role. However, to the best of our knowledge there is no comprehensive framework unifying the key levers on negotiation power. Our experiment displays strong evidence for the following levers to have a key influence on negotiators' performance: alternative offers, additional information and time pressure. Surprisingly, we could not find any significant influence on behaviour of coercive power, imposed by threatening potential.

Limitations. The multitude of negotiation models and various overlapping research streams indicate that there are various approaches to negotiation research. Consequently, when interpreting our findings one should bear in mind the following caveats: Firstly, the experiment took place in a simplified negotiation setting, assuming that the participants only negotiate three criteria and have limited information. Both parties were encouraged to improvise whenever they considered this to be appropriate. Moreover, asking people to self-assess their negotiation skills did not yield any significant results with regard to negotiation power. In addition to this, Backhaus et al.

demonstrated that buyer-seller negotiations are often team negotiations, which constitutes a deviation from our one-to-one negotiation setting [36]. In general, it would be very interesting to see if negotiation performance is influenced by the size of the negotiation team. Can a two-party-team realize better results on average than a one-person-team? Furthermore it is worthwhile to analyse how negotiation performance develops over several rounds with the same negotiation team and a certain relationship development.

A key question is to which extent the individual levers were manipulated in the respective negotiation rounds to influence bargaining power. With regard to alternatives, information and coercive power, we adjusted the influence to the same level of giving one party an advantage which should result in a 75:25 distribution of the ZOPA. With regard to time at hand the advantages were smaller. In future settings it should be assessed how time could be manipulated accordingly and which effect the length of a negotiation has on the result as well as the time pressure itself.

The negotiation outcome is a complex result of numerous influencing factors, which means that there are interdependencies between them. In our study we did not assume interdependencies. Finally, the experiment assumed ultimate distributive behaviour by the negotiators. In actual negotiations participants might take other actions as certain negotiations are recurring or impact the relationship between the parties.

The setting of the experiment did not exclude possible learning effects which might occur in the course of the program. However it excluded signalling effects as participants never negotiated with the same person twice or more often than once.

Further Research. The study revealed that certain levers might have a high impact on the negotiation outcome. Thus, further research should try to further operationalize the levers in an interdependent context and develop further approaches how to use them effectively. The study at hand did not shed light on the interaction of the different types of power. Further research should focus on identifying linkages between levers. It will also be important to understand more in detail how even small power differences influence the negotiation outcome, or to what extend minimum required power levels exist. In our study we removed dyads that did not reach an agreement from the analyses, because we do not know the reason for these no agreements or impasse rate. It would be possible that those happened actually due to threatening. Therefore further research should additionally pay attention on the reason for no agreements and may consider impasse rates as a dependent variable that should be treated like outcome and performance. If many dyads reach an impasse, then impasse rates themselves could be an interesting dependent variable. Impasse appears when negotiators do not reach an agreement. To the best of our knowledge, only a few studies have considered impasse rates as a dependent variable [37, 38]. Trip and Sondak claim that impasse rates have been mostly ignored as a dependent variable and that their absence may bias experimental results [39].

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