The Effects of Anchor Points and Reference Points on Negotiation Processes and Outcomes

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Kristensen, H., & Gärling, T. The effects of anchor points and reference points on negotiation processes and outcomes. Göteborg Psychological Reports, 1997, 27, No. 8. In a previous study of price negotiations Kristensen and Gärling (1997) found that a buyer's first counteroffer was jointly influenced by anchor points and reference points. Extending this finding to negotiations where opponents make several counteroffers, it was further hypothesized that (1) the number of offers would decrease, and (2) the negotiated outcome would increase when buyers perceive the anchor point as gain as compared to when they perceive it as a loss. In simulated price negotiations, 72 undergraduate students playing the role of buyers or sellers were asked to negotiate the price of condominiums. Anchor points and reference points were manipulated by presenting the buyers with three different initial offers and by setting the buyer's reservation price higher or lower than the initial offer, respectively. In line with the previous finding, a joint influence was observed of the anchor points and reference points. It was further shown that when buyers perceived the initial offer as a gain rather than as a loss they bought at a higher price, the number of offers decreased, and fewer impasses were observed.

Key words: Negotiation, consumer choice, anchoring.

It has been suggested that in negotiations outcomes are compared, coded, and evaluated relative to reference points (Kahneman, 1992; Neale & Bazerman, 1991). The concept of reference point was introduced in prospect theory (Kahneman & Tversky, 1979; Tversky, & Kahneman, 1991; Tversky & Kahneman, 1992). In this theory unidimensional (e.g., monetary) decision outcomes are coded as gains or losses relative to a reference point. Accordingly, it is assumed that if negotiators adopt different reference points they frame decision outcomes differently (i.e., as gains or losses). Adoption of a positive or
negative frame has empirically been found to affect the outcome of dyadic negotiations (Bazerman, Magliozi, & Neale, 1985; Bottom & Studt, 1993; Neale & Bazerman, 1985; Neale, Huber, & Northcraft, 1987). For example, negative framing induces greater risk-seeking so that negotiators with a negative frame make fewer concessions and more often fail to reach agreement than negotiators with a positive frame (Bazerman et al., 1985; Neale & Bazerman, 1985; Neale et al., 1987).

It has also been proposed that negotiators evaluate offers relative to multiple reference points (Neale & Bazerman, 1991; Neale, Huber, & Northcraft, 1987). However, Kahneman (1992) and White, Valley, Bazerman, Neale, and Peck (1994) argued that bargainers simplify and allow only one reference point to dominate. In their study of dyadic bargaining about house prices, White et al. (1994) showed that reservation price or resistance point (a buyer’s highest acceptable price) was a dominant reference point. In the first of two experiments, Kristensen and Gärling (in press a) found that both an initial offer above and an estimated market price below the buyer’s reservation price were adopted as reference points, whereas the buyer’s reservation price did not seem to play a role. However, in a second experiment an induced reservation price was adopted as reference point. At the same time it was shown that an initial offer affected the reference point. Kristensen and Gärling (in press a) therefore suggested that the adopted reference point is the reservation price but that it is affected by other types of information, such as estimates of the market price and initial offers. This suggestion was confirmed in a direct test in which subjects indicated their reservation prices (Kristensen and Gärling, in press b).

In many negotiations the opponent not only evaluates an offer but also makes a counteroffer. As suggested by Kahneman (1992), an anchoring-and-adjustment process may be involved such that an initial offer is used as an anchor point from which adjustments are made to generate the counteroffer. Since adjustments are insufficient (Slovic & Lichtenstein, 1974; Tversky & Kahneman, 1974), the counteroffer should be expected to differ depending on which anchor point is chosen. For instance, Northcraft and Neale (1987) demonstrated that estimates of the value of a house made by real-estate agents and students differed depending on information about the list prices. Both groups were equally affected by the anchor points although experts denied that they were. Susceptibility to the anchor-point effect may also influence a negotiation process in a number of ways (Neale & Bazerman, 1991) and may provide a partial explanation of the importance of initial offers in price negotiations (Rubin & Brown, 1975). Consistent with this, several studies have shown that final agreements are more strongly influenced by initial offers than by subsequent concessions (Liebert, Smith, Hill, & Keiffer, 1968; Stillinger, Epelbaum, Keltner, & Ross, 1990; Yukl, 1974).

The distinction between anchor and reference point should be noted (Kahneman, 1992). While an anchor point affects the counteroffers negotiators make (Northcraft & Neale, 1987), a reference point determines how an offer is perceived (Kahneman, 1992). However, a reference point may also affect counteroffers since it determines whether an anchor point is perceived as a gain or loss, which in turn affects the adjustment process. It is reasonable to assume that adjustments are larger when an offer adopted as an anchor point is
perceived as a loss and smaller when it is perceived as a gain. As Figure 1 illustrates, the reason is that a counteroffer will otherwise not have the same utility ($u_c$).

(a) Anchor point perceived as a gain

(b) Anchor point perceived as a loss

Figure 1. An illustration of counteroffers ($C_a$ and $C_b$, both with utility $u_c$) adjusted from an anchor point perceived as either a gain (a) or a loss (b).

In a recent study Kristensen and Gärling (1997) found support for the hypothesis that proposed selling prices operate as anchor points from which
counteroffers are generated. It was also shown that changes in reference points affected counteroffers through their influence on whether the anchor points were perceived as gains or losses. The adjustments from the anchor points were larger, in both monetary units and with respect to rated satisfaction, when the anchor points were perceived as losses than when they were perceived as gains.

A first aim of the experiment to be reported below was to replicate Kristensen and Gärling’s (1997) finding that counteroffers are jointly influenced by anchor points and reference points. A second aim was to extend this finding (Kristensen & Gärling, 1997) to negotiations in which bidding continues beyond the first stage where a negotiator evaluates an offer and generates a counteroffer. Subjects playing the role of buyers or sellers were asked to negotiate the price of condominiums presented to them. To test whether the seller’s initial offer is adopted as an anchor point by a buyer making a counteroffer, three different initial offers were presented to the buyers. It was expected that their counteroffers would vary accordingly. The reference point was manipulated by setting the buyer’s reservation price higher or lower than the initial offer. It was expected that if a change of reference point made buyers perceive the anchor point as a gain, their counteroffers would be higher than if it made them perceive the same anchor point as a loss. Extending the predictions to a negotiation process where opponents make several counteroffers, it was further contemplated that the number of offers would decrease and the negotiated outcome would increase when buyers perceive the anchor point as a gain as compared to when they perceive it as a loss.

Two measures were employed to check on the effect of the manipulation of the reference point (reservation price). First, as in previous experiments (Kristensen & Gärling, 1997, in press a; b), subjects were asked to rate how satisfied they were with the initial offer on a scale ranging from dissatisfied (loss) to satisfied (gain). Second, subjects were informed of the possibility to make an ultimatum offer during the negotiation. It is easy to imagine that a risk-seeking negotiator will use this possibility more frequently (Lewicki & Litterer, 1985; Neale & Bazerman, 1991; Thompson, 1991). Thus, since a negative frame is expected to induce more risk seeking than a positive frame (Bazerman et al., 1985; Neale & Bazerman, 1985, 1991; Neale et al., 1987), buyers who perceived the initial offer as a loss were expected to use the ultimatum offer more frequently.

A third aim was to investigate to what extent aspiration price is influenced by anchor and reference points. In Kristensen and Gärling (in press b) it was shown that a buyers’ aspiration price changed with information about an estimated market price. That aspiration levels change has been shown in previous research (Guth, Schmittberger, & Schwartze, 1982; Loewenstein, Thompson, & Bazerman, 1989). An explanation offered by Kristensen and Gärling (in press b) is that buyers, at least in part, take into account what they believe is the seller’s reservation price in adopting an aspiration price. It is likely then that they attempt to predict how different information, such as an initial offer, reflects the seller’s reservation price. However, Kristensen and Gärling (in press b) did not find such a change with the initial offer. In the present experiment another attempt was made to show an effect of an initial offer (anchor point). Subjects playing the role of buyers in the negotiations were
each time asked to indicate their aspiration price. It was expected that aspiration price would increase with increasing initial offer.

Method

Subjects

Seventy-two (30 men and 42 women) undergraduates participated on a voluntarily basis in return for financial compensation. Subjects were randomly assigned to two groups, equal in size, and approximately balanced by sex. The average age of the subjects was 24.1 years (SD = 2.5 years).

Procedure

Subjects were tested in pairs. They were randomly assigned to either the role of buyer or seller of condominiums. Subjects were then first placed in separate rooms where they were presented some general market information indicating the actual price ranges of condominiums in the metropolitan area where they lived. The buyers were asked to indicate both the highest price they would pay for (reservation price) and the lowest price they thought they could buy (aspiration price) a condominium presented to them. Analogously, the sellers were asked to indicate both the lowest price they would sell for (reservation price) and the highest price at which they thought they could sell (aspiration price) the condominium. The purpose of these tasks was to ensure that subjects processed the market information.

Subjects were then presented some specific information before entering the negotiations. The buyers were instructed to imagine that since they were interested in buying a condominium they read ads in the daily newspapers. They only considered condominiums which were satisfactory. Price should therefore be the only consideration. Their task was to buy the condominium at the lowest possible price. The subjects playing the role of sellers were instructed to sell at the highest possible price.

All subjects were expected to perform twelve negotiations. They were informed that it was the seller who would give the first offer each time. This first offer was included in the information to both seller and buyer. If the buyer accepted this offer, he or she was instructed to say so. The deal would then be concluded. If the buyer did not accept it, he or she was instructed to give a counteroffer. The seller could either accept this offer or counter with another. Each negotiation was expected to continue until a deal was settled. Subjects were also told that if they did not intend to abandon their offer, they should say "This is my last offer" (ultimatum offer). The opponent could then either accept or reject (since only one ultimatum offer was allowed during the course of a single negotiation).

All subjects were informed that they would receive a bonus ranging up to SEK\(^1\) 200 depending on how successfully they performed. Subjects in the role of

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\(^1\) 1 SEK = 1 Swedish crown is approximately 0.15 USD.
sellers were instructed that they would not receive any bonus if they either did not succeed in selling any of the condominiums or sold at a price lower than their reservation price. Subjects in the role of buyers were informed that they would have SEK 50 when the negotiation started, but that they would forfeit this amount if they bought a condominium at a price higher than their reservation price. If they bought at a price equal to their reservation price (or if they did not buy) they would be allowed to keep the money. Finally, every time they bought a condominium at a price lower than their reservation price, they would receive a bonus of up to the maximum of SEK 200. The bonus promised to buyers was intended to strengthen the adoption of the reservation price as reference point. That is, if buyers paid a price higher than the reservation price they would lose SEK 50, whereas paying a price lower than the reservation price would yield a gain corresponding to the additional bonus. Paying a price equal to the reservation price (or not buying) would neither lead to a gain nor a loss.

When subjects were ready to start, the buyer was invited into the room where the seller was waiting. After subjects had taken their seats, the instructions were repeated orally by the experimenter before the first negotiation. Both subjects were given a booklet containing information about twelve different condominiums presented on separate pages. The information in the sellers' booklet included their first offer and reservation price. The twelve initial offers varied in equal steps from SEK 230,000 to SEK 380,000. The sellers' reservation prices also varied in equal steps between SEK 60,000 and 140,000 lower than the initial offers. The order of the initial offers was individually randomized.

The buyers' booklets contained their reservation price together with the seller's initial offer (the same as given to the seller) which they were told to imagine they had read in the newspaper ad. For half of the buyers in one of the between-subjects conditions, the seller's initial offer was SEK 20,000, 40,000, or 60,000 lower than the buyer's reservation price. For the other half of the subjects in the other between-subjects condition, the seller's initial offer was SEK 20,000, 40,000, or 60,000 higher than the buyer's reservation price.

The buyers' initial offers and reservation prices were on average equally large in the two between-subjects conditions. Buyers received different initial offers for each of their reservation prices. In the condition where the buyer's reservation price was lower than the seller's initial offer, the difference between the buyer's and the seller's reservation prices (the negotiation zone) was counterbalanced such that it was either SEK 40,000 or SEK 80,000. In the condition where the buyer's reservation price was higher than the seller's initial offer, the negotiation zone was either SEK 100,000 or SEK 140,000.

Before starting each negotiation, the buyer rated how satisfactory or unsatisfactory the initial offer was. The ratings were made on a scale ranging from 10 (very unsatisfactory) to 90 (very satisfactory) through 50 (neither satisfactory nor unsatisfactory). The buyers also indicated their aspiration price.

The experimenter was present during the negotiations, concealed by a screen. He registered the different offers, whether or not a deal was settled and, in case
of settlement, the price agreed upon. After the negotiations, subjects were debriefed and paid SEK 100 by the experimenter.

**Results**

Table 1 summarizes the results of the study. First, it may be seen that the ratings of satisfaction indicate that subjects were more satisfied when the initial offers were below the reservation prices and less satisfied when the initial offers were above the reservation prices. Furthermore, in the former cases they perceived the initial offers as gains and in the latter cases as losses. In addition, the ratings of satisfaction with the initial offers decreased with increasing initial offers (anchor points). A 2 (high vs. low reservation price) by 3 (high vs. medium vs. low initial offer) analysis of variance (ANOVA) substantiated these observations by yielding highly significant main effects of reservation price, \( F(1, 34) = 61.70, p < .001, \text{MS}_e = 747.92 \), and initial offers, \( F(1.63, 55.35) = 62.72, p < .001, \text{MS}_e = 218.51 \). In post hoc \( t \)-tests all mean differences between low and high reservation price, as well as all pairwise mean differences between low, medium, and high initial offer were significant at \( p = .05 \).

As predicted, the size of buyers’ first counteroffers increased with increases in the size of initial offers (anchor points). Furthermore, when the initial offers were perceived as losses the counteroffers were lower than when they were perceived as gains. An ANOVA yielded highly significant main effects of reservation price, \( F(1, 34) = 29.65, p < .001, \text{MS}_e = 7,601.56 \), and initial offer, \( F(1.77, 60.01) = 44.81, p < .001, \text{MS}_e = 444.67 \). Their interaction also reached significance, \( F(1.77, 60.01) = 14.15, p < .001, \text{MS}_e = 444.67 \). The mean differences between low, medium, and high initial offer were larger when the reservation price was high than when it was low. In post hoc \( t \)-tests at \( p = .05 \) all mean differences between low and high reservation price were significant. All pairwise mean differences between low, medium, and high initial offer were also significant when the reservation price was high. However, when the reservation price was low only the difference between low and high initial offer was reliable.

The percentages of negotiations were also calculated when the last counteroffer was an ultimatum given by the buyer, the seller, or either of them. Although more ultimatums tended to be given when the initial offers were perceived as losses than when they were perceived as gains (also reflected in satisfaction ratings), only the main effect of reservation price on ultimatums by

<table>
<thead>
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<th>Table 1</th>
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<tr>
<td>Summary of Results from Simulated Negotiations</td>
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\(^2\) To guard against violations of the sphericity assumption, in all ANOVAs involving within-subject factors with more than two levels dfs were corrected by multiplying with Greenhouse-Geisser’s epsilon. Post hoc tests were Bonferroni corrected separate \( t \)-tests.
### Buyer's reservation price

<table>
<thead>
<tr>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
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<tr>
<td></td>
<td></td>
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<tr>
<td>Ratings of satisfaction(^a)</td>
<td>-3.7</td>
<td>-13.3</td>
<td>-21.5</td>
<td>18.9</td>
<td>6.8</td>
</tr>
<tr>
<td>Aspiration price (SEK10(^3))</td>
<td>237.1</td>
<td>245.1</td>
<td>249.9</td>
<td>254.4</td>
<td>272.8</td>
</tr>
<tr>
<td>First counteroffer (SEK10(^3))</td>
<td>202.8</td>
<td>210.4</td>
<td>213.3</td>
<td>236.7</td>
<td>253.5</td>
</tr>
<tr>
<td>Last counteroffer (SEK10(^3))</td>
<td>242.1</td>
<td>250.0</td>
<td>252.7</td>
<td>258.1</td>
<td>275.6</td>
</tr>
<tr>
<td>Number of counteroffers</td>
<td>8.3</td>
<td>8.8</td>
<td>9.7</td>
<td>6.7</td>
<td>6.9</td>
</tr>
<tr>
<td>Percent ultimatus by buyer</td>
<td>29.2</td>
<td>29.2</td>
<td>51.4</td>
<td>29.2</td>
<td>25.0</td>
</tr>
<tr>
<td>Percent ultimatus by seller</td>
<td>38.9</td>
<td>41.7</td>
<td>29.2</td>
<td>22.2</td>
<td>30.6</td>
</tr>
<tr>
<td>Percent ultimatus by buyer or seller</td>
<td>68.1</td>
<td>70.8</td>
<td>80.6</td>
<td>51.4</td>
<td>55.5</td>
</tr>
<tr>
<td>Impasse (%)</td>
<td>4.2</td>
<td>8.3</td>
<td>12.5</td>
<td>2.4</td>
<td>0</td>
</tr>
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\(^a\) Transformed by subtracting 50 so that a positive value corresponds to a gain and a negative value to a loss.

Either buyer or seller was close to significance, \(F(1, 34) = 3.42, p<.10, MS_e = 1.08\). A significant main effect of initial offer was also obtained on buyer’s ultimatus, \(F(1.90, 64.47) = 4.27, p<.05, MS_e = 0.17\), due to a single value deviating from the others. Thus, in this case the results did not suggest an effect of reference point. Nevertheless, expected effects of reservation price and initial offer were observed on the negotiated outcomes. The last counteroffer was reliably higher when the reservation price was high than when it was low, as substantiated by an additional ANOVA, \(F(1, 34) = 29.26, p<.001, MS_e = 2,835.69\). A reliable increase with the initial offers was also observed, \(F(1.54, 52.29) = 101.33, p<.001, MS_e = 196.10\). The interaction between reservation price and initial offer was significant, \(F(1.54, 52.29) = 31.03, p<.001, MS_e = 196.10\). Post hoc \(t\)-tests at \(p=.05\) showed that all mean differences between low and high reservation price were significant. All pairwise mean differences between low, medium, and high initial offer were significant when the reservation price was high. However, when it was low only the difference between low and high initial offer was reliable. Furthermore, the percentages of impasses were larger for low reservation price than for high reservation price. The percentages also tended to increase with the initial offer in the former case. An ANOVA yielded a significant main effect only of reservation price, \(F(1, 34) = 13.03\). The interaction with initial offer did not quite reach significance, \(F(1.84, 62.68) = 2.60, p<.10, MS_e = 0.03\).

The number of counteroffers given by buyers was calculated. Suggesting an influence of reservation price on the negotiation process, an ANOVA on this measure showed that the number was reliably larger for low than for high reservation price, \(F(1, 34) = 4.64, p<.05, MS_e = 111.14\).
Finally, the mean indicated aspiration price was higher when the reservation price was high as compared to when it was low. In addition, indicated aspiration price increased with initial offer. An ANOVA substantiated these observations by yielding highly significant main effects of reservation price, $F(1, 34) = 29.43, p < .001, MS_e = 3319.43$, and initial offer, $F(1.85, 63.05) = 137.93, p < .001, MS_e = 187.16$. Their interaction was also significant, $F(1.85, 63.05) = 38.03, p < .001, MS_e = 187.16$. In post hoc $t$-tests at $p = .05$ all mean differences between low and high reservation price were significant. All pairwise mean differences between low, medium, and high initial offer were also significant when the reservation prices were high. However, when reservation price was low only the difference between low and high initial offer was reliable.

**Discussion**

In line with the hypothesis and replicating Kristensen and Gärling (1997) results, a main finding of the present experiment was that anchor points and reference points jointly influenced counteroffers in a simulated negotiation. This result is consistent with previous findings demonstrating that anchor points influence value estimates through an anchoring-and-adjustment process (Northcraft & Neale, 1987). Extending such findings, it was further shown that the adjustments from an anchor point were larger, in both monetary units and with respect to rated satisfaction, when subjects adopted reference points (reservation prices) that made them perceive the anchor points (initial offers) as losses instead of gains. In addition to supporting the conceptual distinction between an anchor and reference point (Kahneman, 1992), the results also confirm the current assumption that anchor points affect counteroffers whereas reference points affect how offers are perceived.

In line with previous studies (Kristensen & Gärling, 1997, in press a; b), it was shown that subjects’ ratings of satisfaction with the proposed selling prices were influenced both by initial offers and reservation prices which were below or above, respectively, the proposed selling prices. Exactly as would be the case if subjects changed reference points, the ratings indicated that they were either satisfied (perceived as gains) or dissatisfied with (perceived as losses) the same proposed selling prices.

Support was furthermore obtained for the hypothesis that anchor and reference points affected both the outcomes and the process of negotiations in which bidding continued beyond an initial offer and counteroffer. Specifically, when buyers perceived the initial offer as a gain rather than a loss they bought at a higher price. Since sellers’ reservation prices did not change, fewer impasses resulted and fewer counteroffers was also observed. These findings are consistent with other research showing that initial offers have an important impact on negotiations (Liebert et al., 1968; Yukl, 1974). The present research adds the insight that anchor and reference points play an important role in this. As expected, the buyers’ indicated aspiration prices varied with the initial offer. However, Kristensen & Gärling (in press b) showed that when the seller proposes a second offer which is either equal to or lower than the initial offer,
initial offer does not influence the indicated aspiration prices. Thus, satisfaction with an offer may not be the important factor. An explanation for this discrepancy may be that an offer given by the opponent functions as an anchor point from which an indicated aspiration price is generated. Consequently, no effect should then be expected in the previous study since the proposed selling price (the second reduced offer) did not vary. The fact that the initial offers varied in the present study, may account for the observed effect.

However, an unexpected finding was that the buyers’ reservation price also affected the buyers’ indicated aspiration price. An explanation may be that the buyers assumed that the condominiums were worth less when their reservation prices were lower and worth more when they were higher. Thus, another factor which possibly influences buyers’ estimates of sellers’ reservation price (buyers’ aspiration price) may be the value of the condominiums. In the present study subjects perhaps inferred this value from the reservation prices. Of course, additional factors like other available goods on the market, degree of competition, or individual differences in greed and conceptions of fairness may affect the aspiration price. Further research is needed to clarify the role different factors play in determining how aspiration prices are set.

References


