Pre-analysis plan for the pilot of Bargaining and Anchoring.

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1 Introduction

One of the most famous and often replicated findings from psychology and behavioral economics is the anchoring effect. People believed to be using an 'anchor and adjust' heuristic are prone to be influenced by a random numerical cue when trying to make an estimate of some entity (Tversky and Kahneman, 1974, Ariely et al., 2003, Furnham and Boo, 2011). The anchoring effect could be of economic significance for example if consumers are influenced by price cues (like when companies show the previous price they discounted from in many adverts). Another example could be bargaining situations where one of the parties comes with quite an extreme opening proposal in order to possibly anchor another party into shifting their idea about what is a 'reasonable' outcome.

What both these two examples have in common however is that they reason from situations where the s anchor is itself set by an interested and strategic party. This, whereass the anchoring effect has mostly been demonstrated in situations where the anchor was clearly a random number, thus originating from a nonstrategic source. There has been an early study into the effect of the size of opening bids on the subsequent outcome of a negotiation (Galinsky and Mussweiler, 2001). The researchers found an anchoring effect and their interpretation was indeed that there could be an a 'strategic anchoring' effect at work here. However attributing an opening bid effect to the anchoring and adjust heuristic is not straightforward here. There are a number of diferent channels through which opening bids could affect a negotiation outcome. Firsly high opening bid could signal to the negotiation partner that you are a 'tough' bargainer, clearly not afraid to make a 'bold' demand and risk a non-agreement outcome. Secondly, stating a high opening bid could create a 'mental' commitment for the party making the opening bid. Now that the high 'share of the cake'ambition is spoken out, it would feel like a loss to concede too much compared to this first demand, making the party again more likely to opt out from a deal that would be too far away from the opening bid. Thirdly a high opening bid could indeed act like an anchor to the other barainingparty.

We propose here to circumvent these issues and run a bargaining experiment where we can isolate the effect of the type of source of an anchor on the size of the anchoring effect. Our experiment will provide a number of insigths. We will shed light on wether a psychological effect as the anchoring effect works

in a strategic setting such as a negotation. And we tackle the question of wether people are differently affected by anchors coming from a neutral, random source, or is set by a strategic and interested source.

2 Experimental design

In the experiments participants will be matched in groups of 3, getting assigned the roles of either participant A, participant B or participant C. There will be 4 treaments named 'baseline', 'random anchor', 'strategic anchor' and 'signaling anchor'. In all treatments an amount Y is to be distributed among the 3 group members in case of eventual negotiation agreement. In case of disagreement, 0 points will be distributed (There will be a showup-fee on top of the points redistributed in the game in the experiment).

Treatments

In the 'baseline treatment', participant A must choose a value $X \in [0,Y]$. Subsequently the value of 'proposal' X will be communicated to participant B. Participant B choses a highest acceptable offer. If X is higher than the highest acceptable offer the offer is rejected, otherwise it is accepted. If B accepts the offer the payoffs for participants A,B and C will respectively be $X, \frac{Y-X}{2}, \frac{Y-X}{2}$. There is no communication allowed between the three participants and participant C, although affected by the choices of A and B, will make no active decisions.

In the 'random anchor' treatment all procedures are similar to the baseline except for one detail. Before participant A makes her decision on the value of X, a computer first draws a random integer number R from a uniform distribution ranging from 0 to Y. Participant A is shown the random number R and is asked wether she is planning to choose X to be larger (or equal) or smaller than R. After answering this question participant A continues as in the baseline by choosing X. Neither the random number R, nor the question response by participant A will be communicated to participants B and C and this is common knowledge. Subsequently the value of 'proposal' X will be communicated to participant B, who rejects or accepts based on his/her highest acceptable offer. If B accepts the offer the payoffs for participants A,B and C will respectively be $X, \frac{Y-X}{2}, \frac{Y-X}{2}$.

In the 'strategic anchor' treatment the procedures are again similar to those in the baseline except for the following. Before participant A makes her decision on the value of X, participant C has to choose an integer number R with $R \in [0,Y]$. After this, participant A is shown the chosen number R and is asked wether she is planning to choose X to be larger (or equal) or smaller than R. After answering this question participant A continues as in the baseline by choosing X. Neither the anchoring number R, nor the question response by participant A will be communicated to participant B (and neither will the question response to participant C) and this is common knowledge. Subsequently the value of 'proposal' X will be communicated to participant B, who rejects or accepts based on his/her highest acceptable offer.. If B accepts the offer the payoffs for participants A,B and C will respectively be $X, \frac{Y-X}{2}, \frac{Y-X}{2}$.

In the 'signalling anchor' the procedures are exactly similar to those in the 'strategic anchor' treat-

ment, except that this time the anchor number R will be chosen by participant B instead of participant C, so in this treatment participant C is again a passive participant.

3 Hypotheses and data analysis strategy

We plan to invite 360 students from the University of Maastricht for the experiment, distributing randomly over the 4 different treatments, yielding approximately 30 observations per treatment.

Our main hypothesis is that the effect of an anchor number should be smaller if it is known to originate from a strategic party compared to a randomly drawn number. Or main method to test this would be to use a regression analysis where we interact the effect of the value of the anchor shown to the proposing participant with dummy variables for the different treatments. We would find evidence for our hypothesis if we find significantly different coefficients of the anchoring effect for the different treatments. We expect the highest effect of the plain random anchor, as we think the anchoring effect will here not be opposed by any 'suspicion' by the proposing participants and the lowest effect for the participants in the 'strategic anchor treatment'. We furthermore expect a larger effect (although possibly quite nonlinear) from the 'signalling anchor' treatment as a low anchor might be seen as a 'threat' made by the decisionmaking participant B. In the regression analysis we will use background variables on age, gender, type of study etc. plus information gathered in the post-experiment questionnaire as control variables.

Next to this we want to see if in the 'strategic anchor' and 'signalling anchor' the participants B and C respectively choose systematically low (lower than the random) values for the anchor Z. We will use nonparametric tests to compare the anchor levels between the different treatments. We will also explore whether B (C) participants manage to use the anchor to recieve better offers by comparing the offers made in the baseline treatment to the offers made in the 'signalling anchor' ('strategic anchor') treatment,

References

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