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DO ANCHORS HOLD FOR REAL? ANCHORING EFFECT AND HYPOTHETICAL BIAS IN DECLARED WTP

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Do anchors hold for real? Anchoring effect and hypothetical bias in declared WTP.

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Abstract

In two field experiments the authors elicit willingness to pay for a mascara, systematically manipulating incentives to provide the true valuation (hypothetical vs. real) and anchors (high vs. low or high vs. none). Contrary to the key hypothesis, they find no interaction between the two effects: the anchoring effect is not attenuated when decisions actually matter. This finding speaks to validity of hypothetical market research methods and against the use of anchors to reduce hypothetical bias. It also contributes to the discussion of the mechanism underlying anchoring effect, suggesting it is not caused by insufficient conscious effort to drift away from the anchor.

Keywords:

anchoring effect, hypothetical bias, WTP, experiment

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1. Introduction

Many of the research methods commonly used in eliciting consumer's willingness to pay (WTP) involve hypothetical questions: the responses have no financial consequences for the participant. Contingent valuation and conjoint analysis represent two popular examples here. It is well known that hypothetical WTPs tend to exceed those reported for real, an effect often dubbed *hypothetical bias* (HB). If the size of the bias was roughly constant across individuals and circumstances, simply calibrating hypothetical responses would be an easy fix. This however, is unlikely to be the case. More generally, it is an important, plausible and rarely investigated proposition that hypothetical data tends to be of lower quality.

In this study we seek to verify one testable manifestation of this conjecture. Namely, we check if the inclination to follow useless "hints" (aka the *anchoring effect*) is attenuated when the reported WTP has actual consequences for the participant. Additionally, if this was the case, providing a low anchor could prove to be a simple, hitherto rarely if ever used, way to reduce or eliminate the hypothetical bias in marketing studies.

Of course, our study also contributes to the rich literature on the anchoring effect. Given that it represents a disturbing feature of human judgment and decision making, it is certainly worth knowing if it may be lessened when reported values have real consequences. Such an interaction would suggest that the effect may be chiefly understood in terms of insufficient incentives to modify the most directly available value, not in terms of humans' inherent inability to do that. Practical implications of this are substantial. Arguably, affecting (raising) the WTP is *the* goal of marketing and several ways to do it are clearly related to the idea of anchoring. Setting an initially high price and then selling at a discount is one common example; calling a large coffee *grande* etc. to *disassociate* from the competitors' (low) price anchors is another.

2. Literature review

Hypothetical bias can be defined as overestimating valuation amounts in declarative research compared to the actual willingness to pay (Murphy and Stevens 2004). Meta-analyses have clearly shown that HB is ubiquitous and substantial. Summarizing 77 studies, Foster and Burrows (2017) found that median hypothetical WTP values exceed those observed in real trials by as much as 39%. Of course, it would be an oversimplification to consider the value reported in incentivized trials as "real". However, at least some studies show that they are better predictors of actual market behavior (Chang, Lusk, and Norwood 2009).

As can be expected, the hypothetical bias is to some extent moderated by the specific choice of research method. The literature shows substantial heterogeneity in this respect. The popular methods for obtaining the hypothetical value include direct elicitation (Doyon et al. 2015), choice experiments (Moser, Notaro, and Raffaelli 2014) and declarative Vickrey auction (List 2001). Likewise real values have been, among other ways, elicited using n-th price auctions (List 2003), the BDM procedure (Boyce et al. 1989) and implementation of a randomly chosen decision cards in the context of discrete choice modelling. Some studies refrain from eliciting specific WTPs altogether, only observing purchase/abstain decisions instead (Blumenschein et al. 1998). The general finding is that choice-based elicitation methods tend to reduce the bias (Murphy et al. 2005).

Several studies have also been run focused specifically on the ways to de-bias the participants, for example using cheap talk (Doyon et al. 2015; List 2001) and its relative, dubbed

real talk (Alfnes, Yue, and Jensen 2010). Yet other studies used various calibration techniques. Some researchers focused on the effect of the sample (using students may contribute to the bias, Murphy et al. 2005) and the good in question (finding HB to be weaker in private goods compared to public goods, List and Gallet 2001).

Another strand of literature which is relevant to the current research concerns anchoring (see Furnham and Boo 2011 for a review). The effect obtains when a seemingly irrelevant number (an anchor) provided to the participant affects his or her numeric judgment—forecast, estimation, or evaluation. The effect was first explored by Tversky and Kahneman (1974). In their laboratory experiments participants were asked whether the fraction of African countries belonging to the United Nations was higher or than the outcome on a wheel of fortune they observed. Subsequently, they provided their best guess. This final answer was strongly correlated with the (obviously irrelevant, exogenously random) outcome on the wheel of fortune.

Tversky and Kahneman proposed that the participants anchor on the signal and adjust upwards if it is deemed too low and downwards if it is deemed too high. However, this adjustment tends to be insufficient, because it is stopped when the plausible range is reached. That is, a participant may have an idea that the fraction is probably somewhere between 40% and 70%. If the anchor of 30% is provided, she says that the target value is higher than the anchor and subsequently reports that it is 40% or so. For an anchor of 80%, she indicates that the value is lower than that, perhaps somewhere close to 70%.

A prominent alternative explanation (albeit the two mechanisms do not exclude each other) was provided by Strack and Mussweiler (1997). These authors claim that anchors affect subsequent information retrieval: anchor-consistent information is more easily accessible, so that ultimate response tends to be close to the anchor. Subsequent literature provided further theoretical insights that are beyond the scope of the paper. One important but contested proposition is that adjustment from the anchor requires conscious cognitive effort. Among its testable predictions, it has been reported that cognitive load amplifies the anchoring effect (Gilbert, Pelham, and Krull 1988; Kruger 1999).

Empirical work has also flourished, with anchoring being observed for estimates of temperatures in Antarctica (Mussweiler and Strack 1999), probability of a nuclear war (Plous 1989), judgement tasks (Englich and Mussweiler 2001), evaluation of lotteries (Chapman and Johnson 1994), and price estimates (e.g. Mussweiler, Strack, and Pfeiffer 2000). However, from the point of view of this study, the most important are the results of studies concerning declared preferences, especially willingness to pay for specific goods. It should be emphasized that they only represent a small fraction of the anchoring literature and typically involve hypothetical choices.

In particular, Simonson and Drolet (2004), following the scheme proposed by Ariely, Loewenstein, and Prelec (2003), showed that both willingness to pay and willingness to accept (WTA) were sensitive to the anchoring effect.

Interesting results are provided also by research regarding the influence of anchoring effect on the *quantity* of products purchased by consumers. An anchor in the form of high purchase quantity limits can increase sales (Wansink, Kent, and Hoch 1998). The type of anchor may also affect the way it operates. For example Sugden, Zheng, and Zizzo (2013) observed anchors to affect valuation only when they were framed as a plausible price of the good and Fudenberg, Levine, and Maniadis (2012) found no anchoring effect at all.

Obviously, our study is most closely related to those investigating how incentives to provide the ‘‘correct’’ value change the working of anchors. It is often claimed that incentives

do not matter, but in fact evidence is scarce and often reported merely in passing. For example, Tversky and Kahneman (1974) devote exactly one sentence to the issue: “Payoff for accuracy did not reduce the anchoring effect”. We are thus not told the number of participants, which questions were incentivized, the nature of incentives etc. Chapman and Johnson (2002) are equally enigmatic: “Chapman and Johnson (unpublished data) used a procedure in which half the subjects were paid according to the preferences implied by their judgments of simple lotteries. There was no reduction in anchoring when subjects’ payoffs depended upon their responses”. Likewise, (Wilson et al.1996) only sketch the design of the relevant Study 4.

One plausible reason why (modest) real incentives might have made little difference was that responders were intrinsically motivated to guess correctly even in the hypothetical case. Indeed, one typically wants to get the answer right provided there is indeed some well-defined “right” and “wrong”. The WTP questions are different in this respect, because it is largely a matter of personal preference rather than verifiable correctness of an answer. Incentives may thus work for these kind of questions even if they do not in the case of standard judgment tasks. This is plausible in particular in view of the findings such as those reporting by Epley and Gilovich (2005), namely that different types of anchors (in their case: self-generated vs. provided by the experimenter) may interact differently with material incentives and forewarning.

The only paper we are aware of that provides a direct comparison of valuations of analogous objects under hypothetical and real scenarios is Jung, Perfecto, and Nelson (2016). In series of field experiments they investigated the impact of anchors on amounts submitted by customers under the pay-what-you-want system and some of these were replicated as hypothetical scenarios in the laboratory (studies 14a-d). They suggest that some moderators of anchoring may operate in the hypothetical scenario only and that hypothetical payments are more sensitive to anchors than the real ones. However, it must be emphasized that customers *cannot* be expected to offer their true WTP in a pay-what-you-want system. In this sense, while there were real incentives, there was no incentive compatibility.

3. Research hypotheses

We sought to verify the following main hypotheses.

H₁: Hypothetical bias influences the valuation of the good

Based on extant literature we expected that our participants assigned to make a purely declarative decision would report higher willingness to pay for the good than those making actual purchasing decisions.

H₂: Anchoring effect influences the valuation of the good

We expected that participants who are shown a high anchor would report higher willingness to pay for the good than those a low anchor or no anchor at all.

H₃: Hypothetical bias and anchoring effect interact

We expected that anchoring would be stronger in the hypothetical case than in the case of actual purchasing decisions. In other words, we expected that a low anchor would reduce hypothetical bias compared to the high anchor.

4. Design and procedures

To test the hypotheses, two laboratory experiments were conducted. In both of them the participants (all of which were female) were asked to state their willingness to pay for a mascara. It is a familiar, commonly used good, but there is a great variety of brands and models, ranging in price between 10 PLN and approx. 200 PLN. We chose mascara Cover Girl Lash Blast Clump Crusher, which is not available in stationary shops in Poland (and hardly accessible in online shops). We could thus expect that the participants did not know the actual market price (57.40 PLN, or 13.30 EUR, in an online shop in November 2016), could not thus use as a home-grown anchor or reference point. Both of our experiments were paper-and-pencil.

4.1.Experiment 1

Four different treatments were used in this experiment in a 2x2 design: RealLow (real transactions, low anchor), RealHi (real transactions, high anchor), HypoLow (hypothetical valuation, low anchor), HypoHi (hypothetical valuation, high anchor).

The assignment to Real vs. Hypo condition was randomized at session level for the sake of convenience and to exclude the possibility of treatment contamination, whereas Hi or Low anchor was randomly assigned to each individual within a session. At the beginning of sessions involving real transactions (RealLow and RealHi) the participants were informed about the basic principles of the experiment (for more details see Appendix), then the product was shown to them. The participants were then randomly divided into groups of six and took part in a second-price sealed-bid (Vickrey) auction, which should reveal the true WTP for the object (Kagel 1995). Firstly, they were informed about auction rules orally and in writing (Appendix). Afterwards, the auction questionnaires (with information about anchor price) were distributed, auction was held and actual transactions were executed.

In treatments with hypothetical valuation (HypoLow and HypoHi) the scheme was similar, but the direct method of eliciting consumer WTP was used instead of auctions. After showing the product to the respondents, they were informed about the hypothetical nature of the valuation. Then, the questionnaires with anchor price and question regarding WTP were distributed. Participants were asked the question: *What is the maximum price you are willing to pay for mascara Cover Girl Lash Blast Clump Crusher (in PLN)?*

In order to test anchoring effect we compared the low (20 PLN) vs. high (70 PLN) anchor. Both of them was presented to the participants as a guess concerning the market price of the mascara provided by one of the participants of a similar experiment, thus no deception had to be used. It is worth mentioning that the participants were *not* explicitly asked whether their WTP was greater or less than given price, which may have weakened the anchoring effect (Brewer and Chapman 2002; Mochon and Frederick 2013). However, this kind of comparison between the anchor and the target seems unnatural, because the questions become redundant, see the discussion in Mochon and Frederick (2013).

At the end of the experiment the participants were asked to fill in the post-experimental questionnaire covering consumer habits, preferences with regard to cosmetics and sociodemographic characteristics.

It took about fifteen minutes for each session to be conducted. Participants were given both written and oral instructions. The experiment was conducted at the Faculty of Economic Sciences of the University of Warsaw. In total, 99 local students took part. Mean age was 20 years; a typical participant was a student with no employment, in a good financial situation.

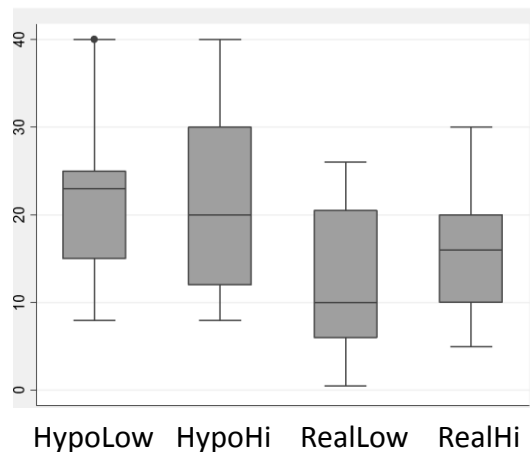
4.2.Results of Experiment 1

The mean value of willingness to pay for the mascara in the whole sample was equal to 18.24 PLN, with a median of 19 PLN and standard deviation of 9.42 PLN. We start our analysis with comparing willingness to pay values in each treatment, see Table 1 and Figure 1

Table 1
EXPERIMENT 1: DESCRIPTIVE STATISTICS (MONETARY VALUES IN PLN)

	HypoLow	HypoHi	RealLow	RealHi
Mean	23.00	21.92	12.17	15.26
Standard Deviation	8.83	9.86	7.68	6.51
N	25	26	24	23

Figure 1
EXPERIMENT 1: WTPS BY TREATMENT (IN PLN)



Notes: The blue rectangle represents the middle 50% of the data (from the first quartile to the third quartile), a line inside the box shows the median (the second quartile). The whiskers represent the top and the bottom 25% values, excluding outliers, which are represented by dots.

By eyeballing, mean willingness to pay was considerably lower in the Real condition compared to Hypothetical condition, while the anchor made little difference. We verified this observation using non-parametric Mann-Whitney U tests. Firstly, we compared treatments with low and high anchor (separately for hypothetical and auction valuation) to verify the anchoring effect. Medians of WTP in treatments HypoLow and HypoHi are equal ($z = .379$, $p = .705$). Similarly in groups with real transactions, differences between mean values of WTP in treatments RealLow and RealHi are not statistically significant ($z = -1.272$, $p = .203$). In the light of these results we can state that the anchor does not affect valuation of mascaras. In the next step we compared treatments with hypothetical vs. auction valuation to study hypothetical bias (separately for the low and high anchor). Differences between WTP values in treatments HypoLow vs. RealLow are statistically significant ($z = 3.84$, $p = .0001$) and likewise in treatments HypoHi vs. RealHi ($z = 2.211$, $p = .027$). Thus, we observe a clear hypothetical bias.

To check for an interaction between the two effects we used the ANOVA test, which is acceptable given the normal distribution of WTP values in the whole sample, see Table 2.

Table 2
EXPERIMENT 1: ANOVA TEST OF TREATMENT INTERACTION

Number of Observations = 98	R-squared = .2335
Root MSE = 8.37445	Adj R-squared = .2091

Source	Partial SS	df	MS	F	Prob>F
Model	2008.435	3	669.478	9.55	.000
Hypothetical	1870.834	1	1870.834	26.68	.000
Anchor_high	24.864	1	24.864	.35	.553
Hypothetical#Anchor_high	106.362	1	106.362	1.52	.221
Residual	6592.353	94	70.131		
Total	8600.787	97	88.668		

Interaction between the two variables of interest was not statistically significant. Not surprisingly if view of previously reported tests, a clear hypothetical bias and no simple anchoring effect was found. All of these findings were confirmed in a regression model in which participants' individual characteristics were controlled for (and generally found to be insignificant).

To sum up, a clear HB was found, equivalent to nearly one standard deviation of real valuation, or exceeding 50% of its mean value. By contrast, there was no anchoring effect and no interaction between the two. To check if this somewhat unexpected result is simply a random occurrence in the relatively small sample or is due to the mild framing of the anchor, we conducted another experiment.

4.3.Experiment 2

The design of Experiment 2 was very similar to that of Experiment 1, with two main differences. First, we used a stronger anchor: a real market price of a similar product, Cover Girl Lash Blast Volume mascara. The price is 68.42, very close to the High Anchor of Experiment 1, and generally way above most of participants' valuation. We used this high anchor only, comparing it to no anchor at all, because there are no comparable mascaras on the market at a much lower price, so it was impossible to use a low market-price anchor without deception. Thus, four treatments were used in this experiment in a 2x2 design: RealNA (real transactions, no anchor), RealA (real transactions, (high) anchor), HypoNA (hypothetical valuation, no anchor), HypoA (hypothetical valuation, (high) anchor).

Second, in all the treatments, the participants received more detailed information concerning the presented item. Specifically, at the beginning of the experiment, two TV advertisements were displayed and the mascaras were passed around for the participants to see up close (but not try out). This modification might have made the valuation process more similar to actual purchasing processes.

It took about twenty minutes for each session to be conducted. Participants were given written instructions only. The experiment was conducted at the Faculty of Economic Sciences of the University of Warsaw. This time a larger sample of 288 local female students took part. Mean age was 22 years, a typical participant was an unemployed student, in a good financial situation.

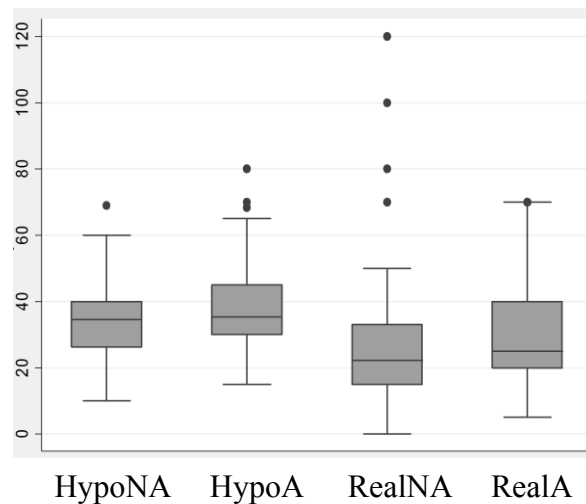
4.4. Results of Experiment 2

The mean value of willingness to pay for the mascara in the whole sample equaled 32.86 PLN with a median of 30 PLN and standard deviation of 16.16 PLN. Thus, the mean WTP in this case was higher than we observed in Experiment 1. This could be because we provided detailed information about the product and TV advertisements, as specified above. Table 3. and Figure 2 show willingness to pay by treatment.

Table 3
EXPERIMENT 2: DESCRIPTIVE STATISTICS (MONETARY VALUES IN PLN)

	HypoNA	HypoA	RealNA	RealA
Mean	33.99	38.81	27.28	30.66
Standard Deviation	11.28	13.82	20.56	16.28
N	76	74	66	72

Figure 2
EXPERIMENT 2: WTPS BY TREATMENT (IN PLN)



Notes: The blue rectangle represents the middle 50% of the data (from the first quartile to the third quartile), a line inside the box shows the median (the second quartile). The whiskers represent the top and the bottom 25% values, excluding outliers, which are represented by dots.

Again, non-parametric Mann-Whitney's tests were used to compare treatments. In order to check for the anchoring effect we compared treatments with and without anchor. In the first pair, HypoA vs. HypoNA, we can observe statistically significant differences ($z = -2.053$, $p = .040$). In the second pair, RealA vs. RealNA, the differences between mean WTPs are border-

line insignificant ($z = -1.891, p = .059$). As for the hypothetical bias, it is highly significant both with ($z = -3.416, p = .001$) and without anchor ($z = -4.249, p = .0000$)

Next, we checked for an interaction between the anchoring effect and the hypothetical bias. This time, because our data is not normally distributed, we applied the Aligned Rank Transform (ART) procedure. Table 4. shows the results.

Table 4
EXPERIMENT 2: ART TEST OF TREATMENT INTERACTION

Source	Partial SS	Df	MS	F	Prob > F
Anchor	40239.032	1	40239.032	6.65	.0104
Real	159820.603	1	159820.603	28.43	.0000
Anchor#Real	657.595	1	657.595	.11	.7450

As in Experiment 1, we observe that the interaction between the two variables is not statistically significant (but both simple effects are). Again, all these findings are confirmed in a regression model. To summarize, in Experiment 2 both the hypothetical bias and the anchoring effect can be observed, but no interaction between the two.

5. Conclusions

We confirmed Hypothesis 1 that hypothetical bias influences the valuation of a good. In the case of hypothetical choice, budget constraints and reductions in other types of consumption necessary to accommodate the additional purchase may receive insufficient scrutiny. Social desirability and experimenter demand effects may also play a role. As a result, the participant may overstate their actual WTP. Hypothesis 2, that anchoring influences the valuation of the good, is partially confirmed. We can suspect that the strength of the effect may depend on the type of anchor used. Only market anchor (real price of a similar product) affected WTP in our study. One reason for that may have been that participants were not explicitly asked to indicate whether they would be willing to purchase the product at the anchor price. Few of them may have thus been inclined to seriously consider the weak anchor provided to them in Experiment 1 (another participant's valuation). As a result, it did not sufficiently affect their final valuation. Perhaps most importantly, we rejected Hypothesis 3, that hypothetical bias and anchoring effect interact. Neither in Experiment 1 nor in Experiment 2 we can observe a significant interaction between the discussed effects. Whereas in Experiment 1 it could be because anchoring per se was too weak, the results of Experiment 2 are univocal.

This finding is in line with the line of research implying that it is primarily not the lack of mental effort that makes the standard anchoring paradigm work (Epley and Gilovich, 2005, and the works cited there). Instead, it may be that information consistent with the anchor provided by the experimenter is more accessible, a bias that will not be affected by deliberation (e.g. manipulated by incentives, time pressure or warnings).

Our finding thus speaks to validity of hypothetical methods – we do not find a simple sign of deficient data quality compared to the real payments condition. It further suggests that a low anchor is not a promising tool to curb hypothetical bias. Indeed, it is unlikely to selectively reduce reported valuations of those responders who tend to overstate them compared to their

real WTP. It implies that anchoring effect may well be behind various seemingly effective marketing techniques, such as including a really expensive sort of wine in the menu to boost WTP for the other varieties. Indeed, our results suggest that breaking adrift may be very difficult, even when consumers' own money is at stake.

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7. Appendix: transcript of instructions

Experiment 1

Part 1: intro [all treatments, presented orally]

Welcome!

Thank you for taking part in our experiment! A randomly drawn participant will receive a gift today.

Please turn off your mobile phones, remain silent and do not communicate with one another.

If you have any question during the experiment, raise your hand and wait for the experimenter to come to you (do not ask your question aloud!).

People who do not comply with these rules will be excluded from the experiment and lose the chance of winning the prize.

We would like to inform you that the study is anonymous and all collected data will be used solely for scientific purposes. Along with the next instruction, you will receive an individual respondent code that you will need until the end of the experiment. Stick it in a prominent spot on the bench/desktop in front of you.

Part 2: rules [HypoLow, HypoHi]

In a moment you will receive a questionnaire in which you will be asked to value a cosmetic product. In the questionnaire you will have to specify the maximum price you would be willing to pay for this product. Your reply will be purely declarative and no real transactions will be made on this basis. The amount you give will not be disclosed to anyone.

If you have any questions, raise your hand and wait for the experimenter to approach you.

Part 3: Valuation [HypoLow, HypoHi]

One participant of a similar study said she thought the presented product would normally sell at [20/70] PLN.

Give the maximum price that you would be willing to buy CoverGirl LashBlast Clump Crusher Mascara? (Please enter a specific amount in PLN)

.....

Part 2 [RealLow, RealHi]

In a moment you will have an opportunity to buy some cosmetic product. You will be randomly matched into groups of six. A second-price (Vickrey) auction will be conducted

within each group. Each participant will receive a valuation questionnaire and will place her bid. The amount you give will not be disclosed to anyone. Then the bids will be collected and ranked from highest to lowest. The high bidder will win the auction. The experimenter will sell her presented product, but not at the price she declared, but the price of the second highest bid.

The best strategy in this kind of auction is to give your actual valuation, which is the maximum price you are willing to buy the presented product.

Example:

Six people participating in the auction made the following bids:

Person 1: A PLN

Person 2: B PLN

Person 3: C PLN

Person 4: D PLN

Person 5: E PLN

Person 6: F PLN

The bids were then ranked from the highest to the lowest.

If for example $A > C > E > F > B > D$, then the winner of the auction will be the Person 1, because she gave the highest bid (A PLN). She will buy the presented product, paying for it the second highest price, that is C PLN.

Auction results will be announced at the end of the experiment. **The winning person will be required to make a purchase in accordance with the above rules.** If you win the auction and you do not have enough money with you, you will be able to pay within a week after the experiment. Thus even if you do not have cash on you, you can still participate in the auction.

If you have any questions, raise your hand and wait for experimenter to approach you.

Part 3: Valuation [RealLow, RealHi]

One participant of a similar study said she thought the presented product would normally sell at [20/70] PLN.

Remembering that you are participating in an auction, give the maximum price you are willing to buy CoverGirl LashBlast Clump Crusher Mascara. (Please enter a specific amount in PLN)

.....

Experiment 2

Part 1: intro [all treatments]

Welcome!

Thank you for taking part in our experiment! A randomly drawn participant will receive a 50 PLN Sephora voucher today.

Please turn off your mobile phones, remain silent and do not communicate with one another.

If you have any question during the experiment, raise your hand and wait for the experimenter to come to you (do not ask your question aloud!).

People who do not comply with these rules will be excluded from the experiment and lose the chance of winning the prize.

We would like to inform you that the study is anonymous and all collected data will be used solely for scientific purposes. Along with the next instructions, you will receive an individual respondent code that you will need until the end of the experiment. Stick it in a prominent spot on the bench/desktop in front of you.

Part 2: Rules [HypoNA, HypoA]

You've just seen advertisements of CoverGirl LashBlast Clump Crusher mascara. You have also had an opportunity to see this product up close. **[HypoA: A similar product of CoverGirl brand, mascara CoverGirl Lash Blast Volume, would sell at 68.42 PLN (Nov. 2015, online pharmacy premiumusa.pl).]**

In a moment you will receive a questionnaire in which you will be asked to value the presented product. In the questionnaire you will have to specify the maximum price you would be willing to pay for CoverGirl LashBlast Clump Crusher Mascara. Your reply will be purely declarative and no real transactions will be made on this basis. The amount you give will not be disclosed to anyone.

If you have any questions, raise your hand and wait for the experimenter to approach you.

Part 2: Rules [RealNA, RealA]

You've just seen advertisements of CoverGirl LashBlast Clump Crusher mascara. You have also had an opportunity to see this product up close. **[RealA: A similar product of CoverGirl brand, mascara CoverGirl Lash Blast Volume, would sell at 68.42 PLN (Nov. 2015, online pharmacy premiumusa.pl).]**

In a moment you will have an opportunity to buy the presented mascara. You will be randomly matched into groups of six. A second-price (Vickrey) auction will be conducted within each group. Each participant will receive a valuation questionnaire and will place her bid. The amount you give will not be disclosed to anyone. Then the bids will be collected and ranked from highest to lowest. The high bidder will win the auction. The experimenter will sell her presented product, but not at the price she declared, but the price of the second highest bid.

The best strategy in this kind of auction is to give your actual valuation, which is the maximum price you are willing to buy the presented product.

Example:

Six people participating in the auction made the following bids:

Person 1: A PLN

Person 2: B PLN

Person 3: C PLN

Person 4: D PLN

Person 5: E PLN

Person 6: F PLN

The bids were then ranked from the highest to the lowest.

If for example $A > C > E > F > B > D$, then the winner of the auction will be the Person 1, because she gave the highest bid (A PLN). She will buy the presented product, paying for it the second highest price, that is C PLN.

Auction results will be announced at the end of the experiment. **The winning person will be required to make a purchase in accordance with the above rules.** If you win the auction and you do not have enough money with you, you will be able to pay within a week after the experiment. Thus even if you do not have cash on you, you can still participate in the auction.

If you have any questions, raise your hand and wait for the experimenter to approach you.

Part 3: valuation [HypoNA, HypoA]

Give the maximum price that you would be willing to buy CoverGirl LashBlast Clump Crusher Mascara? (Please enter a specific amount in PLN)

.....

Part 3: valuation [RealNA, RealA]

the maximum price you are willing to buy CoverGirl LashBlast Clump Crusher Mascara. (Please enter a specific amount in PLN)

.....



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