

Bargaining in a “Pawn Shop”: A field experiment to study WTA

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Abstract: This study presents an analysis of hypothetical bias in WTA valuation connected with a bargaining game setting, in a field experiment context. The field of the experiment is the History Channel television “Pawn Stars”. We collected a unique dataset that allowed us to analyze not only the gap between real and hypothetical WTA but also how they affect the bargaining game and vice versa. The general aim of this paper is to study the hypothetical bias related to subjects’ WTA, and the factors that mostly affect it. The main results, of our paper, show that the hypothetical bias is positive, and it depends mainly on the price range and the type of good.

Keywords: *hypothetical bias, WTA, bargaining game, pawnshop, field experiment*

1. INTRODUCTION AND LITERATURE REVIEW

There is abundant literature in the field of decision-making that studies subjects’ selling and buying behavior. In these kinds of decision two – very different – aspects are important, i.e. (i) buying and selling reservation price and (ii) bargaining. Indeed, the maximum price a buyer is willing to pay to buy a good, the minimum price a seller is willing to accept to sell a good, and the transaction price determines subjects’ surplus and their satisfaction. When we speak about willingness, we have a bias connected with the difference between the hypothetical and the real value stated by subjects, such difference represents the “hypothetical bias”. This bias occurs because individuals tend to respond differently to hypothetical scenarios than they do to the real one (Diamond and Hausman 1994). “*The weight of the evidence supports the claim that hypothetical valuation exceeds real valuation*” (Harrison et al., 2008). There is a gap in the literature since many of these hypotheses have not yet been rigorously tested in an experimental setting (Murphy et al., 2004). Loomis (2011) conducted a study on this bias in a stated preference valuation. This brief review underlines that this empirical analysis “*beg for validation in field experiments*” (Harrison, 2006). It is important to specify that the magnitude of the hypothetical bias was statistically smaller for WTP as compared to WTA. About WTP we can say that subjects tend to overstate their hypothetical WTP. We can notice that the actual literature is focused more on the WTP respect to the WTA. List and Shogren, (2002) analyzed the development of this literature from 1972 since 1998. From their analysis emerges that the individuals underestimate their real WTA in the hypothetical regimes. The hypothetical and real statements are equivalent to the margin, this means that: an increase of \$ 1 in a hypothetical statement is associated with an increase of \$ 1 in the real value.

Carrying on with the analysis of this gap in time, after 1998 until 2019 we can find just two studies based on the difference and the calibration of real and hypothetical willingness to accept estimations, and one of these is List and Shogren’s work. After 2015 there are studies about WTA and WTP, but they are focused on the disparity between these two preferences instead of the hypothetical bias (Table 1).

Table 1: Summary of Studies Comparing Real and Hypothetical Statements from 1999 to 2017

Study	Year	Type of experiment	Type of good	Type of comparison	Type of elicitation	Results
WTP Johannesson et al	1999	Classroom	Private	Between and Within Group	Dichotomous Choice	No difference between WTP hypothetical and real; A factor that can affect this gap is the type of good; No effect from socio demographic aspects.
WTP Liljas et al	2000	-	-	Literature Review	-	We can have difference between WTP hypothetical and real, and it can be related to the type of design and the pool (if are students).
WTP List and Gallet	2001	Laboratory	Private	Within Group	Open-Ended, First Price, Provision Point, Smith Auction Random Price Auction, Becker, Degroot, And Marschak (BDM), Dichotomous Choice	Ratio between WTP hypothetical and real is smaller than ratio between WTA hypothetical and real. The magnitude of the gap depends on the elicitation method.
WTA List and Shogren	2002	Laboratory	Private	Within Group	Open-Ended	Subjects tend to underestimate real offers.
WTP Botelho and Pinto	2002	Laboratory	Public	Between Group	Open-Ended	The mean and median WTP in the hypothetical treatment were substantially higher than those observed in the real treatment
WTA Nape et al	2003	Field (survey)	Private	Within Group	Dichotomous Choice	Subjects tend to overstate WTA hypothetical if the responses had been real.
WTP Johansson-Stenman and Svedsäter	2003	Classroom	Public	Between Group	Dichotomous Choice	Subjects tend to overestimate their WTP real in a real money experiment (no vice versa).
WTP Voleker	2006	Classroom	Private	Within Group	First-Price Auction, Vickrey Auction, CV, Conjoint Analysis	Subjects tend to overestimate the WTP hypothetical respect to the WTP real.
WTP Paradiso and Trisorio	2010	Classroom	Private	Between Group	Open-Ended, Second-Price Auction	Subjects tend to overestimate the WTP hypothetical respect to the WTP real. A different setting of knowledge of the good affect the subject's valuation.
WTP Loomis	2011	-	-	Literature Review	-	Subjects tend to overestimate the WTP hypothetical respect to the WTP real.
WTP Kang and Camerer	2013	Scanning	Private	Within Group	Auction	Subjects tend to overestimate the WTP real respect to the WTP hypothetical.
WTP Lee and Hwang	2015	Field	Public	Within Group	Cheap Talk, Open-Ended	hypothetical bias in WTP exists. The provision threshold methods with and without the cheap talk method are not effective in reducing hypothetical bias in WTP

Therefore, from the study emerged what was announced, the literature is still meager regarding analyses and deductions concerning the willingness to accept; this is because it is more difficult to calibrate and reduce the disparity generated by the hypothetical bias. Through calibration studies conducted through a series of "pattern recognition" exercises, contrasting results were obtained. The subjects are divided between who underestimates the real WTP and who overestimates it, or who does not assume any of these two attitudes. These contrasting behaviors may depend on different variables, such as the subject pools, the good, the context, or the set of all of them. Improving the effectiveness of the calibration model, understanding better how individuals respond to contingency valuation method questions, encouraging them to give more precise answers, could solve the problem. As Murphy et al., (2005) found "*there are not enough WTA studies to truly capture any such effects*". From the literature, it emerges, in the survey with private goods, that they have a lower calibration factor and less relevant compared to public goods because the participants know the object considered. There is abundant experimental evidence that the elicitation method, the information acquired, and, in the absence thereof, those provided to the participants, influence this disparity. Most of the time, as far as WTP is concerned, it tends to overestimate the hypothetical availability compared to the real one, and consequently, the deductions that can be drawn from the first for the second one can result staggered.

As mentioned before this lack of experiments to test the theoretical assumption is a surprising contrast to the experimental literature in other contexts, such as public goods or bargaining experiments (Murphy et al., 2004). Bargaining is connected to this topic since, as Franco-Watkins, Edwards, and Acuff (2013) said, there are some external aspects like emotions, social value orientation, and other individual differences that are important to understand the evolution of a fair bargaining game. Not only this, part of the literature affirms that bargaining game can be altered from the type of context (Cherry et al., 2002; List, 2007; Oxoby and Spraggon, 2008) but also by the information available for both the parties (Fiddick and Cummins, 2007). We can consider that when the negotiation regards something personal for one of the parties, like the type of good (such as a family gift or something close to a special occasion) it is more likely to observe a gap between the hypothetical value and the real one.

The *anchoring effect* is a very frequent type of error when we deal with the issues of willingness to pay/accept and bargaining. It consists of a form of cognitive bias that drives people to focus on the first piece of information that it is given to them when they make any decision. Usually, it concerns numerical decisions, such as establishing the price of a product or the price of a negotiation. This can hinder the ability of one of the parties to find a fair and reasonable price. In our study, we will explore whether this has the same influence on the negotiation and on the willingness to accept. The literature shows us, as we can see in Fudenberg et al., (2012) and Simonson et al., (2004), that usually WTA does not have an anchoring effect, or it is very weak instead of WTP case.

Based on what we said and considering the previous works, we do not have a lot of documentation about WTA in field experiments. The main reason is that to find a dataset in a real setting that adapts to test this aspect is very difficult. Like in the work by McCannon and Stevens "*Dealmaking in Pawn Stars: Testing theories of bargaining*" (2013) to solve this problem we used the History Channel Television "Pawn Stars". The authors put to the test the use of experts plus the experience of the negotiators, plus the gap between the initial offers and the use of ultimatum offers, to know their effect regarding the tendency of a deal being struck as well as the division of the surplus. Their results show that agreements with the presence of an expert third party are less likely to conclude a good deal. However, about the experience of the negotiators, when he/she is inexperienced, he/she has more probability to conclude a deal well made. Another aspect is that there is no difference between purchased and unpurchased items however, the goods traits and characteristics, like sporting goods or infant toys, have a much higher chance of being negotiated over directly.

The main purpose of this paper is to study whether or not there is a gap between hypothetical and real values in the WTA statement (*Research question 1*). Moreover, to analyze the factors that most influence this hypothetical bias and the success of the negotiation (*Research question 2*).

Our paper is structured as follows, in the next section we explain the motivation behind the choice of the field (pawn star), the third section concerns data explanation and descriptive analysis. The fourth is about the results and the theoretical model and finally, in the fifth, we have some conclusions.

2. WHY PAWN STARS?

There is very little literature addressing the bargaining process and WTA hypothetical bias in the field; most of the studies were conducted in the laboratory. We used the American reality television series, “Pawn Stars” to collect field data to study bargaining and WTA hypothetical bias. The setting of this TV show is a typical pawn shop known as the “Gold & Silver Pawn Shop” in Las Vegas. This family business opened in 1989, it was originally managed by Richard Benjamin Harrison, his son Rick and his grandson Corey. The “Gold & Silver Pawn Shop” has more than 30 employees among them, Austin Russel, Corey's childhood friend. Thanks to its location, Las Vegas, this shop is very famous, as it is open 24 hours and has more than 12000 products. The most popular products are jewels but many of the products analyzed during the negotiations are objects such as sports memorabilia, antiques, and collectible weapons, art objects and books, antique toys, antique machines, musical instruments, etc. During each episode there are two different roles, a vendor goes to the shop to sell something, whom which we will refer to in this paper as the **seller**, and the owner of the shop that decides whether or not to buy the product shall be called the **buyer**. At the beginning of each episode, the seller introduces his/her product and says all the information that has about it, provenance, possible market value, historical relevance (if it has one) and then presents the value in which they are willing to sell it; after this, the buyer decides if the product is of interest or not. At this point, we have two possibilities the first depends on whether or not the buyer has enough information about the good presented if that is the case bargaining commences, otherwise, another figure is introduced, the **expert**. In this scenario, the buyer is not able to evaluate whether reselling the asset can lead to a margin of profit greater than the costs. So, he consults the expert in that specific field (such as a handwriting expert, expert in antique swords, in music instruments, in sports memorabilia, in war memorabilia, etc.) that gives him a market value then the buyer can make his first offer and starts the negotiation. To avoid bias evaluation, it is important to underline that they are non-partisan experts, this means that they just give an external valuation of the item.

3. DATA AND DESCRIPTIVE ANALYSIS

In total, we analyzed 250 negotiations from episodes of season 1 to season 15. Out of 250 negotiations, 164 ended positively and the others 86 failed. The failure of the negotiation was due to different reasons, there are cases in which the object was not authentic or cannot be authenticated, cases in which it was illegal, cases in which it was unusual, therefore with a low probability of gain for the buyers and finally cases where it was overrated because it is very important to the seller. We collected data on seller gender and his/her hypothetical WTA, the buyer negotiation experience, the presence of the expert, information about the goods like their source, their typology, their market value, and the price range of each product. In the end, information about the deal such as the final offer value, the number of bids during the bargaining, and the presence of an ultimatum offer. A natural way to inspect the presence of the hypothetical bias, i.e. the gap between the hypothetical WTA and the real one, is to study the distribution of the ratio between the hypothetical WTA and the selling price (see Figure 1), we called this ratio **H-B**. A **t-test** confirms the presence of the hypothetical bias¹.

¹ We reject the null hypothesis that the mean of the variable H-B is equal to 1 at 5% of significance level (p-value=0.000<0.05).

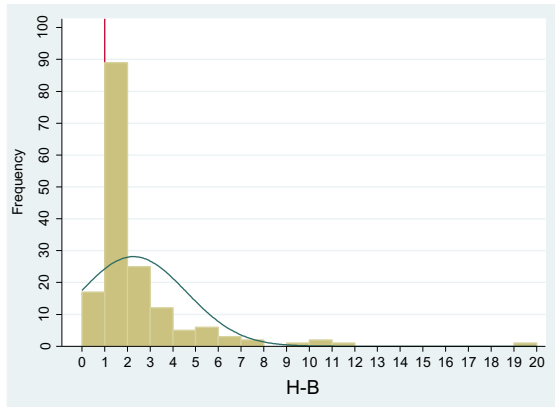


Figure 1 Variable *H-B* trend

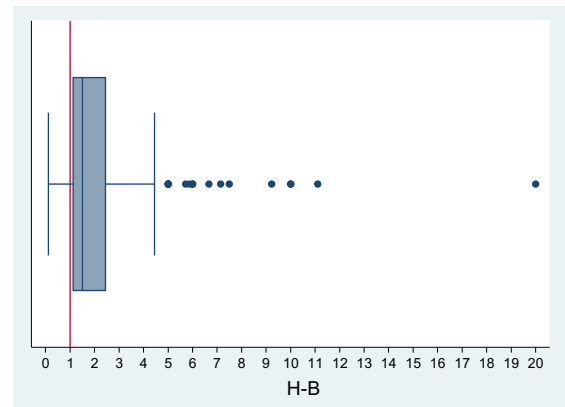


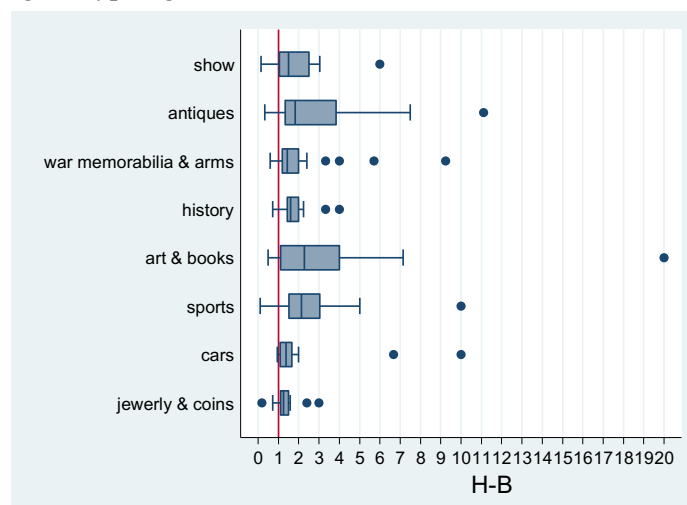
Figure 2 Variable *H-B* trend

In each episode, the seller presents his/her product specifying its provenience, if it is a family gift with sentimental value or something purchased from an auction or found somewhere without any value for him/her. To better identify in which way each product affects the deal-making, three descriptive variables were generated: type of good, a good source, and price range. There are 8 different macro **types of goods** (see table 2).

Type of good	Example
<i>Art & books</i>	autographed paintings or poems and old editions or autographed books
<i>Antiques</i>	vintage or collectible items and games or famous puppets
<i>Show</i>	playboy items or items from movie sets and Jimi Hendrix's guitar or sophisticated instruments
<i>War memorabilia & arms</i>	items from the I or II war world and guns, rifles or cannons
<i>Sports</i>	signed basketball balls or sports uniform
<i>Cars</i>	vintage cars or motorcycles
<i>Jewelry & coins</i>	ancient coins or super bowl rings
<i>History</i>	fossil or Egyptian ancient mummified animals

Table 2: type of good with an example for each category

Based on the type we have a certain price range, we have three main typologies “*war memorabilia & arms*”, “*antiques*” and “*show*” with a majority of personal goods. As we can see from figure 3, there is a hypothetical bias, the H-B of the different types of good is very flat towards 1. The ANOVA test² demonstrates the H-B does not differ among the good typologies but its mean value deviates from 1.



² We do not reject the null hypothesis that the mean of the variable H-B is the same between the different types of good at 5% of significance level (p-value= 0.0685>0.05)

Figure 3 box plot Variable *H-B*- type of good trend

The **good source** is a way to identify the provenience of the good. We identified two different categories ‘*personal*’ and ‘*purchased and found*’. We categorized item as *personal* if they are family gifts, friend gifts, parent’s heredity, all those items that the seller did not buy directly for him/her, but they have a greater sentimental value than the economic one because they are tied to memories or to the person from whom they received them. This sentimental value influenced indirectly the seller’s behavior that could be led to express a hypothetical WTA greater than the actual market value for that good. As we can see from figure 4, this last category is less flat towards 1.

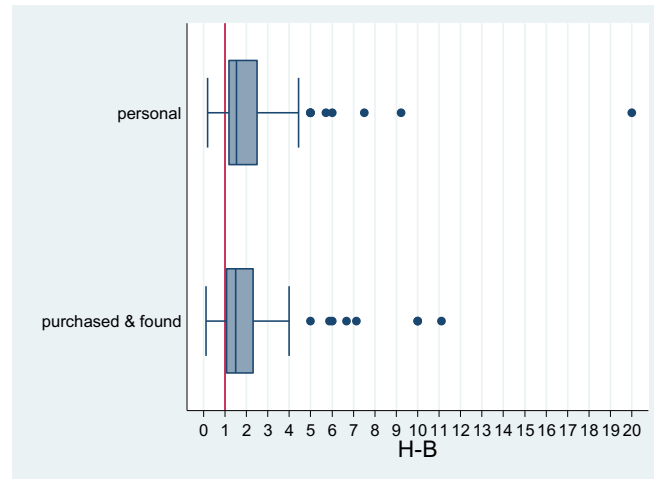


Figure 4 box plot Variable *H-B*- good source trend³

Using the variable **price range**, it is possible to define the monetary value of our products. This range variable is generated considering the market value and the final price of each item. As mentioned before in this shop there is a heterogeneous variety of products and for this reason, we have identified 7 different range levels. The first one from 20 to 100 dollars the second from 101 to 500, then from 501 to 1000, from 1001 to 2000, from 2001 to 5000, from 5001 to 30000 and the last one from 30001 to 450000 dollars.

Analyzing the **H-B** mean and comparing it with the different **price ranges** (figure5) we can notice that the gap between the hypothetical value and the final one is close to 1 in the last most expensive range, probably because when a good has a higher market value both of the parties are more agree on the selling price. In fact, for all the other ranges, the ANOVA test confirms the difference in **H-B** mean⁴.

³ For the K-S test on the distribution, we do not reject the null hypothesis that the two groups have equal distributions of the variable H-B at 5% of significance level (p-value= 0.585>0.05). For the t-test, we do not reject the null hypothesis that the mean of the variable H-B is the same between the different source groups at 5% of significance level (p-value= 0.5983>0.05)

⁴ We reject the null hypothesis that the mean of the variable H-B is the same between the different price range at 5% of significance level (p-value= 0.0006<0.05)

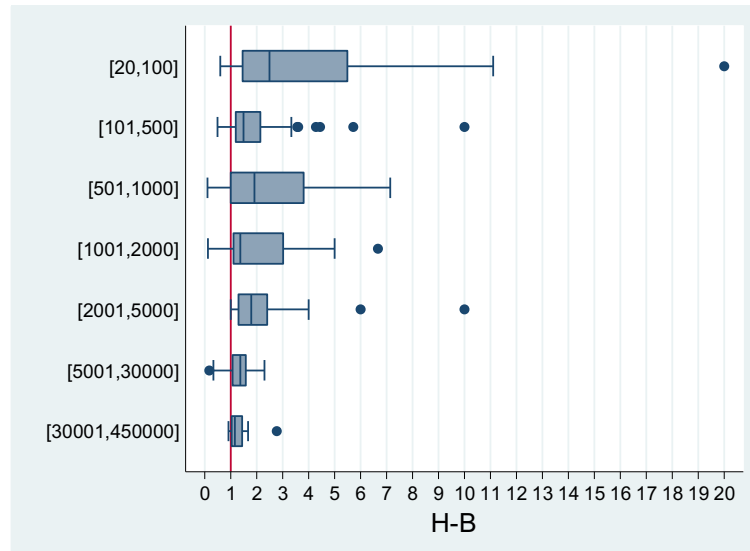


Figure 5 box plot *Variable H-B- price range trend*

Two other important variables that looking at the literature need to be considered: i.e. the **buyer experience** and the **expert consultancy**. These two variables can affect the anchoring effect and asymmetric information. Buyer experience should influence the success of the negotiation, considering the risk perception factors that affect individual choices. In the program, the negotiations are usually conducted by Rick, sometimes by Richard and occasionally by Corey or Russel. We have identified two main levels of experience: *high*, for all the negotiation where the main mediator is Rick or Richard and *low*, for all the others where the principal negotiator is Corey or Russel. The different levels have been defined considering the age but especially the working age of the buyers. Considering their experience, buyers can have, more or less chance to conclude a negotiation with success. Usually, more experience implies more knowledge about items, their history, and value and this underlines the difference in information about buyer and seller. When the buyer does not know enough about a good, he requires the help of a third party, **the expert** in that specific field. When an expert is involved in the trading the asymmetric information between the parties vanished, but he may generate an anchoring effect on the seller. Logically the knowledge and experience in managing a negotiation influence the outcome of the same negotiation. A more experienced buyer knows how much and in which way, he/she can insist on pulling the price that they want, without losing the negotiation. Looking at table 3, we notice that the experience level with the highest value of success is "high" (38.8%), but if we look at the H-B mean (figure 6), we can see that it is almost 2.2 in both levels. This could mean there is no difference in the buyers' experience. The empirical thesis is controversial because it affirms that greater experience is synonymous with greater gain, but as we saw from McCannon et al.'s (2013), the inexperienced negotiators that open the negotiation have a greater possibility of a successful agreement. Looking at the number of failed bargains, in our analysis, we can see that a buyer with high experience fails more than a buyer with a lower experience.

<i>Buyer experience</i>	<i>N</i>	<i>Deal outcome</i>		<i>Bargaining number</i>		<i>Hypothetical Bias</i>			
						<i>Mean</i>	<i>Std. Dev</i>	<i>Min</i>	<i>Max</i>
		<i>Success</i>	<i>Failure</i>	<i>Low</i>	<i>High</i>				
<i>High</i>	154	97	57	82	51	2.255	2.621	0.111	20
<i>Low</i>	96	67	29	49	36	2.272	1.835	0.133	10

Table 3 *Variable H-B- buyer experience trend*

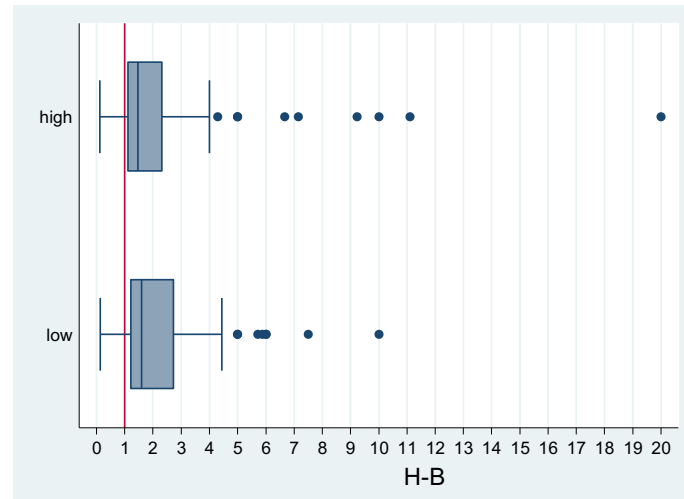


Figure 6 box plot *Variable H-B- buyer experience trend*

The same consideration can be made by observing how the H-B varies based on the involvement of the expert, specialized in that particular good object of negotiation. From the beginning, we can say that the cases in which the expert is involved should be less interesting since once the expert defines the market value of the asset, the buyer and the seller must agree on 2/3 of that value since the remaining 1/3 represents the common margin for auction houses. The percentage of failure is approximately the same in both of the cases 18%, this value could reject our consideration about how the asymmetric information affects the deal.

There are a lot of aspects that can influence the outcome of a deal, in this specific context two factors were found, the number of bargaining during the negotiation and the influence of the last offer from one of the parties. To consider these aspects we generated the variable **bargaining number** and the **ultimatum offers**. In all the negotiation usually, we have an exchange of bids larger than 2, the largest found is 5 (bargaining number), usually the more bids we have in bargaining the more the parties are satisfied. If we observed one or two rounds of negotiation, we labeled it as *low*, if we observed three, four, or five rounds of negotiations we labeled it as *high*. This last variable, ultimatum offer, is a dummy variable, this means that it is equal to 0 when none formulates this statement during negotiation, and 1 when it occurs. The ultimatum offer is useful to understand the cases in which the seller agrees to a price that is lower than the price they should get due to being pressured by the buyer, in most of the cases, he/she is driven to accept a much lower amount of money than he/she wanted just because the buyer told him/her that “*this is the best I can do*” or “*that is the price and not a dime more*”. This statement should put one of the parties in a position of in or out and for this reason, the deal outcome could be affected by the hypothetical bias. The ANOVA test⁵ confirms what we observe in Figures 7 and 8 below, the different numbers of bargaining and the case in which there is or not an ultimatum offer do not have a different H-B.

⁵ We do not reject the null hypothesis that the mean of the variable H-B is the same between the different bargaining number at 5% of significance level (p-value= 0.8799>0.05) as well as for the presence of an ultimatum offer (p-value= 0.3252>0.05)

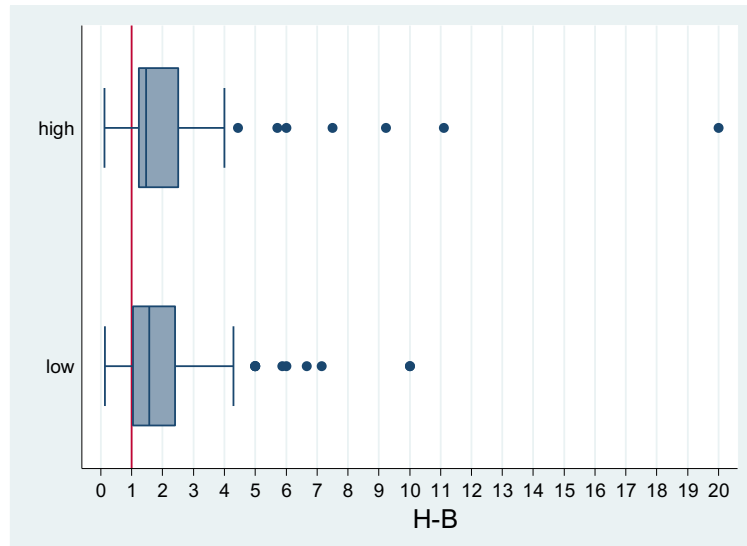


Figure 7 box plot *Variable $H-B$ - bargaining number trend*

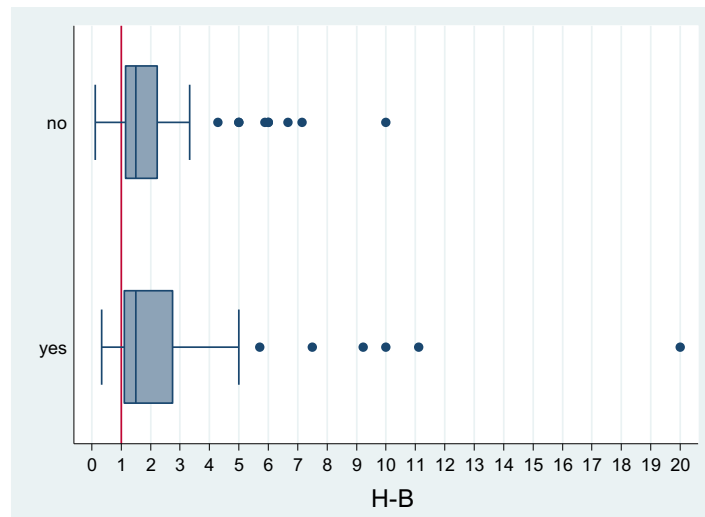


Figure 8 box plot *Variable $H-B$ - ultimatum offer trend*

4. RESULTS

We performed two econometric exercises. To observe which factors affect the hypothetical bias, and corroborate the previous results with a nonparametric analysis. We estimated a *log regression model*⁶ and a *probit regression model*⁷. The outputs are reported in Table 5.

A very interesting result is that the *gender* category does not influence the hypothetical bias (**log H-B** variable), keeping fixed the other variables. The goods source *purchased and found* influenced the hypothetical bias concerning the personal one by a decrease of 21%. When the negotiation takes into account an item belonging to the price range \$5001- \$30000 they have a positive influence on the difference between WTA hypothetical and final offer. For each unit more of the items belongs to this price range the gap decrease 41% more respect to the price range \$1001- \$2000, instead of items with a low price range (\$20-\$100) that have a negative influence on this difference (it increase the 47% more respect to the reference variable). Only two types of

⁶ Where the dependent variable is $\log H-B = \log(\text{seller WTA hypothetical/final offer})$

⁷ Where the dependent variable is deal outcome if the negotiation is a success or a failure.

goods have an impact on the hypothetical bias, and it is positive. Show and jewelry & coins, they influence the gap, 46% less than the *antique* products.

We can reassume saying that there exists a hypothetical bias between the final offer and WTA hypothetical. It decreases when the negotiation regards purchased and found goods, with a medium-high price range and when items are very rare and unusual, such as something about show or jewelry & coins. Regarding the parties, we can say that the seller gender does not influence this gap. Concerning the experience, we have two results. On the one hand, unlike what McCannon and Stevens found, the experience of the negotiators does not affect this difference. On the other hand, the introduction of a third party in the negotiation does not affect the hypothetical bias.

To complete our analysis, we estimated a *probit* model to study the effects of the explanatory variables on the outcome of the negotiation. The output is reported in Table 5.

Variable	Log H-B			Deal outcome		
	Coef.	Std. Err.	P>t	Coef.	Std. Err.	P>z
buyer_experience						
low	0.0026	0.1219	0.983	.0891373	.2358626	0.705
seller_gender						
M	-0.0211	0.1921	0.913	.4507416	.3544544	0.203
good_source						
purchased_found	-0.2190	0.1246	0.081*	-.0113163	.2278772	0.960
type_of_good						
Art&books	0.1713	0.2237	0.445	1.786.117	.6243041	0.004**
Cars	0.0861	0.2562	0.737	1.253.489	.5157982	0.015**
History	-0.1637	0.2294	0.477	.1380997	.3915418	0.724
Jewelry&coins	-0.4545	0.2702	0.095*	.8376739	.5181182	0.106
Show	-0.4656	0.2194	0.036**	.1725638	.3781095	0.648
Sports	-0.0631	0.2691	0.815	.2801111	.4937931	0.571
War memorabilia&arms	-0.2089	0.1898	0.273	.4548798	.3536059	0.198
bargaining_number						
high	0.0142	0.1198	0.906	1.079.722	.2661626	0.000***
expert_consultancy						
yes	-0.0728	0.1376	0.598	-.0223367	.2510427	0.929
price_range						
[20,100]	0.4758	0.2427	0.052*	.8022505	.5369564	0.135
[101,500]	-0.0825	0.1999	0.68	.6415714	.4315613	0.137
[501,1000]	-0.0424	0.2247	0.851	-.2959495	.4006824	0.460
[2001,5000]	0.1879	0.2432	0.441	-.5127969	.4058796	0.206
[5001,30000]	-0.4168	0.2318	0.074**	-.5288541	.4292474	0.218
[30001,450000]	-0.1408	0.2477	0.57	-.2322278	.4493421	0.605
ultimatum_offer						
yes	0.1235	0.1233	0.318	.3764213	.2281661	0.099*
Cons	0.7666	0.3180	0.017	-.5706683	.5803461	0.325
Number of observation	164			217		
R-squared	0.1855	Pseudo-R2	0.2571			

Table 5 log and probit regression model outputs⁸

⁸Reference category: F, high, personal, antiques, 1_2, no, 1001_2000 Statistical significance *** p<0.01, ** p<0.05, * p<0.1

	Margin
bargaining_number	
Low	.6677056
High	.9094761
type_of_good	
art&books	.9626459
Cars	.909773
ultimatum_offer	
No	.7170094
Yes	.8053206

Table 6 *probit margin outputs*

From the results (tables 5 and 6) emerge that the only variables that affect the outcome of the negotiation are the type of good, the ultimatum offer, and the bargaining number. Art & book and car items increase respectively by 96 and 90 percentage points the likelihood of a successful agreement. The same behavior is liked with the number of bids during the negotiation (bargaining number), high bids (from 3 to 5) growth the probability of successful negotiation by 90 percentage points as well as the presence of an ultimatum offer, the likelihood of a positive outcome increase by 80 percentage points.

5. CONCLUSIONS

This study presents an analysis of hypothetical bias in WTA connected with a bargaining game setting. As in previous works, we found that the primary factor that explains this bias is the magnitude of the hypothetical value. Since the preliminary analysis, we noticed that we would find a hypothetical bias because the t-test finds an H-B mean different from 1, selling and buying prices are not the same.

From this first general step, we found that item characteristics such as, price, typology, and source have an influence on the final price at which the negotiation ends. This gap looks more evident when we analyze the different price ranges. Also in the regression, we saw that goods with a medium-high price range (\$5001-\$30000) decrease the hypothetical bias. About the good source, considering the sentimental value connected with a personal good, we would expect that they were affected form a bigger gap than the purchased and found one, as the results confirm. Purchased and found items decrease this gap more than the personal one.

In the second step, we wanted to analyze how these variables affect the outcome of bargaining. These more specific results add information to our analysis. The likelihood of a successful agreement increases when the negotiation is characterized by a large number of bids, by the presence of an ultimatum offer and regards item belongs to the typology art & books and cars.

An interesting conclusion is that the introduction of a third party in the negotiation does not influence the hypothetical bias and the success of the negotiation. As mentioned, before it is very unexpected because more information should reduce the anchoring effect and improve the likelihood of success or reduce the gap given sometimes for the different knowledge of the parties about the items.

REFERENCES

- Adamowicz, W., Boxall, P., Williams, M., & Louviere, J. (1998). Stated preference approaches for measuring passive use values: choice experiments and contingent valuation. *American journal of agricultural economics*, 80(1), 64-75.
- Brandts, J., & Schwiore, C. (2007). Frames and games. In *Developments on Experimental Economics* (pp. 175-180). Springer, Berlin, Heidelberg.
- Botelho, A., & Pinto, L. C. (2002). Hypothetical, real, and predicted real willingness to pay in open-ended surveys: experimental results. *Applied Economics Letters*, 9(15), 993-996.
- Calford, E. (2016). Uncertainty aversion in game theory: Experimental evidence. work.
- Camerer, C. F., Nave, G., & Smith, A. (2018). Dynamic unstructured bargaining with private information: theory, experiment, and outcome prediction via machine learning. *Management Science*, 65(4), 1867-1890.
- Franco-Watkins, A. M., Edwards, B. D., & Acuff Jr, R. E. (2013). Effort and fairness in bargaining games. *Journal of Behavioral Decision Making*, 26(1), 79-90.
- Fudenberg, D., Levine, D. K., & Maniadis, Z. (2012). On the robustness of anchoring effects in WTP and WTA experiments. *American Economic Journal: Microeconomics*, 4(2), 131-45.
- Harrison, G. W., & Rutström, E. E. (2008). Experimental evidence on the existence of hypothetical bias in value elicitation methods. *Handbook of experimental economics results*, 1, 752-767.
- Kang, M. J., & Camerer, C. F. (2013). fMRI evidence of a hot-cold empathy gap in hypothetical and real aversive choices. *Frontiers in neuroscience*, 7, 104.
- Klempt, C., Pull, K., & Stadler, M. (2019). Asymmetric information in simple bargaining games: An experimental study. *German Economic Review*, 20(1), 29-51.
- Knetsch, J. L., & Sinden, J. A. (1984). Willingness to pay and compensation demanded: Experimental evidence of an unexpected disparity in measures of value. *The Quarterly Journal of Economics*, 99(3), 507-521.
- Johannesson, M., Blomquist, G., Blumenschein, K., Johansson, P. O., Liljas, B., & O'Connor, R. M. (1999). Calibrating Hypothetical Willingness to Pay Responses. *Journal of Risk and Uncertainty*, 18(1), 21-32.
- Johansson-Stenman, O., & Svedsäter, H. (2003). Self image and choice experiments: hypothetical and actual willingness to pay. Department of Economics, School of Economics and Commercial Law, Göteborg University.
- Lee, J., & Hwang, U. (2016). Hypothetical Bias in Risk Preferences as a Driver of Hypothetical Bias in Willingness to Pay: Experimental Evidence. *Environmental and Resource Economics*, 65(4), 789-811.
- Levitt, S. D., & List, J. A. (2007). What do laboratory experiments measuring social preferences reveal about the real world? *Journal of Economic Perspectives*, 21(2), 153-174.
- List, J. A., & Gallet, C. A. (2001). What experimental protocol influences disparities between actual and hypothetical stated values?. *Environmental and resource economics*, 20(3), 241-254.
- List, J. A., & Shogren, J. F. (2002). Calibration of willingness-to-accept. *Journal of Environmental Economics and Management*, 43(2), 219-233.

- Loomis, J. (2011). What's to know about hypothetical bias in stated preference valuation studies?. *Journal of Economic Surveys*, 25(2), 363-370.
- Lucking-Reiley, D. (1999). Using field experiments to test equivalence between auction formats: Magic on the Internet. *American Economic Review*, 89(5), 1063-1080.
- McCannon, B. C., & Stevens, J. (2012). Pawn stars: putting theories of negotiation to the test. Available at SSRN 2089515.
- McCannon, B. C., & Stevens, J. B. (2013). Deal Making in Pawn Stars: Testing Theories of Bargaining. *JNABET*, 2, 62.
- Murphy, J. J., Allen, P. G., Stevens, T. H., & Weatherhead, D. (2005). A meta-analysis of hypothetical bias in stated preference valuation. *Environmental and Resource Economics*, 30(3), 313-325.
- Nape, S., Frykblom, P., Harrison, G. W., & Lesley, J. C. (2003). Hypothetical bias and willingness to accept. *Economics Letters*, 78(3), 423-430.
- Paradiso, M., & Trisorio, A. (2001). The effect of knowledge on the disparity between hypothetical and real willingness to pay. *Applied Economics*, 33(11), 1359-1364.
- Plott, C. R., & Zeiler, K. (2005). The willingness to pay-willingness to accept gap, the "endowment effect," subject misconceptions, and experimental procedures for eliciting valuations. *American Economic Review*, 95(3), 530-545.
- Rubinstein, A. (1985). A bargaining model with incomplete information about time preferences. *Econometrica: Journal of the Econometric Society*, 1151-1172.
- Shogren, J. F., Margolis, M., Koo, C., & List, J. A. (2001). A random nth-price auction. *Journal of economic behavior & organization*, 46(4), 409-421.
- Simonson, I., & Drolet, A. (2004). Anchoring effects on consumers' willingness-to-pay and willingness-to-accept. *Journal of consumer research*, 31(3), 681-690.
- Voelckner, F. (2006). An empirical comparison of methods for measuring consumers' willingness to pay. *Marketing Letters*, 17(2), 137-149.
- Waldfoegel, J. (2009). *Scroogenomics: Why you shouldn't buy presents for the holidays*. Princeton University Press.
- Wooldridge, J.M. (2010). *Introductory Econometrics 1 Textbooks*. ECONOMICS, 6002, 2011.