Bachelor Thesis

Gender Differences in Bargaining Outcomes on Lower Priced Goods

A Field Experiment in Vienna

Julia Knöbl
2014

Table of Content

Introduction

In western societies bargaining over prices is not very common, at least not on goods one buys in normal stores for everyday life. When people in Vienna, Austria do bargain it is usually only on markets like the "Naschmarkt" or on very expensive things like new cars or houses. On other goods people usually just pay whatever it costs and probably don't even think about the possibility to ask for a discount. Some hundred years ago Vienna was one of the biggest trade centres in Europe as is was on the intersection between the two most important trade routes, the Danube and the Amber Road. Until the beginning of the 20th century the cityscape of Vienna was characterized by markets and people bargaining over their everyday goods and for that Vienna is still sometimes called the gate to Balkan. Those times are long ago and Vienna developed to a modern city. By walking though the city one can always see some bits and pieces remembering that time. Thinking about that leads to an essential question. Is it still possible today to ask for discounts and try to bargain in stores that are not known for being a good place to bargain? There are studies that address bargaining over higher priced products like cars (e.g. Ayres and Siegelman, 1995) or examine bargaining difference in places that are commonly known for bargaining (e.g. Kirman et al, 2008; Castillo et al 2011). As far as I read the literature there are no relevant studies that address bargaining situations on lower priced goods in western societies. Joshua Sherman and Sandro Shelegia are currently doing research on this topic at the University of Vienna. As their student I got the opportunity to be part of the pre-experiment phase in a group of students and use the gathered data for my bachelor thesis to answer the questions that raise in the context of this topic.

As previous papers (Ayres and Siegelmann, 2008; Castillo et al, 2011; List, 2004) have shown men and women are not treated equally in bargaining processes and might also not behave in the same way. This arises very interesting questions like: do female costumers do get more and higher discounts than male? Do female sellers give more and higher discounts than male? And what effect do interaction gender variables have on discounts? I will take a special focus on the gender variables, but I will also observe the general impacts on probability and height of discounts.

Through my analysis of the data I will find that men are slightly in favour on the probability of getting a discount as well as they tend to get higher discounts. The combination of male and female buyers and sellers does have a significant impact on discounts, as discounts are more likely and higher when costumers are paired with a seller of the same sex.

I will start the paper with a short literature review, defining the terms of bargaining and price discrimination. I will also take a look at previous experiments and see what they have in common with the one we ran. The second section addresses the experimental design. I will talk about the setting and rules, as well as the factors that are expected to be included. I will also give a brief description of the methods I will use and the expectations of the coefficients of different variables. The third section contains the results of the regressions and some statistical tests. The last section concludes.

Theory

Under perfect competition price discrimination is theoretically possible, because the price equals the costs of the producer and it would be simply irrational for the seller not to cover his or her costs. Perfect competition is an extreme case that mainly just exists in textbooks. The other extreme case is a monopoly. In monopolies prices are determined by the willingness to pay of the costumer (assuming common knowledge) and there are no possibility of discounts, as the consumer has no other opportunity. Textbook examples are, however, not applicable to real markets as they are strongly simplified. In reality markets are more like oligopolies and price discrimination happens every day.

Types of price discrimination

Price discrimination can occur in various different forms and can be specified in different classes. Pigou (1924) identified 3 different degrees of price discrimination. I will shortly revise them and explain in what context they stand to the experiment.

Pigou classification:

1ˢᵗ degree price discrimination is also referred to as perfect price discrimination. At this stage different units are sold to different prices to different persons.

3

2nd degree price discrimination identifies a situation where different units of the good are sold to different prices. There are no distinctions between different costumers. An example for this is are quantity discounts.

3rd degree price discrimination means that the goods are sold to different prices to different people. The distinction between people can be various. Quite common official 3rd degree price discriminations are student and senior discounts. Not so official (at least in western countries) are price discriminations based on race or gender.

The experiment will focus on gender differences amongst other variables. Therefore 3rd degree discrimination is very important for the experiment.

Another way of distinguishing price discriminations is Stole's (2007) separation of direct and indirect price discrimination. Stole makes the difference in the observability. Direct price discrimination happens on the basis of observable characteristics of the buyer, like localisation or in this case gender. In contrast to that stands indirect price discrimination, where producers, or sellers, offer products in different quality or quantity and present a different menu of goods. Applicable to the experiment is the case of direct price discrimination because the costumers choose the items from a range that is open to every costumers that enters the shop. The difference in directly observable characteristics is then observed and analysed.

Other than the way of how price discrimination effects the outcome one has also to differentiate in where it comes from. Here there are two major theories. One has been introduced by Nobel-prize winner Gary Becker (1975). He suggests that discrimination in prices or wages happens because the seller simply prefers to trade with men/women. It gives him a higher utility as he enjoys their company more than others. As some group of people give him higher utility in simply talking to them the other group of people has to balance out the seller's lack of utility by paying higher prices (or receiving lower wages). This is a very racist or sexist way of viewing things but it captures the reality in some points, as a lot of people behave sexist or racist.

In contrary to taste-based discrimination stands statistical discrimination. The idea behind that is that certain groups of people get discriminated because of statistical factors. Sellers might know from their experience (or other valid sources) that men and women behave differently in bargaining situations. So they alter their behaviour in a way that they are expectedly better off.

The Bargaining process as a game

Bargaining over prices can be seen in two different ways (Kirman et.al). It is either an information exchange about the state of the market between the seller and the buyer, in order to understand the market better and find the equilibrium price. Or it is an exchange of information about willingness to pay. I rather stick to second type of explanation, as it is in line with our experimental design and expected findings.

In bargaining over a price the seller and the buyer try to divide the surplus between them. The game that models bargaining in markets the closest is the Rubinstein alternating bargaining model (Rubinstein, 1982). In a bargaining situation on a market the surplus that can be divided is the difference between the production costs (or the costs for the retailer to buy it at the wholesale market) and the willingness of the consumer to pay. When bargaining in a shop over a good the surplus that can be divided is the difference between the costs of seller and the price tagged. The costumer still might have an additional surplus, because she values the item even more than the official price says, but that share of the surplus can't be taken from her anymore anyway. When a costumer asks for a discount, they are basically playing the Rubinstein Bargaining game. The costumers demands some part of the share, and the seller has the possibility to accept or reject the offer. If he rejects he can make a new offer and then it is the costumers turn to accept or reject. If they are not finding an agreement the transaction does not take place and both get zero. Theoretically this can go on forever, but practically there is some point where they either do find an agreement or are deciding that they are not. In the model discount rates play a crucial role, while in reality another round of bargaining takes only a few minutes, which does not affect humans that much. Discount rate may only play a role

when bargaining over very perishable goods, like fish, where the costumer wants to take it home quickly and the seller does not want to waste any time, in order to still get a good price.

However, perfect information is crucial in Rubinstein's Model. Transferred to the bargaining it means that the costumer knows the costs for the retailer. This is usually not the case, except when the costumer is an expert in that branch or the seller tells her. The seller, however, will not reveal this information voluntarily as information asymmetry is usually to his advantage. Information asymmetry causes market failure. The costumer might demand too much, because she does not know how much she actually can demand and no transaction will take place. But in most cases the retailer is in advantage, because he can create the image of a smaller surplus available and hence ensure a share of the surplus for himself.

Earlier experimental findings

There are not that many experiments on this topic. I will point out three of them and compare their settings and outcomes to the one discussed in that paper. Ayres and Siegelman (1995) were one of the first economists that tested race and gender discrimination in a field experiment. They sent test-costumers to new-car retailers and captured what initial prices they faced and found that white men are getting way more favourable offers than any other black people or women. Their data did not support the reason for this significantly enough. They suggest that is a mixture of racist and sexist behaviour of sellers, who were mostly white males, and statistical discrimination because black women have lower opportunity costs when bargaining over the price. Although the experiment lies back already 20 years the findings about gender and race differences are still important. The social intercourse with women has definitely changed in the last 20 years in western societies, but sexism is still very common in everyday life, which makes their approach of taste-based discrimination indeed comparable.

More recent experimental evidence comes from a field experiment in Marseille (Kirman et al, 2008). There the focus was rather on bargaining behaviour in general than gender or race differences. They gathered data from a single shop in Marseille, and discovered 2nd degree price discrimination which is

influenced strongly by the experience of the costumers in bargaining and their frequency in the shop. Although it had different aims than the experiment discussed in this paper it is still very important to mention as they talk a lot about other factors than gender I observed as well. And compared to the experiment of Ayres and Siegelman, their price range was much closer to the one I observed.

Castillo et al (2011) have completely different findings than Ayres and Sigelman. They observed the taxi-market in Lima and found that woman face lower prices than men do. By a second experiment they back up their suggestion that the price discrimination is significantly statistical nature. Their paper is very important for my analysis as they show how different natures of discrimination can be detected.

Experimental design, Methods and expected Outcomes

General setting

For the experiment four economics students, three female and one male, went to 252 shops in Austria and asked for discounts on more or less everyday goods. 95 % of the shops were located in the Capital of Austria, Vienna[1]. The bargaining process was, compared to other studies, rather freely, but of course there were some rules in order to compare the single negotiations. The students acted as potential costumers and were free to choose the shops they were going to[2]. Basically every negation went as the following: The costumers entered a shop, looked for any item that fitted the price category, chose one of the eight bargaining scripts and tried to get a discount on the item. The scripts provided the first line, the rest was left to the costumers themselves (for instance a story why they needed it, etc.). The costumers were not allowed at any point to reveal that this was a study. The reason for this was mainly to ensure that the natural behaviour of the seller was maintained. It was also very important to keep it quiet that it does not get about that a study is going on between shopkeepers or within a chain because the observations were taken over a period of 10 days, which is already quite a time for rumours to spread.

---

1 The rest was in nearby little towns slightly outside of Vienna.
2 Some areas on Vienna were not allowed, because of the parallel experiment that was held by Sherman-Shelegia at nearly the same time.

Bargaining was only allowed on goods that had the same initial price for all costumers, i.e. indicated by a price tag or similar. This is to rule out arbitrary prices and price discrimination by the sellers even before the costumer asks for a discount. Kirman et al (2008) saw that in a market environment, where people need to ask for the price, sellers make a big distinction between walk in costumers and costumers they already know. By letting our costumers only bargain over fixed prices they all had the same starting point. The instructions also stated clearly that it was not allowed to bargain in shops where the sellers are known.

Another issue are already reduced articles. It was allowed to bargain over articles that were already priced down, but since the lower price is valid for all costumers this is the basis were the bargaining starts. General discounts are usually already included in the calculations of the retailer and therefore they still contain a certain profit for the seller.

All discounts have to be on single products. Asking for quantity discounts was not allowed as I am only looking for 3rd degree discrimination (Pigou, 1924). Within the bargaining process costumers were also not allowed to ask for a "Cashback-Discount"[3]. This is a 3% discount when paying with cash, because shops already include their costs for card payments in the prices. When the retailer offers Cashback without being asked in the bargaining process it does count as a discount, because one would not have gotten it without asking.

I am observing two different aspects in giving discounts. First if there is a discount given at all. And second what influences the height of the discount. For the first I am using a Linear Probability Model, where the dependent variable is 0 or 1, indicating whether a discount was given or not. The height of the discount does not play a role here. One could use also a Probit model, but as Ai and Norton (2003) show there can be very serious difficulties in computing marginal effects of interacting variables in a Probit or Logit Model. Therefore I chose the Linear Probability Model. For the second one I use the

---

[3] Skonto in German

nominal price difference as the dependent variable and look for factors that influence it. Different factors may play different roles in the two settings.

Bargaining scripts

As mentioned above there were eight bargaining scripts provided by Joshua Sherman and Sandro Shelegia. The exact wording can be taken from the Appendix. The eight scripts were divided in four categories, containing each two phrases. The first one was a rather open one, where costumers ask just for a general discount, without specifying anything. The second category is a little more specific. Costumers ask for a certain amount of discount, i.e. demanding a special price. But still without mentioning outside options. The third category is the outside-option category. A bargaining script out of this category asks for a specific price saying a place where one has seen it before, either in a real store or somewhere online. In the fourth category the costumer pretends to be poor, by saying that one really likes that object, but can't afford it at that price.

I expect the scripts to effect both cases rather similarly. All of them will catch the seller by surprise. The first category of scripts (scripts 1 and 2) one might influence the probability positively, because the seller might sense the chance of profit and is willing to give up a little of his usual surplus in order to sell at all. The second category (scripts 3 and 4), where costumers ask for a specific amount of discount will be more successful than the first one, because the seller already gets an idea of what the costumer expects and whether he can go with that or not. In most of the cases the price-reduction they asked for was 10%, which is probably not even half of the profit, depending on the branch. In the third category (scripts 5 and 6) the reaction of the sellers is difficult to anticipate. They might react very competitive and don't give the costumer the possibility of an outside option, or they may be offended and reject immediately. The latter can be either when the discount asked for is too high, or due to the general decision of many shops not to compete with online retailers, because small shops simply cannot afford it. The last category (scripts 7 and 8) is not so easy to anticipate as well. The two scripts differ in one important point, while number 7 only mentions that one is poor number 8 adds that the same item is available somewhere else in a knowingly poorer district. While the retailers may not care

how poor a person is and will not see a person who cannot afford his goods in their target, their interest might be drawn by an outside option the customer has. In this case the outside option may be different than the one in category 3, because it is not a big online retailer like amazon. It is rather an equally small retailer and where one is able to compete with. So I expect script number 8 to have a greater effect than scripts 5, 6 and 7, but not as much of an effect than 1, 2, 3 and 4.

Gender differences

For measuring gender differences I created three variables. One that indicates the sex of the costumer, one that indicates the sex of the seller and one that captures whether they are the same sex. I expect women to get higher discounts. Theory and previous experiments are divided over the fact of women getting better or worse offers. While Ayres and Siegelmann (1995) found that women are worse off than men, Castillo et al (2011) found that women are actually facing better conditions when bargaining. One definitely has to distinguish between those (and also a lot of other) experiments in time and place where they are set. The conditions women are facing in a situation of bargaining strongly depend on the cultural background they are in. Vienna is for sure a western society, so it is not surprising that a women goes shopping on her own, but women are still not equally treated in everyday life by the society. Therefore I expect women to face a higher probability of getting a discount as a result of taste-based price discrimination (Becker, 1975). To control for this I also introduced a variable that captures the mix of the genders, as I expect men to rather give a discount to women than to other men, as well as the other way round. I don't expect the gender of the seller alone to influence the chance of discount or the height significantly.

Once a seller has due to a lot of others factors decided whether he gives a discount or not, interpersonal relations will decide the height of the discount, and how much of the surplus he or she is willing to give up. Since the bargaining is not very regulated a possible strategy might be flirting,

which would result in a positive effect in mixed genders[4]. Anyway, I expect gender-interaction variables to have a significant effect on the height of discounts.

Price points

This study aims for observing the effects on goods that are not necessarily in all-day use, but especially on lower priced goods. The upper threshold was a listed price of 1,500 €. In order to keep a constant distribution of prices over the different scripts costumers were supposed to choose items according to given price points in a range from 50 € to 2,000€. Most of the prices were supposed to be lower than 500€, one category covered priced from 600€ to 2000€.

I expected the initial price of the goods to influence the probability of a discount positively. In general profit margins get higher with the price, retailers are more willing to give up part of their surplus. The price will also affect the nominal height of the discount, because margins are usually percental so they increase nominally with increasing prices.

Time

All observations have been taken during ten days in the end of November 2013. This is just before Christmas shopping begins. At this time there is not too much trouble in the stores, which was important for the study to represent the situations as normal as possible, without everyone being stressed out. Still after four o'clock in the evening, or on weekends there are more people shopping and retailers may be more stressed. In a situation where there are several costumers in the store a retailer has various reasons not to give a discount. Firstly, she does not want to hear other costumers that the prices are not fixed, but can be bargained over, since it is not very common in Vienna to ask for discounts. Secondly, the retailer may sense the opportunity to sell the item to another costumer who is willing to pay more. So she has an outside option. So expect Fridays and Saturdays to have a negative effect on the probability of discounts. The same applies for the variable that indicated the

---

[4] Assuming to face a representative sample of the population, where ~10 % are gay.

time of day. A bargaining situation set in the late afternoon will be less likely successful, than one in the morning. They will have a similar effect on the height of discount.

Type of stores and goods

I am also interested on which type of goods discounts are more likely compared to others. And whether it matters on what type of store one asks for a discount. The size of the store will definitely matter, because in smaller shops one will be much more likely to speak to the owner who has more power to decide over a discount. In this study I only distinguish between chain stores and non-chain stores. Whereas a store is counted as a chain store when it does have more than one branch. Since the person one bargains with in chain store is usually not in the position to give discounts[5] and has to follow strict rules. This is why I expect chain stores to have a lower probability to give a discount, as well I expect discounts to be lower when they do give discounts.

In order to see the effect of the type of item I created the following categories: shoes, clothes, perfume, jewellery (which includes also watches), accessories (i.e. purses, glasses, scarfs, etc.), technology, household items (i.e. hovers, coffee machines, matrasses, etc.) and "others" (basically all the items that did not fit into any of the other categories or there were not enough observations to open a new category). The reason I am distinguishing those is because the margins vary a lot from branch to branch. Due to some regulations in books market, for instance, it is not possible in Austria to make big profits out of a single sell, which definitely reduces the probability of a discount, since sellers have to work very hard for profit anyway. Whereas in technology margins are usually very high plus price levels are higher, that means that a retailer is much more likely to give up a part of his profits because it is a way smaller share compared to, say, books.

Additionally I subdivided some categories into male and female. This is to indicate whether an item is to be used by a man or woman. The idea behind this is to get differences if a female costumer buys a men's coat or a women's coat, which is most probably for herself. Of course these distinctions cannot

---

[5] Or just under certain conditions, like damaged goods etc.

be made with all items. So for those that are clearly recognizable linked to a gender they are labelled and linked in an extra variable.

Results

General statistical outcomes and first results

In general I was surprised by the good success of the experiment. Out of 250 correctly documented bargaining processes 113 were successful, that is 45.2 % of the cases, so almost half of it. When there was a discount given it was on average 35.17 €, at an average price level of 343.85€. Over all bargaining situations the final price was on average 4.2% lower (9.1% in the successful cases). There is a clear significance that chain stores have a negative impact. In chain stores only 31% of the negations were successful. Before I go through the certain points listed above and explain how they did affect the bargaining procedures I will talk about some general strength and weaknesses of the data and the models.

Four people asking for discounts is, admittedly, not a very large sample as well as the ratio of male/female costumers is not optimal. But together they have 250 observations, which are independent from each other. A Breusch-Pagan test shows that there is no evidence of heteroscedasticity. So the variances of the residuals in the regression are always the same.

Gender differences

Because the observations are independent one can use the Mann-Whitney-Wilcoxon-Test (MWW) to see some general differences in the data. I tested whether the individual persons asking for discounts make any differences. There is strong evidence that the female costumers do not have any differences between each other in heights of the discount. There is weak evidence that a male costumer does get slightly better discounts. This can be because of there is a difference between male and female costumers or just because the only male test-person we had is a more charismatic and convincing person.

In general the MWW-Test does suggest that male costumers get discounts slightly more often, but this finding is only significant at the 15% level, which is not very strong (p-value 0.1015). It also suggests that men get higher discounts, but this at an even lower significance level, as the p-value is 0.1549. MWW suggest very significant differences in interaction of variables, but in a different way than I expected. It says that the combination of male seller and a male costumer leads to higher rates of given discounts and to higher nominal values of discounts.

In order to include also the other variables I run, as mentioned above, some regressions. The gender of seller and buyer, as well as their interactions were more or less significant in all regressions. Interestingly the interactions are not distributed independently. Overall observations 61% of the sellers are female, but female costumers had interactions with 66% female sellers, while male costumers only faced 48% of female sellers. It might be a selling strategy of some shops to pair male costumers with male staff, or generally usual to allocate male staff in sections for male clothes shoes, and the same the other way round. Anyway the distribution is not very important for the test, as all the tests work equally efficient with unbalanced samples. There is no clearly obvious reason for the unequal distribution, as the test-costumers had roughly the same distribution over different kinds of shops and items.

I will start analysing the influences on the probability of a discount. The probability of a discount has a lot of different factors and influences. A female seller tends to reduce the probability of a discount by almost 10 percentage points. This is a very high rate, which has also a very high variance, and is therefore not a very significant influence, but the affect is definitely negative (exact coefficients, variances and p-values can be taken from the appendix). A female buyer also has a negative influence on this. She would reduce the probability of a discount significantly[6] by 16.8 percentage points!

For including the interaction variable I had to choose between one of five possible dummy variables: simply same sex/different sex or specifying it more and also indicate which actor was male/female.

---

[6] Significant at a 5%-level

However, in one regression I can only use 3 different dummies that indicate the gender of one or more actors without causing collinearity. As soon as one includes more than one interaction variable and the variables that indicate seller and buyer individually every other added combination accrues from the previous ones. I tried various combinations and tested their significance and reasonableness. The results of this suggested that the best way to explain the probability of getting a discount is by using the sex of the buyer, the sex of the seller and the interaction if they are from the same sex (without specifying male/female) amongst other variables. Against my first expectations, but in line with the MWW –Tests the same sex significantly increases the probability of a discount. One possible explanation for this is that people usually connect easier with their opposite over joint interests like the item that they are bargaining over. As mentioned above it might be a selling strategy that shops try to keep female/male sellers at items that might be in the interest of female/male costumers in order to create the impression of interested and competent staff. However the test-costumers also shared their impression that a conversation about a common interest in an item leads most likely to a discount. This point, however, was not measured in the data but arose from oral feedback after the experiment.

In the regression that explains the height of a discount there are surprisingly only a very few significant variables. Only two of them are not related to gender issues. As expected the height of the discount will be way more influenced by relations than only by the individual gender. Here again various different settings of regressions and tests for their validity I came to the result that the height of the discount is determined by the 3 different interactions of the gender supplementary to price levels and chain stores. I used the three dummies female seller/female buyer (FF), male seller/male buyer (MM) and female seller/male buyer (FM). The control variable in this category would be male seller female buyer. Here again one sees in line with MWW-Tests that the combination of the same sex seems to be very successful. If both actors are male the discount is predicted to be 13.63 € higher than a women asking a man for a discount. If both actors are female the effect is even bigger with 14.08€ more discount. Both effects are strongly significant. An F-Test confirms that the effects are not the same.

Not as strong, but still significant is the effect of a female seller to a male buyer. In this combination a discount is 11.53€ higher than when roles are reversely distributed.

Bargaining scripts

For the bargaining scripts I created seven dummy variables, script no. 8 is the control variable. Individually the scripts are not really significant, as they have very high p-values, but testing them jointly using an F-test one sees that the category 'script' is highly significant (p-value of 0.0129). As expected script 1-4 do have a clearly positive impact, compared to script no. 8. Those are the rather free scripts. The strongest impact has script no. 4. It increases the probability of a discount by 14.7 percentage points. The other three scripts reduce the probability of a discount, where no. 7 has the strongest negative impact as it reduces the probability of a discount by 25 percentage points. In general the bargaining scripts have a similar impact as I expected. The outside option did have a clearly negative effect. Especially for smaller shops it may be a general decision not to lower the price with other competitors. They want to get their costumers because of competent staff and depend on loyalty of their costumers (Kirman et.al, 2008). Aside from that, the test-costumers had in the most cases no proof of lower offers elsewhere. A typical reaction from sellers on outside options was an angry "everybody can say that!" or just the information that the policy of the shop is not to compete with online retailers.

Price points

Test-costumers have been ask to try to stick to certain price points. Test-costumers were allowed to deviate from the points, because it is impossible to find items that are exactly the given price. However, a quite continuous distribution of prices developed, with some spikes around the given price points. I experimented with different ways of measuring the price in the regression and saw that the most reasonable way is to take absolute prices instead of relative ones, or logarithmic values. In order to interpreted changes in a more useful way I used the nominal price divided by 10. Because when the price changes by one Euro the changes in probability and discounts are not very high, and are not very meaningful. Nevertheless, the price had a strongly significant positive influence on the probability of

discounts. This is in line with my earlier expectations. The more expensive an item is, the higher is usually the discount. The effect is highly significant but lower than I expected. For every 10 Euros an item costs more the discount only raises by 67 cents. The effect is compared to gender effects almost invisible.

Time

All variables that measure time differences (weekdays or time of day) are not significant in any way. A possible explanation for this is that the goods that are bargained over are not perishable. The retailer can still sell it another time if he or she does not like to give discounts. In contrary to food, which has a very high discount factor, because it maybe cannot be sold anymore the next day, the items usually bargained over in the study have discount factors very close to 1.

Type of stores and goods

Chain stores have, as expected, a clearly negative effect on discounts. In line with the reasons I gave earlier asking for discounts in a chain store reduces the probability of a positive answer by 25 percentage points. The total discount in chain stores is also around 9 Euros less than in other stores. As mentioned earlier the person one talks to in a chain store is usually not in charge of giving discounts. And in many cases they make so much profit that they do not need to bargain over discounts for making single sales. They rather have the strategy of selling everything 5% overpriced and reduce the whole assortment twice a year by 20% to give the costumers a good feeling of saving money.

Against my expectations the type of goods only influences the probability, but not the total amount of a discount. Although p-values on the single variables are not significant at all a joint F-test shows that the category type of good does definitely have an impact on the probability of a discount. The p-value for this test is 0.0149. I will not explain the influences of all different types of goods, but pick a few that are outstanding for some reasons. First of all I point out that there is a correlation between the type of items and the price. Jewellery and technology items are in average more expensive than other goods. So their positive influences on the probability will be partly because of the higher prices they have. The same applied for shoes, but the other way round. They are cheaper than the average price.

17

The positive effect in sports supply items is due to the high competition in this branch. Every store has more or less the same brands and has to reduce storage costs. Since new collections come 2-4 times a year, store runners are forced to have quick inventory turnover.

Any cross-overs with gender identification showed no significance at all. This might be because the data is not very accurately collected and the measurement of those effects is therefore not easy and might include biases.

Concluding Remarks

The aim of the study was to find gender differences amongst other variables in bargaining processes and capture the impacts they have on outcomes. For this Joshua Sherman and Sandro Shelegia constructed an experiment in Vienna, Austria where students in the role of test-costumers went to different stores and asked for discounts. It is important to mention that they were not allowed to reveal their real purpose at any time. By running various regressions and tests over the data I found that females do not get as much discounts as males and have to pay higher prices. The high significance of interacting gender variables suggests the differences in final prices to be taste-based. In order to support those findings one need to do a similar experiment again and have a broader sample. 250 observations are usually enough to bring statistical accuracy, and the tests I used are usable for unbalanced samples as well. But more test-costumers would reduce the probability of data biases due to deviating bargaining skills and experiences. More accurate pre-determined types of goods and stores would also help to control interacting effects better and therefore be better for analysing direct effects. These calims are hardly possible to be complied in a student- run experiment.

The experiment has some very interesting results, especially in the way of asking for discounts. This can be used to construct future experiments and examine the effects more closely to gain certainty about it.

References

Adkins, L. C. (2011). Using Stata for principles of econometrics. Wiley Global Education.

Ai, C., & Norton, E. C. (2003). Interaction terms in logit and probit models. Economics letters, 80(1), 123-129.

Ayres, I., & Siegelman, P. (1995). Race and gender discrimination in bargaining for a new car. American Economic Review, 85(3), 304-321.

Becker, G. S. (1975). The economics of discrimination. University of Chicago press.2nd edition

Castillo, M., Petrie, R., Torero, M., & Vesterlund, L. (2013). Gender differences in bargaining outcomes: A field experiment on discrimination. Journal of Public Economics, 99, 35-48.

Croson, R., & Gneezy, U. (2009). Gender differences in preferences. Journal of Economic Literature, 448-474.

List, J. A. (2004). The nature and extent of discrimination in the marketplace: Evidence from the field. The Quarterly Journal of Economics, 119(1), 49-89.

Kirman, A., Moulet, S., & Schulz, R. (2008). Price discrimination and customer behaviour: Empirical evidence from Marseille.

Pigou, A. C. (1924). The economics of welfare. Transaction Publishers.

Rubinstein, A. (1982). Perfect equilibrium in a bargaining model. Econometrica,50(1), 97-109.

Stole, L. A. (2007). Price discrimination and competition. Handbook of industrial organization, 3, 2221-2299.

Wooldridge, J. (2012). Introductory econometrics: A modern approach. Cengage Learning.

Appendix

Bargaining scripts

The original bargaining instructions in German were as the following:

1. Ist es Ihnen möglich, mir Prozente (Preisnachlass, Rabatt) für das zu geben?

2. Können wir irgendetwas bezüglich des Preises machen?

3. Kann ich 10% Rabatt bekommen?

4. Ist es möglich 10 Euro Nachlass zu bekommen?

5. Ich bin mir ziemlich sicher dass ich das bei Amazon um 10% billiger bekomme. Können Sie mir diesen Preis auch bieten?

6. Das ist ganz sicher schöner als das andere_____ das ich heute Morgen gesehen habe, aber dieses _____ ist viel teurer. Ist es Ihnen möglich mir ein gutes Angebot zu machen? (Können Sie mir einen Rabatt geben?)

7. Es tut mir leid, aber das ist ein bisschen zu teuer für mich. Können Sie mir einen Rabatt geben?

8. Ich lebe in diesem _____ Bezirk und dort gibt es ein Geschäft, wo ich das um 15% billiger bekomme. Können Sie mir einen Rabatt geben?

Translated into English they are:

1. Is it possible for you to give me any kind of discount?

2. Can we possibly do anything about the price?

3. May I get a 10% discount?

4. Is it possible that I get 10 € off?

5. I have seen this on Amazon, there it is 10% less. Can you give me the same price?

6. This____ is nicer than the one I saw this Morning, but it is also more expensive. Can you give some kind of special offer?

7. I am sorry, this___ is too expensive for me. Can you give me a discount?

8. I live in _____district. There is a shop where I saw this for 15% less. Can you give me a discount?

Tables

Marginal effects for the Linear Probability Model

variable	coefficient	variance	p-value
seller	-0.0913	0.079	0.251
buyer	-0.1680	0.069	0.016
Same sex	0.1123	0.068	0.101
price10	0.0024	0.001	0.006
chain	-0.2566	0.062	0.000
script1	0.0377	0.117	0.748
script2	0.1041	0.117	0.376
script3	0.0409	0.117	0.726
script4	0.1476	0.117	0.210
script5	-0.0191	0.123	0.877
script6	-0.1634	0.118	0.166
script7	-0.2448	0.116	0.036
shoes	-0.1831	0.131	0.165
clothes	0.2112	0.099	0.035
toys	0.4339	0.202	0.033
sports	0.3571	0.168	0.035
perfume	0.0913	0.205	0.657
jewellery	0.2135	0.113	0.060
furniture	-0.0621	0.141	0.660
tech	0.0201	0.120	0.867
house	0.1281	0.146	0.380
accessory	0.0895	0.124	0.473
_cons	0.5120	0.124	0.000

Marginal effects for OLS Regression on the height of discounts

variable	coefficient	variance	p-value
price10	0.6730	0.057	0.000
FF	14.0877	4.684	0.003
FM	11.5322	6.656	0.084
MM	13.6353	6.503	0.037
chain	-9.0620	3.895	0.021
_cons	-13.0040	4.762	0.007

Acknowledgements