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Behavioural Factors in B2B Price Negotiation: A Case from Air Cargo Market

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Behavioural Factors in B2B Price Negotiation:
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B2B Fiyat Müzakerelerinde Davranışsal Etmenler:
Hava Kargo Piyasasından Bir Örnek

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
B2B	Business to Business
B2C	Business to Consumer
BATNA	Best Alternative to a Negotiated Agreement
DV	Dependent Variable
Et al	And others
Ind.	Independent
IQR	Inter Quartile Range
IV	Independent Variable
MLR	Multiple Linear Regression
P-P Plot	Probability–Probability Plot
SS	Sum of Squares
OLS	Ordinary Least Square Regression

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ABSTRACT

Behavioral pricing research in B2B markets is still in its infancy, albeit it has shown critical improvements in the last decades. Moreover, finding any examples in which behavioral pricing is studied in logistics is almost impossible. To the author, such a study examining the air cargo sector has not yet been done.

In this study, behavioral effects on price negotiations in B2B sectors were observed, taking pricing negotiations in the air cargo industry as an example. The study's primary purpose is to show the impact of behavioral concepts, namely aspiration price, reservation price, initial price offer, and reference price on the B2B price negotiation process and outcome. On the other hand, the effects of anchoring bias on the determination of reference prices and the formation of the negotiation result are also observed. In addition, it is investigated whether there is difference in explanation of price negotiation between student and employee samples.

This study includes the results of 258 price negotiation experiments in which 516 people participated in the period of May-November 2022.

The results of the experiments showed that the buyer has a more influential position on the price negotiation outcome than the seller. In addition, the most critical reference prices are the buyer's aspiration price and initial price offer.

Apart from this, the anchor price affects both the seller and the buyer to determine the reservation prices before the negotiation.

Finally, the regression models explaining the price negotiations of student and employee subjects are statistically significantly different. In other words, there are significant difference between student and employee samples which make it necessary to be taken into deep consideration while using student samples in business related studies.

As the most critical findings of the study and its contribution to the literature, it can be said that the buyer has a stronger influence than the seller in B2B price negotiations and that student subjects have different results than employee subjects.

Keywords: Behavioural pricing, B2B markets, air cargo pricing, price negotiations, behavioural experiment

ÖZET

Son onlu yıllarda önemli gelişmeler göstermiş olsa da B2B bağlamında davranışsal fiyatlandırma araştırmaları halen daha emekleme aşamasındadırlar. Ayrıca lojistik alanında davranışsal fiyatlandırmanın incelendiği herhangi bir örnek bulmak neredeyse imkansızdır. Yazarın bildiği kadarıyla, hava kargo sektörünü inceleyen böyle bir çalışma ise henüz yapılmamıştır.

Bu çalışmada, hava kargo sektörü fiyat müzakeresi örnek alınarak B2B sektörlerinde fiyat görüşmelerinde davranışsal etkiler gözlemlenmiştir. Çalışmanın temel amacı; hedef fiyat, son fiyat, açılış teklifi ve referans fiyat ismindeki davranışsal kavramların B2B fiyat müzakereleri üzerinde etkilerini göstermektir. Öte yandan, çıpa yanlılığının referans fiyatların belirlenmesinde ve müzakere sonucunun oluşmasında da etkileri araştırılmıştır. Ayrıca öğrenci ve çalışan örneklemleri arasında fiyat pazarlığının açıklanmasında farklılık olup olmadığı araştırılmıştır.

Bu çalışma, 2022 yılı Mayıs-Kasım döneminde 516 kişinin katıldığı 258 fiyat pazarlığı simülasyonunun sonuçlarını içermektedir.

Deneylerin sonuçları, alıcının fiyat müzakere sonucu üzerinde satıcıdan daha etkili bir konuma sahip olduğunu göstermiştir. Ayrıca en kritik referans fiyatları, alıcının hedef fiyatı ve açılış teklifidir.

Bunun dışında çıpa fiyatı hem satıcıyı hem de alıcıyı pazarlık öncesi son fiyatlarının belirlenmesinde etkiler.

Son olarak, öğrenci ve çalışan deneklerin fiyat görüşmelerini açıklayan regresyon modelleri istatistiksel olarak anlamlı bir şekilde farklıdır. Diğer bir deyişle, öğrenci örneklemi ile çalışan örneklemi arasında anlamlı fark vardır ve bu da işle ilgili çalışmalarda öğrenci örneklemi kullanılanımın dikkatle ele alınmasını gerekli kılar.

Çalışmanın en kritik bulgusu ve literatüre katkısı olarak B2B fiyat görüşmelerinde alıcının satıcıya göre daha güçlü bir etkiye sahip olduğu ve öğrenci deneklerin çalışan deneklerden farklı sonuçlar verdiği söylenebilir.

Anahtar Kelimeler: Davranışsal fiyatlama, B2B piyasalar, hava kargo fiyatlama, fiyat müzakereleri, davranışsal deney

INTRODUCTION

Even though pricing has a significant place in businesses as it has the power to affect profitability directly, research on pricing is notably scarce compared to the other fields of marketing (Monroe, Rikala & Somervuori 2018, 17). Behavioral pricing is one of the main areas under marketing/pricing literature. As the behavioral pricing branch of pricing literature is still in its infancy, it is still very scarce. During the last decades, the research on behavioral pricing only contributes to about 7% of the whole research on pricing, most of which covers the business to consumer sector (Mario & Kowalkowski 2017, 102-104).

Like the differentiation between traditional economics and behavioral economics, the mainstream of pricing research is more focused on the mathematical side of the area and seeks optimum pricing strategies. Unlike the primary schools of pricing, behavioral pricing introduces psychological, social, and behavioral elements into the pricing process (Somervuori 2012, 5-7). The main aim of behavioral pricing research is to detect the violations of human rationale during the pricing process (Hinterhuber 2015, 65). Briefly, this thesis study aims to extend the limited behavioral pricing literature into business-to-business markets by taking the air cargo price negotiation process as an example.

Some of the most known behavioral pricing concepts have been analyzed and proved in many studies using B2C data and conducted experiments on B2C markets (Popescu & Wu 2007; Winer & Mayhew 2002; Erdem & Keane 1996, Kristensen& Gaerling 1997). As a matter of fact, most of the literature on behavioral pricing covers consumer purchasing decisions in B2C markets and has a focus on factors that influence customer decisions (Somervuori 2014, 470). As behavioral pricing research in B2B sectors is still developing (Iyer et al. 2015, 6), there is an abundance of opportunities for new research in this area. Moreover, to the author's knowledge, there are not any studies in the logistics industry that directly work on behavioral pricing. Specifically, air cargo is a barren area for behavioral research. Price

negotiation experiments are also not very common and that is one of the reasons why a face-to-face price negotiation simulation is considered during this dissertation study.

What affects the results of price negotiations, and how it would be possible to predict what outcome will emerge because of the negotiations is still a developing research subject. In this thesis, the influencers on a price negotiation and methods to predict the outcome of it by taking into consideration the reference prices, ages, and work experience of negotiating parties are examined.

The key behavioral concepts presented in this study are reservation price, aspiration price and initial price offer. The first two of these price levels, namely reservation and aspiration prices, are the values determined by the buyer and seller parties before starting the negotiation, thus reflecting their negotiation strategies. The reservation price can be defined as the last acceptable price for each party, the aspiration price can be considered as the target price for each party, whereas the initial price offer is defined as the price offer initially put forward by both parties during the negotiation. More details on these concepts will be presented in the upcoming sections.

The aim of this thesis is to investigate in what way the outcome of the negotiations can be predicted by looking at these price values that are determined by the seller and buyer. Secondly, the effect of anchoring bias, one of the behavioral biases, on the reference prices is investigated. Another aim of the study is also to reveal whether student subjects and employee subjects can be used interchangeably in B2B price negotiations experiments.

In this study, linear multi-correlation analysis using these six reference prices (reservation price, aspiration price and initial price offer of both the seller and the buyer) as independent variables and estimate the negotiation settlement price, which is the dependent variable are presented. To determine the effects of anchoring bias on price negotiation, half of the subjects were exposed to an anchor price and

included in the experiments. To investigate whether there is a difference between student and employee subjects, nearly half of the subjects were selected from students and the rest from employees. However, student and employee subjects were not matched with each other.

In this thesis, the air cargo industry taken as an example, specifically, freight charge negotiations where one-on-one negotiations are frequent due to the nature of the business. The main reason air cargo was chosen was due to the authors to the subject and the increase in the value of air cargo transportation, especially with the covid pandemic. Since the air cargo industry is not well known, the next paragraphs will provide insight.

The air cargo sector is a sub-branch of the global transportation sector and the global logistics sector. In terms of total tonnages of world trade, air cargo has a trivial share of around 2%, but when the value of shipped goods is taken into consideration, the percentage of world trade transported by air cargo is more than 35%. Hence, it shows that air cargo carriers light loads that are of great value (Statista, 2022).

Air freight services enable very distant markets to be connected efficiently and feed off global manufacturing chains in a fast and flexible way. The air cargo sector is a key engine for economic development, there is a strong link between the growth of the air cargo industry and the growth of a country's economy (Corrado 2017, 857-858).

According to Corrado (2017, 858) the total size of air cargo carriers' annual revenue was 70 billion dollars in 2017, accounting for 15% of the whole air transportation industry (the other 85% is passenger traffic), however this number has been fluctuating dramatically for the last couple of years due to the considerably changing yields per kilogram of cargo. As a result of the global pandemic in 2020, both the air cargo share of world trade and total revenue of air cargo carriers had

increased dramatically and reached a record level of 175 billion US Dollars in 2021 (Statista, 2022).

There are many factors that affect pricing in air cargo, one of them is the handling of transportation required by the transported product. Products transported by the air cargo sector can be divided into three groups. These are mails (postal services, air mail e.g.), personal cargoes (in the last years mostly e-commerce) and freights (bulk shipments of commercial customers).

Other major issues affecting pricing are the distance the cargo will be transported and the weight of the cargo. In addition, factors such as competition in the market, pricing policies of competitors, air cargo capacity and the balance of demand in the market also have a serious impact on pricing.

Air cargo carriers, intermediary logistical service providers, namely freight forwarders, global cargo sales agencies and cargo handling companies can be considered as the basic components of the air cargo industry.

The sale process of an ordinary air cargo shipment is as follows: Initially, a freight forwarder receives the freight of the shipper, who owns the cargo or freight and wants to send it to a specific destination by air. Next, the freight forwarder often consolidates similar shipments, and after including its markup as a compensation to its services (warehousing, customs, quoting with cargo airlines e.g.) the forwarder chooses a cargo airline for the transportation of the shipment. Other service providers such as ground handling companies, cargo handling agencies, customs clearance service providers etc. are also important parts of the air cargo value chain. However, the most valuable and investment demanding part of the entire value chain is the transportation of the cargo via aircraft. The freight price negotiations, which is the subject of this paper, are carried by forwarders and airlines or the representatives of airlines which are called global cargo sales agencies.

There are mainly three types of cargo airlines: A pure passenger airlines, which only owns passenger aircrafts and uses its excess baggage space to carry cargo under the passengers' level in the lower deck of the aircraft. American Airlines, British Airways and Pegasus Airlines are such airlines. Secondly, pure freighter airlines whose fleet only include freighter aircrafts. Such airlines use only dedicated aircraft to carry cargo. Cargo Lux, Silk Way Airlines and Air Bridge Cargo are in this classification. Lastly and most commonly, mixed airlines which have both freighters and passenger aircrafts. These airlines use the excess cargo hold of the passenger aircraft and freighter capacity to carry cargo. Lufthansa, Emirates, Qatar Airways and Turkish Airlines are examples of this type.

The air cargo industry has specialized in goods such as microelectronic devices and pharmaceuticals that are of high value but light. Air cargo also carries time-sensitive cargo, namely perishable goods such as flowers, fish, emergency deliveries of manufacturing components over the supply chain for unexpected shortages. High security required goods are also carried by air like precious metals and banknotes. Products with a short shelf-life, some forms of textiles, and many of computer and electronic products are also carried by air cargo companies. Some countries like Kenya and Mongolia, that have a lack of secure road or rail transportation infrastructure and have no access to water ways also use air cargo as their only medium for export and import.

The air cargo business is hugely different than that of air passenger due to some major parameters. There is consistently a surplus of capacity in air cargo industry due to the usage of excess baggage capacity of passenger aircrafts known as "belly cargo capacity". This capacity provides nearly cost-free cargo capacity to passenger airlines, which is both an advantage for the airline itself but in the long run a continued pressure on cargo yields and load factors. Air cargo carriers rely on freight forwarders, who possess the customer relationship with the shippers and, hence, frequently dictate what is acceptable. The cargo rate structure is also very inconsistent which makes it harder for airlines to sustain profitability. (Vinod & Narayan 2008, 315-316). Therefore, understanding how air cargo prices are formed,

especially how the decision is made during the price bargaining process, is of great importance to increase the profitability of air cargo companies. The main purpose of this thesis is to take the air cargo industry as an example and explain the B2B price negotiation processes in general through the behavioral pricing framework.

For the reasons explained above, a part of the sample is chosen from air cargo industry employees**.** The other half of the sample consists of undergraduate students. Thus, the differences between the two groups are revealed. In accordance with the purpose of the study, 258 experiments were conducted with the participation of 516 students and employees. The experiments were carried out in 2022 and conducted as face-to-face price negotiations. As there were two changing variables as student-worker and bias-unbiased; the test sets were divided into four total categories as unbiased student, biased student, unbiased employee, and biased employee.

The main aim of this study is to understand the dynamics of the price negotiation process and to develop more accurate purchasing or sales strategies that can be applied to B2B sectors. The results showed that the buyer's reference prices have a higher importance on price negotiation settlements. In addition, in the presence of an anchor price, the reservation price of both the seller and the buyer is affected, while other reference prices are not affected significantly. Another important output of the study and its contribution to the literature was behavioral pricing analysis with both student and working subjects in the same study setup. The results here are striking because statistically significant differences were observed between the student and working experimental sets.

The rest of the thesis is outlined as follows: After this introductory chapter, the behavioral pricing literature is presented, followed by the methodological approach used in the study. In the third part, the statistical results of the experiments are presented. The fourth chapter is the part where these results are discussed and their importance in terms of academic literature is conveyed. In the remaining sections, there are conclusion, reference, and appendix, respectively.

SECTION 1: THEORETICAL BACKGROUND

The recent developments in social sciences shifted the focus of academic research towards the behavioral features of decision-making processes; especially in marketing, economics, finance, and organization theory (Hinterhuber & Liozu 2015, 4). However, as previously was mentioned, most of the literature on behavioral pricing is focused on B2C sectors, focusing mostly on the consumers' exposure to behavioral biases. Currently, behavioral pricing research in B2B sectors is scarce with much room for scope.

One practical way to develop behavioral theories in B2B markets is by assuming the validity of the positive results of B2C research as well in B2B markets. However, there is not guarantee to this simplistic approach, the research in B2C markets cannot be transported directly to B2B markets as these two sectors have some key differences.

The most striking differences between B2C and B2B markets are as follows: In the former, the seller side composes of business professionals who are marketing and pricing managers; on the other side of the bargaining, there are consumers. On the other hand, B2B markets are composed of professionals on both sides of the trade. In addition to this, most studies on B2C behavioral pricing concepts are done with student samples, in which laboratory experiments or paper and pencil measures are used (Hinterhuber & Liozu 2015, 4). In addition, many studies have shown that the internal validity of experiments with student subjects is strong, but such studies have problems with external validity. (Moosmayer et al. 2013, 3028). As a result, adopting behavioral pricing results of B2C market research to B2B markets becomes harder; as the difference between consumers and student subjects is seen as quite negligible, however, the gap between professional pricing managers of B2B markets and students is notable.

However, there are even further differences between B2B and B2C markets and most of the studies for B2C are conducted with student samples; many of the behavioral biases that work for B2C are found to also work well in B2B markets (Monroe, Rikala & Somervuori 2018, 17-18). In brief, to find out the behavioral concepts of B2B markets, researching behavioral biases that are common and valid in B2C markets as a starting point is a logical strategy.

The following section, in which the theoretical background of this study is explained, is divided into two separate parts. In the first sub-chapter, namely pricing in marketing literature, entails a brief introduction about pricing literature' place in general in marketing literature. In the second sub-chapter, namely behavioral pricing, the literature in this area is discussed in detail and the relations between the theoretical context in this field and the theoretical background of the thesis are examined. In details the second sub-chapter includes the literature on reference prices, some critical behavioral biases and the effect of age and work experience on behavioral pricing process.

1.1. PRICING IN MARKETING LITERATURE

Pricing is one of the key marketing elements that has a very direct effect on firm profitability (LaPlaca 1997, 192-193). Despite this importance, pricing articles in major marketing journals account for a notably low share of approximately 2,8% (LaPlaca 1997, 180). Pricing decisions have an important place in marketing decisions due to the flexibility they provide, beyond their direct impact on the profitability of companies. Therefore, it has always been important for companies and managers to determine and implement the right pricing strategies (De Toni, Milan, Saciloto, & Larentis 2017, 121-122).

There are three main types of pricing strategies in marketing literature so far, which are: Cost-based pricing strategy, competition-based pricing strategy, and value-based pricing strategy. Cost-based pricing strategies are the easiest to apply, thus, most widespread pricing strategies, in which firms only try to estimate their production costs for different types of products or services and apply a previously decided level of profit margin on top of that cost (De Toni, Milan, Saciloto, & Larentis 2017, 122-124).

Competition-based pricing strategies can be considered as the next level after cost-based strategies. Firms that apply a competition-based pricing strategy try to understand the level of competition in the market by closely monitoring their rivals. The main focuses of such firms are both behavioral aspects of pricing and average level of similar products and services in the market. (De Toni, Milan, Saciloto, & Larentis 2017, 122-124).

Lastly and most complexly, some firms try to apply a value-based pricing strategy which is the newest strategy compared to other two main strategies. In each sector or value chain there must be a value creation process which is done by a participant service or product supplying firms or entities. According to the value creation view, these firms demand a price for their services or products based on the additional value created for the customer of that service or product (Liozu, & Hinterhuber 2012, 28).

Marketing, pricing, and purchasing strategies include human elements as well as numerical or analytical factors. Hence, different people arriving at different pricing results under the same conditions. Collaborations, conflicts, negotiations, and often customer-seller relationships can all play a role in the pricing process (Woodside 2015, 39). In summary, it would be incomplete to see pricing as a purely analytical process. The inclusion of a behavioral approach, which includes social and psychological factors in pricing, will contribute to a healthier analysis.

On the other hand, a significant part of the studies on pricing in the marketing literature focus on B2C sectors. Cases where the direct end user is the buyer have been the most studied cases. Therefore, there a large room for studies on pricing in B2B sectors. Kienzlera and Kowalkowskia (2017), in their study examining 515 articles published in the field of pricing between 1995 and 2007, showed that most studies in the field of pricing focused on understanding the pricing decisions of customers. Studies on how the pricing process is and how this process works in B2B sectors are in the minority. More precisely, only 13% of the studies in the pricing literature are specifically on B2B sectors, and another 13% focuses on both B2B and B2C, thus, a total of 26% can be considered as B2B pricing.

Table 1.1: Pricing Research According to Market Focus

Market Focus	**1995-2005**		**2006-2016**		**Total**	
	Number	Percentage	Number	Percentage	Number	Percentage
B2C	123	63%	227	71%	350	68%
B2B	33	17%	32	10%	65	13%
Both (B2C & B2B)	24	12%	43	13%	67	13%
General	16	8%	17	5%	33	6%
Total	196	100%	319	100%	515	100%

Source: (Kienzler & Kowalkowski 2017, 103).

When it seen as a field, pricing studies are mostly focused on analytical concepts. Studies that methodologically included behavioral and psychological factors remained at only 6% (Kienzler, & Kowalkowski 2017, 104). In addition, this point of view has been developing in recent years, and there has been a slight increase in studies considering psychological factors. In fact, these studies also focus on B2C markets, and there are hardly any studies that look at both B2B work and the psychological side of pricing.

Table 1.2: Pricing Research According to Primary Topic

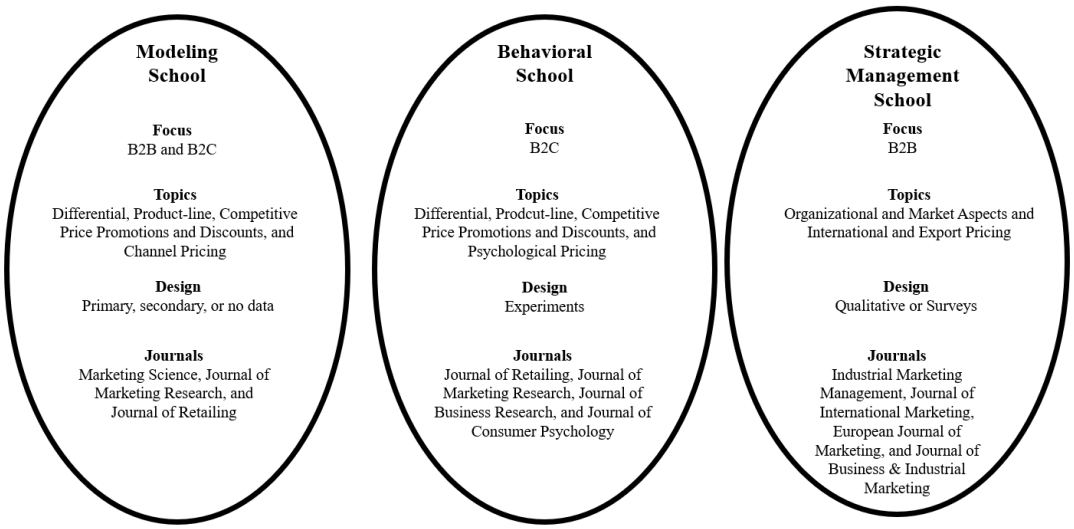
Topic	1995-2005		2006-2016		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Differential Pricing	28	14%	58	18%	86	17%
Product-line pricing	20	10%	59	18%	79	15%
Competitive pricing	34	17%	36	11%	70	14%
Price promotion and discounts	32	16%	35	11%	67	13%
Channel pricing	19	10%	21	7%	40	8%
Organizational and market aspects	14	7%	26	8%	40	8%
Psychological pricing	9	5%	22	7%	31	6%
International and export pricing	15	8%	6	2%	21	4%
New product pricing	6	3%	9	3%	15	3%
Multiple topics	13	7%	36	11%	49	10%
Other	6	3%	11	3%	17	3%
Total	196	100%	319	100%	515	100%

Source: (Kienzler, & Kowalkowski 2017, 104).

When the above-mentioned 515 articles are examined according to their theorical background, the following findings emerge: Game theory, mentioned in 125 articles constitutes the most popular theoretical background. After game theory, prospect theory comes a long way behind with 36 articles, then anchoring and adjustment with 20, mental accounting with 16 and lastly, mention utility theory with 14 (Kienzler, & Kowalkowski 2017, 105).

Lastly, according to Kienzler and Kowalkowski (2017, 108), the main schools of thoughts that have affected the pricing studies in the marketing literature are: Modeling school, behavioral school, and strategic management school (Figure 1.1).

Figure 1.1: Schools of Thought in Pricing Strategy Research and Their Typical Features



Source: (Kienzler, & Kowalkowski 2017, 108).

1.2. BEHAVIORAL PRICING

The traditional pricing approach is mostly based on traditional economics and cost accounting (Somervuori 2014, 462), which are both based on rational and systematic approaches. On the other hand, pioneering studies on decision-making processes have shown that individuals do not always make their decisions in the most rational way (Tversky & Kahneman 1974; Kahneman& Tversky 1979). Especially in complex situations, newly encountered problems and in cases where the available data is insufficient; decision makers seriously deviate from rationality (Tversky & Kahneman 1974, 1124). Contrary to the traditional views on economics, people use simple heuristics to deal with complex situations, and sometimes they become too open to their prejudices and external manipulations, causing them to overemphasize the prices they come across (Kahneman & Tversky

1973b, 237). It was repeatedly emphasized that heuristics are sometimes good and sometimes bad, but many experiments and analyses that were designed to show that people violate a law of logic, probability, or some other standard of rationality was successful in showing the deviation of individuals from rational (Monroe 1973; Bruno et al. 2012; Kim & Ratan 2022; Woodside 2015; Abdin et al. 2022). Based on the current literature on pricing, it may be argued that it is not always easy and common to make rational and systematic decisions. Thus, behavioral pricing, on the other hand, has started to come to the fore in recent decades, being influenced by fields such as the emerging behavioral economy and finance to better explain human behavior in decision making processes.

Behavioral pricing studies have emerged primarily by examining how consumer behavior evolves against product prices. Early studies examined the role of psychological factors in purchasing behaviors. Attempts have been made to understand how prices are perceived and how they are evaluated among different individuals, mostly based in the US-based marketing literature (Koschate-Fische & Wüllner 2016, 812).

Since behavioral pricing is an emerging field, there is no single definition that is accepted by everyone, yet (Somervuori 2014, 462). According to Miyazaki (2003, 471-472), behavioral pricing is a field that takes human elements as the basis of pricing studies, in another words the pricing process is examined entirely within the framework of human behavior. Thus, understanding the seller's and buyer's psychology is a key element of the behavioral pricing research. What is important here is how pricing is perceived and how it produces results on the purchasing decision maker's part. Therefore, the right pricing strategy is the one that will bring the other party the closest to the buying or selling decision. A more comprehensive definition is formulated as follows: Behavioral pricing studies unravel how consumers perceive and react to prices. In doing so, it contradicts the assumptions of neoclassical economics (Estelami & Maxwell 2003, 353).

It can be said that the prominent subject in the definitions of behavioral pricing studies at the beginning of the current century is the consumer. On the other hand, there are also other definitions that evaluate behavioral pricing in a broader context by focusing on price makers and the pricing process itself (Iyer et al. 2015; Hinterhuber, 2015; Liozu, & Hinterhuber, 2012). Additionally, some studies add the behavioral perspective to the area that draws attention to the importance of pricing for companies and reveal its effect on profitability (De Toni, et al., 2017). Moreover, although fewer in number, studies focusing entirely on the price making process and price negotiations have been increasing in recent years (Krause, Terpend, & Petersen, 2006).

Although the main sub-areas that can be considered under behavioral pricing have not been clearly revealed yet, there are various literatures in this sense. For example, quality relationship, reference price, price awareness, price elasticity estimation, and price fairness can be named as the most researched five subdivisions of behavioral pricing (Somervuori 2014, 464). Since this field has not yet fully solidified, it can be said that there is no single correct way to categorize behavioral pricing concepts. To the best of our knowledge, there is also no organized study in this area. For this reason, it was decided to divide the subjects with a classification that has been made in accordance with the current literature.

In this study, since the focus is on price negotiations, studies on reference prices and anchoring bias, which are some of the behavioral pricing concepts, are discussed in detail in the following chapters. However, in addition to them, some other and related behavioral pricing concepts under the relevant sub-topics are briefly mentioned.

First, the cognitive biases that are at the center of behavioral economics, behavioral finance, and behavioral pricing literature are mentioned, as they frequently encountered in behavioral pricing studies. In this part five critical behavioral biases are presented. In the next chapter, behavioral concepts in price negotiation literature are discussed in detail, as the effect of them in the presented experiments are

analyzed in during the thesis study. After, examples from the literature of B2C and B2B behavioral pricing are shared due to their proximity to the current study. The last sub-chapter offers a comparison of B2C and B2B contexts and a discussion of how B2C works can be used in B2B.

1.2.1. Cognitive Biases in Pricing

According to Ariely (2009, 80), behavioral economics offers a radical perspective on how people and institutions behave. Unlike traditional economics, the developing field of behavioral economics, which also feeds off psychology in its analysis, does not ignore the fact that people often cannot make rational decisions, as cognitive biases are often a major obstacle for people to make rational decisions.

Although cognitive biases have been named differently in the studies of different researchers, some of them have been accepted and known by almost everyone. Arguably, one of the most comprehensive studies in this field listed and defined 96 different cognitive biases (Blawatt 2016, 325-336). Since it is not possible to mention all the cognitive biases in detail here, only the ones that relate with the experimental design of this study are argued in detail in this chapter. The first of the biases that is explained in more detail is anchoring, as the direct effect of which is investigated in this study. After, loss aversion, which is thought to be effective in the negotiation processes; and risk aversion, which can also influence negotiations, are explained briefly with some examples from the literature. Next, the overconfidence bias is presented with a short definitional sub-chapter, and finally the representativeness bias, which is very related to overconfidence is defined.

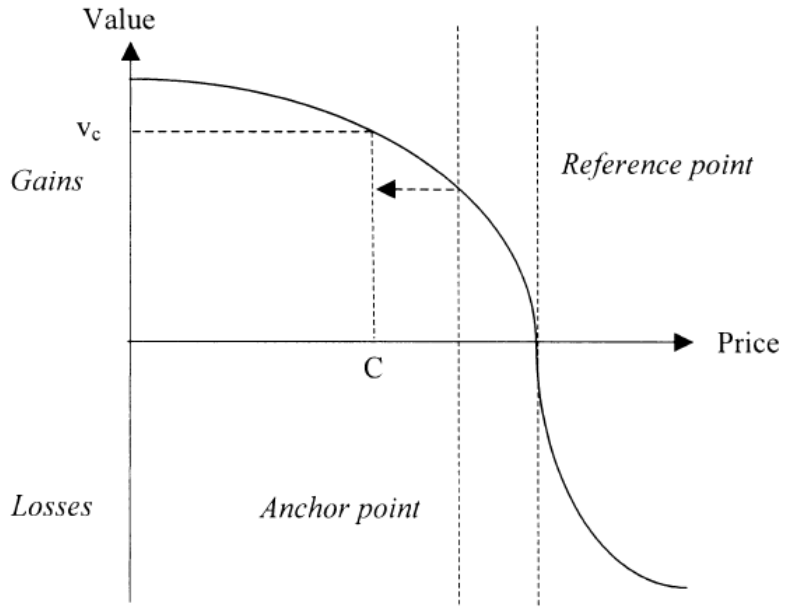
1.2.1.1. Anchoring

Anchoring is one of the most important concepts in behavioral pricing literature. For this reason, the effect of anchoring bias in the price negotiation process is also tested in this study's experimental setup. Anchoring can be summarized as the tendency of a person to rely on the initial or a previous information regarding the price of a good or service (Blawatt 2016, 325). With a more in-depth explanation: the perception of any decision as gain or loss is measured according to a predetermined reference value, especially if this decision is a numerical result that emerges after processes such as purchasing or bargaining (Tversky & Kahneman 1974, 1128-1129). The concept of anchoring in its current framework was used firstly by Tversy and Kahneman (1974) and then developed within their behavioral theory to be then called prospect theory (Kahneman & Tversky 1979). According to their theory, in negotiations or other kinds of buying/selling decisions, financial results above the reference point/anchor point are recognized as gains and those below the reference point/anchor point are recognized as losses (Kahneman & Tversky 1979, 278-279).

In negotiations, buyers tend to present the requested price as a loss, on the other hand sellers perceive the same price as gain. If negotiators adopt different points of references, they may perceive the same offer differently, which in turn may influence the outcome of the negotiation. The anchor point is recognized as a profit or loss depending on whether the buyer's reference point is above or below it (Bazerman & Neale 2004, 158-160).

This concept is illustrated further below (Figures 1.2 and 1.3). As shown in figure 1.2, the exact same counteroffer (C) which corresponds to exact same value (Vc) is perceived as a win or a loss depending on where our reference point is. Since the value function crosses the price axis above the anchor point, the counteroffer is recognized as profit.

Figure 1.2: Anchor Point Perceived as Gain

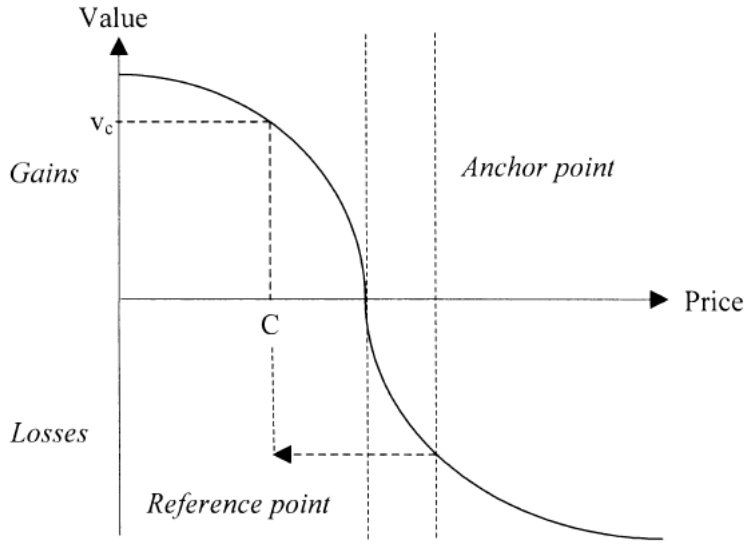


Source: (Kristensen & Garling 2000, 496).

In figure 1.3: As the anchor point is much higher and crosses the price axis above the value function, the counteroffer (C) is perceived as a loss even though it corresponds to the same value on the value axis.

In summary, these two figures demonstrate that: When individuals evaluate a price, they do not evaluate it absolutely and independently, but as a loss or benefit according to a predetermined benchmark/reference point/price.

Figure 1.3: Anchor Point Perceived as Loss



Source: (Kristensen & Garling 2000, 496).

Among the studies examining cognitive biases in behavioral pricing literature, anchoring is the most common bias and is used in different ways. To give an example of these, in recent studies, the effect of anchoring on house price dynamics (Leung & Tsang 2013, Shahar & Golan 2016), the effect of anchoring bias on business professionals surrounding chemical industry price negotiations (Moosmayer, Schuppar & Siems, 2012), the impact of anchoring bias on online auction biddings (Bogliacino & Cuntz, 2013) and lastly in another study, the effect of anchoring bias on market negotiations was investigated (Ritov 1996).

In a more familiar but older study (Tversky & Kahneman 1974, 1128-1129), the subjects were asked to guess the result of a mathematical question within only five seconds. The subjects were divided into two groups. The first group was shown a set of numbers from 1 to 8 with a multiplication sign between each of them. The second group was shown the same numbers with the multiplication numbers but this time the numbers were ordered from 8 to 1. It was nearly impossible to multiply

these 8 numbers correctly just in 5 seconds, thus, the subjects tried to do their best to estimate the answers. The average of the estimations of those in the first group were significantly lower than those in the second group. The reason for this was because people could not perform such a long duty, even though it did not actually affect the result while making this prediction, they believed that the multiplication starting with 8 would give a larger result than the one starting with 1. Shortcuts or heuristics, which frequently used when people encounter a new problem and especially when time is limited, are very conducive to lead to incorrect results.

Unlike the anchor points described so far, there is a weaker and more specific reference point called the arbitrary anchor point. Arbitrary anchoring is a specific type of anchoring in which the anchor point is not related with the topic of the study at all. In other words, the number/price that is referenced and affects the decision process is not even the price of the product in question or a similar one; this number may even be a random value.

For example, in a study (Ariely, Loewenstein & Prelec 2003, 76-85) that asked students about the last two digits of their social security number and then asked a question on products that are hardly known to the students. The estimates of the students were noted, and it was seen that students, whose last two digits of their social security number were higher resulted in significantly higher estimates than those with a social security number ending in lower quantiles (Table 1.3). Ariely and his colleagues showed that anchoring bias strongly affects the expectations and behaviors of buyers, even in the presence of arbitrary anchoring.

Table 1.3: Average Stated Willingness-to-Pay Sorted by Quintile of The Sample's Social Security Number Distribution

Quintile of SS# distribution	Cordless trackball	Cordless keyboard	Average wine	Rare wine	Design book	Belgian chocolates
1	$ 8.64	$16.09	$ 8.64	$11.73	$12.82	$ 9.55
2	$11.82	$26.82	$14.45	$22.45	$16.18	$10.64
3	$13.45	$29.27	$12.55	$18.09	$15.82	$12.45
4	$21.18	$34.55	$15.45	$24.55	$19.27	$13.27
5	$26.18	$55.64	$27.91	$37.55	$30.00	$20.64

Source: (Ariely, Loewenstein & Prelec 2003, 76).

All the studies mentioned here, and most of the literature, have been tested in B2C markets and by simulating situations where the end user is a customer. On the other hand, although there are few anchoring studies examining negotiation, no air cargo or logistics studies have been found. In the following parts of this thesis, experiments and analyzes including an example of anchoring bias will be included.

1.2.1.2. Loss Aversion

Although an experiment to directly measure the loss aversion bias is not presented in this study, the loss aversion bias is specifically mentioned here, as loss aversion is one of the most important concepts related to behavioral pricing.

Loss aversion can be formalized, in its simplest form, as the tendency of avoiding and overestimating the possible loss of a certain decision. Although, as of that date, they did not use the concept of loss aversion and fully formulate this concept in their study (Tversky and Kahneman 1979), while developing the prospect theory,

the authors revealed that individuals were risk seeking when it came to certain loss scenarios, and risk aversive when it came to certain gain scenarios, contrary to the assumptions of the utility theory. Loss aversion, along with risk aversion and anchoring, began to take its first form in the work of Kahneman and Tversky during the 70s (1973b, 1974, 1979). Thus, it may be said that loss aversion is one of the important components of the prospect theory, developed by Tversky and Kahneman (1979). According to the authors, individuals irrationally overweight (here a distinction between overestimation of the value of the loss and overweight of the probability of the occasion of that loss are critically important) losses (Tversky and Kahneman 1979, 281-279). In other words, the probability of a gain, which is equivalent to the probability of a loss, appears to individuals to be greater than the gain's actual probability.

In fact, people perceive painful events or losses more than they are, which have been expressed by different names long before Tversky and Kahneman. For example, Adam Smith (2018, 67-75), the father of modern economics, argued that pain is a stronger feeling than pleasure, it is the same for economic players, and that economic losses bring much more pain than the pleasure of economic profits. However, it was Kahneman and Tversky (1973b, 1974, 1979) who developed this concept in a much more methodological way with their experiments and placed it in a prominent place in their theories.

When addressing the symmetry between gains and losses, the Prospect Theory (Kahneman & Tversky 1979) creates a choice model that is driven by loss aversion, offering explanations to several violations to the traditional version of the utility function, which is supported by the mainstream economic theories. Our behaviors and decision-making processes reveal that the ordinary person assesses economical processes in terms of loss and gain rather than the overall wealth s/he has accumulated. As described by the prospect theory, an ordinary individual is more sensitive to losses than gains. Thus, the key to understanding attitudes toward risk is loss aversion. Contrarily, the desire to avoid loss and the aversion to it suggests that a person's utility function is convex (risk seeking) about gains and concave

(risk averse) in relation to losses. Furthermore, the loss aversion bias, which that investors/economic decision makers try to avoid losses that may have been forecasted beforehand.

After the concept of loss aversion was introduced, it has been the subject of many studies, especially when examining investment decisions. Shefrin and Statman (1985) address an effect called the disposition effect which is the tendency of investors to sell winners too soon and ride losers for too long. In more detail, most investors tend to sell increasing value investments earlier whereas they tend to hold on to losing investments due to a fear of loss.

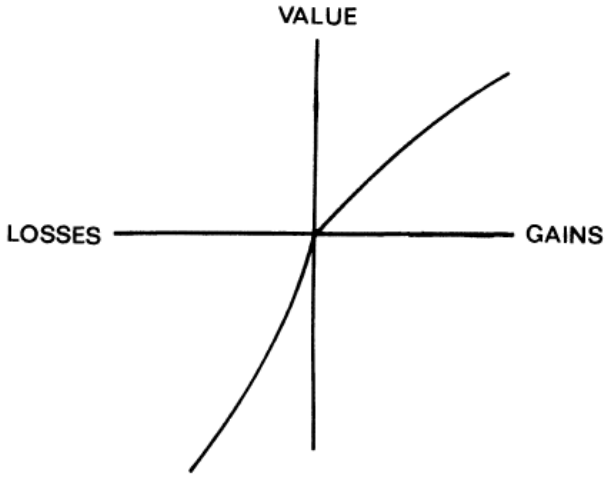
Loss aversion finds its place in various fields of study and is used to explain various pricing behaviors. Another area where loss aversion was examined was real estate markets. Genesove and Mayer (2001) analyzed data on the 1990s Boston real estate market and found that homeowners were under the effect of loss aversion. In a more recent study on the same industry, authors analyzed (Leung & Tsang 2013) 14 years of data on the Hong Kong real estate market, the effect of loss aversion and anchoring biases in explaining the dynamics of house prices was investigated simultaneously. The outputs of this study showed that both behavioral biases were significantly effective in determining prices. The study showed that house sellers were loss averse and that home purchasers linked a housing unit's worth to its previous purchase value.

In a very recent study (Kim & Ratan 2022), the effects of loss aversion and risk aversion were observed while bidding during auctions. According to the results of this study, it is possible to explain 65% to 85% of over biddings with the loss aversion effect.

1.2.1.3. Risk Aversion

According to Tversky and Kahneman (1979, 263-264) and contrary to what traditional economic views claim, behavioral economics argues that individuals' risk perception has serious effects on their economic decisions. Risk aversion is defined as preferring a certain outcome against a risky one with equal or higher expectation. Risk aversion indicates that people tend to choose certain options over risky ones even if the potential outcome of the risky one is much higher. In other words, the irrational behavior related with risk aversion bias is that people prefer the more certain low benefit choice to the higher potential but uncertain benefit option, even if the result of the latter has a higher probability of return.

Figure 1.4: A Representation of Value Function



Source: (Kahneman & Tversky 1979, 279).

As an experimental explanation to risk aversion: In an experiment (Tversky and Kahneman 1979, 264-265), subjects were asked two questions: First question: Whether they would prefer a lottery where they would get 4000 currencies with an 80% probability, and a 20% probability of getting nothing, or would they choose

the option where they would get 3000 currency units with 100% certainty. Second question: Whether they would prefer a lottery where they would get 4000 currencies with a 20% probability, and an 80% probability of getting nothing, or would they choose the option where they would get 3000 currency units with a 25% probability and nothing being at 75%.

The result of the experiment showed that for the second question a significantly higher number of subjects rationally chose the first option as the expected gain of the first choice was higher ($800 \geq 750$). On the other hand, contrary to the expectations of the expected utility theory and because people are risk aversive, most of the subjects chose the second option in question 1 even though its expected outcome was lower ($2400 \leq 3200$) than that of the first choice (Tversky and Kahneman 1979, 265-266).

Risk aversion has been an area of interest for many academics, especially economists and financiers. For this reason, it can be the subject of studies in many different fields. Risk aversion has been studied in detail in an eBook volume (Harrison Cox 2008). The techniques for measuring risk aversion, experiment designs and possible treatments are all discussed in the mentioned volume.

Risk aversion is a behavioral bias that goes beyond the human species, it has also been identified in other living creatures. There are various studies showing that irrational risk aversion behavior is not limited to humans. Many studies have shown that risk avoidance behavior also exist in many different animal and insect species, especially in other mammals (Smallwood 1996), ants (De Agro et al. 2021) and bees (Harder & Real 1987).

Within the scope of this thesis, an experiment to specifically investigate risk aversion is not presented, but since loss aversion is briefly mentioned in the in our analysis, it is useful to keep risk aversion in mind during the upcoming discussions. This is because loss aversion and risk aversion are behavioral anomalies that are related to each other and often occur together.

1.2.1.4. Overconfidence

The tendency for people/investors to overestimate their own talents/knowledge is known as overconfidence. As with many other behavioral biases, overconfidence bias can seriously affect the behavior of individuals and prevent them from making rational decisions. A formal definition for overconfidence is the systematic overestimation of the accuracy and value of the decisions made by individuals and the certainty of the information they possess (Dittrich et al. 2005, 471).

Various studies in different areas (Plous 1993; Igual & Santamaria 2017; Abdin et al. 2022; Czaja & Röder 2020; Kumar at al. 2022; Svenson 1981) have argued and revealed that individuals see their own ideas as superior and overestimate their value when making decisions, especially the ones on financial processes. In fact, in some cases, they believe that they are the only ones capable of analyzing before deciding. Investors or buyers who are under the influence of overconfidence may overestimate their analysis and may misunderstand market conditions, often making wrong decisions.

1.2.1.5. Representativeness Bias

Representativeness is generally defined as the degree of how well or how directly a collected sample reflects upon the total population. On the other hand, representativeness bias is the case where individuals overvalue their own personal experiences.

According to Tversky and Kahneman (1973, 1124), events are ranked according to their representativeness; people constantly judge more representative events to be the more likely, whether it's or not. An individual evaluates the probability of the events by the ease of applicable cases coming to their mind.

In other words, the representativeness bias refers to the common tendency of people to base their judgments on a constrained and specific collection of knowledge about probabilistic cases. A generalization about a phenomenon based on only a few observations, particularly from small, nonrandom, and personal set of samples, is referred to as the representativeness heuristic (Busenitz & Barney 1997, 16).

Representativeness bias is also closely related to overconfidence and anchoring biases and is accounted for alongside them in many studies. (Verzobio, et al. 2022; Herdener et al. 2016; Lee, et al. 2016; Kim, et al. 2007).

1.2.2. Price Negotiations and Related Behavioral Concepts

The effect of different pivotal points on price negotiation is one of the key research areas of price negotiation literature (Krause et al. 2006, 4-5). According to Kahneman (1992, 296-297), there are some pivotal points which are crucial for the negotiator when deciding on the negotiation strategy.

Most of the negotiation literature has been devoted to examining the impact of various reference points which are pivotal pieces of information that negotiators use as a guide during a negotiation based on their previous market research. Aspiration price, reservation price, initial price offer, and market price are the four key reference prices that are analyzed in negotiation research (Krause et al. 2006, 5). Since it is common for the concepts addressed in the negotiation literature to be investigated under more than one name and sometimes under more than one title, a more comprehensive definition is also included (Table 1.4).

In the B2B framework, purchasing and selling processes are affected by negotiations between the respective parties and the negotiating parties can determine their negotiation strategies before the negotiation as well as update their strategies during the negotiation (Krause et al. 2006, 4).

Similarly, in this thesis, the effect of the four different types of critical price levels both for the seller and buyer in a price negotiation are examined, a detailed explanation on them in the following sub-chapters are presented. As the broader view chooses to refer to market price as reference price, a market price as a general reference point to the participants is presented during the experiments.

The organization of the following chapters would be as follows: reference price, reservation price, aspiration price and initial price offer. After these concepts, the literature for B2C and B2B sectors are mentioned in dedicated sub-chapters.

Table 1.4: Terms Used in the Field of Negotiation

Terminology	Definitions
Reservation price or Reservation value (Blount et al. 1996) Resistance point (Walton and McKersie 1965) Walk-away price	The point at which a negotiator is indifferent about accepting the offer or end the negotiation (Van Poucke and Buelens 2002) The least acceptable outcome (Blount et al. 1996) The boundary between an acceptable deal and an unacceptable deal or the lower acceptable price
Aspiration price (White and Neale 1994) or Negotiation target Target price (Walton and McKersie 1965)	The best outcome that a negotiator can reasonably expect (Walton and McKersie 1965) The best result, the most desired outcome, with a nonneglectable probability of being accepted by the other party (Van Poucke and Buelens 2002)
Opening price or Opening offer	The first price a negotiator is going to mention (Van Poucke and Buelens 2002)
Market price or Market information	Pricing information of a negotiated object as available externally to the firm (e.g., Blue Book value of a car) Market clearing price (White et al. 1994)
Bargaining zone or Bargaining range Contract zone (Walton and McKersie 1965) Settlement range Zone of agreement	Any overlap between the parties' reservation prices (Raiffa 1982)
Aspiration zone	The distance between a party's reservation price and aspiration price (White and Neale 1994)
Offer zone	The absolute value of the difference between the intended opening offer and aspiration price (Van Poucke and Buelens 2002)
Reference point	A point which serves as a basis for comparison in the negotiation, and more particularly separates the domain into region of desirable outcomes and region of undesirable outcomes (Kahneman 1992)
Anchor point or Anchor	A point toward which negotiators will convey a stubborn level of adherence (Kahneman 1992)
Nash equilibrium	The mid-point of the bargaining zone (White and Neale 1994)
BATNA	Best Alternative To a Negotiated Agreement (Fisher and Ury 1981)
Overconfidence	A common bias among negotiators (and humans in general) which consists of over evaluating the acceptability of a bargaining position (Neale and Bazerman 1985)
Distributive bargaining stance, also referred in the literature as: Competitive bargaining Win–lose bargaining Discrete transaction (Dwyer et al. 1987) Contentious bargaining (Pruitt 1983) Positional bargaining (Fisher and Ury 1981)	Trying to persuade the other party to accept alternatives that favor one's own interest (Pruitt 1983)
Integrative negotiation stance, also referred in the literature as: Problem-solving (Pruitt 1983) Cooperative Collaborative Relational exchange (Dwyer et al. 1987)	The pursuit of a formula for reconciling the two parties' aspirations (Pruitt 1983) Trying to maximize own economics reward while attempting to keep client satisfied (Graham 1986)

Source: (Krause et al. 2006, 6).

1.2.2.1. Reference Price

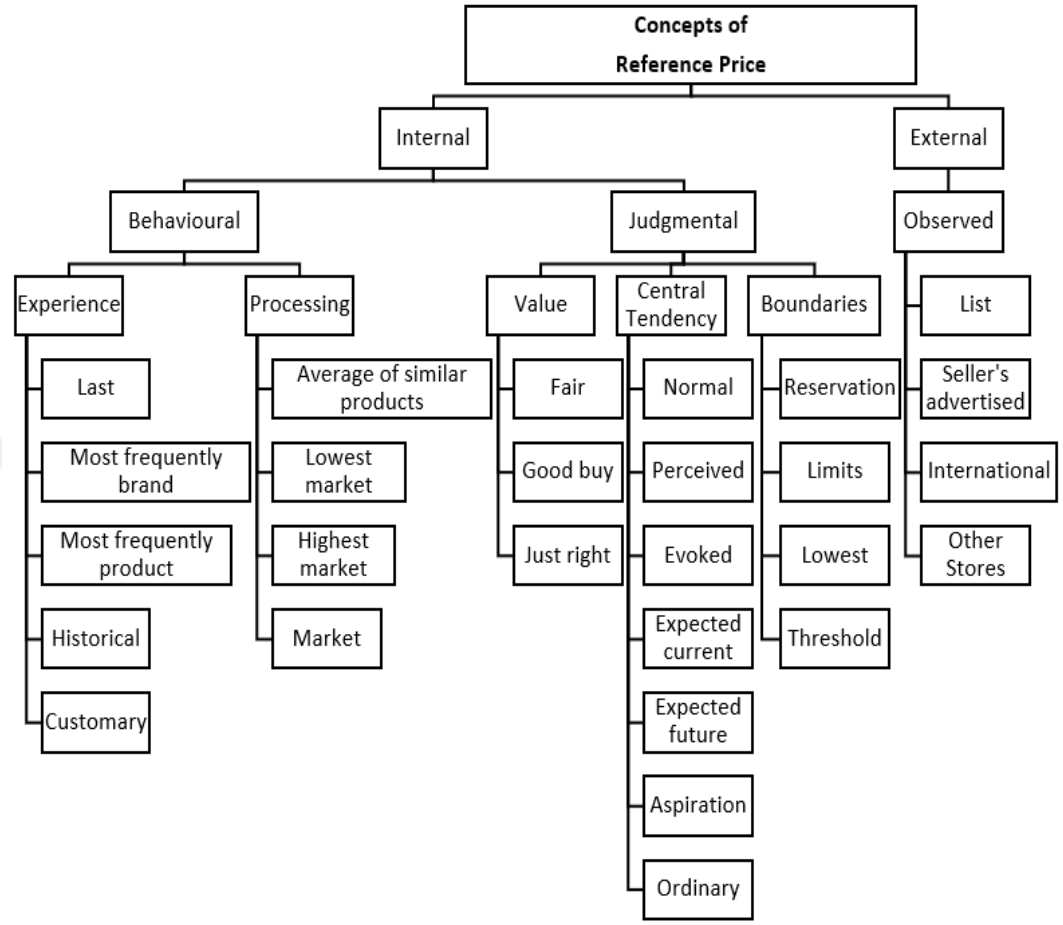
According to current marketing and economics literatures, procurement decision makers, consumers and any other type of buyers make their pricing decisions based on key pivotal points called reference prices (Briesch et al. 1997; Putler 1992 Mazumdar, Raj, and Sinha 2005). These reference prices are made up of the experiences of the negotiating parties and are the price points the decision makers have in mind which have been developed through previous purchasing or simply by observing the prices in the market (Bruno, Che, and Shantanu 2012, 640). To summarize, these reference prices are the expected fair price of a deal, negotiation, product, or service from the perspective of the buyer or seller based on their experience and market information. Reference price is generally derived from the experiences of the buyer or seller and exists in many shopping and trade relations, as well as in price negotiations. A very to the point explanation for reference price is the perception of fair price, in which individuals compare the prices of the products or services they encounter, generally originating from their past experiences.

To further explain the working mechanism of the reference price: Customers create price expectations, or in other words, reference prices, which constitute the standard by which actual prices are measured. Prices above the customer's reference price are viewed as "expensive" while prices below it is perceived as "cheap" (Popescu Ioana, & Wu Yaozhong 2007, 413). Tthe concept of reference price can be better understood by connecting it to the prospect theory, as according to the prospect theory (Kahneman and Tversky 1979), individuals cannot measure anything over their absolute value. On the contrary, individuals perceive gain or loss according to certain reference points. Consequently, customers see prices as gains (discounts) or losses (surcharges) compared to a reference price, and there is an inherent asymmetry in perception, in which losses are perceived as higher than gains of equal size (loss aversion) (Popescu Ioana, & Wu Yaozhong 2007, 414).

Reference price is one of the most studied concepts of behavior price research (Monroe, Rikala & Somervuori 2018, 19). There are different definitions, subcategories and concepts related to reference price. To begin with one of the most comprehensive studies, one literature study has found reference price to be defined and used in twenty-six different ways (Lowengart 2002, 149-150). However, in this study, the term and concept of reference price is used as the market price, as done in many others (Sampson 1964; Klein & Oglethorpe 1987; Lichtenstein & Bearden 1989; Monroe 1990). As expected, this had a different effect on the subjects close to the air cargo sector than it did on the student subjects who are far from the sector, which we will convey in detail in the following chapters.

Lowengart (2002, 153) divides the reference price concept into two main sub-categories in terms of internal and external before he detailed his categorization into 26 different aspects of reference price concepts that previously mentioned (Figure 1.5). As internal reference prices are studied more in pricing studies, more concepts have emerged under internal reference prices, as can be seen from the figure. External reference prices are typically observable to everybody, however. internal reference prices are customer-specific and often derived from prices seen on past purchase occasions.

Figure 1.5: Categorization of Reference Price Concepts



Source: (Lowengart 2002, 153).

Reference price literature mostly focuses on B2C sectors and customer perception, to give examples; in an experimental study (Moosmayer, Schuppar & Siems 2012), researchers examined the influence of reference, aspiration, and initial bidding prices on the accepted price of a B2B negotiation. The findings of the research confirm the large effect of both aspiration pricing and reservation prices; however, the impact of reservation prices on settlement prices was limited. In a very recent study (Qin & Liu 2022), the effect of reference prices during online shopping is demonstrate. Another study (Yan, Zhao & Yu 2022) from the same year alleges reference price with optimal product portfolio and product line design. In another

study (Elshiewy & Peschel 2022), it was revealed how the internal reference prices of customers are effective when choosing between retail markets.

Reference price literature focuses more on B2C actors and how the reference price is perceived by the customer. Although in very limited numbers, there is also some research (Pranav 2022; Moosmayer, Schuppar & Siems 2012) that extends the field into B2B sectors, especially on price negotiations. With this thesis, a new study that analyzes the concept of reference price in the B2B price negotiation literature is presented.

1.2.2.2. Reservation Price

In negotiation literature, a reservation price is the last point that a negotiator is willing to agree on. The term "walk away price" or "resistance point" (Van Poucke & Buelens 2002, 68) are used interchangeably with reservation price. These three terms infer the price that the negotiator sees as a neutral point on whether they walk away from the negotiation or agree on that level (Van Poucke, D. & Buelens, M. 2002, 69). It is obvious that, from the seller's perspective the reservation price is the lowest price that is acceptable for the seller; and from buyer's perspective the reservation price is the highest price that can be given for the exchange of a service or product that is under negotiation. In other words, a seller's reservation price is the minimum price that makes the outcome of the negotiation unprofitable or unacceptable for a seller, and a buyer's reservation price is the maximum price that makes the outcome of the negotiation barely acceptable (Moosmayer et al. 2013, 3030).

The reservation price is mostly influenced by the concept of Best Alternative to a Negotiated Agreement, which is called shortly as BATNA. In some cases, the BATNA value is simply the average market price from which the seller can sell its

remaining products or services. On the other hand, from the buyer's perspective it is the market price for the negotiated item or service. In some cases, BATNA can be a specific price that the seller or buyer believes they can agree with another customer or competitor. In brief, knowing one's own BATNA and knowing the other negotiating party's BATNA level is critical when determining the negotiation strategy (Fisher, Ury, & Patton1991, 49-63).

The importance of the reservation price for setting the negotiation strategy is obvious; besides according to some studies, the reservation price also has a significant effect on the outcome of a negotiation output and agreed price level (Kristensen & Gaerling, 1997; White & Neale 1994).

Even though, White and Neale (1994) reported that reservation prices are the only relevant reference points that influence the settlement price; there are also some contradictory results regarding the importance of the reservation price in determining the settlement price of a negotiation. For example, Van Poucke and Buelens (2002) reported that the reservation price is not relevant and that the only significant variable the in-price negotiation process is the initial offer.

Another important concept that is highly related to the reservation price is the bargaining zone. The bargaining zone is defined as the region between the buyer's and seller's reservation prices and is the region in which the settlement price is most likely to take place (Walton & McKersie 1965). The bargaining zone incorporates the buyer's and seller's respective reservation prices according to some studies (Walton & McKersie 1965; White & Neale 1994).

1.2.2.3. Aspiration Price

The aspiration price represents the best settlement a buyer or a seller can expect to achieve because of a price negotiation (Kristensen and Gaerling 1997, 489).

Aspiration price is also named as target price or negotiation target in some other studies (Walton and McKersie 1965). As it can be understood from the definition and nomenclatures, the aspiration price is a target price that the seller and the buyer separately set before the negotiation and want to achieve it by convincing the other party.

Kristensen and Gaerling (1997, 490) proposed that one party's target price reflects the estimate of the other party's reservation price and showed that by conducting two sets of experiments with student subject groups of 48 and 107 students. That is, a seller's target price would reflect the estimated maximum willingness to pay of the buying counterpart, and a buyer's aspirational price reflects the buyer's idea that seller would willing to accept that level as their minimum (walkway price). Since the seller's reservation and aspiration prices are often a well-guarded secret, buyers may need to do market research and estimate both targeted prices of the seller (Krause, Terpend, & Petersen 2006, 5-7). On the other hand, the reverse is also true, that is the sellers do some research to understand what their customers will pay the most. In summary, while the parties are determining their target prices, they are trying to predict how long the other party will stay on the table.

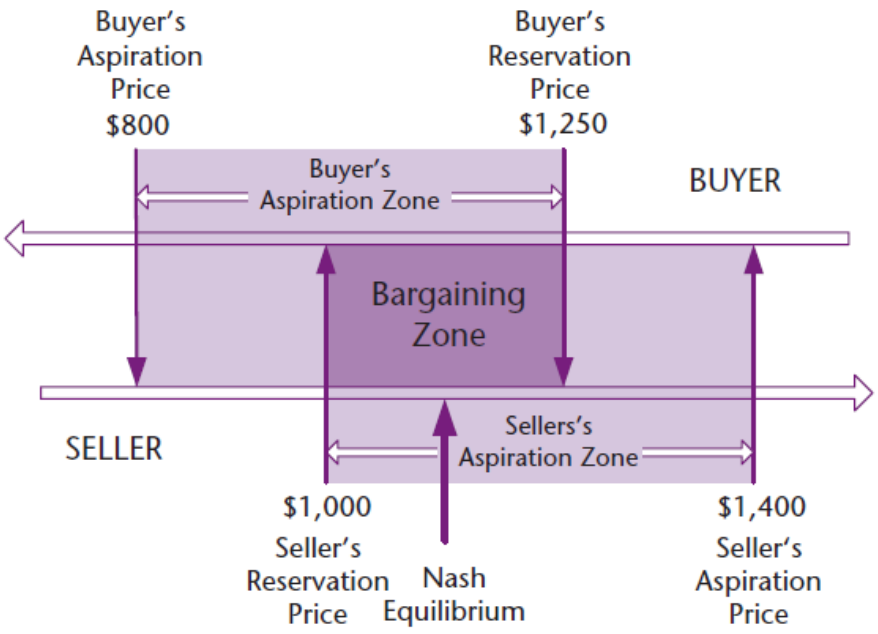
1.2.2.4. Bargaining Zone

In a pricing negotiation where each party seeks to maximize their own interests and when both parties are aware of the other's preferences, rational behavior would dictate that the parties evenly divide the benefits of bargaining. Thus, one would anticipate that such a dialogue would result in a compromise between the parties' respective reservation prices (Krause, Terpend, & Petersen 2006, 5). In practice, however, it is unlikely that the two sides could fully know the other's strategy or fully trust each other. Therefore, negotiations take place around certain prices, or more accurately, between certain prices.

Although the concept mentioned above is called by different names in different studies such as bargaining range, contract zone (Walton & McKersie 1965), settlement range or zone of agreement; in this study it is called as bargaining zone. The bargaining zone is the overlapping zone between the seller's and buyer's reservation prices (Raiffa 1982, 35-40).

Aspiration price and reservation price, as predetermined negotiation strategies, have their own effects the settlement price. However, negotiators often consider ranges rather than precise estimates. This view explains the concept of the aspiration zone and the negotiating zone with a combined perspective (Krause, Terpend, & Petersen, 2006, 6-8).

Figure 1.6: Positive Bargaining Zone



Source: (Krause, Terpend, & Petersen, 2006, 7).

It is possible to talk about two separate bargaining zones according to the expectations of the parties to negotiate. If the buyer's reservation price is higher

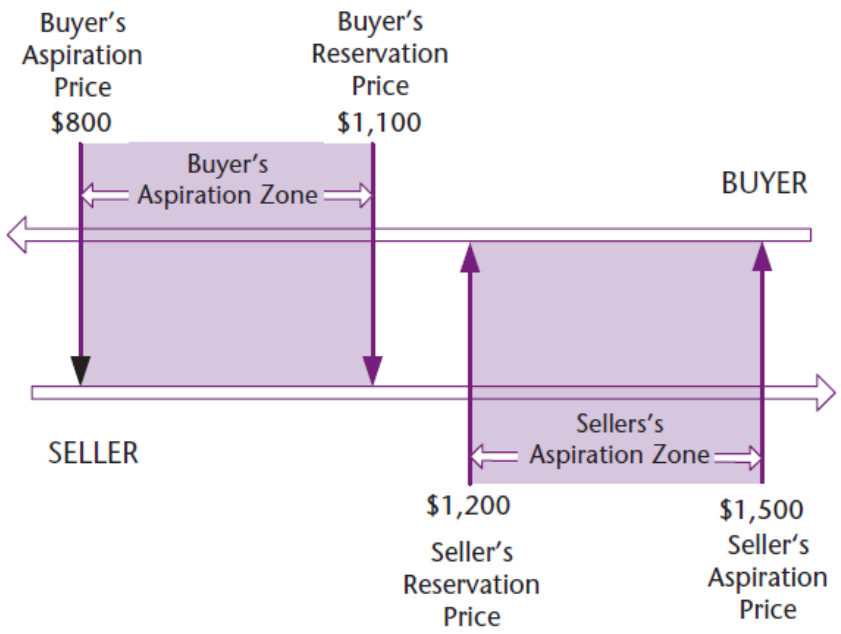
than the seller's reservation price, then it is a positive bargaining zone (Figure 1.6), and in the opposite case, a negative bargaining zone exists (Figure 1.7).

Although a positive bargaining zone does not mean that the negotiation will end in agreement, the probability of negotiation ending in agreement is high (Krause, Terpend, & Petersen, 2006, 8). As would be expected, negotiations with a negative bargaining zone are more likely to end without an agreement, and this was also observed by the experimental results (Van Poucke & Buelens 2002, 69-70).

In addition to the bargaining zone, a brief explanation on the other three concepts seen in the figures: The Nash equilibrium is a theoretical agreement point development and named after John Nash's studies on game theory (Nash 1950; 1953). As just mentioned in the above paragraphs, in a theoretical scenario where the parties are reasonable and rational individuals who have full knowledge of each other's situations, the Nash Equilibrium is the expected settlement price for a negotiation. The Nash Equilibrium is exactly halfway between the Buyer's reservation price and the Seller's reservation price.

Buyer's and seller's aspiration zones are the areas between aspiration and reservation prices of each party respectively. Since these areas are the possible bargaining ranges of the parties, it can be expected that the offers they will submit during the negotiation will be within these ranges. In other words, the area that emerges when these areas intersect is the bargaining zone.

Figure 1.7: Negative Bargaining Zone



Source: (Krause, Terpend, & Petersen, 2006, 7).

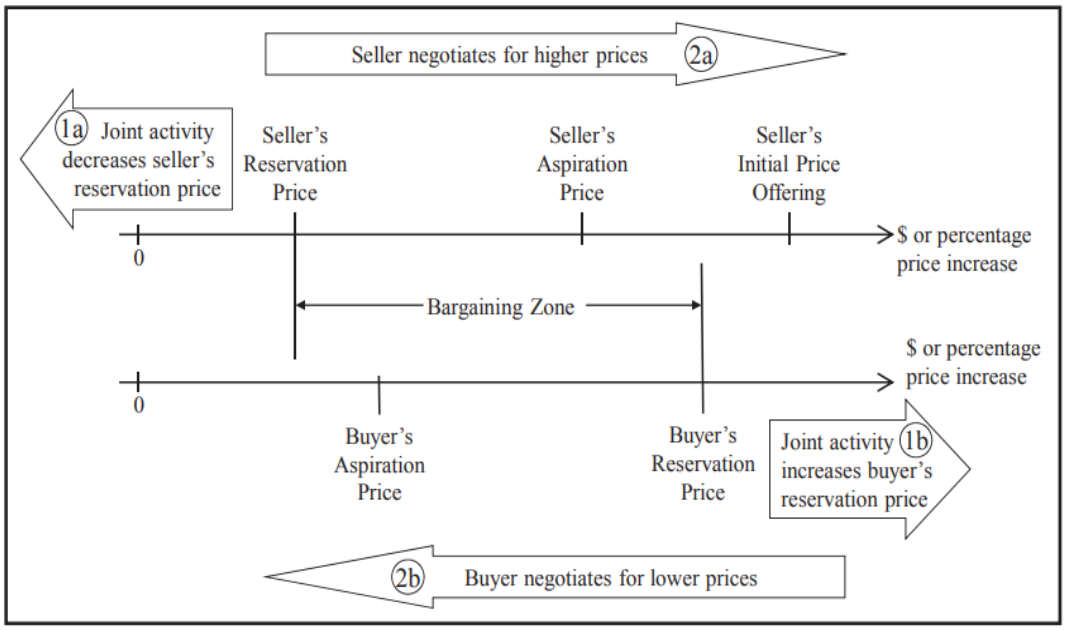
1.2.2.5. Initial Price Offer

Initial price offers are a crucial component of negotiating and bargaining procedures. The concept of initial price offer has some other names as opening price, first offer and initial offer. Before negotiations begin, sellers and purchasers select their opening bids/initial price offers. Initial offers are crucial since they initiate a sequence of counter offers during the negotiation. The first offer may be seen as a price anchor against which both parties adjust their respective price references and subsequently their counter offers. Consequently, early offers have a significant role in determining the outcome of competitive negotiating procedures. The first offer is the first reference that needs a response from the buyer. Consequently, early offers serve as anchors or external benchmarks for the buyer.

Initial offers influence the related counteroffer because they give the individual making the counteroffer with new knowledge to reevaluate his or her planned offer (Moosmayer et al. 2013; 3030)

According to some researchers (Van Poucke & Buelens 2002), the only effective parameter in price negotiations is the initial price offer; for others (Kristensen & Gaerling 1997), both the initial price offer and the market price are parameters that affect the outcome of the negotiation. However, many other studies (Liebert et al. 1968; Rubin & Brown 1975; Moosmayer et al. 2012; 2013; Kristensen & Gaerling 1997) have also shown that the initial price offer has the strongest influence, along with other major factors, on the outcome of the price negotiations.

Figure 1.8: Reference Prices and Bargaining Zone



Source: (Moosmayer et al. 2012, 94).

1.2.3. Behavioral Pricing in B2C Context

Although our focus in this dissertation is behavioral effects on price negotiations in B2B markets; it is a practical way to start by studying the current literature in B2C markets. As mentioned before, the effects of behavioral factors in B2B markets are still a sparse research area, however there are numerously more research in B2C markets.

In a B2C context, behavioral pricing strategies can be used by companies to increase the perceived value of their products and services, ultimately leading to higher sales and revenue. Thus, behavioral pricing is a powerful tool that can be used by companies in a B2C context to increase pricing performance and sales revenues.

Some aspects of emotions affect consumer's responses to prices and there is a gap between the real price of a product and the perception of the consumer about that product thus by framing prices in terms of gains, companies can make their products more attractive to consumers, as individuals are prone to evaluate prices as gains or losses (Tversky & Kahneman 1979, 264-269). Other than this another factor that can influence consumer purchasing decisions is the reference prices as explained in the previous sections. Reference price is a well-defined and one of the mostly studied version of behavioral biases, thus it is one of the important tenets of current behavioral pricing literature in B2C context.

To begin with the present state of research on behavioral pricing in B2C markets, studies on investment markets are excellent examples. In a study on behavioral pricing, Coval and Shumway (2005) investigate the significance of behavioral biases in the futures and options markets using data from the Chicago Board of Trade. They discovered that the risk evasion bias prevalent among professional traders has a significant impact on market pricing. In another study (Donaldson & Kim 1993), researchers demonstrated that some prices have a greater psychological impact on traders than others, and that there are psychological and illogical

obstacles around certain price points. The existence of price barriers on commodity market prices, such as gold prices (Aggarwal, Lucey & Connor 2007) and oil prices (Dowling, Cummins & Lucey 2016) are also showed in the literature. In another study, researchers demonstrated the presence of behavioral pricing barriers on the lead, zinc, and aluminum alloys markets for nonferrous metals (Cummins, Dowling, & Lucey 2015).

There are studies showing that there are behavioral anomalies outside the global financial markets mentioned in the previous paragraph. Since these studies are quite numerous and far from our subject, a few more recent studies are referred here. In a very recent study (Kalyanaram et al. 2022), the attitudes of consumers towards pricing that they think is unfair in internet shopping is discussed from the behavioral pricing framework. Again, in a recent study (Zhang & Chiang 2020), the effects of reference price on consumer behavior in the durable consumer goods market were examined. Finally, a study (Bordalo, Gennaioli & Shleifer 2019) on rental choices has revealed how price perceptions based on past experiences of tenants moving to a new city irrationally deflect them from reality in the homes they will rent.

Since behavioral biases are quite high in B2C context, 21 different consumer biases mentioned by Hinterhuber (2015, 66) are named in the following figure (Figure 1.9) without mentioning all of them at full details.

Figure 1.9: Customer's Biases in B2C Context

Source: (Hinterhuber 2015,66).

1.2.4. Behavioral Pricing in B2B Context

B2B transactions, especially purchasing, command more than 50% share of all commercial activity within the United States, Canada, and France (Dwyer and Tanner 2002, 8). Despite their obvious importance, B2B issues have received scant attention in the marketing literature, only a small fraction (approximately 6.7%) of the articles published in the top marketing journals deal with specifically B2B contexts (LaPlaca & Katrichis 2009, 5-6). In addition, the B2B pricing literature is even more limited than the already limited B2B marketing literature. As mentioned in the previous chapters, behavioral pricing occupies very little space in this limited B2B pricing literature.

It is the normative framework that dominates the B2B pricing literature, and in this context, supply chain pricing, price planning, pricing of integrated solutions and value-based pricing, which has gained popularity in recent years, are studied (Iyer et al. 2015, 6). The B2B behavioral pricing concept posits that management cognitive biases are significant causes of departures from optimum decision making. As research on pricing in B2B had typically been influenced by economics-based methodologies, the behavioral viewpoint was first adopted in the discipline of economics and then began to influence the pricing field (Iyer et al. 2015, 7).

As discussed in the next chapter, behavioral pricing studies for B2B sectors are advanced from studies that are more prominent in B2C sectors. In other words, anomalies, biases, and concepts that are seen to exist in B2C sectors have also been investigated in B2B sectors. Reference prices, which were also researched in B2C markets, were similarly searched in B2B markets. To the best of the author's knowledge, reference prices compromise the focus of B2B behavioral pricing research.

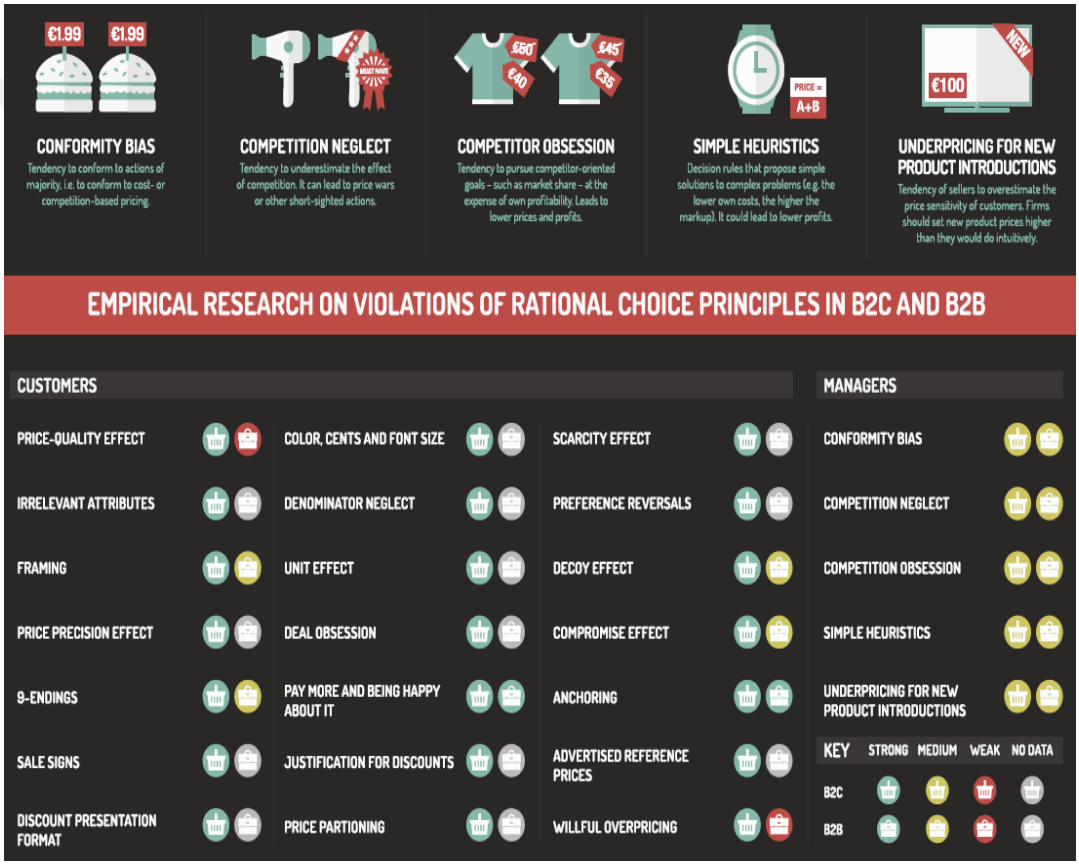
Bruno and his colleagues (Bruno et al. 2012) investigated how reference prices impact pricing and quantity in B2B marketplaces. Their research technique was founded on B2C market research. Reference price effects occur on amount bought and transaction pricing result in business-to-business market transactions, business consumers respond asymmetrically to price increases and declines, and salespeople have their own reference prices that influence transaction prices (Bruno et al. 2012, 640).

In another study, the three critical reference prices mentioned in the previous chapters as aspiration price, reservation price and initial price offer in B2B price negotiations; the effects on price negotiations were analyzed (Moosmayer, Schuppar & Siems 2012). In this study, however, the researchers concentrated on the seller's references while ignoring the buyers. Concerning the effect of each reference price on the settlement price, they demonstrated that a seller's aspiration

price and the initial price offer have comparable affects, however the reservation price has a little effect (Moosmayer, Schuppar & Siems 2012, 99-100).

There are also some other useful concepts (Figure 1.10) regarding with the biases that may affect managers, which can be also viewed as a part of B2B behavioral research.

Figure 1.10: Managers Biases in Pricing



Source: (Hinterhuber 2015, 67).

SECTION 2: RESEARCH MODEL AND METHODOLOGY

2.1. RESEARCH MODEL

In this study, an experimental setup that simulates price negotiations is designed. With the results of this experimental setup, the details of which will be given below, primary data was obtained and the hypotheses in the thesis were tested by using statistical methods on the obtained data.

Similar approaches have been used in various previous studies (Van Poucke & Buelens 2002; Moosmayer, Shuppar & Siems 2012; Hernan, Bruno, Che & Dutta 2012; Moosmayer, Chong, Liu & Schuppar 2013; Qin & Liu 2022). Moosmayer et al. (2012) have applied a similar approach to real price negotiations in a B2B example.

Furthermore, the subjects were divided into two separate groups so the effect of anchoring bias can be analyzed. While we only asked the reference values to the subjects in the base groups (unbiased student and unbiased employee), we asked an additional question to our subjects in our observation groups (biased student and biased employee), which would lead to anchoring bias. Finally, we separated our subjects as students and employees and examined the differences between the two groups.

2.1.1. Hypothesis Development

In this chapter, we include the hypotheses we tested during our study. We examined these hypotheses under three different groups. In the first group, we included hypotheses regarding the effect of reference prices on the negotiation outcome. In

the second part, we constructed the hypotheses regarding the anchoring bias effect. Last and the third a hypothesis which aims to reveal the difference between student and employee samples is presented.

2.1.1.1. Hypotheses on Reference Prices

As mentioned above, Moosmayer et al. (2012) examined real price negotiations and discussed the effects of reference prices on the outcome of negotiations using the ridge regression method. However, only the seller perspective was evaluated in this study. Here in this study, we evaluate three reference prices (reservation price, aspiration price and initial price offer) that have an important place in the behavioral pricing literature from both the seller and buyer sides.

A study (Van Poucke & Buelans 2002) has shown that out of these three reference values, only the initial price offer has a significant effect on the outcome. On the other hand, Moosmayer et al. (2012), showed that the seller's aspiration price, initial price offer and reservation price are meaningful predictors for settlement price with respectively lower coefficients.

H_1: There is a positive relationship between the buyer's reservation price and the negotiation settlement price.

H_2: There is a positive relationship between the seller's reservation price and the negotiation settlement price.

H_3: There is a positive relationship between the buyer's aspiration price and the negotiation settlement price.

H_4: There is a positive relationship between the seller's aspiration price and the negotiation settlement price.

H_5: There is a positive relationship between the buyer's initial price offer and the negotiation settlement price.

H_6: There is a positive relationship between the seller's initial price offer and the negotiation settlement price.

The 6 hypotheses shared above have been tested for the base data sets (unbiased student and unbiased employee) and the results are presented in the following chapters.

2.1.1.2. Hypotheses on Anchoring Effect

The effects of anchor points on decision makers have been mentioned in the previous sections with giving examples from the behavioral literature (Leung & Tsang 2013; Shahar & Golan 2016; Bogliacino & Cuntz 2013; Ritov 1996). What we focused directly on in this study is whether the anchoring bias is effective in determining the reservation and aspiration prices of sellers and buyers.

In another study (Kristensen & Garling 2000) conducted with 64 undergraduate students and including two separate experimental setups, it was revealed that anchor points influenced the buyers' reference prices. Here, we further expand the hypothesis in this study and examine the effect of the anchor point not only on the buyer but also on the seller, and the effect of anchor point on aspiration prices on the aspiration price. In addition, we use a different experimental setup than the aforementioned study and different non-arbitrary anchor points.

H_7: Existence of a lower anchor point would decrease seller's reservation price.

H_8: Existence of a higher anchor point would increase buyer's reservation price.

H_9: Existence of a lower anchor point would decrease seller's reservation price.

H_{10}: Existence of a higher anchor point would increase buyer's reservation price.

To test these four hypotheses, we compare the base sample sets to their respective observation data sets. In other words, unbiased student set and biased student set; We compared the unbiased employee set with the biased employee set. In this comparison, we reveal whether the reference prices and agreement results differ significantly.

2.1.1.3. Hypotheses on Student and Employee Difference

Finally, this is the hypothesis that the reference prices that affect the agreement prices of student:

H_{11}: Reference prices, which affect the agreement prices of student and employee subjects have same regression coefficients.

2.1.2. Research Design

Researchers conduct surveys, secondary data analyses, ethnographic approaches that involve observations, applications of the think aloud method, historical examination of documents, and the lengthy interview methods to investigate price anomalies in consumer behavior. Nonetheless, researchers are also going physically into the environment of the study to observe, interview, document, and evaluate, as opposed to relying mostly on data from an online, postal, or telephone survey (Woodside 2015, 40-41).

Surveys are the most prevalent quantitative–empirical design in B2B markets (88%). In consumer contexts, researchers may set up behavioral research laboratories or enroll consumers online; these choices are unavailable for B2B research, making it more difficult to perform, reproduce, and change trials. (Kienzler & Kowalkowski 2017, 106).

As proposed by Kienzler, & Kowalkowski (2017, 106-107) experiments would be used more extensively in B2B studies and researchers should consider demand-side respondents more thoroughly. Behavioral school focuses on behavior and mostly employs experiments.

In this study, the data were collected by firsthand experiments. A face-to-face price negotiation over a case scenario (Appendix) was established. In this research model, which can be summarized as an experimental price bargaining simulation, one of the subjects was the seller and the other was the buyer. All data were collected during this experimental setup, which will be described in more detail in the section on the procedure.

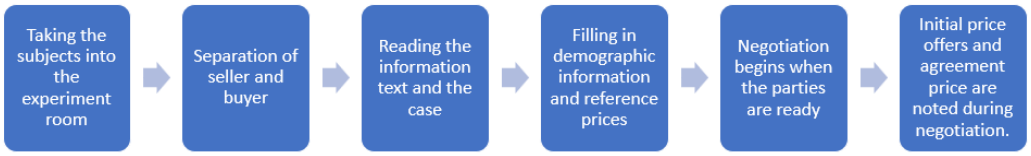
2.2. METHODOLOGY

2.2.1. Procedure

As can be seen by related figure (Figure 2.1), the people who participated in the experiment were taken to the experiment room in pairs. Before the start of the experiment, two participants were randomly determined as one seller and one buyer. Then, the information text about the experiment and the texts about the case study (Appendix). Although the related statistics were not recorded, since more than half of the participants in the experiment were Turkish-speaking participants, they used Turkish sets. For those whose native language is not Turkish, the English sets

were used, which was also checked by a native speaker for suitability. A significant portion of the participants who used the English set were native speakers or well-versed in English.

Figure 2.1: The Process of the Experiments



Afterwards, the subjects were asked questions to enter their demographic question sets and reservation price and aspiration prices, respectively. Here, unlike the others, the participants of biased sets (biased student set and biased employee set) were asked an additional question with an anchor point (Appendix).

They were told to start negotiating when both candidates were ready. It was left to the decision of the participants how to initiate the negotiation, how long the negotiation would last, and whether there would be an agreement at the end of the negotiation. During the experiments, no additional verbal information was given to the participants in order not to create any prejudices or biases. However, some of the sectoral information asked by the participants (especially students' questions on air cargo) or technical information about the experiment that would not affect the results of the experiment were not left unanswered. Although these statistics were not recorded, most of the participants finished the negotiations in ten minutes. Few, however, continued negotiations for less than five minutes or more than twenty minutes.

While additional points were awarded for the courses, the students took in related semester to encourage the participation of the students participating in this experiment, there was no incentive mechanism for the employee subjects. On the

other hand, we tried hard to maintain voluntary participation for the experiment. To do these students who come to participate in the experiment were said that “those who could not attend for some reason were still rewarded with extra points in their courses”.

2.2.2. Sample

Most of the experiments in student sets were conducted at the Silahtarağa Campus of Bilgi University in May and September with undergraduate students. On the other hand, some of the student experiments were conducted with other undergraduate students based in two other Universities in London and Istanbul on September and October.

The employee samples, on the other hand, was formed with the participation of people working in the air cargo sector, mostly in Istanbul and some in London, consisting of airline and sales agency employees. The table below shows the total number of participants in the four sample groups. In addition, descriptive statistics are examined in detail in the next chapters.

Table 2.1: The Total Number of Observations in Each Category

	Unbiased	Biased	Total
Student	62	65	127
Employee	67	64	131

Although there is no consensus on how many observations should be in a regression analysis, it can be said that as a rule of thumb, there should be 10 observations per independent variable. In this respect, we aimed to reach at least 60 participants in each sample group.

On the other hand, when similar studies conducted in the past are examined, similar figures are reached: For example, in one of the largest (Kienzler & Kowalkowski 2017, 106) empirical studies on B2B (Luo, Kannan, & Ratchford, 2007), 249 participants were studied. In another extremely crowded study (Moosmayer, Shupar & Siems 2012), a regression model was established over a total of 282 observations, and it was stated that the established model had a high explanatory rate of 86% on the result.

In another study, which is very similar to this thesis study and includes a negotiation setup, two separate experiments consisting of 192 and 53 negotiations, respectively, were conducted and a model was developed that explained the negotiation result at a rate of 57% (Van Poucke & Buelens 2001). In the second experiment setup by Van Poucke and Buelens, which they conducted with 53 observations, when no agreement was reached in 5 negotiations, a stepwise regression analysis was performed with the remaining 48 observations. In this analysis, the seller's reservation price, aspiration price and intended opening offer, the buyer's reservation price, aspiration price and intended opening offer used as dependent variables; and the negotiation result is taken as a dependent variable. As the results can be seen in the table below (Table 2.2), two independent variables have been found to have a significant effect on the results.

Table 2.2: Stepwise Regression Results of the Example Study

Added predictors	R^2	F Change	p
Intended opening offer buyer	0.32	21.9***	0.00
Intended opening offer seller	0.50	16.1***	0.00
Aspiration price seller	0.54	3.2	0.08
Reservation price buyer	0.55	1.7	0.19
Aspiration price buyer	0.56	0.2	0.63
Reservation limit buyer	0.56	0.002	0.96

[a] $N = 48$.
*** $p < 0.001$.

Source: (Van Poucke & Buelens 2001, 73).

In another example (Kristensen & Gaerling 1996), the researchers worked with 46 students in total, but this time by testing fewer independent variables. In summary, based on these examples, in this thesis study, care was taken to include at least 50 observations in each sample set.

2.2.3. Measures

As mentioned in the previous sections, data were collected from the subjects via the attached forms. Although 16 different data were collected in total (Table 2.3), since there were repetitive data for buyers and sellers, six questions were asked to each participant and four separate data were noted during the negotiation.

In other studies, like this dissertaion (Kristensen & Gaerling 1996, Van Poucke & Buelens 2001; Moosmayer, Shupar & Siems 2012), data were collected using similar methods.

Table 2.3: Variables of the Study

Variable Name	Variable Category	Variable Type
Buyer Age	Demographic	Numeric
Buyer Sex	Demographic	Numeric
Buyer Work Experience	Demographic	Numeric
Buyer Negotiation Experience	Demographic	Numeric
Buyer Reservation Price	Independent Variable	Numeric
Buyer Aspiration Price	Independent Variable	Numeric
Buyer Initial Price Offer	Independent Variable	Numeric
Seller Age	Demographic	Numeric
Seller Sex	Demographic	Numeric
Seller Work Experience	Demographic	Numeric
Seller Negotiation Experience	Demographic	Numeric
Seller Reservation Price	Independent Variable	Numeric
Seller Aspiration Price	Independent Variable	Numeric
Seller Initial Price Offer	Independent Variable	Numeric
Agreement	Dummy Variable	Categorical
Agreed Price	Dependent Variable	Numeric

2.2.4. Data Analyses

Experiment responses were gathered and processed to test our hypotheses during which IBM SPSS statistics package used. Data analysis was carried out without mixing the student and employee samples. Because the fact that student and employee behaviors may be different. In addition, some of the hypotheses presented here are that the reference prices of student and employee subjects are different and that the anchoring points affect these sets differently. Thus, approximately half of both student and working samples are experimented accordingly and they took anchored questionnaire kits (Appendix). As a result, regression models were applied to four different sets of subjects separately. In addition, these sets were

compared among themselves, paying attention to the distinction between students and employees.

2.2.5. Ethical Issues

As seen in the ethics committee approval (Appendix), issues such as data security and personal data security were managed by obtaining the necessary approvals from the relevant institutions of our institute. Participants were informed both in writing (Appendix) and orally that the experiment was voluntary and that they could quit whenever they wanted. No personal data was collected. Test results were kept on a computer only, and both hardcopy and digital data were destroyed at the end of the run.

SECTION 3: RESULTS

In this section, first, descriptive statistics for data sets are presented and interpreted in four subsections. Then, the models created by the multiple linear regression method are presented. Finally, a comparison of different data sets is presented with covariance analysis.

3.1. DESCRIPTIVE STATISTICS

In this section, descriptive statistics of the data divided into four data sets (namely unbiased student, biased student, unbiased employee, and biased employee sets) are presented. However, before presenting descriptive statistics, outliers were detected and removed from the data using steam and leaf analysis. Thus, the valid number of observations for each set is slightly less than the total number of participants in the experiments.

Particular attention was shown to reference prices to detect outliers, the responds for all six reference prices were checked for outliers and 3 IQRs were used to detect outliers. The reason for using 3IQR was both to leave enough observations and to exclude data that seriously deviates from the averages.

Subjects who were probably unfamiliar with price negotiation processes had a hard time setting reference prices (booking and request prices), and some began negotiating with very high or low initial bids. On the other hand, subjects who have very high confidence and aggressive negotiation attitude also ended with quite high reference prices. At the end, in some observations price negotiations were ended up with very high prices or low agreement prices. Since these values may impair the reliability of the independent variables, these data were excluded from the analysis.

Hopefully only a very few of the observations were in these categories and considered as outliers, exact number of outliers in each data set are presented in the following parts. The more detailed graphs regarding with the reference price distributions of each data set are also presented in the appendix section.

Except for outliers, the observations where price negotiations did not result in an agreement were also not used in the analyses. Such observations were much less in student subjects and more common in employee subjects. Although a statistical analysis has not been conducted on the reason for this phenomenon, it can be said that it is because the employees have a more aggressive and confident attitude in price negotiation. Since the negotiations that did not result in an agreement are excluded in the analyses, only comments on the price negotiations that resulted in an agreement are presented. In future studies with more subjects, it can be emphasized why some price negotiations did not result in an agreement.

3.1.1. Unbiased Student Set

The unbiased student sample set consists of 62 negotiations, for a total of 124 (61 male, 63 female) students. However, since one of these negotiations ended without a deal, we took it out. On the other hand, we also removed (Appendix) the observations where responses outside of 3 IQR were experienced for each reference price. In this case, there were 6 observations. The descriptive statistics table of the results of the remaining 55 observations was formed as follows.

Table 3.1: Descriptive Statistics of Unbiased Student Sample without Outliers

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Buyer Age	19	24	21.84	1.549	.066	-1.064
Buyer Work Experience	0	1	.16	.373	1.870	1.551
Buyer Negotiation Experience	0	0	.00	.000	.	.
Buyer Reservation Price	4.00	9.00	6.4036	1.23134	-.058	-.099
Buyer Aspiration Price	3.00	7.50	5.0709	1.22628	.387	-.691
Buyer Initial Price Offer	3.0	8.0	5.216	1.3754	-.178	-.974
Seller Age	19	26	21.45	1.719	.840	.858
Seller Work Experience	0	5	.56	1.344	2.425	4.980
Seller Negotiation Experience	0	3	.24	.719	3.331	10.484
Seller Reservation Price	4.00	6.80	5.5900	.54970	-.041	.309
Seller Aspiration Price	5.00	10.00	6.7645	1.09251	1.332	2.335
Seller Initial Price Offer	4.00	13.00	7.4800	1.70241	1.123	2.218
Agreed Price	4.00	10.50	6.3273	.92680	1.215	7.485

N= 55

When we examine this table and the related histograms, the first findings that caught our attention is our observation that the reference prices are normally distributed. In addition, the age of the students participating in the experiment is generally close and they are distributed in a very limited range (19-26). Work experience is 5 years maximum in one subject, but in most of them they are close to zero. There is no negotiation experience, except for one subject.

3.1.2. Biased Student Set

The biased student sample set consists of 65 observations at the beginning as a total of 130 (55 male, 74 females, 1 nonbinary) students participated in this set of experiment. However, since two of these negotiations ended without a settlement, they have taken out. On the other hand, observations that exclude 3 IQRs in the relevant parameter for each reference price were also excluded from the analysis.

In this case, there were 2 observations as outliers. The descriptive statistics table of the results of the remaining 61 observations was formed as follows:

Table 3.2: Descriptive Statistics of Biased Student Sample without Outliers

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Buyer Age	19	24	20.97	1.693	.565	-.788
Buyer Work Experience	0	3	.13	.465	4.599	24.758
Buyer Negotiation Experience	0	0	.00	.000	.	.
Buyer Reservation Price	4.90	14.00	8.1893	1.93557	.337	-.042
Buyer Aspiration Price	4.0	10.0	6.128	1.5833	.591	-.452
Buyer Initial Price Offer	3.0	10.0	5.497	1.5849	1.476	2.163
Seller Age	19	25	21.56	1.937	.060	-1.440
Seller Work Experience	0	2	.11	.370	3.442	12.352
Seller Negotiation Experience	0	2	.08	.378	4.725	21.809
Seller Reservation Price	4.00	8.00	5.1533	.87368	1.395	2.894
Seller Aspiration Price	4.8	11.0	6.766	1.5973	.949	.258
Seller Initial Price Offer	4.50	15.00	8.1918	2.58457	1.138	1.052
Agreed Price	4.00	15.00	6.6984	2.04038	2.389	7.577

N= 61

It is possible to say that the independent variables in this sample set come from a normal distribution (kurtosis values between -2 and 2 and skewness close to 0). The ages of the students participating in this experiment are generally in a narrow range (19-25). They do not have any notable business and negotiation experience.

The most dramatic difference when compared to the unbiased student sample is the differences between the means of reservation prices. That difference in means of reference prices stems probably from the existence of anchor point. The detailed evaluations on whether this difference is scientifically analyzed by using t-tests which would be presented in the upcoming parts.

3.1.3. Unbiased Employee Set

With 67 observations, the unbiased employee sample set comprises of 134 (89 males and 45 females) individuals who participated in this experiment. However, since thirteen of these negotiations were not resulted in an agreement, we eliminated them. On the other hand, we also eliminated the data whose answers were outside of the 3 IQR for each reference price; only two observations were identified as outliers, more details on how the outliers are selected can be found in appendix section. The table of descriptive statistics for the remaining 52 observations was constructed as follows:

Table 3.3: Descriptive Statistics of Unbiased Employee Sample without Outliers

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Buyer Age	20	53	30.83	7.735	1.430	2.218
Buyer Work Experience	0	29	7.69	7.890	1.367	1.422
Buyer Negotiation Experience	0	21	3.52	5.508	2.179	4.222
Buyer Reservation Price	4.00	8.00	6.0721	.89609	.655	.195
Buyer Aspiration Price	3.00	7.30	5.3279	.86661	-.401	2.201
Buyer Initial Price Offer	2.4	6.4	4.640	.9377	-.395	-.038
Seller Age	19	57	31.77	10.356	1.163	.959
Seller Work Experience	0	30	8.48	8.426	1.088	.612
Seller Negotiation Experience	0	21	4.33	6.071	1.680	2.005
Seller Reservation Price	3.00	7.50	5.4327	.93985	-.542	1.807
Seller Aspiration Price	5.00	8.00	6.7856	.78048	-.160	-.118
Seller Initial Price Offer	4.0	11.0	7.144	1.2425	.396	2.058
Agreed Price	4.50	7.30	5.9106	.57789	-.028	1.713

N= 52

Unlike student experiments, employee sets reported a higher mean age (for buyers: 30.8, for sellers 31.8) and a wider age range (19-57), as expected. Again, unlike the student group, the work experience average was quite high as expected (for buyers: 7.7, for sellers: 8.5). However, the rate of disagreement among the working subjects was much higher (19.4%) than student subjects.

It can be said that reference prices generally converge to the normal distribution. However, high kurtosis values, especially in the buyer aspiration price and seller initial price offer, raise the suspicion that the samples for these variants are abnormally distributed. The detailed analyses on the normality of reference price data are presented in the following parts.

3.1.4. Biased Employee Set

A total of 64 observations, the biased employee sample set consists of 128 people (77 men and 51 women) who participated in this experiment group. 12 of these observations, however, did not end in an agreement, so they are deleted. And as there were not any reference price observation that fall out of 3 IQR, none of the responses were categorized as outlier. The sample ended up with 52 observations.

Table 3.4: Descriptive Statistics of Biased Employee Sample without Outliers

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Buyer Age	22	45	29.75	7.856	.839	-.717
Buyer Work Experience	1	20	6.98	6.647	1.056	-.488
Buyer Negotiation Experience	0	12	2.27	4.059	1.610	1.013
Buyer Reservation Price	4.0	14.0	7.225	2.2604	1.100	1.630
Buyer Aspiration Price	3.0	10.0	5.302	1.7784	1.120	1.076
Buyer Initial Price Offer	1.0	8.0	4.673	1.6292	-.064	.360
Seller Age	21	36	27.37	4.428	.072	-.909
Seller Work Experience	2.0	12.0	4.875	3.1278	.844	-.709
Seller Negotiation Experience	0	8	1.71	2.304	1.438	1.378
Seller Reservation Price	3.00	7.00	5.1010	.84392	.164	1.115
Seller Aspiration Price	4.75	10.00	6.7952	1.28232	.921	.995
Seller Initial Price Offer	3.0	15.0	8.323	2.4031	.805	2.057
Agreed Price	4.00	10.50	6.1692	1.45070	1.572	2.946

N=52

While the percentage of men and women was more balanced in student subjects, the fact that the number of men was higher than the number of women in both working samples may be since there are more men among the air cargo workers.

This sample also has a wider age range (21-45), higher average age (buyers' 29.8, sellers' 27.4), higher work experience (buyers' 7, sellers' 4.9) and negotiation experience (buyers' 2.3, sellers' 1.7) than student samples.

3.2. REGRESSION MODELS

This section presents the outputs of multiple linear regression models that seek a linear relationship between reference prices and the outcome of price negotiations. Before sharing these outputs and running the regression models, required statistical checks were made that certain assumptions were met to examine whether applying multiple linear regression to the data was appropriate. First, the results of these checks are presented.

3.2.1. Checks for the Assumptions of Ordinary Linear Regression Model

Before going into the details of multiple linear regression, some checks need to be made for the assumptions of linear regression models. These are respectively; The existence of a linear relationship between dependent and independent variables, independence of independent variables (no multicollinearity), independence of residuals/errors, and values of residuals are normally distributed.

First, SPSS scatter plots are presented to see if there is a linear relationship between the agreed price and the reference prices. As can be seen from the related figures

(Appendix), there is a noticeable linear relationship between the agreed price for the two base data sets and each reference price.

Second, Pearson Correlation coefficients were checked to detect possible multicollinearity among independent variables. It was checked whether the Pearson Correlation coefficient between the two independent variables was far from zero than 0.7. Although a few values in the data sets approached this limit, it was concluded that there was no strong multicollinearity between the independent variables in these sets, as there was no value exceeding this limit (Table 3.5 and 3.6)

Table 3.5: Unbiased Student Set Pearson Correlations

	Agreed Price	Buyer Reservation Price	Buyer Aspiration Price	Buyer Initial Price Offer	Seller Reservation Price	Seller Aspiration Price	Seller Initial Price Offer
Agreed Price	1.000	.287	.171	.462	.210	.263	.592
Buyer Reservation Price	.287	1.000	.675	.535	-.165	-.155	.215
Buyer Aspiration Price	.171	.675	1.000	.689	.041	.166	.112
Buyer Initial Price Offer	.462	.535	.689	1.000	.174	-.028	.321
Seller Reservation Price	.210	-.165	.041	.174	1.000	.484	.361
Seller Aspiration Price	.263	-.155	.166	-.028	.484	1.000	.471
Seller Initial Price Offer	.592	.215	.112	.321	.361	.471	1.000

N= 61

Table 3.6: Unbiased Employee Set Pearson Correlations

	Agreed Price	Buyer Reservation Price	Buyer Aspiration Price	Buyer Initial Price Offer	Seller Reservation Price	Seller Aspiration Price	Seller Initial Price Offer
Agreed Price	1.000	.770	.795	.241	.135	.382	.336
Buyer Reservation Price	.770	1.000	.668	.266	-.131	-.037	.039
Buyer Aspiration Price	.795	.668	1.000	.481	.176	.357	.330
Buyer Initial Price Offer	.241	.266	.481	1.000	.499	.251	-.014
Seller Reservation Price	.135	-.131	.176	.499	1.000	.521	.085
Seller Aspiration Price	.382	-.037	.357	.251	.521	1.000	.489
Seller Initial Price Offer	.336	.039	.330	-.014	.085	.489	1.000

N= 52

Another method to understand whether the ordinary multiple linear regression models are affected by multicollinearity is to look at the VIF values (Tables 3.7 and 3.8). As a measure of the multicollinearity in regression models; a VIF value above

10 is considered as high and unacceptable, between 5 to 10 as critical, between 3 and 5 is considered as normal and any value below 3 is very acceptable. Since all the VIF values in our two base data sets are below 5 (Tables 3.7 and 3.8), they have considered as acceptable. In fact, most of the variables are below 3 values.

Table 3.7: Unbiased Student Set Coefficients and VIF Statistics

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
	(Constant)	2.550	1.244		2.049	.046		
	Buyer Reservation Price	.227	.128	.301	1.774	.082	.359	2.783
	Buyer Aspiration Price	-.397	.159	-.526	-2.495	.016	.233	4.286
	Buyer Initial Price Offer	.403	.118	.599	3.426	.001	.340	2.944
	Seller Reservation Price	-.129	.212	-.077	-.609	.545	.657	1.523
	Seller Aspiration Price	.275	.138	.324	1.986	.053	.390	2.563
	Seller Initial Price Offer	.147	.082	.270	1.798	.079	.459	2.181

a. Dependent Variable: Agreed Price

Table 3.8: Unbiased Employee Set Coefficients and VIF Statistics

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
	(Constant)	1.061	.432		2.457	.018		
	Buyer Reservation Price	.389	.059	.603	6.587	<.001	.440	2.274
	Buyer Aspiration Price	.250	.071	.375	3.525	<.001	.327	3.059
	Buyer Initial Price Offer	-.139	.051	-.225	-2.742	.009	.549	1.821
	Seller Reservation Price	.086	.052	.140	1.665	.103	.519	1.927
	Seller Aspiration Price	.163	.064	.221	2.548	.014	.492	2.033
	Seller Initial Price Offer	.031	.035	.066	.882	.383	.653	1.531

a. Dependent Variable: Agreed Price

Another assumption of multiple linear regression is the independense of residuals. Durbin-Watson test results were checked for the independence of residuals. Durbin-Watson is a statistical test for autocorrelation in residuals of a statistical model or regression model. As a general acceptance, Durbin-Watson values between 1 and 3

show the independence of the residuals, so it can be said that all sets to be subjected to the regression model meet this criterion (Tables 3.9 and 3.10).

Table 3.9: Unbiased Student Set Model Summary and Durbin-Watson Statistics

Model Summary[b]

Model	R	R Square	Adjusted R Square	Durbin-Watson
	.709[a]	.502	.440	1.486

a. Predictors: (Constant), Seller Initial Price Offer, Buyer Aspiration Price, Seller Reservation Price, Seller Aspiration Price, Buyer Reservation Price, Buyer Initial Price Offer

b. Dependent Variable: Agreed Price

Table 3.10: Unbiased Employee Set Model Summary and Durbin-Watson Statistics

Model Summary[b]

Model	R	R Square	Adjusted R Square	Durbin-Watson
	.913[a]	.834	.812	2.405

a. Predictors: (Constant), Seller Initial Price Offer, Buyer Initial Price Offer, Buyer Reservation Price, Seller Aspiration Price, Seller Reservation Price, Buyer Aspiration Price

b. Dependent Variable: Agreed Price

Finally, it was examined whether the residuals, which were the output of the regression models, were normally distributed. As can be seen from the figures below (Figures 3.1 and 3.2), it has been observed that the residues are generally normally distributed.

As a result of all these tests presented, it can be said that the multiple linear regression models for both datasets meet the necessary assumptions. On the other hand, these analyzes were not run for biased datasets because a regression analysis is not performed with biased sets. Biased data sets were used only in ANOVA tests to be compared with non-biased sets.

Figure 3.1: Unbiased Student Set P-P Plot of Residuals

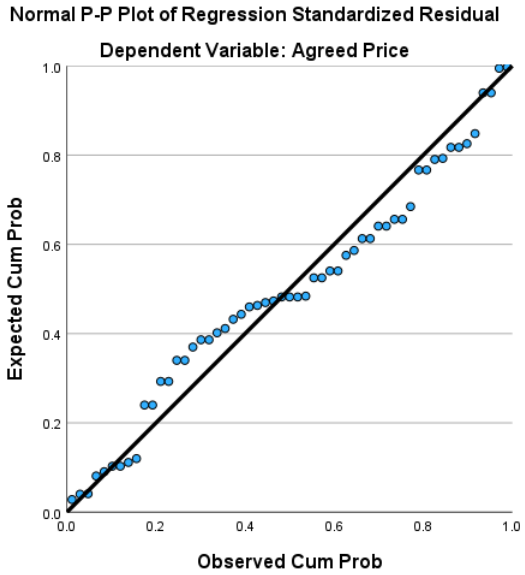
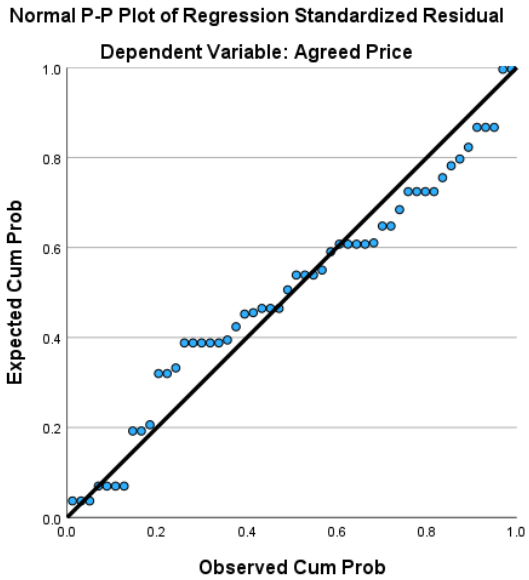


Figure 3.2: Unbiased Employee Set P-P Plot of Residuals



3.2.2. Results of the Ordinary Multiple Linear Regression Models

As seen from the coefficients table (Table 3.7) of the multiple linear regression model created using all six independent variables in the unbiased student set, only two of the t values of the coefficients are statistically significant. These independent variables are the buyer aspiration price and the buyer initial price offer. On the other hand, the seller reservation price has a p-value very close to 5% significance level. The explanatory level of this model, in which all independent variables are used, is 50.2% (Table 3.9).

If the level of significance %1 is to be taken, there is only buyer initial offer significant. In addition, two significant independent variables were only positively correlated with the buyer initial price offer agreed price.

On the other hand, when the outputs of the regression model established with unbiased employee data are examined (Table 3.8), it is seen that the model explains the change in the result by 83.4%. In this model, buyer reservation price and buyer aspiration price, buyer initial price offer, and seller aspiration price were found as statistically significant (Table 3.10).

If the level of significance is taken as %1, all reference prices belonging to the buyer are statistically significantly related to the agreed price. On the other hand, buyer reservation price and buyer aspiration price acted in the expected direction by showing positive correlation with the agreed price.

As there are high multicollinearity among their dataset, Moossmayer et al. (2012) suggested to use ridge regression instead of OLS regression model. However, there are some arguments and negative findings (Zhang & Ibrahim 2005) on whether ridge regression gives better results than standard OLS models. In addition, multicollinearity was not found in the data sets used in this dissertation. Thus, only

an ordinary multiple linear regression model was used to explain the relationship between reference prices and price negotiation settlement price.

3.3. ANOVA RESULTS

This section presents t-tests that analyze the effect of anchoring effect on reference prices. In the light of the results obtained by applying the SPSS independent sample t-test, it was investigated whether the anchoring bias affects the determination of reference prices.

An average market value was shared with all participants in the base case scenario as a benchmark in price negotiations. On the other hand, an additional question was asked to the subjects in the biased groups (Appendix). The question was whether they would be willing to discount for an extremely low price (half the market value) for sellers, while whether they would be willing to pay an extremely high price (twice the market value) for buyers. As expected, all participants, without exception, gave negative answers to these questions. Whether the anchoring effect expected to cause this problem exists and if so, which reference prices it affects are presented in the following sections. Finally, in this section, it is presented whether there is a difference between the regression models created using student and employee samples.

3.3.1. Anchoring Effect on Reservation Price

When comparing the unbiased and biased sets of student subjects, it is observed that the presence of an anchor price has a statistically significant effect on the reservation price of both the buyer and the seller (Tables 3.11 and 3.12). In the

presence of an anchor point, the buyer's reservation price increases by 1.78 USD, and the seller's reservation price increases by 0.44 USD.

Table 3.11: Student Samples Buyer Reservation Price T-Test Results

	t-test for Equality of Means				
			Significance		
	t	df	One-Sided p	Two-Sided p	Mean Difference
Equal variances assumed	-5.855	114	<.001	<.001	-1.78571
Equal variances not assumed	-5.986	102.913	<.001	<.001	-1.78571

Table 3.12: Student Samples Seller Reservation Price T-Test Results

	t-test for Equality of Means				
			Significance		
	t	df	One-Sided p	Two-Sided p	Mean Difference
Equal variances assumed	3.182	114	<.001	.002	.43672
Equal variances not assumed	3.254	102.333	<.001	.002	.43672

Similar results were found in the Employee subject sets (Tables 3.13 and 3.14). However, the effect of the presence of the anchor point is more limited for the employees: In the presence of the anchor point, the reservation price of buyers increases by USD 1.15, and the reservation price of sellers increases by USD 0.33. The presence of the anchor point in the employee subjects, as in the student subjects, changes the reservation price statistically significantly.

Table 3.13: Employee Samples Buyer Reservation Price T-Test Results

	t-test for Equality of Means				
			Significance		
	t	df	One-Sided p	Two-Sided p	Mean Difference
Equal variances assumed	-3.419	102	<.001	<.001	-1.15288
Equal variances not assumed	-3.419	66.644	<.001	.001	-1.15288

Table 3.14: Employee Samples Seller Reservation Price T-Test Results

	t-test for Equality of Means				
			Significance		
	t	df	One-Sided p	Two-Sided p	Mean Difference
Equal variances assumed	1.894	102	.031	.061	.33173
Equal variances not assumed	1.894	100.840	.031	.061	.33173

As a result, the presence of an anchor point affects the reservation price for both student and employee subjects, both sellers and buyers.

3.3.2. Anchoring Effect on Aspiration Price

Another reference price that is likely to be affected by the anchor point is the aspiration price. When comparing the experiments with student subjects, the aspiration prices of students in the role of buyers are set to be 1.06 USD higher than the unbiased set, in the presence of an anchor point (Table 3.15). However, no statistically significant difference was observed in seller's aspiration price (Table 3.16).

Table 3.15: Student Samples Buyer Aspiration Price T-Test Results

	t-test for Equality of Means				
			Significance		
	t	df	One-Sided p	Two-Sided p	Mean Difference
Equal variances assumed	-3.988	114	<.001	<.001	-1.05696
Equal variances not assumed	-4.040	111.539	<.001	<.001	-1.05696

Table 3.16: Student Samples Seller Aspiration Price T-Test Results

	t-test for Equality of Means				
			Significance		
	t	df	One-Sided p	Two-Sided p	Mean Difference
Equal variances assumed	-.004	114	.498	.997	-.00103
Equal variances not assumed	-.004	106.546	.498	.997	-.00103

On the other hand, when it comes to employee datasets, the results show that the aspiration prices of neither sellers nor buyers are found effected by anchor point (Table 3.17 and 3.18).

Table 3.17: Employee Samples Buyer Aspiration Price T-Test Results

	t-test for Equality of Means				
			Significance		
	t	df	One-Sided p	Two-Sided p	Mean Difference
Equal variances assumed	.095	102	.462	.925	.02596
Equal variances not assumed	.095	73.929	.462	.925	.02596

Table 3.18: Employee Samples Seller Aspiration Price T-Test Results

	t-test for Equality of Means				
			Significance		
	t	df	One-Sided p	Two-Sided p	Mean Difference
Equal variances assumed	-.046	102	.482	.963	-.00962
Equal variances not assumed	-.046	84.226	.482	.963	-.00962

In this case, it can be said that the presence of an anchor price is only effective for student subjects and only for the buyer aspiration price.

3.3.3. Anchoring Effect on Initial Price Offer

Finally, as can be seen from the related tables (Tables 3.19 and 3.20) reporting the effects of the presence of the anchor point on the initial price offers, no statistically significant effect was found on both the seller and the buyer initial price offers in the student subjects.

Table 3.19: Student Samples Buyer Initial Price Offer T-Test Results

	t-test for Equality of Means				
			Significance		
	t	df	One-Sided p	Two-Sided p	Mean Difference
Equal variances assumed	-1.012	114	.157	.314	-.2804
Equal variances not assumed	-1.020	113.843	.155	.310	-.2804

Table 3.20: Student Samples Seller Initial Price Offer T-Test Results

	t-test for Equality of Means				
			Significance		
	t	df	One-Sided p	Two-Sided p	Mean Difference
Equal variances assumed	-1.731	114	.043	.086	-.71180
Equal variances not assumed	-1.767	104.699	.040	.080	-.71180

As with the student subjects, there was no evidence that the buyer's initial price offer was affected by the presence of the anchor point in the employee subjects (Table 3.21). Surprisingly, however, it was observed that the seller's initial price offer was influenced by the presence of the anchor point. Sellers of employee set at the presence of an anchor point have an initial price offer that is 1.18 USD higher than unbiased employee set (Table 3.22).

This result does not seem plausible because it would be expected that there would be no impact or even a lower initial bid if it did. Possible reasons for this anomaly will be shared in the discussions section.

Table 3.21: Employee Samples Buyer Initial Price Offer T-Test Results

	t-test for Equality of Means				
			Significance		
	t	df	One-Sided p	Two-Sided p	Mean Difference
Equal variances assumed	-.125	102	.450	.900	-.0327
Equal variances not assumed	-.125	81.450	.450	.901	-.0327

Table 3.22: Employee Samples Seller Initial Price Offer T-Test Results

	t-test for Equality of Means				
			Significance		
	t	df	One-Sided p	Two-Sided p	Mean Difference
Equal variances assumed	-3.142	102	.001	.002	-1.1788
Equal variances not assumed	-3.142	76.448	.001	.002	-1.1788

3.3.4. Student and Employee Difference

In this section, it is tested whether the coefficients of the two regression models are different by comparing the results of multiple linear regression models obtained using student and employee samples with the chow test.

The null hypothesis for the Chow test is the assumption that model errors are independent and identically distributed according to a normal distribution whose variance is unknown. The Chow test statistic is as follows:

$$\frac{(S_c - (S_1 + S_2)) / k}{(S_1 + S_2) / (N_1 + N_2 - 2k)}$$

In where, S_c is the sum of squared residuals of combined regression model (that includes both student and employee results), S_1 is the sum of squared residuals of

unbiased student set, S_2 the sum of squared residuals of unbiased employee set. N_1 and N_2 are the number of observations in each set respectively, k is the total number of parameters used in model.

As can be seen from the ANOVA tables (Tables 3.23, 3.24 and 3.25) the S values are as follows; and as there are one intercept and 6 coefficients in each model k value is 7; and the number of observations is also noted:

S_c = 35.441 N_1 = 55

S_1 = 23.078 N_2 = 52

S_2 = 2.829 k = 7

Table 3.23: ANOVA Results of Unbiased Student Set Regression Model

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	23.306	6	3.884	8.079	<.001[b]
	Residual	23.078	48	.481		
	Total	46.384	54			

b. Predictors: (Constant), Seller Initial Price Offer, Buyer Aspiration Price, Seller Reservation Price, Seller Aspiration Price, Buyer Reservation Price, Buyer Initial Price Offer

Table 3.24: ANOVA Results of Unbiased Employee Set Regression Model

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	14.203	6	2.367	37.654	<.001[b]
	Residual	2.829	45	.063		
	Total	17.032	51			

b. Predictors: (Constant), Seller Initial Price Offer, Buyer Initial Price Offer, Buyer Reservation Price, Seller Aspiration Price, Seller Reservation Price, Buyer Aspiration Price

Table 3.25: ANOVA Results of the Combined Set Regression Model

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	32.616	6	5.436	15.338	<.001[b]
	Residual	35.441	100	.354		
	Total	68.057	106			

b. Predictors: (Constant), Seller Initial Price Offer, Buyer Aspiration Price, Seller Reservation Price, Seller Aspiration Price, Buyer Initial Price Offer, Buyer Reservation Price

When the numbers are inserted into the formula to find the Chow statistic, the result is 4.038193005. The test statistic of Chow follows the F distribution with k and $N_1 + N_2 - 2k$ degrees of freedom. In this case, F value of 4.0381 with 7 and 93 degrees of freedom has a p value of 0.000664 with 5% significant level, which means the null hypotheses is rejected as the Chow test's p value is smaller than 0.05.

As a result, it can be clearly said that the regression models of two different samples do not have the same parameters.

SECTION 4: DISCUSSIONS

4.1. DISCUSSION ON RESULTS

4.1.1. Predicting the Outcome of Negotiations with Reference Prices

The primary objective of the dissertation was to analyze reference prices that affect the price negotiation outcome and find a regression model that fits the relation between reference prices and agreed price of price negotiations.

It has been observed that the buyer is more decisive than the seller on the agreement price of price negotiations. The two regression models that have been run showed similar results in favor of buyer's critical effect on negotiation results. The analyzes on both data sets showed that the most effective reference prices among the six are the buyer aspiration price and the buyer initial price offer.

It can be said that among the previously shared hypotheses, H_3 and H_5 cannot be rejected, more observations should be made for H_1 and H_2. On the other hand, H_4 and H_6 were rejected, and therefore the relevant reference prices did not have a statistically significant effect on the agreement price.

Finally, as a result of the observations made on the employee set; It can be said that the buyer reservation price and buyer aspiration price are the most critical independent variables in the price negotiation process, as they are significant at both 5% and 1% level of significance and the relationship between them and the agreed price is in the expected direction (positive correlation).

Unlike the findings here, there have been similar studies showing that the seller's initial price offer and the buyer's initial price offer may have been the most influential reference price on the outcome of the price negotiations (Van Poucke &

Buelens 2001). However, in the study of Van Poucke and Buelens, the reference prices studied is not the exact initial price offer, but the intended initial price offer, which is a slightly different reference price than initial price offer. Because the initial price offer is the real initial bid of the parties during the negotiation, the intended initial price offer, on the other hand, is an estimated opening price bid determined before the negotiation by each party. The aforementioned study was conducted using a group of professional managers and according to this study, it has been found that the intended initial price is sufficient to explain the result of the seller and buyer price bargaining at a rate of 57%. In other words, if the intended initial price offers of the buyer and the seller are asked and received before the negotiation, a regression model can be established that explains 57% of how the negotiation of these two will turn out.

In this thesis study, the regression model created using the data obtained from the observations made with the student subjects is 50.2%, and the regression model created with the data obtained from the employee subject sets is 83.4% explanatory.

In another study (Moosmayer, Chong, Liu & Schuppar & Gaerling 2013) in which only the seller perspective was examined with employee subjects, it was revealed that the effects of seller aspiration price and seller reservation price on the negotiation outcome were statistically significant.

There are many reasons why similar studies mentioned in this thesis give different results. In the aforementioned studies, either only buyer or only seller reference prices were examined. Another possible reason may be that the reference prices used in the aforementioned studies are not exactly the same, although they are similar to those in this thesis.

4.1.2. Effect of Anchor Point on Reference Prices

The results of the experiments examining the effects of anchor points on the subjects showed that the existence of an anchor price in the form of a question text effected reservation prices of both sellers and buyers in each group (student and employee) of samples. The anchoring bias caused the reservation price to be set lower by the seller subjects and higher by the buyer subjects. No statistically significant effect was observed in other reference prices. As a result, hypotheses H_7 and H_8 are not rejected, but H_9 and H_{10} are rejected.

The reason why the anchor point only affects the reservation price and has little or no effect on other reference prices is the way the possible anchor price is presented. During the experiments, biased subjects were asked about the anchor point as a reservation price. More specifically, "are you willing to go below this price"; subjects in the role of buyers were asked questions such as "Will you be willing to go above this price" and then what the reservation prices were. For this reason, the anchor point has a stronger effect on the reservation price. This suggests that anchor points have a stronger effect than arbitrary anchor points.

4.1.3. Student and Employee Difference

In this thesis, two multiple liner regression models were constructed to explain the aggregation price by using references and data obtained from student and employee experiments. According to the results of the parameter stability test, whether the parameters of these two models are the same, the parameters of the two regression models are different. This result also shows that the models in which reference prices explain the agreement price for student subjects and employee subjects cannot be used interchangeably. In other words, using the results of behavioral

pricing experiments with student subjects in B2B sectors may not yield healthy results.

Although student subjects are used in studies on B2C sectors and healthy results are obtained, there are opinions that this situation will not work in B2B sectors, student subjects can replace the consumer, but not the employee (Kienzler & Kowalkowski 2017, 106-107). One output of this thesis is that students and employees have different results in B2B behavioral pricing studies.

4.2. CONTRIBUTION TO LITERATURE

This study is the first to examine the effects of reference prices on the negotiation outcome by considering both the buyer and the seller parties at the same time on a purely experimental setup. On the other hand, its contribution to the literature is important as it is the first study to show that the effects of reference prices of student and working subjects on the outcome of the negotiations are different.

This dissertation is one of the rare studies that examines the effects of anchoring bias on the outcome of price negotiations and the determination of reference prices. With these three features, the study deepens behavioral pricing studies. In addition, the fact that half of the selected sample is employee, and a significant portion of the subjects are air cargo employees, this can be considered an extension since behavioral pricing studies are mostly conducted on student subjects or end consumers.

Another important contribution was the finding that student subjects gave different results than employee subjects in behavioral pricing studies. Although this result alone does not imply the conclusion that the results to be obtained from student subjects do not produce inclusive results, it at least supports the views (Kienzler &

Kowalkowski 2017) that emphasize the importance of working with employee samples more in studies in similar fields.

4.3. LIMITATIONS OF THE STUDY

The number of observations can be mentioned as the most important shortcoming of this thesis. Although the number of observations available was within the required limits, some other tests could be done with more observations that could not be performed here. Among these test that could not be carried out were to investigate the effects of age, work experience, gender, and negotiation experience on price negotiation process. In addition, more precise and effective results could be obtained if the study could be studied on real negotiation examples from B2B markets, rather than being experimental.

4.4. FUTURE RESEARCH

The first thing that can be done to take the subjects studied in this thesis one step further would be to conduct a study with real price negotiation results, not with the experimental setup. For this, the data of processes such as online negotiation or online auction, where price negotiations are more standard and under-reserved, can be obtained. In this way, data sets consisting of more observations can be obtained. On the other hand, if other demographic characteristics such as age, gender, work experience, familiarity level and even ethnicity of the participants can be taken in addition to these data, the effects of these variables on the price negotiation process can be observed.

As an analysis that is not examined in this study but can be examined with the data at hand, it can be mentioned whether the anchor point affects the seller and the buyer differently. Similarly, the level of influence of the student and employee subjects from the anchor point can be compared.

If the effects of all these factors on the negotiation processes and price formation can be revealed, this will provide significant progress in terms of behavioral pricing literature.

Another possible area of research is the influence of behavioral biases on price negotiations. In this thesis, only the effects of anchoring bias were examined. Examination of other important biases can be provided in future studies.

CONCLUSION

Understanding how price negotiation results are formed is important to increase profitability in companies that do business in B2B sectors and where price negotiations are frequent. On the other hand, it is extremely important for the purchasing managers in terms of cost efficiency to reduce the price to be agreed upon in the price negotiation as much as possible.

In this behavioral pricing study, which was carried out with the participation of students and employee subjects, it has been successfully demonstrated how the negotiation result is affected by reference prices.

The most important output observed during this dissertation is that the buyer's reference prices are more influential than the seller's reference prices on the negotiation price. This indicates that the buyer's being extremely careful and as low as possible while determining the reference prices, will reduce the price that will emerge because of the negotiation.

One of the outcomes of this study is the use of student subjects in studies on B2B sectors will not yield very healthy results. As seen in the example of the unexpected negative correlation effect observed in some independent variables, the internal consistency of the results of the negotiations with the student subjects is low. In addition, although the regression model obtained because of the observations made with the student subjects gave significant results, the student groups do not mimic the employee groups correctly due to the statistically significant differences between the employee set and the employee set.

For the studies on B2B sectors to yield more useful and applicable results, it may be useful to stay away from studies with student subjects who think that employee behaviors do not mimic very well.

It should be aimed in future studies that the studies are carried out entirely with employee samples, and if possible, on the outputs of real price negotiations. In this way, the results of the studies will be more accurate, and it will be easier to adapt the results of the studies to the business world.

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APPENDIX

EXPERIMENT MATERIALS

Experiment Introduction and Information Texts

Experiment Introduction and Information

Thank you, for participating in this research.

This research project is carried out by Salih Kamil Salihoğlu as a part of his doctoral thesis.

The aim of this study; is to analyse the effects of demographic characteristics, work experience, and behavioural factors on price negotiations.

Before starting the experiment, you will be randomly separated and matched in pairs as sellers and buyers. You will receive different booklets.

You will first be asked a total of five questions about your demographics and work experience. Next, you will be informed about the price negotiation experiment that you will participate in. After, you will be asked questions about your negotiation strategy.

Finally, you will negotiate a price with another participant. The entire process is expected to last twenty minutes.

Your participation in this research study is completely voluntary. You can choose not to participate at all or withdraw at any time. Your responses will be confidential, and we will not collect any identifying information such as your name, email address, or IP address. The results will not be used for anything other than in this study.

If you have any questions regarding this research study, please do not hesitate to contact me during or after the study.

If you wish, you can keep this page of the booklet for yourself.

Salih Kamil Salihoğlu

Deney Tanıtımı ve Bilgilendirme

Bu araştırma projesine katıldığınız için teşekkür ederiz.

Bu araştırma projesi, doktora tezi kapsamında Salih Kâmil Salihoğlu tarafından yürütülmektedir.

Bu çalışmanın amacı; demografik özellikler, iş deneyimi ve davranışsal faktörlerin, fiyat müzakereleri üzerindeki etkilerini analiz etmektir.

Deneye başlamadan hemen önce satıcı veya alıcı olarak rastgele ayrılıp eşleştirileceksiniz. Elinize geçecek olan kitapçıklar da buna göre farklılık gösteriyor olacak.

Sizlere ilk olarak demografik özellikleriniz ve iş deneyiminiz ile ilgili toplam beş soru sorulacaktır. Daha sonra katılacağınız fiyat müzakeresi deneyi hakkında bilgilendirileceksiniz. Bunun da ardından, müzakere stratejinizle ilgili sorular sorulacak.

Son olarak, sizin gibi başka bir katılımcıyla fiyat müzakeresi gerçekleştireceksiniz. Tüm sürecin yaklaşık yirmi dakika kadar sürmesi bekleniyor.

Bu araştırma çalışmasına katılımınız tamamen gönüllüdür. Hiç katılmamayı seçebilir veya istediğiniz zaman geri çekilebilirsiniz. Yanıtlarınız gizli olacak ve adınız, e-posta adresiniz veya IP adresiniz gibi hiçbir tanımlayıcı bilgileri toplamıyor olacağız. Sonuçlar bu çalışma dışında hiçbir şekilde kullanılmayacaktır.

Bu araştırma çalışmasıyla ilgili herhangi bir sorunuz varsa, lütfen çalışma esnasında ya da sonrasında benimle iletişime geçmekten çekinmeyin.

Dilerseniz kitapçığın bu sayfasını kendiniz için saklayabilirsiniz.

Salih Kâmil Salihoğlu

Buyer Scenario

Regarding Air Cargo Price Negotiations

Air cargo or air freight is the transportation of shipments via an air carrier.

In the air cargo market, airlines aim to sell their capacity (similar to seats sold on a passenger flight). On the other hand, companies that purchase air cargo capacity are called cargo agencies. The agencies use this purchased capacity to transport the cargoes of their customers, providing logistical solutions. **In summary, the airlines are sellers, agencies are buyers, and the capacity being the commodity traded.**

Pricing of air cargo capacity is based on the weight of the cargo, the route to be flown, the date of the flight, the type of cargo, etc. However, for the purpose of this experiment, we will focus only on the **unit price (per kg)** of a standard type of cargo to be transported on a sample route.

In this experiment, **you will play the role of a purchasing agent (buyer) of an air cargo agency**. The person in front of you will be the cargo sales representative of the airline.

You will negotiate the price of a cargo that will fly on the Istanbul-New York route, which is an important route for the Turkish air cargo market. **You will negotiate only the unit price (price per kg)** since the other factors will be given.

Currently, **one kilogram of the cargo you plan to transport in this market is priced at around 6 US dollars, and prices above or below this may occur under market and bargaining conditions. But of course, your goal would be to negotiate at the lowest price as possible.**

Hava Kargo Fiyat Müzakeresine Dair

Hava kargo veya hava yük taşımacılığı, gönderilerin bir hava taşıyıcısı aracılığıyla taşınmasıdır.

Hava kargo piyasasında havayolları sahip oldukları kapasiteyi (yolcu tarafında koltuk satışına benzer şekilde) satmaya çalışırlar. Diğer taraftan kargo acentesi olarak adlandırılan hava kargo kapasitesi satın alan firmalar da bu satın aldıkları kapasiteyi lojistik çözüm sağladıkları müşterilerinin yüklerini taşımak için kullanırlar. **Özetle sektörde satıcı durumundaki havayolları, alıcı durumundaki acenteler ve ortada alınıp satılmakta olan bir hava kargo kapasitesi bulunmaktadır.**

Hava kargo kapasitesinin fiyatlandırılmasını yükün ağırlığı, uçacağı rota, uçacağı tarih, yükün cinsi vb. özellikleri belirlemektedir. **Ancak biz bu deneyin amacına uygun olarak örnek bir rotada taşınması söz konusu standart bir yükün sadece birim (kg başına) fiyatlandırması üzerine odaklanacağız.**

Bu deneyde siz **hava kargo acentesinde satın almadan sorumlu uzman rolünü oynayacaksınız**. Karşınızdaki kişi de havayolunun kargo satış temsilcisi olacak.

Türkiye hava kargo pazarı açısından önemli bir rota olan **İstanbul-New York hattında uçacak bir yükünüz için fiyat pazarlığı yapacaksınız.** Yükün detayları ile ilgili bilgi iki tarafta da olduğu için ve hava kargo pazarında alışkanlık kilogram başı fiyat üzerinden pazarlık yapmak olduğundan dolayı, **birim fiyat (kg başı fiyat)** üzerinden müzakere edeceksiniz.

Hali hazırda bu pazarda taşıtmayı planladığınız yükün bir kilogramı **6 Amerikan doları** civarından fiyatlandırılmaktadır, **piyasa ve pazarlık şartlarında bunun üzerinde ya da altında fiyatlar da oluşabilmektedir**. Ancak elbette sizin gayeniz elden geldiğince **düşük bir fiyata** anlaşmak olacaktır.

Seller Scenario

Regarding Air Cargo Price Negotiations

Air cargo or air freight is the transportation of shipments via an air carrier.

In the air cargo market, airlines aim to sell their capacity (similar to seats sold on a passenger flight). On the other hand, companies that purchase air cargo capacity are called cargo agencies. The agencies use this purchased capacity to transport the cargoes of their customers, providing logistical solutions. **In summary, the airlines are sellers, agencies are buyers, and the capacity being the commodity traded.**

Pricing of air cargo capacity is based on the weight of the cargo, the route to be flown, the date of the flight, the type of cargo, etc. However, for the purpose of this experiment, we will focus only on the **unit price (per kg)** of a standard type of cargo to be transported on a sample route.

In this experiment, **you will play the role of a sales agent(seller) of an air cargo airline**. The person in front of you will be the purchasing expert of an agent.

You will negotiate the price of a cargo that will fly on the Istanbul-New York route, which is an important route for the Turkish air cargo market. **You will negotiate only the unit price (price per kg)** since the other factors will be given.

Currently, **one kilogram of the cargo you plan to transport in this market is priced at around 6 US dollars, and prices above or below this may occur under market and bargaining conditions. But of course, your goal would be to negotiate the highest price possible.**

Hava Kargo Fiyat Müzakeresine Dair

Hava kargo veya hava yük taşımacılığı, gönderilerin bir hava taşıyıcısı aracılığıyla taşınmasıdır.

Hava kargo piyasasında havayolları sahip oldukları kapasiteyi (yolcu tarafında koltuk satışına benzer şekilde) satmaya çalışırlar. Diğer taraftan kargo acentesi olarak adlandırılan hava kargo kapasitesi satın alan firmalar da bu satın aldıkları kapasiteyi lojistik çözüm sağladıkları müşterilerinin yüklerini taşımak için kullanırlar. **Özetle sektörde satıcı durumundaki havayolları, alıcı durumundaki acenteler ve ortada alınıp satılmakta olan bir hava kargo kapasitesi bulunmaktadır.**

Hava kargo kapasitesinin fiyatlandırılmasını yükün ağırlığı, uçacağı rota, uçacağı tarih, yükün cinsi vb. özellikleri belirlemektedir. **Ancak biz bu deneyin amacına uygun olarak örnek bir rotada taşınması söz konusu standart bir yükün sadece birim (kg başına) fiyatlandırması üzerine odaklanacağız.**

Bu deneyde siz **bir havayolunun kargo satışından sorumlu uzmanı rolünü oynayacaksınız**. Karşınızdaki kişi de acente satın almadan sorumlu kişi olacak.

Türkiye hava kargo pazarı açısından önemli bir rota olan **İstanbul-New York hattında uçacak bir yükünüz için fiyat pazarlığı yapacaksınız.** Yükün detayları ile ilgili bilgi iki tarafta da olduğu için ve hava kargo pazarında alışkanlık kilogram başı fiyat üzerinden pazarlık yapmak olduğundan dolayı, **birim fiyat (kg başı fiyat)** üzerinden müzakere edeceksiniz.

Hali hazırda bu pazarda taşıtmayı planladığınız yükün bir kilogramı **6 Amerikan doları** civarından fiyatlandırılmaktadır, **piyasa ve pazarlık şartlarında bunun üzerinde ya da altında fiyatlar da oluşabilmektedir**. Ancak elbette sizin gayeniz elden geldiğince **yüksek bir fiyata** anlaşmak olacaktır.

Unbiased Buyer Questionnaire

Demographic Question Set

1. How old are you?

……

2. What gender do you describe yourself as?

a. Man

b. Woman

c. Other (Please Specify) _____

D. I prefer not to say

3. How many years of work experience do you have?

……

4. Do you routinely need to participate in negotiations because of your job?

a. Yes

b. No

5. If your answer to question 4 is "Yes", how many years of negotiation experience do you have?

……

Pre-Negotiation Preparation Questions

This part includes your negotiation strategy preparation questions. Please, do not share your answers with the other party. Please, answer with the number on your mind; no detailed explanation is required.

What is the highest price you plan to pay in dollars?

……

What is your target price for this negotiation?

……

Demografik Soru Seti

1. **Kaç yaşındasınız?**

   ……

2. **Kendinizi hangi cinsiyetten olarak tanımlıyorsunuz?**
   a. Erkek
   b. Kadın
   c. Diğer (Lütfen Belirtin) _____
   d. Belirtmemeyi tercih ediyorum

3. **Kaç yıllık iş tecrübeniz var?**

   ……

4. **İşiniz nedeniyle rutin olarak müzakerelere katılmanız gerekiyor mu?**
   a. Evet
   b. Hayır

5. **4. soruya cevabınız "Evet" ise kaç yıllık müzakere deneyiminiz var?**

   ……

Müzakere Öncesi Hazırlık Soruları

Bu kısım fiyat müzakeresine dönük stratejinizin belirlenmesine dönük sorular içermektedir. Lütfen cevaplarınızı karşı tarafın görmesine müsaade etmeyiniz. Sorulara sadece kısa cevaplar vermeniz yeterlidir, uzun açıklamalara gerek yoktur.

Ödemeyi planladığınız olabilecek en yüksek ücret kaç dolardır?

……

Bu müzakere için hedef fiyatınız nedir?

……

Unbiased Seller Questionnaire

Demographic Question Set

1. How old are you?

……

2. What gender do you describe yourself as?

a. Man

b. Woman

c. Other (Please Specify) _____

D. I prefer not to say

3. How many years of work experience do you have?

……

4. Do you routinely need to participate in negotiations because of your job?

a. Yes

b. No

5. If your answer to question 4 is "Yes", how many years of negotiation experience do you have?

……

Pre-Negotiation Preparation Questions

This part includes your negotiation strategy preparation questions. Please, do not share your answers with the other party. Please, answer with the number on your mind; no detailed explanation is required.

What is the lowest price offer you plan to accept in dollars?

……

What is your target price for this negotiation?

……

Demografik Soru Seti

1. **Kaç yaşındasınız?**

   …….

2. **Kendinizi hangi cinsiyetten olarak tanımlıyorsunuz?**
   a. Erkek
   b. Kadın
   c. Diğer (Lütfen Belirtin) _____
   d. Belirtmemeyi tercih ediyorum

3. **Kaç yıllık iş tecrübeniz var?**

   …….

4. **İşiniz nedeniyle rutin olarak müzakerelere katılmanız gerekiyor mu?**
   a. Evet
   b. Hayır

5. **4. soruya cevabınız "Evet" ise kaç yıllık müzakere deneyiminiz var?**

   …….

Müzakere Öncesi Hazırlık Soruları

Bu kısım fiyat müzakeresine dönük stratejinizin belirlenmesine dönük sorular içermektedir. Lütfen cevaplarınızı karşı tarafın görmesine müsaade etmeyiniz. Sorulara sadece kısa cevaplar vermeniz yeterlidir, uzun açıklamalara gerek yoktur.

Ödemeyi planladığınız olabilecek en düşük ücret kaç dolardır?

…….

Bu müzakere için hedef fiyatınız nedir?

…….

Biased Buyer Questionnaire

Demographic Question Set

1. How old are you?

……

2. What gender do you describe yourself as?

a. Man

b. Woman

c. Other (Please Specify) _____

D. I prefer not to say

3. How many years of work experience do you have?

……

4. Do you routinely need to participate in negotiations because of your job?

a. Yes

b. No

5. If your answer to question 4 is "Yes", how many years of negotiation experience do you have?

……

Pre-Negotiation Preparation Questions

This part includes your negotiation strategy preparation questions. Please, do not share your answers with the other party. Please, answer with the number on your mind; no detailed explanation is required.

Would you be willing to go above 12 USD during this negotiation?

……

What is the highest price you plan to pay in dollars?

……

What is your target price for this negotiation?

……

Demografik Soru Seti

1. **Kaç yaşındasınız?**

   ……

2. **Kendinizi hangi cinsiyetten olarak tanımlıyorsunuz?**
   a. Erkek
   b. Kadın
   c. Diğer (Lütfen Belirtin) _____
   d. Belirtmemeyi tercih ediyorum

3. **Kaç yıllık iş tecrübeniz var?**

   ……

4. **İşiniz nedeniyle rutin olarak müzakerelere katılmanız gerekiyor mu?**
   a. Evet
   b. Hayır

5. **4. soruya cevabınız "Evet" ise kaç yıllık müzakere deneyiminiz var?**

   ……

Müzakere Öncesi Hazırlık Soruları

Bu kısım fiyat müzakeresine dönük stratejinizin belirlenmesine dönük sorular içermektedir. Lütfen cevaplarınızı karşı tarafın görmesine müsaade etmeyiniz. Sorulara sadece kısa cevaplar vermeniz yeterlidir, uzun açıklamalara gerek yoktur.

Bu müzakere sırasında 12 USD'nin üstünde bir fiyata çıkmaya razı olur musunuz?

……

Ödemeyi planladığınız olabilecek en yüksek ücret kaç dolardır?

……

Bu müzakere için hedef fiyatınız nedir?

……

Biased Seller Sets

Demographic Question Set

1. How old are you?

……

2. What gender do you describe yourself as?

a. Man

b. Woman

c. Other (Please Specify) _____

D. I prefer not to say

3. How many years of work experience do you have?

……

4. Do you routinely need to participate in negotiations because of your job?

a. Yes

b. No

5. If your answer to question 4 is "Yes", how many years of negotiation experience do you have?

……

Pre-Negotiation Preparation Questions

This part includes your negotiation strategy preparation questions. Please, do not share your answers with the other party. Please, answer with the number on your mind; no detailed explanation is required.

Would you be willing to go down to less than 3 USD during this negotiation?

……

What is the lowest price offer you plan to accept in dollars?

……

What is your target price for this negotiation?

……

Demografik Soru Seti

1. **Kaç yaşındasınız?**

   ……

2. **Kendinizi hangi cinsiyetten olarak tanımlıyorsunuz?**
   a. Erkek
   b. Kadın
   c. Diğer (Lütfen Belirtin) _____
   d. Belirtmemeyi tercih ediyorum

3. **Kaç yıllık iş tecrübeniz var?**

   ……

4. **İşiniz nedeniyle rutin olarak müzakerelere katılmanız gerekiyor mu?**
   a. Evet
   b. Hayır

5. **4. soruya cevabınız "Evet" ise kaç yıllık müzakere deneyiminiz var?**

   ……

Müzakere Öncesi Hazırlık Soruları

Bu kısım fiyat müzakeresine dönük stratejinizin belirlenmesine dönük sorular içermektedir. Lütfen cevaplarınızı karşı tarafın görmesine müsaade etmeyiniz. Sorulara sadece kısa cevaplar vermeniz yeterlidir, uzun açıklamalara gerek yoktur.

Bu müzakere sırasında 3 USD'nin altında bir fiyata inmeye razı olur musunuz?

……

Ödemeyi planladığınız olabilecek <u>en düşük</u> ücret kaç dolar, kaç senttir? Diğer bir değişle kaç dolara kadar müzakere masasında kalırsınız?

……

Bu müzakere için hedef fiyatınız nedir? Diğer bir ifade ile, müzakerenin nasıl bir <u>adil fiyatta</u> dengelenmesini bekliyorsunuz?

……

DETAILED STATISTICAL GRAPHS

Distribution of Reference Price Responses and Outlier Checks

Figure B.1: Steam and Leaf Plot of Unbiased Student Set Buyer Reservation Price

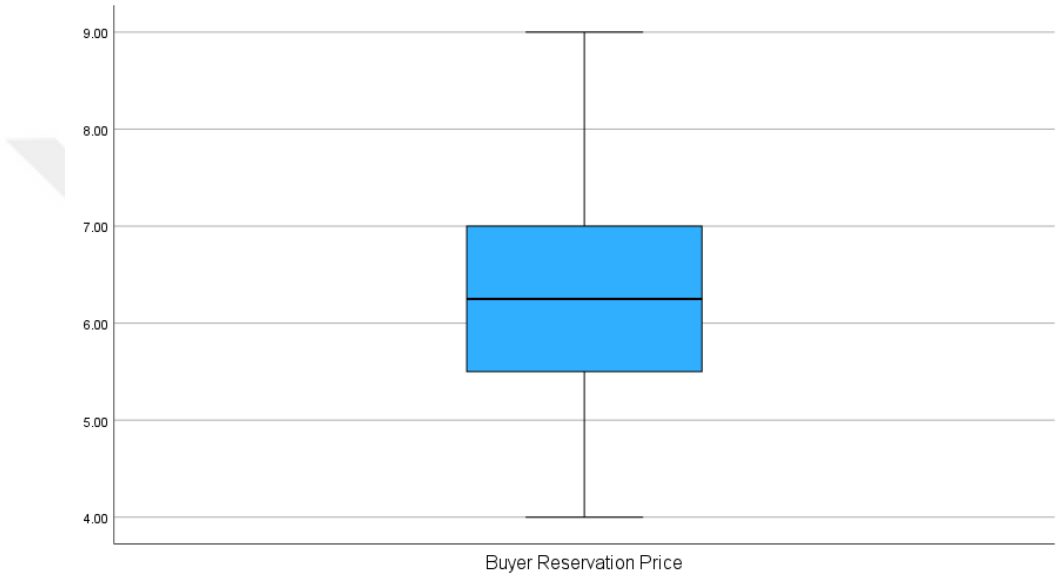


Figure B.2: Steam and Leaf Plot of Unbiased Student Set Buyer Aspiration Price

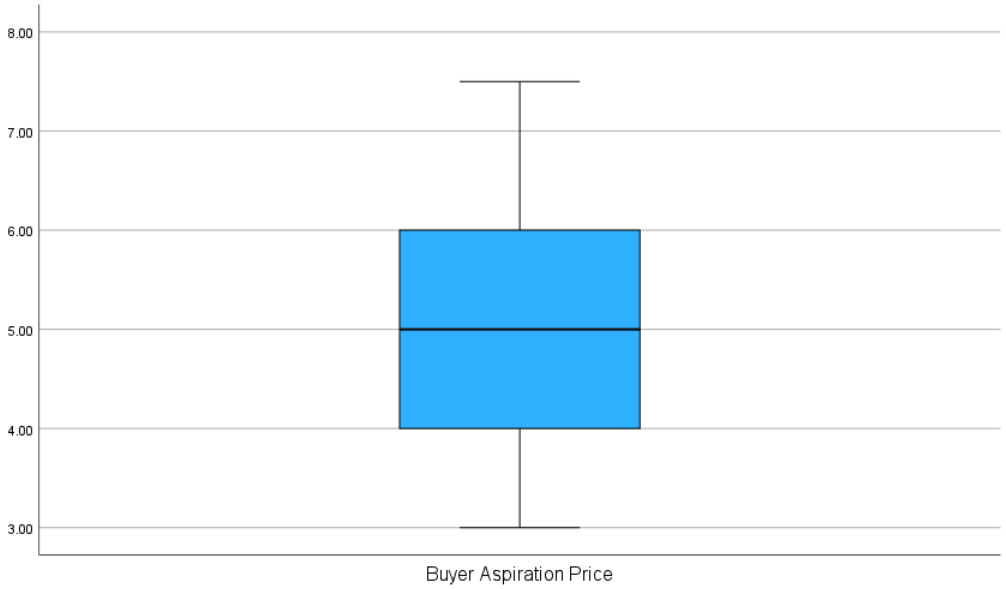


Figure B.3: Steam and Leaf Plot of Unbiased Student Set Buyer Initial Price Offer

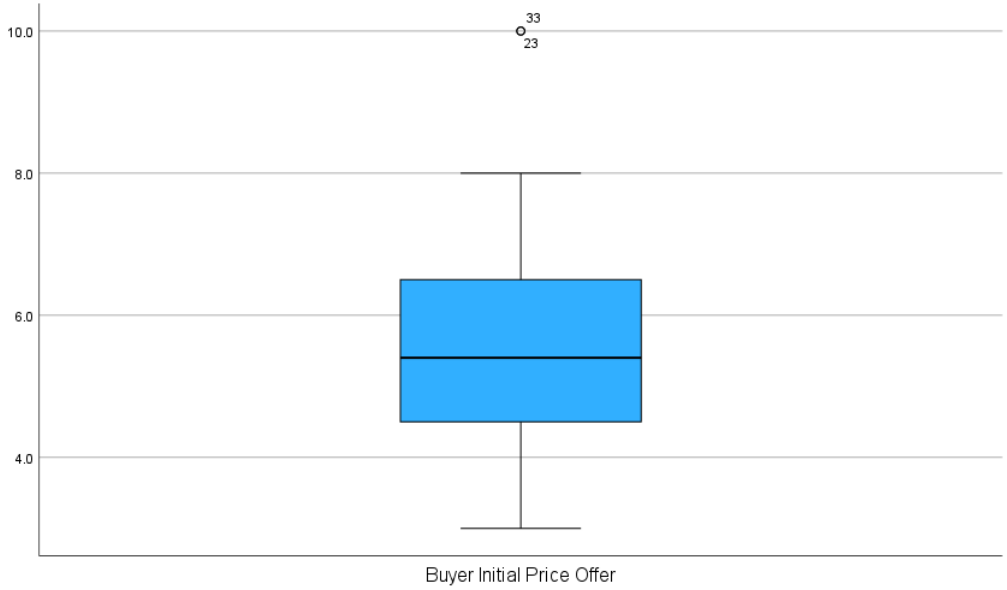


Figure B.4: Steam and Leaf Plot of Unbiased Student Set Seller Reservation Price

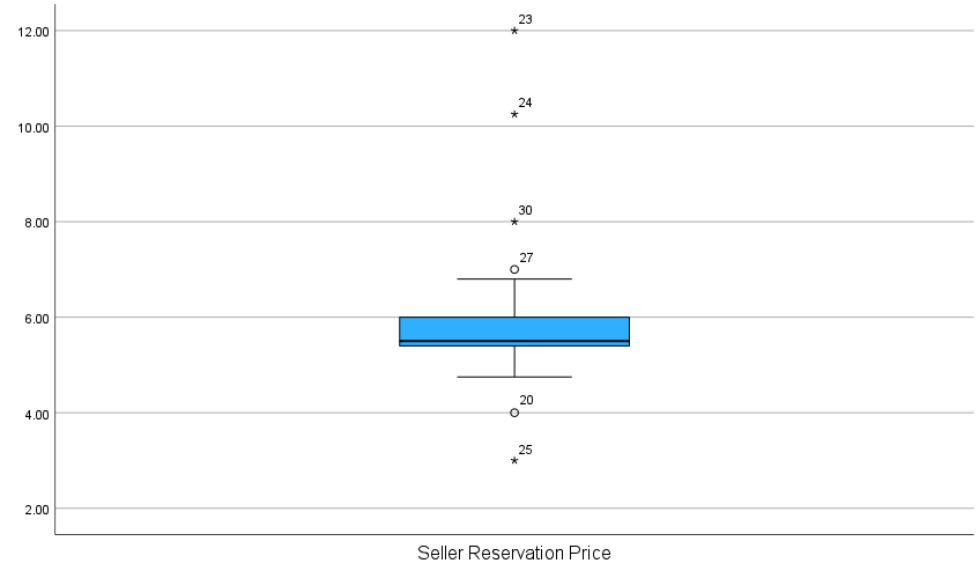


Figure B.5: Steam and Leaf Plot of Unbiased Student Set Seller Aspiration Price

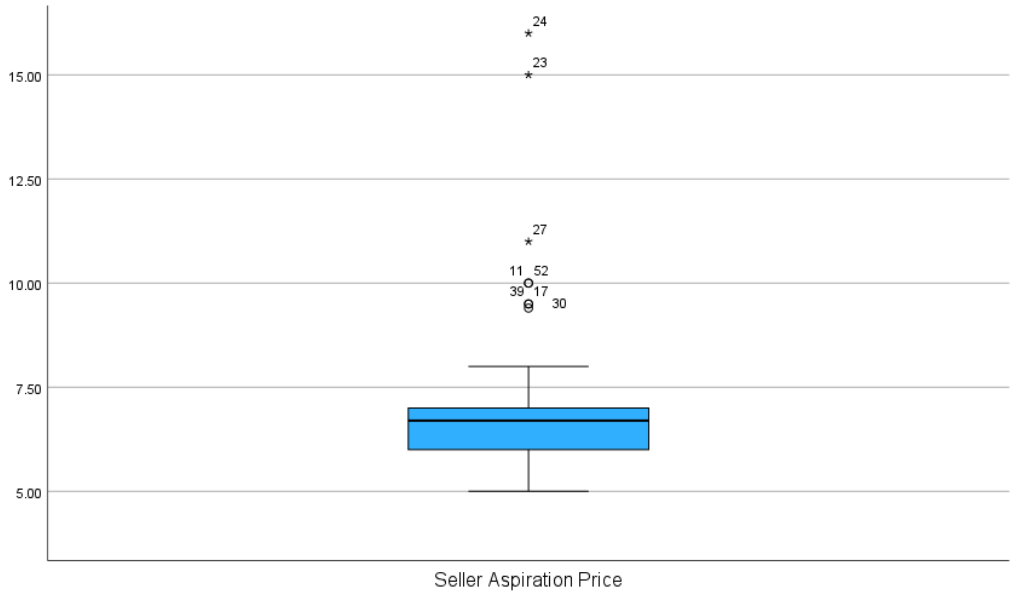


Figure B.6: Steam and Leaf Plot of Unbiased Student Set Seller Initial Price Offer

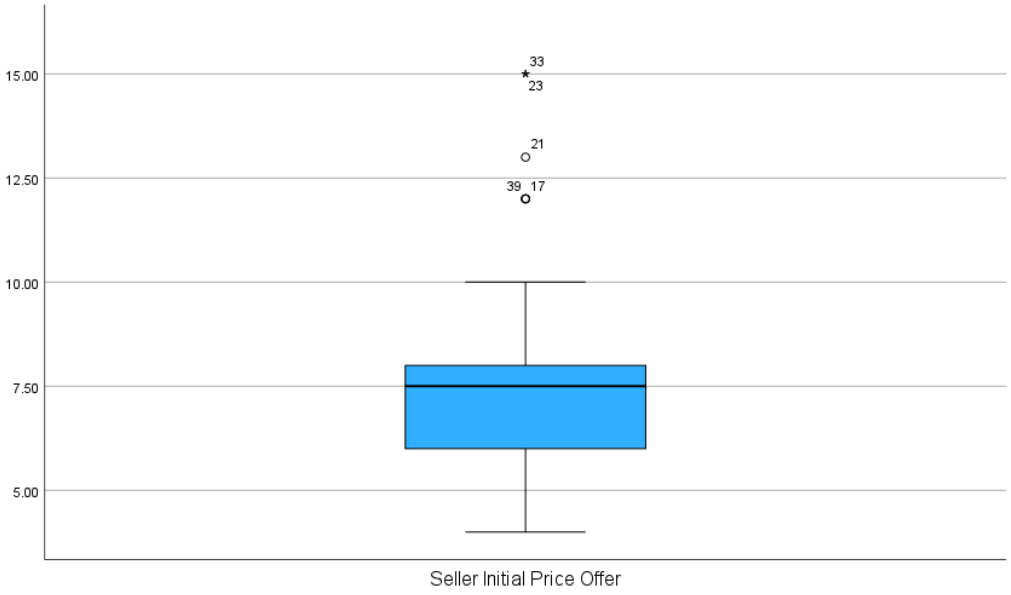


Figure B.7: Steam and Leaf Plot of Biased Student Set Buyer Reservation Price

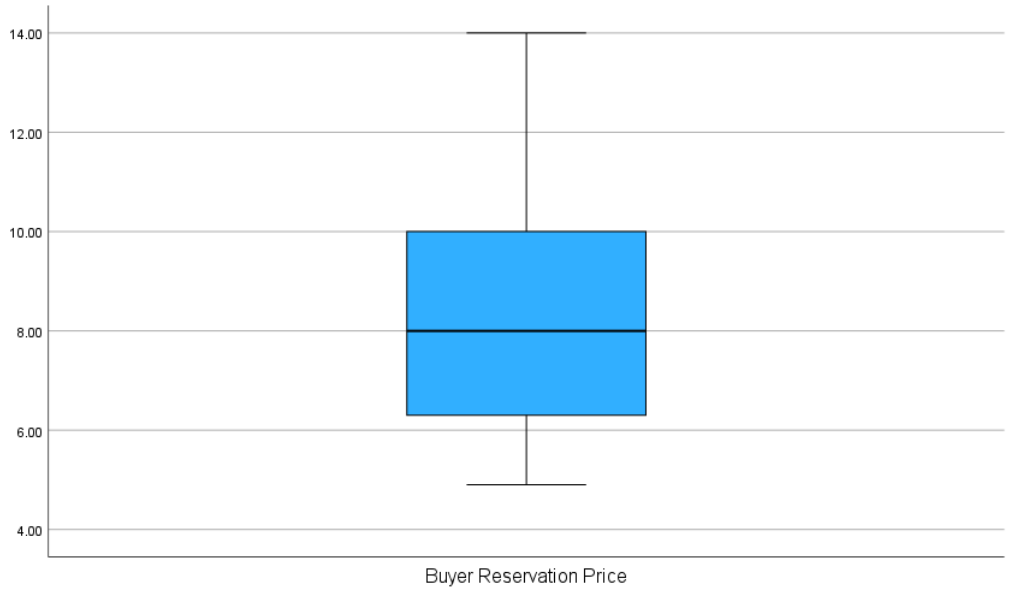


Figure B.8: Steam and Leaf Plot of Biased Student Set Buyer Aspiration Price

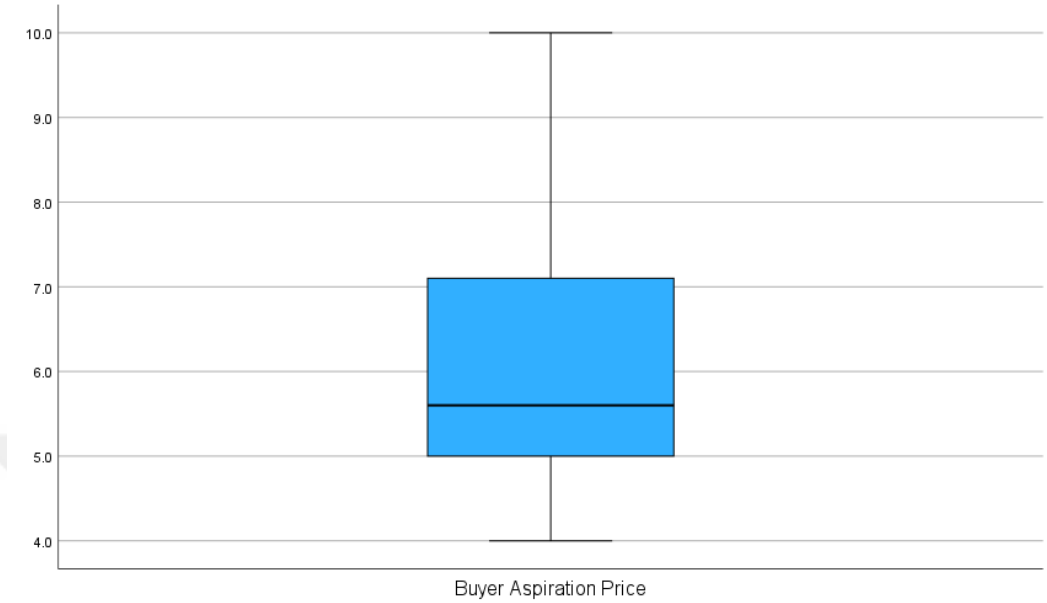


Figure B.9: Steam and Leaf Plot of Biased Student Set Buyer Initial Price Offer

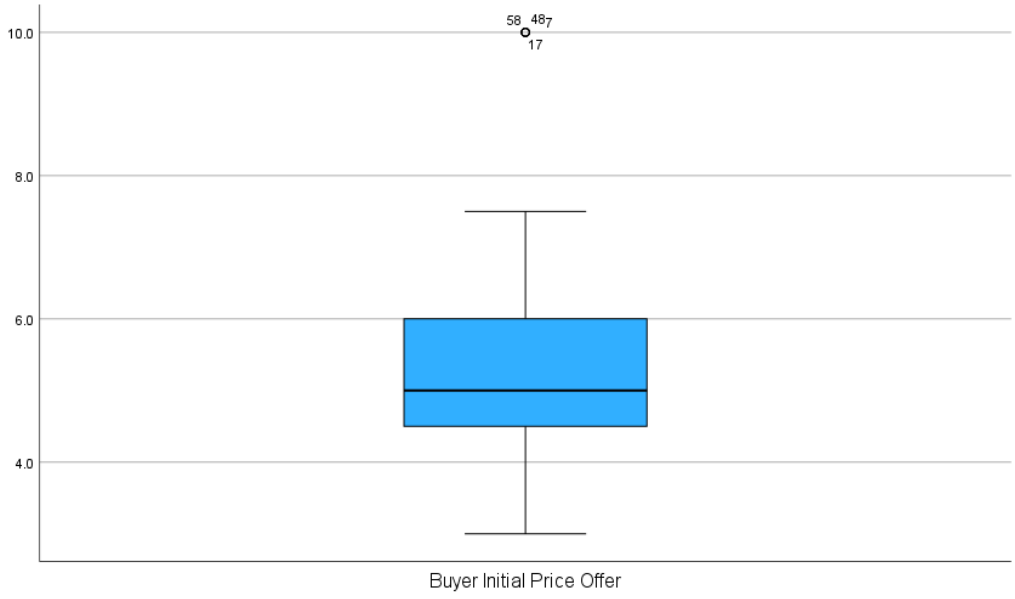


Figure B.10: Steam and Leaf Plot of Biased Student Set Seller Reservation Price

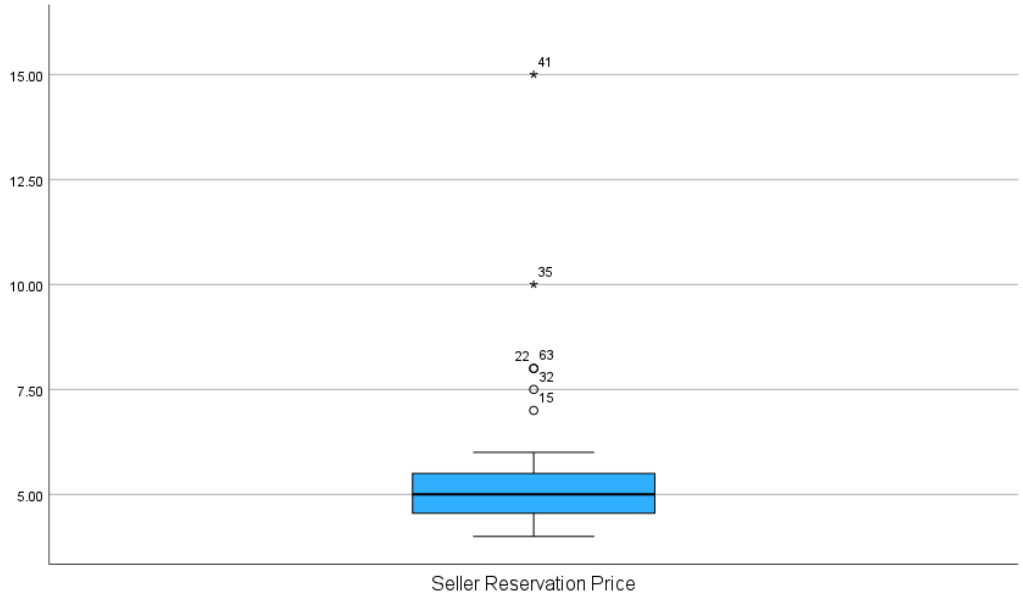


Figure B.11: Steam and Leaf Plot of Biased Student Set Seller Aspiration Price

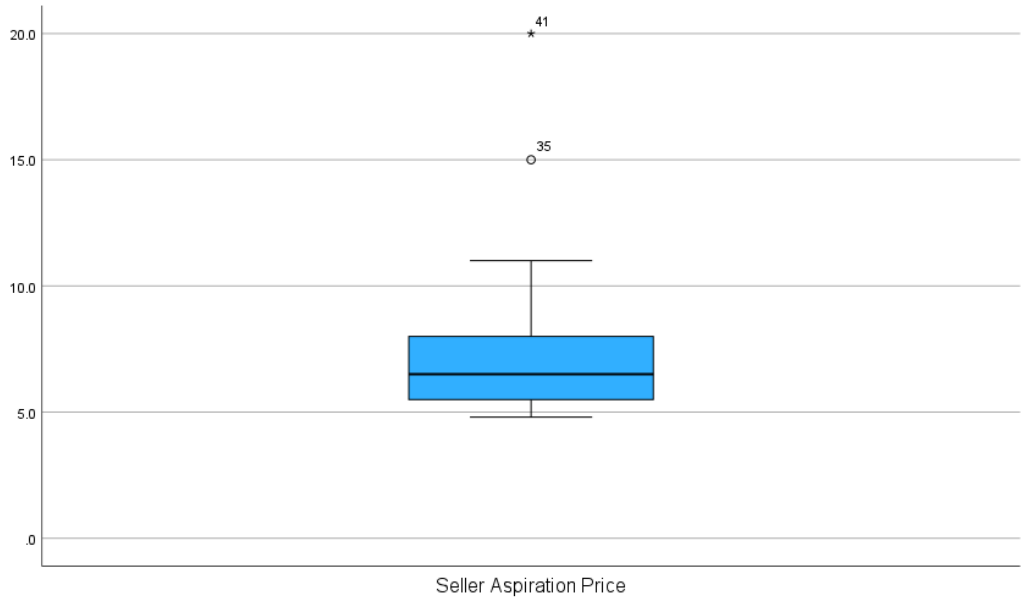


Figure B.12: Steam and Leaf Plot of Biased Student Set Seller Initial Price Offer

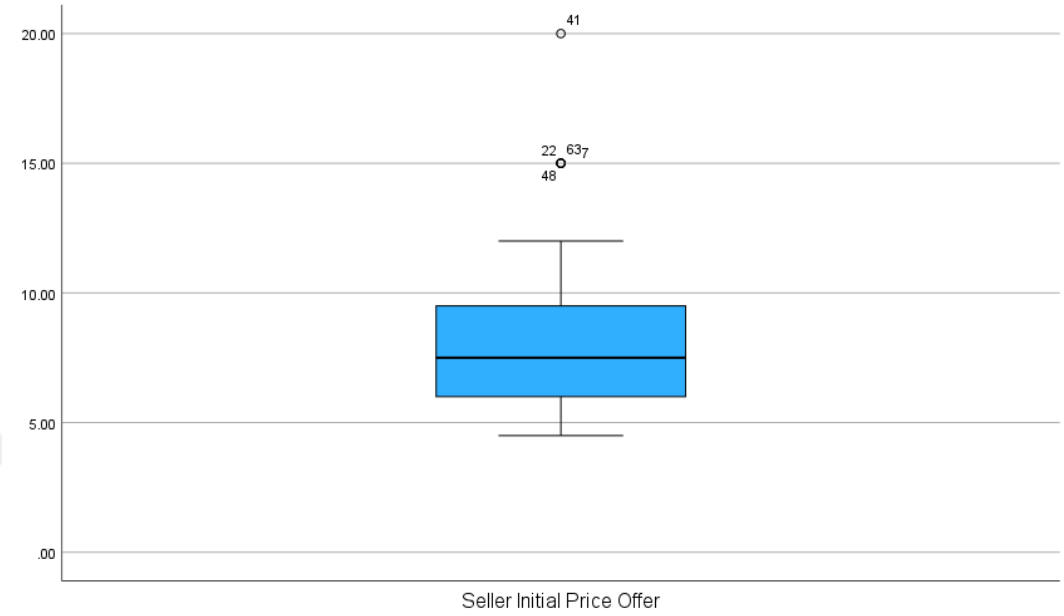


Figure B.13: Steam and Leaf Plot of Unbiased Employee Set Buyer Reservation Price

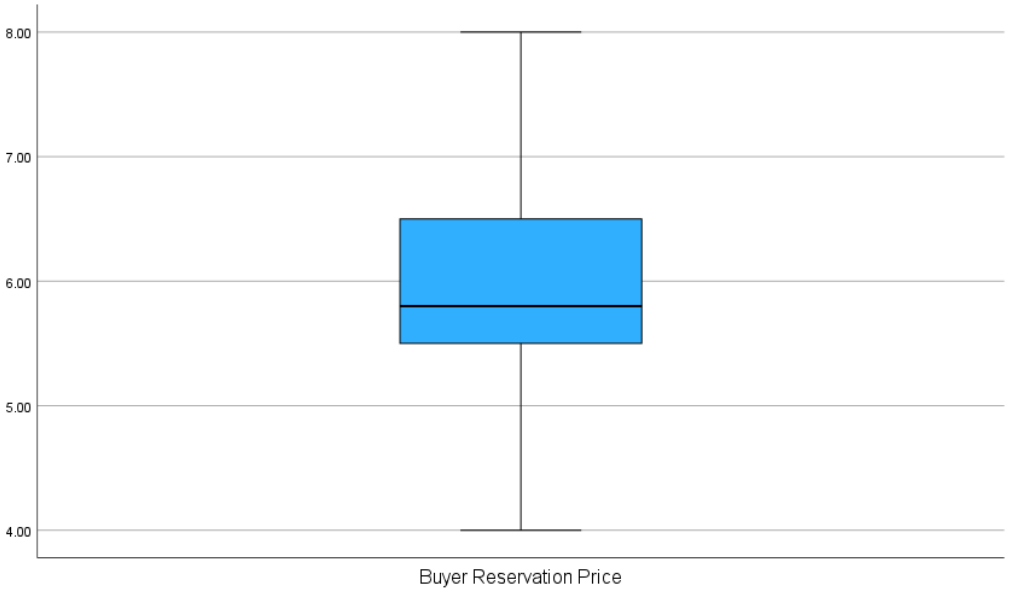


Figure B.14: Steam and Leaf Plot of Unbiased Employee Set Buyer Aspiration Price

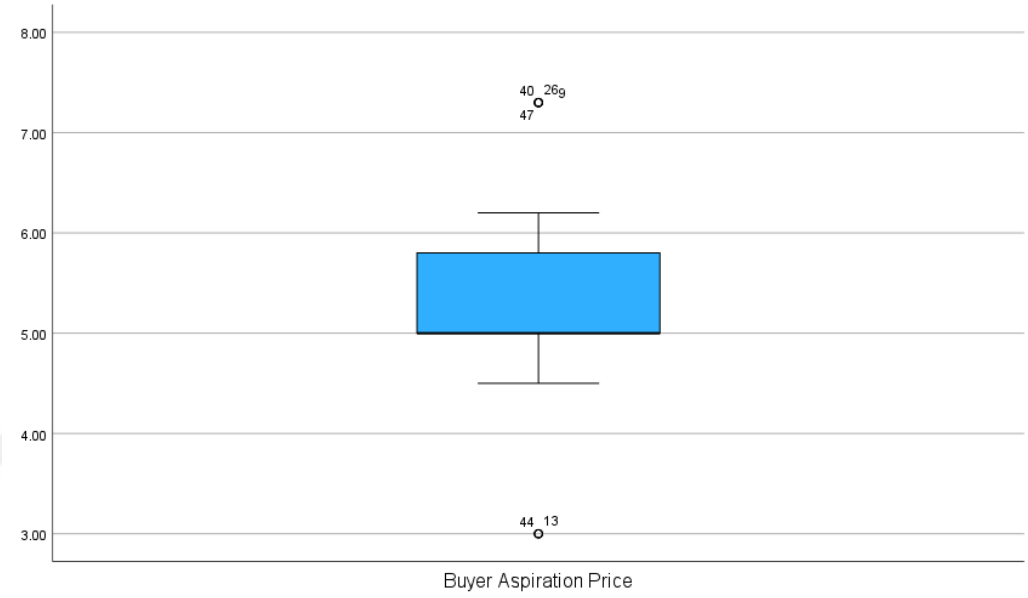


Figure B.15: Steam and Leaf Plot of Unbiased Employee Set Buyer Initial Price Offer

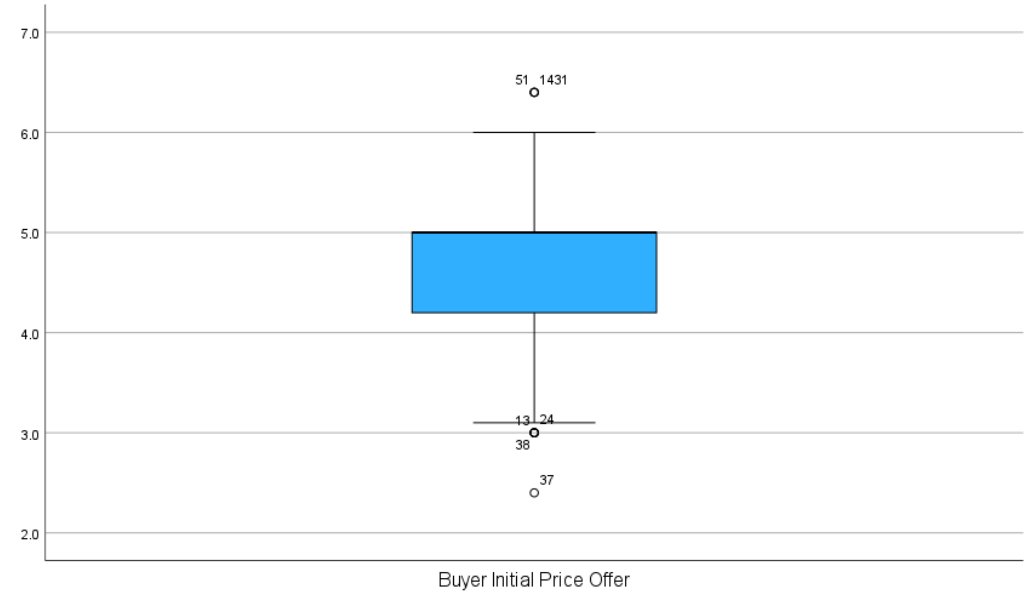


Figure B.16: Steam and Leaf Plot of Unbiased Employee Set Seller Reservation Price

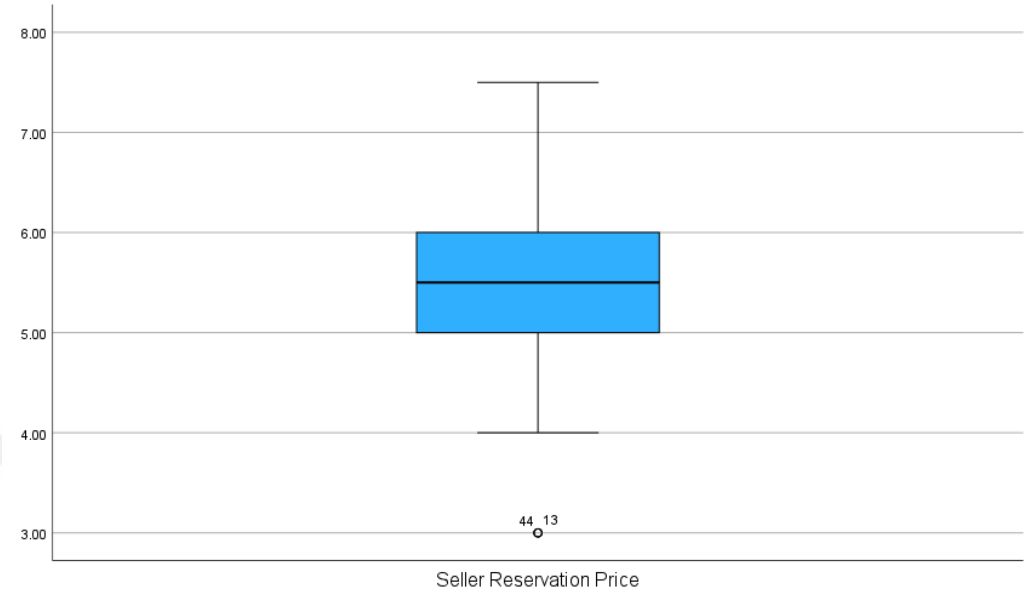


Figure B.17: Steam and Leaf Plot of Unbiased Employee Set Seller Aspiration Price

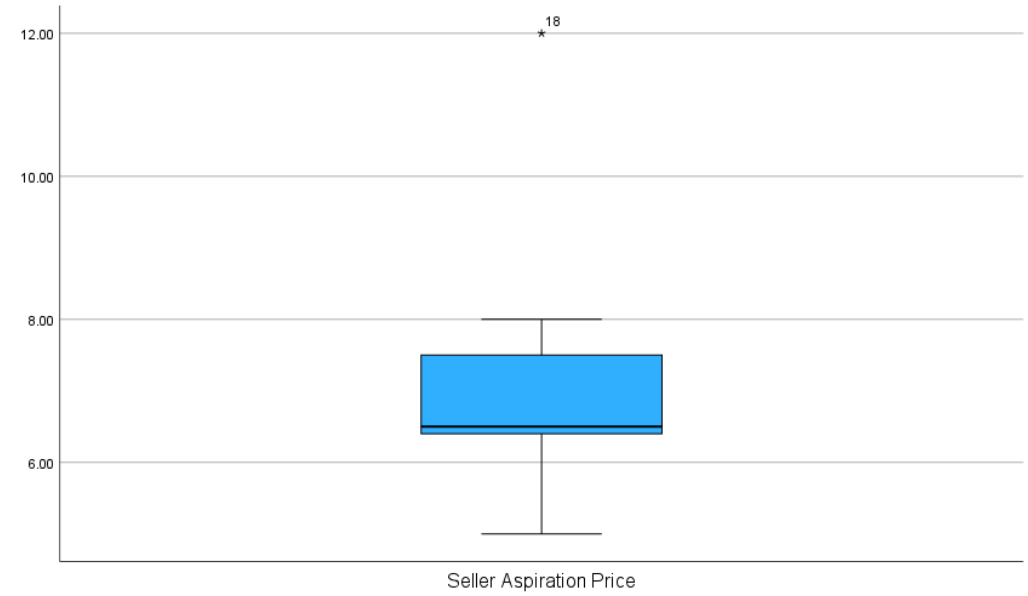


Figure B.18: Steam and Leaf Plot of Unbiased Employee Set Seller Initial Price Offer

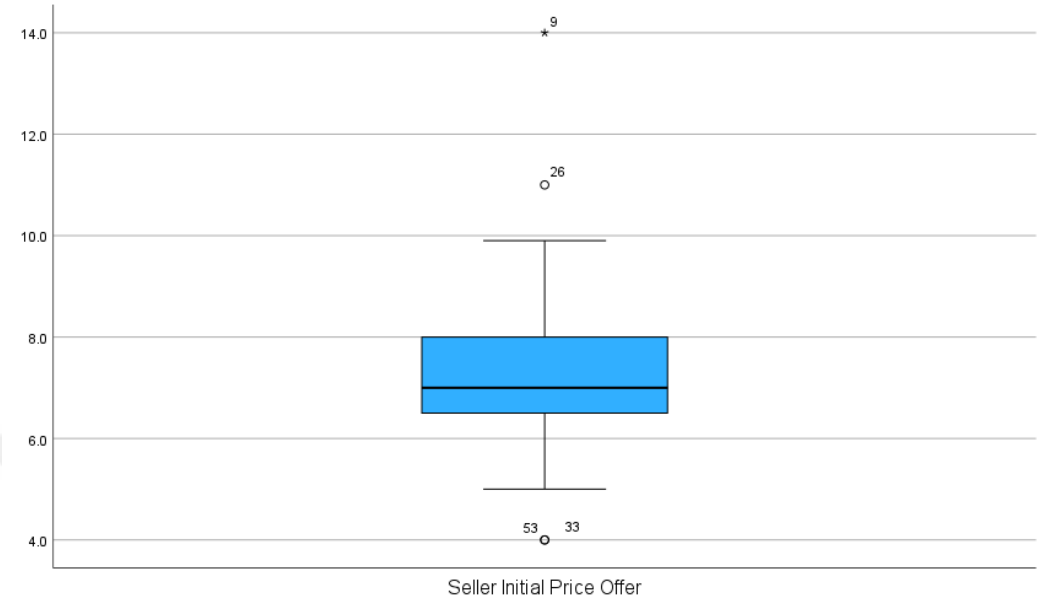


Figure B.19: Steam and Leaf Plot of Biased Employee Set Buyer Reservation Price

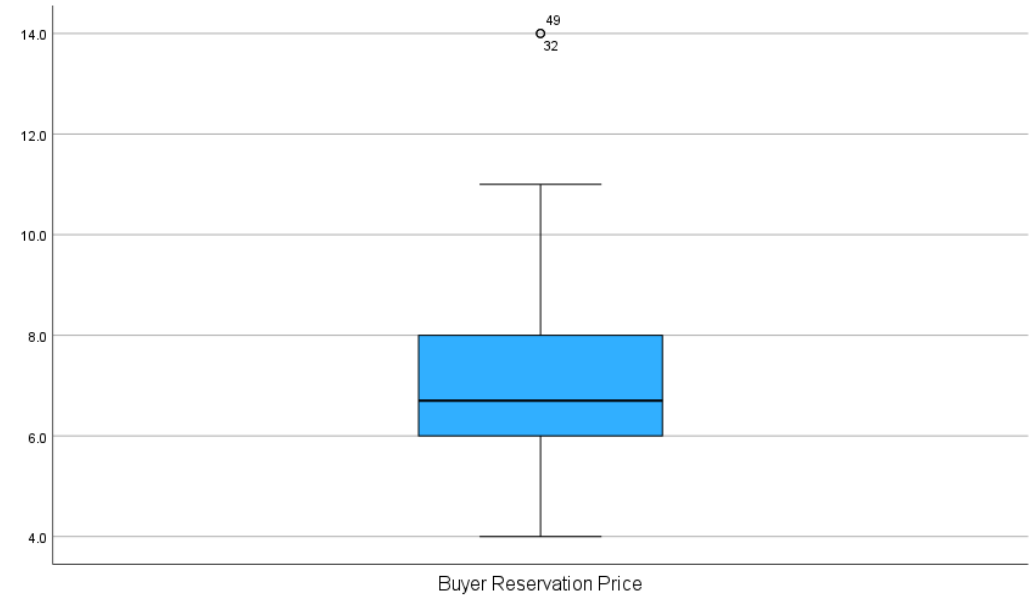


Figure B.20: Steam and Leaf Plot of Biased Employee Set Buyer Aspiration Price

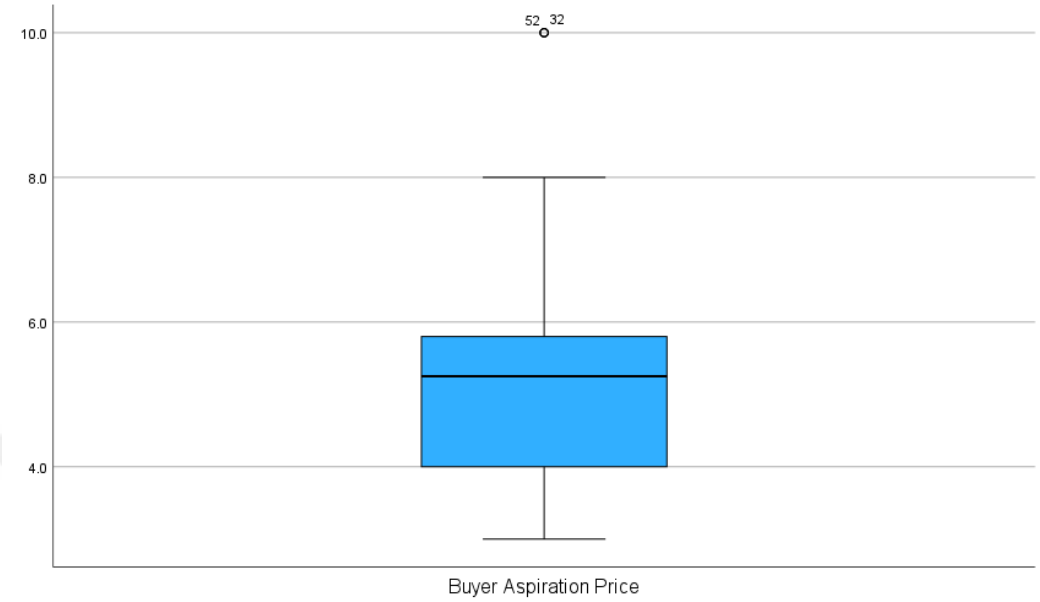


Figure B.21: Steam and Leaf Plot of Biased Employee Set Buyer Initial Price Offer

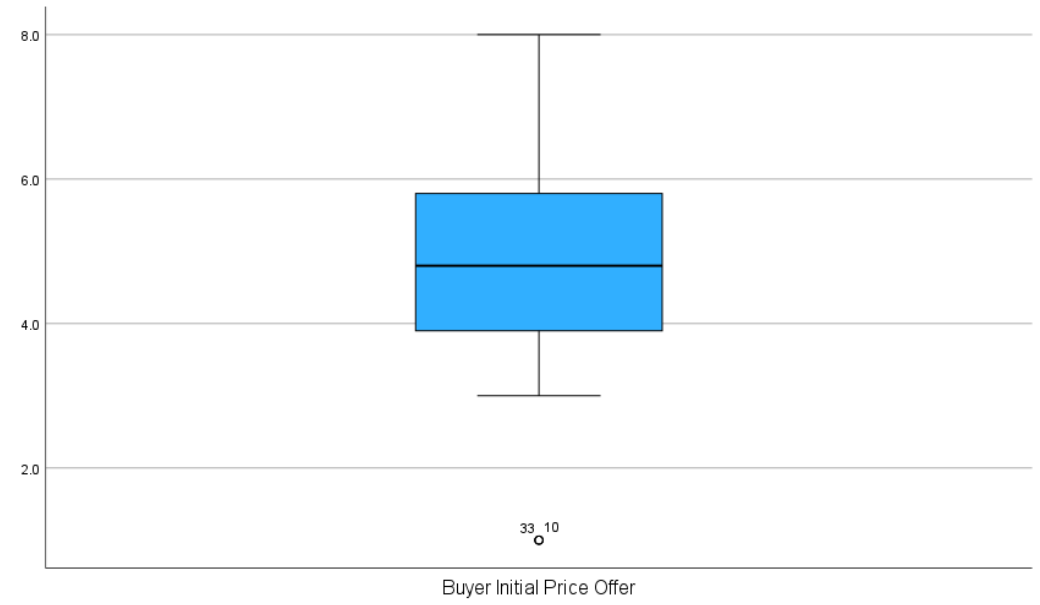


Figure B.22: Steam and Leaf Plot of Biased Employee Set Seller Reservation Price

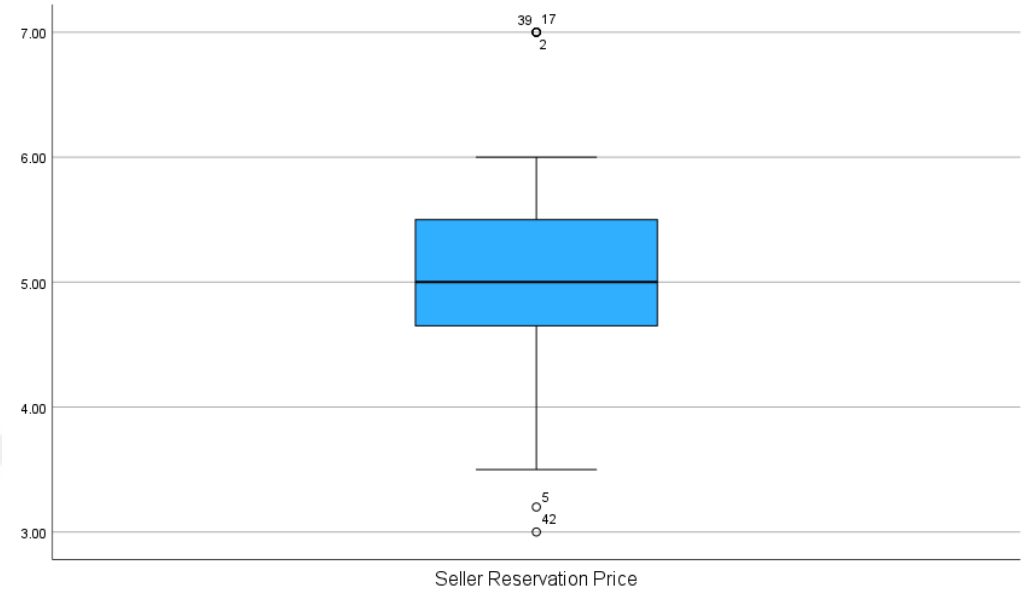


Figure B.23: Steam and Leaf Plot of Biased Employee Set Seller Aspiration Price

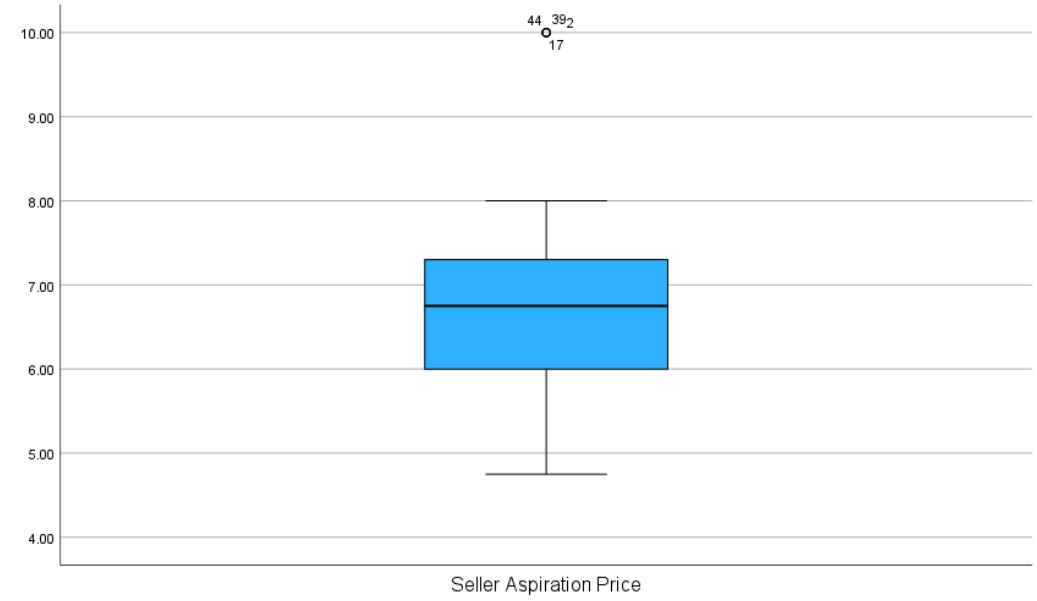
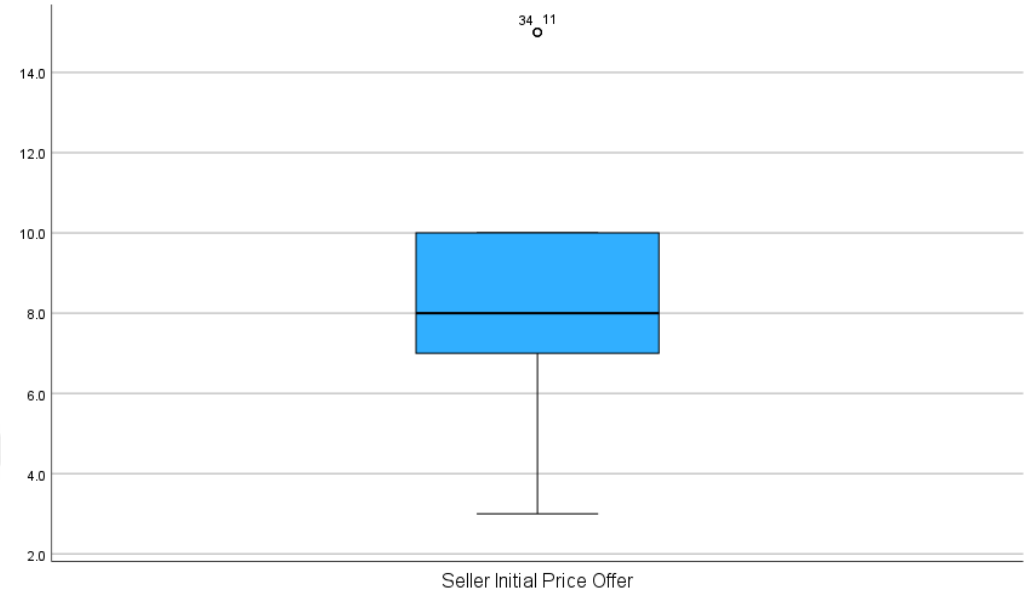


Figure B.24: Steam and Leaf Plot of Biased Employee Set Seller Initial Price Offer



Linear Relationship Between Reference Prices and Agreed Price

Figure B.25: Unbiased Student Set Agreed Price and Buyer's Reservation Price

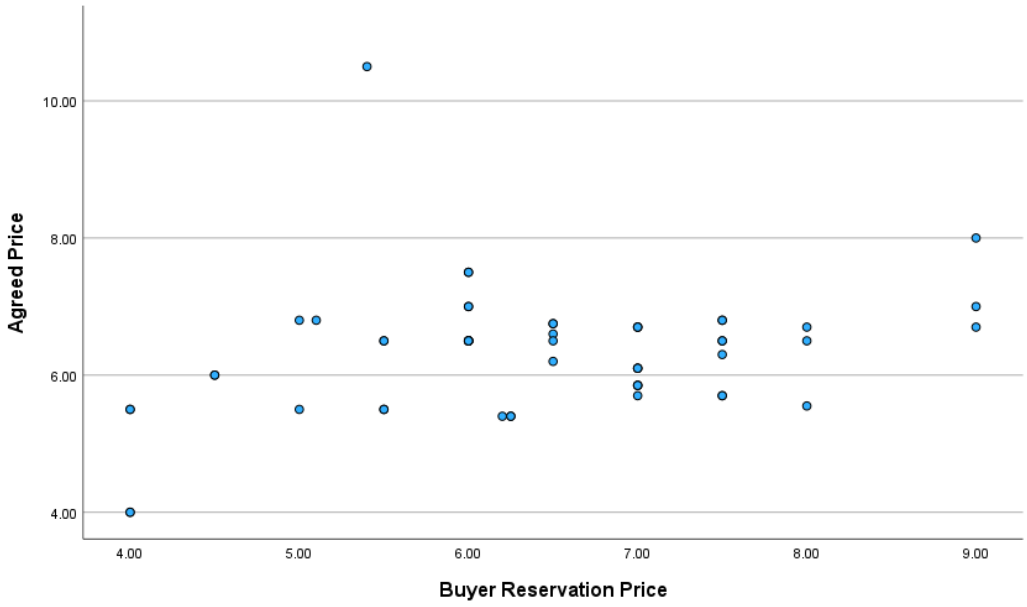


Figure B.26: Unbiased Student Set Agreed Price and Buyer's Aspiration Price

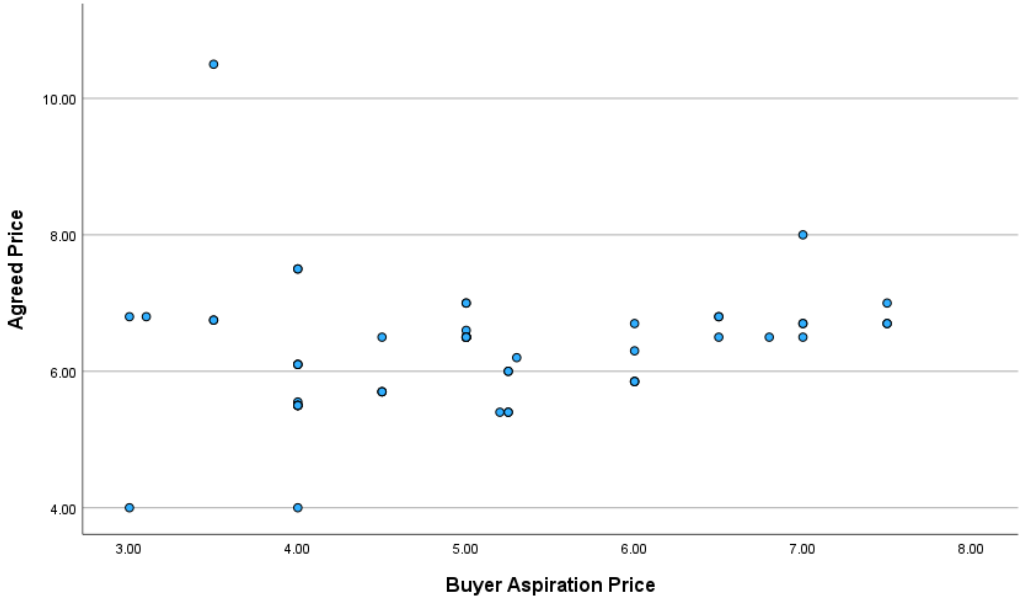


Figure B.27: Unbiased Student Set Agreed Price and Buyer's Initial Price Offer

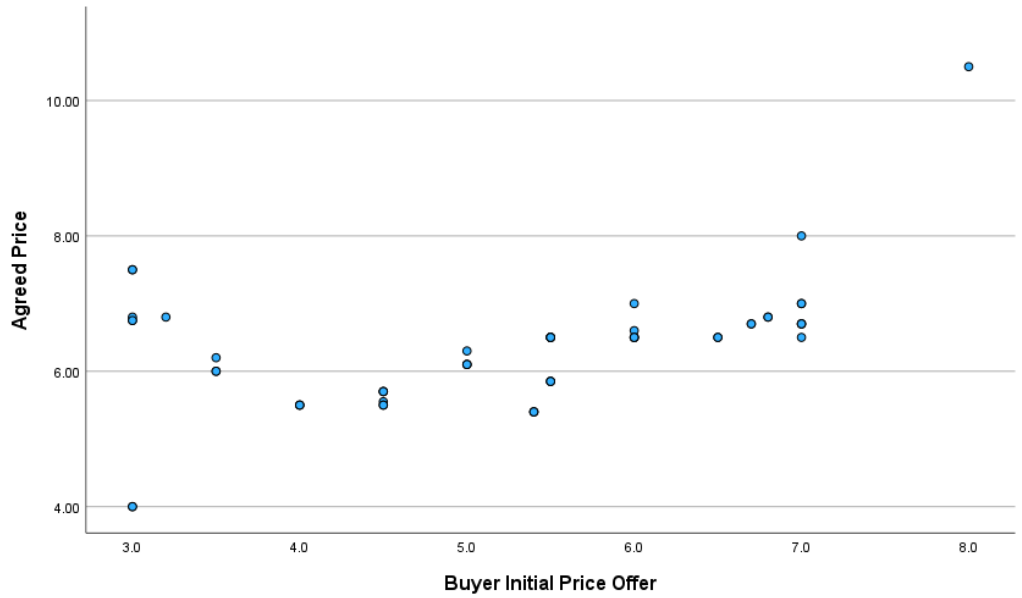


Figure B.28: Unbiased Student Set Agreed Price and Seller's Reservation Price

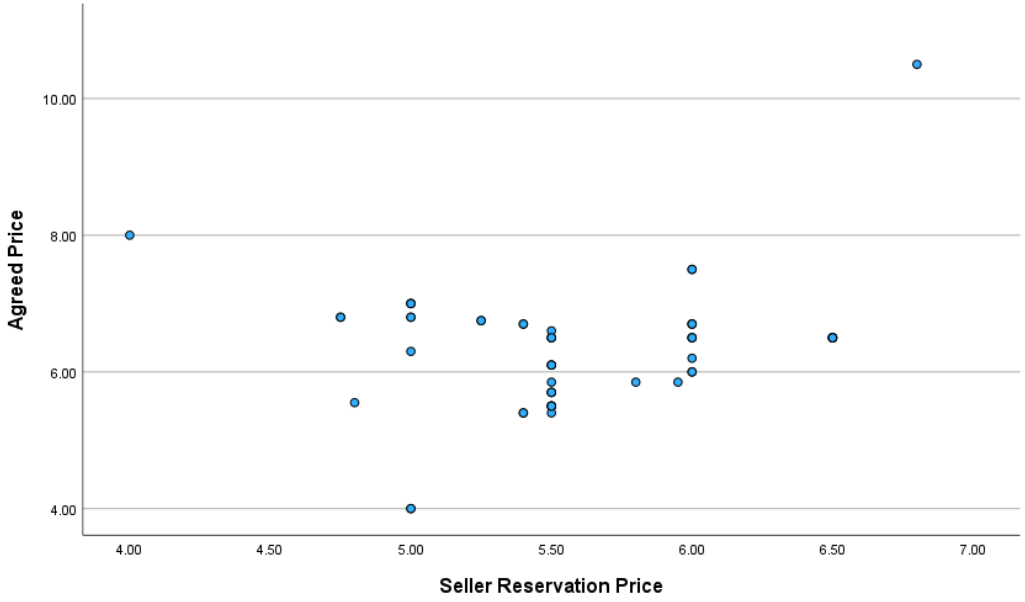


Figure B.29: Unbiased Student Set Agreed Price and Seller's Aspiration Price

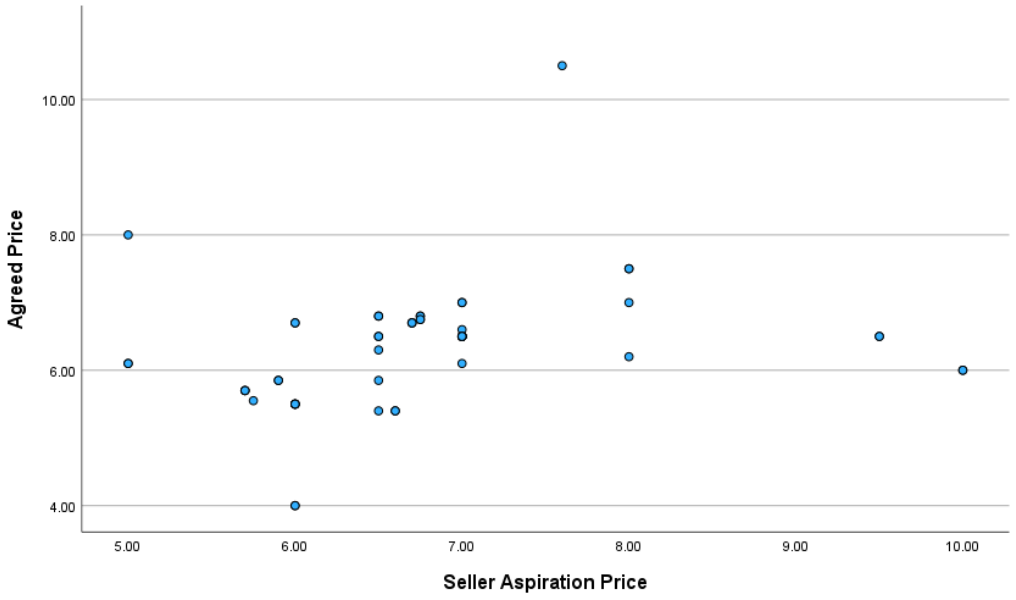


Figure B.30: Unbiased Student Set Agreed Price and Seller's Initial Price Offer

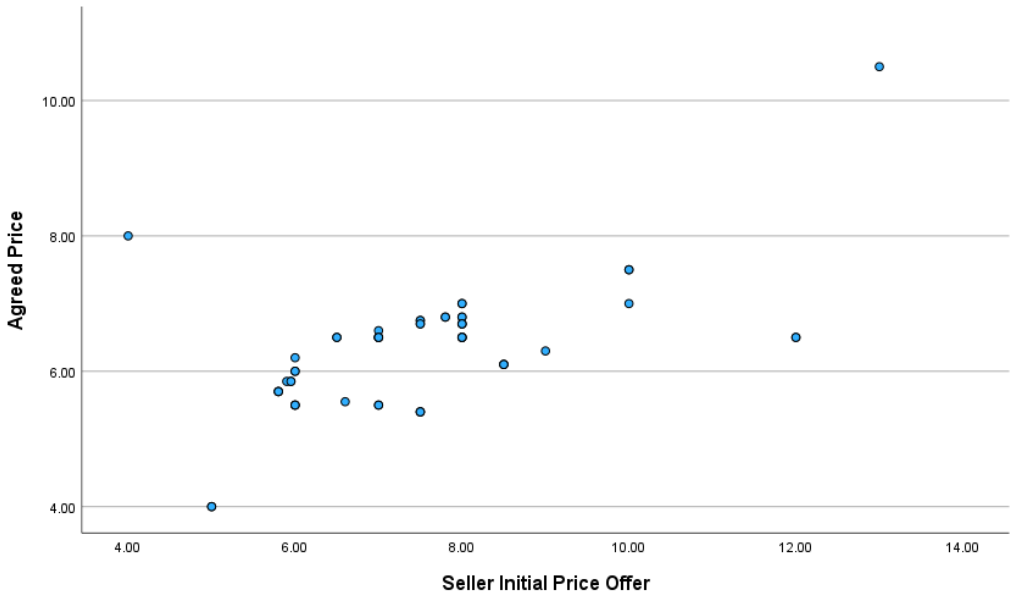


Figure B.31: Unbiased Employee Set Agreed Price and Buyer's Reservation Price

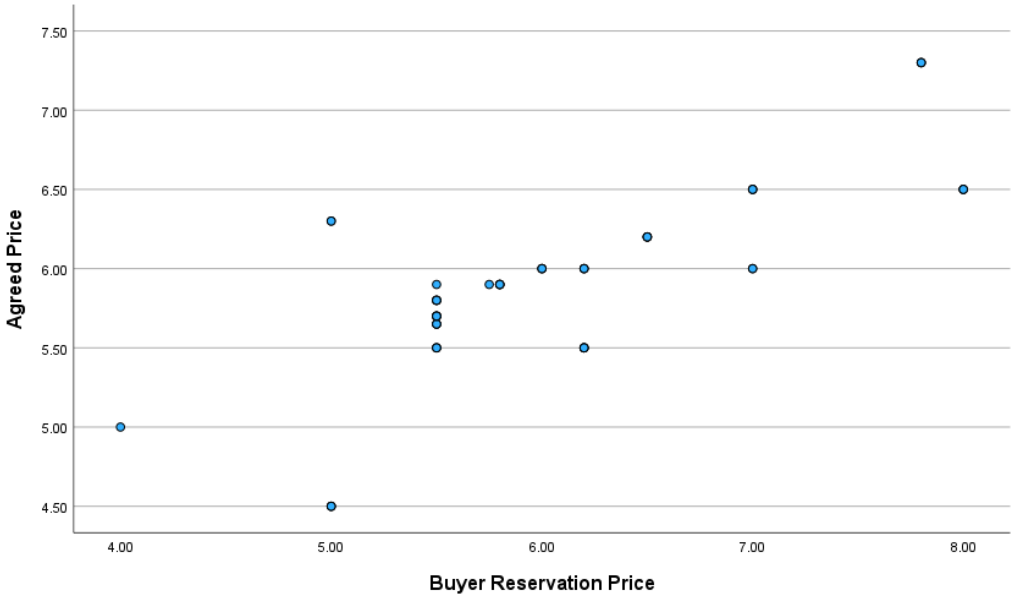


Figure B.32: Unbiased Employee Set Agreed Price and Buyer's Aspiration Price

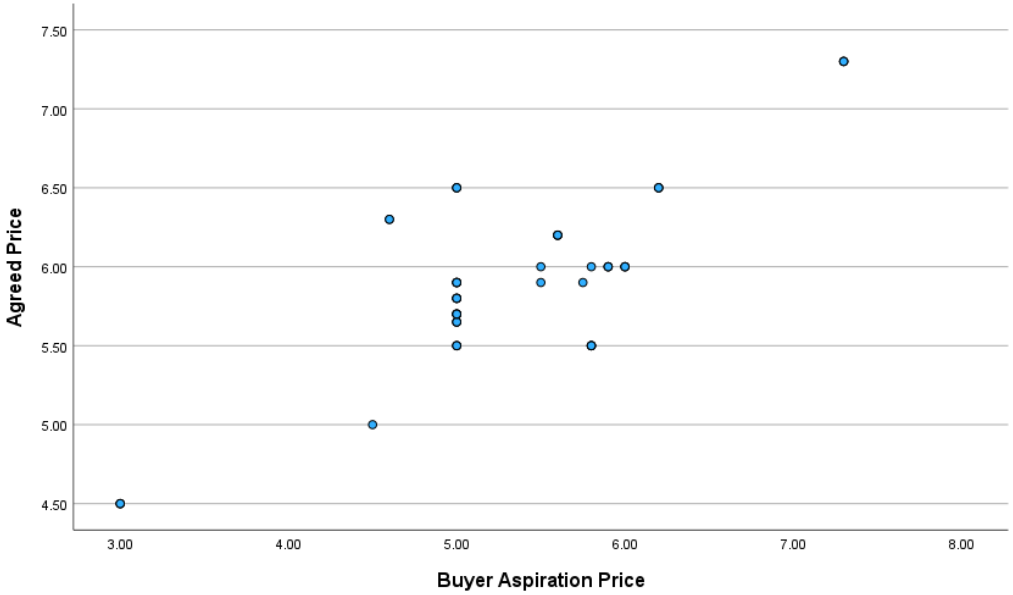


Figure B.33: Unbiased Employee Set Agreed Price and Buyer's Initial Price Offer

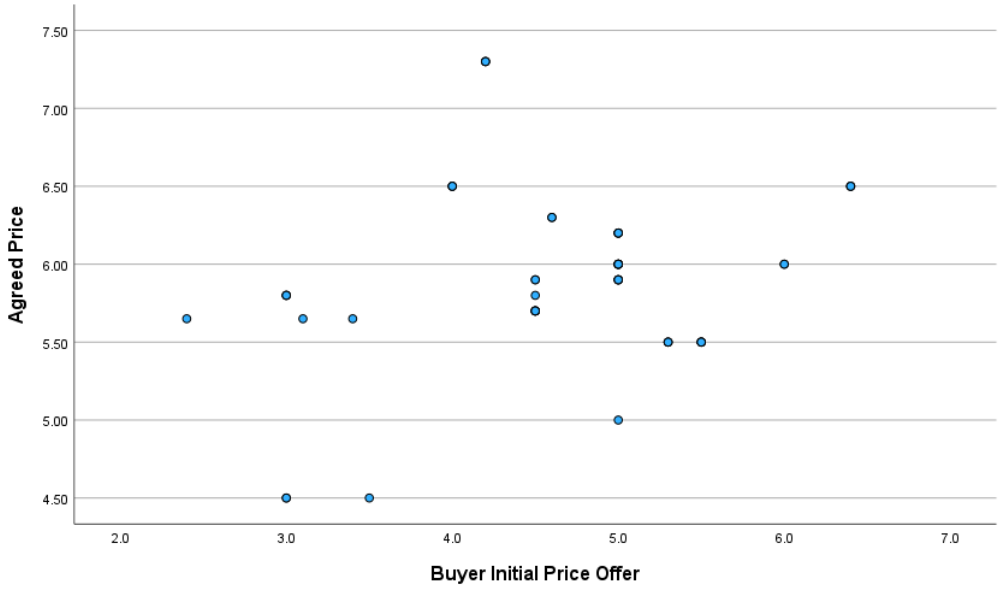


Figure B.34: Unbiased Employee Set Agreed Price and Seller's Reservation Price

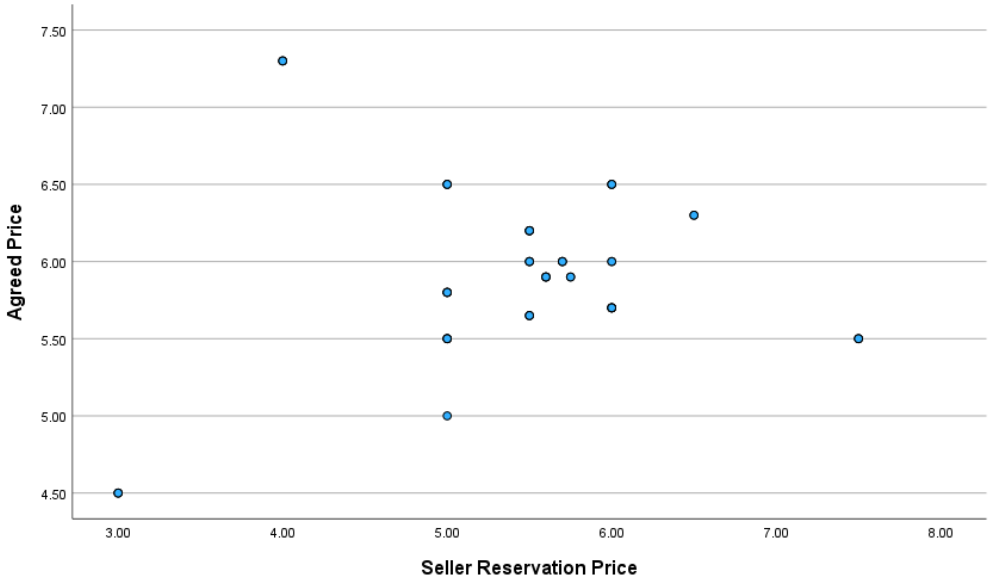


Figure B.35: Unbiased Employee Agreed Price and Seller's Aspiration Price

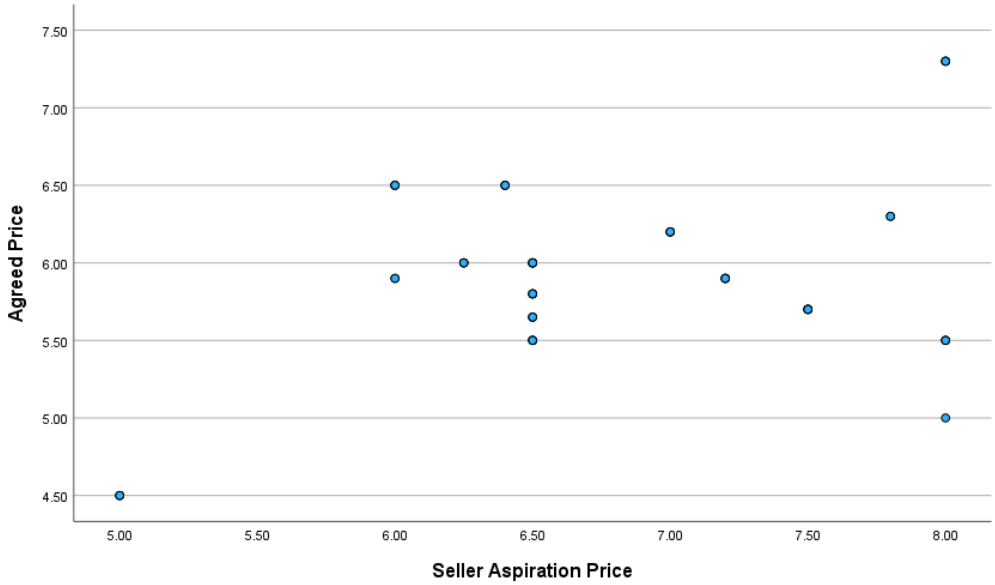
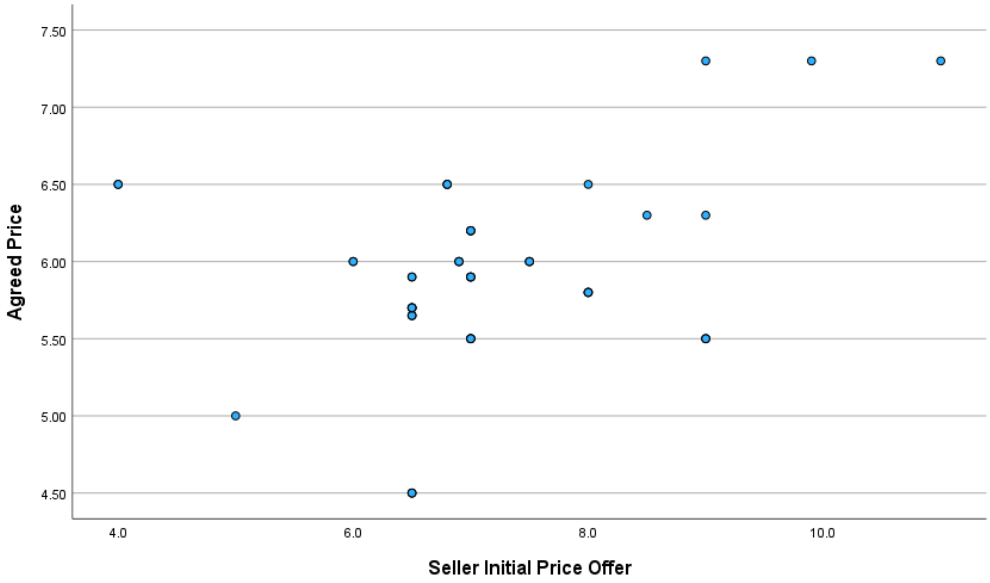


Figure B.36: Unbiased Employee Set Agreed Price and Seller's Initial Price Offer



ETHICS BOARD APPROVAL

Ethics Board Approval is available in the printed version of this dissertation.