



## Gender Differences in Wage Negotiations: An Ultimatum Game Experiment

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### Abstract

The gender gap in wages that is accepted as a major economic and social issue, can arise from the behaviours of individuals. The fact that the labor force participation rate of women in Turkey is quite low compared to other OECD countries is also an important problem. Women really may accept lower wages in negotiations. However, perceptions that women may accept lower offers may affect offers made by employers. This attitude of employers may cause a gender gap in wages and a low female labor force participation rate. We explore the behavioural gender differences during bargaining by using the ultimatum game. Altruism, risk aversion, generosity, and self-confidence have a significant impact on preferences and so the results of wage bargaining. The ultimatum game is an effective tool for understanding altruism, risk aversion, and generosity. We found two important results in this study. First; when the proposer knows the gender of the other party, his/her offers to women are lower than those to men. Latter; When the gender of the other party is known, female proposers bid higher than men. These results provide evidence that gender income inequality in the labor market may be due to the attitudes of employers (especially men employers). These results can actually explain why the female labor force participation rate is low in Turkey, but more detailed studies are needed on this subject. This study contributes to the literature as one of the few studies examining the wage bargaining of employers with male and female workers in Turkey.

**Keywords:** Gender Gap, Ultimatum Game, Behavioural Differences, Altruism, Generosity, Self-Confidence, Wage Bargaining, Wage Negotiations.

Dilek, S. & Yıldırım, R. (2023). Gender Differences in Wage Negotiations: An Ultimatum Game Experiment, *Journal of the Human and Social Science Researches*, 12 (1), 195-210. <https://doi.org/10.15869/itobiad.1132446>

Date of Submission	17.06.2022
Date of Acceptance	18.02.2023
Date of Publication	22.03.2023
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2023, 12 (1), 195-210 | Araştırma Makalesi

## Ücret Görüşmelerinde Cinsiyet Farklılığı: Ültimat Oyunu Uygulaması

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### Öz

Önemli bir ekonomik ve sosyal sorun olarak kabul edilen ücretlerdeki cinsiyet farkı, bireylerin davranışlarından kaynaklanabilmektedir. Türkiye'de kadınların işgücüne katılım oranının diğer OECD ülkelerine göre oldukça düşük olması da önemli bir sorundur. Kadınlar müzakerelerde gerçekten daha düşük ücretleri kabul edebilirler. Ancak, kadınların daha düşük teklifleri kabul edebileceği algısı, işverenlerin yaptığı teklifleri etkileyebilir. İşverenlerin bu tutumu, ücretlerde cinsiyet farkı oluşmasına ve kadınların işgücüne katılım oranının düşük olmasına neden olabilir. Ültimat oyununu kullanarak pazarlık sırasında davranışsal cinsiyet farklılıklarını araştırdık. Fedakarlık, riskten kaçınma, cömertlik ve özgüven; tercihler ve dolayısıyla ücret pazarlığının sonuçları üzerinde önemli bir etkiye sahiptir. Ültimat oyunu; fedakarlığı, riskten kaçınmayı ve cömertliği anlamak için etkili bir araçtır. Bu çalışmada iki önemli sonuç bulduk. Öncelikle; teklif verici, karşı tarafın cinsiyetini bildiğinde, kadınlara teklifleri erkeklere göre daha düşük teklifler sunar. İkincisi; karşı tarafın cinsiyeti bilindiğinde, kadın teklif vericiler, erkeklerden daha yüksek teklif vermektedir. Bu sonuçlar, işgücü piyasasındaki cinsiyetler arası gelir eşitsizliğinin işverenlerin (özellikle erkek işverenlerin) tutumlarından kaynaklanabileceğine yönelik kanıtlar sunmaktadır. Bu sonuçlar aslında Türkiye'de kadınların işgücüne katılım oranının neden düşük olduğunu açıklayabilir ancak bu konuda daha detaylı çalışmalara ihtiyaç vardır. Bu çalışma, Türkiye'de işverenlerin erkek ve kadın işçilerle ücret pazarlığını inceleyen az sayıdaki çalışmadan biri olarak literatüre katkı sağlamaktadır.

**Anahtar Kelimeler:** Cinsiyet Eşitsizliği, Ültimat Oyunu, Davranışsal Farklılıklar, Diğergamlık, Cömertlik, Kendine Güven, Ücret Pazarlığı, Ücret Görüşmeleri.

Dilek, S. & Yıldırım, R. (2023). Gender Differences in Wage Negotiations: An Ultimatum Game Experiment, *İnsan ve Toplum Bilimleri Araştırmaları Dergisi*, 12 (1), 195-210. <https://doi.org/10.15869/itobiad.1132446>

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## Introduction

One of the most important economic and social problems in the world seems to be the gender gap in wages. The gender gap in economic participation and opportunity is estimated to be closed in nearly 267 years (World Economic Forum, 2021, p.5). Though both males and females do the same work, males earn more than females in the world thus the gender wage gap is 12.53% in OECD countries (OECD, 2021). Gender gap index values confirm that women are economically behind men, even in countries such as Iceland, Finland, Norway etc. (World Economic Forum, 2021, p.10). The gender gap in wages remains high approximately 21% in even Germany which is one of the developed countries in the world (Malik et.al. 2020, p.1-2). Only 28,2% of board members in corporations are women according to the Deloitte report (2020, p.10). On the other hand, though womens' educational attainment exceeds mens, generally, women cannot hold top corporate positions such as CEO. In the absence of performance-related pay; unproductivity and decline in organizational commitment will be observed. So, the gender gap in wages has ultimate importance at both the micro and macro level of economics. This importance encourages both policymakers and scholars to search for ways to decrease the gender gap in wages (Perez-Villadoniga & Rodriguez, 2015, p.646-647).

In labour markets, wages are determined as a result of bilateral bargaining between the employee and the employer. Several searches found that the gender gap in wages is the result of differences in the behaviours of males and females during wage bargaining (Solnick, 2001; Li et.al. 2018; Yousef et.al. 2018; Ditrich et.al. 2021, Croson & Gneezy, 2009, Masclat et.al. 2015; Garcia-Gallego et.al. 2012, Güth & Kocher, 2014, Eckel & Grossman, 2001, Sutter et.al. 2009). As a result of these researches, it is obtained that males and females achieved different outcomes, so this can be a signal to the results of daily bargaining negotiations (Castillo et.al. 2013, p.35). The difference in behaviours can be stemmed from stress (Yousef et.al. 2018, p.126-127), facial trustworthiness (Wu et.al. 2018, p.500-501), facial complexion (Abubakr et.al. 2019, p.348), preference differences between sexes (Croson & Gneezy, 2009, p.448-450), risk aversion attitudes (Garcia-Gallego, 2012, p.43), piety typologies (Kırış & Dilek, 2021, p.1473-1475), cultural factors (Shan et.al. 2019, p.652) and entitlement effects (Demiral et.al.2020, p.342-343). We have two aims in this study. Our first aim is to investigate whether differences in behaviours of males and females affect wages and bargaining in labour markets. Our second aim is to search for discrimination against females in the labour market.

We used the ultimatum game to search gender differences in bargaining and by this way we obtained information about the gender gap in wages. The ultimatum game which was originally designed by Güth et.al (1982) has been used by many social scientists including economists in their studies. In this game, two players are asked to split a certain sum of money. The proposer makes an offer to the responder who has two alternatives -accept or reject-. If the responder rejects the offer two players will leave the game zero-sum. The Ultimatum Game is an effective tool to investigate altruism, risk aversion and differences in behaviour (Dilek & Kesgingöz, 2018 p.826-827; Kırış & Dilek, 2021, p.1473-1474; Luo et.al. 2018, p.231-232; Kamilçebebi, 2019, p.111-115). Several researches used ultimatum games to explore the effects of behaviours in bargaining on the gender gap in wages (Solnick, 2001; Garcia-Gallego et.al. 2012, Eckel & Grossman, 2001; Li et.al. 2018). Generally, as a result of the ultimatum games,

outcomes that contradict the rational human assumption of the traditional economic theory have been reached (Dilek & Kesgingöz, 2018 p.822-823, Hatipoğlu, 2021, p.2-4; Dilek & Yıldırım, 2023, p.190-191). It is found that when responders meet unfair proposals -less than 30%- they generally reject proposals in order to punish the proposers. This shows that actors generally may not behave rationally in their daily decisions.

If proposers give lower offers to women, this would be a signal for gender discrimination in labour markets. If responders are most likely to accept lower offers this would show that responders are ineffective negotiators. Shortly, we evaluate the ultimatum game as an effective tool for searching gender discrimination and bargaining power differences between sexes. Our experiment consists of two treatments. In the first treatment proposers and responders have no idea about the gender of the opposite side. However, in the second treatment genders of proposer and responders have common knowledge known by everybody. Shortly, at least a part of the gender gap in wages can be attributable to bargaining differences between genders.

Our study contributes to the literature by examining the Turkish labour market and the behaviours of Turkish employees/employers in this market. The Turkish labour market has importance because of two reasons. Firstly; Turkey occupies the 133rd place among 156 countries in terms of the gender gap index (World Economic Forum, 2021, p.10). Additionally, the female labour participation rate is only 30,8% in 2020 (Worldbank Data, 2021) so investigating reasons for those low rates are attractive to researchers and scholars. Secondly; Turkey is a developing country with a long-run 4%-5% economic growth on average (Worldbank Data, 2021). Therefore, female labour force has importance in achieving sustainable economic growth targets. Our results investigate whether Turkish employers/employees have similar attitudes with employees/employers in other countries during wage bargaining. Due to these results, we can argue the reasons for the gender gap in wages.

The paper is organized as follows. The second part reviews literature about the studies which investigates the gender gap and labour markets by using ultimatum games. The third part includes the presentation of our experimental design. The fourth part presents the results of the ultimatum game which is conducted at Kastamonu University, Turkey. Finally, we discussed the similarities and differences between our research and previous studies.

## **Gender Gap Which Occurs in the Labour Market**

It is observed that females earn less money than males in most countries. In literature, this fact has three main reasons one of which is human capital (schooling), gender discrimination and behaviours and preferences in bargaining. However, in recent years, it is seen that the participation ratio in tertiary education of women increased and reached the participation of men ratio (OECD Data, 2021), and differences in human capital between sexes diminished over time. So it is unmeaningful to explain the gender gap in wages with differences in human capital and education in the 20th century. Caliendo et.al. (2017) found that the gender gap in wages can be statistically insignificant if reservation wages are controlled.

*Gender Discrimination:* The second reason for gender discrimination is due to the

behaviour of the opposite side. Azmat & Petrongolo (2014, p.33-35) described gender discrimination as a situation in which productive men and women are rewarded differently, making it necessary to correctly measure differences in productivity in order to pin down the discrimination residual. In labour markets, it is seen that ethnic, racial, and religious groups face discrimination. Muslims and Blacks are the groups that face discrimination mostly in labour markets (Koopman et.al. 2019, p.248). Dittrich et.al (2014, p.863-865) stated that male proposers give lower proposals to female responders. Female responders get worse results than male responders in the ultimatum games. Ayres & Siegelman (1995, p.305-306) indicated that Chicago car sellers offered higher prices to female and black buyers while offering low prices to males and white buyers. Castillo (2013) investigated negotiations for taxi fares in Lima, Peru. According to Castillo (2013, p.46-47), Taxi drivers think that male customers are willing to pay higher. Capraro & Barcelo (2021, p.10-12) stated that actors do not discriminate between genders when they want to punish defectors and reward co-operators.

*Differences in Negotiation:* Thirdly, there are differences in the behaviour of women and men in bargaining wages. In literature, many studies examine the differences in the behaviour of males and females in bargaining (Solnick, 2001, p.189-200; Shan et.al. 2019, p.651-675). The purchase of any commodity involves negotiations between buyer and seller. Labour markets are very similar to commodity markets because they involve negotiations between employers and employees. Behaviours and choices can change the result of bargaining so that the employee or employer can get a surplus at the end of negotiations. Gender plays an important role in the behaviour of employees and employers. Babcock & Laschever (2003, p.12-20) stated that starting wages of males are approximately 7.6% higher than females due to their willingness to bargain their wages. Lab experiments generally show that women have low preferences for risk and competition (Niederle & Vesterlund, 2011, p.602-626; Azmat & Petrongolo, 2014, p.32-39; Kulik & Olekalns, 2012, p.1388).

Eckel & Grossman (2001) and Solnick (2001) are the first studies about the behaviours of men and women during bargaining. The ultimatum game is a useful tool for analysing the behaviours of actors in the labour market. Eckel & Grossman (2001, p.181-186) reached some striking results that may explain why women earn less in labour markets. Their study is an application of repeated design in which partners face each other. At first, proposals of women are higher than proposals of men regardless of the gender of the opposite side. Secondly, women are more likely to accept proposals during the bargaining process. Thirdly, proposals that come from women are more likely to be accepted. Furthermore, women are less likely to reject the proposals of women. Contrary to Eckel & Grossman (2001, p.181), it is found that offers made do not differ based on the gender of the proposal in the search of Solnick (2001, p.198-199). Solnick (2001, p.192) uses a one-shot game with two treatments. In her study, the first player (proposer) makes an offer, and the second player (responder) simultaneously says the minimum acceptable amount. In addition to this, Solnick (2001, p.198-199) reached that male responders attract higher offers, especially from female proposers. Responders want a higher minimum acceptable offer if they match with the female proposer. As it can be seen in the findings of Solnick (2001) and Eckel & Grossman (2001) it confirms that behaviours of males and females can change the results of wage bargaining. According to these results, we will investigate four hypotheses that can explain the

gender gap in wages.

*H1. The offers coming from women proposers are higher than offers coming from men proposers.*

*H2. The acceptance rate of women responders is higher than men responders.*

*H3. The offers coming from women proposers are more likely to be accepted.*

*H4. Men responders get higher offers than women responders.*

### **H1. The offers coming from women proposers are higher than offers coming from men proposers.**

If women proposers are ready to give higher offers this can explain why women earn less in the working life and the gender gap in wages. If this hypothesis is confirmed, there can be two reasons –altruistic character and factors direct proposers to give high offers-. Women can be more generous, altruistic or they propose higher amounts not to be rejected. In literature, some searches show that women are altruistic, generous, and equality-averse (Heinz et.al. 2012, p.109; Andreoni & Vesterlund, 2001, p.305-307, Eckel & Grossman, 1996, p.156; Branaz-Garza et.al. 2018, p.22). However, there is no consensus about the generosity of women in literature. There are also some searches that cannot find evidence that confirms that women are more generous than men (Dilek & Kesgingöz, 2018, p.831; Bezu & Holden, 2015, p.110). The second reason is the behaviour of women that directs women proposers to give higher offers. Women proposers can prefer to give higher proposals not to be rejected by responders. This instinct can be caused by factors such as low confidence, risk-aversion, and acute stress conditions. If a women proposer has low confidence she may avoid starting the bargaining process. High offers can keep responders away from rejection and in this way negotiations will not start. It is found that women chose intrapersonal competition rather than interpersonal competition (Carpenter et.al. 2018, p.175). This can also happen if the proposer is a risk-aversion. Some studies found that women are low in confidence (Yousef et.al. 2018, p.129-130; Datta Gupta et.al. 2013, p.831-832) and risk-averse (Niederle & Vesterlund, 2011, p.625-626; Niederle & Vesterlund, p.39-42, 2007; Croson & Gneezy, 2009, 467-469; Garcia et.al. 2012, p.48-49; Eckel & Füllbrun, 2015, p.916-920; Flory et.al. 2018, p.265-266; Schier et.al. 2020, p.62-64). Datta Gupta et.al (2013, p.831-833) found that men are more willing to participate in tournaments and behave competitively. It is possible to increase women's willingness to compete but not possible to close the gender gap in competitiveness. The explanations for the differences in risk-taking between women and men are emotional reactions, interpretation of the risky situations, age (Flory et.al. 2018, p.265-266) and ambiguity (Balafoutas & Sutter, 2019, p.11-12). In addition to this, acute stress conditions can encourage women proposers to give high offers (Yousef et.al. 2018, p.129-130). Differences in risk-taking can explain why women earn less in labour market (Croson & Gneezy, 2009, p.448-453). Some policies such as supporting role models etc. can raise the competitiveness of women and decrease the gender gap in wages (Schier et.al. 2020, p.63-64).

### **H2. The acceptance rate of women responders is higher than men responders.**

The acceptance of the proposer's offer means that there will be no negotiations. In ultimatum games, a rational responder should accept the offer because if he rejects he

will get nothing. However, in some cases responders do not behave rationally and reject unfair offers. Solnick (2001, p.189-200), Eckel & Grossman (2001, p.171-186) indicated that females are more likely to accept even if offers are unfair. In multi-shot games, unwillingness to compete can direct responders to accept even unfair offers. The differences in willingness to compete can explain the gender gap in wages (Datta Gupta et.al. 2013, 816-833; Balafoutas, 2018, p.1-5). The existence of aversion to competition can cause lower productivity and profits for firms while lower wages for individuals (Flory et.al. 2018, p.256). 18% of the gender gap in earnings is explained by overconfidence and competitiveness (Reuben et.al. 2017, p.2181-2183). Several searches showed that women are reluctant to do hard tasks however they can be motivated to pursue better paying and risky alternatives (Bieberstein et.al., 2020, p.261; Niederle & Vesterlund, 2007, p.39-42; Azmat & Petrongolo, 2014, p.38-39; Niederle & Vesterlund, 2011, p.625-626; Eckel & Füllbrun, 2015, p.917-919; Carpenter et.al. 2018, p.175-176; Balafoutas & Sutter, 2019, p.11-12). Education and vocational training programs can help prevent the willingness to compete and in this way the gender gap in wages (Balafoutas et.al. 2018,p.4). Meanwhile, we witness studies that confirm the rejection rate of women can be higher than men (Garcia et.al. 2012, p.42-49; Solnick, 2001, p.189-200).

### **H3. The offers coming from women proposers are more likely to be accepted.**

Solnick (2001, p.189-200) claims that responders demand more from female proposers and Eckel & Grossman (2001, p.171-187) reached that men have an advantage over women in games because of exploiting information about gender. Though the results of Solnick (2001, p.189-200) and Eckel & Grossman (2001, 171-187), some studies found the opposite of this result (Li et.al. 2018, p.189; Malik et.al. 2020, p.31). Some researchers found that females have no disadvantages during negotiations (Huang & Low, 2018, p.24-26; Li et.al. 2018, p.189). According to Huang & Low (2018, p.25-26), men do not prefer to use effective negotiation strategies against women. Men can behave more chivalrously against women and this behaviour can decrease their payoffs. Wu et.al. (2018, p.511-514) showed that facial trustworthiness influences decision-making behaviour. Abubakr et.al. (2019, p.359-361) support the notion that being physically attractive is an important advantage for employees in labour market. Malik et.al. (2020, p.31) say that male-male pairs experience longer bargaining delays than any other pairs.

### **H4. Men responders get higher offers than women responders.**

People are interested in the gender of other sides in ultimatum games because they think that their gender has an effect on their decisions. Proposers place their offers based on the responder's gender while responders accept or reject offers according to the gender of the proposer (Sutter et.al. 2009, p.329). Players negotiate according to expectations of the other player's type. This can cause one player to exploit the other player by using aggressive strategies. As a result of this, the gap payoffs would be widened in one-shot bargaining games. In some situations, people cannot discriminate between men and women (Capraro & Barcelo, 2020, p.541-542). Gender discrimination can be changed from culture to culture however Li et.al. (2018, p.189) did not confirm these differences in their study which was held in China and the US. Jetter & Walker (2018, p.250-252) indicated that women are more likely to win and compete more aggressively against males. Jung & Vranceanu (2018, p.329-330) reveal that willingness to compete is affected by other factors such as ability, self-confidence, tolerance for risk,

and the gender of the opposite side.

Babcock & Laschever (2003, p.12-20) found that most of the men negotiate their starting salary while most of the women don't. Bowles & Babcock (2013, p.90-92) shows that effective bargaining allows shrinking the gender gap in wages. Hernandez-arenaz & Iribelli (2018, p.205) found no evidence of differences in opening offers between males and females. Women are ready to give more to partners on the bargaining table and this provides higher earnings among women-women pairs (D'exelle et.al. 2020, p.23-25). Cotter & Henley (2017, p.17-20) indicate that there are no significant gender differences in the abilities of men and women negotiators. Georgantzis et.al. (2017, p.861) reached that men are effective negotiators. It is argued that women have lower performance in a competitive atmosphere while men have higher performance in some researches (Gneezy & Rustichini, 2004, p.377-381; Öneş, 2019, p.411-434). Mavin & Yusupova (2020, p.87) claims that evaluating men as competitive and women as less competitive can exclude women from social and economic life. John (2017, p.213-215) reached that men's performance decreases when they face tough rivals. However, women's performance does not change according to the toughness of rivals. Branaz-Garza et.al. (2018, p.22) concluded that women are more altruistic than men. Searches such as Czibor et.al. (2014, p.1-35); De Paola et.al. (2015, p.117-128) stated that women perform worse rather than men under pressure.

## Experimental Design

We played the ultimatum game one time for 100 TL. First, we gave information to Kastamonu University students by class announcements and handed out posters around the Kuzeyskent campus. Those who wanted to participate in the experiment were registered and their contact information was obtained. All participants are undergraduate students in different faculties of Kastamonu University. 160 people were randomly selected among 195 applications, and half of the participants were assigned to the role of the proposer, and the other half of them were assigned to the role of responder. We conducted eight sessions which are summarized in Table 1. In each session, 20 participants exist.

**Table 1.** Eight Sessions Summary

Session	Proposer	Responder	Information
1	Male	Male	Both Sides don't know about gender of other side
2	Male	Female	Both Sides don't know about gender of other side
3	Female	Male	Both Sides don't know about gender of other side
4	Female	Female	Both Sides don't know about gender of other side
5	Male	Male	Both Sides know about gender of the other side
6	Male	Female	Both Sides know about gender of the other side
7	Female	Male	Both Sides know about gender of the other side
8	Female	Female	Both Sides know about gender of the other side

We paid 20 TL to participants as a show-up fee and also their winnings from the game if there is. Proposers and responders were taken to different classrooms which are far away from each other so that they cannot communicate with each other before the experiment. The proposer and the responder were given appointments in different rooms on the same day and time. Both were accepted by the interviewers in different



rooms and were given an interview form that asked for demographic information and described the ultimatum game. After the proposer filled out the form, the interviewer asked him to propose a split of 100 TL with the respondent.

After receiving the offer, the interviewer made a phone call to the interviewer in the responder's room and stated the offer. The interviewer also conveyed this offer to the respondent and asked whether he/she accepted it.

## Findings

Both the proposer and the responder don't know about the gender of the other sides in the first four sessions. Due to the small sample size, the Mann Whitney U test, which is a non-parametric test, was preferred instead of parametric tests. Male proposers, without knowing the gender of responders, gave an average of 43.00 TL to males and an average of 44.00 TL to females. Though male proposers gave more to females, this is not different statistically (Mann-Whitney U test sig:0,990). This is not a surprising result, because it is expected that proposers give the same amount while they don't know about the gender of responders. This is also true for female proposers so the female proposer gave 48.00 TL to males and 47.50 TL to females while they don't know the gender of responders (Mann Whitney U test sig:0,939). Additionally, the difference between male and female proposers is a bit larger (Male gave 43.50 TL while female gave 47.75 TL) however it is not also significant statistically (Mann Whitney U test sig:0,348). The offers of females are accepted 65% on average while the offers of males are accepted 80% on average. The difference between the acceptance ratios comes from the difference in offers of males and females. Another remarkable result is that while males received an offer of 45.50 TL, females received an offer of 45.75 TL. The difference is not statistically significant at the 10% level (Mann Whitney U test, sig:0.957). The results are shown in Table 2.

**Table 2.** Gender is Unknown

		Responder		
		Male	Female	Total
Proposer	Male	43.00 (0.70)	44.00 (0.60)	43.50 (0.65)
	Female	48.0 (0.80)	47.5 (0.80)	47.75 (0.80)
	Total	45.5 (0.75)	45.75 (0.70)	45.625 (0.725)

When the information about the genders is given to the other party, a different result emerges. While men offered 48.00 TL to their fellows, they offered only 34.50 TL to women, which is significant at the 10% significance level (Mann Whitney U test, sig:0,067). While women offered higher (51.00 TL) than men, they offered lower (48.00 TL) to their fellows. However, this difference is not statistically significant (Mann Whitney U test, sig:0,116). The offers of male proposers are accepted 90% of their offers to males and 80% of their offers to females, which is not a surprise since the offer to males is higher. The offers of female proposers did not differ according to the gender of responders, both male and female responders accepted 90% of proposals. While the

offer received by males is 49.50 TL in total, the offer received by females is 41.25 TL, and there is a statistically significant difference at 10% level between the two (Mann Whitney U test, sig:0,026). In addition, it was concluded that males with an average propose of 41.25 gave lower offers than females with an average propose of 49.25. However, this difference is not statistically significant at 10% level (Mann Whitney U test, sig:0,210). It was observed that the offers received by males were significantly higher at the level of 10% compared to the offers received by females (Mann-Whitney U test, sig:0,026).

**Table 3.** Gender is Known by the Responder

		Responder		
		Male	Female	Total
Proposer	Male	48.00 (0.90)	34.50 (0.80)	41.25 (0.85)
	Female	51.0 (0.90)	48.00 (0.90)	49.25 (0.90)
	Total	49.5 (0.90)	41.25 (0.85)	45.25 (0.8875)

The average of the offers given in the total of the whole experiment is 45.50 TL, which confirms the previous ultimatum game results. In total, it was seen that the offers made by males were higher on average than the offers made by females, but this difference was not statistically significant at the 10% level (Mann-Whitney U test, sig:0,107). In addition, it was concluded that the offers received by males were higher than the offers received by females on average, but this difference was again not statistically significant at the 10% level (Mann-Whitney U test, sig:0,118).

**Table 4.** Gender is Both Known and Unknown by Responder

		Responder		
		Male	Female	Total
Proposer	Male	45.50 (0.80)	39.25 (0.70)	42.375 (0.75)
	Female	49.50 (0.85)	47.75 (0.85)	48.625 (0.85)
	Total	47.5 (0.825)	43.50 (0.775)	45.50 (0.70)

As a result, the following results were obtained about the hypotheses.

H1: *The offers coming from women proposers are higher than offers coming from men proposers.* When the parties do not know the gender of the other party, there is no significant difference at 10% significance level between the female offer and the males offer (Mann Whitney U test, sig:0.378). When the gender information of the other party was reached, it was observed that females made higher offers than males and this difference was significant at the 10% level (Mann Whitney U test, sig:0.026). In short, it was seen that the hypothesis was accepted when the gender of the opposite party was known.

H2: *The acceptance rate of women responders is higher than men responders.* When the parties did not know the gender of the other party, men accepted 75% of the offers and women accepted 70% of the offers, which is not a significant difference. When the parties are informed about the gender of the other party, males accepted 90% of the offers; females also accepted 85% of the offers, which is not a significant difference. Therefore, this hypothesis is rejected.

H3: *The offers coming from women proposers are more likely to be accepted.* 80% of offers from males when the parties are not informed about the gender of the other party; on the other hand, only 65% of the offers from females were accepted. When both parties were informed about the genders, 85% of the male's offers and 90% of the female's offers were accepted. Therefore, there is no significant difference between the acceptance rates when both parties are informed. This hypothesis is rejected.

H4: *Men responders get higher offers than women responders.* In the absence of information about the genders, the offer received by males is 45.50 TL, while the offer received by females is 45.75 TL, that is, they are very close to each other and there is no statistically significant difference at the 10% level (Mann Whitney U test, sig:0.957). When the party was informed about the gender of the other party, men received an offer of 49.50 TL and women a bid of 41.25 TL. The difference has grown, but there is still no statistically significant difference at the 10% level (Mann -Whitney U test, sig:0.210). This hypothesis is rejected.

## Conclusion and Discussion

This experiment was conducted to investigate whether bargaining behaviours explain the low wages of females. Differences in the behaviour of men and women during the bargaining phase can result in wage differentials. Evidence shows that females make higher offers than males when they know the gender of the responder. However, this difference is not significant at 10% level (Mann-Whitney U test, sig:0,210). This result encourages researchers to investigate with a larger sample whether females bid higher in the bargaining stage.

Another interesting result is that males make a higher offer (48 TL) to their fellows and a lower offer (34.50 TL) to females (Mann Whitney U test, sig:0.067). The reason for this may be male's prejudiced attitudes towards females, or they may think that females can accept a low offer. Some researchers have found that women are less willing to bargain starting salaries (Babcock & Laschever, 2003, p.12-20) while some other researchers explored that females are more altruistic (Heinz et.al. 2012, p.109; Andreoni & Vesterlund, 2001, p.305-307; Eckel & Grossman, 1996, p.143-158; Branaz-Garza et.al. 2018, p.22). So, if males think females accept less, they can make lower offers to females. Kastamonu is a small Turkish city where traditional culture lives and traditional resistance against women's employment may be the reason for this result. It is likely that new researches will contribute to the literature by examining the prejudices against women's employment. In addition, there is a possibility that similar researches to be carried out in metropolitan Turkish cities such as Istanbul and Ankara will reveal different results.

We did not find strong enough evidence that female responders had higher acceptance rates. Although there is little difference, the acceptance rate of females is lower. This result may be due to the fact that women encounter lower offers.

The results did not sufficiently support the claim that offers from females were accepted at a higher rate. When both parties were informed about the gender of the other party, the female's offer was accepted by 90% and the male's offer by 85%. In other words, it was seen that there was not a big enough difference between the two acceptance rates.

It was observed that when the proposers did not know the gender of the responders, they made higher offers to male responders. While male responders received an average offer of 49.50 TL, women received an offer of 41.25 TL (Mann Whitney U test sig:0.026). This result was mostly due to the low offers of males to female responders. Although there is a need for new researches in Turkey to investigate the reason for this, this result is data that can explain the difference between the wages of males and females.

Peer-Review	Double anonymized - Two External
Ethical Statement	*It is declared that scientific and ethical principles have been followed while carrying out and writing this study and that all the sources used have been properly cited. * ( Kastamonu University Rectorate, Social and Human Sciences Research Ethics Committee Decision was taken with the decision dated 12.10.2021 (meeting 5), numbered 24 of the Presidency of the Publication Ethics Committee.)
Plagiarism Checks	Yes - Ithenticate
Conflicts of Interest	The author(s) has no conflict of interest to declare.
Complaints	<a href="mailto:itobiad@itobiad.com">itobiad@itobiad.com</a>
Grant Support	The author(s) acknowledge that they received no external funding in support of this research. We would like to thank Taha Mert Çalık, Hasan Ali Özdemir, Muhammed Ali Aydın and Yunus Emre Güleç for their research assistance. Additionally, we are grateful to Kastamonu University's management for their understanding
Author Contributions	Design of Study: 1. Author (%51), 2. Author (%49) Data Acquisition: 1. Author (%51), 2. Author (%49) Data Analysis: 1. Author (%51), 2. Author (%49) Writing up: 1. Author (%51), 2. Author (%49) Submission and Revision: 1. Author (%51), 2. Author (%49)

Değerlendirme	İki Dış Hakem / Çift Taraflı Körleme
Etik Beyan	*Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur. *(Kastamonu Üniversitesi Rektörlüğü, Sosyal ve Beşeri Bilimler Araştırmaları Yayın Etiği Kurulu Başkanlığının 12.10.2021 Tarih (5 nolu toplantı), 24 Nolu kararı ile Etik Kurul Kararı alınmıştır.)
Benzerlik Taraması	Yapıldı – Ithenticate
Etik Bildirim	<a href="mailto:itobiad@itobiad.com">itobiad@itobiad.com</a>
Çıkar Çatışması	Çıkar çatışması beyan edilmemiştir.
Finansman	Bu araştırmayı desteklemek için dış fon kullanılmamıştır. Araştırma sürecinde bize yardımlarından dolayı Taha Mert Çalık, Hasan Ali Özdemir, Muhammed Ali Aydın ve Yunus Emre Güleç'e teşekkür ederiz. Aynı zamanda anlayışlarından ötürü Kastamonu Üniversitesi Rektörlüğüne teşekkür ederiz.
Yazar Katkıları	Çalışmanın Tasarlanması: 1. Yazar (%51), 2. Yazar (%49) Veri Toplanması: 1. Yazar (%51), 2. Yazar (%49) Veri Analizi: 1. Yazar (%51), 2. Yazar (%49) Makalenin Yazımı: 1. Yazar (%51), 2. Yazar (%49) Makale Gönderimi ve Revizyonu: 1. Yazar (%51), 2. Yazar (%49)

## References / Kaynakça

- Abubakr Saeed, Sidra Maqsood & Amir Rafique (2019). Color matters: field experiment to explore the impact of facial complexion in Pakistani labor market, *Journal of the Asia Pacific Economy*, 24:3, 347-363
- Andreoni, J., & Vesterlund, L. (2001). Which is the fair sex? Gender differences in altruism. *The Quarterly Journal of Economics*, 116(1), 293-312.
- Babcock, L., and S. Laschever. (2003). *Women Don't Ask: Negotiation and the Gender Divide*. Princeton: Princeton University Press.
- Balafoutas, L., Fornwagner, H., & Sutter, M. (2018). Closing the gender gap in competitiveness through priming. *Nature communications*, 9(1), 1-6.
- Balafoutas, L., & Sutter, M. (2019). How uncertainty and ambiguity in tournaments affect gender differences in competitive behavior. *European Economic Review*, 118, 1-13.
- Bowles, H. R., & Babcock, L. (2013). How can women escape the compensation negotiation dilemma? Relational accounts are one answer. *Psychology of Women Quarterly*, 37(1), 80-96.
- Brañas-Garza, P., Capraro, V., & Rascon-Ramirez, E. (2018). Gender differences in altruism on Mechanical Turk: Expectations and actual behaviour. *Economics Letters*, 170, 19-23.
- Caliendo, M., Lee, W. S., & Mahlstedt, R. (2017). The gender wage gap and the role of reservation wages: New evidence for unemployed workers. *Journal of Economic Behavior & Organization*, 136, 161-173.
- Capraro, V., & Barcelo, H. (2021). Punishing defectors and rewarding cooperators: Do people discriminate between genders?. *Journal of the Economic Science Association*, 1-14.
- Carpenter, J., Frank, R., & Huet-Vaughn, E. (2018). Gender differences in interpersonal and intrapersonal competitive behavior. *Journal of behavioral and experimental economics*, 77, 170-176.
- Castillo, M., Petrie, R., Torero, M., & Vesterlund, L. (2013). Gender differences in bargaining outcomes: A field experiment on discrimination. *Journal of Public Economics*, 99, 35-48.
- Croson, R., & Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic literature*, 47(2), 448-74.
- Czibor, E., Onderstal, S., Sloof, R., Van Praag, M., 2014. Does relative grading help male students? evidence from a field experiment in the classroom. IZA Working Papers No.8429.
- Datta Gupta, N., Poulsen, A., & Villeval, M. C. (2013). Gender matching and competitiveness: Experimental evidence. *Economic Inquiry*, 51(1), 816-835.
- Deloitte (2020). *Missing Pieces Report: The Board Diversity Census of Women and Minorities on Fortune 500 Boards*. 6<sup>th</sup> Edition.
- Demiral, E. E., & Mollerstrom, J. (2020). The entitlement effect in the ultimatum game-

does it even exist?. *Journal of Economic Behavior & Organization*, 175, 341-352.

De Paola, M., Gioia, F., & Scoppa, V. (2015). Are females scared of competing with males? Results from a field experiment. *Economics of Education Review*, 48, 117-128.

D'Exelle, B., Gutekunst, C., & Riedl, A. (2020). The Effect of Gender and Gender Pairing on Bargaining: Evidence from an Artefactual Field Experiment. Available at SSRN 3740457.

Dilek, S., & Kesgingöz, H. (2018). Sharing is Beautiful: An Application of Ultimatum Game. *Business & Management Studies: An International Journal*, 6(4), 822-834.

Dilek, S. & Yıldırım, R. (2023). Migrants and The Bargaining Process in The Labor Market. *Optimum Journal of Economics and Management Sciences*, 10(1), 189-202

Dittrich, M., Knabe, A., & Leipold, K. (2014). Gender differences in experimental wage negotiations. *Economic Inquiry*, 52(2), 862-873.

Eckel, C. C., & Füllbrunn, S. C. (2015). Thar she blows? Gender, competition, and bubbles in experimental asset markets. *American Economic Review*, 105(2), 906-20.

Eckel, C. C., & Grossman, P. J. (2001). Chivalry and solidarity in ultimatum games. *Economic Inquiry*, 39, 171-188

Eckel, C. C., & Grossman, P. J. (1996). The relative price of fairness: Gender differences in a punishment game. *Journal of Economic Behavior & Organization*, 30(2), 143-158.

Flory, J. A., Gneezy, U., Leonard, K. L., & List, J. A. (2018). Gender, age, and competition: A disappearing gap?. *Journal of Economic Behavior & Organization*, 150, 256-276.

García-Gallego, A., Georgantzis, N., & Jaramillo-Gutiérrez, A. (2012). Gender differences in ultimatum games: Despite rather than due to risk attitudes. *Journal of Economic Behavior & Organization*, 83(1), 42-49.

Georgantzis, N., Parasyri, D. & Tsagarakis, K. (2017). Inter-gender interaction and communication in ultimatum games, *Applied Economics Letters*, 24:12, 858-862.

Gneezy U ve Rustichini A (2004). Gender and Competition at a Young Age. *American Economic Review*, 94 (2): 377-381

Güth, W., Schmittberger, R. & Schwarze, B., (1982). An Experimental Analysis of Ultimatum Bargaining, *Journal of economic behavior & organization*, 1982, 3, 367-388

Güth, W., & Kocher, M. G. (2014). More than 30 years of ultimatum bargaining experiments: Motives, variations, and a survey of the recent literature. *Journal of Economic Behavior & Organization*, 108, 396-409

John, J. P. (2017). Gender differences and the effect of facing harder competition. *Journal of Economic Behavior & Organization*, 143, 201-222.

Hatipoğlu, Y.Z. (2021). Metodolojik Bireye Bir Eleştiri; Özgecilik Kavramı ve Ultimatom Oyunu Uygulaması. *İnsan ve Toplum*, 11(3). 1-40.

Heinz, M., Juranek, S., & Rau, H. A. (2012). Do women behave more reciprocally than

men? Gender differences in real effort dictator games. *Journal of Economic Behavior & Organization*, 83(1), 105-110.

Hernandez-Arenaz, I., & Iriberry, N. (2018). Women ask for less (only from men): Evidence from bargaining in the field. *Journal of Economic Behavior & Organization*, 152, 192-214.

Huang, J., & Low, C. (2018). *The myth of the male negotiator: Gender's effect on negotiation strategies and outcomes*. Technical Report, University of Pennsylvania.

Jung, S., & Vranceanu, R. (2019). Willingness to compete: Between-and within-gender comparisons. *Managerial and Decision Economics*, 40(3), 321-335.

Kamilçelebi, H. (2019). Davranışsal İktisat. Ijopeç.

Kırış, Ş., & Dilek, S. (2021). Müslüman Dindarlık Tipolojileri ile Diğerkâmlık Arası İlişkilerin İncelemesi: Ültimatom ve Diktatör Oyunu Uygulaması. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi*, 10(2), 1470-1492.

Kulik, C. T., & Olekalns, M. (2012). Negotiating the gender divide: Lessons from the negotiation and organizational behavior literatures. *Journal of Management*, 38(4), 1387-1415.

Li, S., Qin, X., & Houser, D. (2018). Revisiting Gender Differences in Ultimatum Bargaining: Experimental Evidence From the US and China. *Journal of the Economic Science Association*, 4(2), 180-190.

Luo, X., Zhang, B. & Chen, F. (2018). The Review of Experiments On The Ultimatum Game Under Competitive Conditions. *Advances In Social Science, Education and Humanities Research (ASSEHR)*, 182, 230-234.

Malik, S., Mihm, B., Mihm, M., & Timme, F. (2021). Gender differences in bargaining with asymmetric information. *Journal of Economic Psychology*, 86, 102415.

Masclot, D., Peterle, E., & Larribeau, S. (2015). Gender differences in tournament and flat-wage schemes: An experimental study. *Journal of Economic Psychology*, 47, 103-115.

Koopmans, R., Veit, S. & Ruta Yemane (2019). Taste or statistics? A Correspondence Study of Ethnic, Racial and Religious Labour Market Discrimination in Germany, *Ethnic and Racial Studies*, 42:16, 233-2

Niederle, M., & Vesterlund, L. (2007). Do women shy away from competition? Do men compete too much?. *The quarterly journal of economics*, 122(3), 1067-1101.

Niederle, M., & Vesterlund, L. (2011). Gender and competition. *Annu. Rev. Econ.*, 3(1), 601-630.

OECD (2021). <https://data.oecd.org/earnwage/gender-wage-gap.htm> date:07.09.2021

OECD (2021b). <https://data.oecd.org/eduatt/population-with-tertiary-education.htm> date:11.09.2021

Öneş, U. (2019). Davranışsal İktisat Deneylelerinde Toplumsal Cinsiyet Temelli Farklar. *Mülkiye Dergisi*, 43 (2), 411-434.

Reuben, E., Wiswall, M., & Zafar, B. (2017). Preferences and biases in educational

choices and labour market expectations: Shrinking the black box of gender. *The Economic Journal*, 127(604), 2153-2186.

Schier, U. K. (2020). Female and male role models and competitiveness. *Journal of Economic Behavior & Organization*, 173, 55-67.

Shan, W., Keller, J., & Joseph, D. (2019). Are men better negotiators everywhere? A meta-analysis of how gender differences in negotiation performance vary across cultures. *Journal of Organizational Behavior*, 40(6), 651-675.

Solnick, S. J. (2001). Gender Differences in The Ultimatum Game. *Economic Inquiry*, 39(2), 189.

Sutter, M., Bosman, R., Kocher, M. G., & van Winden, F. (2009). Gender pairing and bargaining—Beware the same sex!. *Experimental Economics*, 12(3), 318-331.

World Economic Forum (2021). Global Gender Gap Report 2021.

[http://www3.weforum.org/docs/WEF\\_GGGR\\_2021.pdf](http://www3.weforum.org/docs/WEF_GGGR_2021.pdf) (date:25.06.2021)

Worldbank Data (2020). data.worldbank.org (date:08.09.2021).

Wu, Y., Gao, L., Wan, Y., Wang, F., Xu, S., Yang, Z., ... & Pan, Y. (2018). Effects of facial trustworthiness and gender on decision making in the Ultimatum Game. *Social Behavior and Personality: an international journal*, 46(3), 499-516.

Youssef, F. F., Bachew, R., Bissessar, S., Crockett, M. J., & Faber, N. S. (2018). Sex differences in the effects of acute stress on behavior in the ultimatum game. *Psychoneuroendocrinology*, 96, 126-131.

Wu, Y., Gao, L., Wan, Y., Wang, F., Xu, S., Yang, Z., ... & Pan, Y. (2018). Effects of facial trustworthiness and gender on decision making in the Ultimatum Game. *Social Behavior and Personality: an international journal*, 46(3), 499-516.