A discusión

CULTURAL AND RISK-RELATED DETERMINANTS OF GENDER DIFFERENCES IN ULTIMATUM BARGAINING*

Aurora García Gallego, Nikolaos Georgantzis, Miguel Ginés and Ainhoa Jaramillo**

WP-AD 2007-08

Corresponding author: Aurora Garcia Gallego, Universitat Jaume I, Departament d'Economia, Campus del Riu Sec, 12071 Castellón (SPAIN), Phone: +34 964 387161, E-mail: mgarcia@eco.uji.es.

Editor: Instituto Valenciano de Investigaciones Económicas, S.A.
Primera Edición Abril 2007
Depósito Legal: V-1905-2007

---

* Comments by G. Panos and programming by J.C. Perní³as are gratefully acknowledged. This research received financial support by the Instituto Valenciano de Investigaciones Econ¶omicas.

** A. García Gallego, N. Georgantzis: LEE/LINEEX y Universitat Jaume I; M. Ginés, A. Jaramillo: LEE y Universitat Jaume I.

CULTURAL AND RISK-RELATED DETERMINANTS OF GENDER DIFFERENCES IN ULTIMATUM BARGAINING

Aurora García Gallego, Nikolaos Georgantzis, Miguel Ginés and Ainhoa Jaramillo

ABSTRACT

We study culture and risk aversion as causes of gender differences in ultimatum bargaining. It has often been conjectured in the literature that gender differences in bargaining experiments are partly due to differences in risky decision making. Using the data obtained from our experimental sessions with Spanish subjects, we are able to disentangle risk-related and genuinely gender-specific effects in ultimatum games framed as salary negotiation between an employer and an employee. First, we confirm the broadly accepted result that women are more risk averse than men. Gender differences in both employer and employee-subjects' behavior remain significant after risk attitudes are accounted for. In fact, we show that the reported gender differences are not because of but rather despite females' higher risk aversion. Gender effects are found to depend also on cultural differences. Greek and Spanish females reject more and offer lower wages than males. British subjects exhibit gender effects only with respect to employee behavior, but the sign of the effect is opposite to that observed in the case of Greece and Spain.

JEL Classification: J30, C91

Keywords: Ultimatum bargaining, salaries, gender, risk attitudes, experiments.

I Introduction

A well-known theoretical and experimental framework in which fairness and bargaining have been analyzed is that of ultimatum games. In an ultimatum game, two players bargain over a pie of size Y in the following way: The first player (leader) offers a share $X \in [0, Y]$ to the second (follower) one, claiming $Y - X$ for himself. The second player has to decide whether to accept or reject the offer. If the offer is accepted, the proposed shares are gained by the players. Otherwise, they both earn nothing. Since the seminal experiment by Güth et al. (1982), the game has inspired a vast literature. Bearden's (2001) exhaustive review indicates that results are sensitive to a number of factors. Typical findings include systematic deviations from the subgame perfect equilibrium prediction of minimum offers by leaders and acceptance of all positive offers by followers. Instead, a fairer split is the most frequently observed outcome.

An implicit assumption underlying ultimatum bargaining is that both parties' involvement is needed for the pie to be earned, first, and then divided. The most obvious real world example of such asymmetric negotiations can be found in salary formation resulting from employee-employer interaction. However, bargaining between employers and employees never occurs over "manna from heaven". If an employer had full control of the pie, why would he need a second agent with whom to share his own property? In the real world, firms result from combining complementary assets like, for example, labor and capital. Salaries offered by employers and accepted by employees should reflect each party's involvement in the common enterprize. Following standard economic theory, raising one's cost of participating in a partnership should increase the own aspired and actual share of the resulting profit. In this paper, we test this hypothesis. First, we frame ultimatum bargaining as a situation of salary negotiation. Second, we introduce a real task which has to be performed by employee-subjects as a consequence of accepting a given salary. We show that real effort raises salaries. In fact, this result is due to both higher salary offers

by employers and higher rejection rates by employees.

We focus now on gender as one of the determinants of behavior in ultimatum game experiments. Our analysis is based on a series of experimental sessions which do not *ex ante* control for the composition of sessions and employee-employer pairs in terms of gender. Among a number of novel design aspects introduced in these experiments[1] two are going to be of great importance in the present study. First, we use the lottery panel method introduced in Sabater-Grande and Georgantzís (2002) as a pre-play test capturing our subjects' attitudes towards risky choice. In that way, we can explicitly and rigorously address the question of whether, and to what extent, gender differences in bargaining experiments are due to differences in risk attitudes and whether the gender-effect persists after risk attitudes have been accounted for. Second, we run the experiment in different countries (Spain, Greece and the UK) so that we can test for gender differences due to cultural disparities across countries.

I.1 Basic Experimental design

The experiments reported here were run as a part of a more general, ongoing project investigating several labor market-related phenomena like unemployment, contract security, cultural and gender differences, etc. All sessions were run in the *Laboratori d'Economia Experimental* (LEE) at Castellón, Spain. Forty subjects were recruited among Business Administration students. They were randomly assigned to one of the two treatments labelled hereafter as HT (Hypothetical Task) and RT (Real Task). At the beginning of each session, subjects were randomly assigned the role of an *employee* or an *employer*. Each subject's role was kept fixed along the whole session. To avoid end-game effects, sessions were randomly stopped between the 30th and the 35th period.

[1]The most prominent novel feature is a real task performed by the employees in the baseline treatment.

In each period, subjects were randomly matched to form employer-employee pairs. In order to avoid undesirable session effects, subjects in each session were divided into two separate matching groups.[2]

At the beginning of each session, written instructions[3] were given to the subjects. The experiment was framed as a situation in which an employer offers his/her employee $x \in [0, 10]$ Euro in steps of .10. Acceptance by an employee in HT implies that the 10€ profit is realized by the firm and divided as proposed by the employer. In addition to realizing profit and sharing it as defined in HT, acceptance by an employee-subject in RT implies accepting to perform a real task: *filling each of 20 numbered envelops with its corresponding single-page letter.* The envelop-filling sub-session was organized in a separate room next to the computer lab. Payment and, when applicable, task performing obligations, were determined as the sum of earnings, respectively task units agreed, in 5 randomly chosen periods. Apart from their earnings in the experiment, subjects received a 5€ show-up fee to mitigate differences in earnings across player types. Average earnings were approximately 25€. Proposer (responder) participants earned 29€ (21€) on average. The computerized[4] salary-negotiation sub-session (HT and RT) lasted on average one hour. The duration of the task-performing sub-session (RT only) never exceeded 30 minutes, but varied significantly across subjects, depending critically on the task load.

I.2 The role of the Real Task

For the sake of comparability, we have analyzed the same number of observations per treatment. Thus, we focus on the analysis of data obtained from the first 33 periods of each session. We summarize here our main findings.

[2]Differences across groups were found not to be statistically significant and data reported here are the result of aggregation within each treatment.

[3]Available upon request.

[4]Programmed and conducted with the software z-Tree (Fischbacher, 1999).

		Offers	Salaries	Rejections
Treatment HT				
	N	330	275	55
	Median	4.00	4.00	
	Mean	3.96	4.00	17%
	Std. Dev.	0.21	0.16	
Treatment RT				
	N	330	222	108
	Median	4.50	4.70	
	Mean	4.09	4.55	33%
	Std. Dev.	1.30	0.80	

Table 1: Descriptive statistics by treatment.

Tables 1 and 2 present descriptive statistics on offers, salaries and rejections. A first finding concerns the resemblance of our HT treatment to standard ultimatum game experiments. Both salary offers and accepted salaries are not significantly different from 4. This means that in the absence of a real task, our experiments reproduce the results usually obtained in standard (abstract) ultimatum experiments. We summarize this in the following result.

Result 1: *The "labor-market" frame of ultimatum bargaining yields the standard 60%-40% split of earnings.*

Both the median (4 vs. 4.5) and the average (3.96 vs. 4.09) of salary offers posted by employers are lower when employees are faced with a fictitious task than when they have to perform a real one. Using a Mann-Whitney test and treating individual averages as independent observations shows that the difference is weakly significant at a 10% level (p=0.694).

In Table 2, the first column under each treatment's heading presents the number of salary offers per 1/2€ interval. Approximately 86% of all salary offers (284/330) collected under treatment HT concentrate on a single peak between 3.7 and 4.2€. The distribution of salary offers collected under the RT treatment exhibits two peaks. One of them is observed on the 3.7-4.2 interval, corresponding to 30% (100/330) of all salary offers. Another 40% (127/330)

	Treatment HT			Treatment RT		
Offer (x)	N	*% Rej.*	*C.D.*	N	*% Rej.*	*C.D.*
$x < 0.7$	0			17	88	15
$0.7 \leq x < 1.2$	0			15	87	28
$1.2 \leq x < 1.7$	0			0		
$1.7 \leq x < 2.2$	0			1	100	29
$2.2 \leq x < 2.7$	0			3	100	32
$2.7 \leq x < 3.2$	3	100	3	2	100	34
$3.2 \leq x < 3.7$	25	64	19	9	90	42
$3.7 \leq x < 4.2$	284	13	55	100	42	84
$4.2 \leq x < 4.7$	17	0	55	50	24	96
$4.7 \leq x < 5.2$	1	0	55	127	9	107
$5.2 \leq x < 5.7$	0			2	50	108
$5.7 \leq x$	0			4	0	108

Table 2: Number (N) of offers and percentage of rejections within each offer interval. *C.D.* refers to the Cumulative Distribution of the number of rejections.

of the observed salary offers correspond to the interval between 4.7 and 5.2€. Finally, 50 observations correspond to salary offers between these two modes. These differences in the distribution of salaries across treatments give further support to the finding that salary offers are higher in RT than in HT.

Apart from the distribution of salary offers, Table 2 can be used to study differences in employees' behavior expressed in terms of rejection rates. Under each treatment's heading, the second and third columns present, respectively, rejections in absolute numbers and as a percentage of offers. Salary offers below 3.2€ are rejected in almost all cases under both treatments (except for 4/38 offers in RT). We focus on offers above 3.2€. In both treatments, rejection rates decrease as salary offers increase. However, the percentage of rejections in each salary offer interval is higher under the RT treatment. This result receives significant support if we compare across treatments rejection rates for salary offers in the 3.7-4.2 interval (13% in HT vs. 42% in RT).

Below, we summarize these findings.

Result 2: *Employers make higher salary offers when employees have to perform the real task.*

Result 3: *In the range in which the number of observations allows meaningful comparisons to be made (*$3.2 \leq x < 5.2$*), a given salary offer is more frequently rejected by employees in the real task treatment.*

Going back to Table 1, we observe that salaries are higher in RT than in HT. This is true for both the median (4 vs. 4.70) and the mean (4 vs. 4.55), and the difference is significant as indicated by a Mann-Whitney test (p=0.000). This result is stated below.

Result 4: *Higher salaries (accepted offers) are observed when employees have to perform the real task.*

It can also be observed from Tables 1 and 2 that both salary offers and actual salaries (accepted offers) present a higher dispersion in RT than in HT, as can be also confirmed by the standard deviations reported in table 1. The latter finding suggests that a real task introduces more heterogeneity in employers' behavior.

The percentage of successful contracts over the number of employee-employer matchings is used as an indicator of efficiency in ultimatum bargaining. However, in our experiment, the costs and benefits of the real task should also be taken into account. Unfortunately, the realism-enhancing device of the real task makes it impossible to rigorously compare the two treatments in terms of efficiency, since the costs of performing the task are unknown. Instead, we concentrate on employment rates, measured as the percentage of accepted salary offers. From simple inspection of total rejection percentages (17% in HT vs. 33% in RT) provided under the third heading of table 1, we reach the following result.

Result 5: *Overall employment is lower when employees have to perform a real task.*

II Gender and Bargaining in the Literature

The role of gender in human decision making has been extensively analyzed in the literature. More specifically, gender differences have been investigated in the laboratory using several environments like the Prisoner's Dilemma Game (PDG), the Dictator Game (DG) and the Ultimatum Game (UG).[5]

An exhaustive review of the experimental evidence on gender differences in subjects' bargaining behavior is beyond the scope of this work. However, we will try to focus on some intrinsic flaws in the analysis of gender as a determinant of a subjects' economic decisions.

Studies on gender differences arrive, generally speaking, to different conclusions. For example, in a PDG context, authors like Rapoport and Chammanh (1965), Kahn et al. (1971) and Mack et al. (1971) find that men are more cooperative than women. However, work by Aranoff and Tedeschi (1968), Meux (1973) and Ortmann and Tichy (1996) find the opposite result. Alternatively, some studies find that gender is not a determinant factor of economic behavior. Such is the case -in a context of public goods- of Sell and Wilson (1991), Brown-Kruse and Hummels (1993), Sell et al. (1993), Nowell and Tinkler (1994), Seguino et al. (1996), Sell (1997) and Cadsby and Maynes (1998).

The same lack of consensus is found in the context of the Dictator's Game[6] (DG). Whereas Bolton and Katok (1995) or Frey and Bohnet (1995) find no gender differences, authors like Eckel and Grossman (1996, 1998) and Andreoni and Vesterlund (2001) report significant differences in the behavior of men and women.

As far as the Ultimatum Game (UG) is concerned, Eckel and Grossman (2001) run the first UG experiment specifically designed to test for gender ef-

[5]See Eckel and Grossman (2005) for an exhaustive revision of differences in the economic decisions of men and women. They examine these differences in several experimental scenarios.

[6]In the DG, player 1 (the allocator) is given a fixed amount of money to divide between himself and player 2.

fects in the bargaining process. In their design, they implement an UG which is repeated along eight rounds. Proposers and respondents are matched using a face to face protocol. Each subject plays four rounds as a proposer and four rounds as a respondent. The sex of a subject's partner is made known by having a group of four proposers seated facing a group of four respondents. The design matches players with partners of their own gender, partners of the opposite gender or a mixed group. Subjects have no information on their partner's identity. They find that women's proposals are, on average, more generous than men's, regardless of the sex of the partner, and women respondents are more likely to accept an offer of a certain amount. Furthermore, a given offer is more likely to be accepted if it comes from a woman, a result which is interpreted as chivalry. Women paired with women almost never fail to reach an agreement, a fact that is interpreted by the authors as solidarity.

Saad and Gill (2001) conduct a one-shot UG in which subjects face randomly a subject of the same or contrary gender (i.e. man to woman, man to man, woman to man and woman to woman). Each subject knows the sex of his/her partner. They find that males make more generous offers when pitted against a female. Furthermore, females made equal offers independently of the other's sex.

In a set up similar to ours, Solnick (2001) conducts an one-shot UG game using the strategy method[7]. The analysis involves two treatments. In a first treatment, subject anonymity is preserved, while in the second treatment both types of players know the other player's gender. She finds that both sexes make lower offers to women and that both sexes choose higher minimum accepted offers when he/she faces a woman-employer. In general, the highest rejection rate exists when a woman-employer faces a woman-employee.

A less game-specific result is that of Sutter et al. (2003), where the influence

[7]Under the strategy method, the type 1 player decides the offer and, at the same time, the type 2 player records a minimum acceptable offer. If player 1's offer equals or exceeds player 2's minimum acceptable offer, the offer is accepted and the pie divided according player 1's proposal.

of gender on economic decision making is analyzed in a bargaining experiment of the principal-agent type. They conclude that gender *per se* has no significant effect on behavior, whereas gender pairing has a strong influence. Much more competition and retaliation and, thus, lower efficiency, is observed when the bargaining partners are of the same gender than when they are of the opposite gender. Close to this result, Gneezy et al. (2003) find a significant gender gap in performance in tournaments and that this effect is stronger when women have to compete against men than in single-sex competitive environments. The authors argue that women may be less effective than men in competitive environments and that maybe the explanation is that women are more risk averse.[8]

There are many important studies which confirm the view that women tend to be more risk averse than men. Powell and Ansic (1997) show that their female subjects are less risk seeking in laboratory tasks than men. However, other experimental studies reach different conclusions. For example, Schubert et al. (1999) find that women are, on average, more risk averse in abstract gambling tasks in the gain domain, less risk averse in the loss domain, and not consistently different from men in context-rich tasks in either domain. They conclude that gender specific risk behavior in previous survey data may be due to differences in males' and females' opportunity sets rather than stereotypical risk attitudes. Intuitively, gender differences in risky decision making should affect behavior in bargaining environments. For example, risk averse subjects should be expected to post higher offers. In that case, there may be two co-existing effects of gender on bargaining behavior: a *pure* gender effect and a *risk-related* one. The coexistence of *pure* and *risk-related* gender differences in bargaining behavior has not been explicitly addressed in the literature so far.

More recently, several studies report cultural differences in UG experiments. In their meta-analysis, Oosterbeek et al. (2004) find that country differences

[8]See Byrnes et al. (1999) and Meier-Pesti (2005) for the relation between sex and risk from a psychological perspective.

are reflected on respondents' behavior only and not on the shares offered to them. The paper by Chuah et al. (2005) identifies attitudinal dimensions (like altruism and fairness) of culture which significantly influence experimental behavior of Malaysian and UK subjects. However, none of these papers addresses the issue of how gender effects vary across countries and cultures.

In this paper we are interested in the relation between gender differences and subjects' attitudes towards risk, on one hand, and the relation between gender and cultural differences, on the other hand, as explanatory factors of behavior in the ultimatum game. An important difference between our design and most of the literature reviewed above is that, in our experiments, subjects do not receive pre-play information or any feedback on the other player's gender. Therefore, the gender effects reported here can not be attributed to chivalry or solidarity.

With respect to the first question, we offer a more rigorous test of the usual conjecture that gender differences in experimental games are partly due to differences in risky decision making. Regarding the question whether gender effects are due to cultural differences, we compare behavior of subjects from three countries: Spain, Greece and the UK.

Our main finding is that gender differences are significant in both employer and employee behavior. Females offer lower salaries and this effect becomes stronger after risk attitudes are accounted for. Thus, a genuine, non risk-related, gender effect exists. Furthermore, the risk-related and the genuine gender effects go into opposite directions: the former yielding higher and the latter lower offers. Thus, the claim that gender differences are due to risk attitudes is not confirmed by our analysis, because, if gender differences were due to differences in risk attitudes, females should be found to post higher, not lower, salary offers. In the same fashion, we find a significant gender effect among employee-subjects. Female employees tend to reject more. However, risk aversion leads to lower rejection probabilities. Like in the case of employers' behavior, the pure and the risk-related effects go into two opposite

directions. Both findings with respect to the interplay between gender and risk aversion as explanatory variables of behavior in bargaining experiments contradict the usual claim that gender effects are due to differences in risky decision making. Female players of the ultimatum game do not offer less and reject more than males *because of* but rather *despite* their higher risk aversion.

With respect to the second question concerning the cultural causes of gender differences, we estimate gender effects of similar signs and sizes for Greek and Spanish subjects, whereas a qualitatively different gender effect is found for British subjects.

III Experimental design

III.1 A pre-play test of risk attitudes

At the beginning of the experimental session, subjects respond to the lottery-choice by Sabater and Georgantzís (2002).[9] Each of the lottery panels in Table 3 corresponds to a discrete version of a continuum of lotteries. The table presents the payoffs corresponding to the favorable outcome of each lottery whose winning probability (q) is given at the top of each column. Each subject is asked to choose the most preferred lottery from each panel. Observe that the farther right the subject chooses, the less risk averse he/she is, whereas risk neutral (and risk loving) subjects would choose $q = 0.1$ in all panels. Panels are designed in such a way that risk is compensated by a different (for each panel) linear (in the unfavorable outcome) increase in the expected monetary reward. Data obtained from this lottery choice task are used to construct an index of subjects' degree of risk aversion defined as the average choice across panels. Thus, a higher average probability chosen implies higher degree of risk

[9]Instructions on this task can be accessed in Sabater and Georgantzís (2002). We run this test only for the sessions made in Spain.

aversion.[10]

Table 3: Panels of lotteries

Panel 1

q	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1
X €	1.00	1.12	1.27	1.47	1.73	2.10	2.65	3.56	5.40	10.90
Choice										

Panel 2

q	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1
X €	1.00	1.20	1.50	1.90	2.30	3.00	4.00	5.70	9.00	19.00
Choice										

Panel 3

q	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1
X €	1.00	1.66	2.50	3.57	5.00	7.00	10.00	15.00	25.00	55.00
Choice										

Panel 4

q	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1
X €	1.00	2.20	3.80	5.70	8.30	12.00	17.50	26.70	45.00	100
Choice										

III.2 The main experiment

In the context of an UG, employer/employee pairs negotiate over their respective shares from a 10€ profit earned from a given task which must be performed by the employee. In the baseline treatment, hereafter the Salary Negotiation Experiment with a Real Task or SNERT, the task is *real* and a unit of it corresponds to filling 20 numbered envelops with their corresponding numbered single-page letters. The SNERT was run in three different countries:

[10]Other properties of the test and its interpretation in terms of theories of risky decision making are discussed in Sabater and Georgantzís (2002).

Spain[11], Greece[12] and the UK[13].

Each experimental session of the SNERT was divided into two different sub-sessions: One during which Ultimatum Salary Negotiation took place and another one, in which employees performed their Real Task obligations. After this, all subjects were paid as we will explain later. The first sub-session consisted of two parallel procedures. Namely, *i*) randomly formed employee-employer pairs[14] play the salary negotiation ultimatum game, which is repeated over a randomly determined number of periods ranging between 30 and 35, and *ii*) subjects respond to a payment-card type of control question designed to elicit their valuations (certainty equivalent) of the game.

In five randomly chosen periods of the main experiment, the control question format is repeated using an incentive-compatible design to control for variations in a subject's valuation of the game due to learning and due to changing from a hypothetical to a real-incentive environment. The hypothetical valuations of the game are denoted by HV and the 5 incentive compatible ones by RV_1 to RV_5. Given the lack of any systematic hypothetical bias (measured as differences between hypothetical and real valuations), in the econometric models, we have used V_{er} and V_{ee} which are constructed as the average of each employer/employees' valuations obtained as responses to the hypothetical and the incentive compatible formats of the control questions.

After the negotiation periods were completed and data were collected for each session, 5 periods were randomly chosen by the computer to determine each employer-subject's earnings and each employee-subject's salaries and real

[11]In the *Laboratori d'Economia Experimental (LEE)* at the University of Castellón.

[12]In the Computer Lab of the Economics Department at the University of Macedonia.

[13]In the Computing Laboratory of the Economics Department at the University of Aberdeen.

[14]In order to avoid confusion between session and treatment effects, subjects in each session were divided into two separate matching groups. Differences across groups within the same treatment were found not to be statistically significant and data reported here are the result of pooling across groups. Each subject's role was kept fixed along the whole session.

task obligations. Real rewards were paid to employees at the end of the task-performing sub-session, while employers were rewarded just after the end of the salary negotiation sub-session.

Additional to the SNERT, 4 alternative treatments were run in Spain. As described with detail in subsection III.5, they are labeled as T1, T2, T3 and T4 and they are used to study the effects of some design features, such as random versus permanent employee-employer pairs, real versus fictitious task and ordering effects in the hypothetical valuation of the game.

A total of 140 subjects (seven sessions with 10 employers and 10 employees per session) participated in this experiment. Subjects were university students of economics-related degrees. Each subject was assigned once to a single session. Sessions lasted an average of one hour and a half each. Approximately, average earnings per subject earnings were slightly below 25€. Specific software was written using Urs Fischbacher's z-Tree toolbox.

III.3 Game-theoretic prediction and expected results

In the one-shot version of the game, the equilibrium prediction involves a (selfishly) rational employer offering a minimum amount, say $X = 0.10$, to the employee and the latter accepting the offer. Numerous studies have produced evidence favoring systematic deviations from this prediction on both sides of the employer-employee pair (the former often offers more than minimum amounts and the latter often rejects "unfair" offers). Of course, the real task implies some cost to be borne by the employees, which should have a positive impact on wages offered by employers and on the minimum acceptable offer for employees as compared to abstract ultimatum bargaining games. Furthermore, the repetition of the game over an unknown (by the subjects) number of periods (theoretically equivalent to an infinitely repeated game) leads to "fairer" equilibrium predictions, given that "altruistic" behavior by employers and equity-seeking behavior by employees can be explained on the ground of

inter-temporal rationality. Typically, idiosyncratic differences among subjects (inequity aversion, toughness in bargaining, patience in "punishment" strategies to convince the employer for a better salary, etc.) result in a variety of outcomes, which crucially depend on whether pairs are formed by randomly matching employers to employees over a long number of periods ("partners" protocol) rather than changing the pairs every period ("strangers" protocol) in which case "punishment" strategies by unfairly treated employees aim at a "social" rather than a "partner-targeted" learning of fairness rules.

III.4 Treatments

Apart from the main experiment (SNERT) discussed above, we study four different wage bargaining settings. The main characteristics of each treatment are included in Table 4:

- TREATMENT 1 (T1): Random pairs formed in each period; permanent roles, randomly assigned at the beginning of the session. The task is fictitious in order to control for the effect of the real task on observed behavior.

- TREATMENT 2 (T2): Randomly formed (once) fixed pairs. We aim at studying the effects of a permanent and repeated relation between an employer and an employee. The task is hypothetical and subjects answer the control question before the game starts.

- TREATMENT 3 (T3): Like in Treatment 1, but with control questions answered after, rather than before the experiment. We aim at studying the effect of own experience from the experimental labor market on subjects' hypothetical valuation of it.

- TREATMENT 4 (T4): Like in Treatment 2, but with control questions answered after, rather than before the experiment.

Table 4: Main characteristics of the experimental design

Treatments	**N**	**Male**	**Female**	**Markets**	HV	**Matching**	**Task**
SNERT SP	20	6	14	10	Ex-ante	Random	Real
SNERT GR	20	9	11	10	Ex-ante	Random	Real
SNERT UK	20	12	8	10	Ex-ante	Random	Real
T1	20	11	9	10	Ex-ante	Random	Hypothetical
T2	20	10	10	10	Ex-ante	Fixed	Hypothetical
T3	20	15	5	10	Ex-post	Random	Hypothetical
T4	20	10	10	10	Ex-post	Fixed	Hypothetical
Total	140	73	67	70			

IV Results

IV.1 General results and descriptive statistics

In this section we present, first, some descriptive statistics and then discuss the results obtained from a more thorough econometric analysis.

In Table 5, we show average hypothetical valuations (HV) of the game considering all subjects (i.e. both employer- and employee-subjects), as well as disaggregated HV for males and females. In addition, this table includes mean salary offers (MO) proposed in each experimental treatment, distinguishing between salary offers made by men and by women. Except for female's offers in T2, all actual offers lie below subjects' hypothetical valuations of the game from an employee's point of view. Interestingly, this result is also confirmed, but with more exceptions, if we focus only on those subjects who actually acted as employers during the experiment. Table 6 presents mean salary offers (MO) and average hypothetical valuations of this restricted sample (denoted as HV_{er}). Again, actual mean offers are lower than hypothetical valuations of the setting from an employee's point of view, with the exception of T2 in which the contrary occurs for the whole sample and for males (no difference exists for females), and T4 in which females make higher offers than their stated hypothetical valuations from an employee's point of view. That is,

Table 5: Average Hypothetical Valuation (HV) and Mean Offers (MO)

	HV	HV-M	HV-F	MO	MO-M	MO-F
SNERT SP	4.65	4.75	4.61	4.09	4.53	3.80
SNERT GR	5.13	4.89	5.32	4.06	4.11	3.98
SNERT UK	4.45	3.92	5.25	4.97	4.91	5.06
T1	4.78	4.77	4.78	3.96	3.95	3.97
T2	4.65	4.90	4.40	4.46	4.36	4.50
T3	4.52	4.63	4.20	4.04	4.07	4.01
T4	4.65	4.65	4.65	4.30	4.23	4.58

Table 6: Average Hypothetical Evaluation of employer-subjects (HV_{er}) and Mean Offers (MO)

	HV_{er}	HV_{er}-M	HV_{er}-F	MO	MO-M	MO-F
SNERT SP	5.25	5.00	5.42	4.09	4.53	3.80
SNERT GR	5.40	5.25	5.63	4.06	4.11	3.98
SNERT UK	5.45	4.92	6.25	4.97	4.91	5.06
T1	4.55	4.50	4.58	3.96	3.95	3.97
T2	4.45	4.33	4.50	4.46	4.36	4.50
T3	4.25	4.30	4.20	4.04	4.07	4.01
T4	4.55	4.56	4.50	4.30	4.23	4.58

permanent employee-employer matching leads employers to make salary offers which may lie closer to and even higher than their own HV_{er} reported under the hypothetical situation in which they acted as an employee. Whether the elicitation of the hypothetical valuation took place before or after the session (T1 vs. T3 and T2 vs. T4) does not seem to play any systematic role in this finding, indicating that our subjects' valuation of this bargaining environment from an employee's point of view does not depend on experience gained over the session.

Table 7 includes average salaries of successful contracts and average period profits earned by employers and employees in each treatment. Taking the Spanish data set into account, the highest average salary corresponds to the baseline treatment, which is the only one in which employee subjects had to perform the real task. The differences of 0.55€ between SNERT and T1

and 0.26 € between SNERT and T3 are statistically significant[15] and can be interpreted as the shadow market price of the cost borne by employees when performing the task of filling 20 envelops with their corresponding one-page letters. Other differences are in the expected direction: Fixed-matching treatments (T2 and T4 over T1 and T3) yield higher salaries, confirming the analogies that can be drawn between our experiment and real world labor markets, where repeated employer-employee interaction should be expected to mitigate opportunistic or excessively selfish behavior by the employers. Non systematic evidence is obtained on the possible effects of the *HV'* elicitation procedure on observed behavior, given that T1-T3 differences are significant, whereas T2-T4 differences are not (see Table 18 in the appendix).

The SNERT has yielded the lowest salaries in Greece and the highest in the UK. Spain lies in between and all differences are statistically significant. It is interesting that the observed salaries in the SNERT reproduce the ranking of the three countries in terms of GDP, consumer price indices and wage levels. This implies that replicating the same experimental setup in different countries may lead to differences which depend on the levels of income and other macroeconomic determinants of subjects' opportunity costs and target earnings. Following these differences, but not trivially, the resulting average period earnings of employees are also significantly different across countries. The ranking follows the aforementioned ranking with UK in the first, Spain in the second and Greece in the third place. In that sense, employers' profits in Table 7 follow exactly the opposite ranking, implying a more egalitarian sharing of the 10-euro pie in the UK and a more unequal one in Greece. A more detailed analysis of the forces underlying this finding is provided later in the text, where econometric models of offer and rejection determinants are estimated using panel techniques.

[15]The results obtained from non parametric Mann-Whitney tests on the comparison of treatment pairs in terms of salaries is provided in Table 18.

Table 7: Salaries-Employers' Profits

	Average Salaries			Employers' Profits							
						Male			***Female***		
	N	*Sal.*	*St.D.*	*Prof.*	*St.D.*	*N*	*Prof.*	*St.D.*	*N*	*Prof.*	*St.D.*
SNERT SP	222	4.55	0.80	3.66	2.64	132	3.88	2.37	198	3.52	2.81
SNERT GR	231	4.21	0.40	4.05	2.68	198	4.14	2.63	132	3.93	2.76
SNERT UK	225	5.19	0.60	3.28	2.30	198	3.23	2.35	132	3.36	2.22
T1	275	4.00	0.16	5.00	2.24	132	5.18	2.08	198	4.87	2.35
T2	231	4.50	0.60	3.85	2.57	99	4.98	1.87	231	3.37	2.68
T3	234	4.29	0.71	4.05	2.66	165	4.08	2.70	165	4.02	2.63
T4	261	4.45	0.52	4.39	2.31	264	4.24	2.45	66	4.97	1.50

In Tables 8, 9 and 10 we show the evolution of offers and the rate of rejections per treatment. We observe some learning effects. Tables 9 and 10 show two different sides of rejected offers. The former focuses on the gender of rejected proposers, whereas the latter focuses on the gender of the employee rejecting the offer. These differences will be discussed in more detail using regression analysis. We present, first, graphics with the evolution and the distribution of offers and subjects' hypothetical valuation. Figure 2 indicates that employees' HV differ across treatments, whereas some (moderate) gender differences are observed in Figure 3. Figure 4 reflects the increasing time trend which is a common feature of all treatments and both male and female subjects' behavior. Figure 5 presents offer frequencies, which exhibit very similar patterns across treatments. In Figure 6 we observe moderate gender effects. Finally, Figure 7 shows the distribution of accepted and rejected offers.

IV.2 Country differences and gender effects

Table 11 reports results from the estimation of the baseline model of offers capturing the main features of employer behavior.[16] Significance levels are

[16]We have used the technique of Feasible Generalized Least Squares with random effects for the estimation model.

denoted by an asterisk (two, three) corresponding to a confidence interval of 90% (95%, 99%). It can be seen that a significant gender effect is obtained. Overall, female subjects make lower offers than males. Furthermore, the UK dummy is significant, implying that subjects in the Aberdeen session have been posting higher wage offers than Greek employer-subjects, whose corresponding coefficient is nonsignificant, and the Spanish who are used here as the reference group. T2 and T4 dummies confirm a significant positive effect of permanent matching on the wage offered to employees.

However, our interest is in the interplay between country and gender differences. In Table 12 we present three country-specific models on employers' behavior. The gender dummy coefficient is nonsignificant for British employers. In the other two countries, female employers have posted significantly lower wage offers. In fact, both coefficient estimates and the corresponding statistics are of very similar sizes. Both the baseline model and the country-specific models confirm an increasing tendency of offers over time. That is, employers learn to make higher offers, probably because they gain experience on employees' revealed minimum acceptable wages. Also, we estimate a negative effect of the employer's V_{er} elicited on the hypothetical case that the employer acted as an employee. This is an interesting finding, as it shows that the higher a subject values a given bargaining environment, the lower he/she is offering a compensation for "others" to accept participating in it.

Tables 15 and 16 present the results from the estimation of rejection models describing employees' behavior. As we should expect, higher offers entail a lower rejection probability. In fact, we have estimated a model including the quadratic transformation of salary offers, as preliminary explorative analysis indicated a superior performance of this specification with respect to the linear one. This may be due to the fact that employees tend to accept with total certainty offers above a given (high) threshold and reject offers below another (low) threshold. Thus, rejection probabilities are not linearly correlated with offers. Greek employees have a lower and British employees a higher rejection

probability. Overall, females reject more than males. The country-specific rejection models in Table 16 indicate that Greek and Spanish female employees reject more than males, whereas British female employees reject less than males. No systematic findings can be reported on the effects of the T1-T4 dummies in rejection behavior. The expected positive effect of a subject's hypothetical valuation on his/her rejection probability is only confirmed in the case of Spain.

As a preliminary conclusion, we observe that significant gender differences exist and they significantly vary across countries. Greek and Spanish females behave similarly to each other and they both differ from British subjects in the same way. Females from the two Mediterranean countries offer lower wages than males and reject with a higher probability, whereas females from the UK post similar wage offers and reject less than males.

IV.3 Gender effects and risk attitudes

In this subsection, we study the interplay between gender and risk attitudes. We focus on the data obtained from the sessions in Spain, which include additional information on our subjects' risk attitudes. As we have already confirmed from the preceding discussion of the baseline model, a significant gender effect exists. Namely, females offer lower salaries than male subjects do.

However, our design allows us to test for the validity of the usual claim made in the literature that gender effects in bargaining experiments are partly due to females' higher degree of risk aversion. First of all, it is worth reporting that the basis for this claim should be the relationship between gender and risky decision making. This finding is also confirmed by our data as shown by the result of a simple regression in Table 13, in which females are found to choose safer lotteries in our lottery-panel task. This result seems to agree with a large part of the literature on this matter[17]. Thus, the next step is to

[17]An interesting way of attributing this finding to feminine behavior independently of

run a model including both gender and risk aversion among the explanatory variables of the observed offers.

Table 14 reports results from such a model. With respect to our main question, we confirm that risk aversion affects[18] posted offers in the expected direction: the more risk averse a subject is, the higher the offers he/she posts. However, this contrasts with the fact that females (who are found to be more risk averse than males) make lower salary offers, which suggests that the genuine gender and the risk-related effects go into two opposite directions: the former tends to lower offers, while the latter yields higher ones. By inspection of the estimates obtained, it can be checked that, once subjects' risk attitudes are accounted for, the gender effect becomes even stronger[19], because the risk-related counter-effect is now absorbed by the risk attitude coefficient.

We move now to a model designed to identify the factors affecting an employee-subject's probability of rejecting a certain salary offer. Table 17 presents the results. As reported on the model estimates presented in Tables 15 and 16, a higher salary offer entails a lower rejection probability. Contrary to the offer model, the period variable is non significant, indicating a stationary behavior of rejection probabilities over time.

With respect to our central issue, both risk aversion and gender variables are significant. The former indicates that the more risk averse a subject is, the lower is his or her probability of rejecting a given salary offer. This result is not expected, given that no uncertainty is involved in a subjects' decision to accept or reject a given offer. Obviously, explaining this finding requires a more complex dynamic analysis considering rejections as a risky loss of present gains against the expectation of higher offers in the future. Females tend to reject more than males. Like in the case of the offer model whose results

biological sex is reported in Meier-Pesti (2005).

[18] At a 10% significance level.

[19] As reflected on the difference of the corresponding coefficient estimates obtained across the two alternative offer models (1 and 2 in Tables 12 and 14, respectively), rising from 0.13 to 0.16.

were reported above, the combination of these two findings indicates that the tendency of females to reject more is a pure gender effect going into the opposite direction as compared to the risk-related effect, according to which more risk averse subjects should be expected to exhibit a lower tendency to reject a given offer.

V Conclusions

Regarding salary formation as the result of ultimatum bargaining, our main result can be stated in two steps. First, in comparison with standard ultimatum bargaining experiments, our baseline treatment, framed as a labor market with a hypothetical task, reproduces the usual 60%-40% "split of the pie". Second, when employee-subjects are asked to perform a real task, the resulting salaries are significantly higher than in the standard no-real-effort setting. Following the resemblance between our baseline treatment and previous abstract (non-labor framed) ultimatum games, the reported salary differences are unambiguously associated with employees' real effort. Furthermore, we show that the effect of real effort on observed salaries is due to differences in both employer- and employee-subjects' behavior. Specifically, in the real-effort treatment, employers post higher salary offers and employees are more likely to reject.

In this framework, we have focused on country-specific and risk-related determinants of gender effects in ultimatum bargaining. We find that females from Spain and Greece behave in similar ways, whereas they both differ in similar ways from British female bargainers. Specifically, female subjects from Spain and Greece make lower offers than males, whereas no difference is obtained between male and female subjects' offers in the UK. As far as rejections are concerned, female subjects from Spain and Greece reject more, while female subjects from the UK reject less than the corresponding male subjects do.

A central issue addressed in this paper is the extent to which gender differences in bargaining behavior can be explained as the result of gender differences in decision making under uncertainty. As many researchers have proved, female subjects are more risk averse than male ones[20]. This is also confirmed by our results. However, our results indicate that risk averse subjects tend to post higher wage offers and are more likely to accept a given wage. Contrary to what would be expected from the combination of these two findings on the relation between gender and risk aversion and the effect of risk aversion on employer and employee behavior, we find that females offer lower wages and reject more than males do. That is, the gender effect estimated from our experimental data cannot be *because* but rather *despite* females higher degree of risk aversion.

References

[1] Andreoni, J. and L. Vesterlund, 2001, "Which is the fair sex? Gender differences in altruism". *Quarterly Journal of Economics* 116, 293-312.

[2] Aranoff, D. and J. Tedeschi, 1968, "Original stakes and behavior in the Prisoner's Dilemma Game". *Psychonomic Science* 12(2), 79-80.

[3] Bearden, J., 2003, "Ultimatum bargaining experiments: The state of the art". *mimeo.*

[4] Binmore, K., Shaked, A. and J. Sutton, 1985, "Testing noncooperative bargaining theory". *American Economic Review* 75, 1178-1180.

[20]Studies by Powell (1997), Schubert et al. (1999), and Eckel and Grossman (2001) find evidence that women are more risk averse in financial decision-making in experimental settings. In a more recent study by Meier-Pesti (2005), this difference was explicitly associated with the feminine stereotype which can be disentangled and, thus, separately studied from biological sex with the use of specific psychological tests.

[5] Binmore, K., Shaked, A. and J. Sutton, 1988, "A further test of non-cooperative bargaining theory: Reply". *American Economic Review* 78, 837-839.

[6] Bolton, G. and E. Katok, 1995, "An experimental test for gender differences in beneficent behavior". *Economics Letters* 48, 287-292.

[7] Byrnes, J.P., Miller, D.C. and W.D. Schafer, 1999, "Gender differences in risk taking: A meta-analysis". *Psychological Bulletin* 125, 367-383.

[8] Brown-Kruse, J. and D. Hummels, 1993, "Gender effects in laboratory public goods contributions: Do individuals put their money where their mouth is?". *Journal of Economic Behavior and Organization* 22, 255-268.

[9] Cadsby, C. and E. Maynes, 1998, "Gender and free riding in a threshold Public Goods Game: Experimental evidence". *Journal of Economic Behavior and Organization* 34, 603-620.

[10] Chuah, S-H, Hoffmann, M. J. and G. Williams, 2005, "An economic anatomy of culture: Attitudes and behaviour in inter- and intra-national Ultimatum Game experiments". *Occasional Papers* 13, Industrial Economics Division.

[11] Eckel, C. and P. Grossman, 1996, "The relative price of fairness: Gender differences in a punishment Game". *Journal of Economic Behavior and Organization* 30, 143-158.

[12] Eckel, C. and P. Grossman, 1998,"Are women less selfish than men? Evidence from dictator experiments". *Economic Journal* 108, 726-735.

[13] Eckel, C. and P. Grossman, 2001, "Chivalry and solidarity in Ultimatum Games". *Economic Inquiry* 39, 171-188.

[14] Eckel, C. and P. Grossman, 2005, "Differences in the economic decisions of men and women: Experimental evidence". In: C. Plott and V. Smith

(eds.) *Handbook of Experimental Economics Results* 1, New York: North Holland.

[15] Fehr, E. and K. Schmidt, 2000, "Theories of fairness and reciprocity: Evidence and economic applications". *CESifo Working Paper Series*, Working Paper No. 403.

[16] Fischbacher, U., 1999, "z-Tree: Zurich toolbox for readymade economic experiments. Experimenter's manual". *Working Paper 21, Institute for Empirical Research in Economics*, University of Zurich.

[17] Frey, B. and I. Bohnet, 1995, "Institutions affect fairness: Experimental investigations". *Journal of Institutional and Theoretical Economics* 151, 286-303.

[18] Gneezy, U. Niederle, M. and A. Rustichini, 2003, "Performance in competitive environments: Gender differences". *The Quarterly Journal of Economics*, 1049-1073.

[19] Güth, W., Schmittberger, R. and B. Schwarze, 1982, "An experimental analysis of ultimatum bargaining". *Journal of Economic Behavior and Organization* 75, 367-388.

[20] Kahn, A., Hottes, J. and W. Davis, 1971, "Cooperation and optimal responding in the Prisoner's Dilemma game: Effects of sex and physical attractiveness". *Journal of Personality and Social Psychology* 17(3), 267-279.

[21] Mack, D., Auburn, D. and G. Knight, 1971, "Sex role identification and behavior in a reiterated Prisoner's Dilemma game". *Psychonomic Science* 24(6), 280-282.

[22] Meier-Pesti, K., 2005, "Effects of masculinity and femininity on financial risk-taking: Some evidence from an experimental study on gender

salience". XXX meeting of the *International Association of Research in Economic Psychology*, Prague.

[23] Meux, E., 1973, "Concern for the common good in an n-person Game". *Journal of Personality and Social Psychology* 28(3), 414-418.

[24] Nowell, C. and S. Tinkler, 1994, "The influence of gender on the provision of a public good". *Journal of Economic Behavior and Organization* 25, 25-36.

[25] Oosterbeek, H., Sloof, R. S. and G. van de Kuilen, 2004, "Cultural differences in Ultimatum Game experiments: Evidence from a meta-analysis". *Experimental Economics* 7, 171-188.

[26] Ortmann, A. and L. Tichy, 1999, "Gender effects in the laboratory: Evidence from Prisoners' Dilemma Games". *Journal of Economic Behavior and Organization* 39(3), 327-339.

[27] Powell, M. and D. Ansic, 1997, "Gender differences in risk behaviour in financial decision-making: An experimental analysis". *Journal of Economic Psychology* 18(6), 605-628.

[28] Roth, A., 1995, "Bargaining experiments", In: J. Kagel and A. Roth (eds.) *The Handbook of Experimental Economics*, Princeton University Press, Princeton, 235-348.

[29] Saad, G. and T. Gill, 2001, "Sex differences in the Ultimatum Game". *Journal of Bioeconomics* 3, 171-193.

[30] Sabater, G. and N. Georgantzís, 2002, "Accounting for risk aversion in repeated Prisoners' Dilemma Games: An experimental test". *Journal of Economic Behavior and Organization* 48, 37-51.

[31] Schubert, R., Brown, M., Gysler, M. and H.W. Brachinger, 1999, "Financial decision making: Are women really more risk averse?". *American Economic Review (Papers and Proceedings)* 89(2), 381-385.

[32] Seguino, S., Stevens, T. and M. Lutz, 1996, "Gender and cooperative behaviour: Economic man rides alone". *Feminist Economics* 2, 1-21.

[33] Sell, J., 1997, "Gender, strategies, and contributions to public goods". *Social Psychology Quarterly* 60, 252-265.

[34] Sell, J., Griffith, W. and R. Wilson, 1993, "Are women more cooperative than men in social dilemmas?". *Social Psychology Quarterly* 56, 211-222.

[35] Sell, J. and R. Wilson, 1991, "Levels of information and contributions to public goods". *Social Forces* 70(1), 107-124.

[36] Solnick, S.J., 2001, "Gender differences in the Ultimatum Game". *Economic Inquiry* 39(2), 189-200.

[37] Sutter, M., Bosman, R., Kocher, M. and F. van Winden, 2003, "Experimental evidence of the importance of gender pairing in bargaining". *mimeo.*

[38] Thaler, R., 1988, "Anomalies: The Ultimatum Game". *Journal of Economic Perspectives* 2, 195-206.

VI Appendix

VI.1 Tables and Figures

Table 8: Evolution of offers

	1st period			First 5 periods			Last 5 periods			Last period		
Treatment	*N*	*Mean*	*St.D.*	*N*	*Mean*	*St.D.*	*N*	*Mean*	*St.D.*	*N*	*Mean*	*St.D.*
SNERT SP												
Total Offers	10	3.36	1.41	50	3.68	1.27	50	4.18	1.23	10	4.17	1.26
Male Offers	4	4.38	0.75	20	4.18	0.80	20	4.63	0.43	4	4.63	0.48
Female Offers	6	2.68	1.37	30	3.35	1.42	30	3.88	1.49	6	3.87	1.57
SNERT GR												
Total Offers	10	3.80	1.36	50	3.80	0.91	50	4.20	0.24	10	4.17	0.30
Male Offers	6	4.33	0.84	30	4.20	0.55	30	4.25	0.24	6	4.23	0.29
Female Offers	4	3.00	1.71	20	3.21	1.04	20	4.14	0.22	4	4.08	0.28
SNERT UK												
Total Offers	10	3.92	1.42	50	4.69	1.24	50	4.90	0.58	10	5.06	0.24
Male Offers	6	3.78	1.39	30	4.30	1.05	30	4.95	0.32	6	5.00	0.19
Female Offers	4	4.13	1.65	20	5.27	1.31	20	4.83	0.84	4	5.15	0.30
T1												
Total Offers	10	3.90	0.33	50	3.85	0.30	50	4.01	0.18	10	3.99	0.03
Male Offers	4	3.75	0.50	20	3.75	0.38	20	4.04	0.14	4	4.00	0.00
Female Offers	6	4.00	0.13	30	3.92	0.22	30	3.99	0.18	6	3.98	0.04
T2												
Total Offers	10	3.58	0.81	50	3.89	0.68	50	4.84	0.66	10	4.78	0.69
Male Offers	3	4.00	0.87	15	4.01	0.57	15	4.71	0.64	3	4.43	0.51
Female Offers	7	3.40	0.77	35	3.84	0.73	35	4.89	0.66	7	4.93	0.73
T3												
Total Offers	10	3.98	1.87	50	3.72	1.44	50	4.14	0.88	10	4.27	0.68
Male Offers	5	3.90	0.55	25	4.14	0.77	25	3.85	0.94	5	4.04	0.32
Female Offers	5	4.06	2.75	25	3.30	1.80	25	4.44	0.72	5	4.50	0.90
T4												
Total Offers	10	4.23	1.20	50	4.06	0.78	50	4.28	0.91	10	4.29	0.79
Male Offers	8	4.10	1.32	40	3.91	0.78	40	4.20	0.97	8	4.24	0.84
Female Offers	2	4.75	0.35	10	4.68	0.37	10	4.60	0.52	2	4.50	0.71

Table 9: Evolution of rejected Male and Female Subjects' Offers

	1st period		First 5 periods		Last 5 periods		Last period		All periods	
Treatment	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*
SNERT SP										
Total Rejections	10	50%	50	36%	50	30%	10	20%	330	33%
Male Of. Rej.	4	25%	20	45%	20	10%	4	0%	132	27%
Female Of. Rej.	6	67%	30	30%	30	43%	6	33%	198	37%
SNERT GR										
Total Rejections	10	20%	50	28%	50	20%	10	30%	330	30%
Male Of. Rej.	6	17%	30	20%	30	17%	6	17%	198	28%
Female Of. Rej.	4	25%	20	40%	20	25%	4	50%	132	33%
SNERT UK										
Total Rejections	10	50%	50	38%	50	30%	10	20%	330	32%
Male Of. Rej.	6	50%	30	37%	30	30%	6	33%	198	34%
Female Of. Rej.	4	50%	20	40%	20	30%	4	0%	132	29%
T1										
Total Rejections	10	10%	50	30%	50	10%	10	10%	330	17%
Male Of. Rej.	4	25%	20	35%	20	0%	4	0%	132	14%
Female Of. Rej.	6	0%	30	27%	30	17%	6	17%	198	19%
T2										
Total Rejections	10	40%	50	38%	50	20%	10	20%	330	30%
Male Of. Rej.	3	0%	15	13%	15	7%	3	0%	99	11%
Female Of. Rej.	7	57%	35	49%	35	26%	7	29%	231	38%
T3										
Total Rejections	10	30%	50	38%	50	26%	10	10%	330	29%
Male Of. Rej.	5	20%	25	28%	25	28%	5	20%	165	30%
Female Of. Rej.	5	40%	25	48%	25	24%	5	0%	165	28%
T4										
Total Rejections	10	40%	50	52%	50	14%	10	20%	330	21%
Male Of. Rej.	8	50%	40	63%	40	18%	8	25%	264	24%
Female Of. Rej.	2	0%	10	10%	10	0%	2	0%	66	8%

Table 10: Evolution of offers rejected by Male and Female Employees

	1st period		First 5 periods		Last 5 periods		Last period		All periods	
Treatment	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*
SNERT SP										
Total Rejections	10	50%	50	36%	50	30%	10	20%	330	33%
Male Reject.	2	50%	10	10%	10	0%	2	0%	66	5%
Female Reject.	8	50%	40	43%	40	38%	8	25%	264	40%
SNERT GR										
Total Rejections	10	20%	50	28%	50	20%	10	30%	330	30%
Male Reject.	3	0%	15	13%	15	7%	3	33%	99	18%
Female Reject.	7	29%	35	34%	35	26%	7	29%	231	35%
SNERT UK										
Total Rejections	10	50%	50	38%	50	30%	10	20%	330	32%
Male Reject.	6	67%	30	53%	30	33%	6	33%	198	41%
Female Reject.	4	25%	20	15%	20	25%	4	0%	132	17%
T1										
Total Rejections	10	10%	50	30%	50	10%	10	10%	330	17%
Male Reject.	7	14%	35	31%	35	9%	7	14%	231	15%
Female Reject.	3	0%	15	27%	15	13%	3	0%	99	21%
T2										
Total Rejections	10	40%	50	38%	50	20%	10	20%	330	30%
Male Reject.	7	43%	35	34%	35	17%	7	14%	231	29%
Female Reject.	3	33%	15	47%	15	27%	3	33%	99	31%
T3										
Total Rejections	10	30%	50	38%	50	26%	10	10%	330	29%
Male Reject.	10	30%	50	38%	50	26%	10	10%	330	29%
Female Reject.	-	-	-	-	-	-	-	-	-	-
T4										
Total Rejections	10	40%	50	52%	50	14%	10	20%	330	21%
Male Reject.	2	50%	10	90%	10	10%	2	0%	66	30%
Female Reject.	8	38%	40	43%	40	15%	8	25%	264	19%

Table 11: Offers' Baseline Model

Offer	*Coefficient*	*t-statistic*
cons	4.43	48.96***
period	0.01	9.00***
V_{er}	-0.12	-8.16***
gender	0.10	2.86***
SNERT GR	-0.01	-0.13
SNERT UK	0.83	13.97***
T1	-0.09	-1.52*
T2	0.36	6.20***
T3	-0.04	-0.75
T4	0.18	3.07***
χ^2	582.36	
N	2310	

Table 12: Country Specific Models of Offers

	Spain		**Greece**		**UK**	
Offer	*Coeff.*	*t-statistic*	*Coeff.*	*t-statistic*	*Coeff.*	*t-statistic*
cons	4.49	37.79***	4.12	35.07***	5.43	27.74***
period	0.02	7.85***	0.02	5.41***	0.01	1.34
V_{er}	-0.14	-6.94***	-0.07	-3.80***	-0.10	-2.72***
gender	0.13	2.96***	0.13	2.39***	-0.07	-0.88
T1	-0.08	-1.31	-	-	-	-
T2	0.37	5.85***	-	-	-	-
T3	-0.04	-0.71	-	-	-	-
T4	0.18	2.72***	-	-	-	-
χ^2	202.27		42.94		12.59	
N	1650		330		330	

Table 13: Gender-Risk Aversion Model

Lotteries	*Coefficient*	*t-statistic*
cons	0.52	19.49
gender	-0.14	-3.78
R^2	0.13	
N	100	

Table 14: Offers' Model with Risk and Gender

Offer	*Coefficient*	z
cons	4.40	33.91^{***}
period	0.07	7.85^{***}
V_{er}	-0.14	-6.99^{***}
Lotteries	0.17	1.68^{*}
gender	0.16	3.38^{***}
T1	-0.07	-1.16
T2	0.36	5.66^{***}
T3	-0.03	-0.42
T4	0.17	2.61^{***}
χ^2	205.46	
N	1650	

Table 15: Rejection Probability Baseline Model

Prob. of Rejctn.	*Coefficient*	*z*
cons	2.08	7.62***
period	-0.00	-0.69
V_{ee}	0.09	2.60***
Offer^2	-0.16	-17.95***
gender	-0.62	-4.28***
SNERT GR	-0.72	-2.57***
SNERT UK	1.58	5.29***
T1	-0.81	-3.48***
T2	-0.01	-0.05
T3	0.86	3.56***
T4	-0.27	-1.16
χ^2	373.22	
N	2310	

Table 16: Country Specific Rejection Probability Models

	Spain		**Greece**		**UK**	
Prob. of Rejctn.	*Coeff.*	*t-statistic*	*Coeff.*	*t-statistic*	*Coeff.*	*t-statistic*
cons	1.96	6.19***	3.55	3.57***	2.02	3.08***
period	-0.00	-0.08	0.01	1.15	-0.02	-2.02***
V_{ee}	0.09	2.28***	0.16	0.94	0.08	1.28
Offer^2	-0.16	-13.85***	-0.31	-8.03***	-0.14	-7.50***
gender	-0.53	-2.96***	-0.83	-2.58***	1.05	2.08***
T1	-0.82	-3.30***	-	-	-	-
T2	0.20	0.79	-	-	-	-
T3	-0.08	-0.25	-	-	-	-
T4	-0.28	-1.19	-	-	-	-
χ^2	241.31		67.61		63.89	
N	1650		330		330	

Table 17: Rejection Probability Model

Prob. of Rejctn.	*Coefficient*	*z*
cons	2.73	8.13***
period	0.00	0.09
V_{ee}	0.12	3.18***
Offer^2	-0.16	-14.94***
lotteries	-1.34	-3.89***
gender	-1.01	-6.49***
T1	-0.90	-5.44***
T2	0.47	2.89***
T3	0.37	1.69*
T4	-0.47	-3.09***
χ^2	296.07	
N	1650	

Table 18: Mean Salaries

	Statistics			Difference Significance (M-W test, p-values in parentheses)						
	N	*Mean*	*St.D.*	**SNERT SP**	**SNERT GR**	**SNERT UK**	**T1**	**T2**	**T3**	**T4**
SNERT SP	222	4.55	0.80	-	-	-	-	-	-	-
SNERT GR	231	4.21	0.40	-8.336 (0.000)	-	-	-	-	-	-
SNERT UK	225	5.19	0.60	-10.490 (0.000)	-16.636 (0.000)	-	-	-	-	-
T1	275	4.00	0.16	12.997 (0.000)	9.533 (0.000)	19.236 (0.000)	-	-	-	-
T2	231	4.50	0.60	3.004 (0.003)	-5.086 (0.000)	12.302 (0.000)	-13.900 (0.000)	-	-	-
T3	234	4.29	0.71	6.000 (0.000)	-1.430 (0.153)	13.975 (0.000)	-7.805 (0.000)	-3.291 (0.001)	-	-
T4	261	4.45	0.52	2.251 (0.024)	-4.666 (0.000)	12.433 (0.000)	-12.357 (0.000)	0.434 (0.665)	-3.265 (0.001)	-

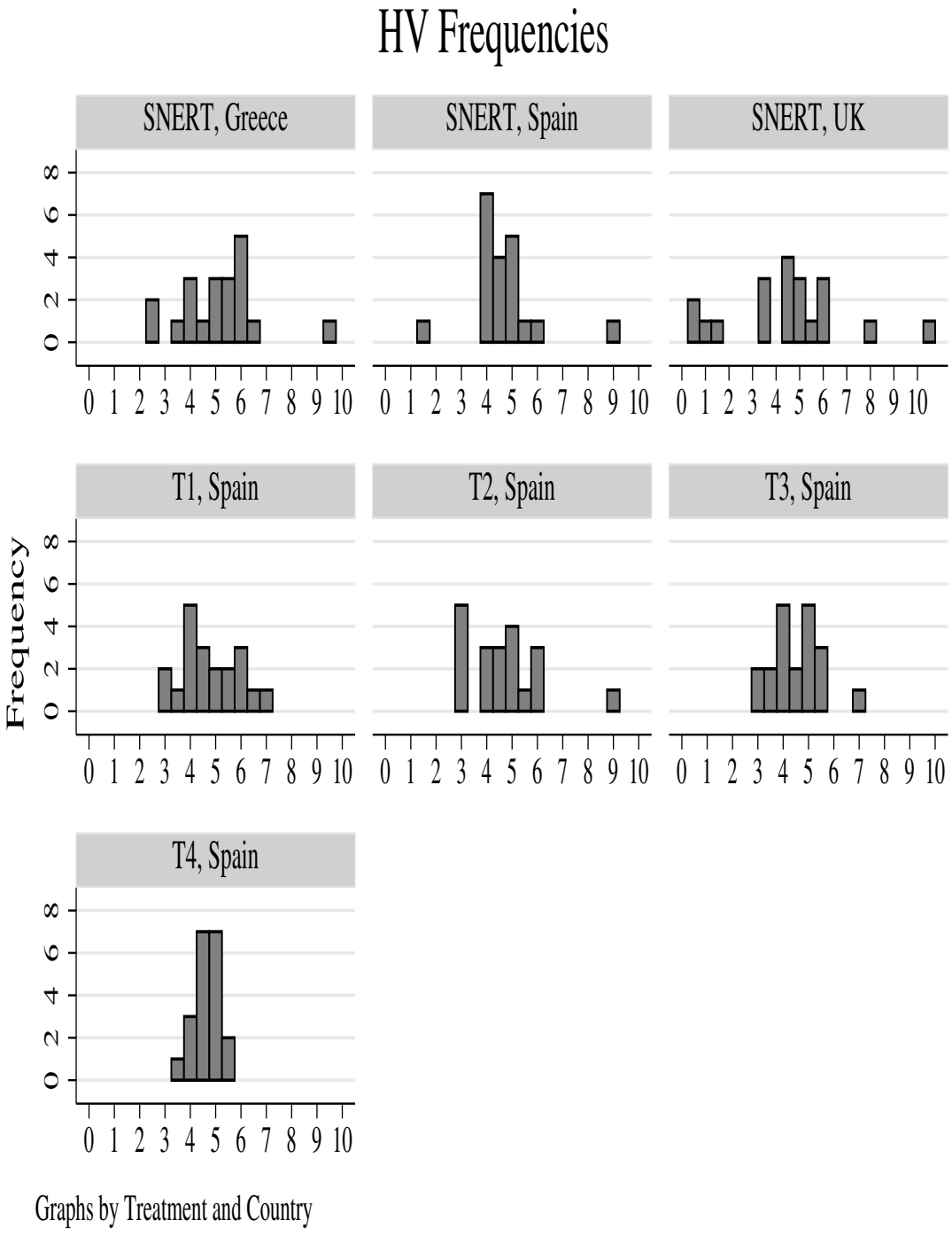

Figure 1: Control Question results: Frequencies of hypothetical valuations (HV) of the game.

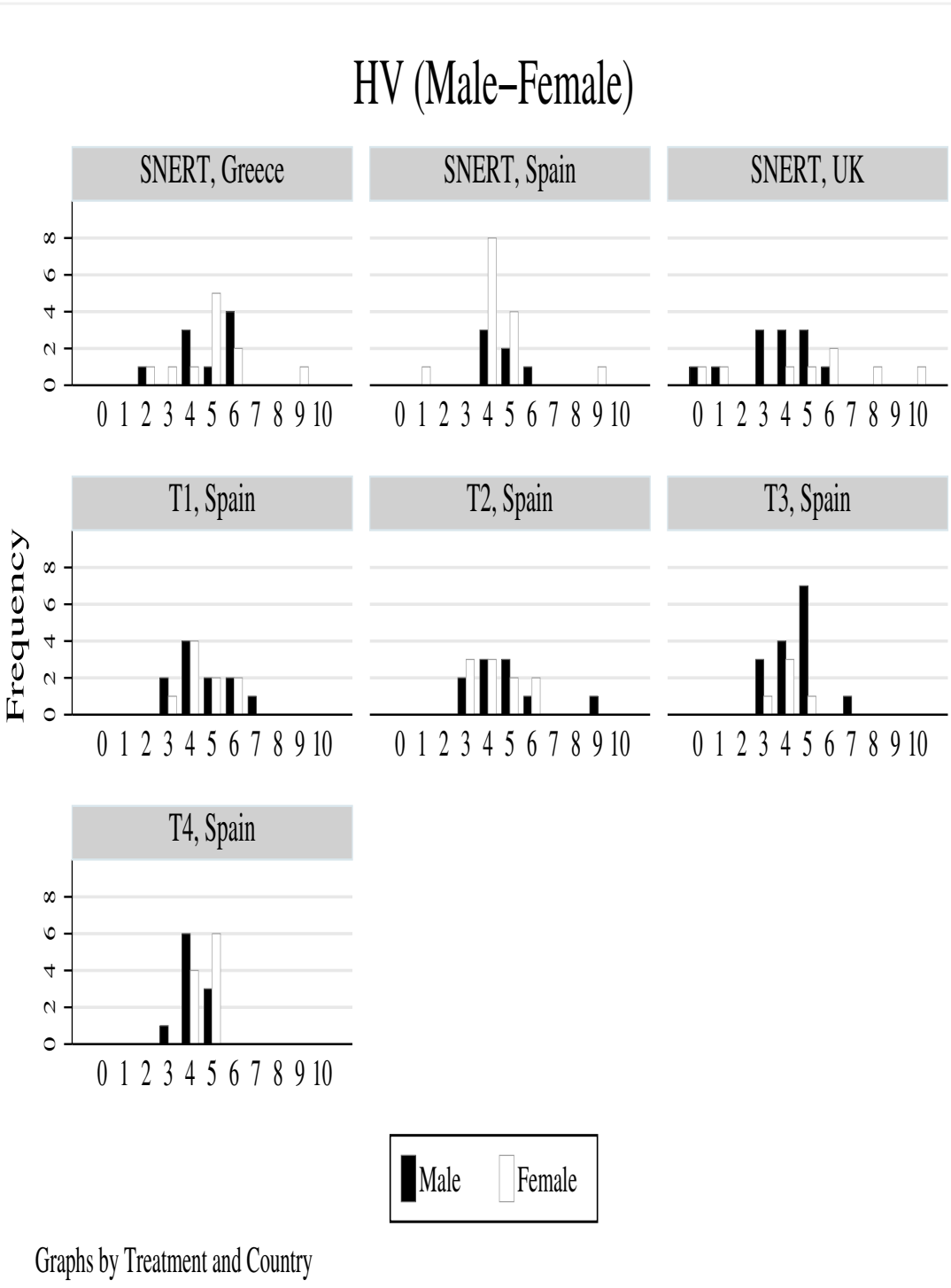

Figure 2: Frequencies of hypothetical valuations (HV) of the game by gender.

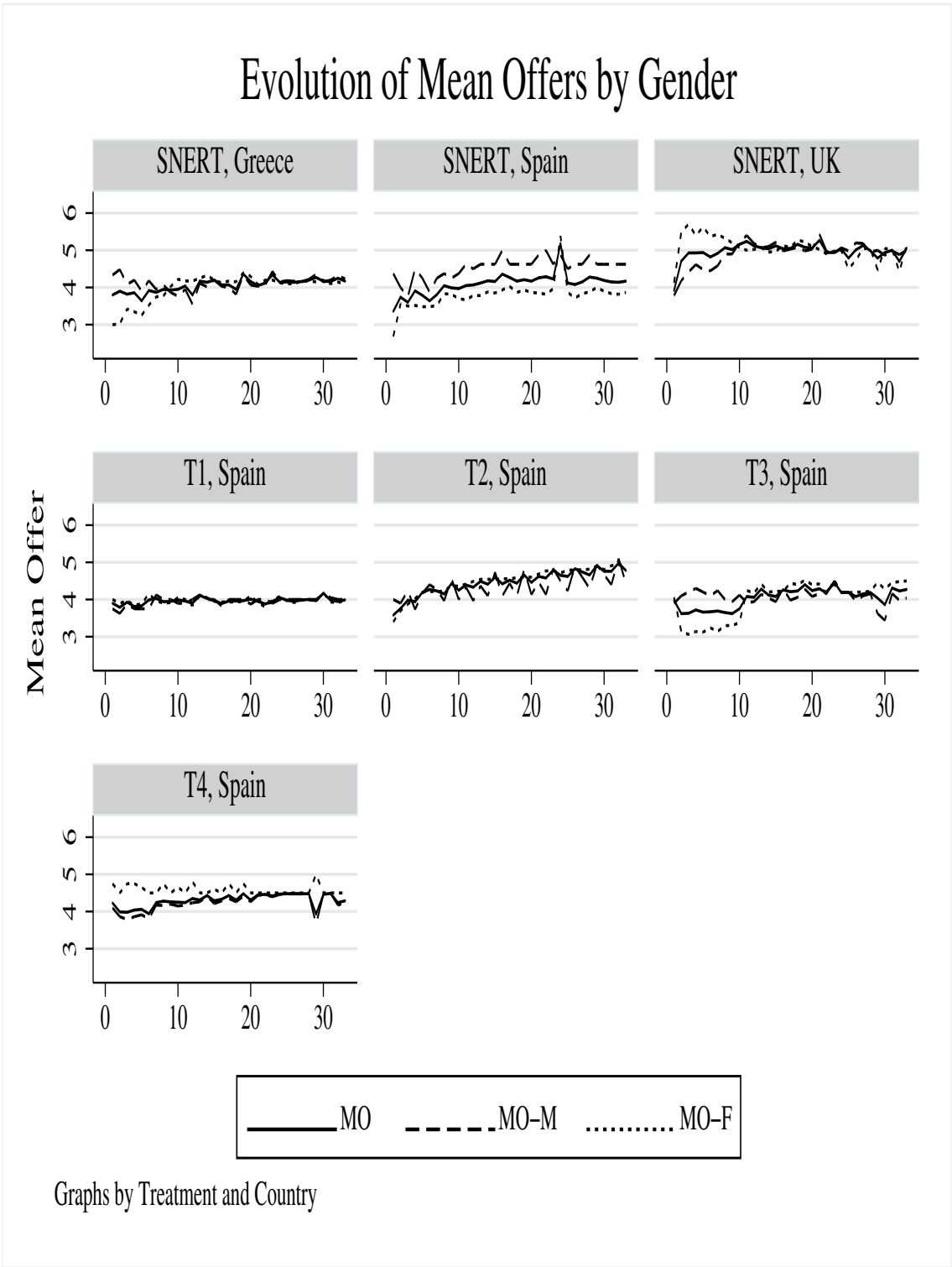

Figure 3: Evolution of offers.

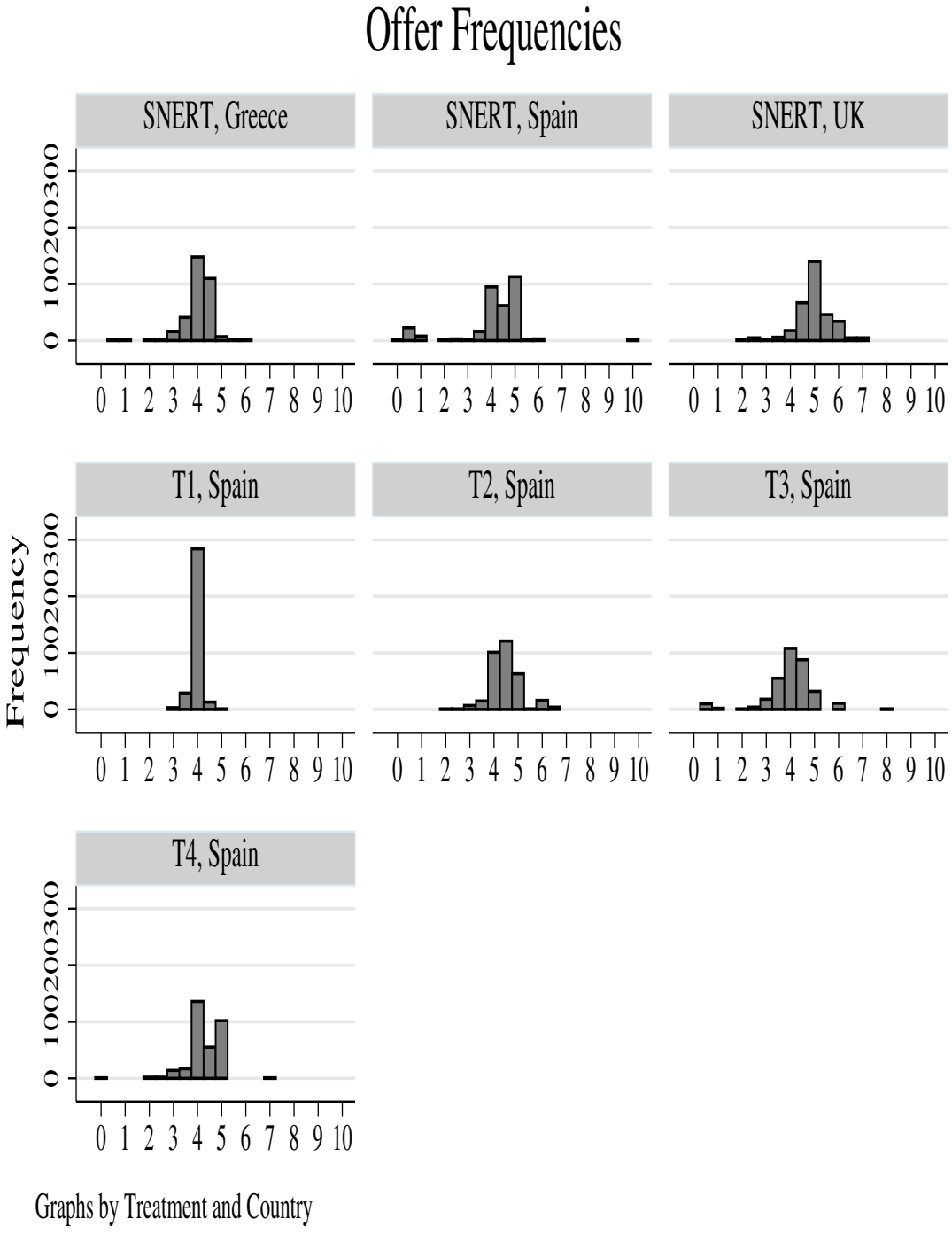

Figure 4: Aggregate offer data: Offer frequencies.

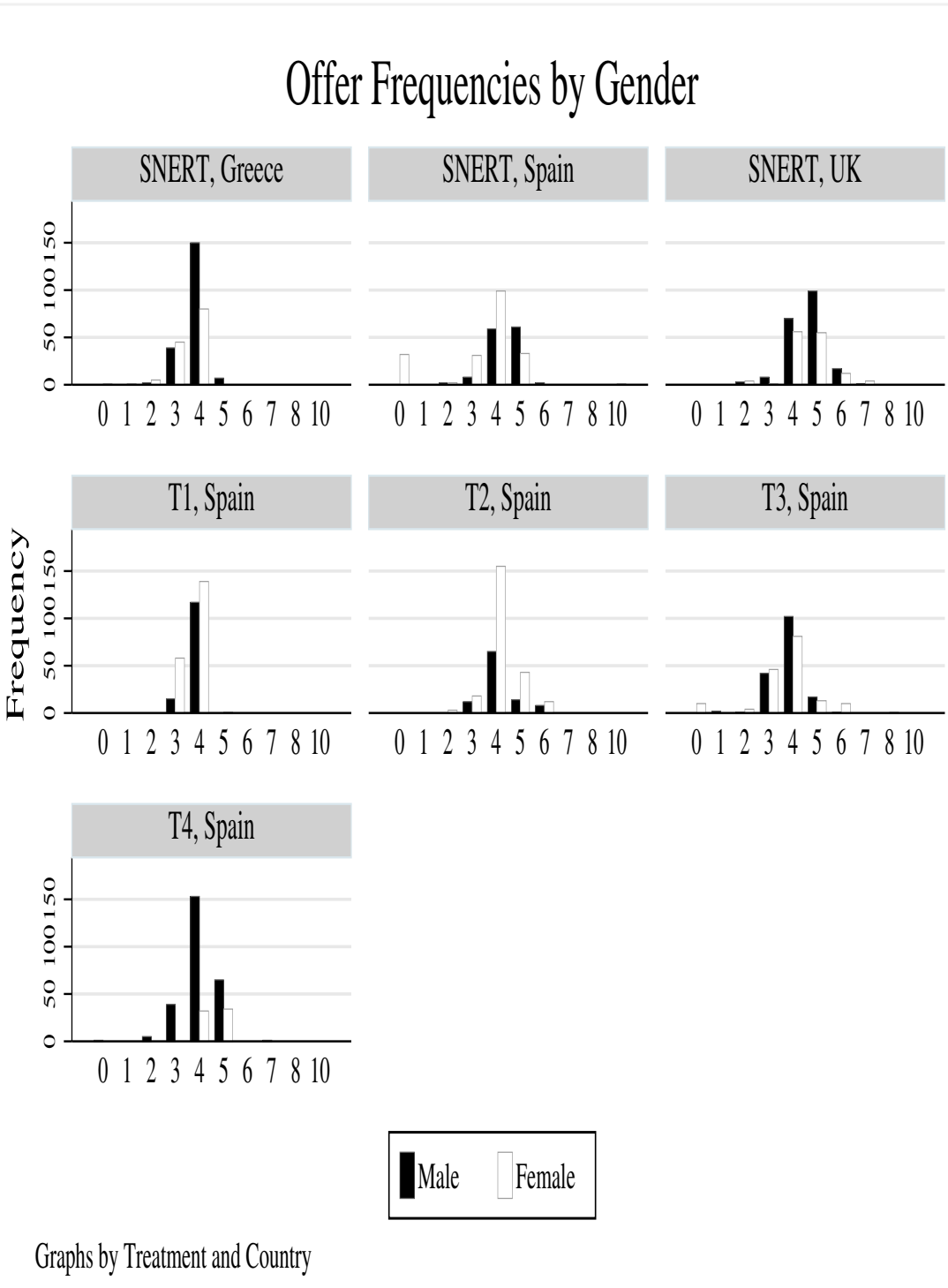

Figure 5: Offer frequencies by gender.

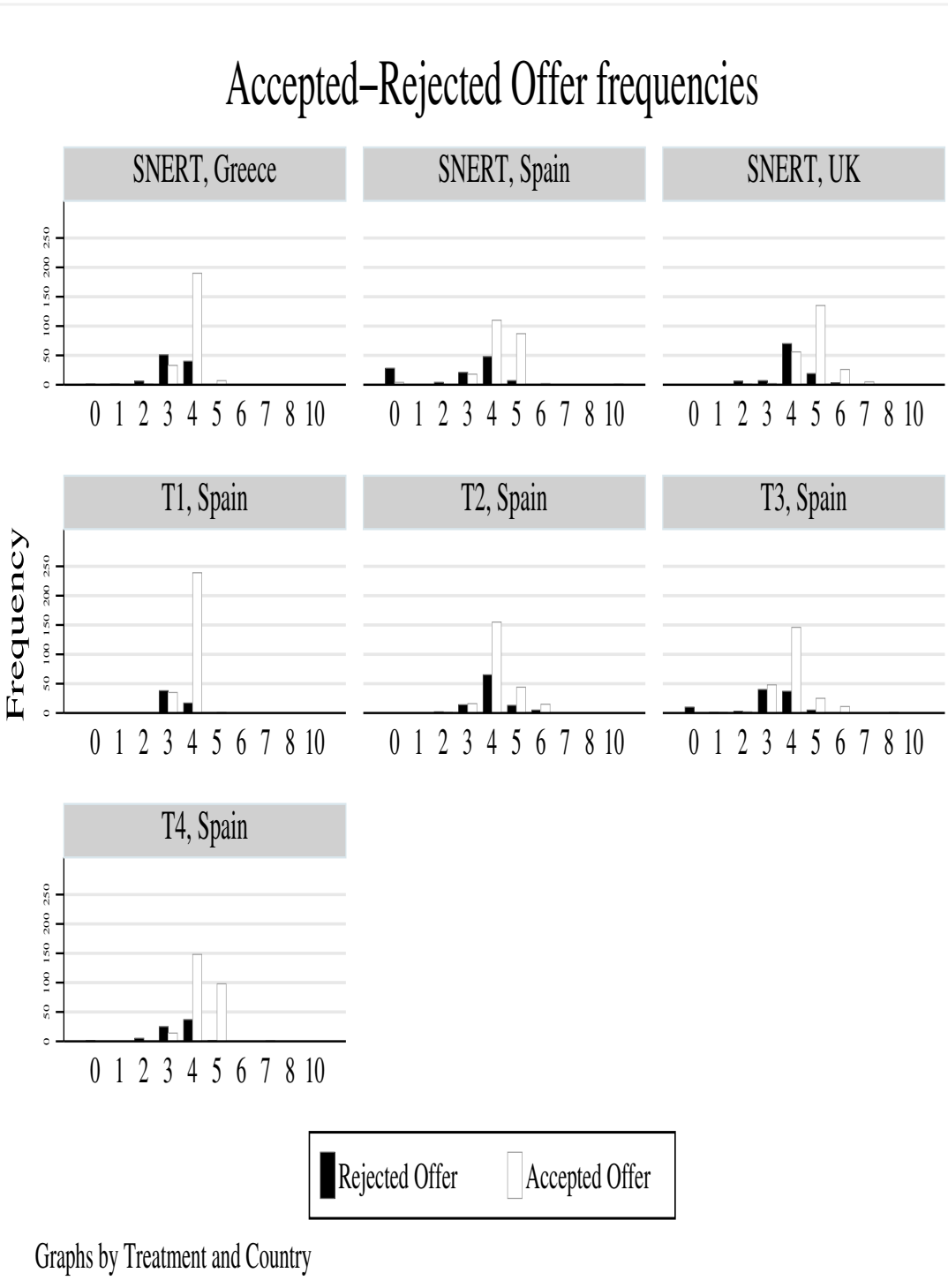

Figure 6: Accepted-rejected offer frequencies.

VI.2 Instructions to Experimental Subjects (translated from Spanish)

You are going to participate in an experiment about individual decision making, that will last approximately 90 minutes. You must follow the instructions carefully and, depending on your performance, you may earn a considerable amount of money. The context in which you will have to take your decisions, is described below.

This session will consist of two main parts:

- **First part**: 30-35 rounds of a salary-and-task-negotiation session.
- **Second part**: Result session: task-performing and payment.

- **First Part**:

  An equal number of employers and employees are in a group of 20 individuals. At the beginning of the session, you will be randomly assigned the role of employer or employee. In each period [**T2 and T4 sessions: "the session"**], you will be randomly matched with a player of the other type (if you are an employer, you will be matched with an employee and vice versa). The experiment will be repeated over 30 to 35 periods (randomly determined by the server).

  In each period, each employer-employee pair is faced with the following situation: The employer offers the employee a share from a 10€ profit yielded from the task (filling 20 envelopes numbered, from 1 to 20, with their respective one-page letter, also numbered from 1 to 20) which will be performed (in the second part of the session) by the employee (**not applicable in T1, T2, T3, T4)**. If the employee accepts, the task will have to be performed by the employee (see "Second Part") and the two players' earnings are determined as proposed by the employer. Otherwise, the task is not performed and both players earn nothing.

If you are an employer, your decision will consist of offering a salary to the employee. Such a salary will be a quantity between 0 and 10€, in multiples of 0.10€. If you are an employee, your decision will consist of accepting or rejecting the salary offered by the employer.

- **Second part**:

  Your payment (and the tasks to perform if you are an employee; **not applicable in T1, T2, T3, T4**) will be determined according to the outcome of five periods, which will be randomly chosen among the total number of periods played during this session. A minimum of 90% (at least 18 out of 20 envelopes must contain the correct sheet) reliability will be required for each task unit to be considered successfully performed.

VI.3 Questionnaire

Control Question

Imagine you are assigned the role of an "employee" in the following hypothetical market situation:
An equal number of employers and employees are in a group of 20 individuals, forming random employee-employer pairs. You are going to negotiate your share over a total of 10€ earned by one of the employers from the task you will perform (filling 20 envelopes numbered, from 1 to 20, with their respective one-page letter, also numbered from 1 to 20). If you accept the salary, you will perform the task and earnings for both, you and your employer, will be determined as proposed by the employer. If you reject the salary, the task is not performed and you both earn nothing.
Alternatively to your earnings and task-performing obligations, you may prefer a certain payoff, whose value is provided below, under 20 different scenarios. Please mark with an "X" your preferred option in each one of the following scenarios:

- **SCENARIO 1**: You are offered an alternative of a certain payment of 0.5€.

  Do you prefer the certain payoff? ..... ☐

  Or your earnings from the above hypothetical market situation?.. ☐

- **SCENARIO 2**: You are offered an alternative of a certain payment of 1€.

  Do you prefer the certain payoff? ..... ☐

  Or your earnings from the above hypothetical market situation?.. ☐

- **SCENARIO 3**: You are offered an alternative of a certain payment of 1.5€.

  Do you prefer the certain payoff? ..... ☐

  Or your earnings from the above hypothetical market situation?.. ☐

- **SCENARIO 4**: You are offered an alternative of a certain payment of 2€.

  Do you prefer the certain payoff? ..... ☐

  Or your earnings from the above hypothetical market situation?.. ☐

  . . .

  . . .

- **SCENARIO 20**: You are offered an alternative of a certain payment of 10€.

  Do you prefer the certain payoff? ..... ☐

  Or your earnings from the above hypothetical market situation?.. ☐