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Economic Experiments on Gender Behavior in Financial Decision-Making

DOCTORAL DISSERTATION

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Contents

Introducción general y metodología

¿Son diferentes las decisiones económico-financieras de hombres y mujeres cuando se enfrentan a determinadas situaciones en entornos de riesgo y/o ambigüedad, o en entornos competitivos?

En los últimos años, se ha utilizado la economía experimental para el estudio de las diferencias de género. La metodología experimental es especialmente adecuada para este tipo de análisis, puesto que permite al investigador aislar un factor de las decisiones (por ejemplo el género) y examinarlo separadamente de otros factores.

Una parte de estos trabajos experimentales ha encontrado importantes diferencias de comportamiento entre hombres y mujeres (entre otros,

Gneezy et al., 2003; Niederle y Vesterlund, 2007; Eckel y Grossman, 2008; Cox y Deck, 2006; Buchan *et al*., 2008) .

El objetivo de la Tesis es profundizar, utilizando la metodología experimental, en el análisis de esas diferencias entre las decisiones económico-financieras que toman los hombres y las mujeres en entornos de riesgo y de competición al margen del país de cada individuo. La existencia de diferencias en el comportamiento financiero de los distintos géneros tiene importantes implicaciones económicas y sociales tanto en el ámbito del consumo, como en el de la inversión y en el del mercado laboral (ver Blau y Kahn, 2000 para una revisión de esta literatura; ver también Escriche, *et al*., 2004).

En particular, uno de los objetivos es estudiar el comportamiento de hombres y mujeres en los mecanismos de autoselección bajo una situación de riesgo.

Mediante los mecanismos de autoselección, una empresa, un empleador o un prestamista, que se enfrentan a una población heterogénea de potenciales clientes, trabajadores o prestatarios, pueden mejorar su selección y con ello, su eficiencia.

Un mecanismo de autoselección es aquel que proporciona incentivos para que los individuos revelen sincera y completamente sus preferencias en mercados con asimetría de información. En este contexto, las empresas no

son capaces de diferenciar directamente a los clientes con diferentes características, pero pueden llegar a separarlos ofreciendo un menú de contratos con diferentes combinaciones de precios y compromiso (como por ejemplo, garantías, franquicias, esfuerzo o inversión en educación), es decir, mediante una señalización costosa; especialmente en los mercados financieros. El objetivo es que cada tipo de cliente, trabajador o prestatario escoja el contrato que revele sus características. Así se puede generar una autoselección de los clientes. Esta idea ha sido explorada entre otros por Mussa y Rosen (1978) en el caso de un monopolio de un bien duradero, por Rohschild y Stiglitz (1976) en el caso de un mercado de seguros competitivo y por Bester (1985) para un mercado de préstamos.

Así por ejemplo, en un mercado en el que las empresas buscan financiación y éstas tienen mejor información que los prestamistas sobre la calidad de sus proyectos, se puede transferir información sobre esta calidad a través de "acciones" de la empresa que puedan ser observadas. En el mercado de préstamo bajo información asimétrica, uno de los mecanismos que se puede utilizar para clasificar a los diferentes prestatarios potenciales es ofrecerles un menú de contratos que especifiquen, junto al tipo de interés, la garantía exigida. Así la disposición de una empresa a aportar garantía puede servir como señal al prestamista de la verdadera calidad de su proyecto. Esta idea es la que destaca en los resultados obtenidos por Bester (1985, 1987), Chan y Kanatas (1985) y Deshons y Freixas (1987) y también, aunque trabajando

en marcos un tanto diferentes, en las conclusiones de Besanko y Thakor (1987) e Igawa y Kanatas (1990).

Sin embargo, este tipo de mecanismos no tiene en cuenta las diferencias de comportamiento frente al riesgo y/o ambigüedad que puedan existir entre hombres y mujeres. Estas diferencias de comportamiento por género podrían provocar una errónea clasificación de las mujeres, haciendo ineficiente este mecanismo de autoselección tal y como está definido actualmente.

El Capitulo 1 de esta Tesis Doctoral examina este mecanismo de autoselección en tres países europeos diferentes, Suiza, España e Inglaterra, mediante un experimento de economía. Los resultados muestran que este mecanismo de autoselección, aunque funciona para clasificar a los hombres, no sirve para clasificar a las mujeres según el nivel de riesgo de su proyecto de inversión.

Abstract Chapter 1: Do women self-select as good borrowers?

Are credit screening models designed for men? In theoretical models of credit under asymmetric information, banks typically offer incentive compatible contracts (with collateral) to induce borrowers to disclose their private information. However, if women are particularly averse to financial risk in downside risk settings, they may be classified as high-risk

borrowers. In consequence, low risk women borrowers may receive the loan designed for the bad borrowers (higher cost in collateral and/or interest rate), or even fail to receive credit. Given that getting credit is key to start or succeed in business, this may represent glass ceiling in women entrepreneurship. We conduct, in three different European countries, a laboratory experiment to study systematic gender differences in self-selection. Our results show that incentive compatible contracts with collateral fail to disclose women private information, while they disclose men private information. Thus, low risk women borrowers do not self-select as "theoretical" good borrowers. Our results show that gender differences arise when subjects face downside risk, i.e. low failure probabilities. As women represent half of the world's population, we suggest theoretical models dealing with downside risk should incorporate the gender differences in risk attitudes.

KEYWORDS: Asymmetric information, Adverse selection, Behavioral finance, Credit Screening, Experiments, Gender, Self-selection

Además, los resultados obtenidos en los experimentos del Capítulo 1 también muestran que las mujeres tienden a evitar escoger alguno de los

dos contratos ofrecidos y prefieren, en mayor medida que los hombres, quedarse fuera del juego con una renta segura aunque mucho menor.

Una de las razones que los estudios experimentales previos han señalado como posibles potenciadoras de las diferencias de género en salarios y de la falta de mujeres en puestos altos en ciencia, política y empresa, es la menor inclinación de las mujeres a entrar en entornos competitivos (Blau *et al.*, 2010; Cason *et al*., 2010; Croson y Gneezy, 2009; Datta Gupta *et al*., 2013; Dohmen y Falk, 2011; Gneezy *et al*., 2009; Gneezy *et al*., 2003; Gneezy y Rustichini, 2004; Niederle y Vesterlund, 2007; 2011; Weichselbaumer y Winter-Ebmer, 2007).

Ello nos lleva a examinar, en los Capítulos 2 y 3 de esta Tesis Doctoral, distintos aspectos que podrían mejorar la entrada de las mujeres en entornos competitivos.

Abstract Chapter 2: Gender, self-confidence, sports, and preferences for competition

Results from the self-selection experiment in Chapter 1 showed that women tended to shy away from choosing contracts *s* or *r* more frequently that men did. When holding the riskier project, 14.44% of women choose not to have any of the contracts and get the 'no contract' option, which pays a sure though low return. Just 6.06% of men choices went to the 'no

contract' option (see Figure 1.1). When holding the safer project, 7.92% of women choices went to the 'no contract' option, and just the 2.25% of men choices went to the 'no contract' option.

This research examines with a fuzzy-set qualitative comparative analysis (fsQCA) the conditions, including gender, that relate to competition preferences and the different paths that may lead to a decision to enter competition. The results of the economic experiment show that no single condition but combinations of characteristics explain preferences for competition. Furthermore, results show that experience in competitive sports relates to a higher self-confidence and increases the willingness to enter in competitive systems. Interestingly, one of the causal paths leading to enter competition is being a risk-averse woman with experience in competitive sports. These results provide insights to guide policy interventions to reduce the gender gap in preferences for competition and, therefore, to rise the percentage of women in top-level positions.

KEYWORDS: Behavior; competition; experimental economics; fsQCA; gender differences; risk aversion; self-confidence

Sin embargo, la mayor parte de trabajos experimentales que observan diferencias de género en disposición a competir, se han centrado en un

sistema de competición del tipo “todo para el ganador”, que deja sin ganancias a otros miembros del grupo.

Dado que el sistema competitivo “todo para el ganador” puede tener características que interactúan con otras variables que podrían afectar a la decisión de entrar a competir, como la cultura (Gneezy *et al.* 2009; Booth y Nolen 2012), o la identidad cooperativa o no con la que se asimilan los individuos (Charness y Rustichini 2011), o la confianza en uno mismo (Kamas y Preston 2012; Sutter *et al.* 2015; Comeig *et al.* 2016), o con actitudes hacia el riesgo y/o ambigüedad (Booth y Nolen 2012) o con combinaciones entre ellas (Comeig *et al.* 2016), en el Capítulo 3 se analiza si otro tipo de sistema competitivo podría incentivar una mayor participación de las mujeres en la competición.

Resumen del Capítulo 3: ¿Las mujeres no compiten? Depende del tipo de competición

Se diseña un experimento económico que consta de dos tratamientos que se diferencian por el tipo de competición a escoger. El primer tratamiento permite escoger entre un pago constante y una competición “todo para el ganador”, mientras que el Tratamiento 2 permite escoger entre un pago constante y una competición contra uno mismo por objetivos.

La competición por objetivos contra uno mismo resulta significativamente mas atractiva para los sujetos de nuestro experimento (hombres y mujeres

de forma agregada). Además, el número de mujeres que deciden competir es significativamente mayor en la competición contra uno mismo por objetivos que en la competición del Tratamiento 1, en la que el ganador se lleva todo (WTA, por sus siglas en inglés).

Es importante señalar que este incremento significativo en la participación de las mujeres se ha producido sin ninguna reducción en la participación de los hombres y sin ninguna reducción en la eficiencia del sistema.

Dada la importancia social y económica de tener una sociedad equilibrada, en la que tanto mujeres como hombres ocupen puestos de responsabilidad y de decisión, en este Capitulo se propone el sistema de competición contra uno mismo por objetivos como mecanismo a recomendar en las empresas, frente al de “todo para el ganador”.

KEYWORDS: Behavior; competition; experimental economics; gender differences

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Chapter 1

Do women self-select as good borrowers?

1.1 Introduction

Banks often cannot observe *ex ante* failure probabilities of potential borrowers. To deal with this informational asymmetry, banks offer incentive compatible contracts (with collateral) to induce borrowers to disclose their private information. Typically, theoretical models show that private information is fully disclosed in equilibrium, since high risk and low risk borrowers self select by choosing different contracts. Low risk borrowers choose higher collateral at a lower interest rate, while high risk borrowers select contracts without collateral at a higher rate. The key is that

the cost of investing in collateral is lower for low risk borrowers as they have a lower probability of failure[1].

However, this self selection is achieved when potential borrowers are identical in every respect other than failure probability. Smart (2000) shows that the addition of the customer's degree of risk aversion can change the nature of equilibrium, and different risk classes may be pooled at a single contract in equilibrium[2]. Specifically, risk averse low-risk borrowers may not be willing to accept higher collateral to self-select. The reason is that the collateral choice is also closely connected to the degree of risk aversion (See Cohen and Einav (2007) and Barseghyan *et al.* (2011)). The higher the risk aversion, the lower the willingness to accept higher collateral to self select. Low collateral exposes individuals to a lower risk by paying a higher contract price (interest rate).

Women are generally found to be more risk averse than men in financial decision making[3]. If this is the case, women might not accept higher collateral to self select. Thus, women's contract choices, even being rational decisions for low risk borrowers, will classify themselves as high risk borrowers. Whether men and women systematically differ in their

[1] See Comeig *et al.* (2014) for an empirical research.

[2] See also Finkelstein and McGarry (2006) for empirical results.

[3] For example, women have been found to be more risk averse with respect to the pension allocation decision (Bajtelsmit *et al.* 1999), to have less risky asset portfolios than men (Halko *et al.* 2012, Jianakoplos and Bernasek, 1998) and to report lower willingness to accept financial risk (Barsky *et al.* 1997). Also, laboratory tests have found women to be more risk averse than men in financial decision making (See Charness and Gneezy 2012, Croson and Gneezy 2009, and Eckel and Grossman 2008, for a review).

contract choices in the self-selection mechanism with collateral is an important economic question. If women are particularly averse to financial risk, they may be classified as high-risk borrowers thus not receiving the loan designed for the good borrowers, or even suffering rejections. From the bank's point of view, the women reluctance to accept high collateral generates an adverse selection problem. Particularly risk averse individuals (i.e. women classified here as high risk borrowers) might be also the best borrowers for the bank.

In this chapter, a laboratory experiment on financial decision making in three different European countries is designed to study systematic gender differences in self selection. The primary interest is in the extent to which the women's patterns of behavior towards risk carry over into the self selection mechanism with collateral.

Results show that incentive compatible contracts with collateral fail to disclose women private information, while they disclose men private information. Thus, low risk women consumers do not self select as "theoretical" good borrowers. Besides this contribution, results show that gender differences arise when subjects face low failure probabilities (90% success probability). This chapter provides some suggestive evidence on differences in probability weighting between men and women.

Just a few experimental papers have focused on this self selection mechanism.[4] Capra *et al.* (2009, 2014) have studied the effects of moral hazard on choices on incentive compatible credit contracts with collateral and Bediou *et al.* (2013) have analyzed framing effects in the same incentive compatible contracts. This approach is different. None of them have studied the effect of gender on contract choices.

The remainder of the chapter is organized as follows. In the next section, the experimental design and hypotheses are presented. Section 3 presents the results from the experiment; and the final section summarizes the main conclusions.

1.2 Experimental design and hypotheses

In order to study the patterns of behavior, by gender, in the self-selection mechanism, we design an experiment that uses five incentive-compatible contract menus (with collateral) to induce subjects to disclose their private information. We follow the experimental design and menus presentation of Bediou *et al.* (2013), who used the contract menus originally designed by Capra *et al.* (2009, 2014). This contract design is based on the Bester's (1985) principal agent game of credit screening.

[4] Some papers have examined screening in insurance and labor markets by focusing on the principal's behavior, not on the self selection mechanism (e. g. Shapira and Venezia (1999), Posey and Yavas (2007), and Kübler et al. (2008)).

We design a within-subjects 2x2 experiment, where the two crossed variables are type of contract (*r* or *s*) and type of project (low risk and high-risk projects).

Table 1.1 shows the 5 contract menus offered to the subjects, and Table 1.2 presents the expected returns on each contract in both environments, low risk projects and high-risk projects.

Table 1.1: Pairs of Offered Contracts

Pair	**Contract *r***		**Contract *s***	
	Price (P_j)	**Deposit (D_j)**	**Price (P_j)**	**Deposit (D_j)**
1	360	0	166	300
2	335	25	169	275
3	310	50	172	250
4	285	75	175	225
5	260	100	177	200

Table 1.2: Individuals Expected Returns (ER) by Contract Type

Pair	**Low risk projects**		**High risk projects**	
	Contract r (ER)	**Contract s (ER)**	**Contract r (ER)**	**Contract s (ER)**
1	516	660,6	660	607
2	536	660,4	660	618
3	556	660,2	660	629
4	576	660	660	640
5	596	660,7	660	651,5

As Table 1.2 shows, under Expected Utility Theory, risk neutral individuals would choose contract *s* when holding a low risk-project (expected returns around 660, when contract *r* offers a maximum expected return of 596) and would choose contract *r* when holding a high risk project (expected returns

of 660, when contract *s* offers a maximum expected return of 551.5). Under Expected Utility, as in Bester's (1985) model, the individuals expected payoffs are:

$$E_{Payoff}(\Pi_s) = 0.9\ (300 + 600 - P_j) + 0.1\ (300 + 0 - D_j) \quad [1.1]$$

$$E_{Payoff}(\Pi_r) = 0.5\ (300 + 1080 - P_j) + 0.5\ (300 + 0 - D_j) \quad [1.2]$$

Thus, in each of the rounds a pair of theoretically incentive compatible contracts (γ_r, γ_s) were offered: $\Pi_r(\gamma_r) \geq \Pi_r(\gamma_s)$ and $\Pi_s(\gamma_s) \geq \Pi_s(\gamma_r)$.

In the experiment, subjects have to choose between the two contracts (and a safer option) in both a safer, $n = s$ (90% chance of success) and a risky, $n = r$ (50% chance of success) environment. Each subject had the safer project during ten rounds, and the riskier project the other ten rounds.[6] Each individual started each round with a wealth of 300 units. The subjects who did not choose any contract received a return of 30 monetary units in that round.

The within subjects design allows us to control for individual differences in personality or risk attitude. Half of the subjects played with the riskier project first, to control for order effects.

By presenting *ad hoc* incentive compatible contracts *à la* Bester (1985), we test the following hypotheses:

[6] Appendix 1 presents the instructions used in this experiment.

H1: Incentive-compatible contracts combining pairs of collateral and price screen men of different risk levels but not women of different risk levels: Theoretical incentive compatible contracts with collateral used to induce borrowers to disclose their private information fail to disclose women private information.

H2: Gender differences in self-selection appear when subjects are expected to choose high collateral (low-risk borrowers).

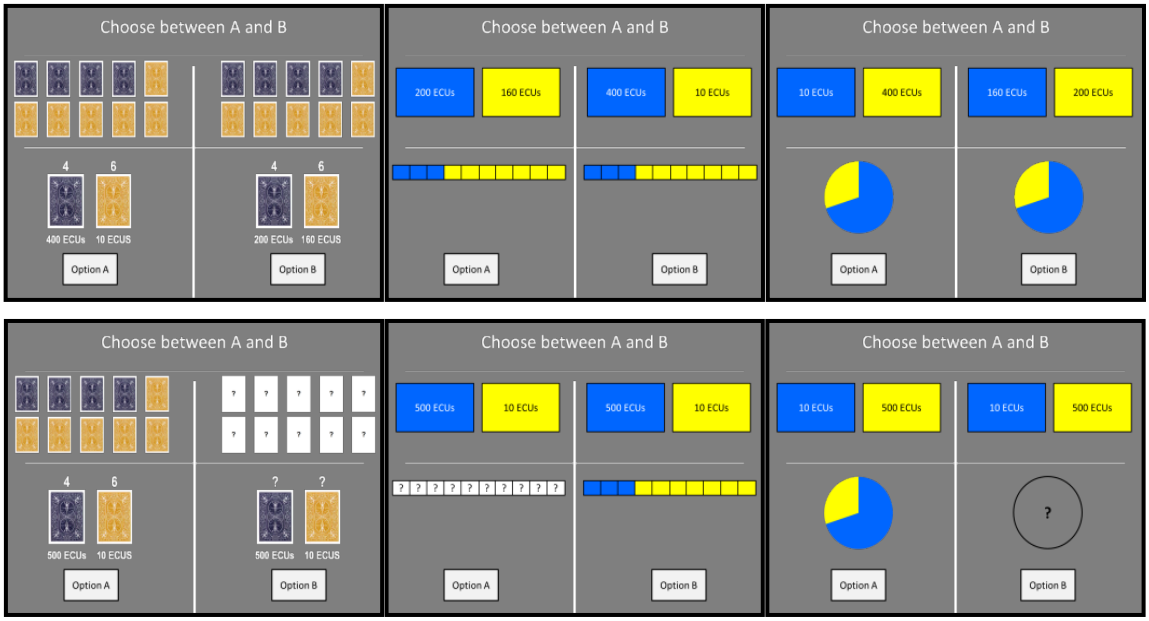
To measure attitudes toward risk and ambiguity, subjects are also confronted to nine lottery pairs in 2 different conditions: risk and ambiguity. The lottery pairs follow Blavatskyy (2009) test on risk and ambiguity attitudes, based on Holt and Laury (2002) test on risk attitudes. We use three different stimuli (cards, bars and gambles). Each lottery is presented twice to each subject in order to control for the effect side (left/right) and colors. Figure 1.1 shows the screen's design.

Therefore, the experiment consists on two phases: (i) we first measure individual risk attitudes and also individual ambiguity attitudes, and then (ii) we offer those subjects menus of two incentive-compatible contracts to study self-selection.

Additionally, at the end of the experiment, a socio-demographic questionnaire was presented to the students to control for differences in

technical skills and wealth between men and women. The answers showed no significant differences in these two factors between men and women.

Figure 1.1. Test on individual risk attitudes and individual ambiguity attitudes



The experimental design controls for treatment order and presentation (right/left; blue/yellow colors). Also, by presenting two times the same contract, the design allows for indifference (i.e. an indifferent participant may choose contract *r* once, and contract *s* once).

The 143 subjects of the experiment were students from the University of Geneva, Switzerland (23 men, 24 women), the University of Valencia, Spain (24 men, 24 women), and the University of East Anglia, UK (24 men, 24 women). They were recruited from various courses and grades using flyers. The individuals read the instructions and we answered their

questions. During the experiment, the subjects received no feedback and were not allowed to communicate with the rest of the participants. At the end of the experiment, they received their earnings (the average payment was 15 Euros)[7].

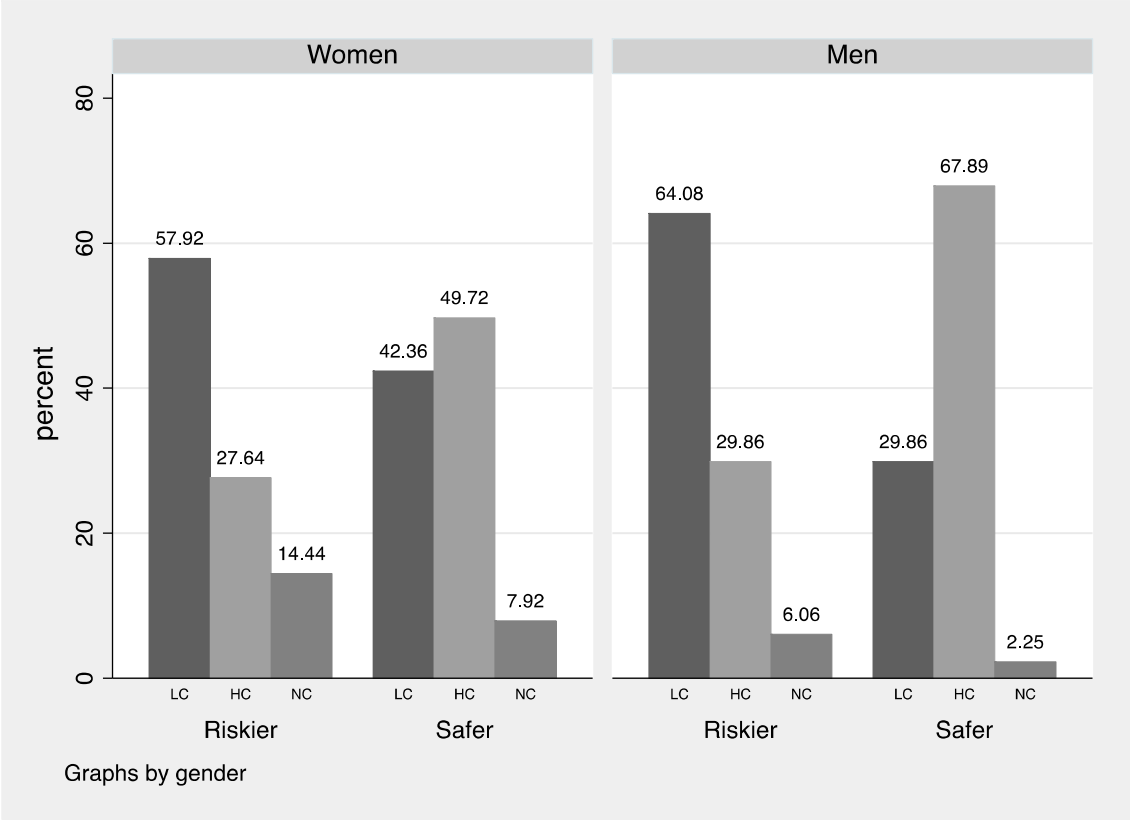
Each session lasted approximately for one hour and 15 minutes and was run at the University of Geneva, either at the laboratory of the Swiss Center for Affective Sciences or at the laboratory of the Faculty of Psychology; at the University of Valencia, at the Laboratory for Research in Experimental Economics (LINEEX); and at the Centre for Behavioral and Experimental Social Science at the University of East Anglia. The experiment was run in different time periods in each country.

1.3 Results

The results of the self-selection phase are summarized in Figure 1.2 and Table 1.3. Figure 1.2 shows the histograms of the overall results by gender and project type. Most of the men with the safer project, 67.88%, choose contract *s*, the high collateral (HC) contract, whereas just the 49.72% of women with safer project choose contract *s*.

[7] Subjects were paid one round drawn at random per treatment in the first phase (6 rounds in total). In the second phase, subjects were paid two rounds drawn at random: one from the low risk and one from the high risk project.

Figure 1.2. Choices by Gender and Project risk-level



LC: Contract *r* choices (Low collateral contract choices)
HC: Contract *s* choices (High collateral contract choices)
NC: No contract has been chosen
Riskier: High-risk project (50% success probability)
Safer: Low risk project (90% success probability)

Table 1.3 confirms that low-risk women (women with safer project) do not self-select by choosing contract *s*, the one with high collateral. There are no significant differences in women's choices between contract *r* and contract *s*, the low and the high collateral contracts (p= 0.3056). Therefore, women holding low risk projects do not self-select as theoretical models of credit screening predict (see Bester 1985) for low-risk borrowers. Women screening fails to occur. This result supports ***H1***: Incentive-compatible

contracts combining pairs of collateral and price screen men of different risk levels but not women of different risk levels.

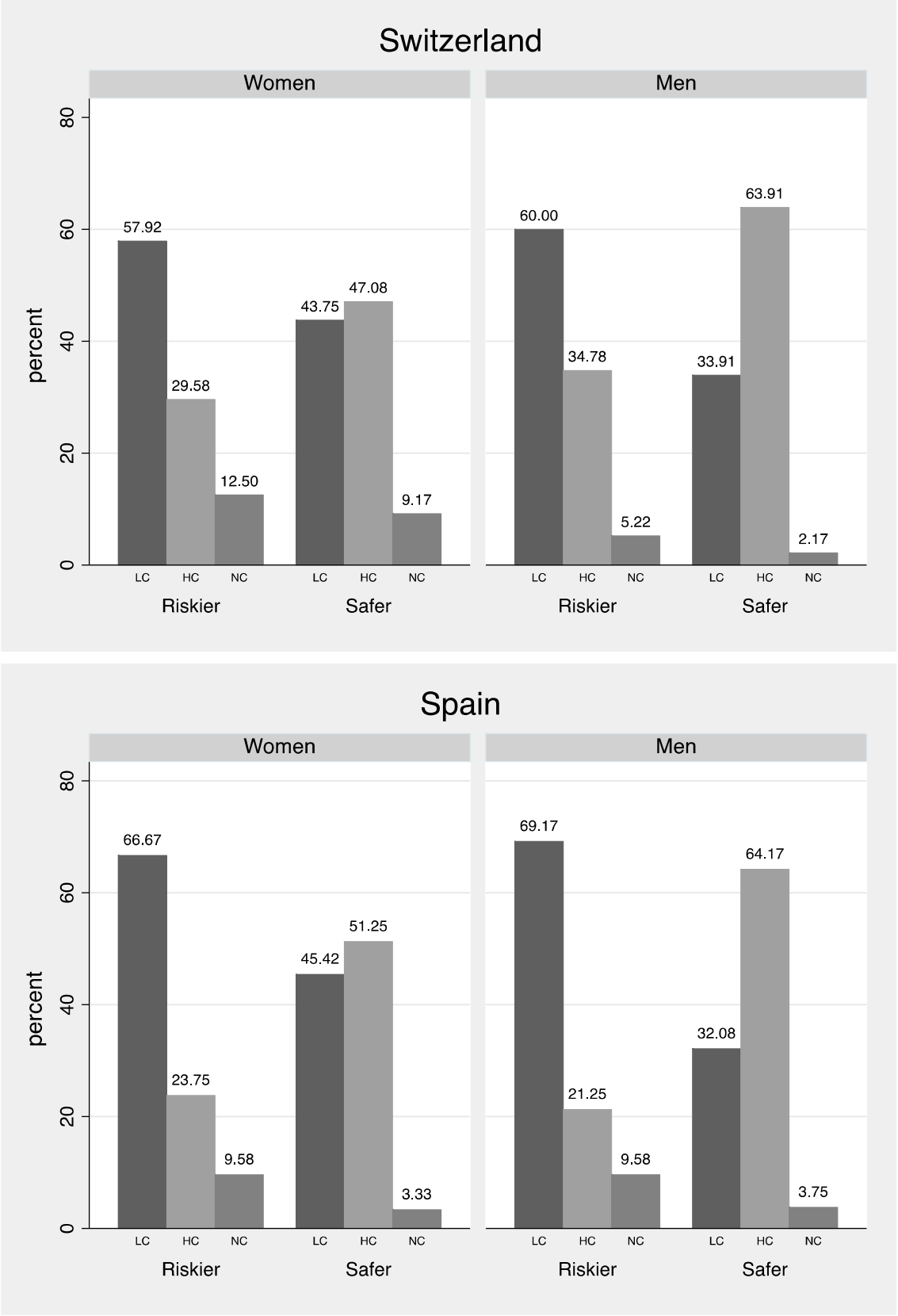
Table 1.3: Descriptive and Test Statistics by Gender and Project

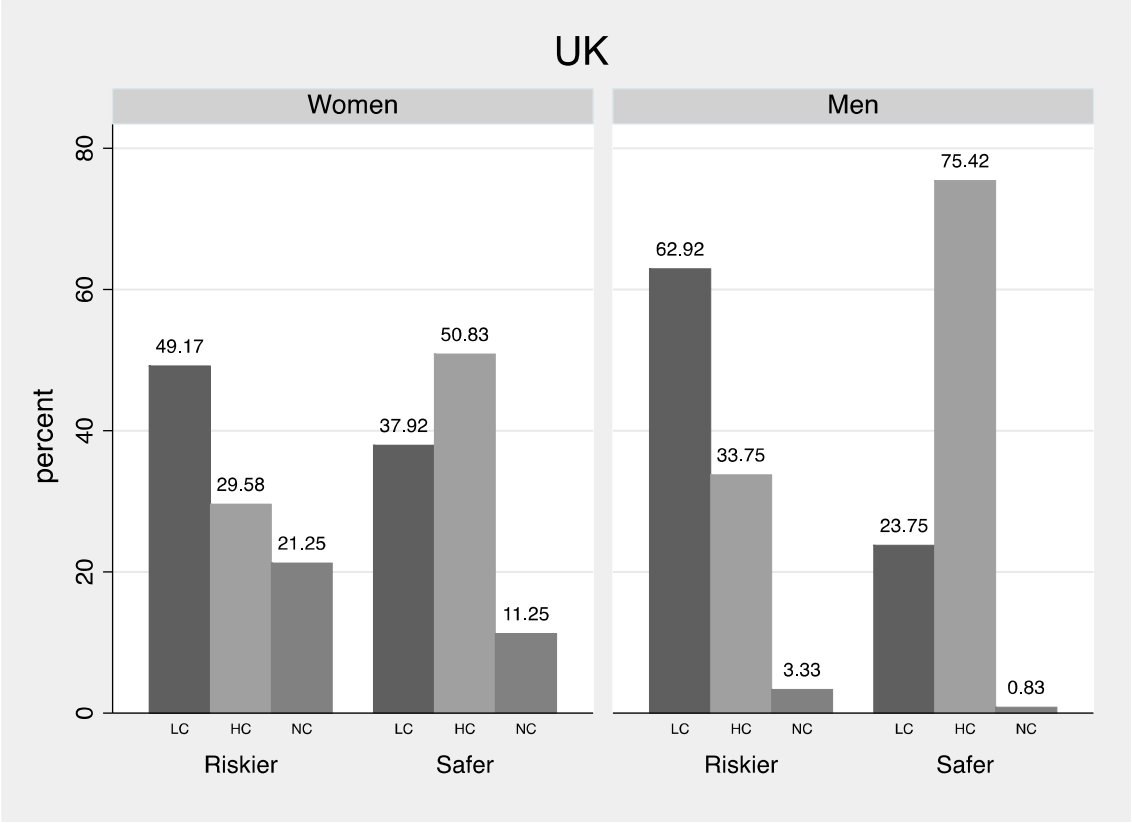
Wilcoxon Test	**Riskier Project**		**Safer Project**	
	Women	**Men**	**Women**	**Men**
Lowcoll-Highcoll	p = 0.0006	p = 0.0001	p = 0.3056	p = 0.0000
Lowcoll-None	p = 0.0000	p = 0.0000	p = 0.0000	p = 0.0000
Highcoll-None	p = 0.0739	p = 0.0000	p = 0.0000	p = 0.0000
Mann-Whitney test				
Lowcoll	p = 0.1746		p = 0.0121	
Highcoll	p = 0.8503		p = 0.0013	
None	P = 0.0002		P = 0.0001	

However, women holding high-risk projects mostly choose contract *r*, as theoretical models of credit screening predict for high-risk borrowers. This result supports ***H2***: Gender differences in self-selection appear when subjects are expected to choose high collateral (borrowers with low risk projects).

Figure 1.3 and Table 1.4 show the results by country. As can be seen in Table 4, there are not significant differences across countries in the low risk borrowers choices, contract *s* (high collateral contract). In each of the countries men disclose its private information with this self-selection mechanism whereas women with low-risk projects do not select the option theoretically designed for low risk borrowers.

Figure 1.3. Choices by Country, Gender and Project Risk-level





LC: Contract *r* choices (Low collateral contract choices)
HC: Contract *s* choices (High collateral contract choices)
NC: No contract has been chosen
Riskier: High-risk project (50% success probability)
Safer: Low risk project (90% success probability)

Table 1.4. Test Statistics by Country (Town), Gender and Project risk-level

Mann-Whitney test		**Riskier Project**			**Safer Project**	
Women	**SP-SW**	**SP-UK**	**SW-UK**	**SP-SW**	**SP-UK**	**SW-UK**
Lowcoll	p = 0.2988	p = **0.0808**	p = 0.3608	p = 0.8678	p = 0.4353	p = 0.4665
Highcoll	p = 0.7166	p = 0.8140	p = 0.9743	p = 0.6474	p = 0.9751	p = 0.6784
None	p = 0.2489	p = **0.0219**	p = 0.1448	p = 0.0847	p = 0.0484	p = 0.7321
Men						
Lowcoll	p = 0.4676	p = 0.6355	p = 0.8453	p = 0.6952	p = 0.5718	p = 0.1964
Highcoll	p = 0.1628	p = 0.1852	p = 0.9130	p = 0.8621	p = 0.4278	p = 0.1866
None	p = 0.1159	p = **0.0316**	p = 0.4447	p = 0.2032	p = 0.1614	p = 0.9515

We run a logistic model to confirm that self-selection is influenced by gender, and not by country, as descriptive statistics show. Table 1.5 displays the results of the logistic analysis. The self-selection option equals 1 if the subject chooses contract *r* (low collateral) when holding a riskier project and chooses contract *s* (high collateral) when holding the safer project. In the overall model, *safer project* variable indicates that having the safer project decreases the probability of choosing the theoretically designed incentive-compatible contract (theoretical best option). This effect comes from the women choices. Low risk women do not self-select by choosing the contract *s*, with high collateral.

As expected, the probability of choosing the self-selection option depends on gender, and supports ***H1*** (Incentive-compatible contracts combining pairs of collateral and price screen men of different risk levels but do not screen women of different risk levels). Also, the ***H2*** is confirmed: Gender differences appear when subjects are expected to choose high collateral (subjects with safer project).

The logit model shows that self-selection does not depend on the country. Interestingly, our results also show that the self-selection does not depend on the risk attitudes and on the ambiguity attitudes, as measured by the test described in 1.2. In the same direction, Fehr Duda *et al*. (2006) and Comeig *et al.* (2015) show gender differences in financial decision-making

not explained by the estimates of the relative risk aversion parameters. García-Gallego *et al.* (2012), also find that differences in risk attitudes estimates cannot explain gender differences in ultimatum bargaining.

Table 1.5. Logit Model

	Overall		***Women***		***Men***	
Prob. of best option	***dy/dx***	***Std. Errors***	***dy/dx***	***Std. Errors***	***dy/dx***	***Std. Errors***
Male	0.17	0.04***	-	-	-	-
Safer Project	-0.04	0.02**	-0.13	0.03***	0.05	0.03*
Ambiguity Attitudes	0.03	0.02	0.04	0.03	0.04	0.04
Risk attitudes	0.02	0.01	0.004	0.03	0.04	0.02
Switzerland	-0.04	0.06	-0.08	0.06	-0.003	0.10
UK	-0.01	0.06	-0.05	0.06	0.02	0.09
Number of obs.	= 2660		1326		1340	
Number of groups	= 133		66		67	
Obs per group: min	= 20		20		20	
Wald χ^2	= 23.02		23.00		8.27	
Prob. > χ^2	= 0.00		0.00		0.14	

Marginal effects after Random effects logit regression. *, ** and *** significant at 1%, 5% and 1% confidence level.

In summary, the results of the self-selection experiment show:

1. Men borrowers self-select but women borrowers do not self-select: Theoretical incentive compatible contracts with collateral used to induce borrowers to disclose their private information fail to disclose women private information.
2. Gender differences arise when borrowers face low risk projects: 90% success probability, 10% failure probability. When subjects face

high-risk projects: 50% success probability we do not find gender differences in behavior.

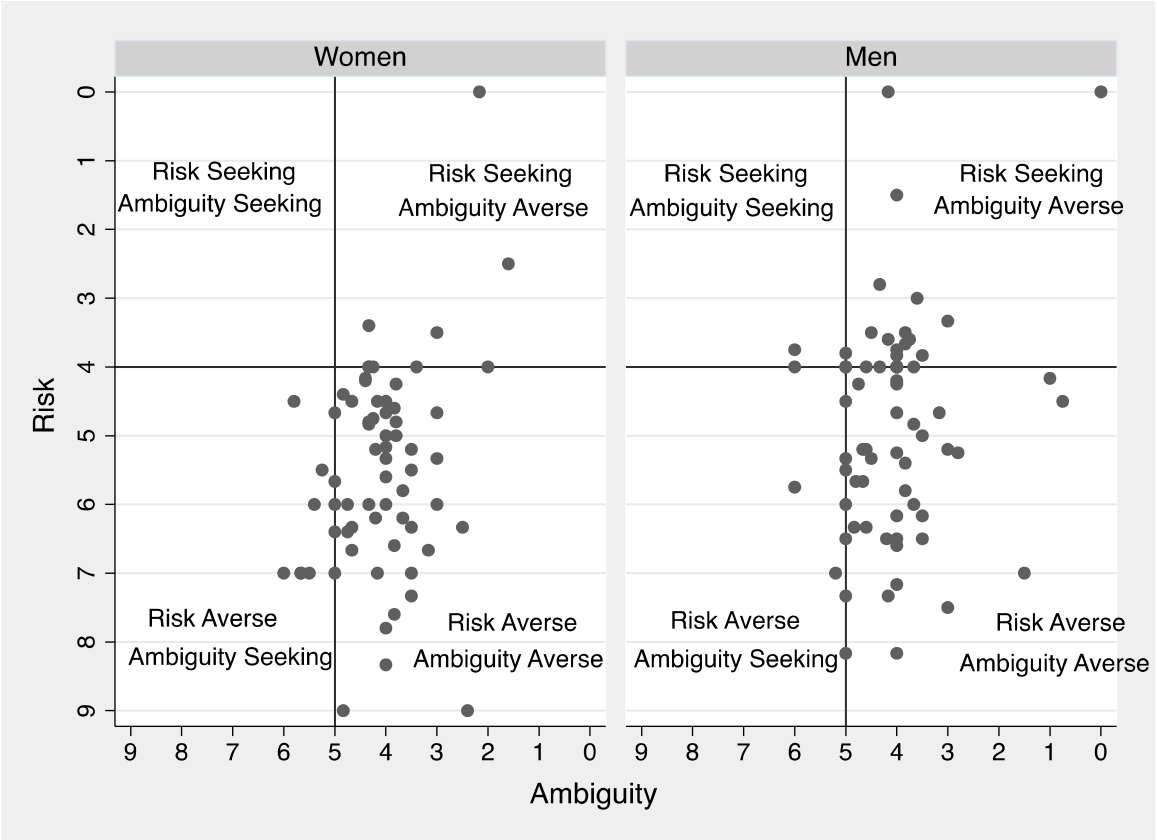
At this point it is important to highlight that subjects with safer projects act rationally deciding either contract, *r* or *s*, high collateral or low collateral contract. Given that the high collateral contract has a higher variance, decisions depend on their risk taking behavior.

The results on the Attitudes toward risk and ambiguity phase are shown in Figure 1.4. As Figure 1.4 shows, the proportion of risk (and ambiguity) averse individuals is higher than the proportion of risk (and ambiguity) neutral or risk (and ambiguity) seeking individuals. We see in the figure that although in both genders the pool is concentrated in the fourth quadrant (risk and ambiguity averse), women are more concentrated in the fourth quadrant than men. The results of the Mann Whitney test show significant gender differences in risk attitudes but not in ambiguity attitudes ($p= 0.0159$ and $p=0.9586$ respectively).

The risk and ambiguity attitudes have been calculated by first calculating if there is a Unique Switching Point (USP) for each subject and condition. This is done by comparing the lowest (highest) probability at which a subject chooses the safe (unambiguous) option, with the highest (lowest) probability at which he or she chooses the risky (ambiguous) option. If the two values do not overlap, then the subject has a USP, which means that

she is consistent in his choices. Otherwise, the subject's choices are considered inconsistent.

Figure 1.4. Individual risk attitudes and individual ambiguity attitudes



1.4 Discussion

Although the logit model (see Table 5) showed that the self-selection does not depend on the risk attitudes estimates nor on the ambiguity attitudes estimates, Figure 4 shows that women are more concentrated in the fourth quadrant than men (risk and ambiguity averse). Differences in risk preferences, ambiguity preferences, both, or other close variables might be behind the gender differences in self-selection found in this experiment.

One possibility is that the methods used to elicit risk and ambiguity preferences estimates are not capturing the whole impact of risk preferences, though these are the generally used methods in the literature. In this sense, a recent working paper, Comeig *et al*. (2015), supports this idea and highlights the differences in risk attitudes depending on risk structures (downside and upside risks). The same subjects that are risk averse in downside risk settings choose the riskier option in upside risk settings, that is to say, behave less risk averse in upside risk environments. Moreover, gender differences in risk attitudes are found in downside risk environments, not in upside risk environments.

The contract choices presented in our self-selection experiment represent a downside risk environment, where gender differences in risk preferences are found in Comeig *et al*. (2015). However, methods generally used in the experimental literature to elicit risk preferences do not differentiate downside risk from upside risk environments. This could be the cause why the risk preferences estimates from our experiment are not found to affect self-selection (see Table 5).

Other possibility, as Fehr-Duda *et al.* (2006) highlights, is to analyze following the Prospect Theory if gender differences in the risk taking behavior found in the self-selection experiment come from differences in

probability weights or from differences in valuation of outcomes, or from both.

We use our experimental data to estimate a structural model of three categories (multinomial logit model) to explain our results.

Thus, we assume that utility of outcome is defined by

$$U(\Pi) = \begin{cases} (\Pi - RP)^{\alpha} \; if \; \Pi \geq RP \\ -\lambda(RP - \Pi)^{\beta} \; if \; \Pi < RP \end{cases} \qquad [3]$$

Where Π is the outcome of each contract for each type of borrower *n*; α and β are the parameters indicating the curvature of the value function; and λ is the loss aversion parameter (for simplicity, we consider this parameter equal to 1).

And we follow the Tversky and Kahneman (1992) probability weighting function:

$$\mathrm{w} = \frac{\mathrm{p}^{\gamma}}{(\mathrm{p}^{\gamma}+(1-\mathrm{p})^{\gamma})^{\frac{1}{\gamma}}} \;\; , 0 < \gamma \leq 1 \qquad [4]$$

where γ is the probability weighting parameter.

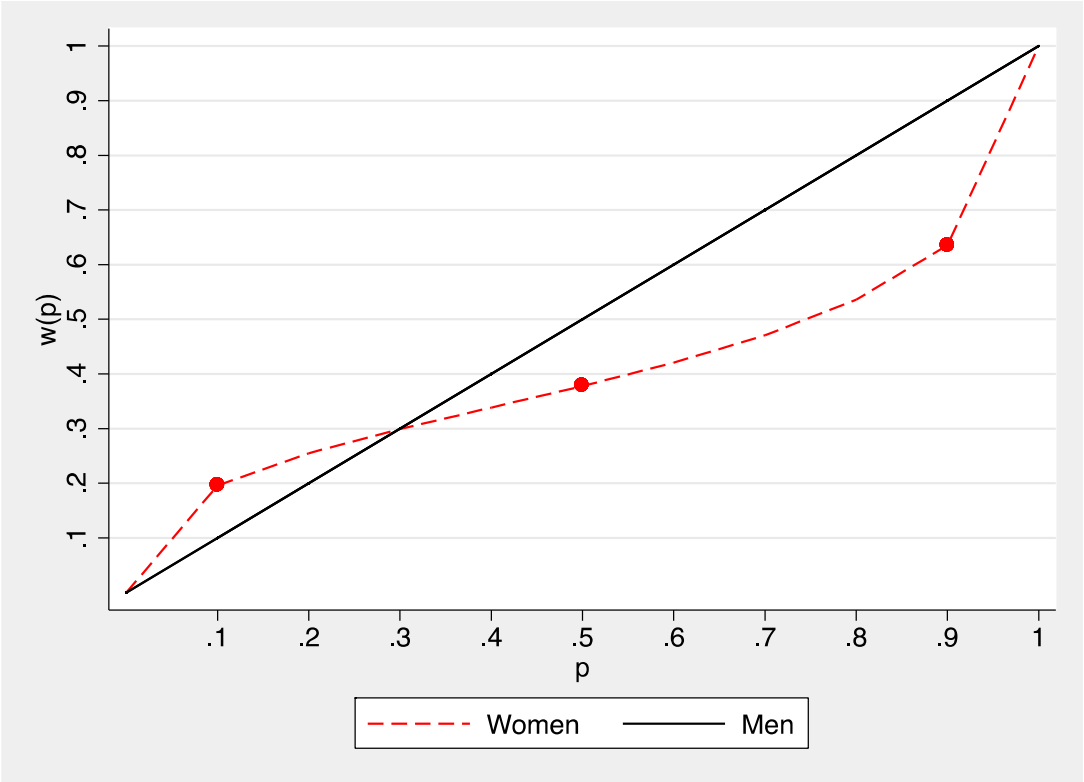
The resulting estimates are shown in Table 6. Risk aversion α parameters, 0.26 for women and 0.27 for men, are not significantly different (p-value= 0.7247). However, the estimated probability weighting parameters γ show extreme differences, 0.54 for women and 1.01 for men (p-value= 0.0097). Figure 5 shows the differences in probability weighting between men and women. This pattern of behaviour is also found in Fehr Duda *et al*. (2006).

Table 1.6. Estimated Reference-Dependent Parameters

	Women		**Men**	
	Coefficient	Std. Errors	Coefficient	Std. Errors
α	0.26	0.03***	0.27	0.02***
β	0.15	0.05***	0.21	0.04***
γ	0.54	0.08***	1.01	0.17***
	Number of obs. = 1440		Number of obs. = 1420	
H_0: $\alpha = \beta$	p-value= 0.0243		p-value= 0.0721	
H_0: $\alpha_W = \alpha_M$	p-value= 0.7247			
H_0: $\beta_W = \beta_M$	p-value= 0.3459			
H_0: $\gamma = 1$	p-value= 0.0000		p-value= 0.9303	
H_0: $\gamma_W = \gamma_M$	p-value= 0.0097			

Figure 1.5 presents graphically the gender differences in probability weighting reflected by the estimated Reference-Dependent parameters.

Figure 1.5. Estimated Probability Weighting Parameters by Gender



1.5 Conclusions

We have conducted an experiment to study the extent to which the women's patterns of behavior towards risk carry over into the self-selection mechanism with collateral, a problem with important economic and policy implications.

Extant theories on credit screening assume that borrowers' preferences among different combinations of price and collateral systematically depend on their risk levels. However, these models so far, have not addressed an important question for such settings: Does the women's risk taking behavior interfere with the self-selection mechanism? We have found that gender does affect the contract choice and interferes with the screening mechanism. This result suggests gender differences in self-selection that can affect price and access to credit markets and entrepreneurship.

Since gender differences arise when consumers face low risk projects: 90% success probability, 10% failure probability, we study probability weighting differences between genders.

The results of our experiment indicate that men and women differ in their probability weighting schemes. Women tend to underestimate large probabilities of gains more strongly than men do. As a result, incentive compatible contracts with collateral fail to disclose women private

information: Low risk women borrowers do not self-select as good borrowers.

By changing the collateral word by deductible, our model and results are applicable to other important financial sectors, as insurance markets.

1.6 References

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APPENDIX 1

Instructions (English)

Hello,
In this part of the experiment you are going to take a series of decisions in which you must choose between **2 situations**.
These 2 situations will be represented by cards, bars or pie charts. In each of these situations there are two possible conditions:

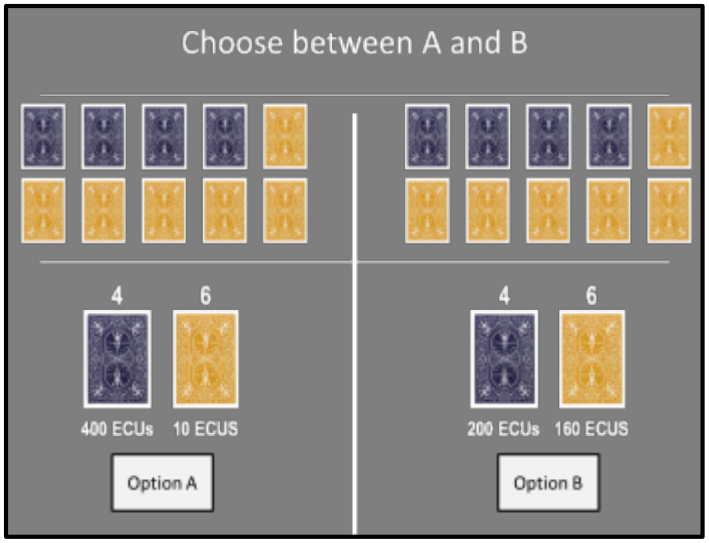
- **Condition 1**: All the information is displayed on the screen. Both situations have the same probability to occur, but the amounts of points (ECUs) you can win are different.
- **Condition 2:** There is missing information on the screen. The amount of points (ECUs) you can win is the same in both situations, but the probability of occurrence is unknown in one of the situations.

Your earnings will be determined by the amount of ECUs you obtain from your decisions: 250 ECUs = 1 Pound. One of the choices of each type of representation will be randomly selected to determine your earnings. That is, you will be paid for 6 of your choices. You can earn as much as 25 or 28 pounds. Therefore, is very important that you understand very well the instructions before you begin.
The following screen shots show one example for each one of the existing conditions.
Important: The probabilities and ECUs you can win will vary in each decision. Take your time and think thoroughly before taking your decision.

Condition 1.

All the information is displayed on the screen
The 2 situations have the same probabilities, but the ECUs to win are different.

CARDS



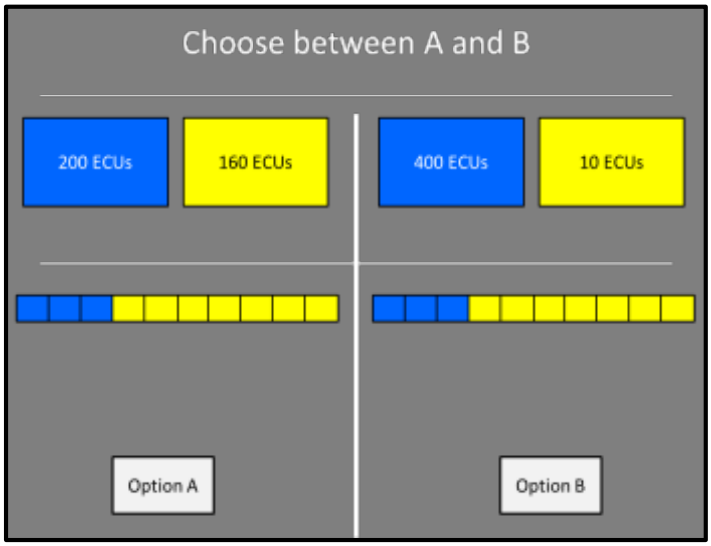
There are 2 decks of cards which contain
4 blue cards and 6 yellow cards.

On the left side, A, the blue cards are worth 400 ECUs and the yellow ones 10 ECUs.
On the right side, B, the blue cards are worth 200 ECUs and the yellow ones 160 ECUs.

Choose the deck of your preference, A (left) or B (right).
Click A or B to indicate your choice.

After making your choice, the computer will randomly draw either a blue card (4 chances out of 10) or yellow (6 chances out of 10).

BARS



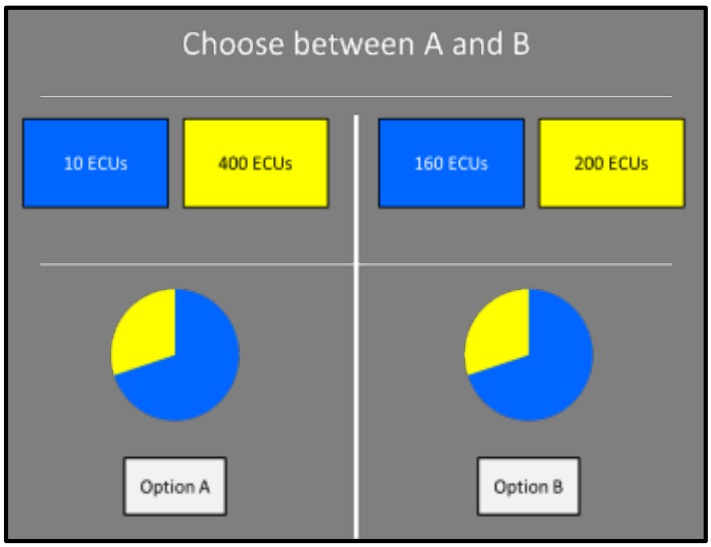
There are two bars that contain
3 blue boxes and 7 yellow boxes.

On the left side, A, the blue boxes are worth 200 ECUs and the yellow ones 160 ECUs.
On the right side, B, the blue boxes are worth 400 ECUs and the yellow ones 10 ECUs.

Choose the bar of your preference, A (left) or B (right).
Click A or B to indicate your choice.

After making your choice, the computer will randomly draw either blue (3 chances out of 10) or yellow (7 chances out of 10).

PIES



There are two pies that contain
70% of blue and 30% of yellow.

On the left side, A, the blue cards are worth 400 ECUs and the yellow ones 10 ECUs.
On the right side, B, the blue cards are worth 200 ECUs and the yellow ones 160 ECUs.

Choose the chart of your preference, A (left) or B (right).
Click A or B to indicate your choice

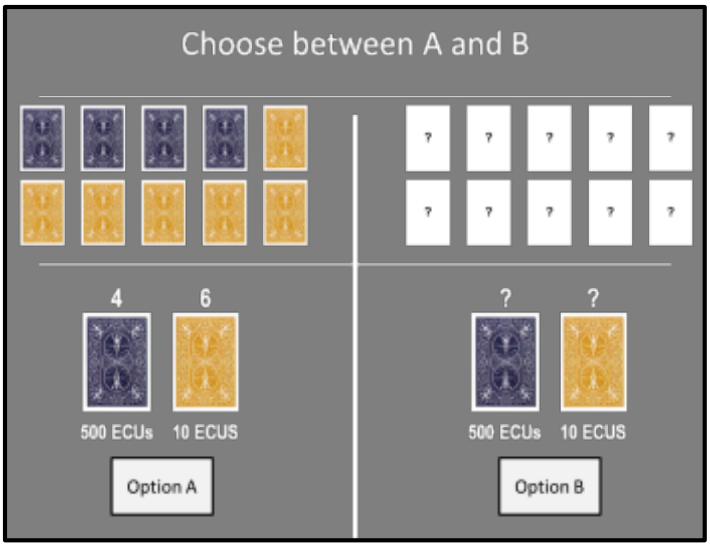
After making your choice, the computer will randomly draw a color either (blue: 7 chances out of 10; yellow: 3 chances out of 10).

If you have a question, raise your hand and an experimenter will come to answer you personally. When you are ready, click the Start button.

Condition 2.

The amount of ECUs you can win is the same in the 2 situations, but the probabilities are unknown in one of the 2 situations. There is missing information.

CARDS



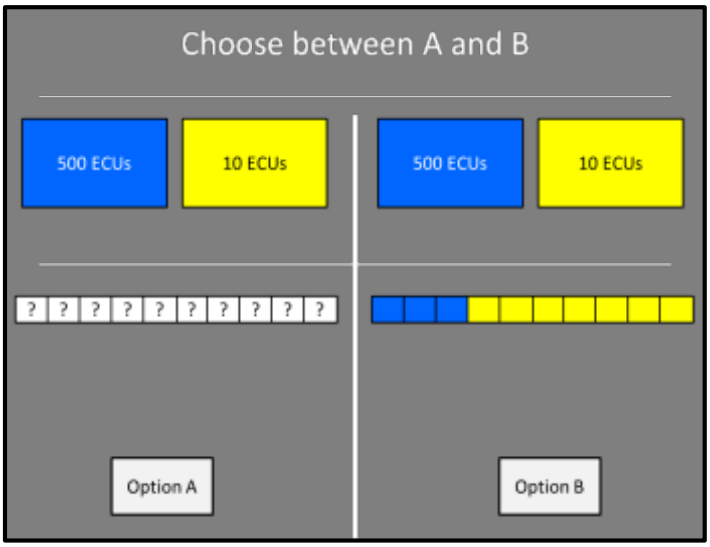
The blue cards are worth 500 ECUs and the yellow ones 10 ECUs.

On the left side, A, there are 4 blue cards and 6 yellow.
On the right side, B, you don't know the number of blue and yellow cards.
With probability 1/9 there will be 1 blue card and 9 yellow; with that same probability (1/9) there will be 2 blue cards and 8 yellow cards... and so on up to 9 blue cards and 1 yellow card with that same probability (1/9).

Choose the deck of your preference, A (left) or B (right).
Click A or B to indicate your choice.

After making your choice, the computer will randomly draw either a blue card (4 chances out of 10 on the left; X chances out of 10 on the right) or yellow (6 chances out of 10 on the left; 10-X chances out of 10 on the right).

BARS



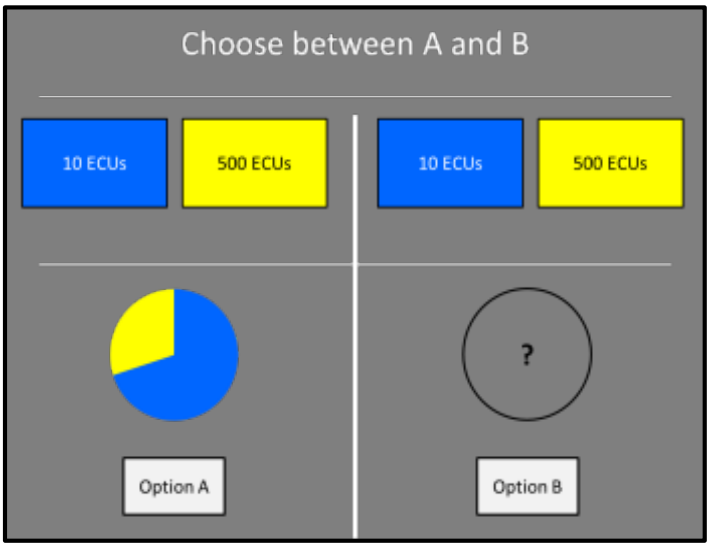
The blue boxes are worth 500 ECUs and the yellow ones 10 ECUs.

On the left side, A, you don't know the number of blue and yellow boxes.
On the right side, B, there are 3 blue boxes and 7 yellow.

Choose the bar of your preference, A (left) or B (right).
Click A or B to indicate your choice.

After making your choice, the computer will randomly draw either blue (X chances out of 10 on the left; 3 chances out of 10 on the right) or yellow (10-X chances out of 10 on the left; 7 chances out of 10 on the right).

PIES



The blue part is worth 500 ECUs and the yellow part 10 ECUs.

On the left side, A, there is 70% blue and 30% yellow.
On the right side, B, you don't know the proportion of blue and yellow.

Choose the pie of your preference, A (left) or B (right).
Click A or B to indicate your choice.

After making your choice, the computer will randomly draw (blue: 7 chances out of 10 on the right and X chances out of 10 on the left; or yellow: 3 chances out of 10 on the right and 10-X chances out of 10 on the left)

If you have a question, raise your hand and an experimenter will come to answer you personally. When you are ready, click the Start button.

In this second part you will participate in a decision making experiment.
The experiment simulates a market with a seller and a buyer. You will be the buyer during all the experiment. You have to decide between two contracts. Each time, you can choose 1 out of the 2 contracts or none of them. Each contract corresponds to an investment product which is defined by a PRICE and a GUARANTEE.
If you choose a contract, you don't pay it at beginning but at the end of the round.
The PRICE you pay depends on the success or failure of the investment you choose.
In case of SUCCESS, you pay the PRICE indicated in the contract.
In case of FAILURE, you pay the amount of the GUARANTEE.
If you choose not to take any contract, the 300 ECUs will be invested in a safe asset that yields 30 ECUs.

This part has two treatments. Before each treatment you will receive more detailed instructions.

In the following screens we present 2 examples corresponding to each treatment.

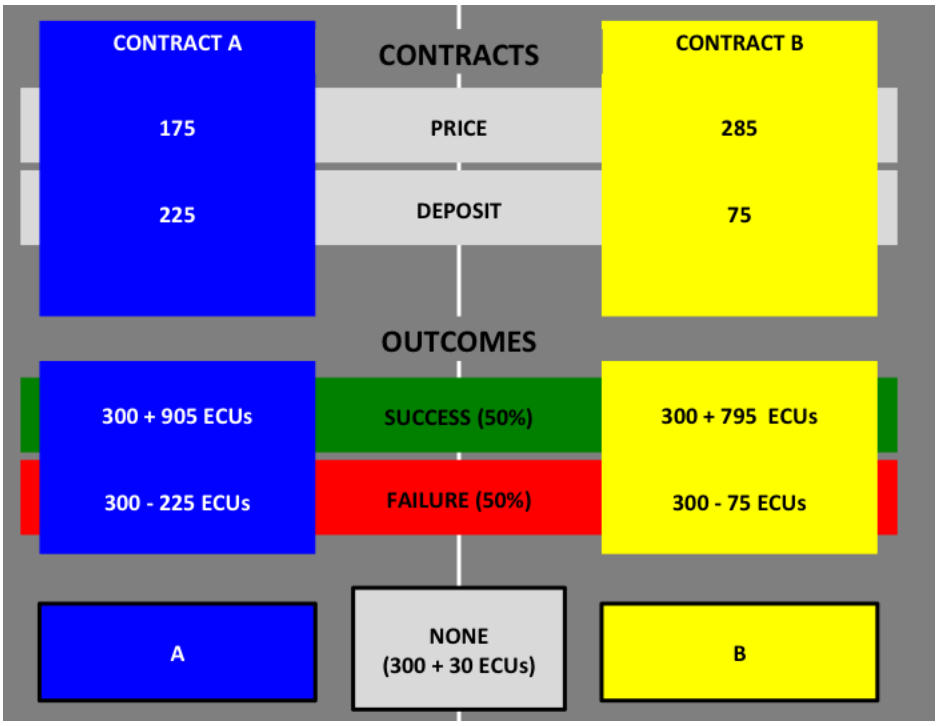
If you have a question, raise your hand and an experimenter will come to answer you personally. When you are ready, click the Start button.

In this example, the contracts A and B have a **50% probability of success and a 50% probability of failure**

In case of success, in addition to your 300 ECUs endowment, you earn 905 ECUs if you choose contract A (net of the price of 175 ECUs) and 795 ECUs if you choose contract B (net of the price of 285 ECUs).

In case of failure, in addition to your 300 ECUs endowment, you lose 225 ECUs from the guarantee if you choose contract A and 75 ECUs from the guarantee if you choose contract B.

If you choose no contract, in addition to your 300 ECUs endowment you earn 30 ECUs.

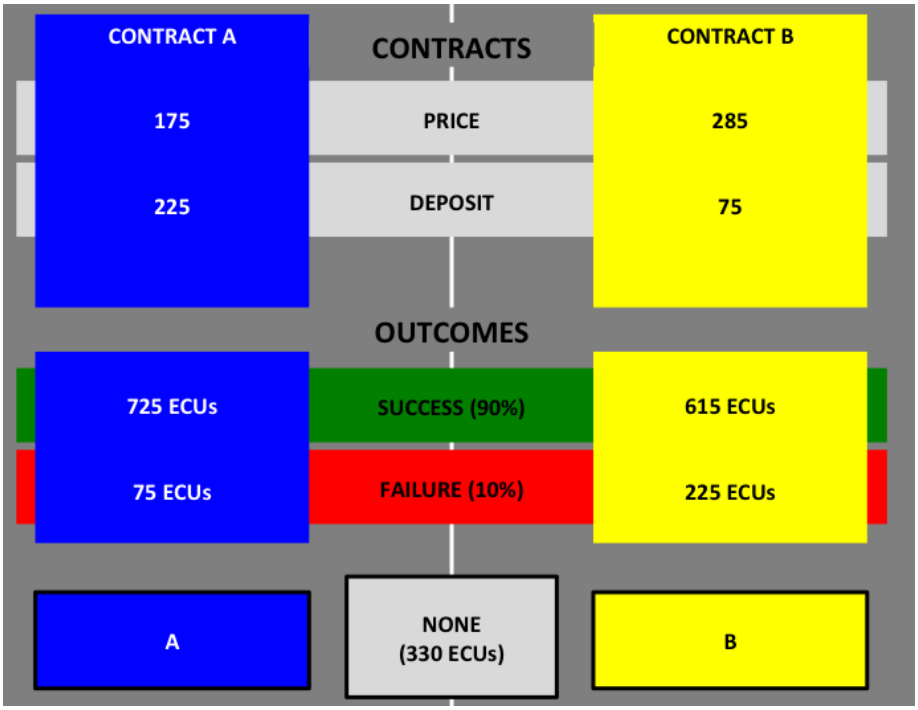


In this example, the contracts A and B have a **90% probability of success and a 10% probability of failure**

In case of success, you earn 725 ECUs if you choose contract A (net of the price of 175 ECUs) and 615 ECUs if you choose contract B (net of the price of the price of 285 ECUs). Your 300 ECUs endowment is included

In case of failure, you earn 75 ECUs if you choose contract A (net of the guarantee of 225 ECUs) and 225 if you choose contract B (net of the guarantee of 75 ECUs). Your 300 ECUs endowment is included.

If you choose no contract, you earn 330 ECUs.



If you have a question, raise your hand and an experimenter will come to answer you personally. When you are ready, click the Start button.

Chapter 2

Gender, self-confidence, sports, and preferences for competition

2.1 Introduction

Results from the self-selection experiment in Chapter 1 showed that women tended to shy away from choosing contracts *s* or *r* more frequently that men did. When holding the riskier project, 14.44% of women choose not to have any of the contracts and get the 'no contract' option, which pays a sure though low return. Just 6.06% of men choices went to the 'no contract' option (see Figure 1.1). When holding the safer project, 7.92% of

women choices went to the ‘no contract’ option, and just the 2.25% of men choices went to the ‘no contract’ option.

Recent research in economics shows a gender gap in the willingness to compete, with women shying away from competition more than men do (Croson & Gneezy, 2009; Niederle & Vesterlund, 2007; 2011). This gender difference in preferences toward competition seems critical to explain the small percentage of women in top-level positions in business, science, or politics (Blau et al., 2010; Cason et al., 2010; Datta Gupta et al., 2013; Dohmen & Falk, 2011; Gneezy et al., 2009; Gneezy et al., 2003; Gneezy & Rustichini, 2004; Niederle &Vesterlund, 2007; 2011; Weichselbaumer & Winter-Ebmer, 2007). Consequently, research and policy interventions explore ways to increase women’s competitive behavior (Balafoutas & Sutter, 2012; Calsamiglia et al., 2013; Miller & Segal, 2012; Niederle et al., 2013; Villeval, 2012).

However, competitive behavior might not always be desirable. Some studies relate women’s lower preferences for competition to positive consequences for the general economic well being. Eckel and Fullbrunn (2015) show that increasing the fraction of women traders in the market reduces the magnitude of the speculative price bubbles such as the one causing the financial crisis in 2008. They argue that women’s higher risk aversion and lower preferences for competition seem to trigger this result.

Charness and Rustichini (2011) relate women's lower willingness to compete with higher cooperative behavior. Furthermore, their research on gender differences in cooperation suggests that females cooperate more often and men cooperate less often when their gender peers observe them. Charness and Rustichini (2011) conclude that men prefer signaling to other men that they are tough; whereas women prefer to show other women they are cooperative. This result appears to indicate that salient group membership such as gender influences behavior. Similarly, Ackerlof and Kranton (2010) and Cohn et al. (2014) show how identities, and not just economic incentives, shape economic decisions.

Differences in willingness to compete may relate to not only gender differences in social identity or personal traits such as cooperativeness and risk aversion but also to differences in confidence. Kamas and Preston (2012) find that, conditional on ability, self-confidence eliminates gender differences in decisions to enter winner-take-all (WTA) competition. However, this result does not hold for business school students in the Kamas and Preston (2012)'s analysis. Gender differences in willingness to compete persist in business school students even after accounting for risk aversion and confidence. Conversely, women out-compete men in Gneezy et al.'s (2009) study of a matrilineal society. These findings, together with task dependent literature's results, may indicate that self-confidence plays a role in the willingness to compete. The inclusion of self-confidence in

studies on gender differences in competition preferences is important for policy interventions because appropriate education and information may correct lower confidence.

Policy interventions devoted to increase women's willingness to compete need to take into account the related conditions and behaviors. Consequently, research methods should account for the causal complexity and should study the different paths that could lead to decide entering competition.

Previous studies mainly present laboratory economic experiments and apply econometric models to analyze the main net effects of gender on the willingness to compete. This study aims to analyze the recipes of conditions that relate to competition preferences, including gender, and the different paths that lead to decide entering competitive environments. Thus, this study presents a laboratory economic experiment on preferences for competition, and uses a fuzzy-set qualitative comparative analysis (FsQCA) to analyze results. The fsQCA (Ragin, 2000) helps capture complex patterns of causation and shows different combination of conditions that could lead to the outcome.

The results show that differences in preferences for competition do not come from the gender alone, but from several combinations of causal conditions. Furthermore, results suggest that experience in competitive

sports relates to a higher self-confidence and serves as a path to increase integration in competitive systems.

Following this introduction, section 2.2 presents the details of the experimental design. Section 2.3 presents the method of analysis and reports the results. Section 2.4 discusses the results and offers some conclusions.

2.2 Experimental design and procedures

To explore the conditions related to the decision of entering competition, and the gender effect, this study replicates Niederle and Vesterlund's (2007) economic experiment with undergraduate students from economics and business careers. This study experimentally tests subjects' self-confidence and cooperative behavior, measures attitudes toward risk, and records subjects' experience in competitive games and sports. The study further analyzes the results using fsQCA.

The laboratory economic experiment starts, as in Niederle and Vesterlund (2007), with subjects adding sets of five two-digit numbers during five minutes at a piece-rate payment scheme of 0,25 euros per correct addition (Round 1 in Task 1). In a second round, subjects repeat the task under a WTA competitive payment scheme: A tournament in groups of four randomly selected subjects (two men and two women) in which only the

subject who solves the largest number of correct additions within the group receives a payment (1 euro per correct sum). Subjects in the third round of Task 1 repeat the task and decide which one of these two payment schemes they prefer to apply. Differently from Niederle and Vesterlund (2007), subjects do not receive information about the number of their correct additions until the end of the rounds. Before receiving the information, subjects have to answer an incentivized question on their relative performance (within the group of four). The subject's believes on their relative performance compared to their actual position within the group measure each subject's self-confidence.

After this task, subjects start a decomposed game to test their cooperative behavior (Brosig, 2002; Liebrand, 1984; McClintock & Liebrand, 1988). Subjects make 24 choices between two "own-other" payoff combinations. Payoffs come from all 24 choices subjects and partners make. Using a standard classification procedure for this technique, subjects classify for this study as cooperative or non-cooperative (Griesinger & Livingston, 1973).

The third task measures attitudes toward risk. Subjects make choices in nine lottery pairs as in Comeig et al. (2013). The lotteries' design follows Blavatskyy's (2009) test on risk attitudes, which builds on Holt and Laury (2002).

At the end of the experiment, subjects answer a social questionnaire that includes questions about experience in competitive videogames and sports; subjects receive the payoffs in cash (19 euros on average) afterwards.

Table 2.1 describes the conditions this research examines and the data from the experiment.

The 104 subjects of the experiment are students from the Economics, Business, Finance and Accounting, and International Business degrees at the University of Valencia (52 men, 52 women). The computerized experiment run in the fall 2014 at the Laboratory for Research in Experimental Economics (LINEEX). At the beginning of the experiment, the subjects read the instructions and solved their questions. During the experiment, subjects received no feedback on their performance and could not communicate with other subjects (instructions are shown at the end of this chapter in Appendix 2).

Table 2.1. Outcome and causal conditions: Definition and estimate.

Condition	Definition	Estimate	Mean
Gender (GEN)	Value = 1 for men Value = 0 for women	Binary	0.46
Decision in round 3 of Task 1 (DEC)	Value =1 for not entering competition (chooses piece-rate payment) Value = 0 for entering competition (chooses WTA tournament)	Binary	0.50
Number of correct sums in round 1,Task 1 (SCOR1)	Number of additions correctly solved in round 1. Controls for subject's ability.	Fuzzy set calibration	5.57
Overconfidence (OVERCONF)	Value =1 for those overestimating their position within the group in round 2 Value = 0 otherwise	Binary	0.24
Risk aversion (AVERISK)	Value =1 for risk-averse subjects Value = 0 otherwise	Binary	0.75
Experience in competitive sports (SPOR)	Value =1 for subjects with strong experience in competitive sports Value = 0 otherwise	Binary	0.81
Experience in videogames (GAME)	Value =1 for subjects with strong experience in videogames Value = 0 otherwise	Binary	0.59
Cooperative personality (COOP)	Value =1 for cooperative subjects Value = 0 otherwise	Binary	0.37

68 subjects (31 men and 37 women). Decision in round 3 acts for the outcome of the FsQCA.

The fsQCA analysis of the experimental data includes only 68 subjects (31 men and 37 women); that is, subjects who were consistent in the risk-attitude elicitation task. Consistent subjects are those with a unique switching point (USP) from the safe option to the risky option. Risk-averse subjects switch to the risky option after the fifth lottery (I>5). Additionally, fsQCA requires the calibration of the condition that proxies individual's ability, the number of correct additions in the piece rate round (SCOR1). The number of correct sums in round 1 of Task 1 (with the minimum at 0 sums, the maximum at 13 and average at 5.57 correct sums) translates into a five-point scale (0; 0.2; 0.5; 0.8; 1) and three percentiles (0.95; 0.5; and 0.05) of the condition's presence (Ragin et al., 2009).

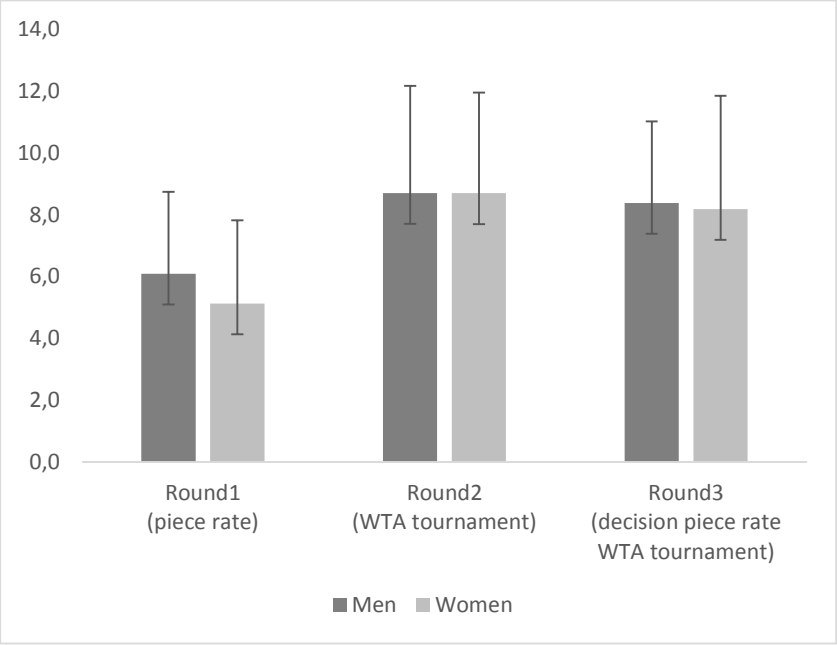
This study uses fsQCA to analyze the experimental results because this type of analysis shows the different paths that lead to reach the outcome, not only the main influences, which is especially appropriate to analyze behavior, connections among experiences and behavior, and to inform policy-makers (Woodside, 2013; 2014).

2.3 Results

Figure 2.1 and Figure 2.2 show a descriptive overview of the experimental results of Task 1 by round and gender. Results from round 3 show that women tend to enter competition less than men do (see Figure 2.2, graph

B). However, whereas Niederle and Vesterlund (2007) find 73% of men and 35% of women choose competition, the gender difference is smaller in this study: 55% of men and 45% of women decide to enter competition. Kamas and Preston (2012) show no significant difference between men and women for STEM majors' students but do show a significant difference for business school students because of the highly competitive behavior of men studying business.

Figure 2.1. Correct sums per round in Task 1



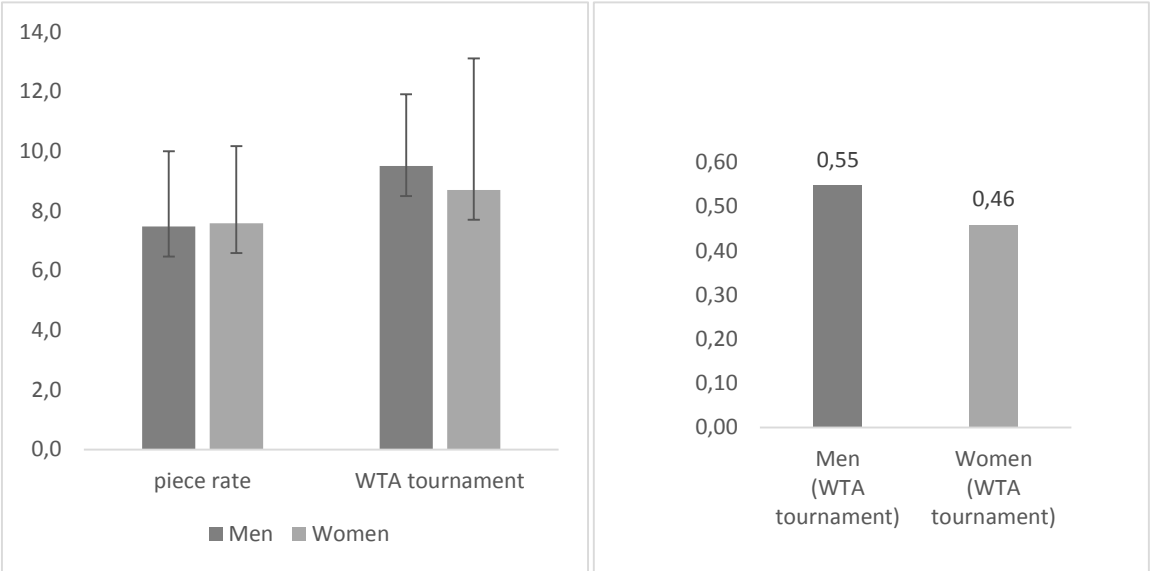
Means and standard deviations of correct sums by 68 subjects (31 men and 37 women) by round.

In addition, in line with previous literature, results show that the number of correct additions is higher for subjects in WTA tournament than in the piece-rate payment scheme (see Figure 2.1, rounds 1 and 2, and Figure 2.2, graph A).

Figure 2.2. Disaggregated results for Round 3 in Task 1

A: Correct sums per payment scheme choice

B: Frequency of WTA tournament's



The total sample in round 3 consists of 68 subjects (31 men and 37 women).
14 men (45%) and 20 women (54%) choose not to compete (piece rate payjment).
17 men (55%) and 17 women (46%) choose to compete (WTA tournament payment).

Results in this experiment replicate previous findings. However, instead of explaining these findings with a standard analysis on gender main effects, this study applies the fsQCA (fsQCA 2.0, www.fsqca.com, from Ragin et

al., 2009) to examine the combinations of causal conditions that explain preferences for competition, including the effect of gender on those preferences.

The fuzzy-set qualitative comparative analysis (fsQCA) models the concept of conjectural causation: combinations of various causal conditions, rather than one condition alone, may lead to the outcome.

2.3.1 Necessary conditions

The results of the fsQCA in Table 2.2 show than none of the causal conditions alone, including gender, are a necessary condition for the outcome. A condition or a combination of conditions is necessary or almost always necessary if the consistency score exceeds 0.9 (see Schneider et al. 2010, p. 254 for further explanation on the measure, or Ragin, 2006).

The gender (GEN, gen) of the subjects is the less necessary condition (consistency score= 0.5) for the decision to enter the WTA tournament (dec). However, the lack of mathematical ability (scor1), and having previous experience in competitive sports (SPOR) are the conditions almost necessary to decide whether to enter the WTA competition (dec), with consistency scores of 0.87 and 0.82, respectively.

Table 2.2. Analysis of necessary conditions

Outcome: dec

Condition	Consistency	Coverage
scor1	0.87	0.54
SPOR	0.82	0.51
AVERISK	0.71	0.47
coop	0.62	0.49
overconf	0.59	0.45
GAME	0.53	0.45
GEN	0.50	0.55
gen	0.50	0.46
game	0.47	0.57
OVERCONF	0.41	0.58
COOP	0.38	0.52
averisk	0.29	0.59
spor	0.18	0.46
SCOR1	0.13	0.34
GEN+SPOR	1.00	0.51
OVERCONF+SPOR	0.94	0.52

Causal conditions with capital letter: indicate the presence of causal condition studied.

Causal conditions with small letter: indicate the absence of that condition.

This result confirms that differences in preferences for competition do not come from the individual's gender alone, but from sets of connected conditions.

The last part of Table 2.2 shows whether two conditions, one or the other, are necessary conditions for the outcome, that is, if these two conditions are "substitutable necessary conditions" in fsQCA (Ragin, 2006). Having previous experience in competitive sports relates to high self-confidence (consistency score of OVERCONF+SPOR = 0.94), and one or the other are necessary conditions for the outcome. However, having previous experience in competitive sports acts as a functional equivalent to masculine gender (consistency score of GEN+SPOR = 1), that is, men (GEN) have more experience in competitive sports than women have.

Furthermore, these two expressions are not trivial for the decision on entering or not WTA competition (coverage rate of OVERCONF+SPOR and GEN+SPOR are 0.52 and 0.51, respectively). A necessary condition is trivial and yields a coverage rate near 0 if the condition occurs in all cases regardless of the presence or absence of the outcome (Ragin, 2006).

This result suggests that the active promotion of competitive sports among women may be a recommendable policy intervention to increase women's self-confidence and women's integration in competitive systems as businesses, science, or politics, in line with cooperation practitioners' wisdom (Meier, 2005; Kirk, 2012). However, fsQCA results do not

explain whether the strong relationship between men and competitive sports comes from inherent gender preferences, social identity, or education. The question on the self-selection in competitive sports remains open.

2.3.2 Sufficient conditions

Table 2.3 presents the intermediate solution with the conditions and/or combination of conditions sufficient to reach the outcome. Ragin (2008) recommends the intermediate solution for interpretation of results.

Each line describes a combination of conditions (or causal path) that leads to the decision of entering the WTA tournament instead of selecting a piece-rate payment. As Table 3 shows, all causal paths consist of combinations of conditions. No single condition is sufficient to account for entering the competition.

The total coverage of the seven causal paths in Model 1 is 0.62, indicating that these combinations of conditions cover most of the subject's choices (dec).

Table 2.3. Sufficient combinations of conditions for entering in a WTA tournament

Model 1. Outcome: dec

Intermediate Solution	Raw Coverage	Unique Coverage	Consistency
GAME*SPOR*averisk*coop	0.15	0.15	0.83
GEN*AVERISK*overconf*COOP	0.15	0.12	1.00
game*SPOR*OVERCONF*COOP	0.09	0.09	1.00
gen*game*SPOR*AVERISK	0.09	0.09	0.75
GEN*GAME*SPOR*COOP	0.09	0.06	1.00
GEN*game*spor*AVERISK*OVERCONF*coop	0.06	0.06	1.00
GEN*GAME*averisk*OVERCONF*coop	0.03	0.03	1.00

Solution Coverage: 0.62

Solution Consistency: 0.91

Model 2. Outcome: dec (without gender as causal condition)

Intermediate Solution	Raw Coverage	Unique Coverage	Consistency
game*SPOR*AVERISK	0.27	0.07	0.75
GAME*SPOR*averisk*coop	0.15	0.06	0.83
game*AVERISK*OVERCONF* coop	0.12	0.06	0.80
GAME*averisk*OVERCONF*coop	0.12	0.03	1.00
game*AVERISK*overconf*COOP	0.12	0.03	0.80
game*SPOR*OVERCONF*scor1*COOP	0.08	0.03	1.00

Solution Coverage: 0.56

Solution Consistency: 0.83

Causal conditions with capital letter indicate the presence of causal condition studied.
Causal conditions with small letter indicate the absence of that condition.
*: Presence of both conditions.

The most important combination of conditions that leads to the decision of entering the WTA competition (raw coverage = 0.15, unique coverage = 0.15) is having experience in competitive sports and games, together with the lack of risk aversion and the lack of cooperative personality (GAME*SPOR*averisk*coop). Previous literature results, which generally study main net effects in econometric models, traditionally capture this combination of conditions and thus relate gender differences in willingness to compete to women's higher risk aversion and social preferences towards cooperation and equality. However, analyzing results with fsQCA shows that this path is not the only path to decide entering a competition.

The second empirically important causal path that leads to the outcome (raw coverage = 0.15, unique coverage = 0.12) combines masculine gender with a risk-averse, cooperative, and not-overconfident attitude (GEN*AVERISK*overconf*COOP). This seems to indicate that men, even being risk averse, not-overconfident, and cooperative enter WTA tournaments.

The next three causal paths contain the experience in competitive sports (SPOR) among their conditions, which denotes the importance of experience in the decision to enter a WTA tournament.

The third recipe contains experience in sports, overconfidence, and cooperativeness (game*SPOR*OVERCONF*COOP) (raw coverage = 0.9, unique coverage = 0.9).

The fourth recipe includes being woman among the conditions (gen*game*SPOR*AVERISK). Women with experience in competitive sports decide to enter competition even when being risk-averse (raw coverage = 0.9, unique coverage = 0.9). This result is important for policy interventions because women's experience in sports, contrary to personal traits (such as cooperativeness or risk aversion), might increase with appropriate information or the promotion of new and more women-appealing sports.

The second part of Table 2.3 presents the intermediate solution of Model 2, a model that excludes gender from the causal conditions. The total coverage of the causal paths in Model 2 is 0.56 (0.62 in Model 1), indicating that the gender effect is not decisive. Combinations of causal conditions other than gender cover most of the subject's decisions about entering competition (56%).

The first and second combination of conditions leading to the decision of entering a WTA tournament instead of selecting a piece-rate payment (raw coverage = 0.27 and 0.15, unique coverage = 0.07 and 0.06, respectively) include experience in competitive sports (SPOR) in the recipe. The two next causal paths leading to the decision of entering a WTA tournament include OVERCONF among the conditions, which closely relates to experience in competitive sports (see necessary conditions). Thus, the intermediate solution of Model 2 again shows that experience in

competitive sports relates to a higher self-confidence and increases the integration in competitive systems.

2.4 Discussion and conclusions

This study presents the first fuzzy-set qualitative comparative analysis (FsQCA) on gender differences in preferences for competition. Previous research analyzes the main effects of gender on the willingness to compete applying standard statistic and econometric models and generally finds that women present a lower preference for competitive environments. This study, however, seeks to analyze the connected conditions, including gender, that relate to competition preferences and the different paths that may lead to decide entering a competition. Understanding complex connections in behavior, preferences, and social experiences may help to establish responsible policy interventions on the gender gap in the willingness to compete.

The fsQCA results on the economic experiment show that the willingness to compete does not come from the individual's gender alone but from sets of connected conditions. One combination of conditions that leads to enter competition is the lack of risk aversion and the lack of cooperative personality together with experience in competitive sports and games. This path reflects the main effects that previous literature generally shows,

which relates gender differences in willingness to compete to women's higher risk aversion, and preference towards cooperation and equality. However, analyzing results with fsQCA shows that this path is not the only path to decide entering a competition.

Interestingly, one of the causal paths leading to enter competition includes being a woman among the conditions: Women with experience in competitive sports decide to enter competition even when being risk-averse. This result is important for policy interventions, because women's experience in sports might increase with proper information or by promoting sports attractive enough for women.

Furthermore, results show that experience in competitive sports relates to a higher self-confidence and generates a higher willingness to enter in other competitive environments. These results provide interesting insights to guide policy interventions to reduce the gender gap in preferences for competition and, therefore, to rise the percentage of women in top-level positions and to reduce the gender gap in salaries.

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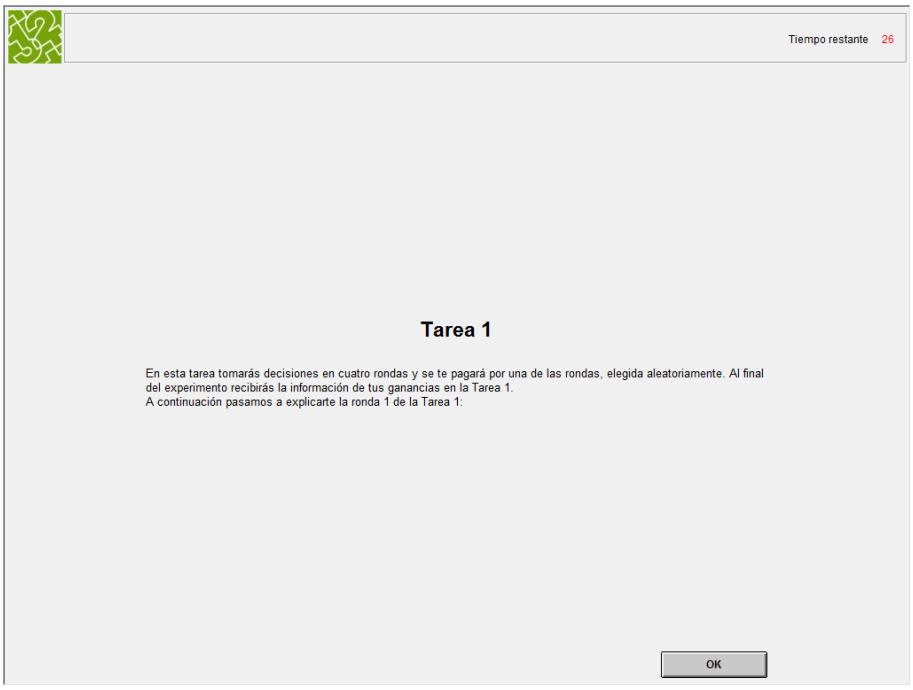
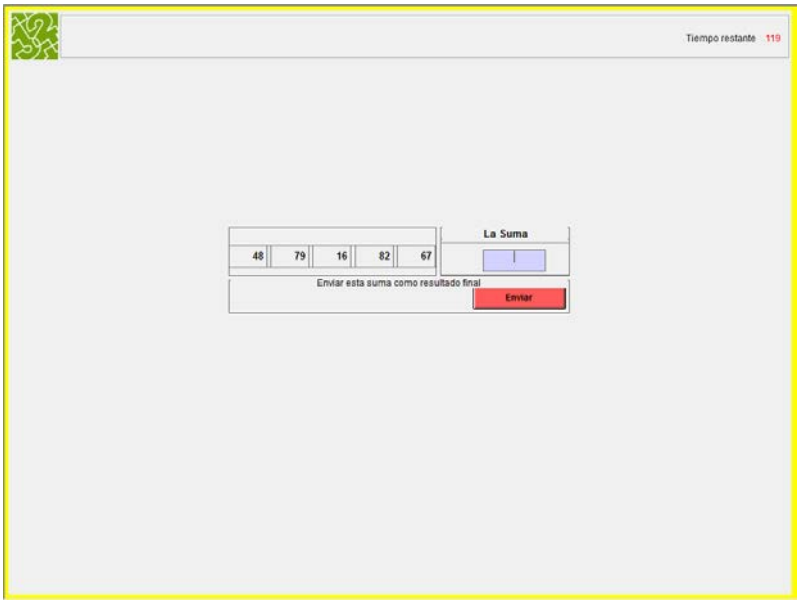
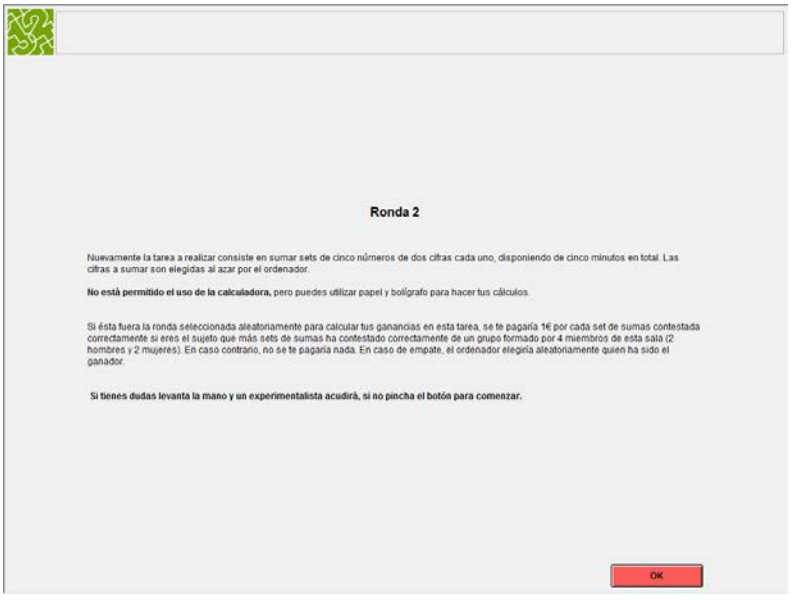
APPENDIX 2

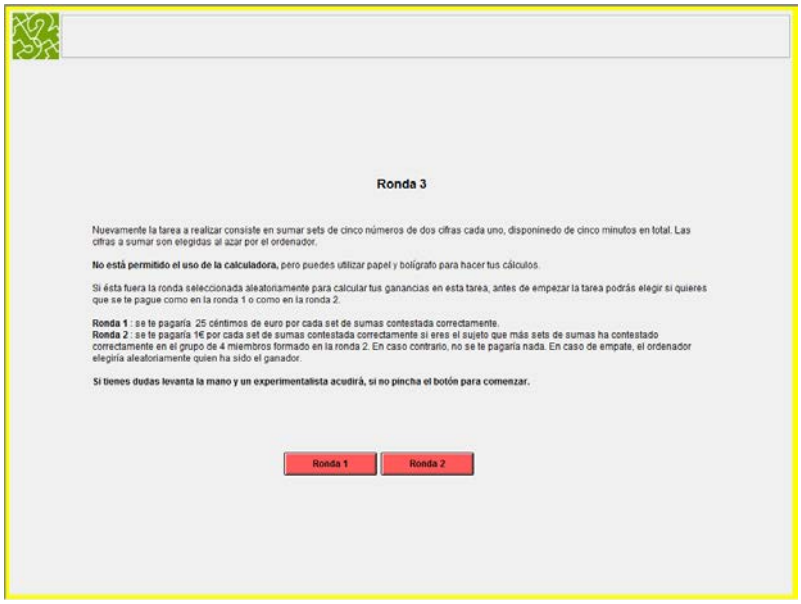
Instrucciones (en Español)

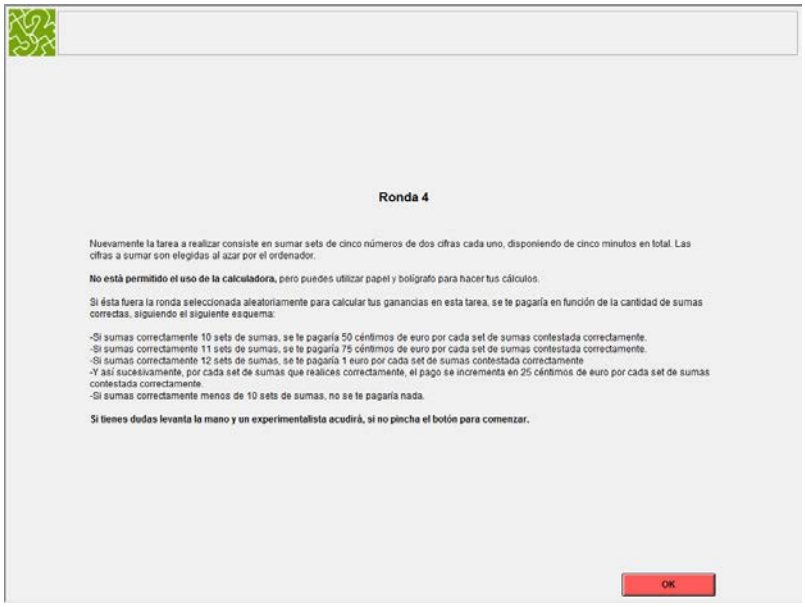


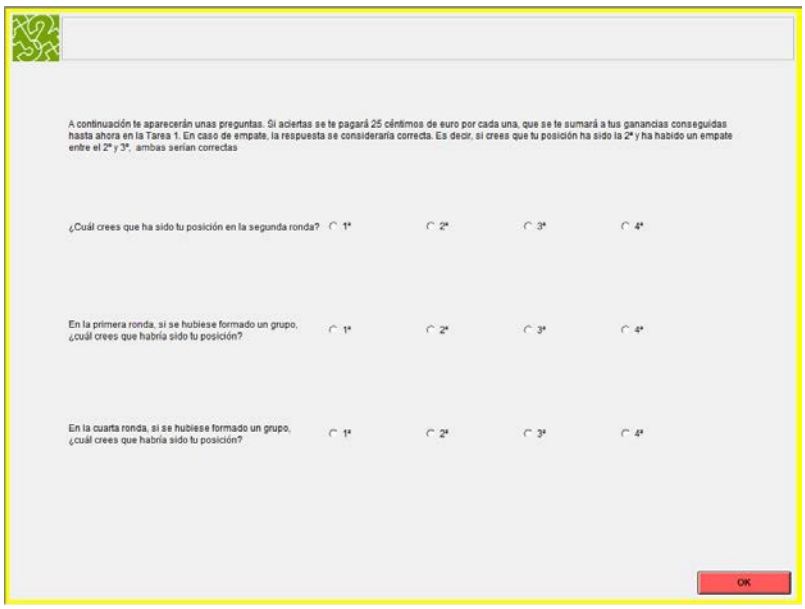

Tiempo restante 119
La Suma
48 79 16 82 67
Enviar esta suma como resultado final
Enviar


Ronda 1
La tarea a realizar consiste en sumar sets de cinco números de dos cifras cada uno, y para ello dispondrás de cinco minutos.
Las cifras a sumar son elegidas al azar por el ordenador.
No está permitido el uso de la calculadora , pero puedes utilizar papel y bolígrafo para hacer tus cálculos.
Un ejemplo sería:
21 35 48 29 83
Si ésta fuera la ronda seleccionada aleatoriamente para calcular tus ganancias en esta tarea, se te pagaría 25 céntimos de euro por cada set de sumas contestada correctamente.
Si tienes dudas levanta la mano y un experimentalista acudirá, si no pincha el botón para comenzar.
OK


Ronda 2
Nuevamente la tarea a realizar consiste en sumar sets de cinco números de dos cifras cada uno, disponiendo de cinco minutos en total. Las cifras a sumar son elegidas al azar por el ordenador.
No está permitido el uso de la calculadora, pero puedes utilizar papel y bolígrafo para hacer tus cálculos.
Si ésta fuera la ronda seleccionada aleatoriamente para calcular tus ganancias en esta tarea, se te pagaría 1€ por cada set de sumas contestada correctamente si eres el sujeto que más sets de sumas ha contestado correctamente de un grupo formado por 4 miembros de esta sala (2 hombres y 2 mujeres). En caso contrario, no se te pagaría nada. En caso de empate, el ordenador elegiría aleatoriamente quien ha sido el ganador.
Si tienes dudas levanta la mano y un experimentalista acudirá, si no pincha el botón para comenzar.
OK


Ronda 3
Nuevamente la tarea a realizar consiste en sumar sets de cinco números de dos cifras cada uno, disponinedo de cinco minutos en total. Las cifras a sumar son elegidas al azar por el ordenador.
No está permitido el uso de la calculadora, pero puedes utilizar papel y bolígrafo para hacer tus cálculos.
Si ésta fuera la ronda seleccionada aleatoriamente para calcular tus ganancias en ésta tarea, antes de empezar la tarea podrás elegir si quieres que se te pague como en la ronda 1 o como en la ronda 2.
Ronda 1 : se te pagaría 25 céntimos de euro por cada set de sumas contestada correctamente.
Ronda 2 : se te pagaría 1€ por cada set de sumas contestada correctamente si eres el sujeto que más sets de sumas ha contestado correctamente en el grupo de 4 miembros formado en la ronda 2. En caso contrario, no se te pagaría nada. En caso de empate, el ordenador elegiría aleatoriamente quien ha sido el ganador.
Si tienes dudas levanta la mano y un experimentalista acudirá, si no pincha el botón para comenzar.
Ronda 1
Ronda 2


Ronda 4
Nuevamente la tarea a realizar consiste en sumar sets de cinco números de dos cifras cada uno, disponiendo de cinco minutos en total. Las cifras a sumar son elegidas al azar por el ordenador.
No está permitido el uso de la calculadora, pero puedes utilizar papel y bolígrafo para hacer tus cálculos.
Si ésta fuera la ronda seleccionada aleatoriamente para calcular tus ganancias en esta tarea, se te pagaría en función de la cantidad de sumas correctas, siguiendo el siguiente esquema:
-Si sumas correctamente 10 sets de sumas, se te pagaría 50 céntimos de euro por cada set de sumas contestada correctamente.
-Si sumas correctamente 11 sets de sumas, se te pagaría 75 céntimos de euro por cada set de sumas contestada correctamente.
-Si sumas correctamente 12 sets de sumas, se te pagaría 1 euro por cada set de sumas contestada correctamente
-Y así sucesivamente, por cada set de sumas que realices correctamente, el pago se incrementa en 25 céntimos de euro por cada set de sumas contestada correctamente.
-Si sumas correctamente menos de 10 sets de sumas, no se te pagaría nada.
Si tienes dudas levanta la mano y un experimentalista acudirá, si no pincha el botón para comenzar.
OK


A continuación te aparecerán unas preguntas. Si aciertas se te pagará 25 céntimos de euro por cada una, que se te sumará a tus ganancias conseguidas hasta ahora en la Tarea 1. En caso de empate, la respuesta se consideraría correcta. Es decir, si crees que tu posición ha sido la 2ª y ha habido un empate entre el 2ª y 3ª, ambas serían correctas
¿Cuál crees que ha sido tu posición en la segunda ronda? 1ª 2ª 3ª 4ª
En la primera ronda, si se hubiese formado un grupo, ¿cuál crees que habría sido tu posición? 1ª 2ª 3ª 4ª
En la cuarta ronda, si se hubiese formado un grupo, ¿cuál crees que habría sido tu posición? 1ª 2ª 3ª 4ª
OK

RONDA	TUS ACIERTOS
1	0
2	1
3	1
4	0

A continuación te volverán a aparecer las preguntas anteriores. Si aciertas se te pagará 25 céntimos de euro por cada una, que se te sumará a tus ganancias conseguidas hasta ahora en la Tarea 1. En caso de empate, la respuesta se consideraría correcta. Es decir, si crees que tu posición ha sido la 2ª y ha habido un empate entre el 2ª y el 3ª, ambas serían correctas

¿Cuál crees que ha sido tu posición en la segunda ronda?	○ 1ª	○ 2ª	○ 3ª	○ 4ª
En la primera ronda, si se hubiese formado un grupo, ¿cuál crees que habría sido tu posición?	○ 1ª	○ 2ª	○ 3ª	○ 4ª
En la cuarta ronda, si se hubiese formado un grupo, ¿cuál crees que habría sido tu posición?	○ 1ª	○ 2ª	○ 3ª	○ 4ª

OK

Tarea 2

En esta tarea vas a ser emparejado al azar con otro participante en la sesión. Ninguno de los dos conocerá la identidad del otro.

Se te presentan 24 escenarios y, en cada uno de ellos, debes elegir una de entre dos opciones: "A" y "B". Cada opción asigna una cantidad positiva o negativa de euros a ti y al otro participante. La cantidad en euros que obtendrás en cada escenario dependerá de la opción que escojas tú y de la escogida por tu pareja. La estructura de los 24 escenarios es idéntica. En lo que dure esta tarea, no vas a recibir ninguna información sobre la opción escogida por tu pareja. Tan sólo se te informará de la cantidad obtenida por ambos al final del experimento.

A continuación, te presentamos un ejemplo aclaratorio del proceso de toma de decisiones descrito anteriormente. Supón que se te plantea una situación como la siguiente.

Hay cuatro posibles resultados:

A) Si eliges la opción "A" y tu pareja la "B" (algo que desconocerás en todo momento) obtendrás 5.30 euros (por elegir la opción "A") más 3.75 euros (al elegir tu pareja la opción "B"), que hacen un total de 9.05 euros para ti y de 11.8 euros para tu pareja en este escenario.

B) Si ambos elegís la opción "A", obtendrás 5.30 euros (por elegir la opción "A") más 5.30 euros (al elegir tu pareja la opción "A"), que hacen un total de 10.6 euros para ambos en este escenario.

C) Si escoges "B" y tu pareja "A", obtendrás 6.50 euros (por elegir la opción "B") más 5.30 euros (al elegir tu pareja la opción "A"), que hacen un total de 11.8 euros para ti y de 9.05 euros para tu pareja en este escenario.

D) Si ambos habéis elegido la opción "B", obtendrás 6.50 euros (por elegir la opción "B") más 3.75 euros (al elegir tu pareja la opción "B"), que hacen un total de 10.25 euros para ambos en este escenario.

El ordenador calculará automáticamente la cantidad obtenida en cada escenario propuesto, pero no se te informará sobre los resultados hasta que no hayas completado el experimento.

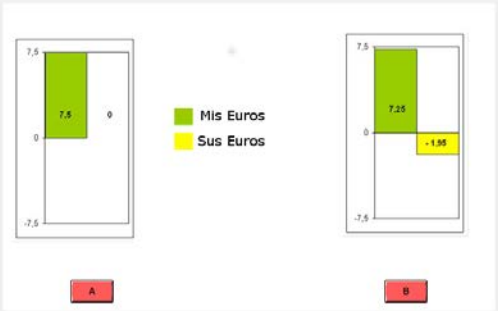
La remuneración de la Tarea 2 será la suma de tus ganancias en cada uno de los 24 escenarios. Recuerda que la cantidad en euros que obtendrás en cada escenario dependerá de la opción que escojas tú y de la escogida por tu pareja. Y tus ganancias se sumarán con las ganancias obtenidas en la Tarea 1.

A continuación se te presentarán en pantalla, de forma secuencial, los 24 escenarios en los que deberás escoger que opción prefieres. Para escoger una de las dos opciones en cada escenario pincha sobre tu opción preferida "A" o "B".

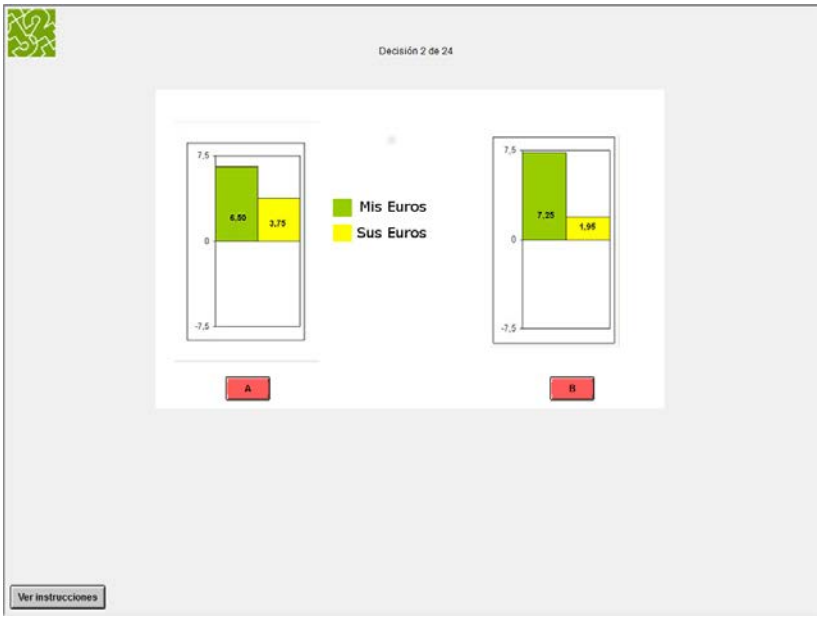
Si tienes dudas levanta la mano y un experimentalista acudirá, si no pincha el botón para comenzar.

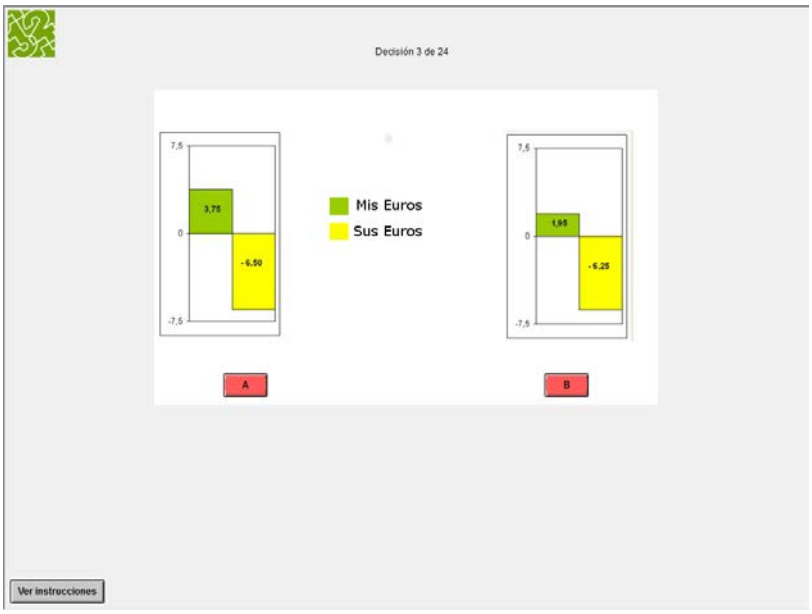
Continuar

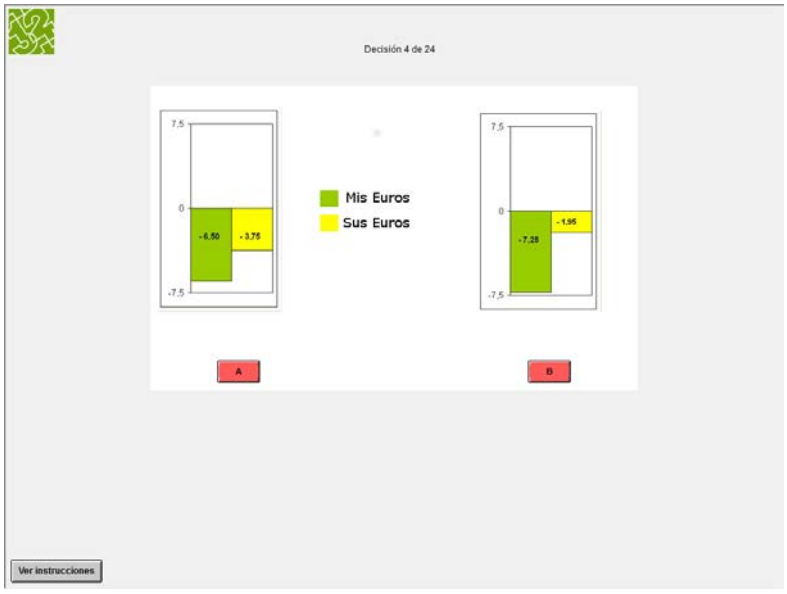
Decisión 1 de 24

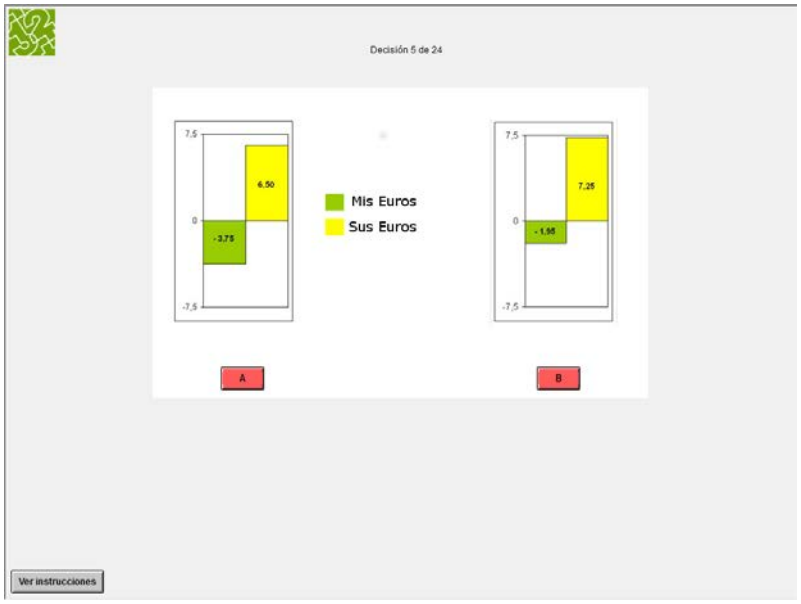


Ver instrucciones


Decisión 2 de 24
7,5
6,50
3,75
0
-7,5
Mis Euros
Sus Euros
7,5
7,25
1,95
0
-7,5
A
B
Ver instrucciones


Decisión 3 de 24
7,5
3,75
0
- 6,50
-7,5
Mis Euros
Sus Euros
7,5
1,95
0
- 6,25
-7,5
A
B
Ver instrucciones


Decisión 4 de 24
7,5
0
- 6,50
- 3,75
-7,5
Mis Euros
Sus Euros
7,5
0
- 1,95
- 7,25
-7,5
A
B
Ver instrucciones

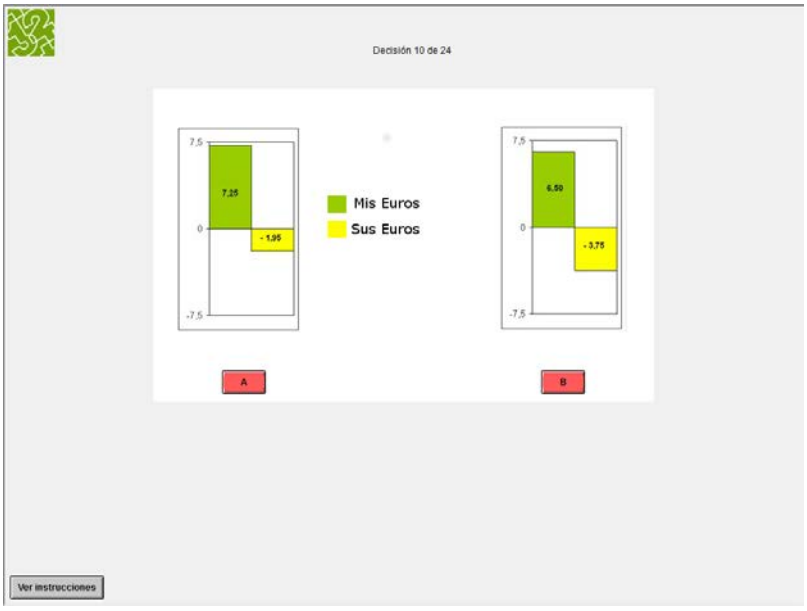

Decisión 5 de 24
7,5
0
-7,5
6,50
-3,75
Mis Euros
Sus Euros
7,5
0
-7,5
7,25
-1,95
A
B
Ver instrucciones

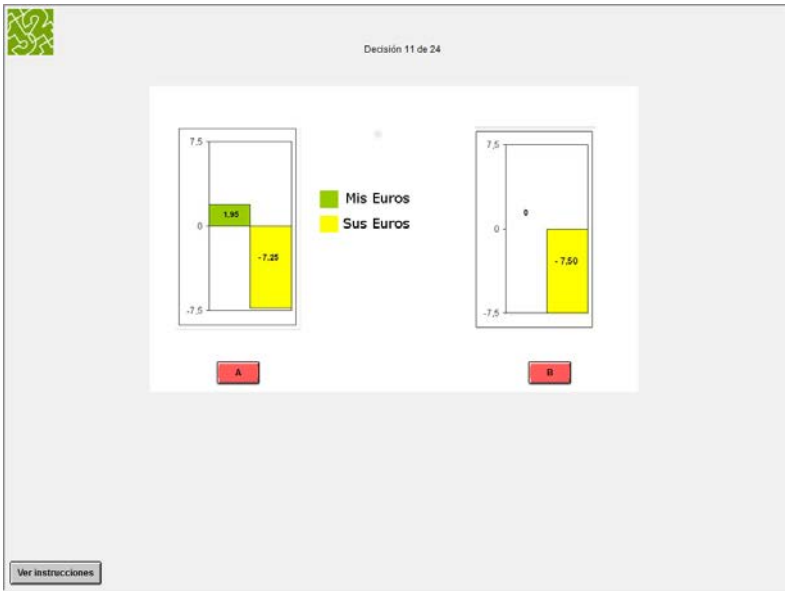

Decisión 6 de 24
7,5
0
-7,5
-5,30
-5,30
Mis Euros
Sus Euros
7,5
0
-7,5
-6,50
-3,75
A
B
Ver instrucciones

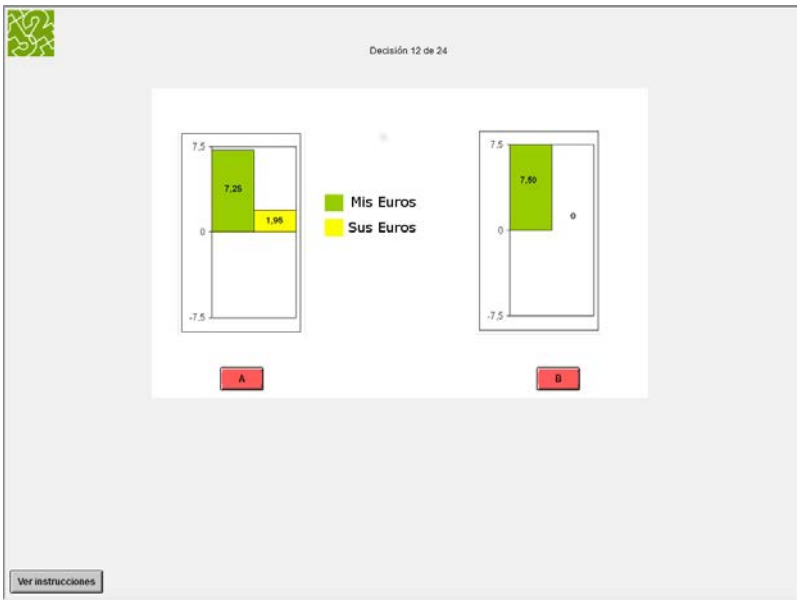

Decisión 6 de 24
7,5
0
-7,5
-5,30
-5,30
Mis Euros
Sus Euros
7,5
0
-7,5
-6,50
-3,75
A
B
Ver instrucciones

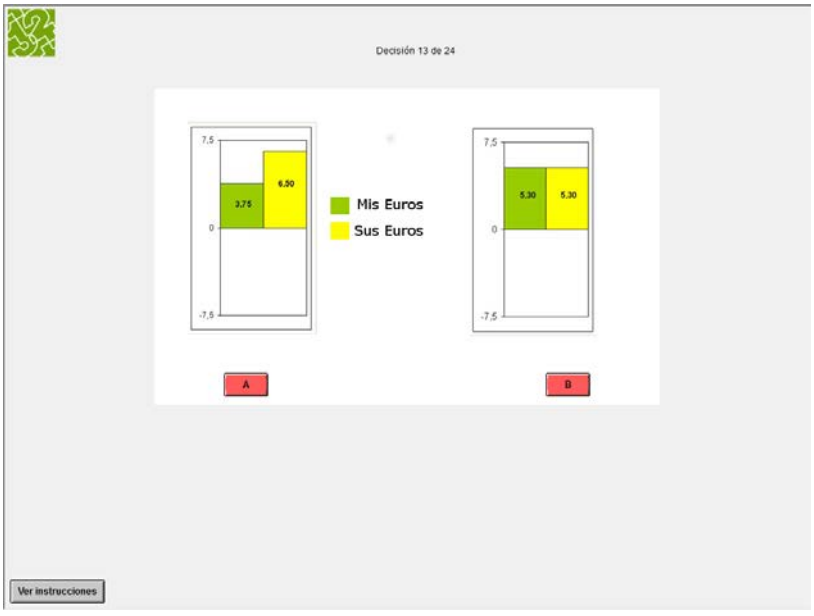

Decisión 8 de 24
7,5
0
-7,5
- 7,25
- 1,95
Mis Euros
Sus Euros
- 7,50
0
A
B
Ver instrucciones

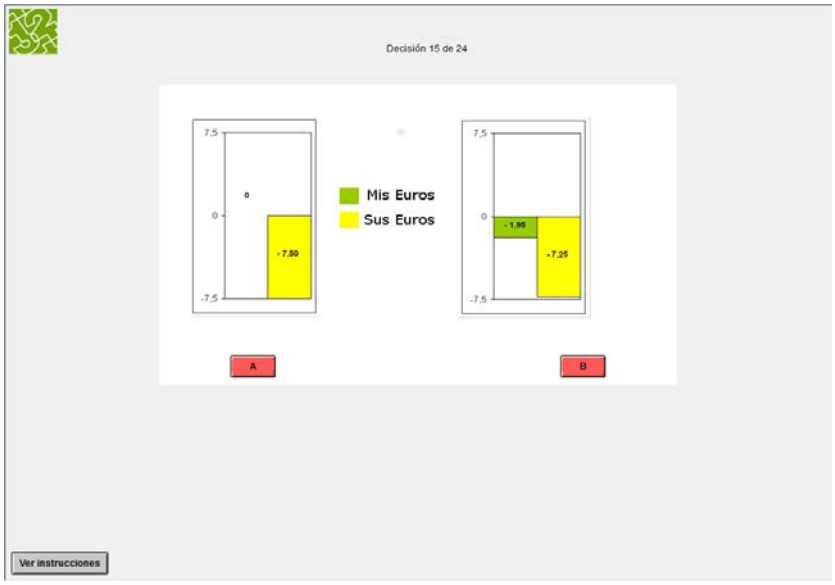

Decisión 9 de 24
7,5
0
-7,5
5,30
5,30
Mis Euros
Sus Euros
6,50
3,75
A
B
Ver instrucciones

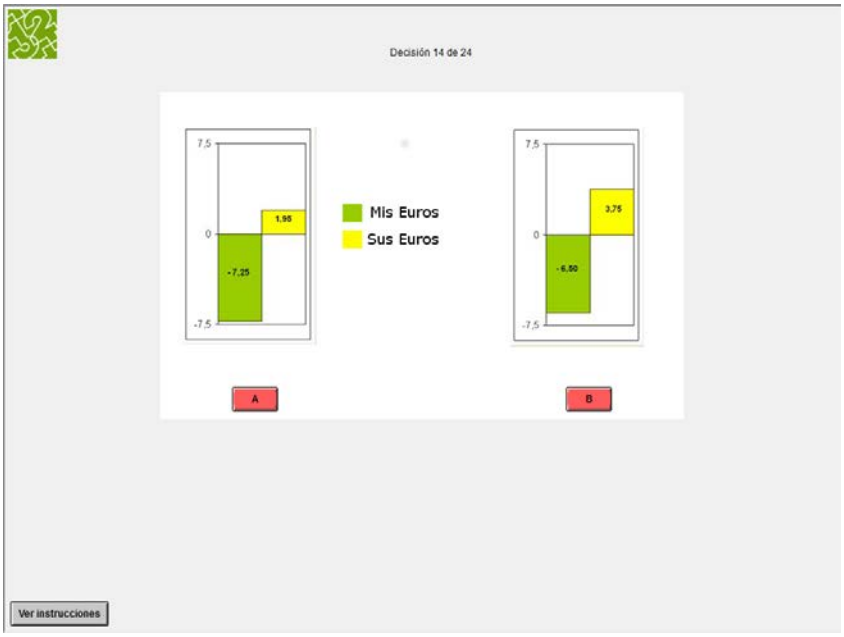

Decisión 10 de 24
7,5
0
-7,5
7,25
- 1,95
Mis Euros
Sus Euros
6,50
- 3,75
A
B
Ver instrucciones

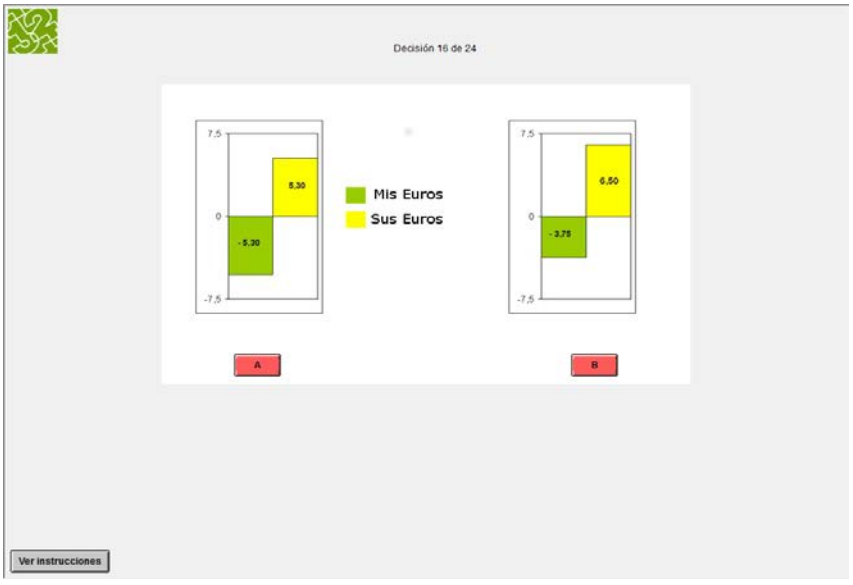

Decisión 11 de 24
7,5
0
-7,5
1,95
-7,25
Mis Euros
Sus Euros
0
-7,50
A
B
Ver instrucciones


Decisión 12 de 24
7,5
0
-7,5
7,25
1,95
Mis Euros
Sus Euros
7,50
0
A
B
Ver instrucciones


Decisión 13 de 24
7,5
0
-7,5
3,75
6,50
Mis Euros
Sus Euros
5,30
5,30
A
B
Ver instrucciones

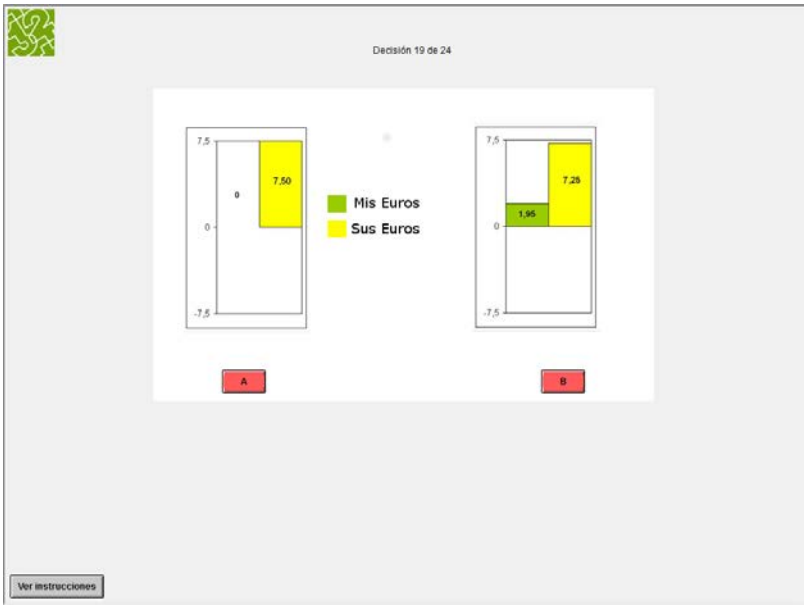

Decisión 15 de 24
7,5
0
-7,5
0
-7,50
Mis Euros
Sus Euros
7,5
0
-7,5
-1,95
-7,25
A
B
Ver instrucciones

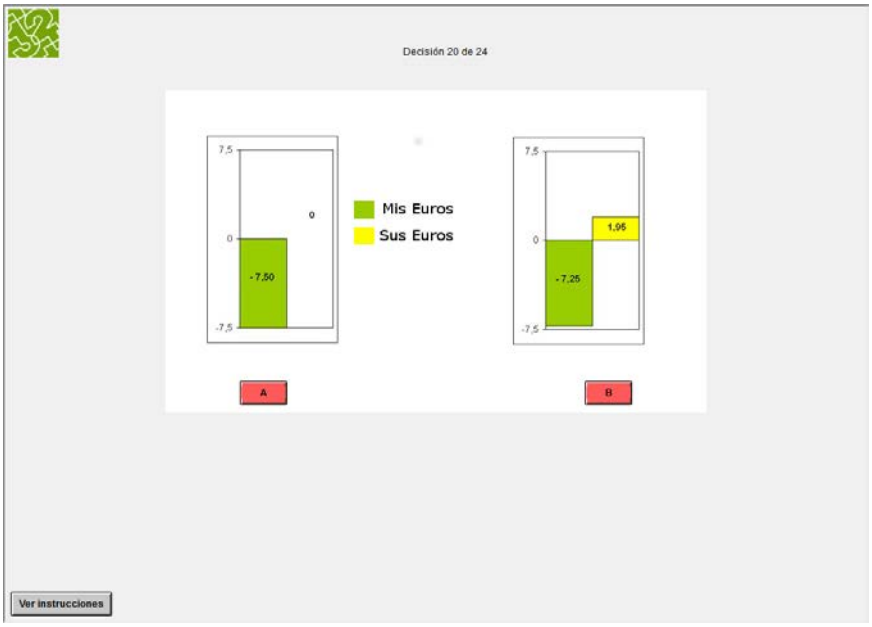

Decisión 14 de 24
7,5
0
-7,5
1,95
-7,25
Mis Euros
Sus Euros
7,5
0
-7,5
3,75
-6,50
A
B
Ver instrucciones


Decisión 16 de 24
7,5
0
-7,5
5,30
-5,30
Mis Euros
Sus Euros
7,5
0
-7,5
6,50
-3,75
A
B
Ver instrucciones


Decisión 17 de 24
7,5
0
-7,5
- 1,95
- 7,25
Mis Euros
Sus Euros
7,5
0
-7,5
- 3,75
- 6,50
A
B
Ver instrucciones

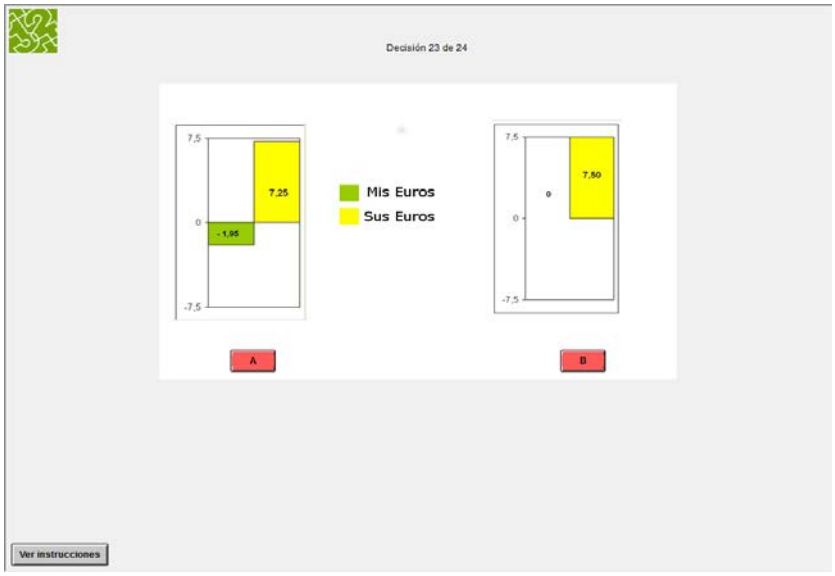

Decisión 18 de 24
7,5
0
-7,5
6,50
- 3,75
Mis Euros
Sus Euros
7,5
0
-7,5
5,30
- 5,30
A
B
Ver instrucciones


Decisión 19 de 24
7,5
0
-7,5
0
7,50
Mis Euros
Sus Euros
7,5
0
-7,5
1,95
7,25
A
B
Ver instrucciones

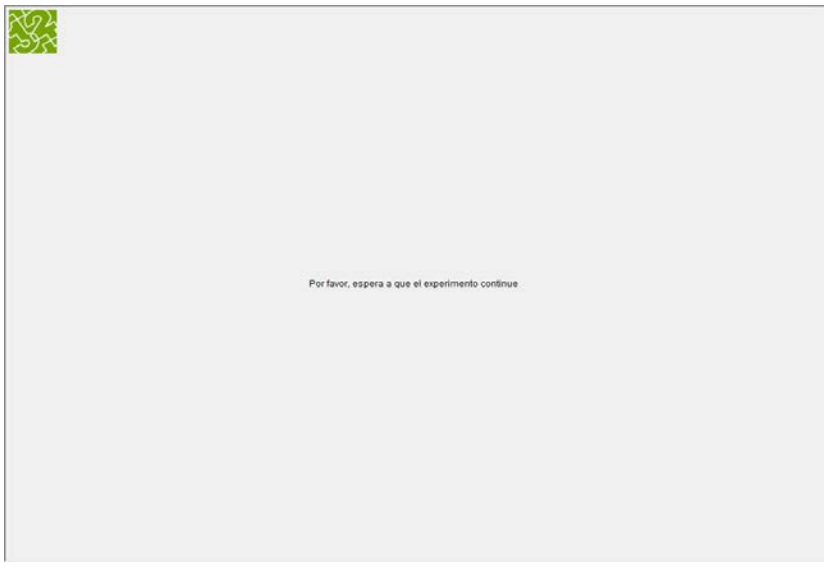

Decisión 20 de 24
7,5
0
-7,5
0
-7,50
Mis Euros
Sus Euros
7,5
0
-7,5
1,95
-7,25
A
B
Ver instrucciones


Decisión 21 de 24
7,5
0
-7,5
-3,75
-6,50
Mis Euros
Sus Euros
7,5
0
-7,5
-5,30
-5,30
A
B
Ver instrucciones

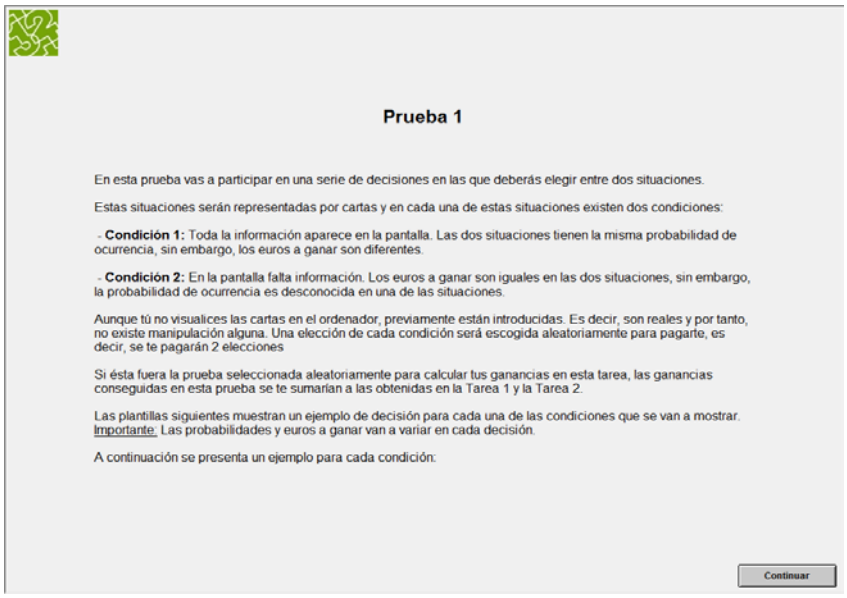

Decisión 22 de 24
7,5
0
-7,5
3,75
-6,50
Mis Euros
Sus Euros
7,5
0
-7,5
5,30
-5,30
A
B
Ver instrucciones

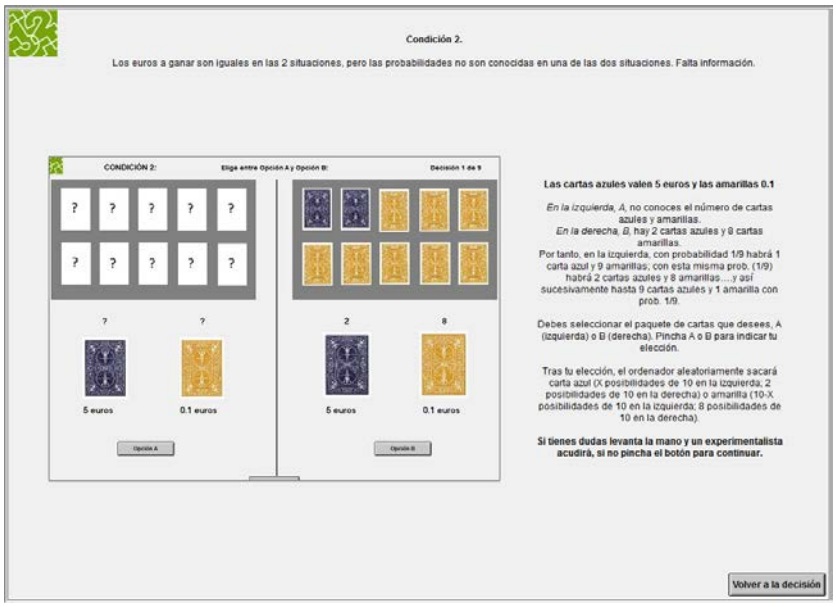

Decisión 23 de 24
7,5
0
-7,5
7,25
- 1,95
Mis Euros
Sus Euros
7,5
0
-7,5
7,50
0
A
B
Ver instrucciones

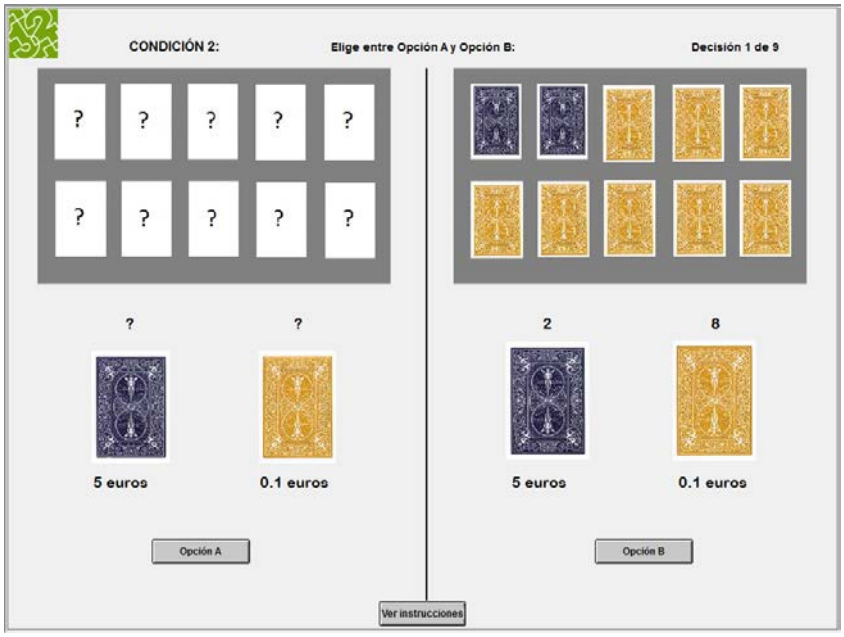

Decisión 24 de 24
7,5
0
-7,5
5,30
- 5,30
Mis Euros
Sus Euros
7,5
0
-7,5
3,75
- 6,50
A
B
Ver instrucciones


Por favor, espera a que el experimento continue

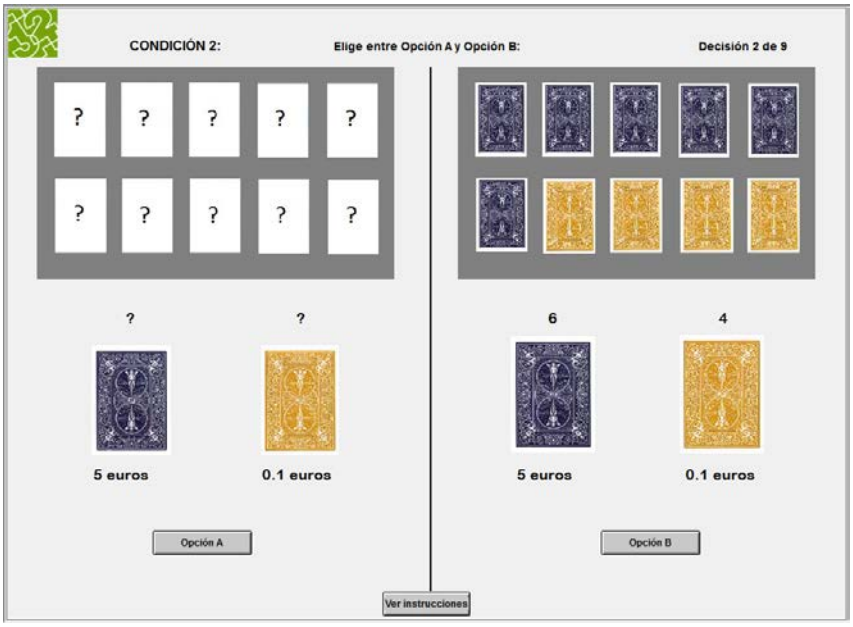

Tarea 3
Esta tarea se compone de dos pruebas. Y se te pagará por una de ellas elegida aleatoriamente.
Recibirás la información de tus ganancias de la Tarea 3 al final del experimento.
Continuar

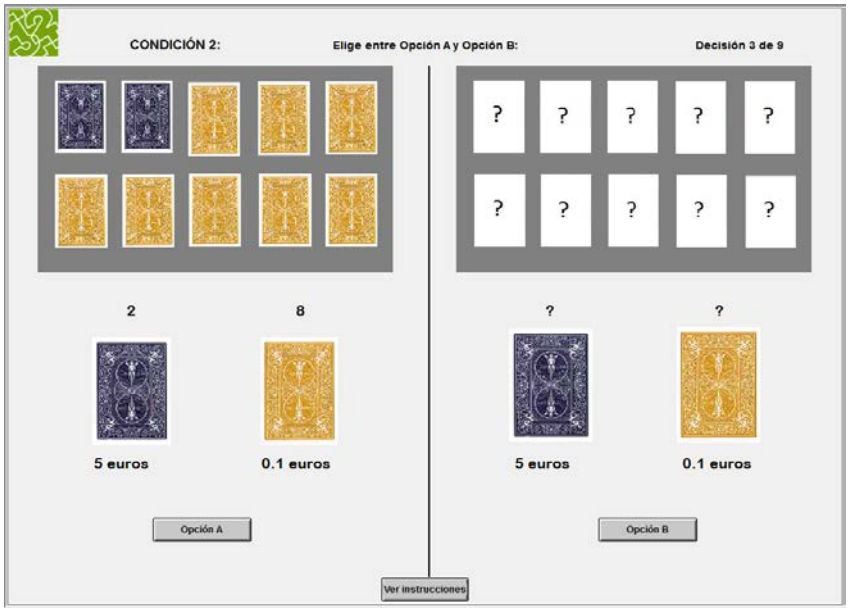

Prueba 1
En esta prueba vas a participar en una serie de decisiones en las que deberás elegir entre dos situaciones.
Estas situaciones serán representadas por cartas y en cada una de estas situaciones existen dos condiciones:
- Condición 1: Toda la información aparece en la pantalla. Las dos situaciones tienen la misma probabilidad de ocurrencia, sin embargo, los euros a ganar son diferentes.
- Condición 2: En la pantalla falta información. Los euros a ganar son iguales en las dos situaciones, sin embargo, la probabilidad de ocurrencia es desconocida en una de las situaciones.
Aunque tú no visualices las cartas en el ordenador, previamente están introducidas. Es decir, son reales y por tanto, no existe manipulación alguna. Una elección de cada condición será escogida aleatoriamente para pagarte, es decir, se te pagarán 2 elecciones
Si ésta fuera la prueba seleccionada aleatoriamente para calcular tus ganancias en esta tarea, las ganancias conseguidas en esta prueba se te sumarían a las obtenidas en la Tarea 1 y la Tarea 2.
Las plantillas siguientes muestran un ejemplo de decisión para cada una de las condiciones que se van a mostrar.
Importante: Las probabilidades y euros a ganar van a variar en cada decisión.
A continuación se presenta un ejemplo para cada condición:
Continuar

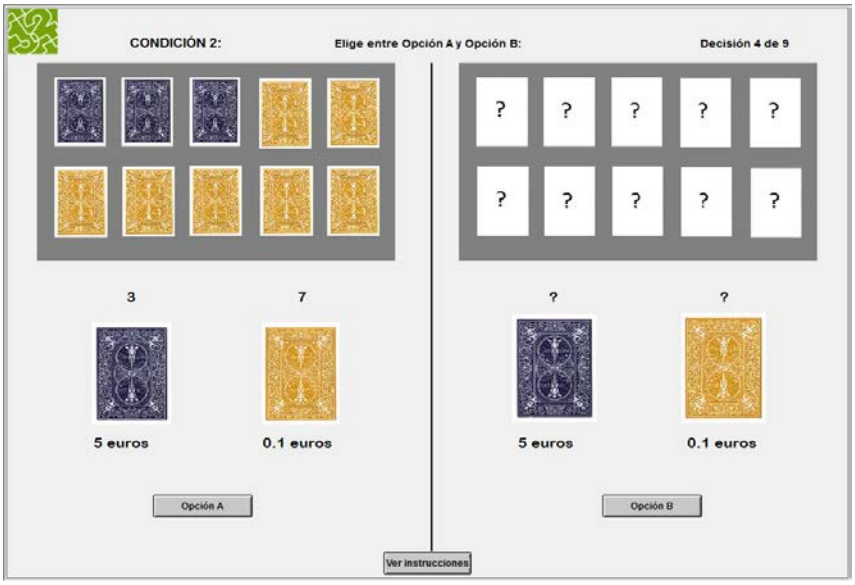

Condición 2.
Los euros a ganar son iguales en las 2 situaciones, pero las probabilidades no son conocidas en una de las dos situaciones. Falta información.
CONDICIÓN 2:
Elige entre Opción A y Opción B:
Decisión 1 de 9
? ? ? ? ?
? ? ? ? ?
?
?
5 euros
0.1 euros
Opción A
2
8
5 euros
0.1 euros
Opción B
Las cartas azules valen 5 euros y las amarillas 0.1
En la izquierda, A, no conoces el número de cartas azules y amarillas.
En la derecha, B, hay 2 cartas azules y 8 cartas amarillas.
Por tanto, en la izquierda, con probabilidad 1/9 habrá 1 carta azul y 9 amarillas; con esta misma prob. (1/9) habrá 2 cartas azules y 8 amarillas....y así sucesivamente hasta 9 cartas azules y 1 amarilla con prob. 1/9.
Debes seleccionar el paquete de cartas que desees, A (izquierda) o B (derecha). Pincha A o B para indicar tu elección.
Tras tu elección, el ordenador aleatoriamente sacará carta azul (X posibilidades de 10 en la izquierda; 2 posibilidades de 10 en la derecha) o amarilla (10-X posibilidades de 10 en la izquierda; 8 posibilidades de 10 en la derecha).
Si tienes dudas levanta la mano y un experimentalista acudirá, si no pincha el botón para continuar.
Volver a la decisión

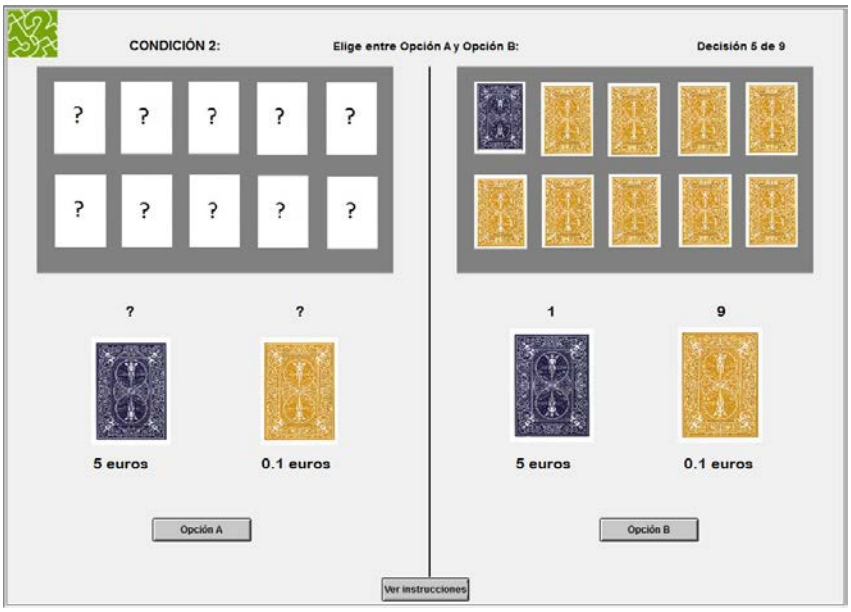

CONDICIÓN 2:
Elige entre Opción A y Opción B:
Decisión 1 de 9
? ? ? ? ?
? ? ? ? ?
? ?
5 euros
0.1 euros
Opción A
2 8
5 euros
0.1 euros
Opción B
Ver instrucciones

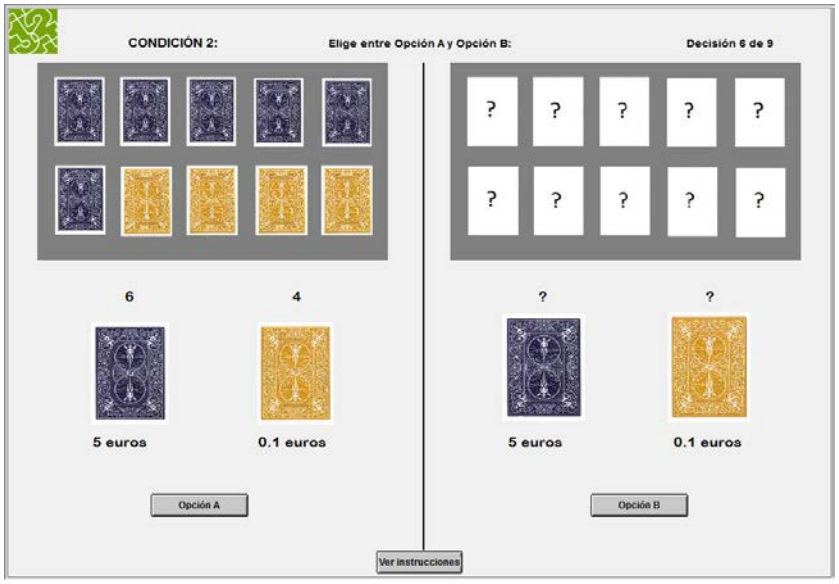

Has decidido Opción B
OK

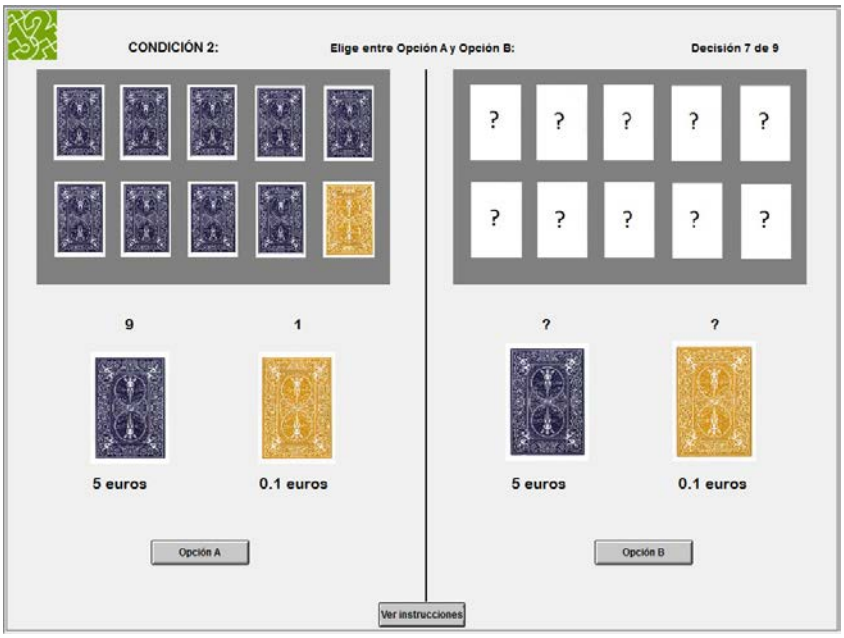

CONDICIÓN 2:
Elige entre Opción A y Opción B:
Decisión 2 de 9
? ? ? ? ?
? ? ? ? ?
? ?
5 euros
0.1 euros
Opción A
6 4
5 euros
0.1 euros
Opción B
Ver instrucciones

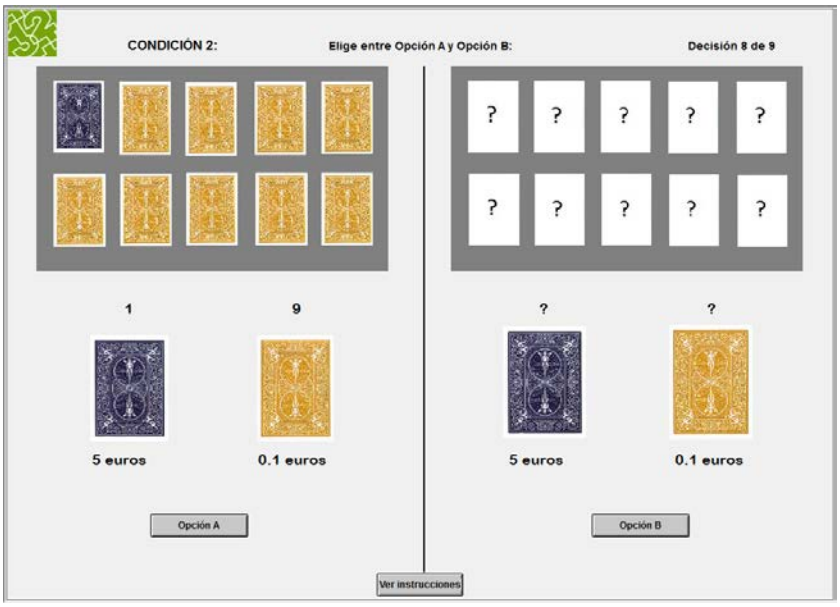

CONDICIÓN 2:
Elige entre Opción A y Opción B:
Decisión 3 de 9
2
8
5 euros
0.1 euros
?
?
5 euros
0.1 euros
Opción A
Opción B
Ver instrucciones

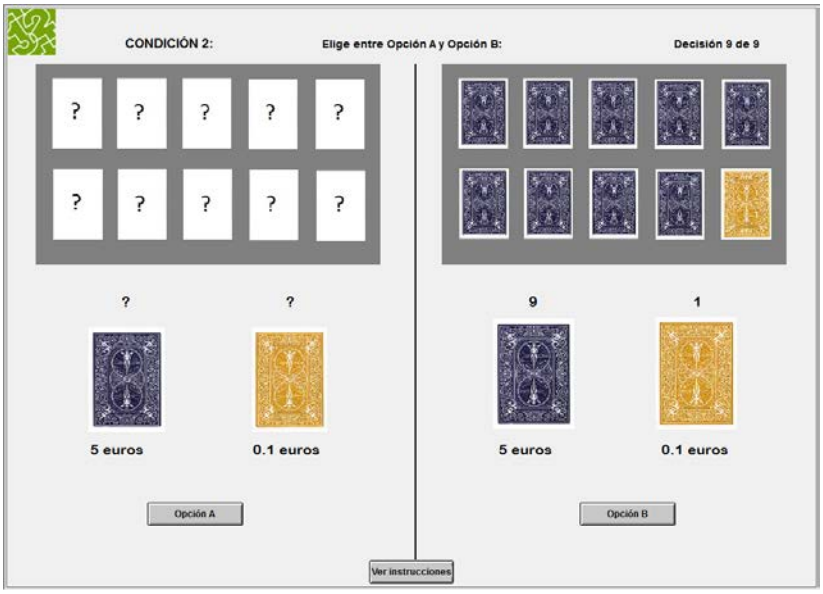

CONDICIÓN 2:
Elige entre Opción A y Opción B:
Decisión 4 de 9
3
7
5 euros
0.1 euros
?
?
5 euros
0.1 euros
Opción A
Opción B
Ver instrucciones


CONDICIÓN 2:
Elige entre Opción A y Opción B:
Decisión 5 de 9
?
?
5 euros
0.1 euros
1
9
5 euros
0.1 euros
Opción A
Opción B
Ver instrucciones

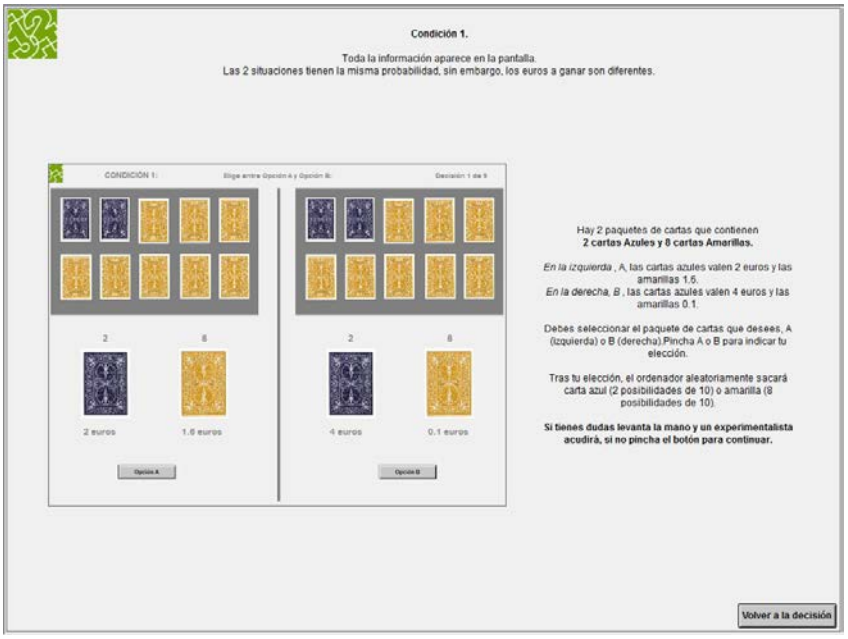

CONDICIÓN 2:
Elige entre Opción A y Opción B:
Decisión 6 de 9
6
4
?
?
5 euros
0.1 euros
5 euros
0.1 euros
Opción A
Opción B
Ver instrucciones

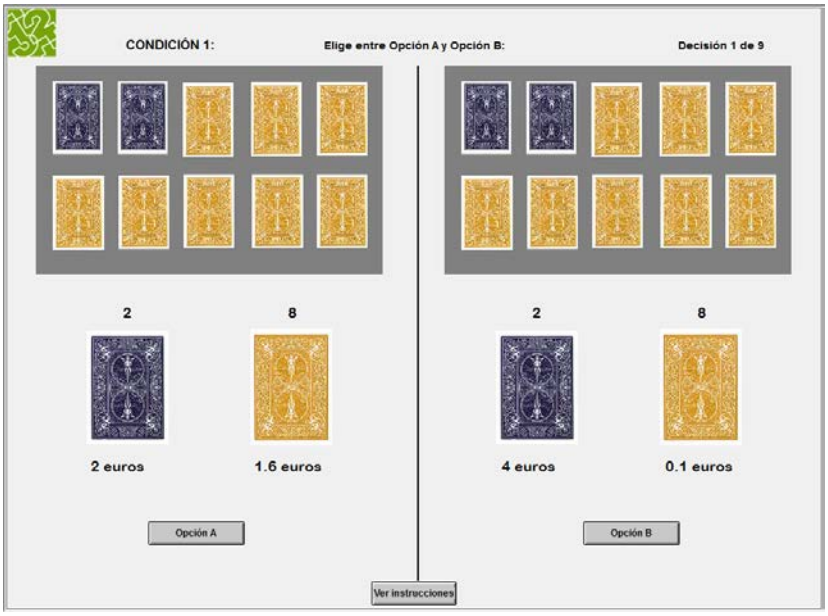

CONDICIÓN 2:
Elige entre Opción A y Opción B:
Decisión 7 de 9
9
1
?
?
5 euros
0.1 euros
5 euros
0.1 euros
Opción A
Opción B
Ver instrucciones

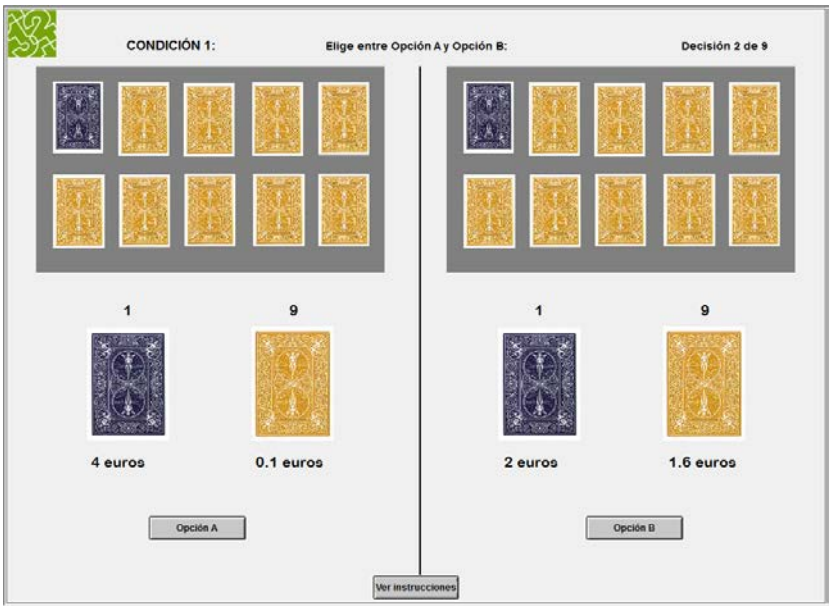

CONDICIÓN 2:
Elige entre Opción A y Opción B:
Decisión 8 de 9
1
9
?
?
5 euros
0.1 euros
5 euros
0.1 euros
Opción A
Opción B
Ver instrucciones

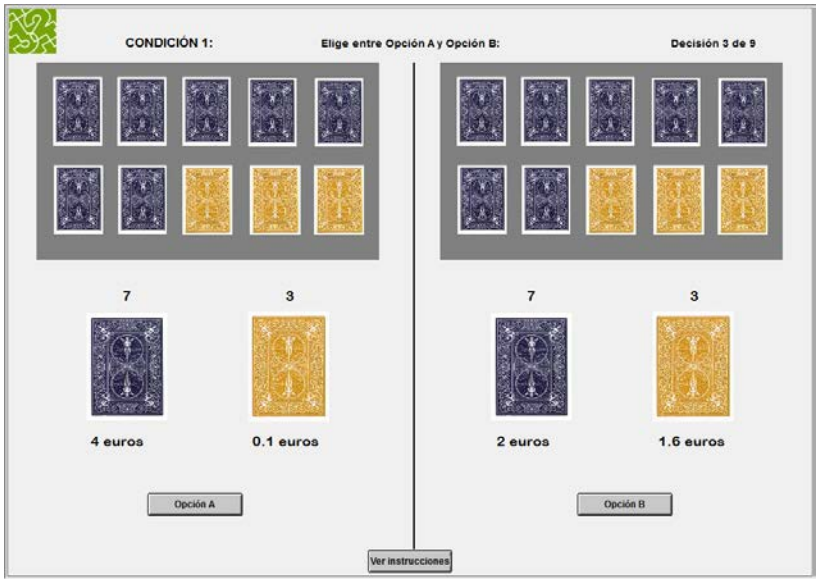

CONDICIÓN 2:
Elige entre Opción A y Opción B:
Decisión 9 de 9
? ? ? ? ?
? ? ? ? ?
? ?
5 euros
0.1 euros
Opción A
9 1
5 euros
0.1 euros
Opción B
Ver instrucciones

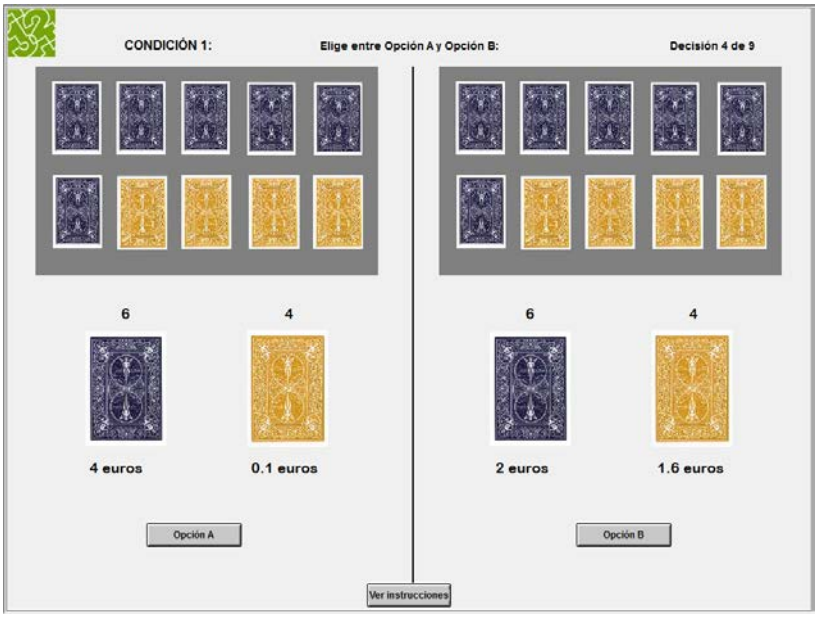

Fin condición
Continuar

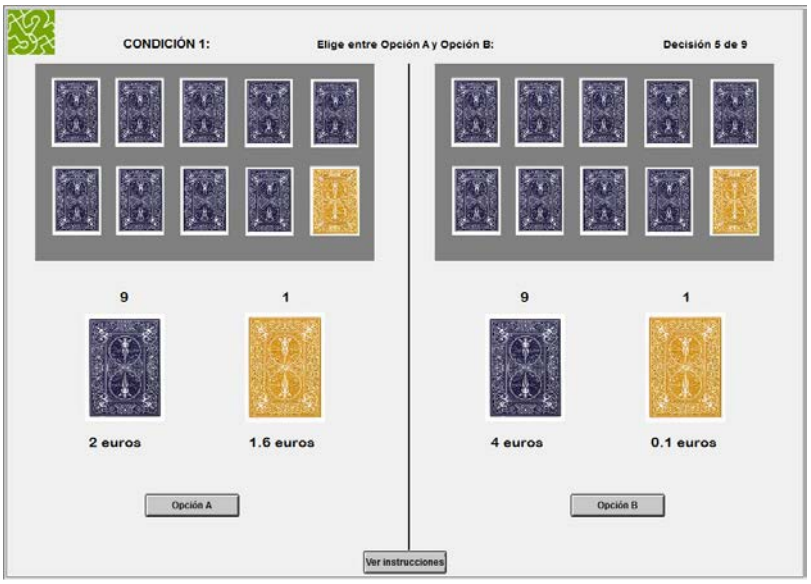

Condición 1.
Toda la información aparece en la pantalla.
Las 2 situaciones tienen la misma probabilidad, sin embargo, los euros a ganar son diferentes.
CONDICIÓN 1:
2 8
2 euros
1.6 euros
Opción A
2 8
4 euros
0.1 euros
Opción B
Hay 2 paquetes de cartas que contienen
2 cartas Azules y 8 cartas Amarillas.
En la izquierda , A, las cartas azules valen 2 euros y las amarillas 1.6.
En la derecha, B , las cartas azules valen 4 euros y las amarillas 0.1.
Debes seleccionar el paquete de cartas que desees, A (izquierda) o B (derecha).Pincha A o B para indicar tu elección.
Tras tu elección, el ordenador aleatoriamente sacará carta azul (2 posibilidades de 10) o amarilla (8 posibilidades de 10).
Si tienes dudas levanta la mano y un experimentalista acudirá, si no pincha el botón para continuar.
Volver a la decisión

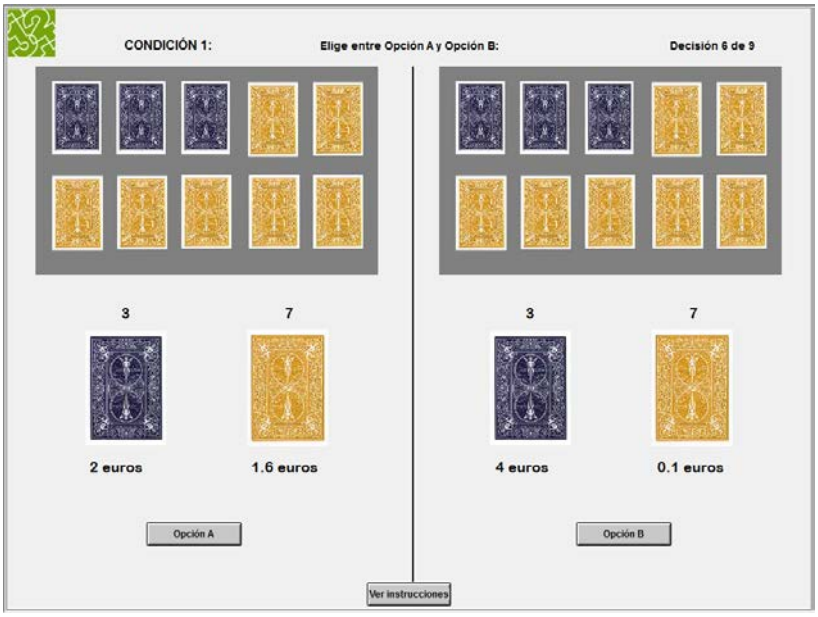

CONDICIÓN 1:
Elige entre Opción A y Opción B:
Decisión 1 de 9
2
8
2
8
2 euros
1.6 euros
4 euros
0.1 euros
Opción A
Opción B
Ver instrucciones

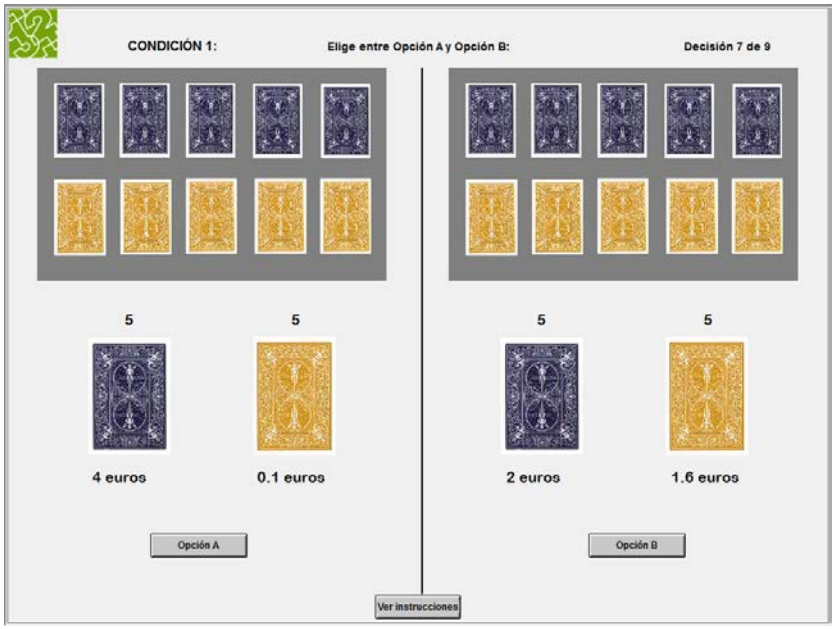

CONDICIÓN 1:
Elige entre Opción A y Opción B:
Decisión 2 de 9
1
9
1
9
4 euros
0.1 euros
2 euros
1.6 euros
Opción A
Opción B
Ver instrucciones

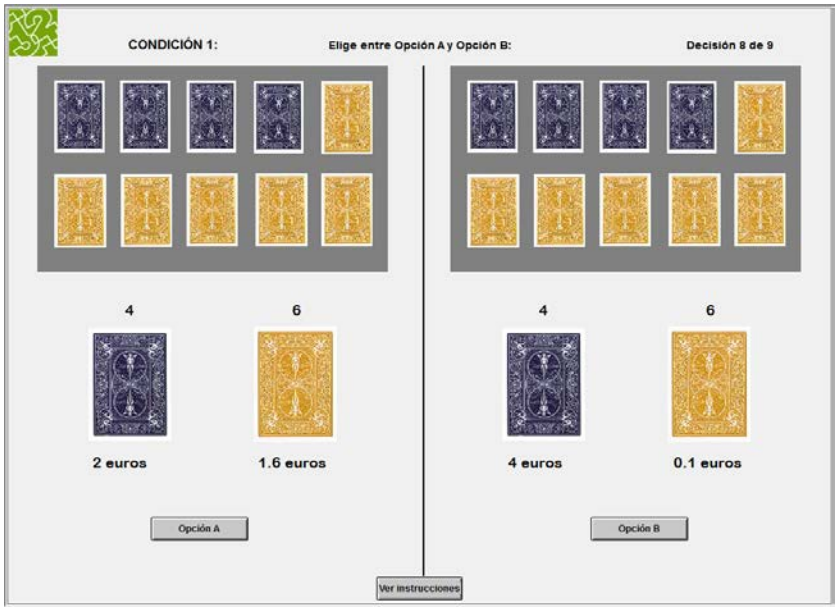

CONDICIÓN 1:
Elige entre Opción A y Opción B:
Decisión 3 de 9
7
3
7
3
4 euros
0.1 euros
2 euros
1.6 euros
Opción A
Opción B
Ver instrucciones

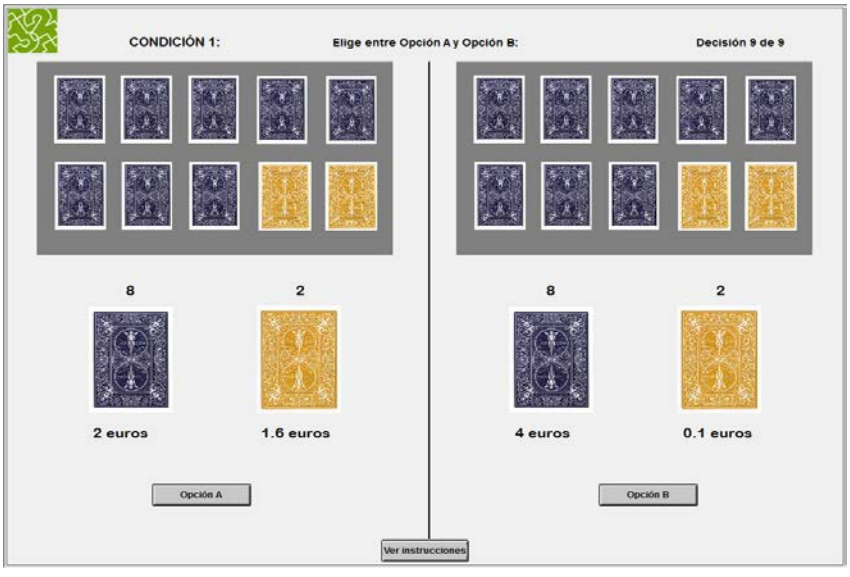

CONDICIÓN 1:
Elige entre Opción A y Opción B:
Decisión 4 de 9
6
4
4 euros
0.1 euros
Opción A
6
4
2 euros
1.6 euros
Opción B
Ver instrucciones

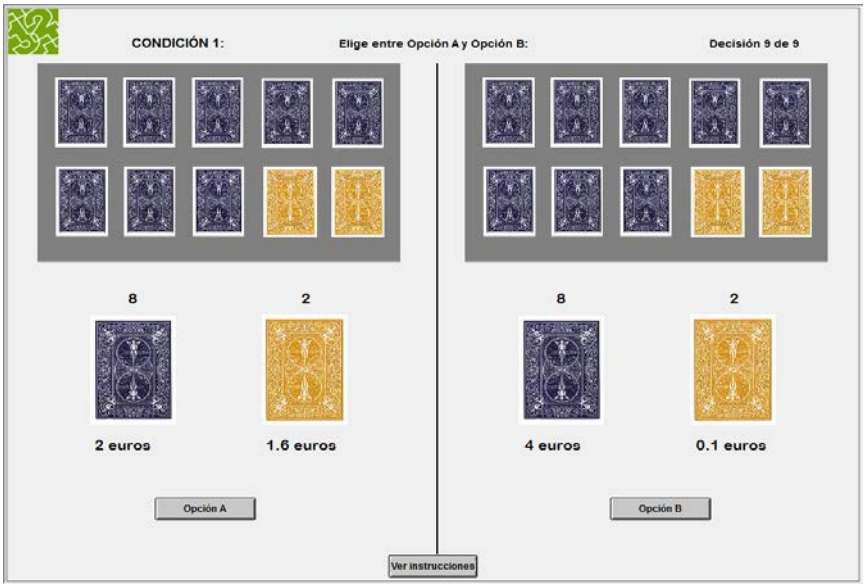

CONDICIÓN 1:
Elige entre Opción A y Opción B:
Decisión 5 de 9
9
1
2 euros
1.6 euros
Opción A
9
1
4 euros
0.1 euros
Opción B
Ver instrucciones

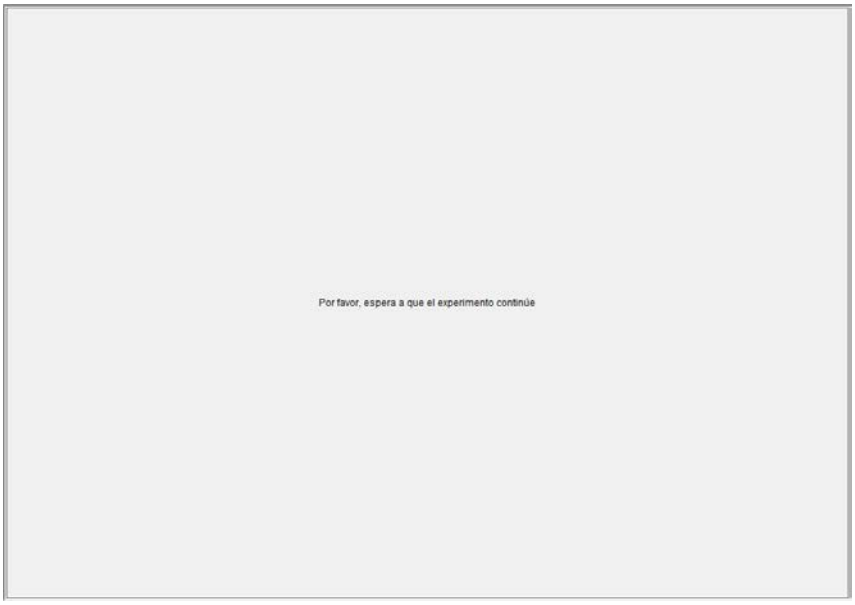

CONDICIÓN 1:
Elige entre Opción A y Opción B:
Decisión 6 de 9
3
7
2 euros
1.6 euros
Opción A
3
7
4 euros
0.1 euros
Opción B
Ver instrucciones

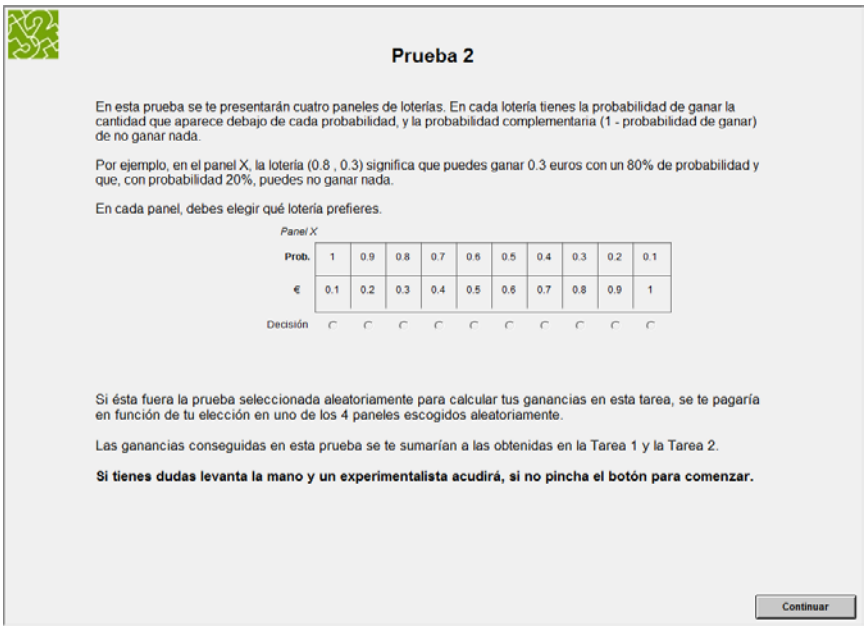

CONDICIÓN 1:
Elige entre Opción A y Opción B:
Decisión 7 de 9
5
5
4 euros
0.1 euros
5
5
2 euros
1.6 euros
Opción A
Opción B
Ver instrucciones

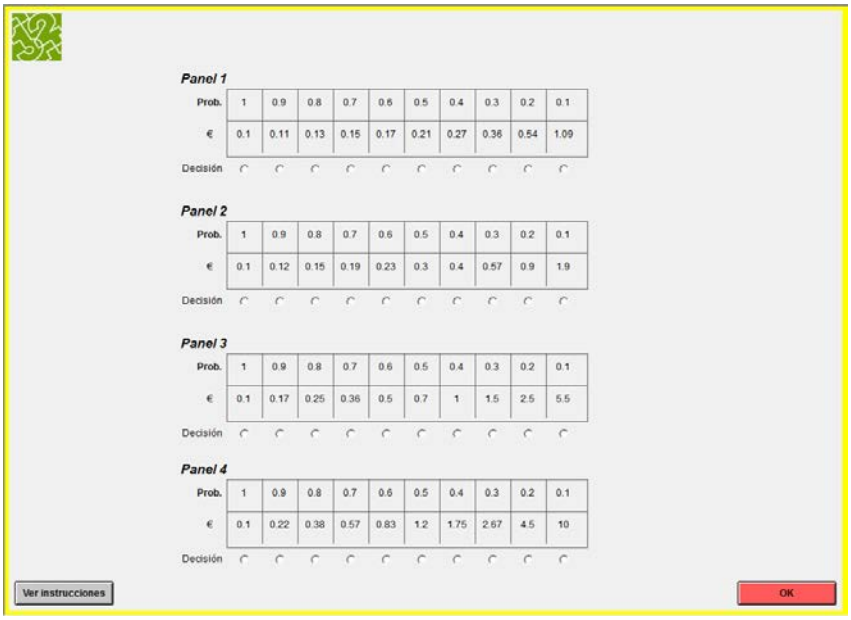

CONDICIÓN 1:
Elige entre Opción A y Opción B:
Decisión 8 de 9
4
6
2 euros
1.6 euros
4
6
4 euros
0.1 euros
Opción A
Opción B
Ver instrucciones


CONDICIÓN 1:
Elige entre Opción A y Opción B:
Decisión 9 de 9
8
2
2 euros
1.6 euros
8
2
4 euros
0.1 euros
Opción A
Opción B
Ver instrucciones


CONDICIÓN 1:
Elige entre Opción A y Opción B:
Decisión 9 de 9
8
2
2 euros
1.6 euros
Opción A
8
2
4 euros
0.1 euros
Opción B
Ver instrucciones


Por favor, espera a que el experimento continúe


Prueba 2
En esta prueba se te presentarán cuatro paneles de loterías. En cada lotería tienes la probabilidad de ganar la cantidad que aparece debajo de cada probabilidad, y la probabilidad complementaria (1 - probabilidad de ganar) de no ganar nada.
Por ejemplo, en el panel X, la lotería (0.8 , 0.3) significa que puedes ganar 0.3 euros con un 80% de probabilidad y que, con probabilidad 20%, puedes no ganar nada.
En cada panel, debes elegir qué lotería prefieres.
Panel X
Prob. 1 0.9 0.8 0.7 0.6 0.5 0.4 0.3 0.2 0.1
€ 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1
Decisión
Si ésta fuera la prueba seleccionada aleatoriamente para calcular tus ganancias en esta tarea, se te pagaría en función de tu elección en uno de los 4 paneles escogidos aleatoriamente.
Las ganancias conseguidas en esta prueba se te sumarían a las obtenidas en la Tarea 1 y la Tarea 2.
Si tienes dudas levanta la mano y un experimentalista acudirá, si no pincha el botón para comenzar.
Continuar



Panel 1

Prob.	1	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1
€	0.1	0.11	0.13	0.15	0.17	0.21	0.27	0.36	0.54	1.09
Decisión	○	○	○	○	○	○	○	○	○	○

Panel 2

Prob.	1	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1
€	0.1	0.12	0.15	0.19	0.23	0.3	0.4	0.57	0.9	1.9
Decisión	○	○	○	○	○	○	○	○	○	○

Panel 3

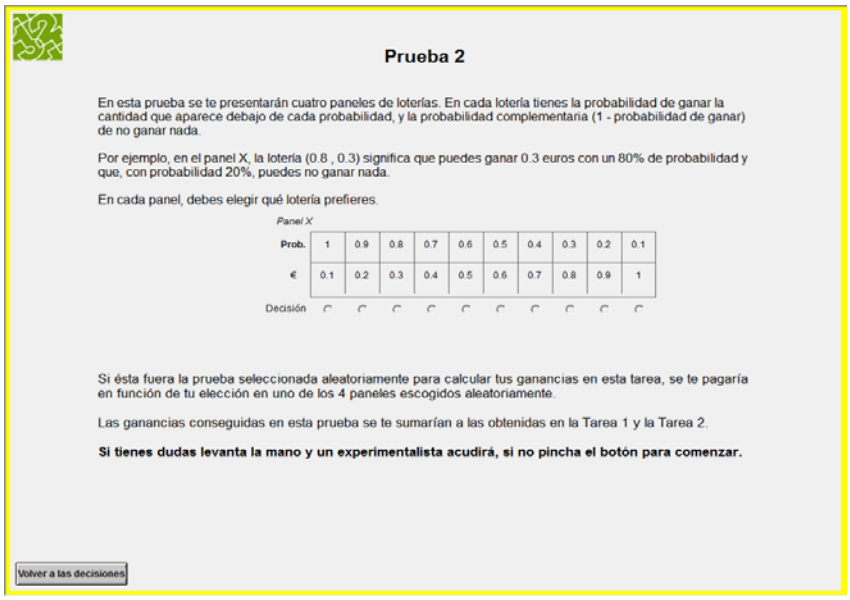
Prob.	1	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1
€	0.1	0.17	0.25	0.36	0.5	0.7	1	1.5	2.5	5.5
Decisión	○	○	○	○	○	○	○	○	○	○

Panel 4

Prob.	1	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1
€	0.1	0.22	0.38	0.57	0.83	1.2	1.75	2.67	4.5	10
Decisión	○	○	○	○	○	○	○	○	○	○

Ver instrucciones

OK



Prueba 2

En esta prueba se te presentarán cuatro paneles de loterías. En cada lotería tienes la probabilidad de ganar la cantidad que aparece debajo de cada probabilidad, y la probabilidad complementaria (1 - probabilidad de ganar) de no ganar nada.

Por ejemplo, en el panel X, la lotería (0.8 , 0.3) significa que puedes ganar 0.3 euros con un 80% de probabilidad y que, con probabilidad 20%, puedes no ganar nada.

En cada panel, debes elegir qué lotería prefieres.

Panel X

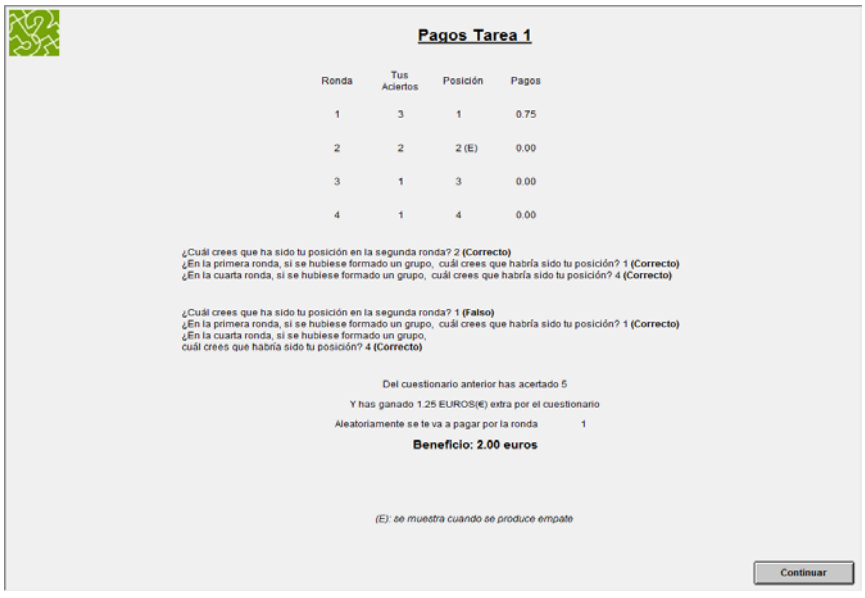
Prob.	1	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1
€	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Decisión	○	○	○	○	○	○	○	○	○	○

Si ésta fuera la prueba seleccionada aleatoriamente para calcular tus ganancias en esta tarea, se te pagaría en función de tu elección en uno de los 4 paneles escogidos aleatoriamente.

Las ganancias conseguidas en esta prueba se te sumarían a las obtenidas en la Tarea 1 y la Tarea 2.

Si tienes dudas levanta la mano y un experimentalista acudirá, si no pincha el botón para comenzar.

Volver a las decisiones



Pagos Tarea 1

Ronda	Tus Aciertos	Posición	Pagos
1	3	1	0.75
2	2	2 (E)	0.00
3	1	3	0.00
4	1	4	0.00

¿Cuál crees que ha sido tu posición en la segunda ronda? 2 **(Correcto)**
¿En la primera ronda, si se hubiese formado un grupo, cuál crees que habría sido tu posición? 1 **(Correcto)**
¿En la cuarta ronda, si se hubiese formado un grupo, cuál crees que habría sido tu posición? 4 **(Correcto)**

¿Cuál crees que ha sido tu posición en la segunda ronda? 1 **(Falso)**
¿En la primera ronda, si se hubiese formado un grupo, cuál crees que habría sido tu posición? 1 **(Correcto)**
¿En la cuarta ronda, si se hubiese formado un grupo,
cuál crees que habría sido tu posición? 4 **(Correcto)**

Del cuestionario anterior has acertado 5

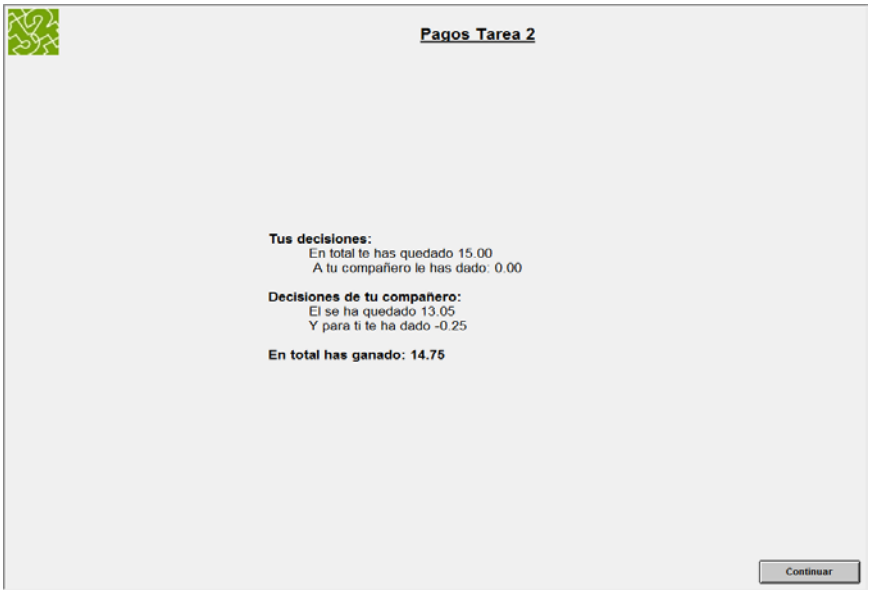
Y has ganado 1.25 EUROS(€) extra por el cuestionario

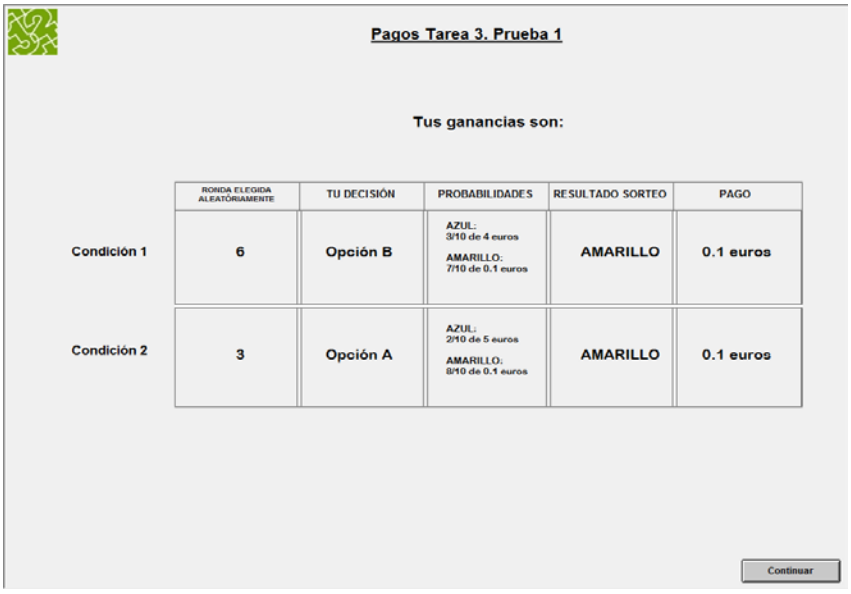
Aleatoriamente se te va a pagar por la ronda 1

Beneficio: 2.00 euros

(E): se muestra cuando se produce empate

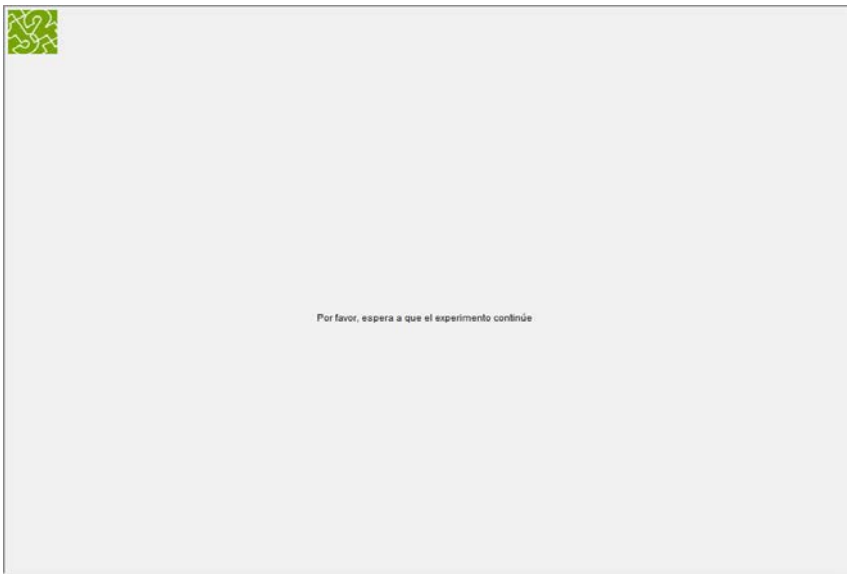
Continuar


Pagos Tarea 2
Tus decisiones:
En total te has quedado 15.00
A tu compañero le has dado: 0.00
Decisiones de tu compañero:
El se ha quedado 13.05
Y para ti te ha dado -0.25
En total has ganado: 14.75
Continuar

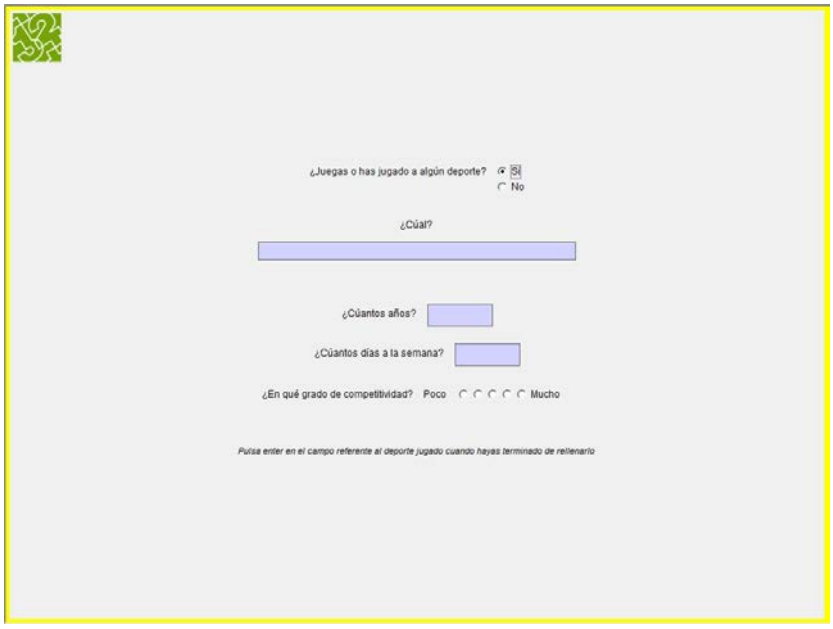

Pagos Tarea 3. Prueba 1
Tus ganancias son:
RONDA ELEGIDA ALEATÓRIAMENTE
TU DECISIÓN
PROBABILIDADES
RESULTADO SORTEO
PAGO
Condición 1
6
Opción B
AZUL: 3/10 de 4 euros
AMARILLO: 7/10 de 0.1 euros
AMARILLO
0.1 euros
Condición 2
3
Opción A
AZUL: 2/10 de 5 euros
AMARILLO: 8/10 de 0.1 euros
AMARILLO
0.1 euros
Continuar


Pagos Tarea 3. Prueba 2
Resultado del sorteo
Aleatoriamente se te va a pagar por el Panel 3 en el que deciste ganar 1.5 euros con una probabilidad de 0.3 y ganar 0 con una probabilidad 0.7
El sorteo ha determiando aleatoriamente que tu beneficio es: 1.5 euros
Continuar


Resumen beneficio tareas
•Tarea 1: 2.00
•Tarea 2: 14.75
•Tarea 3:
Prueba 1: 0.20
Prueba 2: 1.50
Aleatoriamente se ha seleccionado la prueba 1.
Por tanto se te pagará por la suma de las ganancias obtenidas en la Tarea 1, Tarea 2 y Prueba 1.
Beneficio final = 16.95 euros
Continuar

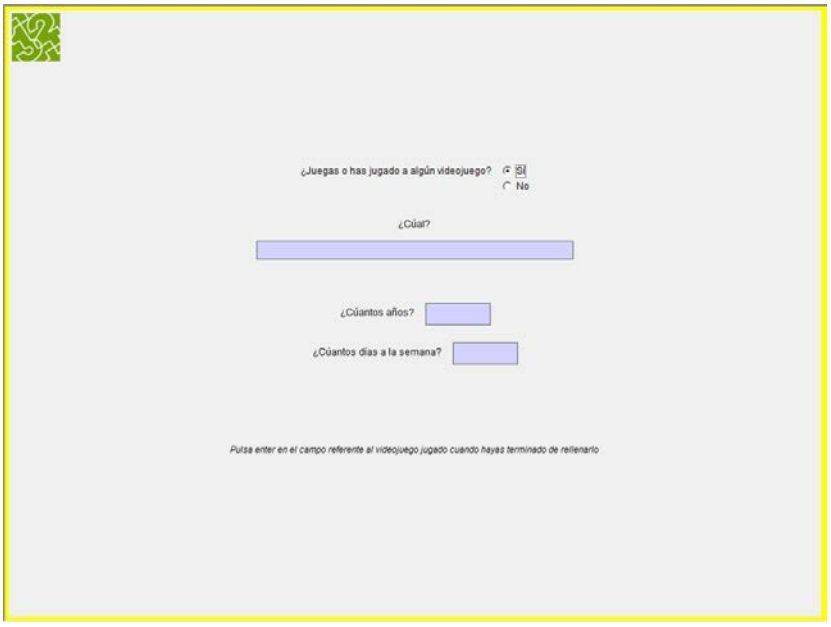

Por favor, espera a que el experimento continúe

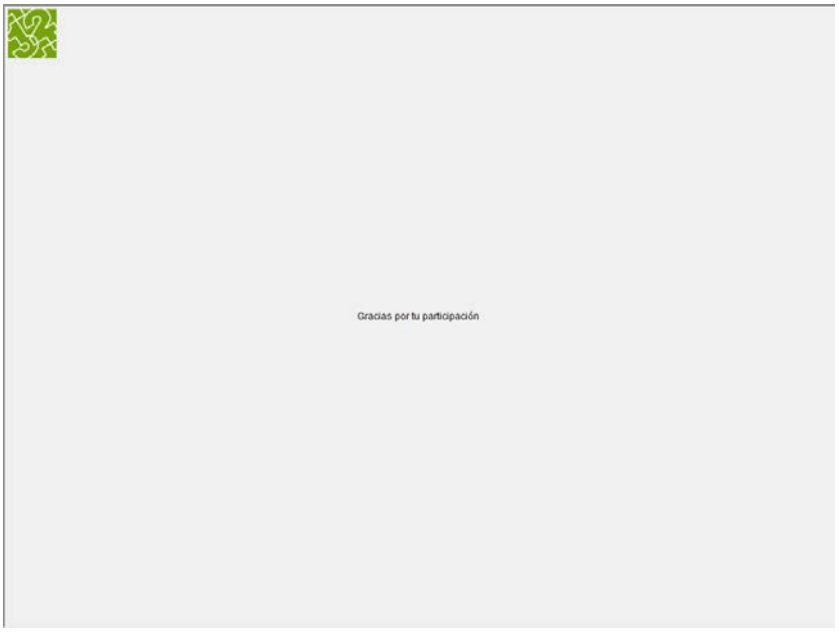

Por favor, contesta a las siguientes preguntas.
Información sociodemográfica
Género: Masculino Femenino
Fecha de nacimiento (d/m/aaaa):
¿Eres diestro/a o zurdo/a? Diestro/a Zurdo/a
Profesión o nivel de estudios (indica carrera y curso):
Pulsa enter en el campo referente a la profesión/estudios cuando hayas terminado de rellenarlo


¿Juegas o has jugado a algún deporte? Sí
No
¿Cúal?
¿Cúantos años?
¿Cúantos días a la semana?
¿En qué grado de competitividad? Poco Mucho
Pulsa enter en el campo referente al deporte jugado cuando hayas terminado de rellenarlo


¿Juegas o has jugado a algún deporte? Sí
No
OK


¿Juegas o has jugado a algún videojuego? Sí
No


¿Juegas o has jugado a algún videojuego?
Sí
No
¿Cúal?
¿Cúantos años?
¿Cúantos días a la semana?
Pulsa enter en el campo referente al videojuego jugado cuando hayas terminado de rellenarlo


Gracias por tu participación

Chapter 3

¿Las mujeres no compiten? Depende del tipo de competición

3.1 Introducción

Tal y como se vio en el Capítulo 2, estudios experimentales muestran que las diferencias de género en preferencias hacia la competición pueden provenir del entorno cultural (Gneezy *et al.* 2009; Booth y Nolen 2012), de la identidad con la que se asimilan los individuos (Charness y Rustichini 2011), de la confianza en uno mismo (Kamas y Preston 2012; Sutter *et al.* 2016; Comeig *et al.* 2016), de actitudes hacia el riesgo y/o ambigüedad (Booth y Nolen 2012) o de combinaciones entre ellas (Comeig *et al.* 2016).

Por otra parte, se ha aducido que uno de los motivos por el lado de oferta de la falta de igualdad en salarios de los distintos géneros, y de la falta de mujeres en puestos altos en ciencia, política y empresa es la menor inclinación de las mujeres a entrar en entornos competitivos. Dada la importancia social y económica de tener una sociedad equilibrada, en la que tanto mujeres como hombres ocupen puestos de responsabilidad y de decisión, en este Capitulo se plantea la pregunta: ¿Existe algún otro tipo de sistema competitivo que incentive una mayor participación de las mujeres?

Este Capítulo 3 explora si un sistema competitivo menos relacionado con actitudes hacia el riesgo o la ambigüedad, o con actitudes hacia la cooperación, o a la aversión a las desigualdades, puede incrementar el numero de mujeres que optan por competir. La respuesta es SI. Este Capitulo 3 presenta los resultados de un experimento económico que muestra que la inclinación a la competición de las mujeres depende significativamente del tipo de competición de que se trate. El numero de mujeres que deciden competir es significativamente mayor en la competición contra uno mismo por objetivos que en la competición en la que el ganador se lleva todo (WTA, “winner take all”, en inglés). Sin embargo, el tipo de competición no afecta significativamente a los hombres (aunque la competición contra uno mismo por objetivos sea también mas atractiva los hombres).

A continuación se presenta en la sección 3.2 los detalles del diseño del experimento económico. La sección 3.3 presenta los resultados obtenidos y la sección 3.4 recoge las principales conclusiones.

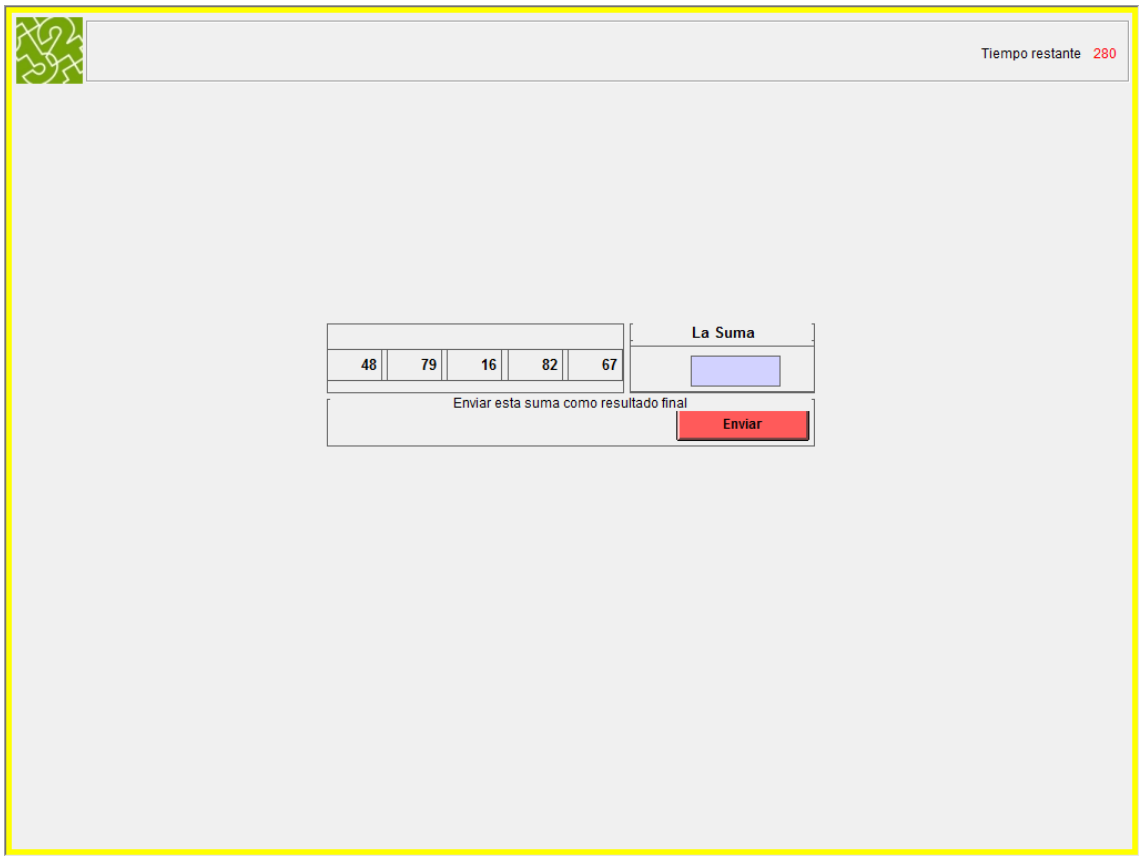
3.2 Diseño Experimental

Con el objetivo de conocer el efecto que el tipo de sistema competitivo tiene sobre la decisión de entrar en la competición (tanto para los hombres como para las mujeres) diseñamos un experimento económico[5]. El experimento consta de dos tratamientos que se diferencian por el tipo de competición a escoger. El primer tratamiento se basa en el famoso experimento de Niederle y Vesterlund (2007), en el que los sujetos tienen que escoger entre un sistema de pago constante por tarea realizada y un sistema de pago por competición del tipo 'todo para el ganador' (o como es conocida en inglés "winner take all competition", WTA).

Así, el Tratamiento 1 consiste en 4 rondas. En la primera ronda, los sujetos realizan sumas simples de dos dígitos durante cinco minutos ganando 0,25 euros por suma correcta (pago constante por suma correcta), si esta ronda se selecciona aleatoriamente para pagarse. La Figura 3.1 presenta un ejemplo de la tarea.

[5] Este experimento se ha diseñado utilizando z-Tree, de Fischbacher (2007).

Figura 3.1. Ejemplo de la tarea que realizan los sujetos en el experimento.



En la segunda ronda se presenta a los sujetos el mismo tipo de sumas y durante el mismo tiempo pero, como novedad, se organizan aleatoriamente grupos de cuatro miembros, dos chicos y dos chicas, y sólo la persona con más sumas correctas de cada grupo ganará 1 euro por suma correcta. De esta forma, los cuatro miembros de un grupo compiten por el pago, ya que tres de los miembros del grupo no recibirán ningún pago por su esfuerzo (todo para el ganador). En la tercera ronda se repite de nuevo la tarea de las sumas pero cada sujeto puede escoger como quiere generar sus ingresos, con el sistema de 'pago constante por suma correcta' o con el

sistema de competición ‘todo para el ganador’. Finalmente, en la ronda 4 se les presenta la misma tarea con un nuevo sistema de pagos competitivos. Este nuevo sistema competitivo es el que se presentará en el Tratamiento 2, y se añade en la ronda final del Tratamiento 1 como control y comparación entre los dos tratamientos.

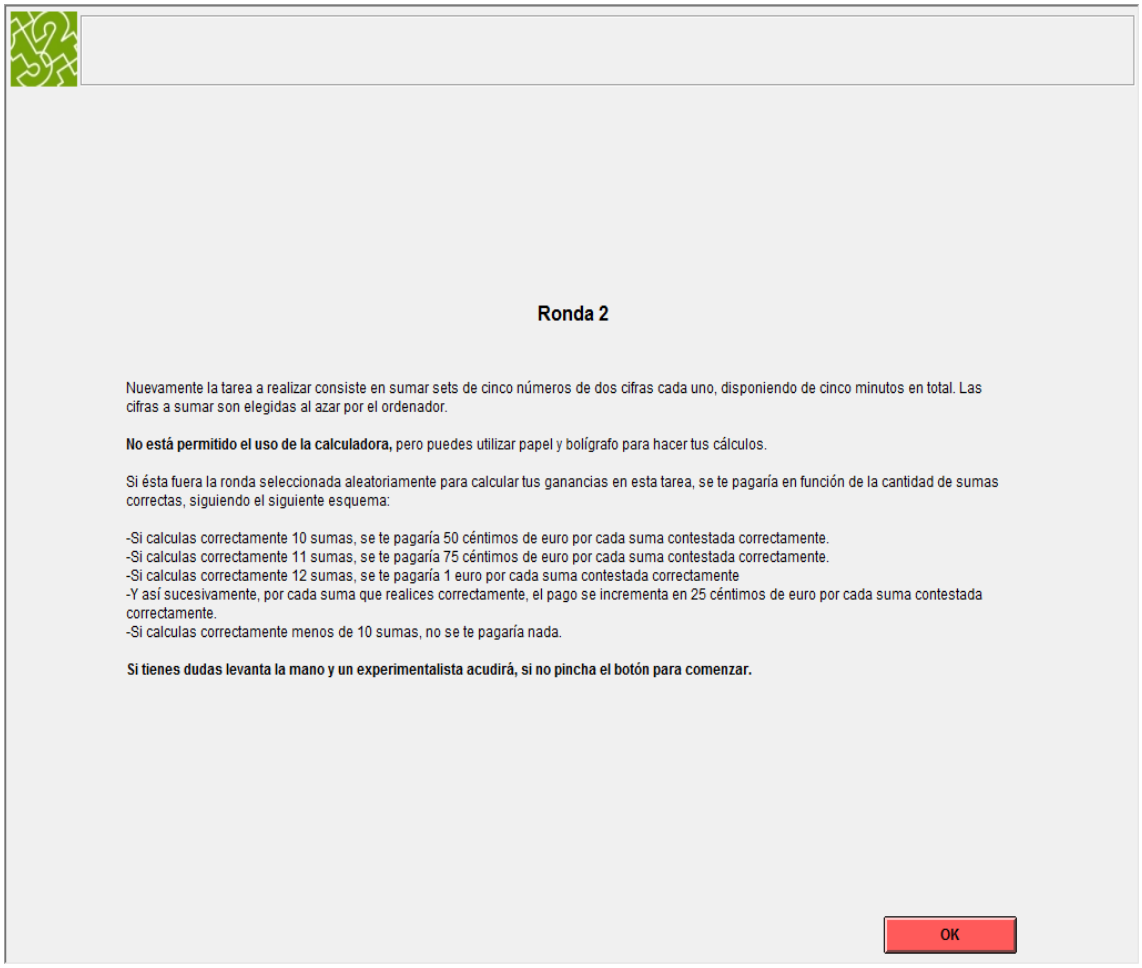
El segundo tratamiento, realizado en una sesión diferente y con nuevos sujetos, repite todos las rondas del Tratamiento 1 con la única diferencia de presentar en la ronda 2 un tipo de competición nueva y, por tanto, en la ronda 3 la decisión de escoger o no este nuevo tipo de competición. Así, el Tratamiento 2 igualmente consiste en 4 rondas, siendo la ronda 4 la competición ‘todo para el ganador’ que se presentó en el primer tratamiento y que actúa en el Tratamiento 2 como control y comparación entre los dos tratamientos. La Tabla 3.1 muestra un esquema de las rondas de los dos tratamientos.

Tabla 3.1. Descripción de los dos tratamientos experimentales

Tratamiento 1				Tratamiento 2			
Ronda 1	Ronda 2	Ronda 3	Ronda 4	Ronda 1	Ronda 2	Ronda 3	Ronda 4
Pago constante	Competición todo para el ganador	Decisión pago 1 o 2	Competición contra uno mismo por objetivos	Pago constante	Competición contra uno mismo por objetivos	Decisión pago 1 o 2	Competición todo para el ganador

Como se puede observar en la Tabla 3.1, la única diferencia entre el Tratamiento 1 y 2 radica en intercambiar la competición del tipo ‘todo para el ganador’ por la competición ‘contra uno mismo por objetivos’ en las rondas 2, 3 y 4.

Figura 3.2. Descripción de la competición ‘contra uno mismo por objetivos’



La Figura 3.2 presenta los detalles de la competición ‘contra uno mismo por objetivos’ tal y como se les describe a los sujetos durante el experimento. Cada sujeto debe realizar mas de nueve sumas correctas para

obtener alguna ganancia. Si tiene 10 sumas correctas recibe una ganancia de 0,50 euros por suma correcta, si tiene 11 sumas correctas recibe un pago de 0,75 euros por suma correcta, si tiene 12 sumas correctas recibe un pago de 1 euro por suma correcta y así sucesivamente.

Tabla 3.2. Pagos esperados según sistema de competición

Numero de sumas correctas	Pago constante (1)	Competición todo para el ganador (2)	Competición contra uno mismo por objetivos (3)
7	1.75	P_s x 7	0
8	2	P_s x 8	0
9	2.25	P_s x 9	0
10	2.5	P_s x 10	5
11	2.75	P_s x 11	8.25

P_s = probabilidad de ser el mejor del grupo de 4, para todo *s* desde 1 hasta ∞, siendo P1 =0 < P2 < ….P10….<P∞ = 1

La Tabla 3.2 compara las ganancias que se pueden obtener en los tres sistemas según el numero de sumas correctas. Cuando los sujetos se enfrentan en la Ronda 3 del Tratamiento 1 a la decisión de escoger pago constante (como en Ronda 1) o "Todo para el ganador" (como en Ronda 2), tienen que pensar en cual es su probabilidad de llegar a hacer un buen número de sumas correctas, digamos 10 sumas correctas (Ps_{10}), por ejemplo del 50%, y en cual es la probabilidad de ser el mejor de los 4 si se consiguen esas 10 sumas correctas (Pm_{10}), digamos que 75%. Así, este sujeto tendría una probabilidad: Ps_{10} x Pm_{10} = 0.50 x 0.75 = 0.375 = 37.5%

de conseguir un pago de 10 euros en la ronda 3 si escoge forma de pago "todo para el ganador". Si este sujeto fuese neutral al riesgo, su pago esperado sería = 0.375 x 10 = 3.75 euros.

Por otra parte, en el Tratamiento 2, cuando los sujetos se enfrentan en la Ronda 3 a la decisión de escoger pago constante (como en Ronda 1) o "competición contra uno mismo por objetivos" (como en Ronda 2), simplemente tienen que pensar cual es su probabilidad de llegar a hacer un buen número de sumas correctas, digamos 10 sumas correctas (Ps_{10}), por ejemplo del 50%. En ese caso, si este sujeto fuese neutral al riesgo, su pago esperado sería = 0.5 x 5 = 2.5 euros.

La Tabla 3.3 presenta como ejemplo la decisión a la se enfrentaría una persona que tiene una probabilidad del 50% de conseguir 8 sumas correctas y del 50 % de conseguir 10 sumas correctas, tanto en el Tratamiento 1 como en el Tratamiento 2. Se observa que los pagos han sido diseñados de forma que cuanto mayor es el riesgo (variabilidad de los pagos), mayor es el pago esperado. También es importante destacar que en este Tratamiento 2 no se deja a ningún otro sujeto sin ganancia por el hecho de conseguir más sumas correctas.

Tabla 3.3. Ejemplo de pagos esperados según sistema de competición

Probabilidad	Numero de sumas correctas	Pago constante (1)	Competición todo para el ganador (2)	Competición contra uno mismo por objetivos (3)
50%	8	2	0* x 8 = 0	0
50%	10	2.5	0.75* x 10 =7.5	5
Pago esperado (neutral al riesgo)		2.25	3.75	2.5

* = probabilidad subjetiva de ser el mejor de 4

El experimento tuvo lugar en las instalaciones del Laboratory for Research in Experimental Economics, (LINEEX) en la Universidad de Valencia en Octubre de 2014 y Junio de 2015. Cada tratamiento duró aproximadamente una hora, durante la cual los sujetos no podían usar calculadora, pero sí papel y bolígrafo. Estaba prohibida la comunicación entre los sujetos y ganaron alrededor 19.5 euros por persona en términos medios, conociendo sus ganancias y sumas correctamente realizadas sólo al final del experimento. Sólo una de las 4 rondas fue seleccionada aleatoriamente para calcular las ganancias de los sujetos.

Los 208 sujetos (104 hombres y 104 mujeres) eran todos estudiantes de la Universidad de Valencia principalmente de las carreras de Economía, Dirección de Empresas, Ingenierías, Negocios Internacionales y Contabilidad y Finanzas. Se seleccionaron estudiantes únicamente de estos grados con el fin de partir de una muestra homogénea en cuanto al nivel de cálculo. No existe diferencia en el nivel de cálculo que se presupone a

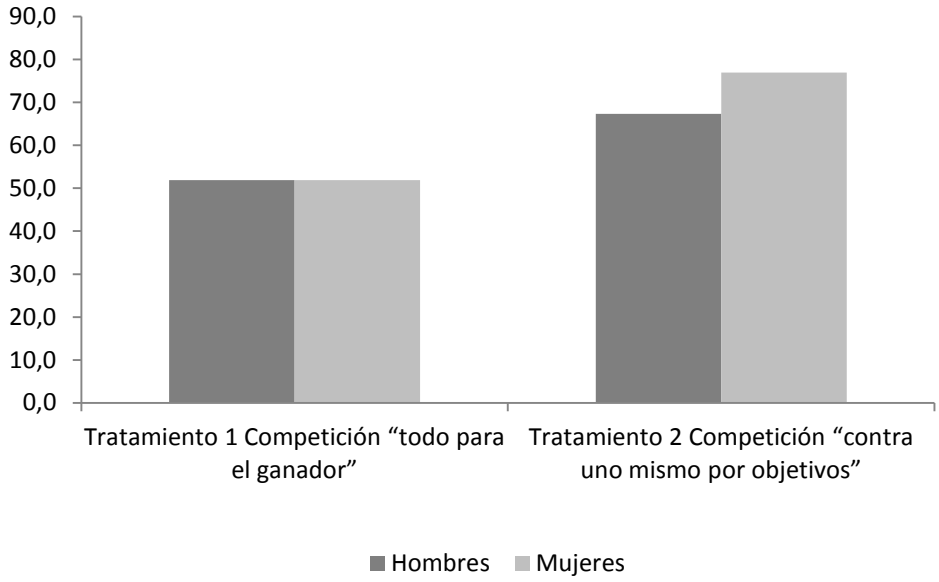
hombres y mujeres en esta muestra, puesto que todos ellos tuvieron que pasar un examen nacional con alto nivel de matemáticas para poder optar a estos estudios.

3.3 Resultados

La Figura 3.3 y la Tabla 3. 4 presentan los porcentajes de hombres y mujeres que deciden entrar en la competición (deciden tener el tipo de pago 2 en la ronda 3) según el tipo de competición (Tratamiento) del que se trate. De estos datos se desprende claramente que la competición contra uno mismo por objetivos (Tratamiento 2) es mucho mas atractiva para los sujetos, hombre y mujeres, que la competición del tipo 'todo para el ganador' (Tratamiento 1). El 72,1% de los sujetos escogen competir en el Tratamiento 2, mientras que solo el 51,9% de los sujetos escogen la competición en el Tratamiento 1.

La Figura 3.3 también muestra claramente que las mujeres optan mas que los hombres por la competición en el Tratamiento 2 y que las mujeres de nuestro experimento deciden competir tanto como los hombres en el Tratamiento 1 (competición "todo para el ganador").

Figura 3.3. Hombres y mujeres que optan por el pago competitivo según tratamiento (%)



Otros trabajos también han encontrado que no había diferencias de género significativas en el comportamiento hacia la competición "todo para el ganador", o incluso que las mujeres competían mas que los hombres, aunque éste no ha sido el resultado mas generalizado. El trabajo de Gneezy *et al*. (2009) analiza el papel que juega la cultura en este tipo de comportamientos comparando los resultados de dos sociedades diferentes: la tribu patriarcal Maasai de Tanzania y la tribu matriarcal Kasay de India. Encontró que las mujeres de la tribu Kasay en India, una sociedad matriarcal, eran mas competitivas que los hombres (en un entrono competitivo similar al de nuestro Tratamiento 1). Por otra parte, Boot y Nolen (2012) encuentra otro entorno en el que las mujeres escogen la competición del tipo "todo para el ganador" en la misma proporción que

los hombres: los colegios de educación primaria sólo para chicas. Argumenta que sus resultados sugieren que las diferencias de género en el comportamiento competitivo que se observan en otros estudios previos pueden provenir de un aprendizaje social y cultural, mas que de características inherentes al género. En la misma línea, se inscriben los resultados del Capítulo 2 de esta Tesis Doctoral (publicado en el *Journal of Business Research* como Comeig *et al.* 2016). Kamas y Preston (2012) tampoco encontró diferencias de género entre los estudiantes de carreras de ciencias (STEM, por sus siglas en inglés).

Tabla 3.4. Hombres y mujeres que optan por el pago competitivo en cada tratamiento

	Hombres (H)		**Mujeres (M)**			**Total**	
	Compiten	No compiten	Compiten	No compiten	**Diferencia. H-M***	Compiten	No compiten
Tratamiento 1 (T1) Competición 'Todo para el ganador'	27 51,9%	25 48,1%	27 51,9%	25 48,1%	**p = 1.000**	54 51,9%	50 48,1%
Tratamiento 2 (T2) Competición contra uno mismo por objetivos	35 67,3%	17 32,7%	40 76,9	12 23,1%	**p = 0.274**	75 72,1%	29 27,9%
Diferencia T1-T2*	**p = 0,110**		**p = 0,008**			**p = 0,003**	
Total	62 59,6%	42 40,0%	67 64,4%	37 35,6%		129 62,0%	79 38,0%

*Test de significatividad Chi cuadrado de Pearson

Es importante destacar que en nuestro experimento compiten mas las mujeres que los hombres, un 64,4% frente a un 59,6% de hombres (ver

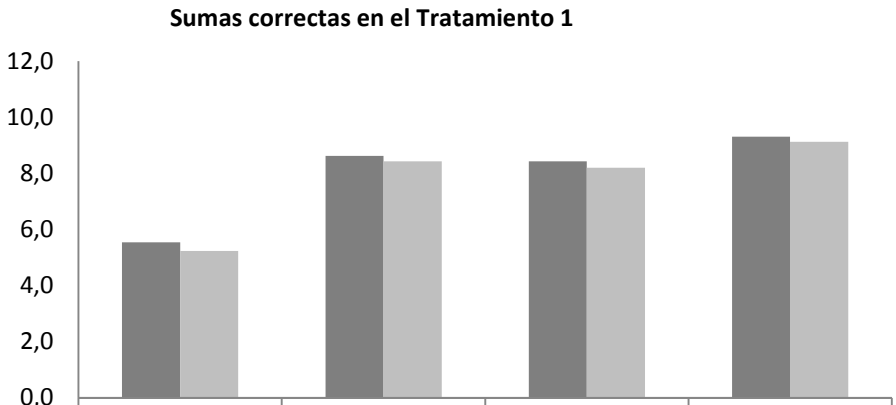
Tabla 3), aunque esta diferencia no es significativa (p = 1.000 en el Tratamiento 1 y p = 0.274 en el Tratamiento 2).

Lo que si es significativo es el efecto que tiene el tipo de competición sobre el incremento de mujeres que deciden entrar en la competición. El número de mujeres que deciden competir es significativamente mayor, 76.9%, en la competición contra uno mismo por objetivos (Tratamiento 2) que en la competición del Tratamiento 1, en la que el ganador se lleva todo, 51.9% (p = 0.008). Sin embargo, el tipo de competición no afecta significativamente a los hombres (p = 0.110), aunque la competición contra uno mismo por objetivos (Tratamiento 2) sea mas atractiva también para los hombres que la competición del Tratamiento 1.

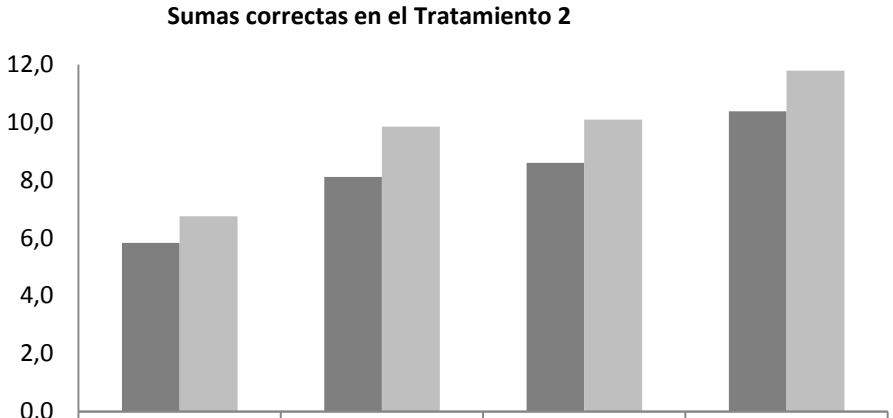
Los resultados de este experimento muestran que la decisión de las mujeres de entrar a competir depende en gran medida del tipo de competición de que se trate. En general, tratando el comportamiento agregado de hombres y mujeres, la competición por objetivos contra uno mismo ha resultado significativamente mas atractiva (p = 0.003).

La Figura 3.5 muestra el número de sumas correctas por Tratamiento, Ronda y género. Se observa que, en términos medios, no hay diferencias significativas en el nivel de cálculo entre los hombres y las mujeres de nuestro experimento (ver sumas correctas en Ronda 1, tanto en Tratamiento 1 como en Tratamiento 2).

Tabla 3.5. Número de sumas correctas por Tratamiento, Ronda y Género



	Ronda1 (pago constante)	Ronda2 (todo para el ganador)	Ronda3 (decisión ronda 1 o ronda 2)	Ronda4 (contra uno mismo por objetivos)
Hombres	5,538	8,615	8,423	9,308
Mujeres	5,231	8,423	8,192	9,115



	Ronda1 (pago constante)	Ronda2 (contra uno mismo por objetivos)	Ronda3 (decisión ronda 1 o ronda 2)	Ronda4 (contra uno mismo por objetivos)
Hombres	5,827	8,115	8,596	10,385
Mujeres	6,750	9,846	10,096	11,788

Aunque se observa un aumento de sumas correctas en las Rondas posteriores, no se puede inferir que este incremento sea debido al tipo de sistema competitivo. También podría deberse a un efecto aprendizaje o de confianza con el interfaz el experimento. Este experimento no ha sido

diseñado para conocer cual de los dos sistemas competitivos mejora en mayor medida los resultados.

Sin embargo, si que se puede concluir que la competición contra uno mismo por objetivos no conlleva ninguna pérdida en eficiencia respecto al sistema competitivo de 'todo para el ganador".

Además, este sistema de competición contra uno mismo por objetivos aumenta significativamente la proporción de mujeres que deciden entrar en el entorno competitivo.

3.4 Conclusiones

Una de las razones que los estudios experimentales han señalado como posibles potenciadoras de las diferencias de género en salarios y de la falta de mujeres en puestos altos en ciencia, política y empresa, es la menor inclinación de las mujeres a entrar en entornos competitivos (Blau *et al.*, 2010; Cason *et al*., 2010; Croson y Gneezy, 2009; Datta Gupta *et al*., 2013; Dohmen y Falk, 2011; Gneezy *et al*., 2009; Gneezy *et al*., 2003; Gneezy y Rustichini, 2004; Niederle y Vesterlund, 2007; 2011; Weichselbaumer y Winter-Ebmer, 2007). Sin embargo, la mayor parte de trabajos se han centrado en un sistema de competición del tipo "todo para el ganador".

Dado que el sistema competitivo "todo para el ganador" puede tener características que interactúan con otras variables que podrían afectar a la decisión de entrar a competir, como la cultura (Gneezy *et al*. 2009; Booth y

Nolen 2012), o la identidad cooperativa o no con la que se asimilan los individuos (Charness y Rustichini 2011), o la confianza en uno mismo (Kamas y Preston 2012; Sutter *et al.* 2015; Comeig *et al.* 2016), o con actitudes hacia el riesgo y/o ambigüedad (Booth y Nolen 2012) o con combinaciones entre ellas (Comeig *et al.* 2016), en este Capítulo se analiza si otro tipo de sistema competitivo podría incentivar una mayor participación de las mujeres en la competición.

Se diseña un experimento económico que consta de dos tratamientos que se diferencian por el tipo de competición a escoger. El primer tratamiento permite escoger entre un pago constante y una competición "todo para el ganador", mientras que el Tratamiento 2 permite escoger entre un pago constante y una competición contra uno mismo por objetivos.

La competición por objetivos contra uno mismo ha resultado significativamente mas atractiva para los sujetos de nuestro experimento (hombres y mujeres de forma agregada). Además, el número de mujeres que deciden competir es significativamente mayor en la competición contra uno mismo por objetivos que en la competición del Tratamiento 1, en la que el ganador se lleva todo (WTA, por sus siglas en inglés).

Es importante señalar que este incremento significativo en la participación de las mujeres se ha producido sin ninguna reducción en la participación de los hombres y sin ninguna reducción en la eficiencia del sistema.

Dada la importancia social y económica de tener una sociedad equilibrada, en la que tanto mujeres como hombres ocupen puestos de responsabilidad y de decisión, en este Capitulo se propone el sistema de competición contra uno mismo por objetivos como mecanismo a recomendar en las empresas, frente al de ‘todo para el ganador”.

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Conclusions

Chapter 1: Do women self-select as good borrowers?

We have conducted an experiment to study the extent to which the women's patterns of behavior towards risk carry over into the self-selection mechanism with collateral, a problem with important economic and policy implications.

Extant theories on credit screening assume that borrowers' preferences among different combinations of price and collateral systematically depend on their risk levels. However, these models so far, have not addressed an important question for such settings: Does the women's risk taking behavior interfere with the self-selection mechanism? We have found that gender does affect the contract choice and interferes with the screening mechanism. This result suggests gender differences in self-selection that can affect price and access to credit markets and entrepreneurship.

Since gender differences arise when consumers face low risk projects: 90% success probability, 10% failure probability, we study probability weighting differences between genders.

The results of our experiment indicate that men and women differ in their probability weighting schemes. Women tend to underestimate large probabilities of gains more strongly than men do. As a result, incentive compatible contracts with collateral fail to disclose women private information: Low risk women borrowers do not self-select as good borrowers.

By changing the collateral word by deductible, our model and results are applicable to other important financial sectors, as insurance markets.

Chapter 2: Gender, self-confidence, sports, and preferences for competition

This study presents the first fuzzy-set qualitative comparative analysis (FsQCA) on gender differences in preferences for competition. Previous research analyzes the main effects of gender on the willingness to compete applying standard statistic and econometric models and generally finds that

women present a lower preference for competitive environments. This study, however, seeks to analyze the connected conditions, including gender, that relate to competition preferences and the different paths that may lead to decide entering a competition. Understanding complex connections in behavior, preferences, and social experiences may help to establish responsible policy interventions on the gender gap in the willingness to compete.

The fsQCA results on the economic experiment show that the willingness to compete does not come from the individual's gender alone but from sets of connected conditions. One combination of conditions that leads to enter competition is the lack of risk aversion and the lack of cooperative personality together with experience in competitive sports and games. This path reflects the main effects that previous literature generally shows, which relates gender differences in willingness to compete to women's higher risk aversion, and preference towards cooperation and equality. However, analyzing results with fsQCA shows that this path is not the only path to decide entering a competition.

Interestingly, one of the causal paths leading to enter competition includes being a woman among the conditions: Women with experience in competitive sports decide to enter competition even when being risk-averse. This result is important for policy interventions, because women's

experience in sports might increase with proper information or by promoting sports attractive enough for women.

Furthermore, results show that experience in competitive sports relates to a higher self-confidence and generates a higher willingness to enter in other competitive environments. These results provide interesting insights to guide policy interventions to reduce the gender gap in preferences for competition and, therefore, to rise the percentage of women in top-level positions and to reduce the gender gap in salaries.

Chapter 3: ¿Las mujeres no compiten? Depende del tipo de competición

Una de las razones que los estudios experimentales han señalado como posibles potenciadoras de las diferencias de género en salarios y de la falta de mujeres en puestos altos en ciencia, política y empresa, es la menor inclinación de las mujeres a entrar en entornos competitivos (Blau *et al.*, 2010; Cason *et al*., 2010; Croson y Gneezy, 2009; Datta Gupta *et al*., 2013; Dohmen y Falk, 2011; Gneezy *et al*., 2009; Gneezy *et al*., 2003; Gneezy y Rustichini, 2004; Niederle y Vesterlund, 2007; 2011; Weichselbaumer y

Winter-Ebmer, 2007). Sin embargo, la mayor parte de trabajos se han centrado en un sistema de competición del tipo “todo para el ganador”.

Dado que el sistema competitivo “todo para el ganador” puede tener características que interactúan con otras variables que podrían afectar a la decisión de entrar a competir, como la cultura (Gneezy *et al.* 2009; Booth y Nolen 2012), o la identidad cooperativa o no con la que se asimilan los individuos (Charness y Rustichini 2011), o la confianza en uno mismo (Kamas y Preston 2012; Sutter *et al.* 2015; Comeig *et al.* 2016), o con actitudes hacia el riesgo y/o ambigüedad (Booth y Nolen 2012) o con combinaciones entre ellas (Comeig *et al.* 2016), en este Capítulo se analiza si otro tipo de sistema competitivo podría incentivar una mayor participación de las mujeres en la competición.

Se diseña un experimento económico que consta de dos tratamientos que se diferencian por el tipo de competición a escoger. El primer tratamiento permite escoger entre un pago constante y una competición “todo para el ganador”, mientras que el Tratamiento 2 permite escoger entre un pago constante y una competición contra uno mismo por objetivos.

La competición por objetivos contra uno mismo ha resultado significativamente mas atractiva para los sujetos de nuestro experimento (hombres y mujeres de forma agregada). Además, el número de mujeres que deciden competir es significativamente mayor en la competición

contra uno mismo por objetivos que en la competición del Tratamiento 1, en la que el ganador se lleva todo (WTA, por sus siglas en inglés).

Es importante señalar que este incremento significativo en la participación de las mujeres se ha producido sin ninguna reducción en la participación de los hombres y sin ninguna reducción en la eficiencia del sistema.

Dada la importancia social y económica de tener una sociedad equilibrada, en la que tanto mujeres como hombres ocupen puestos de responsabilidad y de decisión, en este Capitulo se propone el sistema de competición contra uno mismo por objetivos como mecanismo a recomendar en las empresas, frente al de ‘todo para el ganador”.

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