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Self-Discrimination: A Field Experiment on Obesity

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Abstract

While it is well-established in the literature that obese people are discriminated against in the working environment, little is known about their own actual behavior. Our experimental setting investigates whether these potentially discriminated people respond in a different way when faced with the opportunity of earning a positive amount of money. Significant lower money requests by people who are self-reported as obese confirm our self-discrimination hypothesis, offering an additional explanation for the wage gap; Thus, it seems that these obese people earn less not only because of discrimination against them but also because they themselves are less demanding. Interestingly, results are more robust for females, especially for those who "feel", but they are not actually, obese.

JEL: C93, J16

Keywords: Discrimination, obesity, field experiment, gender, self-perception.

1 Introduction

Obesity is an obvious appearance characteristic which severely stigmatizes individuals and provokes multiple forms of prejudice and discrimination against them in several social environments (Puhl and Heuer (2009) for an extensive review). Numerous empirical studies report the negative effects of obesity - measured by body mass index- on labour success measured by wages and employment rates, (Atella et al., 2008; Cawley, 2004, 2007; Cawley and Danziger, 2005; Han et al., 2009)[1], a result which is also supported across european studies[2] (Brunello and D'Hombres, 2007; Garcia and Quintana-Domeque, 2006). Furthermore, in more recent studies, where more complex measures of obesity are employed, the general result of obesity discrimination on the working environment still holds, although weaker (Burkhauser and Cawley, 2008; Johansson et al., 2009; Wada and Tekin, 2010)[3]. Finally, evidence on obesity discrimination can be also found in experimental psychology studies. In a recent meta-analysis on weight discrimination in employment settings by Roehling et al. (2008), it was demonstrated that overweight job applicants and employees were evaluated more negatively and had more negative employment outcomes[4] compared to non-overweight counterparts.

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[1] Cawley (2004) finds that for white females, an increase of 64 pounds above average weight was associated with a 9% decrease in wages. Han et al. (2009) find that the negative relationship between the BMI and wages is larger in occupations requiring social interactions and for older people. Atella et al. (2008) show that cultural, environmental or institutional settings do not seem to be able to explain differences among countries on the wage-obesity relationship, leaving room for a pure discriminatory effect hypothesis.

[2] Brunello and D'Hombres (2007) observe that a 10% increase in the average BMI reduces the hourly wages of males by 1.9% and females by 3.3% while Garcia and Quintana-Domeque (2006) find a negative correlation between wages and obesity, ranging from -2 to -10 % only for women.

[3] Burkhauser and Cawley (2008) claim that total body fat is negatively correlated with employment for some groups. Johansson et al. (2009) find that only waist circumference has a negative association with wages for women. Wada and Tekin (2010) report that body fat is associated with decreased wages for both males and females while they also present evidence suggesting that free fat mass is associated with increased wages.

[4] Studies were included in the analysis if simulated employment decisions were involved and demonstrated an effect size between target weight and job-related outcome variables. Outcome variables included hiring recommendations, qualification/suitability ratings, disciplinary decisions, salary assignments, placement decisions, and coworker ratings.

While all aforementioned examples are referred to the discriminative behavior of the employers who represent the demand side of the labor market, little is known about the behavior of employees who represent the supply side of this market. In this study, we propose that part of the aforementioned wage gap could be attributed to the differences between obese and non-obese people in their initial requests. Although there could be other explanations for the gap across weight, we consider that initial requests, or initial offers, are important because they can serve as anchors in the negotiation, influencing subsequent offers and final agreements. The importance of the *adjustment from an anchor* in making judgments under uncertainty was firstly described by Tversky and Kahneman (1974), while several empirical and experimental studies in the negotiation-bargaining literature have confirmed its importance (Galinsky and Mussweiler, 2001; Ritov, 1996).

According to our experimental setting, subjects, after filling out a questionnaire, are asked for *how much money they would like to request as a compensation for the effort they made to complete this particular questionnaire and for the information they provided us*. We consider that this open-ended question, inspired by Greig (2008), does have an implementation on labor markets as it mimics the commonly asked employers' question to the job candidates: "How much money would you like to receive for doing this particular job?"[5].

Moreover, in the aforementioned questionnaire, subjects are asked, among others, to reveal through a 7-scale likert question their obesity level. Thus, this paper focus on "perceived obesity" as a measure of obesity. Our argument and the main contribution of this paper is that in the "self-discrimination story" the relevant fact is to detect how people feel and not how people are actually or look to others regarding their obesity. For this reason and in order to be able to make

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[5]Moreover, subjects have to complete out our research questionnaire, which simulates the task that every employee has to accomplish in his/her job. We, therefore, manage to create work environment conditions without using any artificial framing.

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reasonable comparisons, apart from subjects self-reports on obesity, we also have an estimation of subjects' obesity level by the 27 interviewers participating in this study.

In this study, we are also interested in investigating the effect of the interaction between obesity and gender on initial requests. Many studies on gender (Gerhart, 1990; Rosenbaum, 1984; Barron, 2003; Greig, 2008) demonstrate that men make significantly larger salary requests than women, a fact that leads to a lower first salary and consequently to a more modest career advancement. According to this literature, differences in mens' and womens' entitlement were due to several factors: group-based social inequities, intra-group and intra-personal comparison biases, group differences in reference standards (Major, 1994), socialization pressure (Wade, 2001), effectiveness in competitive environments (Gneezy et al., 2003).

These arguments are compatible with the main findings of our study if it is considered that obese people, like women, belong to a group which has been treated differently and discriminated in the working environment. Taking into account that weight-related stigmatization is considered as one of the most severe stigmas[6], we turn our attention to socio-psychological oriented explanations. Self-fulfilling prophecy theory (Merton, 1948) is one of these. According to Merton (1948), *"a self-fulfilling prophecy occurs when a perceiver's false belief influences the perceiver's treatment of a target which, in turn, shapes the targets behavior in an expectancy-consistent manner."*

In the working environment though, the above theory is applied as follows: Employers[7] who form false general beliefs for obese employees[8], develop dif-

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[6]Due to visibility and perceived controllability of the weight-related stigmatized condition.

[7]Since there is evidence (Wang et al., 2004) that obese people, unlike other minority groups, appear to hold negative attitudes toward in-group members (weight bias internalization), no distinction between obese and non-obese employers is necessary to be made.

[8]Research to date (see Puhl and Heuer (2009) for an extensive review) suggests that the most common stereotypes about obese employees include views that they are less hard-working, less perseverant, less conscientious, less agreeable, less emotionally stable, less ex-

ferential treatment towards their obese employees who eventually shape their behavior in an expectancy-consistent manner. Expecting lower wages, obese-workers request or they are willing to accept lower wages. In Piketty (1998), the author gives a possible socio-economic interpretation of self-fulfilling prophecy theory by considering that the well-known model of *statistical discrimination* can be supported by the aforementioned theory as follows: since employers expect lower-class agents to be less qualified for top jobs, they promote them less often, so that lower class agents are discouraged and adopt a behavior that validates the employers' expectations. Following the same reasoning, we suggest that obese agents adopt a behavior that validates the employers' expectations by requesting lower salaries.

Apart from the self-fulfilling prophecy theory, socio-psychologists have also highlighted the negative relationship between self esteem and obesity. Obese people are more vulnerable to lower self-esteem which, in turn, is correlated with lower initial wage requests and, by extension, with lower earnings. Regarding obesity and self-esteem, there are several psychological studies reporting a negative correlation between them (Biro et al., 2006; Carr and Friedman, 2005; Hesketh et al., 2004; French et al., 1995; Wardle and Cooke, 2005)[9].

As far as the relation between self-esteem and earnings is concerned, early childhood intervention programs provide indisputable evidence for their positive correlation. These programs raised lifetime earnings by improving students' social skills and motivation (Heckman, 2000). Moreover, in two experimental

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traverted etc. than their normal-weight counterparts. Nevertheless, it is also true that obesity is related to less self-control and health problems, two aspects which have negative impact on work outcomes.

[9]In a nationally representative study of over 3000 adults, Carr and Friedman (2005) find that obese individuals report lower levels of self-acceptance than normal-weight persons, which is fully mediated by perceptions of weight discrimination. Along the same lines Biro et al. (2006) report that BMI is an important predictor of self-esteem on a 2379 sample of 9 and 10 years old girls while Hesketh et al. (2004) find that obesity/overweight precedes low self-esteem in a study of 1157 elementary school children in Australia. In the same direction, but more moderated, are the results of the two comprehensive reviews of self-esteem and obesity in youths by French et al. (1995) and Wardle and Cooke (2005).

studies investigating the relation between height and earnings (Persico et al., 2004) and between attractiveness and earnings (Mobius and Rosenblat, 2006), the negative relation between self-esteem and earnings is also confirmed. While in these studies it is not clear why low self-esteem people end up with lower earnings, a remarkable study by Baumeister et al. (2003) concludes that occupational success may boost self-esteem rather than the reverse.

Finally, anticipating a strong negative relationship between obesity and beauty, we also suggest that initial wage requests may be one of the main reasons of the so-called "beauty premium" (Hamermesh and Biddle, 1994) in wages. Several worth-mentioned experimental studies[10] have demonstrated the positive relationship between beauty and earnings across different bargaining settings (ultimatum, public good, trust game, labor market experiments). To our surprise, we found that beauty and obesity are not correlated, while beauty (unlike obesity) does not have any effect on money requests.

To sum up, the central issue of this experimental study is expressed through two basic questions:

- Do "obese" people, who self-report a higher-than-median level of obesity, request less money than "non-obese" people ?

- Does the interaction between obesity and gender make any effect on money requests?

The study is organized as follows: the experimental methods are described in detail in section 2, while the data and results are presented in section 3 and 4, respectively. In section 5, we make a comparison between self and monitor

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[10]Solnick and Schweitzer (1992) rejected the hypothesis that attractive people will demand more than unattractive people in an ultimatum game but reported higher final payoffs for attractive people. In a recent public goods experiment, Andreoni and Petrie (2008) report that higher payoffs for attractive people are not due to differential behavior by attractive people but due to how others respond to beauty. Moreover, Eckel and Wilson (2004) find that attractive people are trusted at higher rates under a trust game framework.

reported data on obesity. Finally, section 6 concludes with a discussion of the results.

2   Experimental Methods[11]

One of the most important advantages of this research project is the fact that we conduct an economic field experiment with quite a large sample (270 subjects) consisting of various types of people from different socioeconomic backgrounds. In order to achieve this aim, 27 mediators-interviewers[12] of different ages (20-60 years old) and socioeconomic background were fully trained to recruit subjects and conduct the experiment. None of the mediators had any past experience in economic experiments, while their participation in the experiment as "interviewers" solely had a pedagogical aim[13].

2.1   Stage 1: Mediators' Training

Mediators were trained for a total of six hours. Training included a general description of experimental economics with special reference made to basic experimental protocols. Additional instructions regarding this specific experiment were given in detail. Finally, each mediator was asked to recruit 10 subjects to participate in an economic experiment within one week's time. We also clearly stated (especially for the mediators who were also workers) our preference for employed subjects and a balanced subject pool regarding gender. After the first week, the mediators were asked to submit a list with the names of the 10

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[11]Detailed instructions for the whole experimental process are described in Appendix 1. Questionnaires Q1 and Q2 are provided in Appendix 7 and 8, respectively.

[12]Initially, the experiment was designed for 30 interviewers but we manage to find only 29. Two of them were eventually excluded during the experimental process as they were not following our instructions properly.

[13]Upon completion of the course, the students were awarded a grade for a presentation of the results/conclusions obtained from the data.

subjects they had recruited[14].

2.2 Stage 2: Questionnaires and Implementation

The second stage of the experiment began with mediators' answers to questionnaire Q1. After completing Q1, the mediators received ten Q2 questionnaires and ten envelopes[15], which they delivered to their subjects.

The first two parts of Q2 coincide with the first two parts of Q1. The only difference between the two questionnaires is that the questions on Q1 were answered by each of the 27 mediators 10 times to describe each of their 10 subjects, while the questions on Q2 were self-reported and therefore only answered once by each of the 270 subjects. The following figure shows the general structure of questionnaires Q1 and Q2.

Figure 1: Questionnaires

Mediators' Questionnaire

Q1:
a: Appearance & Personality questions
(describing each one of their 10 subjects)
b: Sally-Ann distracting task
c: Personal Relationship questions

Subjects' Questionnaire

Q2:
a: Appearance & Personality questions
(describing themselves)
b: Sally-Ann distracting task
c: Money Request question
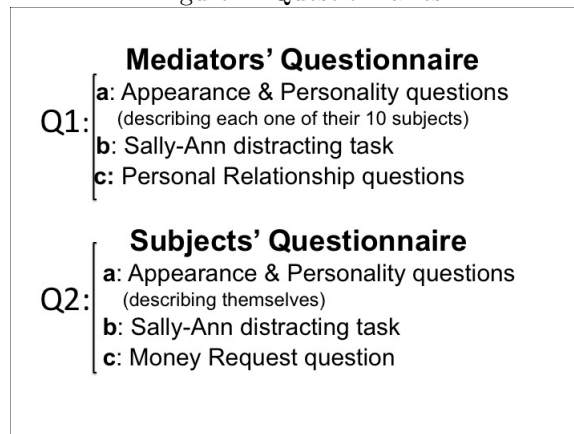
In the first part of the questionnaire given to the subjects, Q2a, th subjects

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[14]In order to protect the subjects' identities, the mediators were asked to codify the names so that they would be recognizable only by the corresponding mediator and no one else

[15]The envelopes bore the seal of the University of Granada and were used to preserve subjects' anonymity from the monitors.

were requested to answer four (7-level) Likert questions about their appearance, namely *obesity, beauty, height* and *manner of dress*, and five Likert questions about their personality characteristics, specifically *ambition, self-esteem, sociality, creativeness* and *benevolence*. However, only *obesity* is used as explanatory variable while *beauty*, *ambition* and *self-esteem* are used as control variables. The remaining questions ware used to distract subjects' attention from the real experimental objectives. For this same reason, an adjusted version of the Sally-Ann task (Wimmer and Perner, 1983) was included in the second part of the subjects' questionnaire, Q2b. The Sally-Ann task is a psychological test which enables a series of images (see Appendix 7).

Finally, while the third part of the mediators' questionnaire, Q1c, simply describes the personal relationship between the mediators and each of their subjects, the third part of the subjects' questionnaire, Q2c, actually consists the dependent variable of our research project. In this part, subjects were asked to reveal *how much money they would like to request as a compensation for the effort they made to fill out this particular questionnaire and for the information they provided us.* It was also clarified that the money disposed for this research project was given by the Spanish State and did not belong or affect us.Q2 continues by asking subjects' to give their name and home address so that the researchers could send the subjects the money they requested[16].

Moreover, participants were assured about their personal data protection through the Law on the Protection of Personal Data. Finally, at the end of the Q2 questionnaire, the subjects were asked if they would be willing to participate in another experiment in the near future.

The second stage of the experiment concluded by instructing mediators to provide their subjects with delicate hints about how the payment would be

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[16]This was also another way to convince the subjects that we were truly willing to pay them the money they requested.

made. In short, they "must" assure their subjects that they are truly going to receive a positive amount of money if they ask for it. Moreover, it was emphasized that only those subjects who provide their home address would be paid. The mediators were also instructed to inform their subjects that the budget for this particular project was fix and that researchers were willing to pay subjects according to their claims[17]. Finally, the mediators were given two weeks to administer the Q2 questionnaires to their subjects and return the completted questionnaires.

2.3   Payments

Finally, the third stage of the experiment began at the moment that the mediators submitted the Q2 questionnaires that had been completed by their subjects. The questionnaires were submitted in sealed envelopes. As regards the payment process, the mediators preferred to receive subjects' payments on their behalf instead of mailing the money to them. To this end, the interviewers were asked to submit within two weeks time signed copies of the identity cards of the subjects who had requested money in Q2c. Payments were made two weeks later according to the following rule: "*Subjects who request 10€ or more, will be paid 10€. All the rest will receive the exact amount of their request.*" Table 1 summarizes relevant information for payments. Rows show the number of people of not answering (n.a), requesting 0€, or a positive amount of money (> 0€) while the columns indicate whether subjects provide not any (no-info), incomplete or complete personal information.

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[17]We clarified this point using the following wording: *"Obviously, we are not going to pay anyone 1 million € for filling out a questionnaire."*

Table 1: PERSONAL INFORMATION AND MONEY REQUESTS

	no-info	incomplete	complete	Total
n.a.	17	5	1	23
0€	53	21	19	93
>0€	2	45	107	154
Total	72	71	127	270

There were 53+17 subjects who requested 0€ or gave no answer and also did not give their personal information. Among those 154 individuals who asked for a positive amount of money 2 individuals gave no personal data at all while 45 of them provide incomplete data so it was not possible to contact them. From the sample of 107 subjects who both provide all the necessary personal data and ask for a positive amount of money, there was a small fraction of subjects (16%) who either did to give their ID[18] or refused to take their money. Finally, the 89 subjects who asked a positive amount of money, gave complete personal information and finally provided copies of their ID were paid. The total cost of the project was 854€ .

3   Data Considerations

In this section, we begin our analysis by describing the special characteristics of the dataset collected during the experimental process. In most cases, the variables used in our analysis are generated out of the raw data, without any intervention. However, in the case of the dependent variable *money*, it was necessary to transform the initial raw variable.

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[18] According to the Spanish regulations regarding experimental payments, subjects have to give a photocopy of their ID when signing the receipt of the payment.

3.1 Dependent Variable *Money*

The dependent variable under consideration is *the amount of money that subjects requested in compensation for the effort they made to fill out the particular questionnaire and for the information provided us.* Despite the fact that the variable *money* is initially a continuous variable, we have to take into account four special characteristics of this variable, especially since regression analysis is to be applied:

1. 93 subjects (34%) requested 0€.

2. 23 subjects (8%) give no answer regarding *money*[19].

3. Among those (58%) who requested a positive amount of money, 4.46% of them requested more than 250 €

4. There are several focal points (apart from 0) such as 10, 20, 30, 50, 100 which have frequencies of more than 5% each.

Therefore, treating *money* as an ordinary continuous variable is not so convincing. Moreover, we realized the need to not exclude extreme values from our regressions since they are of special interest from a theoretical point of view. Asking for an infinite amount of money is the Nash equilibrium of such a game, as the participant assures that he/she will receive the highest amount of money regardless of what the other subjects request.

Instead, it is more convincing to assume that all the subjects who ask for extremely high amounts of money belong to the same category. Furthermore, the fact that there are several focal points in the continuous variable suggested that it would be reasonable and representative to generate categories around these points. As a result, a more balanced variable with 6 ordered categories is generated - and used for further analysis - as follows:

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[19]In the following analysis we consider no answers as 0€ requests.

Table 2: DEPENDENT VARIABLE: MONEY

label	0	1	2	3	4	5
categories	0	$1-15$	$16-30$	$50-70$	$90-100$	>149
n	116	39	46	28	17	24

In the statistical analysis of the next section, the dependent variable *money* is represented in three different ways, which correspond to three slightly different questions.

money(.): is a 6-category ordinal variable which includes all the observations exactly as described above. This variable attempts to shed light on the question:*"which people request more money?"*

money(1/0): is a dichotomous variable. The first category includes the 115 subjects who requested 0 €, while the second category, which is an aggregation of categories 1-5 of the variable *money*, includes the 154 persons who requested a positive amount of money. In this case the question under examination is simply the following: *"who actually requests money and who does not?"*

money(>0): is a 5-category ordinal variable including only the 154 subjects who asked for a positive amount of money. The conditional question formed out of this approach is the following: *"Among those people requesting a positive amount of money, who requests more?"*

While the first two representations of the variable *money* may be obvious, the third one necessitates further explanation. We focus on this specific sub-sample mainly because we consider that all these people form a group of special interest. While there are several - sometimes contradicting - reasons to explain why a person does not request any amount of money (interviewers' influence, subjects do not believe in experimental methods, they do not want to provide their address, etc.), we believe that the people who overpass these limits and finally

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request a positive amount of money belong to a more homogenous category with its own distinct argumentation for proceeding in such a way.

3.2   Independent Variables

In our analysis the following independent variables are used:

Self-reported Variables

obesity: an ordinal self-reported explanatory variable describing the level of subjects' obesity (from 1=very thin to 7=very obese).

beauty: an ordinal self-reported explanatory variable describing the level of subjects' beauty (from 1=very ugly to 7=very beautiful).

ambition: an ordinal self-reported control variable describing the level of subjects' ambition (from 1=not ambitious at all to 7=very ambitious).

self-conf.: an ordinal self-reported control variable describing the level of subjects' self-esteem (from 1=not self-esteem at all to 7=very self-esteem).

Although the vast majority of studies on obesity uses BMI as a more accurate measurement of obesity, we prefer to use the self-reported *obesity* for two main reasons: 1) We were interested in comparing subjects' self-reported *obesity* with the corresponded *obesity* reported by monitors (see section 5). Given that it is very difficult for monitors to know or even to approximate their subjects' height and weight[20], we prefer both monitors and subjects to use the same measurement. 2) The target of the variable *obesity* is to measure how subjects perceive themselves rather than how they actually are. Along this line Miller and Downey (1999) conclude in their meta-analysis that the *heavyweight people do have somewhat low self-esteem, but that the relation is stronger for people who*

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[20]$BMI = \frac{mass(kg)}{height(m)^2}$

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perceive themselves as heavyweight than for people who actually are heavyweight, and thus likely to be perceived as heavyweight by others.

Moreover, it was also realized that the nature of the variable *obesity* was not as trivial as the variable *beauty*. While *beauty* could be characterized as a monotonic variable in terms of utility - the more beautiful someone feels the better he/she is - the case of *obesity* is not exactly the same. For instance, feeling that one is very thin does not necessarily imply that one is more attractive than someone who feels very obese. For this reason, two dummy variables were generated out of the variable *obesity* as follows:

dobese: a dummy variable taking the value of 1 if the subject reports level 5, 6 or 7 in the question on "obesity" and 0 otherwise,

dthin: a dummy variable taking the value of 1 if the subject reports level 1, 2 or 3 in the question on "obesity" and 0 otherwise.

Monitor-reported Variables

female: a dummy self-reported explanatory variable taking the value of 1 if the subject is female and 0 otherwise.

age: a continuous monitor-reported control variable describing subjects' age in years.

wage: a continuous monitor-reported[21] control variable describing subjects' wage in €.

As explained before, monitors were also asked to answer questions regarding their subjects' appearance and personality. In later section we will compare the self-reported *obesity* with the monitor-reported *obesity_mr* also measured with a 7-level likert-scale.

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[21]We preferred to use monitors' reports for wage in order to distract subjects' attention.

As regards the descriptive statistics of the data, the 27 mediators collected data from 270 subjects. The subject pool was comprised of 55% females and 35% students. About 37% of the subjects did not work at all, 18% worked in a low-level job and the remaining 45% had a medium or high-level job. Table 2 below summarizes the descriptive statistics of the variables used in our analysis. Note that 1 subject did not answer the questionnaire at all, so we have $n = 269$ self-reported observations and for the variable *wage* we only refer to 171 workers of the sample.

Variable	N	Mean	Median	Mode	Std. Dev	Min	Max
obesity	269	4.18	4	4	1.05	1	7
dobese	269	0.33	0	0	0.47	0	1
dthin	269	0.20	0	0	0.40	0	1
beauty	269	4.79	5	5	0.97	1	7
ambition	269	4.52	5	5	1.34	1	7
self-est.	269	4.49	5	5	1.48	1	7
female	270	0.55	1	1	0.50	0	1
age	270	29.33	25	24	9.47	18	65
wage	171	1316	700	1500	848	100	7000

Table 3: DESCRIPTIVE STATISTICS

From the above table we observe that:

Observation 1: The mean, the median and the mode of the variables beauty, ambition and self-esteem are much higher than expected. Subjects overestimated their characteristics, although it was emphasized that the median value is 4^{22}. However, regarding *obesity*, the mean value approaches the expected one, while the mode and the median are exactly 4.

It seems that obesity is a more objective and easily observable characteristic. In other words, different levels of obesity are easily recognized and therefore subjects are somehow forced to describe themselves more accurately.

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[22]The Q2 questionnaires included the following hint: note that 4 means neither more (than the average) nor less.

4 Results

The aim of the first part of this section is to give an overview of the problem under examination. To do so, we examine the impact of the explanatory variable *obesity* on our dependent variable by analyzing graphic and nonparametric tests. Finally, in the second part, we advance in our analysis by performing probit regression analysis which allows us to control for other factors that may impact our dependent variable (i.e. beauty, gender and other socioeconomic variables).

4.1 Preliminary results

In this subsection we try to shed light on any potential relation or trend between the dependent variable $money(.)$ and the explanatory variables *obesity*, without controlling for other socio-demographic variables that might affect the dependent variable. Figure 2 shows the average amount of money requested by the members belonging to the seven different levels of the variable *obesity*. The size of the bubble is proportional to the number of people belonging to each level of obesity. Additionally, the number written in each bubble gives the precise number of subjects in each group.

At first glance there does not appear to be a clear trend between the two variables under examination. However, when focusing more closely on the groups of people belonging to obesity levels 4-7, a clear negative trend can be seen, leading to the following observation:

Observation 2: The more obese a subject feels, the less money he/she requests on average.

Observation 2 is also supported by the nonparametric test (Cuzick and Mann-Whitney test). As is explained in detail in Appendix 2, the different requests made by people at obesity level 4 and by people at obesity level 5 and

Figure 2: AVERAGE MONEY REQUESTS BY OBESITY LEVEL
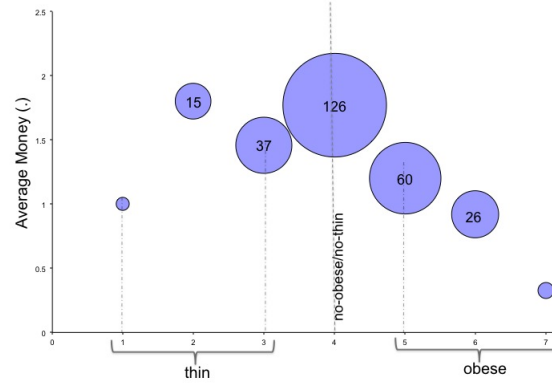
Note: The size of the bubbles (and the number shown) is proportional to the number of people belonging to each of the 7 obesity groups represented on the horizontal axis.

6 are significant and negative[23].

On the other hand, there is no clear pattern for the average requests among the people who feel thin (level 1-3). Moreover, the combination of these two observations enforces our argument that the variable *obesity* could actually be analyzed better if it is disentangled into two distinct variables, *dobese* and *dthin,* as described in the previous section.

4.2   Regression Analysis

In this section, regression analysis is performed mainly for two reasons: a) we wish to control for the appearance characteristic of *beauty*, for the personality characteristics of *ambition* and *self-esteem* and the socioeconomic variables of *age* and *wage* that probably affect the dependent variable, and b) we want to

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[23]Cuzick test (comparing all medians): $z = -1.96$, $p = 0.051$, Mann-Whitney test (comparing obesity_4 with obesity_5): $z = 2.28$, $p = 0.02$, Mann-Whitney test (comparing obesity_4 with obesity_6): $z = 2.24$, $p = 0.02$

control for the influence of interviewers on the subjects' answers.

This second reason is of great importance since we were unable to be present when the mediators were instructing the subjects and therefore could not monitor them. Although they were specifically instructed not to influence subjects' answers, we must still take into account that the subjects were either family members or colleagues[24]. Consequently, during the following regression analysis we allow for intragroup correlation and relax the usual requirement that the observations be independent. That is, the observations are independent across groups (27 clusters for different interviewers), but not necessarily within groups. This kind of analysis affects the standard errors and variance-covariance matrix of the estimators, but not the estimated coefficients.

The following table reports the coefficients and the standard errors (in parenthesis) for: two ordered probit regressions (columns 1(a) and 1(b)) on the dependent variable $money(.)$, two probit regressions (columns 2(a) and 2(b)) on the binary variable $money(1/0)$ and finally two ordered probit regressions (columns 3(a) and 3(b)) on $money(> 0)$; all with the aforementioned cluster specification. The only difference between regressions of type (a) and (b) is that while the original 7-level *obesity* is used in the first ones as the main explanatory variable, the dummies *dobese* and *dthin* are engaged in the second ones in order to disentangle the effect. We control for the continuous variables *age, age^2* and *wage* and for the ordinal variables *ambition* and *self-esteem* in all the regressions. No multicollinearity problem was observed in our regression models [25].

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[24]A Kruskal-Wallis test on the variable $money(.)$ for significant differences among groups of people dealing with different mediators confirms this claim ($Pr. > |z| = 0.0001$).

[25]See Appendix 3 for Spearman's rank correlations coefficients among the regressors.

Variable	money(.)		money(1/0)		money(>0)	
	1(a)	1(b)	2(a)	2(b)	3(a)	3(b)
a) appearance						
obesity	-.109*		-.054		-.196**	
	(.063)		(.077)		(.090)	
dobese		-.422***		-.340**		-.558***
		(.124)		(.150)		(.208)
dthin		-.230		-.347		-.0500
		(.212)		(.253)		(.244)
beauty	.087	.073	.125*	.110	-.030	-.036
	(.077)	(.347)	(.077)	(.081)	.(090)	(.087)
b) personality						
ambition	.095	.098	.061	.060	.110*	.121**
	(.063)	(.063)	(.073)	(.073)	(.059)	(.062)
self-est.	.025	.027	.041	.042	.043	.047
	(.060)	(.060)	(.065)	(.065)	(.057)	(.058)
c) socio-econ						
female	-.003	.000	.044	.055	-.070	-.081
	(.167)	(.170)	(.200)	(.200)	(.219)	(.226)
age	-.129**	-.128**	-.134**	-.133**	-.092	-.095
	(.059)	(.057)	(.062)	(.060)	(.073)	(.071)
age^2	.001*	.001*	.001*	.001*	.001	.001
	(.001)	(.0007)	(.001)	(.0007)	(.001)	(.001)
wage	-.000	-.000	-.0001*	-.0002*	.0004***	.0004***
	(.0001)	(.000)	(.0001)	(.0001)	(.0001)	(.0001)
constant			2.042*	2.06*		
			(1.128)	(1.107)		
N	269	269	269	269	154	154
$Pr > chi2$	0.001	0.0000	0.0004	0.0001	0.0000	0.0000

Note: Standard errors (adjusted for 27 clusters in interviewers) of parameter estimates in parentheses.

Significance level is marked with * for $p \leq 0.10$,** for $p \leq 0.05$ and *** for $p \leq 0.01$.

In addition to the above illustrated models, the interval variable *money-interv.* and the continuos variable *money-cont.* are also analyzed in Appendix 4 using interval and tobit regression methods[26], respectively. Although one might consider that these two methods are more adequate for our data, the results are very similar to those obtained from the ordered probit model (1(a) and 1(b)).

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[26]In both methods, the data for money requests equal to zero (115 observations) are left censored, while the data for money requests equal to or higher than 150 (24 observations) are right censored. These data correspond to category 0 and 5 of the dependent variable *money(.)* enabled in the ordered probit model.

More specifically, the results are identical in terms of significance in the case of the two main variables under examination (*obesity, female*). However, for reasons of simplicity and comparison (with the binary-probit model) we only show the results of the ordered probit in the main body of this paper.

As we can see from Table 3, regressions 1(a) and 3(a) confirm the negative association of the dependent variables (*money*(.) and *money*(> 0) with obesity. In particular, *obesity* is associated with money at a 10% significance level in regression 1(a). However, when people requesting 0€ are excluded from the sample in regression 3(a), the association is even stronger, reaching a 5% significance level. Nonetheless, while the sign of *obesity* remains negative in regression 2(a), it is not significant.

When disentangling *obesity* in regressions 1(b) and 3(b), the variable *dobese* is observed to be negatively associated at a 1% significant level in both models, while *dthin* is not. The same is true in regression 2(b), but *dobese* is associated with *money*(1/0) at a 5% level of significance. All these results suggest that the negative sign of 1(a), 2(a) and 3(a) is due to the fact that *obese* subjects (level 5, 6 and 7) request less money, but not because *thin* subjects request more money. There 3 main conclusions can be drawn from each of the dependent variables *money*(.), *money*(1/0) and *money*(> 0):

Result 1:

a) (.): "Obese" subjects request significantly less money than "non-obese" subjects.

b) (1/0): "Obese" subjects request 0€ or nothing significantly more times as compared to "non-obese" subjects.

c) (> 0): Among subjects who request a positive amount of money, "obese" subjects request significantly less than "non-obese" subjects.

In other words, "obese" people do not grab the chance to earn a positive amount of money, and even if they do it, they asked significantly less money compared to "non-obese" people.

As regards the variable *beauty*, no significant association with the corresponding dependent variables of models 1(a), 3(a) and 1-3(b) has been reported. The only exception is regression 2(a) in which *beauty* is positively and significantly associated with $money(1/0)$ but only at the 10% significance level. Interestingly, *obesity* is not reported to be significant only in this specific model.

In contrast to previous literature (Solnick and Schweitzer, 1992; Andreoni and Petrie, 2008; Eckel and Wilson, 2004) the association of *beauty* with the dependent variable disappears as soon as the control variables *age, wage, ambition* and *self-esteem* are introduced in our regression. As shown in Appendix 5, this is especially true for the variables *age* and *ambition* as their inclusion in the regression process immediately neutralizes the effect of *beauty* on $money(.)$.

Figure 3: Average Money Requests by Gender & Obesity level
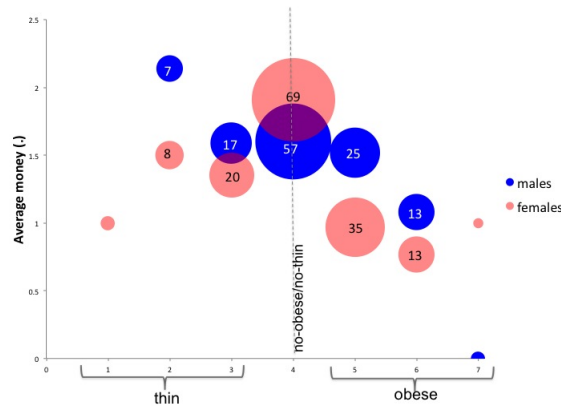
Note: The size of the bubbles is proportional to the number of people belonging in each one of the 7-obesity groups represented in the horizontal axe.

Regarding gender effect, the variable *female* is not significant in any of the aforementioned regressions (with or without controls). Nevertheless, a very strong observation emerged when performing the nonparametric tests (see Appendix 2): the negative trend between money requests and *obesity* or *dobese* is confirmed only in the female subsample. Figure 3 gives a very good representation of this result by illustrating the average money requests by obesity level and gender.

It is clear that obese females (level 5, 6 and 7) request significantly less money than non-obese females (level 4). On the other hand, in the case of males, the negative trend is only true (but not significant) for the highest obesity levels (6 and 7), where there are only few observations. In table 4 we replicate table's 3 regressions separately for the female and male subsamples.

Variable	money(.)				money(1/0)				money(> 0)			
	1(a)		1(b)		2(a)		2(b)		3(a)		3(b)	
	Fem.	Male	Fem.	Male	Fem.	Male	Fem.	Male	Fem.	Male	Fem.	Male
a) appearance												
obesity	-.117	-.093			-.044	-.064			-281*	-.0.93		
	(.094)	(.096)			(.114)	(.140)			(.164)	(.090)		
dobese			-.685***	-.163			-.624**	-.111			-.790***	-.149
			(.208)	(.193)			(.266)	(.225)			(.321)	(.256)
dthin			-.415	-.059			-.566	-.192			-.086	.143
			(.315)	(.273)			(.341)	(.360)			(.415)	(.255)
beauty	.077	.130	.068	.121	.102	.250*	.089	.241*	-.040	-.092	.068	-.032
	(.106)	(.131)	(.102)	(.132)	(.109)	(.134)	(.105)	(.136)	.(138)	(.176)	(.136)	(.169)
b) personality												
ambition	.089	.091	.094	.090	.077	-.031	.081	-.036	.080	.212	.094	.100
	(.080)	(.106)	(.081)	(.107)	(.095)	(.123)	(.098)	(.123)	(.075)	(.144)	(.078)	(.143)
self-est.	.006	.045	-.017	.050	-.038	.189*	-.071	.196*	.119	-.151	.107	-0.147
	(.084)	(.095)	(0.83)	(.099)	(.084)	(.110)	(.081)	(.116)	(.076)	.122	(.077)	(.124)
c) socio-econ												
age	-.088	-.192***	-.077	-.196***	-.076	-.228***	-.061	-.235***	-.097	-.122	-.093	-.120
	(.070)	(.076)	(.063)	(.077)	(.080)	(.076)	(.073)	(.080)	(.072)	().147	(0.69)	(.149)
age²	.001	.002**	.001	.002**	.001	.002***	.001	.003***	.001	.001	.001	.001
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.002)
wage	-.000	-.000	-.000	.000	-.0001	-.0001	-.0002	-.0002	.0004**	.0002**	-.001	-.000**
	(.0001)	(.0001)	(.000)	(.000)	(.0001)	(.0001)	(.0001)	(.0001)	(.0002)	(.001)	(.0001)	(.0002)
constant					1.321	2.959**	1.42	2.951*				
					(1.558)	(1.509	(1.408)	(1.665)				
N	148	121	148	121	148	121	148	121	88	66	88	66
Pr > chi²	.057	0.002	.0500	0.00	.0805	0.000	.000	0.0001	.0326	.0005	.0013	.0005

Table 4: Probit Regressions by Gender

Note: Standard errors (adjusted for 27 clusters in interviewers) of parameter estimates in parentheses. Significance levels are marked with * for $p \leq 0.10$, ** for $p \leq 0.05$, and *** for $p \leq 0.01$.

Comparing the results of the above table with the corresponding results of Table 3, we see that obesity is negatively and significantly associated with money requests only for the female subsample. We therefore, conclude:

Result 2: The negative association between $money$, $money(1/0)$, $money(>0)$ and $dobese$ is mainly due to the participation of females in the sample.

In other words, females who perceive themselves as obese request significantly less money compared to females who perceive themselves neither obese nor thin.

Finally, as far as it regards the rest of the variables used as controls in the regression the following general remarks can be made: 1) Age is negatively associated with the dependent variable in regressions 1(a&b) and 2(a&b), but not in regressions 3(a&b), possibly because the majority of people that requested 0€ are older. 2) In regressions 3(a&b), the fact that $wage$ turns positive and highly significant indicates that high-wage people may request more money because they value their time more than other people. 3) The variable $ambition$ was only found to be significant in regressions 3(a&b). 4) Despite our expectations the variable $self\text{-}esteem$ is not significant in any regression.

5   Self versus Monitor Reports on Obesity

In absence of any objective measure of obesity, it is critical to check whether monitors' reports on subjects' obesity level is in accordance with self reported obesity. In particular, we want to find out whether their self-reports on obesity are also confirmed by their monitors' reports. Figure 4 shows, for each of the main obesity categories [27], the percentage of people who underestimate (self-

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[27]In order to facilitate this analysis we aggregate obesity levels 1, 2 and 3 into the "thin"category and levels 5, 6 and 7 into the "obese"category.

report<monitor's report), accurately-estimate (self-report=monitor's report) or overestimate (self-report>monitor's report) their own obesity level compared to the monitor's evaluation.

Figure 4: Subjects' reports compared to Monitors' reports
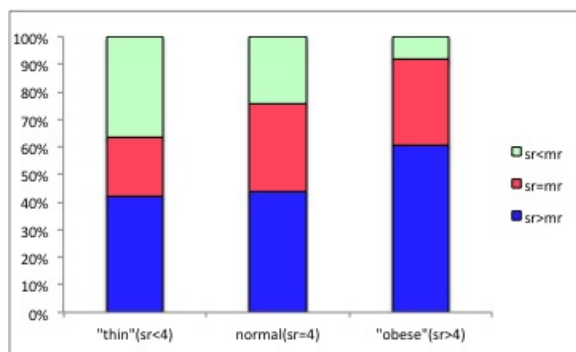
Note: *sr* stands for self-reports while *mr* stands for monitors' reports on obesity.

It is quite interesting to note that the percentage of people (62%) who overestimate their obesity level in the "obese" category is much higher than the percentage of "thin" subjects (42%) or the percentage of subjects who categorize themselves as "normal" (44%)[28]. A Mann-Whitney test[29] confirms that both percentage differences between *obese* and *normal* or *obese* and *thin* are statistically significant with $Pr > |z| = 0.028$ and $Pr > |z| = 0.010$, respectively.

This significant difference makes us believe that monitors' reports on obesity may have an different impact on money requests. However, when we repeat the original regressions by using the monitors' reported obesity variables, ob_{mr} and dob_{mr}, instead of self-reports (see Appendix 8) we found not any significant effect related to these variables. This proves that subjects behavior on money

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[28]The same picture is true when separating samples by genders,see Appendix 8.

[29]In order to perform the test, the binary variable *overestimation* (=1 if sr>mr, =0 otherwise) is used.

requests is only affected by their personal perception on their obesity level and not on others opinion.

Taking into account the well documented in social psychology studies (Miller and Downey, 1999) negative relation between perceived weigh and self-esteem, it seems that people who *overestimate* their own obesity level probably have lower self-esteem[30] even when compared to other (both underestimating and accurately-estimating) obese people. Therefore, according to our experimental setting, it is expected that this particular type of obese person would request a lower amount of money. In table 5, we repeat type-b (where the dummy variable *dobese* is used instead of the original variable *obesity*) regressions on $money(.)$, $money(1/0)$ and $money(> 0)$ by including two new variables:

- *over* an ordinal variable $\in [0, 5]$ indicating the level of overestimation of self-reports as compared to monitors'-reports on obesity ($over = sr - mr$ if $sr > mr$ and 0 otherwise).

- *overob* which is the interaction between *dobese* and *over*.

Table 5: PROBIT REGRESSIONS BY GENDER INCLUDING OBESITY OVERESTIMATION

Variable	money(.)				money(1/0)				money(> 0)			
	1(c)		1(d)		2(c)		2(d)		3(c)		3(d)	
	Fem	Male	Fem	Male	Fem	Male	Fem	Male	Fem	Male	Fem	Male
dobese	-.698**	-.107	.-310	-.372*	-.696***	-.025	-.036	-.367	-.786**	-.22	-.875***	-.140
	(.202)	(.190)	(.292)	(.221)	(.263)	(.230)	(.330)	(.330)	(.311)	(.263)	(.311)	(.307)
over	.069	.169	.228**	-.336**	.177	-.293**	.654***	-.490***	-.213*	.159	-.238	.244
	(.084)	(.107)	(.103)	(.164)	(.127)	(.116)	(.258)	(.172)	(.111)	(.135)	(.153)	(.242)
overob			-.408**	.321			-.843***	.391			.092	-.126
			(.192)	(.241)			(.321)	(.266)			(.347)	(.292)
N	147	121	147	121	147	121	147	121	88	66	88	66
$Pr > chi^2$	.000	.0052	.0000	.0014	.0006	.0000	.0127	.0000	.0004	.0010	.0008	.0006

Note: Standard errors (adjusted for 27 clusters in interviewers) of parameter estimates in parentheses. Significance levels are marked with * for $p \leq 0.10$, ** for $p \leq 0.05$, and *** for $p \leq 0.01$.
Variables $dthin$, $beauty$, $ambition$, $self - esteem$, age, age^2 and $wage$ are used as controls.

Two main observations can be made from table's 5 regressions[31]:

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[30]It is a theoretical assumption. Even this self-overestimated obese sub-sample has not reported a significant lower self-esteem level.

[31]In Appendix 8, we also consider the variable $differ \in [-3, 5]$ (and $obedif$ respectively) which is the difference between self-reports and monitors' reports on obesity. This variable

- In females' subsample, when regressing $money(.)$ or $money(1/0)$ the inclusion of both *over* and *overob* has an effect on the dependent variables while it eliminates the significance of the dummy variable *dobese*. In particular: 1)the interaction term is always negative at a significance level of 5% for $money(.)$ and of 1% for $money(1/0)$, indicating that the more an obese female overestimates her obesity level, the less money she requests 2)the variable *over* is positively related to both $money(.)$ (at 5% significance level) and $money(1/0)$ (at 1% significance level), which means that the no-obese (either normal or thin) females who overestimate their obesity level request for more money.

- In males' subsample, when regressing $money(.)$ or $money(1/0)$ the variable *over* is always negative and significant (at 5% and 1% significance level, respectively) when the interaction term is included in the regressions. This means that the more a thin or normal male overestimates his obesity level $(sr > mr)$ the less money he requests. However, when the interaction term is not included in the regression, the variable *over* is negative and significant (at 5%) only for $money(1/0)$, indicating that males (of all obesity levels) who overestimate their obesity level do not request any money at all.

Finally, another interesting result is that when subjects requesting 0€ are excluded from the sample (in $3(c)$ and $3(d)$ regressions) there is no any significant effect of *overob* while the *over* is only significant (at 10%) in 3(c) for females. In females sample, *dobese* continues to be the main significant explanatory variable.

Concluding this section, the two dimensions of obesity -"objective" (reported by monitors) and subjective (self-reported)- have an additional impact on money requests which, moreover, is asymmetric for females and males.

takes also negative values which correspond to the underestimation of obesity level by subjects. Results, although not so robust, are consistent with the results reported in this section.

6 Discussion

The basic finding of this study is that self-reported obesity has an effect on money requests when an opportunity of gaining a positive amount of money appears. Although, we are not suggesting this as the only explanation for the wage gap across discrimination, we consider that such a behavior increases the gap. In fact, our explanation could be considered as a "consequent" one as far as it is the second part of the "discrimination story". Discriminated people, after having suffered discrimination in several social environments, including job, develop differential behavior by demanding less.

Moreover, we showed that the negative association between obesity and money is even more robust for the female subsample. This result is supported by many socio-psychological studies on attractiveness (Hatfield and Sprecher, 1986; Zebrowitz, 1997) which suggest the idea that *"females should experience more differential judgments and treatments based on attractiveness than males, because human culture values attractiveness more in females than in males"*.

However, the negative obesity effect is not confirmed, neither for the female nor for the male subsample, when a more objective[32] estimation of subjects' obesity is taken into account. Monitors' reports on subjects obesity level failed to explain anything related to subjects' money requests. We, therefore, conclude that when dealing with obesity is more convenient to detect how people perceive and feel about their own obesity and not how other people judge them according this appearance characteristic. Beside the fact that the self-esteem variable of our experimental setting did not function as we expected, we believe that the lower money requests by self-reported obese people is related to the finding by Miller and Downey (1999): *People who perceive themselves as heavyweight have*

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[32]Although monitors' estimations is a more objective measurement compared to the self-reports, still, it is subjective, especially if it is compared to Body-Mass-Index or the Waist-Circumference.

a lower self-esteem.

Moreover, although monitors' reports on obesity is not a significant explanatory variable for money request, its difference with subjects' self-reports has been proved to have an impact on subjects' behavior. The more an obese female overestimates her obesity level the less money she requests. As far as it concerns the behavior of non-obese and "normal" subjects, the effect of obesity is asymmetric across gender: Female over-estimators request more while male over-estimators request less compared to people who do not overestimate their obesity level.

The overall conclusion of this study is that self-reported obese people and especially those females who overestimate their obesity, demand less or nothing when faced with the opportunity of earning a positive amount of money, a result that could partially explain the well-established wage gap. Such a generalization of course meets several limitations. As with the vast body of experimental studies, standard criticisms of the representativeness of our subject pool apply. Furthermore, interviewers' influence on subjects' answers could only be controlled statistically. Another important caveat is that we model an one-shot interaction between subjects and monitors while in real life the salary negotiation process may last for longer, leaving time to both employers and candidates to readjust their strategies. Finally, real job seekers are well-prepared for their "life-time" negotiation, while our not-so-prepared fictional candidates have to cope suddenly with an unplanned negotiation. For this reason, money requests of our opportunistic sample might correspond better to an occasional real job negotiation where the opportunity cost is not as high as in a permanent job.

If one is willing to extrapolate from our experiment to the labor market more generally, we can draw some very important policy implications for reducing the wage gap: 1) Early childhood intervention programs which focus

on the enforcement of children's self-esteem. These programs have been proved (Heckman, 2000) beneficial for the lifetime earnings as they improve students' social skills and motivation. 2) Information campaigns and programs against discrimination in the working environment should aim at encouraging of obese persons and more importantly of persons who feel obese, although they are not. 3) Information campaigns which aim to change the social convention regarding the behavior of obese people.

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Appendices

Appendix 1: Detailed chronological description of the methodological process.

Three types of subjects participated in the experiment.

a) 2 head researchers (MR): Both researchers are members of the Department of Economic Theory and History at the University of Granada with broad experience in the experimental field. After designing the experiment, their main concern was to "train" the mediators to conduct an economic experiment correctly and inform them about basic experimental protocols related to this particular experiment. The researchers accomplished their mission through the analysis of the data and the writing of this report.

b) 27 mediators-interviewers (med): All the mediators were students enrolled in the course titled "Economic Analysis of Collective Relations" (2007) at the University of Granada. None of the mediators-interviewers had past experience in the experimental field aside from this particular class. Given that their participation as interviewers in the experiment had a solely pedagogical aim, they received a final grade for a presentation based on the results/conclusions drawn from the data. Communication between the interviewers and researchers mainly occurred during the 3-hour class. Some additional instructions and data were provided via e-mail.

c) 269 subjects (subj): All the subjects were related to the interviewers in three different ways: 1) friends (59.6%); 2) family members (20%); and 3) colleagues (20.4%). While the experiment was being conducted (answering questionnaires), the subjects were in their natural environment.

Step 1. Starting date: October 23, 2007

A. General experimental instructions provided to mediators (Duration: 3 hours) The mediators received general information about experimental procedures, emphasizing important features of experiments such as anonymity, protection of personal data, the no-deception rule, payments, etc.

Step 2. Starting date: October 30, 2007

A. Specific experimental instructions provided to mediators (Duration: 3 hours) Mediators were informed that they were going to participate as interviewers in a socioeconomic experiment. To do so, each of the interviewers was asked to find 10 subjects willing to answer some questionnaires. At this point, the only information interviewers received and had to pass on to their subjects was as follows:

1. Both subjects and interviewers are required to fill out a questionnaire of a socioeconomic nature. The questionnaire takes subjects 15 minutes to complete and interviewers about 1 hour.

2. The questionnaires are totally anonymous (the completed questionnaires will be returned to the head researchers in sealed envelopes). The data will be extracted in a confidential manner and recoded by the 2 chief researchers to prevent interviewers from identifying their subjects in any of the remaining steps of the procedure.

3. Interviewers must ensure that the subjects understand that the experiment is of a socioeconomic nature by emphasizing the fact that subjects will receive money for their participation at the end of the experiment.

   At this point, more detailed instructions were given to the interviewers (about who was sponsoring the experiment and why) in order convince them that the payments would be made and would not affect any of the interviewers' or researchers' budgets.

B. Searching for subjects and drawing up a list of names. (Duration: 1 week)   The interviewers were required to find 10 subjects within one week's time who were willing to participate in the experiment according to the above instructions. By the end of the week, interviewers were asked to submit a copy of a coded list of the subjects' names in order to protect their anonymity.

Step 3. Starting date: November 6, 2007

A. Subjects' list, interviewers' questionnaires(Q1) (see appendix 6) and some additional instructions. (Duration: 3 hours)   During a 3-hour class, researchers handed in a copy of the interviewers' coded name list. The researchers kept another copy in order to remember the order they had assigned to each subject in order to complete questionnaire Q1. In Q1, the interviewers had to answer questions related to the physical and psychological characteristics of each of their subjects (part A). A modified version of the Sally-Ann task (a well-known psychological experiment) was included in the questionnaire for distracting subjects attention (part B).

   Moreover, highly detailed instructions were given to interviewers about each of the questions for two main reasons. First, the researchers wanted to be sure that the interviewers had understood the questions correctly so that they would give the most appropriate answer. Second, the researchers wanted to prepare the interviewers so that they would be able to solve any problems that the subjects might encounter when answering questionnaire Q2 (see appendix 7) under the supervision of their corresponding interviewer (the researchers were not present at this phase). It should be emphasized that, at this point, the researchers did not yet allow the interviewers to know that they were going to answer the same questions as their subjects (although in this case the subjects described their own selves). The reason why the researchers decided not to let this information become common-knowledge is because most of the interviewers and subjects were either friends or family members and such information may induce interviewers to answer in a more "friendly" way.

After the interviewers filled out questionnaire Q1 and handed them back to the researchers, they were given questionnaire Q2. Each interviewer received 10 Q2 questionnaires and 10 envelopes to deliver to their subjects. Furthermore, the interviewers were given additional instructions related to part C of questionnaire Q2, which was not included in questionnaire Q1. At this point, the subjects were clearly informed that they could earn some money from this process by answering the corresponding question in part C of questionnaire Q2, which asks subjects to provide their full home-address in order to mail them the money. They were finally told that the experiment was completely anonymous and the subjects' answers must be returned in sealed envelopes.

B. Handing out and receiving back answers for questionnaires Q2 (Duration: 2 weeks) Over the next two weeks, the interviewers were required to deliver questionnaire Q2 and the envelope to their subjects and explain how to fill them out following the researchers' instructions.

Step 4. Starting date: November 20, 2007

A. Receiving back questionnaires Q2 and discussion. (Duration: 3 hours) At this stage, the interviewers returned the sealed envelopes with the subjects' answers and had time to discuss any problems that may have arisen during the process. In general, the interviewers encountered no problems regarding the comprehension and answering of the Q2 questionnaires. In some cases, the interviewers were asked to give additional explanations about the Sally-Ann task. However, as the interviewers had been properly trained (and had also carried out the same task), they were able to answer the subjects' questions. Moreover, most of the subjects asked the interviewers to confirm if the question regarding payment for their participation in the experiment was true (part C in questionnaire Q2). Once again, the interviewers were able to clarify that not only was the question totally true, but also that the money had been provided by a governmental/local research institute that had nothing to do with either the researchers' or the interviewers' budget. This reaction by the subjects was expected since the experiment was held in the subjects' natural environment and their interviewers were mostly friends or family members. For this reason, the researchers insisted that consistent instructions be given in advance.

B. Data extraction (Duration: 2 weeks) Over the following two weeks, raw data were extracted from both the Q1 and the Q2 questionnaires. The data were also recoded and given back to the interviewers for further elaboration as part of a project they were required to do for the course on Economic Analysis of Collective Relations, thus protecting the anonymity of the subjects.

Step 5. Starting date: December 4, 2007

A.Data delivery and payment instructions (Duration: 3 hours) In this stage, the raw-recoded data was given to the interviewers together with

a description of the variables. As regards the payment process, the majority of the interviewers preferred to receive the subjects' payments on their behalf instead of mailing the money to them. To do so, the interviewers were asked to submit, within two weeks time, signed copies of the ID cards for those subjects who asked for money in the corresponding question in part C of questionnaire Q2.

B. Collecting subjects IDs (Duration: 2 weeks)   Over the following two weeks, the interviewers were asked to copy the subjects' ID cards and submit them to the researchers in order to receive the payments.

Step 6. Starting date: December 18, 2007

A. Payments (Duration: 3 hours)   After submitting a signed copy of the subjects' ID cards to the researchers, the interviewers received the payments on behalf of their subjects . The payment was correlated to part C of questionnaire Q2. Of course it was impossible for subjects to receive a payment for the exact amount of money they requested. The researchers decided to pay: a) 10 euros to the subjects who requested 10 or more euros (in part C); and b) the exact amount to the subjects who requested less than 10 euros. The interviewers paid 89 subjects a total of 854 euros.

Appendix 2: Nonparametric test analysis.

In order to test if the differences illustrated in the *Preliminary Results* section were also significant, we performed a nonparametric test for trend across ordered groups. The test is a useful adjustment of the Kruskal-Wallis test for ordered variables and was first used by Cuzick[33]. In the following table we report Cuzick's z-statistic and the corresponding significance level. The test was performed separately for the three variables $money(.), money(1/0)$ and $money(> 0)$ generated in the previous section. Cuzick's z-statistic tests the null hypothesis that all medians (across the different groups of *beauty*[34] or *obesity*) are the same $(Ho : \theta1 = \theta2 = \ldots = \theta k)$ against the alternative hypothesis that the medians are ordered in magnitude $(Ha : \theta1 <= \theta2 <= \ldots <= \theta k)$. If the alternative hypothesis is true, then at least one of the differences is a strict inequality $(>)$.

Table 2: CUZICK-TEST						
Variable	$money(.)$		$money(1/0)$		$money(> 0)$	
	z	$Pr > |z|$	z	$Pr > |z|$	z	$Pr > |z|$
obesity	-1.96	0.051	-1.11	0.267	-2.32	0.021
beauty	2.12	0.034	2.25	0.025	0.24	0.807
female	-0.08	0.933	1.46	0.144	-0.81	0.418

As we can see regarding the variable $money(.)$, a significant positive trend among the different groups of beauty and a negative trend among the different groups of obesity is confirmed. Nevertheless, this result holds only partially for $money(1/0)$ and $money(> 0)$. For $money(1/0)$ in particular, only the positive trend on *beauty* is significant, while for $money(> 0)$ only the negative trend on *obesity* is significant [35]. Finally, no gender difference[36] is confirmed for any dependent variable.

Unfortunately, in the case of rejecting the null hypothesis, the test does not give any information about how many or which groups have ordered medians. In order to disentangle the exact trends, we performed separate Mann-Whitney tests, testing for significant differences between two groups in each test

When performing the test for the variable $money(.)$ for all possible *obesity* pairs of groups, we found a significant (negative) difference between the medians of group 4 and group 5 $(Pr. > |z| = 0.022)$ and the medians of group 4 and group 6 $(Pr. > |z| = 0.025)$. This result, which supports the claim in observation A, indicates that:

---

[33]The Jonckheere-Terpstra test is a similar test in which the majority of cases confirmed Cuzick's test results.

[34]Note that when we refer to group "x" of a particular variable, we mean the group of subjects that have self reported level "x" on the Likert scale question in Q2 for this particular variable.

[35]We also perform the test for the variables *ambition* and *self-esteem*. A positive trend is confirmed only for ambition and only when money $(Pr > |z| = 0.035)$ and $money(> 0)(Pr > |z| = 0.074)$ are tested.

[36]The Cuzick-test is equal to the Mann-Whitney test for the binary variable *female*.

Nonparametric Result 1: People who consider themselves *obese* (level 5 or 6) request a lower amount of money than people who consider themselves neither *obese* nor *thin* (level 4).

For the variable *beauty*, the corresponding pairs that reveal a positive trend are group 1 with 7 ($Pr. > |z| = 0.079$), group 3 with 7 ($Pr. > |z| = 0.064$), and group 4 with 7 ($Pr. > |z| = 0.086$). In this case we have to take into account that groups 1, 3 and 7 included only 2, 9 and 10 observations, respectively, while group 4 included 97 observations. This also explains why all the above trends are only significant at the 10% level.

Nonparametric Result 2: People who consider themselves *beautiful* or *handsome* (level 7) request significantly more money than people who consider themselves either "ugly" (level 1 or 3) or *average beautiful* (level 4).

Moreover, regarding gender, the nonparametric tests do not confirm any significant difference in the corresponding money requests. Nevertheless, by splitting the data into two subsamples for males and females and replicating the above tests by gender, we realize that the negative trend between *obesity* and money requests holds only in the female sample [37]. This finding leads to the following conclusion:

Nonparametric Result 3: Although no significant gender difference was found regarding the amount of money requested, there is evidence that the negative trend between money requests and *obesity* or *dobese* is mainly due to the participation of females in the sample.

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[37]For the variable *money*(.), *money*(1/0) and *money*(> 0), level 5 and 6 "obese" females request significantly less money than "normal" females in level 4. For the variables *money*(.) and *money*(1/0), "beautiful" males in level 7 request significanlty more money than "normal" males in level 4 or "ugly" males in levels 1 and 2, but very few observations are included in these categories.

Appendix 3: Interval and Tobit Regressions.

Table 5: INTERVAL AND TOBIT REGRESSIONS

Variable	Interval Regressions $money - interv(.)$		Tobit Regressions $money - cont.$	
	1(a)	1(b)	1(a)	1(b)
obesity	-8.27*		-8.61*	
	(5.08)		(5.10)	
dobese		-29.27***		-28.19***
		(9.67)		(9.63)
dthin		-14.64		13.14
		(15.38)		(15.29)
beauty	6.76	5.80	6.96	6.05
	(6.52)	(6.47)	(6.65)	(6.59)
female	-1.64	-1.40	-1.18	.921
	(12.66)	(12.83)	(12.68)	(12.86)
age	-10.32**	-10.19**	-10.39**	-10.27**
	(4.66)	(4.45)	(4.63)	(.080)
age^2	.112*	.109*	.113*	.110*
	(.061)	(.059)	(.61)	(.059)
wage	.000	.001	-.0002	-.0007
	(.007)	(.008)	(.008)	(.008)
ambition	8.27*	8.47*	8.40*	8.62*
	(4.87)	(4.86)	(.123)	(4.81)
self-est.	.567	.066	.448	.053
	(.458)	(4.54)	(.458)	(.453)
constant	(164.64**)	144.27**)	165.53**	143.11**
	(79.75)	(71.24)	(79.41	(70.65)
N	269	269	269	269
cens.left	115	115	115	115
cens.right	24	24	24	24
$Pr > chi^2$	0.0283	0.0048	0.0275	0.0018

NOTE: SE and Sign. level as previous tables. Left-censored observations (154) if $money(.) = 0$ and right-censored observations (24) if $money(.) > 0$

Appendix 4: Adding control variables in Ordered Probit Regression 1(b).

Table 5: ORDERED PROBIT REGRESSIONS

Variable	money(.)				
	1(b$_1$)	1(b$_2$)	1(b$_3$)	1(b$_4$)	1(b$_5$)
dobese	-.42***	-.42***	-.43***	-.43***	-.42***
	(.13)	(.13)	(.13)	(.13)	(.13)
dthin	-.15	-.23	-.17	-.14	-.15
	(.20)	(.20)	(.20)	(.20)	(.20)
beauty	.15**	.11	.13*	.11	.14*
	(.07)	(.07)	(.07)	(.07)	(.07)
female	-.01	-.05	-.10	.03	.01
	(.14)	(.14)	(.14)	(.15)	(.14)
age		-.13**			
		(.06)			
age^2		.001*			
		(.000)			
wage			-.0002**		
			.0001		
ambition				.10**	
				(.05)	
self-est.					.03
					(.05)
N	269	269	269	269	269
$Pr > chi^2$	0.0006	0.0000	0.0001	0.0017	0.0017

NOTE: SE and Sign. level as previous tables.

Appendix 5: Probit Regressions by Gender.

Table 6(a): PROBIT REGRESSIONS BY GENDER						
	Female Sample					
Variable	*money(.)*		*money(1/0)*			*money(> 0)*
	1(a)	1(b)	2(a)	2(b)	3(a)	3(b)
obesity	-.117		-.044		-.281*	
	(.094)		(.114)		(.164)	
dobese		-.685***		-.624**		-.685***
		(.208)		(.266)		(.208)
dthin		-.415		-.566		-.415
		(.315)		(.341)		(.315)
beauty	.077	.068	.102	.089	-.040	.068
	(.106)	(.102)	(.109)	(.105)	.(138)	(.102)
age	-.088	-.077	-.076	-.061	-.097	-.076
	(.070)	(.063)	(.080)	(.073)	(.072)	(.064)
age^2	.001	.001	..001	.001	.001	.001
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
wage	-.000	-.000	-.0001	-.0002	.000	-.000
	(.0001)	(.000)	(.0001)	(.0001)	(.0002)	(.0001)
ambition	.089	.094	.077	.081	.080	.094
	(.080)	(.081)	(.095)	(.098)	(.075)	(.082)
self-est.	.006	-.017	-.038	-.071	.119	-0.17
	(.084)	(.083)	(.084)	(.081)	(.076)	(.083)
constant			1.321	1.42		
			(1.558	(1.408)		
N	148	148	148	148	88	88
Pr > chi2	0.057	0.0000	0.0805	0.0000	0.0326	0.0013

Note: Standard errors (adjusted for 27 clusters ininterviewers) of parameter estimates in parentheses. Significance level aremarked with * for $p <= 0.10$, ** for $p <= 0.05$, and *** for $p <= 0.01$.

	money(.)		money(1/0)		money(> 0)	
Table 6(b): PROBIT REGRESSIONS BY GENDER						
	Male Sample					
Variable	*money*(.)		*money*(1/0)		*money*(> 0)	
	1(a)	1(b)	2(a)	2(b)	3(a)	3(b)
obesity	-.093		-.064		-.281	
	(.096)		(.140)		(.164)	
dobese		-.163		-.111		-.149
		(.193)		(.225)		(.256)
dthin		-.059		-.192		.143
		(.273)		(.360)		(.255)
beauty	.130	.121	.250*	.241*	-.040	-.087
	(.131)	(.132)	(.134)	(.136)	.(138)	(.169)
age	-.192***	-.196***	-.228***	-.235***	-.097	-.120
	(.076)	(.077)	(.076)	(.080)	(.072)	(.149)
age^2	.002**	.002**	.002***	.003***	.001	.001
	(.001)	(.001)	(.001)	(.001)	(.001)	(.002)
wage	-.000	.000	-.0001	-.0002	.0004**	-.000**
	(.0001)	(.000)	(.0001)	(.0001)	(.0002)	(.0002)
ambition	.091	.090	-.031	-.036	.080	.210
	(.106)	(.107)	(.123)	(.123)	(.075)	(.143)
self-est.	.045	.050	.189*	.196*	.119	-0.147
	(.095)	(.099)	(.110)	(.116)	(.076)	(.124)
constant			2.959**	2.951*		
			(1.509	(1.665)		
N	121	121	121	121	66	66
Pr > chi2	0.0020	0.0048	0.0000	0.0001	0.0005	0.0005

Note: Standard errors (adjusted for 27 clusters ininterviewers) of parameter estimates in parentheses. Significance level aremarked with * for $p <= 0.10$, ** for $p <= 0.05$, and *** for $p <= 0.01$.

Appendix 6: Questionnaire Q1.

An experiment of the students of the course
ECONOMIC ANALYSIS OF COLLECTIVE
RELATIONS 2007

QUESTIONNAIRE

Interviewer: . . . .
Profesor in charge: Pablo Brañas Garza
Assistant Profesor: Antonios Proestakis

PART 1

With the following questions you are going to describe your friends' physical characteristics and their personality. Please put the name list in front of you and check the number that describes better the level of the following characteristics for each one of your subjects:

Regarding their physical characteristics:

a) ugly :...1...2......3......4......5......6......7...handsome/beautiful

   Subject 1:......1......2......3......4......5......6......7......

   Subject 2:......1......2......3......4......5......6......7......

   Subject 3:......1......2......3......4......5......6......7......

   Subject 4:......1......2......3......4......5......6......7......

   Subject 5:......1......2......3......4......5......6......7......

   Subject 6:......1......2......3......4......5......6......7......

   Subject 7:......1......2......3......4......5......6......7......

   Subject 8:......1......2......3......4......5......6......7......

   Subject 9:......1......2......3......4......5......6......7......

   Subject 10:......1......2......3......4......5......6......7......

b) thin :...1...2......3......4......5......6......7...obese

   Subject 1:......1......2......3......4......5......6......7......

   . $\vdots$

   Subject 10 :......1......2......3......4......5......6......7......

c) badly dressed :...1...2...3...4 ...5...6 ...7...well-dressed

   Subject 1:......1......2......3......4......5......6......7......

   . $\vdots$

   Subject 10 :......1......2......3......4......5......6......7......

d) short :...1...2...3...4 ...5...6 ...7...tall

   Subject 1:......1......2......3......4......5......6......7......

   . $\vdots$

   Subject 10 :......1......2......3......4......5......6......7......

Regarding their personality:

e) shy :...1...2...3...4 ...5...6 ...7...leader

    Subject 1:......1......2......3......4......5......6......7......

    . :

    Subject 10 :......1......2......3......4......5......6......7......

f) introverted :...1...2...3...4 ...5...6 ...7...very social

    Subject 1:......1......2......3......4......5......6......7......

    . :

    Subject 10 :......1......2......3......4......5......6......7......

g) anodyne :...1...2...3...4 ...5...6 ...7creative

    Subject 1:......1......2......3......4......5......6......7......

    . :

    Subject 10 :......1......2......3......4......5......6......7......

h) bad person :...1...2...3...4 ...5...6 ...7...nice person

    Subject 1:......1......2......3......4......5......6......7......

    . :

    Subject 10 :......1......2......3......4......5......6......7......

i) no ambitious :...1...2...3...4 ...5...6 ...7...very ambitious

    Subject 1:......1......2......3......4......5......6......7......

    . :

    Subject 10 :......1......2......3......4......5......6......7......

j) no self-esteem :...1...2...3...4 ...5...6 ...7...very self-esteem

    Subject 1:......1......2......3......4......5......6......7......

    . :

    Subject 10 :......1......2......3......4......5......6......7......

PART 2

Observe the following figures and answer the corresponded question

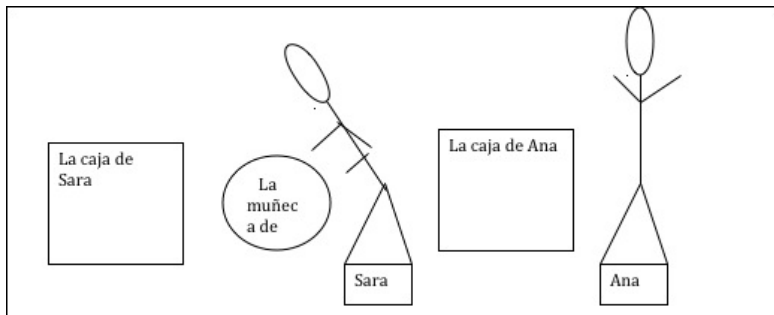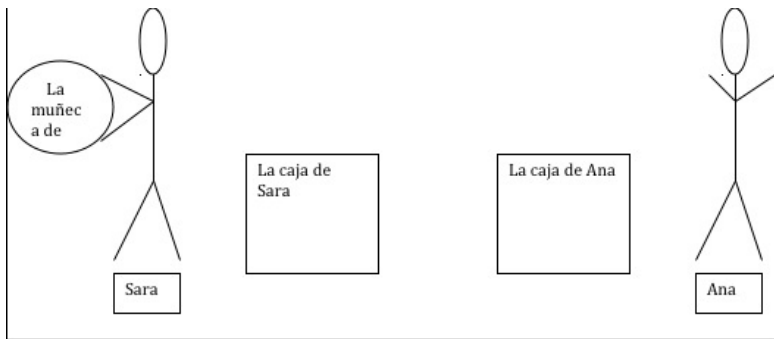|	
Image 1:	Sara was playing with her doll when Anna arrived.
Image 2:	Before Sara leave to school, she placed her doll between the two boxes.

Image 3: While Sara was at school, Anna put Sara´s doll in one of the two boxes.

COLEGIO

SARA

Dónde guardo la muñeca?
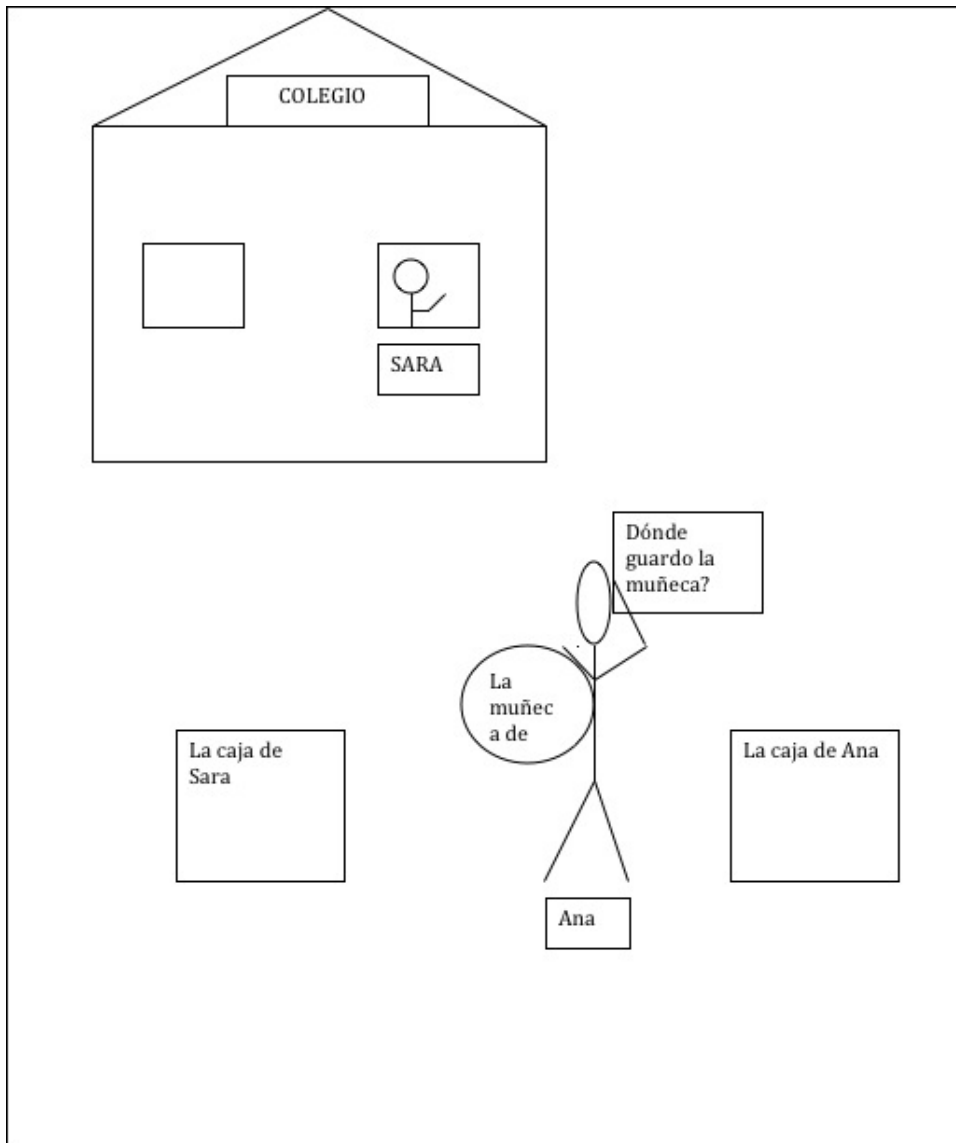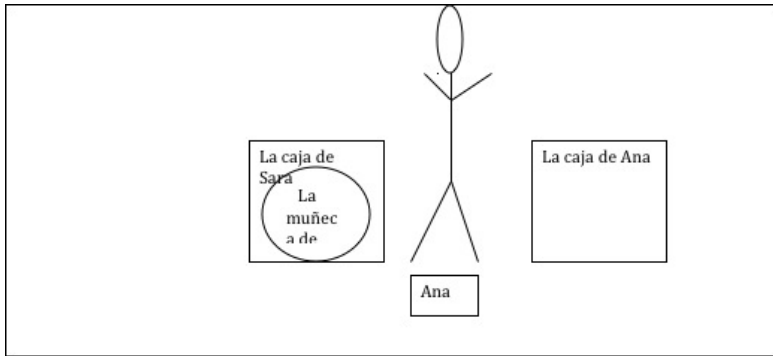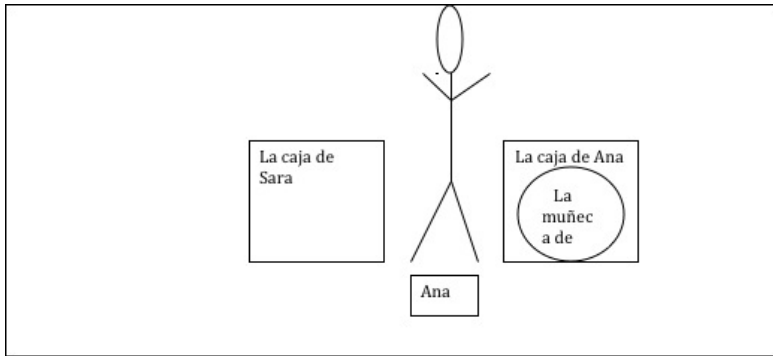
La muñeca de

La caja de Sara

La caja de Ana

Ana

Image 4a: Anna can place the doll in her own box, or...

Image 4b: Anna can place the doll In Sara´s box

Imagine that Sara is one (each time) of your subjects (Anna could be anyone else but one of the other subjects). Sara arrives back from school and she wants to play with her doll. Where is she going to look for it? Please mark the letter (a-k) that corresponds to the action that characterizes better your subjects behavior.

Subject 1 looks for the doll
...a...b...c...d ...e...f ...g...h...i...j...k...
. ⋮
Subject 10 looks for the doll
...a...b...c...d ...e...f ...g...h...i...j...k...

a) In her own box because she knows (100%, Anna's box 0%) that Anna has put it there.

b) In her own box because she almost does not have any doubts (90%, Anna's box 10%) that Anna has put it there.

c) In her own box because she is very sure (80%, Anna's box 20%) that Anna has put it there.

d) In her own box because but she is not so sure (70%, Anna's box 30%) that Anna has put it there.

e) In her own box because she thinks (60%, Anna's box 40%) that Anna has put it there.

f) In any of the two boxes (50%, Anna's box 50%) since she does not know at all where Anna has put it.

g) In Anna's box because she thinks (60%, Sara's box 40%) that Anna has place it there.

h) In Anna's box because she is quite sure (70%, Sara's box 30%) that Anna has place it there.

i) In Anna's box because she is very sure (80%, Sara's box 20%) that Anna has place it there.

j) In Anna's box because she almost does not have any doubt (90%, Sara's box 10%) that Anna has place it there.

k) In Anna's box because she knows (100%, Sara's box 0%) that Anna has place it there.

PART 3

Description of the relation with subjects.

a) What is your relation with each one of your subjects (brother, spouse, flatmate, partner, boyfriend, etc.) :

Subject 1:.................

. ⋮

Subject 10 :.................

b) Mark the level that describes better your relation with each one of your subjects (independently of being friends or family), according to the following scale of relationship.

flat relationship:... 1... 2... 3... 4 ... 5... 6 ... 7... close relationship

Subject 1:...... 1...... 2...... 3...... 4...... 5...... 6...... 7......

. ⋮

Subject 10 :...... 1...... 2...... 3...... 4...... 5...... 6...... 7......

c) In the case that some of your subjects work, please fill in the following table:

Subject 1works in .... and I think that he/she earns about ....

. ⋮

Subject 1works in .... and I think that he/she earns about ....

Appendix 7: Questionnaire Q2.

An experiment of the students of the course
ECONOMIC ANALYSIS OF COLLECTIVE
RELATIONS 2007

QUESTIONNAIRE

Interviewee(subject's code, not the NAME): . . . .
Interviewer: . . . .
Profesor in charge: Pablo Brañas Garza
Assistant Profesor: Antonios Proestakis

PART 1

In the following questions you are asked to describe your physical characteristics and your personality. Please check the number that describes better the level of the following characteristics:

Regarding your physical characteristics, you consider yourself:

(note that 4 means neither the one nor the other characteristic)

a) ugly :...1...2......3......4......5......6......7...handsome/beautiful

(note that 4 means neither ugly nor handsome)

b) thin :...1...2......3......4......5......6......7...obese

c) badly dressed :...1...2...3...4 ...5...6 ...7...well-dressed

d) short :...1...2...3...4 ...5...6 ...7...tall

Regarding your personality, you consider yourself:

e) shy :...1...2...3...4 ...5...6 ...7...leader

f) introverted :...1...2...3...4 ...5...6 ...7...very social

g) anodyne :...1...2...3...4 ...5...6 ...7creative

h) bad person :...1...2...3...4 ...5...6 ...7...nice person

i) no ambitious :...1...2...3...4 ...5...6 ...7...very ambitious

j) no self-esteem :...1...2...3...4 ...5...6 ...7...very self-esteem

Observe the following figures and answer the corresponded questions:

SAME PICTURES AS APPENDIX 6

A. Imagine that Sara and Anna could be any person. Sara arrives back from school and she wants to play with her doll. Where is she going to look for it? Please mark the corresponded letter (a-k) (you must mark only one).

a) In her own box because she knows (100%, Anna's box 0%) that Anna has put it there.

b) In her own box because she almost does not have any doubt (90%, Anna's box 10%) that Anna has put it there.

c) In her own box because she is very sure (80%, Anna's box 20%) that Anna has put it there.

d) In her own box although she is not so sure (70%, Anna's box 30%) that Anna has put it there.

e) In her own box because she thinks (60%, Anna's box 40%) that Anna has put it there.

f) In any of the two boxes (50%, Anna's box 50%) since she does not know at all where Anna has put it.

g) In Anna's box because she thinks (60%, Sara's box 40%) that Anna has place it there.

h) In Anna's box because she is quite sure (70%, Sara's box 30%) that Anna has place it there.

i) In Anna's box because she is very sure (80%, Sara's box 20%) that Anna has place it there.

j) In Anna's box because she almost does not have any doubt (90%, Sara's box 10%) that Anna has place it there.

k) In Anna's box because she knows (100%, Sara's box 0%) that Anna has place it there.

B. Imagine that YOU are Sara. Where are you going to look for your doll? Please mark the corresponded letter (l-v) (you must mark only one).

a) In my own box because I know (100%, Anna's box 0%) that Anna has put it there.

b) In my own box because I almost do not have any doubt (90%, Anna's box 10%) that Anna has put it there.

c) In my own box because I ma very sure (80%, Anna's box 20%) that Anna has put it there.

d) In my own box although I am not so sure (70%, Anna's box 30%) that Anna has put it there.

e) In my own box because I think (60%, Anna's box 40%) that Anna has put it there.

f) In any of the two boxes (50%, Anna's box 50%) since I do not know at all where Anna has put it.

g) In Anna's box because I think (60%, Sara's box 40%) that Anna has place it there.

h) In Anna's box because I am quite sure (70%, Sara's box 30%) that Anna has place it there.

i) In Anna's box because I am very sure (80%, Sara's box 20%) that Anna has place it there.

j) In Anna's box because I almost do not have any doubt (90%, Sara's box 10%) that Anna has place it there.

k) In Anna's box because I know(100%, Sara's box 0%) that Anna has place it there.

PART 3

At this moment, we would like to know the amount of money that you would like to request as a compensation for the effort you made to complete the questionnaire and for the information you provide us. The money disposed for this research project is given by the Spanish State. Do not forget that this money does not belong neither to us (neither affect us) nor to the Spanish State.

How much money would you like to receive for filling out this questionnaire?

I request the following amount of money: . . . . . . euros

In the attached stick we would like you to fill in your full name and address in order for us to send your money by mail. Obviously, this is optional, but in the case you want to receive your payment it is the only way. Please read the following compromise regarding data protection.

PAPER STICK HERE

Please, provide us with your phone number or e-mail address (or both), in order to contact you in about two weeks time for confirming the reception of the money sent.

Mobile number:

E-mail:

According to the *Law of Data Protection*, the information provided in the previous pages is not going to be corresponded with your personal data. Finally, in

Economics Faculty, there are constantly experiments organized. In these experiments, of various types (on-line, by mail, presence, etc) different types of people participate and of course money are earned depending on participantsperformance on the tasks. If you like it, we can include your personal data in our data base in order to inform you when you can earn some money. In order to be more operative and no annoying you for things that you are not interested in, we ask you to tell us from which amount of money you would be interested in participating.

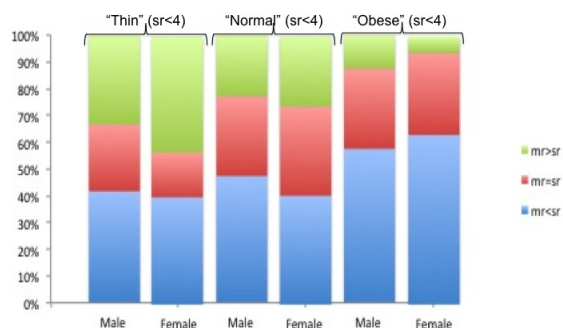- Are you interested in participating in one of these? YES. . . . . . NO. . . . . .
- In the case of being interesting, from which amount money would you willing to participate?. . . . . .
- If you had to come to the Faculty of Economics (Cartuja), would you do it? YES. . . . . . NO. . . . . .
  Thank you very much for your effort and help, *Pablo Brañas Garza and*

  Antonios Proestakis, University of Granada.

Appendix 8: Monitors' reports for obesity

Figure 5: Subjects' reports compared to Monitors' reports by gender.

Note: sr stands for self-reports while mr stands for monitors' reports on obesity.

	money(.)				money(1/0)				money(> 0)			
	1(a)		1(b)		2(a)		2(b)		3(a)		3(b)	
Variable	Fem.	Male	Fem.	Male	Fem.	Male	Fem.	Male	Fem.	Male	Fem.	Male
a) appearance												
ob_{mr}	-.078	.056			-.085	.109			-.022	-.091		
	(.070)	(.071)			(.080)	(.085)			(.094)	(.076)		
dob_{mr}			-.019	.095			.045	.220			-.181	-.431
			(.317)	(.292)			(.325)	(.356)			(.311)	(.327)
$dthin$			.314	-.080			.431	-.143			-.045	-.183
			(.265)	(.270)			(.289)	(.289)			(.302)	(.259)
$beauty$	-.095	.114	.100	.120	.119	.244*	.127	.258**	-.005	-.081	-.018	-.150
	(.109)	(.125)	(.100)	(.125)	(.109)	(.131)	(.100)	(.131)	(.131)	(.187)	(.125)	(.160)
b) personality												
$ambition$	.084	.103	.078	.098	.071	-.007	.061	-.018	.088	.200	.086	.231*
	(.081)	(.107)	(.082)	(.107)	(.097)	(.120)	(.095)	(.120)	(.081)	(.145)	(.080)	(.136)
$self\ est.$	.002	.031	.003	.032	-.046	.170	-.039	.174	.125	-.146	.128*	-.148
	(.086)	(.010)	(.083)	(.101)	(.085)	(.117)	(.079)	(.120)	(.077)	(.118)	(.074)	(.124)
c) socio-econ												
age	-.077	-.208***	-.068	-.207***	-.062	-.253***	-.052	-.252***	-.084	-.128	-.092	-.116
	(.74)	(.077)	(.078)	(.078)	(.082)	(.078)	(.085)	(.078)	(.080)	(.152)	(.084)	(.157)
age^2	.001	.002**	.001	.002**	.001	.002***	.001	.002***	.001	.001	.001	.001
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.002)
$wage$	-.001	.001	-.001	.001	-.001	-.001	-.001	.001	.001	.001**	.001	.001**
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
$constant$					1.16	2.75*	.479	3.14**				
					(1.49)	(1.60)	(1.62)	(1.55)				
N	147	121	148	121	147	121	148	121	88	66	.88	66
$Pr > chi^2$	.0511	.0016	.0812	.0021	.0488	.0001	.0351	.0001	.1565	.0007	.2468	.0001

Table 5: Probit Regressions by Gender for monitor reported obesity

Note: Standard errors (adjusted for 27 clusters in interviewers) of parameter estimates in parentheses. Significance levels are marked with * for $p \leq 0.10$, ** for $p \leq 0.05$, and *** for $p \leq 0.01$.

	money(.)				money(1/0)				money(> 0)			
Variable	1(c)		1(d)		2(c)		2(d)		3(c)		3(d)	
	Fem	Male	Fem	Male	Fem	Male	Fem	Male	Fem	Male	Fem	Male
dobese	-.702***	-.090	-.441*	-.193	-.686***	-.002	-.298	-.109	-.768***	-.207	-.833***	-.184
	(.199)	(.195)	(.250)	(.190)	(.257)	(.227)	(.304)	(.271)	(.310)	(-256)	(.238)	(.269)
differ	.0408	-.129*	.124	-.186*	.102	-.199**	.250**	-.249*	-.116	.086	-.129	.107
	(.108)	(.079)	(.080)	(.108)	(.092)	(.099)	(.118)	(-138)	(.078)	(.101)	(.108)	(.165)
obedif			-.292*	.156			-.463**	.147			.073	-.044
			(.156)	(.187)			(.233)	(.222)			(.265)	(.244)
N	147	121	147	121	147	121	147	121	88	66	.88	66
Pr > chi	.0000	.0030	.0000	.0023	.0015	.0000	.0035	.0000	.0011	.0018	.0031	.0005

Table 5: PROBIT REGRESSIONS BY GENDER INCLUDING MISESTIMATION

Note: Standard errors (adjusted for 27 clusters in interviewers) of parameter estimates in parentheses. Significance levels are marked with * for $p \leq 0.10$, ** for $p \leq 0.05$, and *** for $p \leq 0.01$.

Variables *dthin*, *beauty*, *ambition*, *self − esteem*, *age*, *age*^{2} and *wage* are used as controls.

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