Allocation criteria under task performance: the gendered preference for protection

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"Socially Responsible Behavior, Social Capital and Firm Performance"
Prin Conference - Milan, October 21-22 2011

Objectives

- Is there a **gender difference** in allocation criteria (distributive justice criteria) chosen by decision makers in different positions (stakeholders or spectators) with/without ignorance on relative payoffs under different criteria?

- If this is the case, what are the determinants of differences in chosen allocation criteria between women and men?

Outline of the presentation

- Experimental design
- Related literature
- Main results and their interpretation
- Conclusion

The experimental design - 1

- **A sum of 210 Euro has to be allocated among 15 subjects**

7 possible criteria

1. **Luck:** a number between 1 and 100 is randomly drawn for each participant by using the computer. The part of the total sum received by each participant is proportional to its number.
2. **Egalitarian rule**: the sum is equally shared among the participants.

3. **Effort**: players are asked to copy information about fictitious students (enrolment number, name, and mark) into a file. Each subject receives part of the sum that is proportional to the number of copied data.
4. **Talent**: players are asked to perform some tasks taken from the WAIS-R test – such as: finding missing details in pictures - as well as Raven's matrices:

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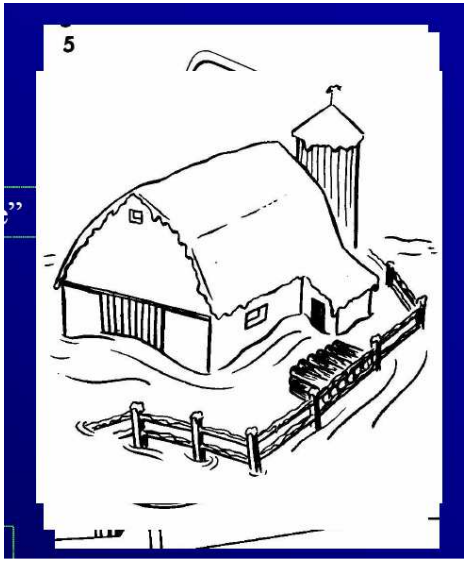

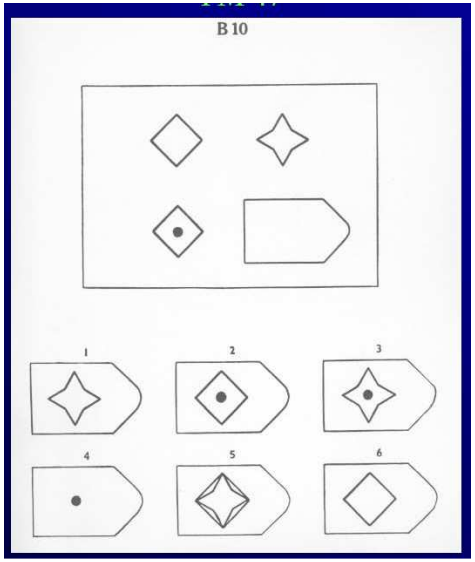

5. **Protection+luck:** 30% of the sum is equally allocated among participants, while the remaining part is distributed through random draw (as in criterion 1).
6. **Protection+effort:** 30% of the sum is equally allocated among participants, while the remaining part is distributed on the basis of subjects' relative performance on the secretarial task (as in criterion 3).
7. **Protection+talent:** 30% of the sum is equally allocated among participants, while the remaining part is distributed on the basis of subjects' relative performance on the task of criterion 4.

- **The 7 criteria** mimic different ideas of redistribution and, in particular, **are characterized by different levels of protection**.
- Criteria Luck, Effort and Talent mimic scenarios where luck and/or meritocracy determine economic success. Moreover, **they do not include any protection for subjects with poor performance**
- The **three mixed criteria** – Protection+… – mimic a society where luck or meritocracy affect wealth differences, but each citizen is provided the basic needs (**there are some forms of protection**).
- The Egalitarian criterion generates a perfectly egalitarian society (**full protection**).

The experimental design - 2

- **3 treatments** that differ for **the level of information** or **the involvement of subjects** who select the criterion to be used in order to allocate the sum

STAKE, INFOSTAKE and SPECTATOR

In all treatments **only one player will be randomly selected** and her choice implemented.

In 3 sessions out of 6 in the STAKE and SPECTATOR treatments, beliefs about personal rank in the payoff distribution have been elicited: subjects declare how many players they think will have a better performance than themselves under each possible criterion (Quadratic Scoring Rule method)

Before receiving their payment, a Holt and Laury lottery is made and subjects fill in a socio-demographic questionnaire

STAKE treatment

- Subjects choose the **criterion both behind and without ignorance** on their payoffs under different criteria.

1. Participants are instructed about the different criteria (they are also provided some examples of both the secretarial task and the “quiz”)
2. They choose the criterion (STAKE EX ANTE)
3. They perform the different tasks and the random draw is made by the computer
4. They are informed about their payoff under the different criteria (the complete payoffs distribution for each possible criterion is displayed)
5. They have the opportunity to either confirm their previous choice or to change the criterion (STAKE EX POST).

INFOSTAKE treatment

- In the INFOSTAKE treatment, subjects choose the criterion under perfect information.
- The only difference with respect to the STAKE treatment is that, after reading the instructions, players directly take part to the activities and choose the preferred criterion only after being informed about their actual ranking in each possible scenario.

SPECTATOR treatment

- Two types of participants: A-players and B-players
- A-players have to allocate a sum among N B-players
- B-players perform both the quiz and the secretarial task and a number is randomly drawn for B player by the computer.
- A-players choose a criterion to allocate the sum among B-players both before (SPECTATOR EX ANTE) and after knowing B-players' payoff distribution (SPECTATOR EX POST).
- A-players' decision affect B-players' payoffs only.

Main characteristics of our design

1) **Seven criteria to allocate a sum**

2) **Decision on the criterion may be taken under 5 different conditions:**

a) Informed stakeholders (in the INFOSTAKE treatment subjects decide when they know their payoff under different criteria and their decision affect their payoff)

b) Stakeholders with ignorance on payoffs (subjects decide whitout knowing their payoff and decision affect payoff)

c) Stakeholders after the ignorance on payoffs is removed (subjects decide when they know their payoff and decision affect payoff)

d) Spectators before the ignorance is removed (subjects decide whitout knowing the distribution of payoff under different criteria and their decision does not affect their payoff)

e) Spectators after the ignorance is removed (subjects decide when they know the payoff distribution under different criteria and their decision does not affect their payoff)

Overall, 265 undergraduate students of the University of Milano-Bicocca took part in the experiment

Figure 1b Experimental observations

	Observations	Subjects for session	Ignorance on social position	Information on social position	Beliefs elicitation
STAKE	*87*	*15 subjects in 4 sessions, 14 in a session 13 in a session*	*YES*	*YES*	*YES for 42 subjects*
INFOSTAKE	*59*	*15 subjects in 3 sessions, 14 in a session*	*NO*	*YES*	*NO*
SPECTATOR SUBJECT A	*60*	*15 subjects in 4 sessions*	*YES*	*YES*	*NO*
SPECTATOR SUBJECT B	*59*	*15 subjects in 3 sessions, 14 in a session*	*-*	*-*	*YES*

The literature on the gender effect on preferences - 1

1. Women exhibit more risk aversion than men (e.g. Arch,1993; Holt and Laury, 2002 etc.); possible explanations:

a) women have stronger emotional reactions to risky situations, which can also affect their probability perceptions (Loewenstein et al., 2001)

b) the literature finds that men are more overconfident in their success in uncertain situations than women (Lichtenstein et al. 1982; Deaux and Farris, 1977; Lundeberg et al., 1994)

The literature on the gender effect on preferences - II

2. Women tend to be more inequity averse (e.g. Guth et al., 2007; Eckel and Grossman,1998 etc.);
3. Women tend to be more competition averse (Garratt et al., 2011; Vandegrift and Brown, 2005; Gupta et al. 2005).

Theoretical Hypotheses - 1

- Based on the above mentioned literature findings, our main research hypothesis is that the relatively higher risk, inequity and competition aversion induces women to prefer relatively more criteria involving some form of protection:

- **H_0: there is no significant difference between males and females in the preference for protection. That is, no difference occurs between the two sexes in the sum of the percentage of subjects who chose criteria involving some form of protection.**

The null hypothesis of absence of a gender effect seems to be rejected

- We find that women prefer protection significantly more frequently than men, **even though this evidence is confirmed only when the decision is made under ignorance of relative payoffs**, regardless of player's direct involvement (**in both the stakeholder and spectator position**):

- STAKE EX ANTE: the share of women choosing talent plus protection is about **27 points higher than that of males** (46 against 19 percent), **11 points higher when choosing full egalitarianism and also slightly higher when choosing effort plus protection**. When we sum these three differences we find that the gendered preference for protection generates overall almost a **40 percent point difference.**

The significance of the impact of gender differences on players' choices in different treatments

	H0: male = female STAKE EX ANTE	H0: male = female STAKE EX POST	H0: male = female INFOSTAKE	H0: male = female SPECTATOR EX ANTE	H0: male = female SPECTATOR EX POST
Overall distribution	0.903 (0.342)	3.156 (0.789)	3.470 (0.748)	13.560** (0.035)	11.867* (0.065)
Random (1)	0.903 (0.342)	0.015 (0.902)	0.519 (0.471)	3.319* (0.068)	2.314 (0.128)
Protection Effort (2)	0.048 (0.827)	0.404 (0.525)	1.711 (0.191)	1.083 (0.298)	2.281 (0.131)
Protection + talent (3)	7.002*** (0.008)	0.903 (0.342)	0.143 (0.705)	0.776 (0.379)	0.035 (0.851)
Protection + luck (4)	No observations	0.681 (0.409)	0.605 (0.437)	3.328* (0.068)	3.328* (0.068)
Talent (5)	7.749*** (0.005)	0.052 (0.819)	0.560 (0.454)	3.319* (0.068)	4.272** (0.042)
Effort (6)	2.131 (0.144)	0.214 (0.644)	0.273 (0.601)	1.286 (0.257)	1.072 (0.300)
Equal (7)	1.985 (0.159)	1.178 (0.278)	0.105 (0.746)	2.264 (0.132)	0.014 (0.905)
Combination of Choices					
Protection (2) + (3) + (4) + (7)	13.906*** (0.000)	0.628 (0.428)	0.385 (0.535)	10.188*** (0.001)	4.265 (0.032)
At least talent (3) + (5)	0.0002 (0.968)	0.028 (0.866)	0.757 (0.384)	0.188 (0.665)	1.110 (0.292)
At least effort (2) + (6)	0.547 (0.459)	0.548 (0.459)	0.005 (0.944)	0.069 (0.793)	3.648* (0.056)
Desert (2) + (3) + (5) + (6)	0.515 (0.473)	0.233 (0.629)	0.501 (0.479)	0.081 (0.776)	0.199 (0.656)

*** p<0.01, ** p<0.05, * p<0.1 Chi square tests

Full information= treatments where subjects have full information about their payoffs across criteria, that is the INFO, the VOI ex post and the Neutral ex post treatments;
NO information= treatments where subjects have no information at all about their payoffs across criteria, that is the VOI ex ante and the Neutral ex ante treatments.

Table 5.1 The effect of ignorance and stakeholdership on players' choices

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Luck	Pure effort	Pure talent	Protection plus effort	Protection plus talent	Equal
EXANTE	-0.179***	-0.082**	-0.01	0.046	0.223***	-0.016
	(0.045)	(0.035)	(0.047)	(0.030)	(0.049)	(0.034)
INFO	0.151*	-0.041	-0.014	-0.065***	-0.067	-0.019
	(0.083)	(0.039)	(0.072)	(0.020)	(0.066)	(0.041)
STAKEHOLDER	0.028	0.095***	0.133**	-0.007	-0.286***	0.043
	(0.062)	(0.034)	(0.055)	(0.030)	(0.085)	(0.033)
Male	0.086	0.039	0.072	-0.01	-0.175***	-0.036
	(0.053)	(0.034)	(0.058)	(0.030)	(0.064)	(0.043)
Observations	267	244	267	254	267	267

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Regressors include the following variables as listed in Table 2: *Year, Male, LoneChild, HouseMembers,Townsize, Reader, Risk Catholic, ChurchAttendance, Volunteer, MarriedParents, MotherEducation, FatherEducation, Income, MathGrade, AvgExamScore, Erasmus, LivAbroad, StudentWorker.*

the gender effect here is significant on choices involving protection+talent (being male reduces by 17 percent the probability of such choices).

Table 6.1 The effect of ignorance and stakeholdership on combined players' choices

	(1)	(2)	(3)	(4)
VARIABLES	Protection	At least effort	At least talent	Desert
EXANTE	0.282***	-0.030	0.242***	0.223***
	(0.063)	(0.046)	(0.060)	(0.057)
INFO	-0.150	-0.133**	-0.046	-0.174*
	(0.096)	(0.054)	(0.099)	(0.097)
STAKEHOLDER	-0.284***	0.083	-0.177*	-0.09
	(0.082)	(0.054)	(0.094)	(0.085)
Male	-0.275***	0.018	-0.08	-0.045
	(0.075)	(0.052)	(0.086)	(0.078)
Observations	267	267	267	267

Regressors include the following variables as listed in Table 2: *Year, Male, LoneChild, HouseMembers, Townsize, Reader, Risk Catholic, ChurchAttendance, Volunteer, MarriedParents, MotherEducation, FatherEducation, Income, MathGrade, AvgExamScore, Erasmus, LivAbroad, StudentWorker.*

the gender effect here is significant on choices involving protection (being male reduces by 26 percent the probability of such choices).

- We also interact the gender dummy with the treatment variables (removal of ignorance, condition of ex ante informed stakeholder and stakeholder dummy).
- What we find is that the interaction between the presence of ignorance about payoff and the male gender leads to a 31 percent reduction in the probability of choosing criteria involving some form of protection.

Table 6.2 The effect of ignorance and stakeholdership on combined players' choices

VARIABLES	(1) Protection	(2) At least effort	(3) At least talent	(4) Desert
EXANTE	0.483***	-0.059	0.301***	0.257***
	(0.114)	(0.080)	(0.102)	(0.095)
INFO	-0.068	-0.098	0.036	-0.057
	(0.166)	(0.106)	(0.165)	(0.154)
STAKEHOLDER	-0.401**	0.006	-0.033	-0.032
	(0.143)	(0.097)	(0.150)	(0.150)
EXANTEMALE	-0.312**	0.049	-0.097	-0.061
	(0.133)	(0.108)	(0.126)	(0.136)
INFOMALE	-0.135	-0.063	-0.131	-0.182
	(0.198)	(0.140)	(0.197)	(0.209)
STAKEHOLDERMALE	0.187	0.133	-0.219	-0.093
	(0.202)	(0.132)	(0.186)	(0.189)
Male	-0.239	-0.09	0.135	0.073
	(0.159)	(0.128)	(0.168)	(0.172)
Observations	267	267	267	267

Regressors include the following variables as listed in Table 2: *Year, Male, LoneChild, HouseMembers, Townsize, Reader, Risk Catholic, ChurchAttendance, Volunteer, MarriedParents, MotherEducation, FatherEducation, Income, MathGrade, AvgExamScore, Erasmus, LivAbroad, StudentWorker.*

Which explanations for women's preferences for protection?

- Three possible suspects:

1. Risk aversion
2. Competition aversion
3. Inequity aversion

Risk aversion

- If Risk aversion was the explanation, we **should observe the gender effect disappear when women choose in the role of spectators** (in fact in this case players' choice of allocation criteria does not affect their own payoff).

- However, we showed that **this is not the case**.

Competition aversion – 1

A) Women do not like to compete (*self-centred competition aversion*)

- If *self-centred competition aversion* was the explanation, **we should observe the gender effect disappear when women choose in the role of spectators**

  (in fact in this case players' choice of allocation criteria does not affect their own payoff)
- However, we showed that **this is not the case**

Competition aversion – 2

B) Women do not like in general that people compete (*generalized competition aversion*)

- If *generalized competition aversion* was the explanation, **we should observe the gender effect disappear when women choose in the role of spectators**

  (the spectators' decision on the criterion is not known by players who perform the task in the SPECTATOR treatment until the game is finished. Then, the decision of spectators cannot have any role in reducing the perceived competion by players who perform the task in that treatment)

- However, we showed that **this is not the case**

Competition aversion – 3

C) Women are ideologically against the idea that results of anyone should depend from competition (*ideological competition aversion*)

- If *ideological competition aversion* was the explanation, **we should observe the gender effect remains in all the treatments without disappearing when the ignorance is removed**

- However, we showed that **this is not the case**

Inequity aversion - 1

- Women are self-centred inequity averse (*self-centred inequity aversion*) (for “self-centred inequity averse players” we intend players whose utility decreases when the difference between their own and the other players’ payoff increases) (we took into consideration for example the models by Fehr and Schmidt 1999; Bolton and Ockenfels 2000)
- If *self-centred inequity aversion* was the explanation, **we should observe that the gender effect disappears when women choose in the role of spectators and that it remains in the stakeholders treatment when the ignorance is removed**
- However, we showed that **this is not the case**

Inequity aversion - 2

- Women do not like that them or also others find themselves in an unequal payoff distribution (*generalised inequity aversion*). (For “non-self-centred inequity averse players” we intend players whose utility decreases when the difference both between their own and the other players’ payoff and among the other players’ payoffs increases.)
- If *generalised inequity aversion* was the explanation, **we should observe that the gender effect remains in all the treatments** without disappearing when the ignorance on payoff is removed
- However, we showed that **this is not the case**

Conclusion

- We find **strong empirical results in support** of the assumption that **women** tend to **choose significantly more than men** distributive **criteria that guarantee** some form of **protection**
- We try to discriminate which preference structure may be compatible with our findings. We find that **our results cannot be entirely explained neither by risk aversion, nor by competition aversion.**
- The disappearance of the gendered effect for stakeholders and spectators after the "removal of ignorance" **might be however compatible with the assumption of generalized aversion toward inequality which is discovered to be not too large after the ignorance on payoffs is removed and women may observe payoff distribution.**