

# Urrutia Elejalde Foundation Summer School in Economics and Philosophy

---

## TEAM FORMATION EXPERIMENTS AND THE FAIRNESS NORM AN INTERNATIONAL COMPARISON

Brice Corgnet  
Universidad  
de Navarra

Angela Sutan  
Burgundy  
Business School

Robert Veszteg  
Universidad  
del País Vasco

### Extended abstract

#### **I. The fairness norm in bargaining: equity versus equality**

In this paper, we analyze team formation in a real effort experiment in which individuals bargain their share of the team outcome. We deliberately use a real task in order to induce effort and merit in our analysis. In most economic experiments subjects are involved in abstract settings in which exerting an effort consists of losing a certain amount of money. We aim at understanding in the current study the difference between the social norms of *equity* and *equality*. Both terms are usually confounded under the elusive concept of *fairness* but *equality* and *equity* are fundamentally different concepts once we take into consideration the issue of effort and merit. The *equality* or *egalitarian* norm implies that partners should be rewarded an equal share of the joint outcome. The equal split of the team output is frequently observed in organizations, partnerships, joint ventures and share tenancy in agriculture and constitutes a puzzle for standard economic theory (Andreoni and Bernheim 2007). The *equity* norm implies that partners should be rewarded based on their relative contributions. In that case, team members are paid according to their merit that is typically measured by their level of effort and their ability. This distinction between *equity* and *equality* raises the following question. Should we consider that sharing a joint outcome equally among the different contributors as *fair*? In most of the experiments in the Economics literature like the ultimatum game (Güth et al. 1982), the joint outcome is not the result of a real effort but simply an amount of money provided by the experimenter at the beginning of the session. In that context, *equity* and *equality* would both imply an equal sharing of the initial amount of money. In a case in which subjects did not contribute to the joint outcome there is no discussion about the relative merit of each partner. In the ultimatum game, a subject (the *proposer*) offers a division of a fixed amount of money received from the experimenter between herself and a *responder*. The *responder* can reject the offer, in which case neither subject earns

anything. If the *responder* accepts the division of the initial amount of money then it is implemented. In these experiments, close to half of the *proposers* offer an equal split of the team outcome. Also, responders often reject unequal divisions of the initial amount of money. These results are interpreted as evidence of a *fairness* norm in bargaining (Fehr and Schmidt 1999), where *fairness* coincides with the *equality* norm in that case. Interestingly, in the context of ultimatum games, the *equality* norm is found to be robust to Japanese subjects (Roth et al. 1991, Oosterbeek et al. 2004) and to a number of small scale societies (Henrich et al 2004). However, in real life situations individuals have different abilities and exert different levels of effort that may lead to very different outcomes. As a result, we propose an experiment in which individuals exert a real effort that may have different consequences on the joint profits according to the levels of ability and effort of the team members. This experimental design allows us to separate the norms of *equity* and *equality*. Our purpose relates to the analysis of Schurter and Wilson (2007) that consists in separating the effects of *fairness* and *justice* by analyzing the role of status on the behavior of subjects in a dictator game. In this context, the authors relate *justice* to merit (*equity*) while emphasizing that *fair* procedures may not be based on merit as it is the case if they lead to the systematic use of the *equality* norm. The authors find that merit is a determinant variable in the patterns of offers by dictators as it significantly reduced the average offer. The main difference between our notion of *equity* and the concept of *justice* is that the norm of *equity* does not need an external authority such as a court to be implemented. *Equity* is interpreted as an implicit norm that may arise in the absence of legal enforcement.

In our setting, the subjects undertake a real task and are then asked to assess the relative contribution of each individual. We are able to evaluate the impact of merit on the choice of the sharing rule of the joint outcome by assessing partners' relative contributions.

## II. Culture and the *fairness* norm

The Business and Psychology literature stresses important cultural differences in the context of *reward allocation experiments* (Fischer and Smith 2003). These virtual experiments describe scenarios in which a number of individuals work on a task and exhibit different levels of performance. Subjects are then asked about an allocation of the rewards to the different individuals. As it is stressed by James (1993), in that context subjects behave differently according to certain cultural dimensions such as individualism and collectivism. In particular, subjects from individualist cultures tend to follow the *equity* norm whereas subjects pertaining to collectivists cultures use the *equality* norm extensively. However, these studies have been criticized on their internal validity and in particular on the fact that many cultural dimensions concurrently affect social norms and then reward allocation. Our experimental analysis constitutes an alternative and independent approach that may shed light on the robustness of international differences on social norms of *equity* and *equality*. Besides the methodological aspect, a crucial difference with our approach is the fact that in these studies reward allocation is decided by an external observer that was not affected by the result of the allocation. This situation typically represents a monitoring environment whereas our experimental design illustrates the case of team partners that bargain over the allocation of a joint outcome that affects each individual's payoff.

### **III. Experimental design**

We design an experiment in which subjects undertake a real task for which they may possess different levels of ability. The task consists in finding numbers that satisfy certain restrictions. Every correct answer is rewarded in cash and the total amount of money accumulated during the task constitutes the benefits of the group. Subjects first worked in pairs that were formed randomly at the beginning of the experiment. In this first task, team partners shared their profits equally. After the subjects had been isolated, they were asked a series of questions. They first had to assess the perception of their own contribution to the group outcome. Then, they had to state the minimum share of the joint outcome that they would accept in order to work with the same partner in the next task. The second task was performed either individually or by pairs depending on the compatibility of group members' claims. We considered that the claims of two partners were compatible if both subjects were ready to accept a sharing rule of the joint outcome randomly taken from a bowl. The bowl contained nine pieces of paper that represent the following sharing rules: 20%, 30%, 40%, 45%, 50%, 55%, 60%, 70%, and 80%, where each number indicates the share of the joint outcome received by the first member of the team. A subject would undertake the second task with the same partner if both members' minimum claims stated in the questionnaire were compatible with the randomly selected allocation rule.

We invited subjects through campus-wide posters and e-mail advertisements to participate in experimental sessions that lasted approximately ninety minutes. In order to perform an international comparison of the role of social norms in team formation experiments we recruited subjects both at a Spanish University in Navarra and at a Japanese University in Osaka. Spanish and Japanese people a priori differ in cultural aspects. For example, the Japanese corporate culture is associated with the extensive use of teamwork (Abegglen 1958, Haitani 1990, Koike 1988). Japanese organizations have actually served as a model to US firms in order to develop the use of teams in the workplace.

### **IV. Equality versus equity: a comparison of Japanese and Spanish subjects**

We briefly present the results of our experimental sessions in the two countries stressing the relative importance of *equity* and *equality* norms.

#### **IV.1. Equality norm and excessive cooperation**

The experimental sessions with Japanese subjects involved 32 students recruited at Osaka University. We observe that Japanese subjects claim almost systematically (82% of the time) an equal share of the team outcome even when they largely outperformed their partner. Interestingly, Japanese subjects were able to assess their relative contribution accurately but were not willing to allocate rewards based on individual contributions. As a result, Japanese subjects, by complying with the equality norm, were ready to accept the formation of highly inefficient teams. In that sense, we observe an excess of cooperation in the case of Japanese subjects. Team formation is excessive since the great majority of subjects would actually obtain higher monetary rewards by working alone on the task. Japanese subjects were typically achieving the maximum level of performance whether they worked alone or in a team. Consequently, the *equality* norm, as emphasized by experimental economists in the context of the ultimatum game, is

robust to settings in which subjects bargain over real team tasks outcomes. The *equality* norm praised by behavioral economists and anthropologists (Henrich et al. 2004) as a fundamental element for effective cooperation among individuals can actually backfire and lead to excessive cooperation.

#### **IV.2. Equity norm and self-serving attributions**

The experiments with Spanish subjects were performed at Universidad de Navarra with a total of 43 students. The comparison of Spanish and Japanese subjects leads to striking results. First, Spanish subjects were typically less accurate and objective in assessing their own contribution to the team outcome. In line with results from the social psychology literature on biased self-attribution (Bradley 1978, Larson 1977, Miller and Ross 1975, Zuckerman 1979) subjects tended to overestimate their relative contribution to the performance of the team. Indeed, only 18% of the subjects perceived themselves as contributing less to the team outcome than their partner whereas 36% of the individuals estimated their contribution to be higher than their partner's. In addition, Spanish subjects' claims of the team outcome were driven by *equity* rather than *equality*. Indeed, only 41% of the Spanish subjects required an equal splitting of the team outcome in the second task compared to the 82% of Japanese subjects following the *equality* norm. The claims of Spanish subjects were in line with their perceived contribution to the joint outcome of the first task. That is, subjects consistently asked for a higher share of the team outcome when they perceived to outperform their partner. Given that Spanish subjects suffered from self-serving attributions they tended to claim high shares of the team outcome of the second task and this tended to undermine the formation of teams in opposition to the case of Japanese subjects.

#### **V. References**

Abegglen, J. 1958. *The Japanese factory*. Cambridge, MA, MIT press.

Andreoni, J., B. Bernheim. 2007. *Social image and the 50-50 norm: a theoretical and experimental analysis of audience effects*, mimeo.

Bradley, G. 1978. *Self-serving biases in the attribution process: a reexamination of the fact or fiction question*. *Journal of Personal and Social Psychology* 36, 56-71.

Fehr, E., K. Schmidt. 1999. *A theory of fairness, competition, and cooperation*. *Quarterly Journal of Economics*, 114, 817-868.

Fischer, R., P. Smith. 2003. *Reward allocation and culture: a meta analysis*. *Journal of Cross-Cultural Psychology* 34, 251-268

Güth, W., Schmittberger, R., B. Schwarze. 1982. *An experimental analysis of ultimatum bargaining*. *Journal of Economic Behavior and Organization* 3, 367-388.

Haitani, K. 1990. *The paradox of Japan's groupism: threat to future competitiveness?* *Asian Survey* 30, 237-250.

Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., H. Gintis. 2004. *Foundations of human sociality: economic experiments and ethnographic evidence from fifteen small-scale societies*. Oxford University Press.

James, K. 1993. *The social context of organizational justice: cultural, intergroup, and structural effects on justice behaviors and perceptions*. In R. Cropanzano (Ed.), *Justice in the workplace: approaching fairness in HRM*, 21-50. Hillsdale, NJ: Lawrence Erlbaum.

Koike, K. 1988. *Understanding industrial relations in modern Japan*. New York, St Martin's.

Larson, J. 1977. *Evidence for a self-serving bias in the attribution of causality*. *Journal of Personality* 45, 430-441.

Miller, D., M. Ross. 1975. *Self-serving biases in the attribution of causality: fact or fiction?* *Psychological Bulletin* 82, 213-225.

Roth, A., Prasnikar, V., Okuno-Fujiware, M., S. Zamir. 1991. *Bargaining and market behavior in Jerusalem, Ljubljana, Pittsburgh and Tokyo: an experimental study*. *American Economic Review* 81, 1068-1095.

Schurter, K., B. Wison. 2007. *Justice and fairness in dictator games*. mimeo.

Zuckerman M. 1979. *Attribution of success and failure revisited, or: the motivational bias is alive and well in attribution theory*. *Journal of Personality* 47, 245-285.

