



# Task-based income inequalities and redistribution preferences: A comparison of China and Japan



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## ABSTRACT

To clarify whether a difference exists in the redistribution preferences of Japan and China and to provide insights into the possible causes of this difference, this study conducts an experiment similar to a dictator game but in which both donors and recipients have the chance to redistribute the initial incomes. In the experiment, an initial income gap is caused by one of two kinds of tasks that the subjects performed. One task requires subjects' innate abilities for better performance, and the other requires simple efforts. This study also explores the effect of subjectively recognized reasons for income gaps on these preferences. The experimental results show the following: (1) Chinese donors are more generous than Japanese donors; (2) both Chinese and Japanese recipients are similarly greedy; (3) the causes of the income gap and subjective recognitions regarding this gap do not affect the redistribution preferences; (4) males are less generous than females in Japan but not in China; and, (5) Japanese donors become more generous when they did not expect to win the higher initial income.

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## 1. Introduction

Income inequality has become an urgent problem in many countries; however, no single mutually agreed on answer exists to the question of what is the appropriate degree of redistribution. The perception of desirable income distribution differs for each individual and strongly depends on his/her sense of fairness, which in turn might be significantly influenced by his/her society and cultural background (e.g., Henrich et al., 2005; Rochat et al., 2009). To investigate the effect of social differences on income redistribution preferences, I conducted an experiment in China and Japan. In these two countries, the income gap has become a more significant social problem in recent years. Although Japan and China are geographically close, they are different in many ways, including with respect to social institutions and customs, the manner of development of their respective economies, and cultural dimensions. The degree of collectivism–individualism is an important feature of society. Buchan, Johnson, and Croson (2006) showed that compared with the United States, China has a relatively collectivist culture and exhibits a stronger other regarding preferences. China and Japan are frequently categorized as collectivist societies compared with the United States and European countries (see, e.g., Triandis, 1995). However, Hofstede's cross-cultural study (Hofstede, Hofstede and Minkov, 2010) showed that the Chinese col-

lectivism score is higher than Japan's. A massive meta-analysis by Oyserman, Coon, and Kimmelman (2002) concluded that Japan is not as collective as previously reported. Some experimental studies revealed that Chinese subjects prefer a fairer income distribution than the Japanese in the trust game (Liu et al., 2011; Takahashi et al., 2008; Buchan, Croson, & Dawes, 2002). In this study, I confirm the difference in the preferences of the countries and investigate this difference in detail from the point of view of how subjects recognize causes of the income gap.

Many experimental studies that focus on redistributive preferences show that subjects who earned their higher initial income through a prior game or test tend to be less generous to their recipients and more generous if they strongly believed that they could possibly earn their income merely by chance or luck. The result is common for various experimental settings in terms of by whom or how the income redistribution is determined. Hoffman et al. (1994), Cherry et al. (2002), Oxoby and Spraggon (2008), and Rousu and Baublitz (2011) indicate the result with experiments in which the redistribution decision is made by donors who received higher initial incomes. In the experiments of Hoffman and Spitzer (1985) and Burrows and Loomes (1994), the redistribution decision is made by face-to-face negotiations between donors and recipients and the findings of them are the same. In the study of Durante, Putterman, and Weele (2014) and Ruström and Williams (2000), both donors and recipients reveal their preferences and one of them is randomly chosen and implemented. Durante et al. (2014) also show that subjects in donor positions become less generous in the task-based initial income treatment rather

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than the arbitrary distributed initial income treatment. [Ruström and Williams \(2000\)](#) found a similar difference between task-based and arbitrarily distributed initial income treatments, but it was not statistically significant.

The tendency is probably consistent with the income distribution preference in real life. However, an income inequality condition from complete luck can only be created in a laboratory study. In the real world, the major causes of income inequality are attributable not only to luck but also to an individual's effort and innate abilities. Similarly, rarely is an income gap caused only from complete effort or innate ability. These factors regularly combine together, and evaluations of the degree of the factor ratio differ among individuals. Furthermore, room exists to examine whether these factors are completely independent because the luck factor hides itself underneath the innate factor. Individuals in the real world who perform well at work and earn a decent income depend not only on their own efforts but also on their innate abilities; possession of such innate abilities is beyond their control and is, instead, simply a matter of chance and/or luck. [Weiner \(1972, 1985\)](#) identified ability, effort, task difficulty, and luck as the most important factors affecting achievement. His theory classified both luck and ability as uncontrollable factors, indicating that the wealthy rewards earned through innate ability can be recognized as consequences of an uncontrollable factor. Therefore, a wealthy rewarded player may turn out to be more generous when he/she believed that innate ability plays a major role in winning the position.

Certain socio-physiological studies focus on the effect of individuals' effort and ability on one's distributive justice. Many of these studies show that individuals take into account effort more than ability in allocation decisions ([Leventhal and Michaels, 1971](#); [Rest et al., 1973](#), [Kayser and Lamm 1978](#)). In other words, people give more rewards to individuals with higher performance if differences in outcomes result only from effort but not as much if ability is the sole reason for the difference. In these studies, research participants revealed their preferences in hypothetical situations. [Kayser and Lamm \(1982\)](#) allowed allocators themselves to participate in generating the outcome they distribute. Participants were notified that they were paired with anonymous individuals with whom they would work together on a task, were informed that their efforts and/or abilities were stronger and/or weaker than their partner's after they finished the task, and were asked to share the outcome of the task. The study found no difference between ability and effort with respect to distributive preference. The experiment was implemented in the context of a physiological experiment in which deceptions are allowed; participants were actually not paired with anyone, and information on the relative advantage of effort and/or ability was controlled by the experimenter; therefore, this information was not true. The effect of ability and effort has scarcely been studied in the experimental economics context. [Konow \(2000\)](#) defined the *accountability principle*, which insists that individuals' fair income distribution varies in proportion to the discretionary variables (variables that individuals can influence). Applying the principle to the definition by [Weiner \(1972, 1985\)](#), effort is the discretionary variable, and innate ability is not. [Konow \(2000\)](#) confirmed the principle using a dictator game in which initial income was decided through a simple task. However, the effects of innate ability were not confirmed. [Oxoby and Spraggon \(2008\)](#) referred to the necessity to distinguish effort and ability to explain a part of their experimental result. The closest research question to this study is [Ruström and Williams \(2000\)](#). In their experiment, subjects solved the tower of Hanoi puzzle and the initial incomes are determined on the basis of their effort (number of moves in the game) or performance (number of solutions, but the earnings decrease in the number of moves). The study found no differences between the effort treatment and the performance treatment. However, subjects had to choose one of the four redistribution plans to reveal their preferences so that detailed preferences of each individual could not be exhibited. The initial income distributions of the treatments are based on the

different aspects of the task outcome (effort or performance), but the task itself was the same for both treatments. Such an identical task also might make it difficult for subjects to be aware of the differences between treatments. The authors state that it is still an open question whether other mechanism for allocating initial entitlements cause subjects to choose distribution opinions in an apparently non-self-interested way. Room still exists for further investigation into this issue. Moreover, a cross-cultural study would provide richer suggestions because the effect of ability and effort on preferences can vary by country ([Rodrigues 1980](#)).

I conducted two types of tasks—an intelligence test and a simple task—that resulted in subjects' initial earnings gaps. In the game, subjects whose task performance was higher won the higher rewards. After the task was completed, I asked them how much they believed that each of the elements of ability, effort, and luck was important to improve task performance and for the overall results. This questionnaire helped verify whether these factors were significant in determining the redistribution preference, at least subjectively.

In this study, I also investigated recipients' preferences. [Durante et al. \(2014\)](#) show that recipients prefer high redistributions as much as possible. [Ruström and Williams \(2000\)](#) also report similar results. [Fehr and Schmidt \(1999\)](#) propose the theory of inequality aversion in which players care about their own payoffs and the differences between their payoffs and those of others. In the case of a two-player dictator game, the inequality averse utility function is  $U_i = x_i - \alpha_i \max(x_j - x_i, 0) - \beta_i \max(x_i - x_j, 0)$ , where  $x_i, (x_j)$  is the monetary outcome for player  $i (j)$ . Results of cross-cultural experimental studies about redistributive preferences of donors suggest a wide variety of  $\beta_i$ , the disutility by getting more than the other player by countries. The results of [Durante et al. \(2014\)](#) and [Ruström and Williams \(2000\)](#) suggest that  $\alpha_i$ , the disutility by getting less than the other players is high, then recipients want as much as possible. Though results of some trust and ultimate games ([Liu et al., 2011](#); [Henrich et al., 2005](#)) suggest preferences of recipients are different by country, the preferences could be affected by the first movers' (donors') choices. Very few experimental cross-cultural studies investigate recipients' redistributive preferences independently from the donors' decisions. Therefore, the results of this study provide some contributions to investigate differences of the recipients' preferences by country and whether a country of greedy (or generous) donors is also that of greedy (or modest) recipients.

The experimental results showed that Chinese donors are significantly more generous than Japanese donors, and that recipients are similarly greedy in both countries. The significant effect of the causes of income gaps and the subjective recognition of the causes of such gaps are not found in either country. Japanese donors become strikingly more generous when they have no expectations of higher incomes; however, Chinese donors do not become more generous. The next section shows the design of the experiment. [Section 3](#) reports the study's results. [Section 4](#) investigates the factors that could affect income redistribution preferences. [Section 5](#) presents a discussion and concludes.

## 2. Experimental design and procedure

The data contained 56 (31 males and 25 females) experiment participants from China and 112 from Japan (87 males and 25 females),<sup>1</sup> for a total of 168. Each participant was taken to a computer room and assigned a seat that was divided by separators and a computer on which they performed decision-making experiments and completed the questionnaires. The subjects were randomly divided in two-person groups and anonymously performed the experiments.

<sup>1</sup> Due to the unbalanced gender ratio in the Japanese cohort of the sample, more Japanese were recruited to provide an adequate female cohort for the statistical comparison.

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