The Journal of Socio-Economics 41 (2012) 266–276

Contents lists available at SciVerse ScienceDirect

The Journal of Socio-Economics

journal homepage: www.elsevier.com/locate/soceco

Trust and reciprocity among international groups: Experimental evidence from Austria and Japan

Kenju Akai [a,*], Robert Jiro Netzer [b]

[a] Department of Technology Management for Innovation, Graduate School of Engineering, The University of Tokyo, 7-3-1 Hongo, Bunkyo-Ku, Tokyo 113-8656, Japan
[b] Department of Economics, University of Innsbruck, Unicersitaetsstrasse 15, A-6020 Innsbruck, Austria

ARTICLE INFO

Article history:
Received 17 May 2010
Received in revised form 18 June 2011
Accepted 29 August 2011

JEL classification:
C92
C71

Keywords:
Trust
Reciprocity
Trust game
Group norm
International team experiment

ABSTRACT

This paper explores national identity in trust and reciprocity at the intra- and international levels by adopting a modified trust game played among groups from Austria and Japan, wherein subjects play the roles of trustor and trustee consecutively without any information feedback. Although the intranational trust levels in both countries are identical, the international trust for Japanese groups is less than that of Austrian groups. On the other hand, the international reciprocity for Japanese groups is greater than that of Austrian groups. Additionally, the Japanese reciprocation level toward Austrians is higher than that toward Japanese.

1. Introduction

Every commercial transaction involves an element of trust (Arrow, 1972). With the rapid pace of globalization, the role of national identity and cultural differences in trust and reciprocity are the key to international economic exchange. For example, when a company begins to develop new technologies in collaboration with a foreign company, it faces much uncertainty and risk stemming from problems unique to each country in terms of accounting systems, labor customs, patent laws, etc. Even if the risks are minimized, there is a chance that the partner company will tear up the contract and steal newly developed technologies or free ride on their partner's developmental efforts—unless the trust and reciprocity levels between the two are sufficiently established. To avoid such issues, the company builds a professional team wherein several members orally discuss whether they trust the partner company and carefully decide whether to invest or not. This kind of situation allows us to investigate international trust and reciprocity based on group decisions.

Our main purpose is to investigate national or cultural differences in trust and reciprocity at the intranational (when people interact with the same nationality) and international (when they interact with a different nationality) levels. We conducted modified trust games (Berg et al., 1995) played between Austrian and Japanese groups, whose members interact freely during their decision-making processes, in what we refer to as an international experiment. To evaluate the results of this experiment with respect to the situation within each country, we also conducted intranational experiments for the purpose of comparison. In this case, the same game is played internally in each country among the Austrian and Japanese groups.

Camerer (2003) cited culture as having the most significant and robust effects in social preference experiments. In the present day, culture is too important a force to be ignored in the context of a trust game. There are two types of trust games for investigating cultural differences. One is the trust game wherein the counter partners belong to the same nationality (Buchan et al., 2002, 2006; Holm and Danielson, 2005; Ashraf et al., 2006). The other one is our interest situation wherein the counter partners belong to different cultures or nationalities (Fershtman and Gneezy, 2001; Willinger et al., 2003; Bouckaert and Dhaenec, 2004; Netzer and Sutter, 2009; Takahashi et al., 2008). Apart from Netzer and Sutter (2009),[1] a common feature of these intercultural experiments is that the

* Corresponding author. Tel.: +81 90 1488 2446.
E-mail addresses: akai@css.t.u-tokyo.ac.jp (K. Akai), jiro.netzer@gmail.com (R.J. Netzer).

[1] By employing a variation of the ultimate game, Okada and Riedl (1999) found no significant differences between Austria and Japan.

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doi:10.1016/j.socec.2011.08.028

subjects lived in geographically proximate areas that have experienced potential conflicts in their historical backgrounds, especially World War II (WWII). These negative relationships may induce the negative effects of trust and reciprocity or collective guilt for WWII more easily for the Japanese, which were reported by Takahashi et al. (2008).

In this study, we exclude the above negative relationships, and keep sufficient geographical distinctions to re-consider the effect of cultural differences on international trust and reciprocity. To meet this goal, we selected Japan and Austria to represent East Asia and Europe, respectively, as done by Netzer and Sutter (2009). These countries have sufficient geographical distinctions and they were not opponents during WWII. The year 2009 marked the completion of 140 years since the establishment of diplomatic ties between the two countries. Further, Japan is the first country to have approved Austria's declaration of permanent neutrality. From the economy's perspective, Japan is Austria's second biggest exporting partner in Asia. Austria began promoting exports to Japan in 2001. Moreover, Japanese companies have many hubs in Austria for Central and Eastern Europe.

One of the cultural differences between the two countries relates to individualism vs. collectivism. According to Hofstede (2009), Austria's individualism index is higher than that of Japan.[2] With regard to trust, respondents of the World Value Survey were asked how much they trusted people in their own country; it was found that as compared to Japan, a higher ratio of respondents in Austria chose the answer "completely trust.[3]" Although some predictions of Fukuyama (1995) and Yamagishi et al., 1998 are related to our study, there exists no international comparison of group norms related to social preferences. Our study is, to the best of our knowledge, the first experiment employing a trust game played among international groups. Even if we exclusively consider domestic interactions, only two studies deal with group interactions in the trust game (Cox, 2002; Kugler et al., 2007).

The remainder of the paper is organized as follows: Section 2 presents the experimental design and procedures. Section 3 analyzes the results and Section 4 provides detailed survey analysis. Finally, Section 5 contains the conclusion and discussion.

2. Experimental design and procedure

2.1. Design of our trust game

The subjects were allocated to separate rooms, designated as Rooms A and B. The subjects in the two rooms were randomly assigned to three-member teams who interact freely in making a decision.[4] To investigate the relationship between internalized trust and reciprocity, we make subjects play both roles sequentially in two separate parts.[5] Our specific design is as follows.

The subjects were informed that the experiment included two independent parts and that the result of either part 1 or part 2 would be randomly determined as their final payments. Further, they were told that a detailed explanation of part 2 of the experiment would be provided after the completion of part 1.[6]

In part 1, the teams in Rooms A and B were anonymously matched in pairs. They were given 10 initial tokens as the experimental money. Team A and Team B play the roles of trustor and trustee, respectively. First, Team A inclusively determined how many tokens between 0 and 10 to send to Team B and retained the remaining tokens. The number of tokens that Team A sent to Team B was tripled. Then, Team B decided how many of the tokens it would send back to Team A. Denote the number of tokens sent by Team A as x and those sent back by Team B as y. Team B determined y between 0 and $10 + 3x$ inclusively.[7] The amount Team B sent back to Team A was not tripled. Since we obtain more elaborate information on the internalized reciprocity that the subjects potentially maintain before they interact with the others in the experiment, we used a strategy method (Selten, 1967). While the trustors decided on a single transfer, x, the trustees had to indicate a return, y, for all possible transfers, x, from the trustors. Hence, the trustees decided on returns for 11 transfer possibilities.

We deliberately did not provide information on the interacting group's behavior in part 1 to the subjects to avoid the possibility that the results of part 1 would influence those of part 2. In part 2, they were informed that the same game was to be played again, but with their roles reversed. This time around, Team A would play the role of trustee, and Team B that of trustor. The members of both teams were the same as in part 1. The subjects were anonymously matched in pairs and, as before, given 10 initial tokens. Other rules were the same as in part 1.

The rules of part 2 of the experiment are not disclosed to the subjects at the beginning of the experiment, nor are the results of part 1 announced. If these parts were independent, the transfers and returns in each part would be zero in a subgame perfect Nash equilibrium. To simplify, on the basis of this theoretical prediction, we consider the relative transfer to its holdings, given by $x/10$, to reflect the trust involved in a decision made under a risk stemming from the social uncertainty of whether or not the counterpart would behave reciprocally. On the other hand, we consider the relative return to its holdings, $y/(10 + 3x)$, to reflect the reciprocity shown in the willingness to honor the trust received.[8]

As summarized in Table 1, our design features two experiments comprising four treatments that differ with respect to which subjects belong to Teams A and B. The intranational experiment consists of treatments AA, where both Teams A and B are Austrian groups, and JJ, where both teams are Japanese groups. Further, the international experiment consists of treatments AJ and JA. In the former treatment, Team A comprises Austrians, and Team B Japanese, with the other way around in the latter treatment. A treatment consists of four sessions, each involving 24 or 30 subjects. Further, each treatment involves the participation of 36 groups (18 from Team A and 18 from Team B), comprising 108 subjects in all.

2.2. Procedures

The experiment was programmed and conducted with the software z-Tree (Fischbacher, 2007). The subjects were undergraduate and graduate students from Innsbruck University in Austria and Osaka University in Japan. They were invited through flyers posted around the campuses. None of the subjects participated in more than one session.

[2] For further details refer to http://www.geert-hofstede.com/hofstede_dimensions.php.

[3] The Austrian data was collected in 1990 and 1999, and the Japanese data was collected in 1981, 1990, 1995, and 2000. For further details, refer to http://www.worldvaluessurvey.org/.

[4] We collectively refer to the three-member groups in each room as "team," namely, Team A (Room A) and Team B (Room B).

[5] Burks et al. (2003) make all subjects play trustors first, and then trustees, and find that playing both roles reduces trust and reciprocity.

[6] We make this announcement to avoid deception, although it may cause the subjects to expect a repetition of the same game.

[7] In the original trust game (Berg et al., 1995), the trustees are given $10 as a show-up fee; they were told that they cannot use this money in the game. However, to avoid the possible effect of an imbalance in the endowments on a trustee's decision, we allow the trustees to use their endowments.

[8] According to Camerer's survey (2003), average transfers range from 40% to 60%, with returns averaging 110% of the transfers in many previous experimental studies.