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Intergenerational sustainability and the degree of capitalism in the society: A field experiment

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Abstract

Maintaining intergenerational sustainability is a minimum requirement for the existence of humankind, but it is now becoming one of the biggest challenges. Thus, it is necessary to understand what factors determine human preference and behavior for intergenerational sustainability. We hypothesize that ongoing modernization of competitive societies, which we call "capitalism," affects individual social preferences and other factors of human nature, compromising intergenerational sustainability. To examine this hypothesis, we implement an intergenerational sustainability dilemma game (ISDG) with "imaginary future generation" (IFG) as a policy tool (to prime people for future generations) in two types of Bangladeshi fields: (i) urban (capitalistic) and (ii) rural (less-capitalistic) areas. The analysis reveals that the likelihood of choosing intergenerational sustainable options significantly increases with the number of prosocial people in one generation and a regional dummy of rural areas. Since a considerable portion of people in rural areas are prosocial, rural people are identified to choose intergenerational sustainable options much more frequently than urban people. Moreover, the IFG treatment is not effective for urban people, implying that some stronger devices shall be necessary in capitalistic societies. Overall, our findings demonstrate that as societies become more capitalistic, intergenerational sustainability shall be further compromised through a change in both people's social preference and other factors captured by the regional effect.

Key Words: Intergenerational sustainability; capitalism; social preference; culture and evolution

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Contents

1 Introduction

Capitalism, the driving engine of our current economy, has contributed a lot to the economic development worldwide (Piketty, 2014). Capitalism is also considered one of the best social regimes mainly for two reasons: (i) its ability to ensure the most efficient allocation of private goods through competition, (ii) by means of competition, it generates more innovative ideas and technologies which lead the economy to a faster growth. Hence, capitalism has been selected naturally in almost every country in the world. However, competition cannot ensure the most efficient allocation of resources in some cases such as public goods including environmental goods, natural resources and intergenerational provision of these goods (Milinski et al., 2006, Hauser et al., 2014). In particular, intergenerational sustainability is unique due to its unidirectional nature, meaning that it requires sacrifice from the current generation (Hauser et al., 2014). Henceforth, excess competitions and the maximization of individual payoffs in the current generation seem to compromise intergenerational sustainability and incur a cost for the next generation (Fisher et al., 2004). Now, a key question is how to take a balance of benefits and costs among different generations for the survival of human society (Ostrom, 1990, Milinski et al., 2006, Hauser et al., 2014).

Irrespective of types of governance, institutions and societies, whether people care about the future ultimately depends on their degree of altruism to the subsequent generations. Past studies theorize how cultural agents bring evolution in human preference and behavior (Richerdson and Boyd, 1984, 2000, Dawkins, 2006). Similarly, several past studies have shown how culture affects people's behavior of prosociality, trust and fairness (Ockenfels and Weimann, 1999, Henrich et al., 2005, Wilson et al., 2009, Henrich et al., 2010a, Brosig-Koch et al., 2011, Leibbrandt et al., 2013). Hence, considering economic environment in the societies as an agent of culture and a faster growth of capitalism worldwide, this paper addresses how intergenerational sustainability are related to capitalistic economic environment and people's social preferences.

Several works have examined people's preference and behavior over intergenerational sustainability. Sherstyuk et al. (2016) analyze the level of difficulties maintaining dynamic externalities by implementing laboratory experiments of a dynamic game under two types of settings: (i) in-

finitely lived decision makers and (ii) multiple generations. They find that limited inducement to care about the subsequent generations and inconsistency in one's behavior due to the strategic uncertainty make it difficult to retain dynamic externality, and thus individuals make more selfish decisions in an intergenerational setting. Fisher et al. (2004) show that the existence of intergenerational link motivates people to exploit less in an intergenerational common pool experiment. Executing an intergenerational goods game with the treatment of median voting, Hauser et al. (2014) show that median voting or democracy as an institution promotes intergenerational sustainability. Kamijo et al. (2016) design and implement a labratory experiment of intergenerational sustainability dilemma game (ISDG) with the treatment of an imaginary future generation (IFG) and show that the IFG improves intergenerational sustainability.

None of these studies addresses what factors cause a change in human behavior and preference for intergenerational sustainability, considering the types of societies or economic environment (i.e., the degree of capitalism) as an agent of culture. Moreover, all the previous studies of intergenerational sustainability have relied on laboratory experiments and have been conducted in the developed countries. However, to generalize and better understand human nature for intergenerational sustainability, field experiments are necessary and, in addition, such studies should be conducted in developing and least developed countries as suggested in Henrich et al. (2005, 2010a,b). Therefore, we hypothesize that ongoing modernization of competitive societies, i.e., "capitalism," affects people's behavior and social preference, compromising intergenerational sustainability. To examine this hypothesis, we implement an intergenerational sustainability dilemma game (ISDG) with "imaginary future generation" (IFG) as a policy tool in two types of Bangladeshi fields: (i) urban (capitalistic) and (ii) rural (less-capitalistic) areas.

The analysis reveals that there are mainly two channels to affect intergenerational sustainability, social value orientation and regional-specific effect. Specifically, the likelihood of choosing intergenerational sustainable options significantly increases with the number of prosocial people in one generation and a regional dummy of rural areas. Since a larger percentage of prosocial people are found in rural areas, rural people choose intergenerational sustainable options much more

frequently than urban people. Furthermore, the IFG treatment is identified to be ineffective for urban people, implying that some stronger policy devices shall be necessary for intergenerational sustainability in capitalistic societies. Overall, our findings demonstrate that as societies become more capitalistic, intergenerational sustainability shall be further compromised through a change in both people's social preference and other factors captured by the regional effect.

2 Methods and materials

2.1 Study areas

Our experiments have been implemented in two areas of Bangladesh: (i) Dhaka, the capital city and (ii) several traditional villages of Shajahanpur subdistrict in a northern district Bogra. Dhaka is a highly capitalistic mega city. The Shajahanpur subdistrict consists of rural agrarian villages with less capitalism in the society. Both of the societies possess the same culture, language and religious variation since Bangladesh is ethnically and culturally a homogeneous country. These two areas differ from one another in terms of the level of competition or the degree of capitalism in the society. The first study area, Dhaka city, is located in between $23°55'$ and $24°81'$ north latitude, and $90°18'$ and $90°57'$ east longitude (Dewan and Corner, 2014) and covers the whole Dhaka metropolitan (figure 1). The total land area, population and population density is $1371\,\mathrm{km}^2$, 14.51 million and $10\,484\,\mathrm{km}^{-2}$, respectively (Dewan and Corner, 2014). The population density in this region is almost 9 times higher than that of the country average, and it is the most populated city in the world (Dewan and Corner, 2014). Dhaka is the center of industrialization, businesses and services in Bangladesh. Business, service and some labor intensive occupations such as industrial labor work are the major occupations in Dhaka. No farming activity is available in Dhaka metropolitan. For the rest of this paper, we interchangeably refer to Dhaka as the urban area.

The second study area consists of two unions of Shajahanpur sub-district in the northern district, Bogra, namely, Amrool and Chopinagar (figure 1). Shajhanpur sub-district is located in between $24°41'$ and $24°50'$ north latitudes, and $89°16'$ and $89°29'$ east longitudes, respectively.

The total land area of Shajhanpur is $54\,783$ acres; the land area of Amrool, and Chopinagar is 6106 acres and 4048 acres, respectively (Bangladesh Bureau of Statistics, 2011). The population density of Amrol and Chopinagar is $951\,\mathrm{km}^{-2}$ and $1357\,\mathrm{km}^{-2}$, respectively, whereas the country average is $1218\,\mathrm{km}^{-2}$ (Bangladesh Bureau of Statistics, 2011). All the villages of these two unions are agrarian societies. Generation by generation, the dwellers in these villages engage in farming. A limited number of agro-based and other small-scale businesses are also available. In the rest of this paper, we refer to this study area as Bogra and interchangeably use it as the rural area.

[Figure 1 about here.]

2.2 Experimental setup

We conduct intergenerational sustainability dilemma game (ISDG) and social value orientation (SVO) game in the field.

Intergenerational sustainability dilemma game

We implement a three-person intergenerational sustainability game (ISDG), basically following the basic procedures of ISDG laboratory experiments employed in Kamijo et al. (2016). In this game, a group of three subjects is called a generation and each generation needs to choose between options A and B. By choosing option A, the generation receives a payoff of X, whereas the payoff by choosing option B is $X - 300$. After making the choice between A and B, the generation is asked to split the payoff associated with the option she choose among the generation members. Each subject's payoff in ISDG is the sum of her generation share plus the initial experimental endowment of 300. For instance, $X = 1200$ by choosing A is X, a generation earns 1200 experimental money while by choosing B is $X - 300$, the generation earns 900. Consequently, if members of this generation split the payoff equally among them, each individual earns 400 by choosing A and 300 by choosing B as the generation share. Each generation is allowed to discuss about the decision between A and B up to 5 minutes. After the generation decision, the members determine how to split the payoff.

Each experimental session consists of a sequence of 6 generations. Each generation is randomly assigned to the 1st, 2nd, ... and 6th generations, respectively, and members of the 6th generation never knows that they are the last generation of the session. One generation's decision affects the subsequent generations such that subsequent generations' payoff declines uniformly by 300 when the generation chooses option A, otherwise not. For instance, suppose that $X = 1200$ and the 1st generation chooses A. Then, the 2nd generation will face the game in which she can get 900 and 600 by choosing A and B, respectively. However, if the 1st generation chooses B, the next generation can have the same decision environment as the 1st generation faced. When the 1st generation chooses B, the 2nd generation can have the game in which she can get 1200 and 900 by choosing A and B, respectively. Following the same rule, the game shall continues for the rest of the subsequent generations in each session. Hence, option B can be considered an intergenerational sustainable option, while option A is the choice that compromises intergenerational sustainability.

In each session, the 1st generation starts the ISDG game with $X = 1200$, implying that the 5th and 6th generations may face the game in which options A and B are associated with payoffs of zero and -300, respectively.[1] In addition, we include a treatment of "imaginary future generation" (IFG) for the half of total sessions. In that treatment, we randomly assign a member of one generation to be a representative or an agent for subsequent generations as a "ministry of future." The subject with a role of the "ministry of future" is asked to think about not only her own generation but also subsequent generations in decision between options A and B. We introduce this treatment because we are interested in how priming people for the future generations can affect the generations' decision. In this three-person ISDG game, subjects were paid BDT 350 ($\approx$ USD 4.40) at maximum and BDT 250 ($\approx$ USD 3.14) at the average.

[1] When the 5th and 6th generations face the game in which options A and B are associated with zero or a negative payoff of -300, the generation members can refund themselves equally from their initial endowment of 300 to make the individual payoff to be at least zero.

Social value orientation games

We have used the triple dominance method social value orientation (SVO) game advanced by Van Lange et al. (1997, 2007) to characterize subjects' social preference. This method categorize an individual's value orientation into competitive, individualistic or prosocial types depending upon their choices in the SVO game. In this game, numbers are given to represent the outcome for one self and other where the other is unknown to the subject and no possibility to knowingly meet the other in the future. Following Van Lange et al. (2007), one example of such triple dominance decomposed game is the choice among the three following options: (i) you get 500 and other gets 100, (ii) you get 500 and other gets 500, (iii) you get 560 and other gets 330. In this example, option (i) represents competitive orientation that maximizes the gap between the point of self and the point of other ($500 - 100 = 400$); option (ii) is the prosocial orientation that maximizes the joint outcome ($500 + 500 = 1000$). And finally, option (iii) characterizes the individualistic option that maximizes own outcome 560 and indifferent to the outcome of the other.

The triple dominance method of this SVO game contains 9 selections, each of which consists of three options introduced above with different numbers and orders in each selection. Subjects are asked to select one among the three options for each of the selections. If at least 6 choices among 9 choices made by one respondent are consistent with one of the orientations (competitive, prosocial and individualistic), he/she is categorized as a person with that orientation. Otherwise, the subject is considered "unidentified." We have implemented our experiment with money incentive. Respondents had been informed that the units represented in this game are points, and the more points one respondent gets, the more real money he/she will earn from this game with some exchange rate, which is BDT 250 ($\approx$ USD 3.14) at maximum and BDT 150 ($\approx$ USD 1.88) at the average. To compute the payoff of the respondents from this game, we randomly match a respondent with another respondent as a pair. The experimental earning in this SVO game is the summation of points from 9 selections by herself for oneself and 9 selection by the partner for the other. We also explain the way of random matching and payoff calculation for the real money incentive to respondents.

2.3 Experimental procedure

To implement random sampling in the rural (less-capitalistic) area, we first collected information of the household numbers from local government offices and randomly choose the required number of households from the two unions based on the respective population. Subsequently, we invited one income-earning member from each of the selected households to participate in our experiments. In the urban (capitalistic) area, we did a randomization based on the population proportion of each occupations in the total population (Bangladesh Bureau of Statistics, 2013). After determining the required number of subjects from each of the occupations, we arbitrarily selected a number of organizations for each of the occupations. Next, we contacted with the organizations and based on their compliance, we randomly selected and invited individuals from these organizations.

For low-income occupations and the occupations that require frequent movement within the city, we arbitrarily pick subjects from the slums or cities, and invited them to participate in the experiments. In the rural area, we conducted our experiment in three elementary schools there, and in the urban area, we did it at Institute of Information Technology in Dhaka University. In total, we conducted 28 sessions (14 sessions in each of the study areas), and a total of 504 subjects participated in our experiment. Therefore, 252 respondents were grouped into 84 generations in each of the study areas. Half of the sessions in each study area have been assigned to imaginary future generation (IFG) treatment. On an average, we paid BDT 650 ($\approx$ USD 8.14) to each subject including a fixed show up fee of BDT 200 ($\approx$ USD 2.51). Each session of the experiment took $2.5 \sim 3$ hours approximately.

In each experimental session, we provide a printed experimental instruction to each of the respondents in their native language, Bengali. In addition, we made verbal presentation to explain the rules of the game and double-checked respondents' understanding about the game. After that, we randomly assigned three persons to each generation by asking each subject to pick a card with ID number from a bag. Subjects were not allowed to look at the ID number on the card. To maintain anonymity across generations, we placed the 6 generations in 6 separate rooms by asking

each subject to go and sit in a specific room according to their ID. Hence, a member of each generation could communicate only with the members of his/her own generation. Thereafter, we elicited each generation's choice between A and B in an ascending order from the 1st generation to 6th generation. We let members know which generation they belong to and the payoffs associated with the options A and B. Therefore, each generation is able to calculate how many times A and B were chosen by the previous generations since subjects know which generation they belong to and an initial game the 1st generation faces. After the ISDG games, we started the SVO game and ensured respondents' understanding about it with printed instructions and oral presentation. Subsequently, we elicited respondents' SVO choices and socio-economic information.

3 Results

Table 1 presents the summary statistics of generations' choices for intergenerational unsustainable option A and intergenerational sustainable option B in ISDG. It shows that $54.76\,\%$ of the generations choose B, whereas $48.24\,\%$ of the generations choose A. However, in the urban area, out of 84 generations, 59 generations ($35.12\,\%$) choose A, and 25 ($14.88\,\%$) generations choose B. On the other hand, in the rural area, out of 84 generations, 67 generations ($39.88\,\%$) choose B and 17 generations ($10.11\,\%$) choose A. Utilizing the frequency result summarized in table 1, we have run a chi-squared test with the null hypothesis that the distribution over generation choice A and B between these two areas is the same. The result reject the null hypothesis with a statistical significance of $1\,\%$ and thus the frequency of generation choices A and B between the urban and rural areas is different from one another. In summary, generations from the less-capitalistic rural societies choose more intergenerational sustainable option B than the generations from the highly capitalistic urban society.

[Table 1 about here.]

[Table 2 about here.]

The summary statistics of generations' choices between A and B with and without IFG treatment in the urban and rural areas have been presented in table 2. There are 42 observations in each treatment per study area. In the urban area, there is no difference between the generations with and without IFG in terms of group choices between A and B. In the rural area, we find a slight increase in generations' choice B with IFG, that is, 36 and 31 generations choose option B with and without IFG, respectively. The result suggests that in the urban society, the IFG treatment is not effective to affect generations' choices. On the other hand, in the rural society, people may be more induced to choose option B with IFG, although the difference between with IFG and without IFG is not so large. Overall, the IFG treatment seems not to improve the intergenerational sustainability by a big margin, especially, in capitalistic urban societies such as Dhaka.

[Table 3 about here.]

Table 3 shows the distribution of the number of prosocial members categorized by SVO games in each generation between the urban and rural areas. There are 84 generations in each region. As we can see from table 3, the distribution in the number of prosocial members per generation in the urban area appears to be very different from that in the rural area. The 53 generations in the urban area consist of zero prosocial, but of only individualists and competitors. On the other hand, only 12 such generations have been found in the rural area. More generations with one or two prosocial members are found in the rural area than in the urban area, while the number of generations with three prosocials are the same. More specifically, 15 and 12 generations in the urban area have 1 and 2 prosocials, respectively, whereas 34 and 34 generations in the rural area have 1 and 2 prosocials, respectively. The chi-squared test confirms that the distribution in the number of prosocial members per generation between urban and rural is different from one another with statistical significance of $1\,\%$.

The summary statistics and chi-squared tests suggest that the value orientation and the society (capitalistic vs less-capitalistic) where individuals live might have strong predictive power to explain generations' preferences and decisions over intergenerational sustainability. Hence, to establish our result, we ran a probit regression by taking generation choice between A and B as a

dependent variables and the number of prosocial members in each generation, area dummy, and the IFG dummy as independent variables (See table 4 for the detailed definition of each variable). In the regression analysis, we initially included income, education, the number of females, the number of household members and age at generation level. However, we find that such socioeconomic variables at generation level do not affect the regression results. As a consequence, we decided not to include them. We hypothesize that the number of prosocial members in each generation and area dummy (the degree of capitalism in the society) are statistically and economically significant to explain generations' choices over intergenerational sustainability. Table 5 reports the marginal effects calculated from the results of probit regressions.

[Table 4 about here.]

An increase of prosocial members in a generation leads to $59.2\,\%$ rise in the probability of choosing B relative to the probability of choosing A, controlling for the degree of capitalism and IFG (table 5). It appears that members' social preference is one of the strongest predictors for intergenerational sustainability. Van Lange et al. (2007, 2011) show that, in reality, prosocial people donate and volunteer more than competitive and individualistic people categorized by SVO tests. Consistent with their results, the value orientation has strong association with intergenerational sustainability. In particular, our result suggests that prosocial people care more about the future generations, and the number of prosocial people per generation enhances intergenerational sustainability.

[Table 5 about here.]

Area dummy in the regression tells us that a generation from the rural society is $29.9\,\%$ more likely to choose B than a generation from the urban society relative to the probability of choosing B, controlling for social preference and the IFG treatment. The coefficient is statistically significant at $1\,\%$ level and can be considered practically large as well. Hence, the regression result is consistent with the proposition of the chi-squared test demonstrated in table 2, implying that as

societies become more capitalistic, people tend to choose less intergenerational sustainable options due to the region-specific effect. A key question here is "what does this area dummy really capture?" We will discuss this issue later.

Now, we look at the effect of the IFG on intergenerational sustainability. The outcome of the IFG is positive and economically significant to increase the probability of choosing B by $8.4\,\%$ relative to the probability of choosing B without the IFG treatment. However, the effect is not statistically significant even at a $10\,\%$ level. As is shown in table 3, the IFG appears not to motivate the generations to choose B in both urban and rural areas. However, in rural areas, we have observed a high percentage of generation choice B even without the IFG, and this may be the reason why a marginal effect of the IFG is not observed.

In urban areas, the IFG treatment appears not to be effective for motivating people. Past studies show that human behavior and preference of competitiveness, equity, and fairness do not change frequently over time (Harbaugh and Krause, 2000, Henrich et al., 2005, Brosig-Koch et al., 2011). In a highly capitalistic society, such as Dhaka, people compete hard to survive and secure their position in the society from the very beginning of their life. Hence, in this society, people may have a strong and consistent preference for choosing competitive outcomes to maximize their own payoff. As a consequence, simply priming people for the future through the IFG treatment may not change their preference to sacrifice for the subsequent generations.

Our analysis finds that there are mainly two channels to affect intergenerational sustainability. One channel is social preference of prosociality, and the other is a regional-specific channel expressed through the area dummy in our regression. While it is quite intuitive that more prosocial people in one generation have a strong tendency to choose more intergenerational sustainable option, it is not so clear what the area dummy captures in the regression. Therefore, we now discuss the possible answer. The rural area in our study regions is an agrarian society where the industry and service sectors are least developed and the scope for choosing an occupation other than farming is very limited. That is, it is highly likely for someone to become a farmer when he/she is born in a farming family.

In such an agrarian society, transferring wealth, skills, wisdom, family history and knowledge from one generation to subsequent generations is the usual practice as parts of farming activities and daily survival. For example, young farmers learn directly from the members of the previous generations about the techniques of farming ranging between harvest and cultivation. In such societies, old and young generations live intimately with each other in an interactive way in which children receive care from members of previous generations, such as grandparents and friends of grandparents. On the other hand, in the capitalistic society, Dhaka, due to high mobility of occupations, long working hours, less interaction among the dwellers, nuclear family structure and high density of young people, the degree of interactions and transfers from one generation to subsequent generations tend to be weak. Overall, it is our belief that the degrees of interactions among generations or transfers from one generations to subsequent generations in each region are captured by the regional dummy in our regression analysis. Also, they are the keys to establish intergenerational social network or links as a behavioral norm, leading to higher intergenerational sustainability, irrespective of social value orientations.

Past literature has demonstrated theoretically and empirically how culture brings evolution in human preference and behavior. Our analysis can be considered an additional evidence for the effect of culture on human behavior and preference in the context of intergenerational sustainability in relation to the degree of capitalism. At the same time, our findings bring some hope to maintain the intergenerational sustainability using culture as a tool. As mentioned in Dawkins (2006) and Wilson et al. (2009), some policies and institutional changes might be able to effectively direct individuals and societies toward having more intergenerational social network, and thus individuals will learn the necessity of intergenerational sustainability from each other. That is, the importance of intergenerational sustainability should be propagated from one person to another person through effective institutional or policy changes.

4 Conclusion

This paper has analyzed human preference and behavior for intergenerational sustainability in relation to the degree of capitalism in the society by implementing experiments in two fields of a developing country, Bangladesh: (i) the urban and (ii) rural areas. The analysis reveals that there are two channels to affect intergenerational sustainability, social value orientation and regional-specific effect. The likelihood of choosing intergenerational sustainable options significantly increases with the number of prosocial people in one generation and a regional dummy of rural areas. Since a considerable percentage of prosocial people are found in rural areas, rural people choose intergenerational sustainable options much more frequently than urban people. The IFG treatment (priming people for the future) is not effective for urban people, implying that some stronger devices shall be necessary for intergenerational sustainability in capitalistic societies. Overall, our findings demonstrate that as societies become more capitalistic, intergenerational sustainability shall be further compromised through a change in both people's social preference and other factors captured by the regional effect.

Human history demonstrates how excess competition in contemporary societies destroys natural environment and intergenerational sustainability. This research sought to characterize the determinants that affect intergenerational sustainability through field experiments of ISDG and SVO games. As a limitation of our study, the degree of capitalism in societies is assumed to be captured by a regional dummy variable in the analysis, and conjecture that the effect may come from the difference in intergenerational social network between the urban and rural areas. However, in fact, the specific effects of intergenerational social network or detailed factors captured by the area dummy have not been established in this research. It is our belief that the regional-specific effects for intergenerational preference and behavior may originate from many aspects of human nature, life and societies. This research does not fully address the detailed factors to induce a change in human preference and behavior for intergenerational sustainability. Future research should be able to identify such specific factors by employing different types of field experiments, and to suggest effective policy tools for enhancing intergenerational sustainability.

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Figure 1: The two study areas: Dhaka and Bogra

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Table 1: The frequency and percentage of group choice A and B (percent in parenthesis)

Choice of A or B	Region		Subtotal
	Urban	Rural	
A	59 (35.12 %)	17 (10.11 %)	76 (45.24 %)
B	25 (14.88 %)	67 (39.88 %)	92 (54.76 %)
Subtotal	84 (50.00 %)	84 (50.00 %)	168 (100.00 %)

Table 2: Group choice A and B between the urban and rural areas with and without imaginary future generations (IFG)

	Urban		Rural	
	with IFG	without IFG	with IFG	without IFG
A	29	30	6	11
B	13	12	36	31
Subtotal	42	42	42	42

Table 3: Distributions in the number of prosocial members per generation between the urban and rural areas

Number of prosocial members in one generation	Number of generations	
	Urban	Rural
0	53	12
1	15	34
2	12	34
3	4	4
Subtotal	84	84

Table 4: Definitions of variables included in regressions

Variable	Definition
Choice A or B	A dummy variable that takes 1 if the generation choose B, otherwise 0.
# of prosocial members in a generation	The number of prosocial members in each generation.
Area dummy	A dummy variable that takes 1 if the generation is from the rural area, otherwise 0.
IFG	A dummy variable that takes 1 when IFG treatment is given to one session consisting of 6 generations, otherwise 0.

Table 5: Marginal effects of probit regressions for generation choice A and B

Variable	Marginal effects
# of prosocial members	0.592***
	(0.079)
Area dummy (Urban $= 0$)	0.299***
	(0.100)
IFG dummy	0.084
	(0.105)

***significant at the 1 percent level, **significant at the 5 percent level and *significant at the 10 percent level