Do Institutions Affect Social Preferences? Evidence from Divided Korea*

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Abstract

The division of Korea is a historic social experiment that randomly assigned *ex ante* identical individuals into two different economic and political institutions. About 70 years after the division, we sample Koreans who were born and raised in the two different parts of Korea to study whether institutions affect social preferences. We find that those from North Korea behave in a less self-interested manner and support the market economy and democracy less than those from South Korea. A follow-up study shows that social preferences did not change considerably in two years. Our findings indicate that preferences are rooted in institutions.

JEL Classification: C92, C93, D03, P20.

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1 Introduction

The world has witnessed the division of Korea into North and South in 1945 and its subsequent institutional divergence—to a market economy and democracy in South Korea and to a socialist economy and Communist dictatorship in North Korea—throughout the Cold War and up to the present day. Korea's partition at the 38th parallel holds particular interest because it was a historic social experiment that randomly assigned *ex ante* identical individuals into two economic and political institutions, signified as "the Korean experiment" by Acemoglu et al. (2005). The two Koreas were homogeneous prior to the division, which was made as a result of the Cold War and independent of ordinary Koreans' preferences, and there has been little mobility and communication between the two populations since the division.

The main hypothesis of this paper is that North and South Koreans have become different in their preferences owing to their life experiences under their different institutions. Understanding whether institutions affect preferences, and, if they do, how institutions affect preferences is difficult because institutions are endogenously selected by citizens and because institutions and preferences coevolve (Aghion et al. 2007; Tabellini, 2008). The Korean experiment offers a unique opportunity to investigate the impact of institutions on individual preferences. About 70 years after the division, we sample Koreans who were born and raised in the two different parts of Korea to study whether institutions affect social preferences. We employ standard laboratory experiments to elicit social preferences and ask survey questions to measure attitudes toward economic and political institutions.

The most challenging task in our study is to recruit those who were born and raised in North Korea, more accurately, those who hold preferences that were likely to be shaped under North Korean institutions. Given that it is impossible to access the general population of North Korea, arguably the most reclusive country in the world, we use the strategy of target group recruitment to overcome the practical limitation by recruiting three distinct groups of North Korean refugees who settled in South Korea. The first group, which we refer to as *North Korean newcomers*, consists of those who arrived in South Korea on average less than a year prior to our study. Since they had relatively little time to experience South Korean

society, they are likely to maintain North Korean social norms. In other words, they should provide a hole in the wall through which we can take the best glance at ordinary residents in North Korea. The second group, which we call *North Korean students*, comprises those who have stayed on average for five years in South Korea. This group is on average younger than the first group and is comprised of students enrolled in universities in South Korea at the time of the study. The first two groups of North Koreans have differential degrees of exposure to South Korean institutions in terms of their length of stay and the second group's education in South Korea. The third group, called *North Korean returning newcomers*, is a subgroup of North Korean newcomers whom we followed about two years later. By comparing their behavior when they were initially studied with that after two years in South Korea, we can examine the malleability of individual preferences over a two-year horizon. We recruited South Korean (SK) college students as a counterpart to North Korean (NK) subjects. We deliberately chose college students as SK subjects to ensure that the results for SK students be comparable to previous findings in the literature that used samples of college students in developed countries.

We employ modified dictator and trust games to measure various dimensions of social preferences: distributional preferences, trust, and trustworthiness. We employ the "standard" games for the purpose of facilitating the comparison of our results, especially those for NK subjects, who have never been studied before, with the accumulated findings in the literature using the same games. Specifically, we conducted the following three experiments: (*i*) the *other-other allocation game* in which an endowment is divided between two anonymous opponents; (*ii*) the *dictator game* in which an endowment is divided between the decision maker and an anonymous receiver (based on Andreoni and Miller (2002)); and (*iii*) the *trust game* (based on Berg et al. (1995)) in which the receiver has a chance to return a part of money received from the sender. One important feature of our design is that subjects are informed of the group identity of their partners, which is defined by their birth country. Every subject played the three games twice sequentially: once with an NK opponent and once with an SK opponent. This design enables us to measure each dimension of social preferences directed toward in-group and out-group members. In addition, we ask a large number of survey questions to collect rich information about individual characteristics. In

particular, we measure attitudes toward the market economy and democracy among others. The main findings of the paper can be summarized as follows.

- We find a sharp disparity in distributional preferences between NK and SK subjects. NK subjects, both newcomers and students, are less self-interested than SK subjects irrespective of the group identity of their partner.

- A follow-up study of returning newcomers shows that there is a significant disparity between NK and SK subjects, which indicates that distributional preferences did not achieve parity in two years.

- There is a considerable gap in preferences for economic and political institutions between NK and SK subjects. NK subjects exhibit less support for the market economy and democracy than SK subjects.

The aforementioned results are robust after controlling for demographic characteristics and various potential confounding factors such as income prospects, risk aversion and national identity. We also find significant differences between NK and SK subjects in their behavior in the trust game. However, after controlling for distributional preferences, the differences become small and insignificant. We conclude that institutions affect distributional preference, while they do not affect trust and trustworthiness.

One important caveat in our paper is the issue of sample selection: that is, NK refugees are a selected sample of the NK population and the SK subjects consist of university students. We look into the representativeness of our NK refugee sample as well as the adequacy of our SK student sample. We provide evidence that the differences in giving behavior between the NK and SK subjects are not simply an artifact of our sampling choice.

We contribute to three distinct branches of the literature. First, our paper is directly related to the literature that investigates the effects of socialism on individual preferences. Shiller et al. (1992) exploited the collapse of the Soviet Union and East Germany and explored the potential impacts of socialism on individual attitudes. Using surveys over six countries, they found little evidence of the so-called "Homo-Sovieticus." In contrast, Alesina and Fuchs-Schündeln (2007), using data from the German Socio-Economic Panel, found that

East Germans had stronger preferences for redistribution and state intervention than West Germans about a decade after German reunification. Ockenfels and Weimann (1999) and Brosig et al. (2011) carried out experiments after the German reunification and found that East Germans showed less solidarity than West Germans. Aghion et al. (2010) exploited the transition from socialism to capitalism as a natural experiment to examine the exogenous reduction of state control and examined the effects on attitudes toward competition, trust, and government intervention. They used data from the World Values Survey before and after the transition. Our paper adds novel evidence that institutions affect distributional preferences and preferences for institutions, through the combined use of experiments and surveys in the context of divided Korea, where institutions on both sides have remained intact.

Second, more generally, our paper relates to the literature that investigates the interaction between institutions and preferences.[1] Institutions are broadly defined in the literature as the codes of conduct and social norms. For example, North (1990) defined institutions as the rules of the game in a society. Roland (2004) distinguished between fast-moving institutions, such as political institutions, and slow-moving institutions, such as culture and social norms. Tabellini (2008) emphasized the significance of the endogenous interaction between institutions and preferences and their coevolution in the course of economic development. His findings imply that institution and preferences are hard to disentangle, making it difficult to identify causality. For example, a series of recent papers showed a strong correlation between social attitudes and labor market institutions, emphasizing their coevolution, and attempted to identify a causal relationship by using the notion that preferences and cultural values change more slowly than institutions (Alesina et al., forthcoming; Algan and Cahuc, 2009; Alesina and Giuliano, 2010). We exploit the division of Korea as a natural experiment of institutional change to identify the causal effect of institutions on social preferences.

Lastly, we contribute to the growing body of literature investigating the determinants

[1]One sub-branch of this literature emphasizes the roles of social preferences and trust among others, in the functioning of institutions and the resulting economic performance. See, for example, Putnam (1993), Knack and Keefer (1997), Akerlof and Kranton (2000), Platteau (2000), Algan and Cahuc (2010), Bloom et al. (2012), and Algan and Cahuc (2014). Another sub-branch of this literature focuses on the evolution of individual preferences and the effects of institutions, such as family or a market economy, on the formation of social norms. For example, see Hirshman (1982), Bowles (1998), Bisin and Verdier (2001), Alesina and Giuliano (2011), and Benabou and Tirole (2011).

and correlates of social preferences. Alesina and Giuliano (2011) discussed the determinants of preferences for redistribution. Empirical studies have suggested a number of correlates of social preferences, including socio-demographic characteristics (Gächter et al., 2004; Fehr et al., 2008), parental background (Bauer et al., 2013), group identity (Fershtman and Gneezy, 2001), the degree of market integration (Henrich et al., 2005), warfare experiences (Whitt and Wilson, 2007; Bauer et al., 2014), political proclivity (Dawes et al., 2012), rule of law (Herrmann et al., 2008), culture (Luttmer and Singhal, 2011; Alesina et al., 2001) and group activities (Gneezy et al., 2015). Our study examines the role of institutions in shaping social preferences.[2]

The remainder of the paper is organized as follows. Section 2 elaborates the perspective on the division of of Korea as a natural experiment in institutional changes. Section 3 describes the sampling of subjects, the experimental design and the survey. Section 4 describes the main results in detail and summarizes additional results. In Section 5, we provide results of robustness check by focusing on the issue of sample selection. We conclude in Section 6, and details that are omitted from the main text are given in Appendices A and B.[3]

2 Background: Divided Korea and Refugees

We have argued that the division of Korea into North and South can be viewed as an ongoing natural experiment in institutional change. We elaborate this argument below.

Homogeneity The population of Korea was homogeneous prior to the division. Korea had remained a unified kingdom for more than 1,200 years between the late 6th century and the early 20th century. The three ruling dynasties over this period – *Unified Silla*, *Goryeo*, and *Joseon* in sequence – occupied basically the same territory, the Korean peninsula. In the early 20th century Japan invaded, annexed, and subsequently ruled Korea until the end of the Second World War. Through all this time, Koreans in the entire territory lived under

[2]Alesina et al. (2001) found that political factors such as electoral and federal systems explain differences in redistributive policies between the U.S. and Europe more than economic factors do.

[3]This paper is supplemented by two Online Appendices that provide English translations of the documents used in the experiment and survey and other extra details (Online Appendices are available at `http://www.homepages.ucl.ac.uk/~uctpsc0/Research/KCLLC_OnlineAppendices.pdf`).

common political and economic institutions, shared the identical culture, and used the same language. In terms of ethnic and linguistic differences, the Koreas remain two of the most homogeneous nations in the world (Alesina et al., 2003). There was also no large difference in income per capita between southern and northern parts of Korea before its division in 1948 (Lee and Kim, 2011). In this way, before Korea was divided into North and South, both Koreas were homogeneous in a variety of dimensions, including ethnicity, linguistics, culture, status of economy, and political and economic system.

Exogeneity The division of Korea, following the defeat of Japan in the Second World War, was sudden and unintended. Korea was divided as a consequence of the Cold War between the United States (US) and the Union of Soviet Socialist Republics (USSR). The US and the USSR agreed, in the Yalta Conference in February 1945, that their troops would occupy Korea after the Second World War. They neither planned nor desired the territorial and political division of Korea (Hilbert, 2010). The occupation initially occurred along the 38th parallel, with the US occupying the South and the USSR occupying the North. A trusteeship was formed by the US and the USSR for the purpose of establishing a single, independent Korean government in due course. With mistrust growing rapidly between the US and the USSR, the trusteeship failed. The separation along the 38th parallel was then transformed into the division of Korea into North and South with divergent institutions: the Republic of Korea was first established in South Korea in August 1948 and the People's Democratic Republic of Korea was set up soon after in North Korea, with the aid of the US and the USSR respectively (Hilbert, 2010). The process of Korea's division was thus a result of the compromise between the two Cold War superpowers, and not determined by Koreans' voluntary choice. In this way, we argue that the historic division of Korea was exogenous, and largely orthogonal to the preferences of ordinary Koreans.

Divergence and persistence The initial adoption of institutions, after the division, was divergent between North Korea and South Korea, and the institutional changes have been persistent over time. South Korea has pursued capitalism with democratic institutions and North Korea has adopted a socialist system with central planning and authoritarian

political institutions. The initial adoption of divergent institutions has been reinforced to two polar extremes over time. Over the last seven decades, South Korea has pushed an export-oriented market economy, with spectacular economic growth, and its political system has been transformed into mature democracy. North Korea, in contrast, has remained an autarkic socialist economy with disastrous economic failure, intertwined with its authoritarian dynasty as the political system. As a consequence, there is now a huge disparity in income per capita between South and North Korea: in 2005, gross national income per capita in North Korea was estimated to be around 400 US dollars, which is only about 2% of that of South Korea in the same year (Kim and Lee, 2007). This process of establishing two divergent institutions with stark differences in economic development has obviously affected the identity and mentality of each Korea.

Little contamination Migration between the two Koreas was severely limited before the Korean War in 1950-1953 and became nearly impossible after the war partly because of a heavy military presence on the border. Ordinary Koreans have not been allowed to travel between North and South and have had little opportunity to meet Koreans from the other part. In addition, the two parts are not able to have personal communication in the form of letters, phone calls, etc. North Koreans have suffered the tight state control of information flows and the suppression of information about and from the outside world. Television and radio channels in North Korea are fixed to officially sanctioned North Korean stations. News stories in official radio and television broadcasts obviously reflect official government positions and propaganda in North Korea.[4] South Koreans are also not permitted to listen to North Korean mass media, without violating their national laws. In this sense, there has been little mobility and a lack of communication between the populations of the two Koreas. Hence, we argue that the two populations are contaminated very little about the institutional changes and the dynamic process of their establishment.

[4]North Korea is probably the most repressive regime in the world, with the tight information barrier between its own people and the rest of the world. Nevertheless, that information barrier may be eroding. Lee (2006) and Haggard and Noland (2011) report from surveys with North Korean refugees that residents in some parts of North Korea such as Pyongyang, the capital, watch South Korean television via satellite dishes. However, they conclude these cases appear atypical.

Refugees It is practically impossible to access a representative sample of the general population in North Korea. Instead, we rely on North Korean refugees living in South Korea for our purpose. According to official statistics from the Ministry of Unification in South Korea, the total number of North Korean refugees who have settled in South Korea is about 24,000 as of the end of 2012. Mainly caused by the economic crisis in North Korea since the mid- and late 1990s, the number of NK refugees per year has increased by over 1,000 since 2001. Amid the economic crisis and continuing political repression, North Koreans have been attempting to escape from their country into South Korea or other countries for survival, freedom, or better opportunities for living. Most of the refugees arriving in South Korea initially crossed the border between North Korea and China. Subsequently they left China for other neighboring countries such as Thailand, Laos, Vietnam, Mongolia, and Cambodia through which they finally entered South Korea. NK refugees legally have the same rights as South Korean citizens and the South Korean government provides various support for resettlement. However, their adaption to South Korea is challenging partly because of their lack of education and skills necessary for job search in South Korea.

3 Sampling, Experiment, and Survey

We conducted three different studies with distinct target groups of subjects. Study 1 was conducted at Seoul National University (SNU) in August and September 2011, Study 2 at Sogang University in May 2012, and Study 3 at SNU in June and July 2013. Both SNU and Sogang University are located in Seoul, South Korea. In this section, we explain the structure of sampling across the three studies and introduce our experimental games and surveys.

3.1 Sampling

We recruited three distinct groups of NK refugees. The first group of NK participants, who took part in Study 1, are *NK newcomers*, who arrived in South Korea in 2010 and 2011 and who had spent on average less than a year in South Korea prior to the study. This group is heterogeneous in terms of sociodemographic characteristics but had little oppor-

tunity to experience South Korean society. NK participants at Study 2 were *NK students* enrolled in universities in Seoul at the time of study. They had stayed on average for five years in South Korea and were much younger than the NK newcomers. In Study 3, we followed NK newcomers from Study 1 about two years later. We refer to the last group of NK participants as *NK returning newcomers*. SK participants in all three studies were students enrolled at either SNU or Sogang University. They are homogeneous in terms of standard demographic characteristics. Table 1 reports the summary statistics of NK and SK participants across studies. For NK participants, we report the average years they spent in North Korea and the average months of their stay in South Korea. It is notable that overall, NK and SK participants are significantly different in terms of gender and age. There are disproportionately more females in the pool of NK participants. About two thirds of NK participants are females, which is representative of the gender composition of NK refugees in South Korea (see Section 2 for background information on the NK refugees). It is said that it is easier for females to escape the police and border patrols in North Korea and China and that they are more willing to come to South Korea because they are more likely to settle successfully. NK students are of similar age to SK participants, while NK newcomers and returning newcomers are older than their SK counterparts.

- Table 1 here -

A key feature of our sampling is that we varied the characteristics of NK participants across studies. This design allows us to determine the extent to which the differential characteristics of NK participants affect their social preferences, while keeping SK participants constant as the baseline group. NK newcomers have less exposure to South Korean society. However, they differ from SK participants in terms of demographic and socioeconomic characteristics. On the other hand, NK students are similar to SK participants in terms of age and education, and, more importantly, they have far better lifetime income prospects than NK newcomers.

Comparing NK newcomers and NK students, we note that NK students are younger and have stayed longer in South Korea than NK newcomers. Thus, differences between the two groups of NK participants may arise because of differences in age, education, or degree of

assimilation. Partly motivated by this concern, we followed up NK newcomers two years after Study 1. We were able to recruit about a half of the NK newcomers for the follow-up study. The other half of the NK newcomers were impossible to contact or were unable to participate for various reasons (busy schedule, relocation, or refusal). Since the attrition rate is about 50% and is likely to be caused by self-selection, we present our empirical results separately by dividing the group of NK newcomers into those who participated in Study 3 (*NK newcomers: non-attrited*) and those who did not (*NK newcomers: attrited*).

3.2 Experimental games

The experiment employs three games in sequence: (*i*) the other-other allocation game, (*ii*) the dictator game, and (*iii*) the trust game. Subjects were informed that pair matching for each game would be done after the completion of the study with all participants (about two weeks). They were then invited to make separate decisions in each distinct case of matching using separate decision tables or sheets. Subjects were clearly instructed that their SK opponent was an anonymous student who was born in South Korea and who was currently enrolled in a university in Seoul. Subjects in Studies 1 and 3 were told that their NK opponent was an anonymous refugee who entered South Korea in 2010 or 2011, and subjects in Study 2 were told that their opponent was an anonymous refugee who was currently enrolled in a university in Seoul.[5]

Other-other allocation game In the first experimental task, each subject was asked to allocate 10,000 KRW (1,200 KRW = 1 USD in September 2011) between two other anonymous participants randomly selected from the entire pool of participants in each study. It was noted that it was impossible for subjects to allocate money to themselves. Each subject was asked to make a decision for each of three possible matchings: (*i*) NK vs. NK, (*ii*) NK vs. SK, and (*iii*) SK vs. SK. In order to facilitate subjects' decisions, the set of choices is discretized into the multiples of 10% of the initial endowment to be divided between the two other participants. The choice problem was presented in a decision table, and subjects

[5]See Online Appendix I for a more detailed description of the recruitment and experimental procedures, including the decision sheets for the experimental games and the survey questionnaires.

were asked to tick one column using a pencil.[6] It was publicly announced that each subject's decisions would be used to determine the earnings of the two other participants in the same study.

The purpose of the other-other allocation game is to measure the extent of attachment to the NK and SK groups. Also because the complexity of tasks increases in the sequence of the three games, we intended to help subjects better comprehend the experimental tasks by presenting a simpler game first.

Dictator game In the second game, each subject was asked to allocate an endowment between him/herself (*self*) and one other participant (*other*) who was randomly selected from the pool of participants in each study. We use this game to measure the distributional preferences and separate them from trust and trustworthiness in the subsequent trust game. We adopted a modified version of the dictator game used by Andreoni and Miller (2002). Subjects were presented with a series of budget sets with varying amounts of initial endowment m and prices for payoffs between *self* and *other* (p_s and p_o, respectively), satisfying the condition

$$\pi_s + p\pi_o = m,$$

where p denotes the *relative price of giving*, p_o/p_s. The money allocation between *self*, denoted by π_s, and *other*, denoted by π_o, should satisfy this budget condition. In the experiment, we used eight different budget sets as shown below:

Budget (t)	1	2	3	4	5	6	7	8
m_t (KRW)	10,000	15,000	15,000	18,000	25,000	30,000	30,000	36,000
p_t	1/3	1	1/2	1/2	1	2	3	2

This design creates rich variation in relative price and income, which we can exploit to estimate the distributional preferences structurally at the individual subject level. In order to help subjects make choices, we let subjects to transfer the multiples of 10% of the endowment m by presenting them with a discrete set of possible choices from each budget set. Thus,

[6] All experiments were done by paper and pencil to avoid any bias arising from the differential degree of subjects' familiarity with computer.

each subject was able to choose n_t in the form of a money transfer to *other* in the budget set $t = 1, ..., 8$, $n_t \times 0.1 \times m_t$ for $n_t = 0, 1, 2, ..., 10$. Subjects were presented with corresponding tables to mark their decisions against each of their NK and SK opponents. Earnings in the dictator game were determined in the following way. We randomly formed pairs of two subjects. One subject in each pair was randomly selected as a decision-maker (i.e., a dictator). We randomly selected one of the eight budget sets of the selected decision-maker corresponding to the identity of the opponent (i.e., against an NK or an SK opponent). Earnings were then determined by the decision in the selected budget set.

Trust game The last game measures trust and trustworthiness. We adopted a variant of the trust game used by Berg et al. (1995) in which the first mover allocated an initial endowment of money, 10,000 KRW in our case, between him/herself and the second mover. The amount transferred was tripled, and the second mover then decided how much of this tripled amount he or she would return to the first mover. We again discretized the set of the possible money transferred by the first mover as the multiples of 10% of the transfer of the endowment 10,000 KRW. In our experiment, subjects played the roles of both the first mover and the second mover. We used the strategy method by asking the second mover how much he or she was willing to return for each possible amount received. For any positive amount of money transferred (there are 10 possible amounts), the second mover was asked to state the amount of money he or she wanted to return. In each role, each subject was asked to make a decision for each possible matching with either an NK or an SK opponent.

The earnings in the trust game were determined as in the dictator game. We randomly formed pairs of two subjects. One in each pair was randomly selected as the first mover and the other as the second mover. Having assigned the roles, we matched their corresponding decision sheets and determined the earnings of both subjects.

3.3 Survey

Post-experiment surveys collected two distinct sets of information on individual participants. The first set of questions, which applied only to NK participants, collected information on life experiences in North Korea and on resettlement and assimilation in South Korea. Ta-

ble 2 presents the description of the NK participants with respect to their life experiences in both North Korea and South Korea. We also asked NK participants to give the two most important reasons why they decided to leave North Korea. For NK newcomers, two common reasons for defection were food shortage/economic hardship and seeking liberty. For NK students, food shortage/economic hardship was also a common reason for defection. Not surprisingly, given their age at escape, the presence of defected family members was also a crucial reason for defection for NK students.

- Table 2 here -

The second set of questions, which applied commonly to NK and SK participants, collected demographic information and asked a variety of subjective questions related to risk aversion, national identity, support for reunification, and attitudes toward North Korean refugees among others. Most importantly, we asked five-point Likert-scale questions to measure participants' degree of support for four different aspects of the market economy: (*i*) private ownership (vs. state ownership), (*ii*) competition, (*iii*) performance-based incentives, and (*iv*) the rules of the market. Analogously, we asked Likert-scale questions to measure participants' degree of support for five different components of democracy: (*i*) the multi-party political system, (*ii*) freedom to vote, (*iii*) individualism (vs. collectivism), (*iv*) leadership, and (*v*) human equality. To ensure the validity of the responses to subjective questions, we designed questions in a way that the scale for some of the questions ranges from 1 "Strongly agree" to 5 "Strongly disagree" while we reversed the order for other questions.

4 Measuring Differences in Preferences

4.1 Preferences for institutions

We begin by comparing self-reported preferences for institutions between NK and SK subjects. We are particularly interested in their attitudes toward democracy and the market economy given their importance as institutional constituents in developed countries. The comparison in this subsection serves as the first check of our main hypothesis that the different institutions between the two Koreas shape individual preferences differently.

We use the total score of responses to questions regarding the market economy (resp. democracy) as the dependent variable and report linear regression results for the full sample as well as for NK group-specific samples.[7] Table 3A (resp. 3B) presents the disparities in preferences for the market economy (resp. democracy) between NK and SK participants with and without controlling for experimental variables and demographic characteristics (gender, age, and age squared).[8]

- Table 3 here -

The results show a significant disparity between NK and SK subjects in preferences for the market economy and democracy. NK subjects exhibit significantly less support for the market economy without any experimental and demographic controls (Column 1). The result holds after controlling for demographic and experimental variables. When we focus on NK newcomers, the magnitude of the disparity is slightly smaller, but we still find that they support the market economy significantly less than SK subjects. Recall that we divided the group of NK newcomers into those who participated in Study 3 and those who did not. We find that the attrited NK newcomers show significantly less support for the market economy than the non-attrited at the time of Study 1. When the non-attrited NK newcomers returned two years later, they still showed less support for the market economy than SK subjects, but the difference becomes insignificant. This is the first piece of evidence that NK subjects may assimilate in terms of institutional preferences. However, contrary to our prior expectation, despite the fact that they are more comparable to their SK counterparts in many regards than NK newcomers, NK students exhibit substantially less support for the market economy than SK subjects.

We also find that NK subjects exhibit considerably less support for democracy than SK subjects. This result changes little by adding demographic and experimental controls and is robust across various NK groups. Notably, NK students are more similar to SK students in terms of their support for democracy, while they dislike the market economy as much as NK newcomers do.

[7] We report robust standard errors, clustered by subject, wherever applicable, throughout the paper.

[8] We lose a few NK subjects because of the missing value in the survey responses for the market economy and democracy. In addition, the demographic characteristics of one NK student subject and two SK subjects are missing.

4.2 Distributional preferences

The results in the previous subsection suggest that NK subjects are different from SK subjects in terms of preferences for institutions. Do these differences in subjective attitudes translate into differences in economic choice and behavior? To answer this question, we turn to behavior in the dictator game, which reveals distributional preferences.

We define the fraction of money given to *other* as $\pi_o/(\pi_s + \pi_o)$ in each budget set $\pi_s + p\pi_o = m$. Figure 1 shows the average fraction of money given to *other* (to an anonymous SK opponent in Figure 1A and to an anonymous NK opponent in Figure 1B) by the price of giving (p). We present this separately for each of three distinct NK groups, while we pool all SK subjects for whom there is no difference across studies.

- Figure 1 here -

There are several notable patterns that are informative about the distributional preferences of NK and SK subjects. First, NK subjects give substantially more to *other* than SK subjects do irrespective of the group identity of their partner. This pattern is observed for all three NK groups. Second, SK subjects allocate more to *other* when their opponents are NK subjects than when they are SK subjects. A plausible explanation would be that SK subjects may sympathize with NK refugees. On the other hand, NK subjects treat NK and SK opponents equally. NK subjects may have an intrinsic aversion to disparate treatments between groups, which might have been instilled by North Korean institutions. Alternatively, it may be due to the self-image concern of NK subjects in South Korea. They may not want to regard themselves as different from South Koreans by sending more to NK than to SK partners. Third, the fraction of giving is responsive to the relative price of giving for both NK and SK subjects. This suggests that our subjects respond to changes in the pecuniary incentive in the experiment.[9] SK subjects and NK students appear to respond

[9]Subjects' behavior in the dictator game shows high compliance with the Generalized Axiom of Revealed Preferences (GARP) for the utility maximization hypothesis. We measure the extent of GARP violations using Afriat's (1972) Critical Cost Efficiency Index (CCEI). The CCEI is defined to be between zero and one; the closer the CCEI is to one, the closer the data are to satisfying the GARP. The average CCEI scores for SK subjects are 0.998 in both cases against NK and SK opponents. For NK subjects, the average CCEI scores are 0.970 when facing NK opponents and 0.973 when playing against SK opponents. Although the number of experimental samples is relatively small for the purpose of the stringent revealed preference test (see Choi et al., 2007), both NK and SK subjects appear to be similarly rational.

more to the price change than the other NK groups. This pattern of higher price sensitivity may indicate the tendency to seek efficiency conditional on the level of giving for each group.

Using exogenous variation in relative price and income, we identify distributional preferences structurally at the individual level. To provide a concise summary of individual preferences, we restrict ourselves to four distinct types of distributional preferences that highlight the tension between self-interest and fair-mindedness, as well as the tradeoff between equality and efficiency. These types have been a primary focus in the literature (e.g., Andreoni and Miller, 2002). Let $U(\pi_s, \pi_o; \mathcal{M})$ represent a utility function over the distribution of money between *self* and *other* (π_s, π_o) given a matching $\mathcal{M}$. The four prototypes are as follows: (i) the selfish type, $U(\pi_s, \pi_o; \mathcal{M}) = \pi_s$; (ii) the (extreme) altruistic type, $U(\pi_s, \pi_o; \mathcal{M}) = \pi_o$; (iii) the Rawlsian type, $U(\pi_s, \pi_o; \mathcal{M}) = \min\{\pi_s, \pi_o\}$; and (iv) the Utilitarian type, $U(\pi_s, \pi_o; \mathcal{M}) = \pi_s + \pi_o$. These four types predict distinctive behaviors in the dictator game. The selfish type (resp. altruistic type) allocates the entire amount of money to self (resp. other) in all budget sets. The Rawlsian type chooses an equal split of the endowment between self and other in each of the eight budget sets and shows strong inequality aversion (Fehr and Schmidt, 1999; Bolton and Ockenfelds, 2000). The Utilitarian type maximizes the total amount of money given to both self and other and thus exhibits efficiency-seeking preferences (Charness and Rabin, 2002).

- Table 4 here -

Table 4 presents the distribution of preference types for NK and SK participants.[10] The majority of NK subjects are the Rawlsian type. There are some subtle differences across the three NK groups. First, the proportion of the Rawlsian type is lower among NK students than among NK newcomers and returning newcomers: 70% against NK and 68% against SK for NK newcomers, 54% against NK and 56% against SK for NK students, and 73% (resp. 73%) against NK and 73% (resp. 70%) against SK for NK returning newcomers (resp. in Study 1). Second, the proportion of the Utilitarian type is higher among NK students (24%

[10]For each individual, we first check whether his or her behavior is consistent with one of these four types without noise. For those who cannot be classified without noise, we minimize the Euclidean distances between observed behavior and behaviors predicted by the preference types and select the one that gives the minimum distance. The details of the derivation of the optimal behavior for each type and type classification are given in Appendix A.

against NK and 22% against SK) than among the other NK groups (below 10% against both NK and SK).[11] This is consistent with the pattern shown in Figure 1 that NK students respond more to the price change than the other two NK groups. Third, the proportion of the altruistic type is higher among NK newcomers: 5% against NK and 8% against SK. While only a small proportion of subjects belong to this type, it is intriguing given that the altruistic type describes the extreme attitude of generosity toward other.

For SK subjects, the selfish type is the most dominant: 44% against NK opponents and 56% against SK opponents. This contrasts with the fact that the proportion of the selfish type among NK subjects ranges from 14% to 21%. The second largest group is the Rawlsian type: 40% against NK and 33% against SK. In accordance with Figure 1, which shows that SK subjects treat NK opponents more favorably than SK opponents, there are more (resp. fewer) SK subjects corresponding to the Rawlsian type (resp. to the selfish type) against NK opponents than against SK opponents.

Some remarks are in order. The behavior of SK subjects is consistent with the findings of numerous studies involving university students in the United States. Andreoni and Miller (2002) reported that their subjects gave away around 23% of endowment when the relative price of giving was 1. Fisman et al. (2005), using more variations of relative price, reported that their subjects gave about 19% of the money to *other* over all prices. Forsythe et al. (1994) found a similar result. In our data, when the relative price of giving was 1 and also when we look over all budget sets, SK subjects gave around 20% of endowment to their fellow SK subjects over the three studies. Second, in the individual-level analysis, Andreoni and Miller (2002) reported that almost half of their subjects (around 47%) behaved closest to the selfish type than to any other type, which is consistent with what we found for SK students. We thus take the case of SK against SK as the baseline case in the subsequent regression analysis.

Regression analysis We examine whether the patterns shown in Figure 1 hold after controlling for subjects' observable characteristics and experimental variables. We estimate

[11] These differences might be due to the differential exposures to the South Korean society between them; however, in this paper, we focus on the differences between SK and NK subjects since it would be difficult to disentangle the differences among heterogenous NK subjects with our experimental design. This is a topic for future research.

a linear regression model in which the dependent variable is the fraction of money given to *other* as $\pi_o/(\pi_s + \pi_o)$. We include three matching dummies to facilitate between-group comparisons: $NK \to SK$, $NK \to NK$, and $SK \to NK$, where $X \to Y$ indicates that an X subject faces a Y opponent. The omitted baseline group is $SK \to SK$ for which the results are comparable to those of previous studies using Western college students as subjects.

We control for experimental variables such as the natural logarithm of endowment and the relative price of giving, study dummies, priming dummies,[12] and session size. We also control for demographic characteristics (gender, age, and age squared). Recall that NK and SK subjects are significantly different in terms of age and gender composition. Table 5 presents the results.[13]

- Table 5 here -

In Column 1, we present the results for the whole sample without any controls. Relative to the baseline group of SK facing SK, NK subjects give 21% points (resp. 22% points) more to SK (resp. NK) opponents, while SK subjects give 8% points more to NK opponents. The results remain qualitatively unchanged after controlling for experimental and demographic variables, as shown in Column 2. The fraction of giving decreases when its price gets higher or when the size of the endowment is larger, which is consistent with the previous findings in the literature (Engel 2011). We find that the demographic variables are mostly insignificant.

North Korean students In Study 2, we recruited college students who were born in North Korea but attending universities in South Korea at the time of the study. The NK student subjects are more comparable to their SK counterparts. They are slightly older than SK subjects but much younger than NK newcomers. In addition, with respect to income prospects, they are far more comparable to SK students than NK newcomers or returning newcomers, who rarely received formal education in South Korea. We compare NK newcomers and NK students and examine the extent to which differences in distributional

[12] In Studies 1 and 2, subjects were randomly assigned to priming on inter-Korean historical events. There was no significant effect of priming on subjects' behavior. See Online Appendix I for details on priming.

[13] We lose one NK student subject and two SK subjects because of the missing values for gender or age when we control for demographic characteristics.

preferences between NK and SK subjects are driven by such differences as age, income prospects, and education.

Column 3 presents the results for NK newcomers, while Column 7 presents the results for NK students. The results are similar for the two groups of NK subjects. Compared to the average fraction of giving from SK to SK subjects, NK newcomers give 17.9% points more to NK newcomer opponents and 19% points more to SK opponents. NK students give slightly less to NK students (17.2% points) and SK students (18.1% points).[14]

Assimilation The lack of a significant difference between NK newcomers and students implies that there exists little assimilation with regard to distributional preferences since NK students lived much longer in South Korea than NK newcomers. We further check the effect of assimilation more directly by using our two-year follow-up study of NK newcomers. Intriguingly, we find, as shown in Column 6, that NK returning newcomers still give more to both NK and SK opponents. Compared to the average fraction of giving from SK to SK subjects, NK returning newcomers give 9.7% points more to SK opponents and 11.2% points more to NK returning newcomer opponents. However, we find that they gave *relatively less* when they return after two years in South Korea than they did almost immediately after they entered South Korea. This suggests a small degree of assimilation in terms of distributive preferences. However we cannot reject the equality in between NK newcomers in Study 1 and returning NK newcomers in Study 3.[15]

As mentioned earlier, the attrition for our follow-up study is not ignorable. To check potential selection bias due to attrition, we compare those who did not participate in Study 3 (Column 4) and those did (Column 5). The results show that NK newcomers whom we followed did not behave substantially differently from those whom we could not follow two years later. Comparing Columns 4 and 5, we confirm that their average fraction of giving dropped after two years in South Korea. Note that the NK subjects in Columns 4 and 5 are

[14]To investigate this issue further, we ran additional regressions using Column (2) as a benchmark specification with interactions between the dummy for Study 2 and the dummy for NK subjects and also with interactions between the dummy for Study 2 and the (NK $\rightarrow$ SK) and (NK $\rightarrow$ NK) indicators. As expected, there is no significant difference between NK newcomers and NK students. See Table 10 in Appendix B for details.

[15]See Table 10 in Appendix B for details.

the same individuals at two different points in time.

- Table 6 here -

Table 6 shows within-subject changes in preference type by presenting the joint frequencies of types of distributional preferences between Studies 1 and 3. The results show that the Rawlsian type is stable over the two-year period, while the other types are not. For giving to NK opponents, 55% of subjects were Rawlsian in both Studies 1 and 3. On the other hand, 12% (resp. 9%) of subjects were selfish (resp. Rawlsian) in Study 1 and changed to the Rawlsian (resp. selfish) type in Study 3. The results are similar for giving to SK subjects. While the majority of SK subjects are selfish, there is no evidence that NK subjects become more selfish after two years in South Korea. In fact, the proportion of the selfish type dropped slightly.

Refugees A major limitation of our study is that NK subjects are refugees rather than ordinary residents of North Korea. One might think that refugees would have some genuine distributional preferences because of their social status in the host country. For example, refugees may want to express gratitude to the host country for accepting them. They might also be more willing to help each other. To defend our results against this concern, in our regression analysis, we tried to control for a variety of additional variables related to the status of refugees, such as attitudes toward South Korean society, group identity as a South Korean citizen as well as a Korean, attitude toward reunification, attitude toward refugees, and self-reported experience of discrimination. We also tried to control for a survey measure of risk aversion since refugees might be more or less risk averse as they experienced dangerous, even life-threatening, conditions while escaping from North Korea. Some of these additional control variables turn out to be significant; as NK subjects have more favorable attitudes toward NK refugees or they are more supportive of reunification, they tend to give relatively more. Those with stronger identity as a Korean give more. Those that experienced discrimination in South Korea give less. However our main results are robust to controlling for these variables. The detailed estimation results are presented as an appendix table (see Table 11 in Appendix B).

4.3 Group favoritism, trust and trustworthiness

This section summarizes the main findings of the other-other allocation game and the trust game. We present the supporting data analysis in Online Appendix II.

Group favoritism The other-other allocation game reveals any in-group or out-group favoritism when a subject's choice has no direct consequence on his or her own payoffs. To sum up, the equal division of money is prevalent in the symmetric matching cases (NK vs. NK and SK vs. SK) for both NK and SK subjects. In the asymmetric matching case of NK vs. SK, both NK and SK subjects exhibit favoritism toward an anonymous NK subject over an SK subject. That is, NK subjects favor their own group while SK subjects favor the opposite group.

Trust We also examined the behaviors of the first mover and the second mover in the trust game to see whether NK and SK subjects differ in terms of other aspects of social preferences: namely, trust and trustworthiness. The literature of the trust game (e.g., Berg et al. (1995), Glaeser et al. (2000), Fehr et al. (2003), and Karlan (2005)) refers to the amount sent by the first mover as a measure of trust and to the amount returned by the second mover as a measure of trustworthiness. However, the amount sent or returned in the trust game is also driven by distributional preferences. Hence, by combining the dictator game and the trust game, we identify trust and trustworthiness separately from distributional preferences in the spirit of Cox (2004) and Sapienza et al. (2013). Note that the first budget problem in the dictator game is equivalent to the decision problem of the first mover in the trust game, except that the second mover has a chance to make a decision in the trust game.

We use the fraction of the endowment given by the first mover to the second mover as the dependent variable in analyzing the trust behavior of the first mover. We control for the fraction of money given to *other* in the first budget problem of the dictator game as a control for distributional preferences. We find that the NK subjects sent 11% points (resp. 12% points) more to an SK opponent (resp. an NK opponent) than did SK subjects facing an SK opponent. SK subjects also sent around 8% points more to an NK opponent than to an SK opponent. However, once we control for distributional preferences, these differences

become minimal and insignificant.

Trustworthiness To examine the reciprocal behavior of the second mover, we use the fraction of money returned to the first mover as the dependent variable. We also use the average fraction of money given to *other* in the two budget sets of the dictator game which are comparable to the situation of the second mover.[16] We find that NK subjects returned 13% points (resp. 14% points) more to an SK first mover (resp. an NK first mover) than did SK subjects facing an SK opponent. The SK subjects sent 5% points more to an NK first mover than to an SK first mover. All these differences become smaller after controlling for distributional preferences. Further, after controlling for experimental controls as well as demographic characteristics, the remaining differences disappear. To sum up, the results from the trust game indicate that there is no difference between NK and SK subjects in terms of trust and trustworthiness. The observed differences in the trust game are driven by their differences in distributional preferences.

5 Robustness Check

In this section, we investigate the issue of sample selection. We look into two separate issues: (1) the representativeness of the NK refugee sample (in particular, newcomers in Study 1); and (2) the adequacy of the SK student sample.

5.1 Sampling Issues with the NK subjects

We start with the first issue. One important caveat in our paper is that NK refugees are a selected sample of the NK population. Table 7 provides summary statistics for the entire NK population, the stock of NK refugees who entered South Korea up to December 2010, and our sample. There are substantially more females, more from bordering providences, and less being married in the refugees than in the NK population. The age is more concentrated around 20-40 for the refugees than for the entire population. There is a less difference between the refugees and the entire NK population in terms of educational attainment obtained in

[16]Further details of the selection of the two budget sets are given in Online Appendix II.

NK. Our sample, newcomers in Study 1, is not substantially different from the stock of refugees, although the percentage of being married in our sample is only around 25%, which is about 10 percentage points less than that of the refugees. This is mainly because our sample consists of the refugees who just arrived, whereas the stock of the refugees consists of all refugees who tend to become more married on average as their duration in South Korea increases.[17]

- Tables 7 and 8 here -

In view of the substantial demographic differences between the NK population and refugees, it is natural to worry out the sample selection issue with the refugees. Table 8 shows additional regression results using only the newcomer (Study 1) sample. The dependent variable is the fraction of money given to other in the dictator game and the explanatory variables are the same as those considered in Table 7. First of all, it can be seen that gender, marital status and border, which represent main differences between the NK entire population and the refugees, are not significant at the 10% level when they are added to the regression individually or jointly. There is some weak evidence that age and educational attainment in the NK might affect the giving behavior in terms of individual t-statistics but they are never jointly significant in any specification. Therefore, we conclude that the refugees are a selected sample of the entire NK population in terms of basic demographic variables but the refugees' differential giving behavior among them cannot be explained by the differences in demographic variables within the refugees. This does not validate that our sample is free from the selection issue with respect to the refugees, but mitigates the concerns with respect to the potential bias due to the sample selection problem.

One potential threat we cannot deal with is the case when the refugees are different from the entire NK population in terms of unobservables that affect both giving behavior and defection status. To gauge any potential bias coming from these unobservables, we construct subsamples by NK subjects' reasons for defection and estimate our main specification (column (2) of Table 5) for each subsample. We find that our main qualitative conclusions regarding NK subjects' giving behavior hold across all subsamples (see further details in

[17]The percentage of being married for the refugees who entered South Korea prior 2005 is 42%, whereas it is only 31.7% for those who entered South Korea 2008 or after.

Appendix Table 12). Furthermore, we argue that the refugees are likely to represent North Koreans with the most affection for South Korean society and hence behave more likely as South Koreans do. Therefore, the discrepancy that we find with NK refugees is likely to be a lower bound of the difference that we would find with the general NK population.

5.2 Sampling Issues with the SK subjects

We now move to the second issue mentioned in the beginning of this section. Recall that our SK subjects consist of university students. As we explained, we chose SK students intentionally as our baseline group since this group's behavior is well understood in the literature. However, one lingering question is whether and to what extent other South Korean demographic groups behave differently. For this purpose, we conducted a supplementary experiment, which is somewhat different from our main experiments. The Institute for Peace and Unification Studies (IPUS) at Seoul National University recruits newly arrived NK refugees and surveys them as routine annual activities. In April 2012, we recruited a small set of NK refugees from the IPUS's survey participants and conducted only the dictator game. As in our main sample, NK subjects were informed that pair matching for each game would be done after the completion of the study with all participants. The important difference with this supplementary experiment is that NK subjects were instructed that their SK opponent was an anonymous South Korean who participated in a Gallup survey (not a SK university student as in our main sample). To recruit corresponding SK subjects, we conducted online experiments with South Koreans, who were enlisted in a pool of subjects managed by Gallup Korea. These SK subjects were told that their NK opponent was an anonymous refugee who entered South Korea in 2011 or after.

- Table 9 here -

Table 9 provides robustness check for the regression analysis of the fraction of money given in the dictator game. Columns (1) and (3) replicate the regression results for the main sample, whereas columns (2) and (4) report them for the supplementary sample. For the latter, there are 53 NK subjects. The number of the SK subjects who participated in the Gallup online experiments were larger than 53; for the purpose of comparing the NK subjects

with SK subjects with similar demographic groups, we constructed a matched sample of 53 SK subjects that were matched to the NK subjects based on age and gender. Focusing on the regression coefficient for the NK $\rightarrow$ SK dummy variable, we can see that the NK subjects give more to the SK subjects by about 9 percentage points on average than the SK subjects do in columns (2) and (4). This provides supporting evidence that our main results in the previous section are not completely driven by the feature that the SK subjects in the main sample are university students. Other estimated coefficients in columns (2) and (4) show patterns that are similar to those in the main sample, but their magnitudes are smaller. Overall, our main qualitative findings are robust in a sense that the NK subjects tend to give more to both SK and NK subjects and the SK subjects prefer giving more to the NK subjects in the supplementary sample.

We conclude this subsection by providing some cautionary remarks on the supplementary experiment. Strictly speaking, regression results between the main and supplementary samples are not directly comparable because it is possible that the NK subjects behave differently depending on the type of the informed SK opponents (university students vs. general South Korean population). Furthermore, the SK subjects might behave differently because of the difference in the mode of the experiments (the lab experiment in the main sample vs. the online experiment in the supplementary sample), not due to the demographic differences. In view of these concerns, we take the evidence reported in Table 9 as a piece of suggestive evidence rather than some conclusive evidence that our findings can be extended to general SK population.

6 Conclusion

We have examined whether institutions affect individual preferences by exploiting the division of Korea as a natural experiment of institutional change. Using NK refugees and SK students, we have provided new evidence on the impacts of institutions on distributional preferences and preferences for the market economy and democracy. We employed widely used experiments to elicit social preferences and standard surveys to measure various aspects of attitudes toward economic and political institutions. We find that NK subjects support

the market economy and democracy less than SK subjects. In the dictator game, NK subjects overall behave in a less self-interested manner than South Korean students. We find more Rawlsian, Utilitarian, and altruistic types among NK subjects, while selfish types are relatively fewer. Even after controlling for a variety of potential confounding factors, the disparity in distributional preferences between NK and SK subjects is quantitatively large and statistically significant. A follow-up study shows that the disparity remains substantial and statistically significant.

The main message of our findings is that institutions play crucial roles in shaping social preferences. On the one hand, this is not surprising because social preferences are commonly learned by interacting with others under the same institutions. It would be rational for individuals to embody certain "accepted"preferences in a society, in which they cannot live in isolation. A surprising finding of our study is that there is little assimilation in terms of social preferences. One possible interpretation is that NK refugees' social preferences are deeply rooted in the institutions that they experienced in their earlier years of life. This interpretation is consistent with the notion that social norms and cultural values change more slowly than institutions. Alternatively, NK refugees might be voluntarily or involuntarily segregated from the mainstream of South Korean society and trapped in their own community. The difficulty of economic assimilation could obstruct cultural assimilation.

From a policy perspective in South Korea, the increasing number of NK refugees is a serious concern. Reunification between the two Koreas is hard to predict, but not unlikely. History has taught us that a mix of different people could pose difficult economic and social problems. How could we avoid or at least minimize social conflicts due to a mix of different people? Our results in this paper provide a starting point for future research on this highly relevant policy question.

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Appendices

A Individual Types of Preferences for Giving

The self-other dictator game in our experimental design employs eight decision problems against each opponent group of NK and SK. Let (π_s, π_o) denote monetary payoff choices by an individual for *self* s and *other* o. Each decision problem is characterized by an endowment, m, and a relative price of giving, p, and feasible choices satisfy the budget constraint, $\pi_s + p\pi_o = m$. Let $\mathcal{M}$ denote the information about group identities of self and other.

We assume that individual subjects have well-defined preferences conditional on a pair $\mathcal{M}$ of social categories of self and other, represented by the utility function $U(\pi_s, \pi_o; \mathcal{M})$. An individual subject then chooses (π_s, π_o) to maximize his or her utility function $U(\pi_s, \pi_o; \mathcal{M})$ subject to the budget constraint, $\pi_s + p\pi_o = m$.

We focus on the four regular preference types, as below, that dictate distinctive behaviors. The experimental literature reports the presence of these types (e.g., Andreoni and Miller (2002)). In classifying subjects into these regular types, we first check whether an individual's behavior can be classified without noise. If it can, then we call them 'strong' type. For those who cannot be classified without noise, we minimize the Euclidean distance between the observed behavior and the behavior predicted by each preferences type and select the one giving the minimum distance. We call this a 'weak' type.

Selfish type

$$U(\pi_s, \pi_o; \mathcal{M}) = \pi_s.$$

The selfish preference type allocates all money to self for the entire range of relative prices of giving, p.

Altruistic type

$$U(\pi_s, \pi_o; \mathcal{M}) = \pi_o.$$

The pure altruistic type allocates all money to other for the entire range of prices, p.

Rawlsian type

$$U(\pi_s, \pi_o; \mathcal{M}) = \min\{\alpha\pi_s, \beta\pi_o\},$$

where $\alpha > 0$ and $\beta > 0$. When $\alpha = \beta$, the Rawlsian type chooses an equal split of total money between self and other $\pi_s = \pi_o$, regardless of the relative price of giving. When $\alpha \neq \beta$, the optimal choice (π_s, π_o) must satisfy the following condition that the money share for self, $\frac{\pi_s}{\pi_s+\pi_o}$, is constant.

$$\frac{\pi_s}{\pi_s + \pi_o} = \frac{\beta}{\alpha + \beta}.$$

In the analysis of classified types in Tables 4 and 6, we focus on the case where $\alpha = \beta$.

Utilitarian type

$$U(\pi_s, \pi_o; \mathcal{M}) = \alpha\pi_s + \beta\pi_o,$$

where $\alpha > 0$ and $\beta > 0$. The optimal demand for this type is determined by

$$\pi_s = \begin{cases} m & \text{if} \quad p > \beta/\alpha \\ [0, m] & \text{if} \quad p = \beta/\alpha \\ 0 & \text{if} \quad p < \beta/\alpha \end{cases}$$

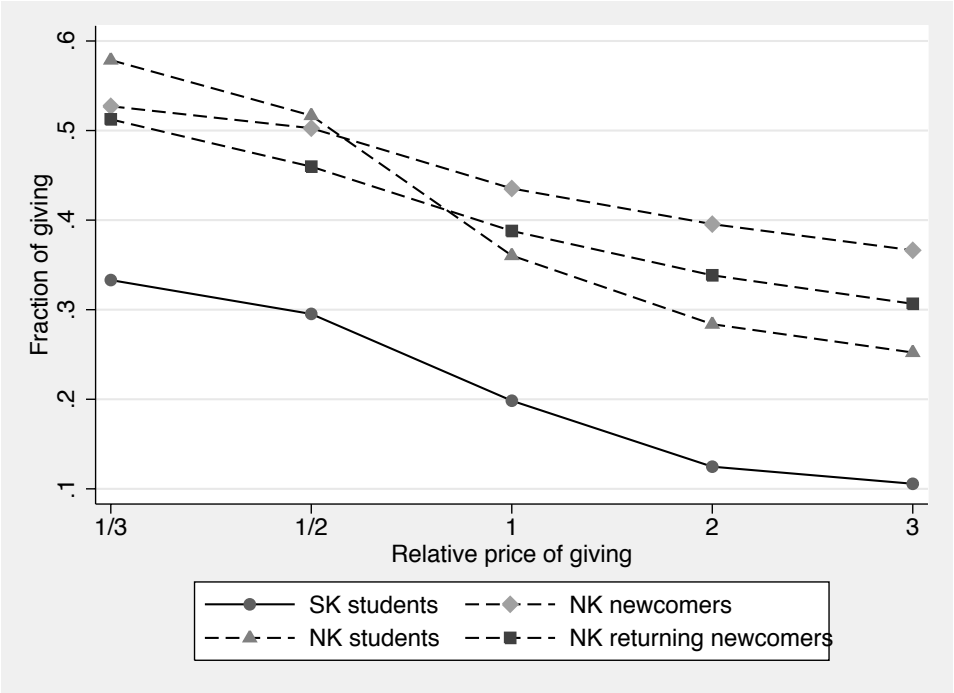
In the data analysis of Tables 4 and 6, we restrict attention to the case where $\alpha = \beta$.

B Appendix Tables

- Tables 10, 11 and 12 here -

Figure 1: Money fraction and relative price of giving in the dictator game

A. Against a South Korean opponent



B. Against a North Korean opponent

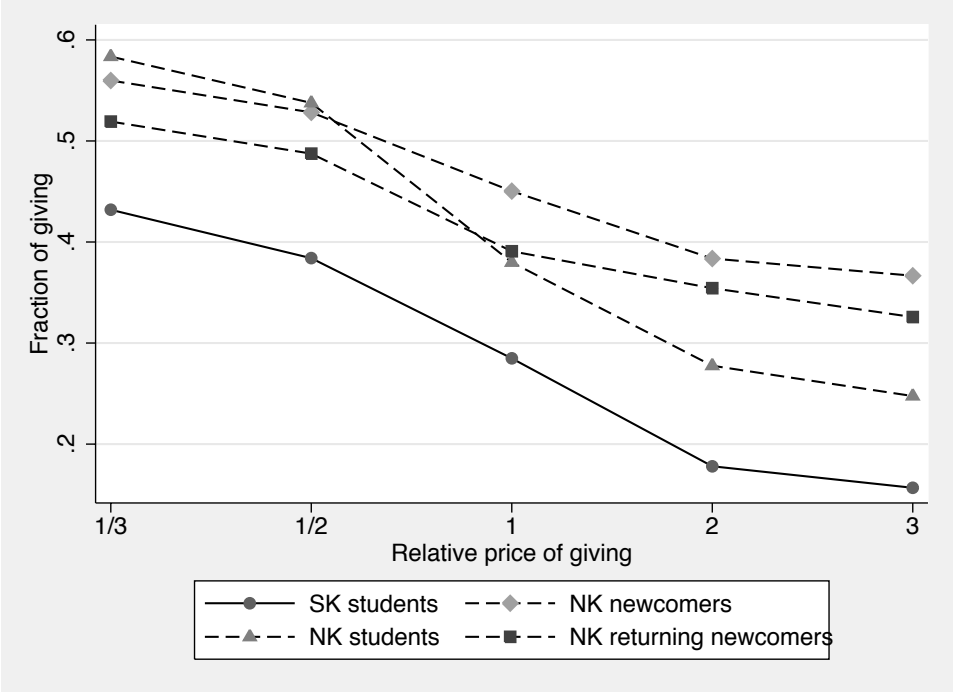


Table 1: Description of samples

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	NK Subjects				SK Subjects			
	Newcomers (Study 1)	Students (Study 2)	Returning Newcomers (Study 3)	NK Total	Study 1	Study 2	Study 3	SK Total
Male	0.37	0.28	0.30	0.33	0.58	0.52	0.62	0.58
Age	36.28	25.50	41.42	34.67	21.36	22.05	22.89	22.09
Years in North Korea	35.15	16.68	38.27	31.11				
Months in South Korea	10.86	62.43	34.18	29.83				
Number of subjects	133	72	66	205	166	80	157	403

Notes: Each cell reports the sample mean or frequency. In column (4), the sample mean is computed using newcomers (Study 1), students (Study 2) and returning newcomers (Study 3). In other words, returning newcomers are counted twice (note that the sample mean is systematically larger for age, years in North Korea and months in South Korea). The number of subjects in column (4) corresponds to the sum of the sample size of newcomers (Study 1) and that of students (Study 3).

Table 2: Description of North Korean samples

	Newcomers (Study 1)	Students (Study 2)	Returning Newcomers (Study 3)
Life in North Korea			
Place of birth: border[(2)]	82.58	79.17	87.69
Education in North Korea			
Primary	9.09	61.11	4.55
Secondary	64.39	27.78	62.12
Higher	26.52	11.11	33.33
Political affiliation in North Korea			
Own membership in Workers' Party of North Korea	13.74	1.39	13.64
Hours of attendance of indoctrination meetings per week			
None	37.59	13.43	48.48
1-2 hours	45.11	38.81	37.88
3-4 hours	9.02	19.40	12.12
5 hours or more	8.28	28.36	1.52
Reasons for defection[(3)]			
Food shortage and economic hardship	33.83	54.29	23.08
Threat to own safety	9.77	7.14	7.69
Personal persuasion	15.79	12.86	13.85
Family member(s) defected	29.32	50.00	40.00
Making money	13.53	12.86	12.31
Seeking liberty and anti North Korea	61.65	32.86	52.31
Better opportunities for children	17.29	4.29	23.08
Life in South Korea			
Household structure			
Married	24.81	4.48	33.33
Number of household members[(1)]	2.20	1.10	2.53
Education in South Korea	6.11	100.00	21.21
Monthly household income (unit: 10,000 KRW)			
below 50	12.71	40.00	6.35
50-100	33.05	30.00	33.33
100-150	22.03	21.43	23.81
150-200	17.80	7.14	15.87
200+	14.41	1.43	20.63
Religion			
None	46.21	15.28	45.45
Protestant	45.45	83.33	50.00
Other	8.33	1.39	4.55
Number of subjects	133	72	66

Notes: (1) Each cell reports the sample frequency in percentage except "Number of household members", for which we report the sample mean.
(2) The binary indicator "Border" is defined as follows. It has value 1 if an individual was born in providences that consist of the border between North Korea and China and has value 0 otherwise. The bordering providences are North Hamgyoung, Ryanggang, Chagang, and North Pyongan (starting from the far east to west).
(3) Each NK subject reported two reasons for defection.

Table 3: Survey-based preferences for institutions

A. Market economy

Variables	(1) All NK subjects	(2) All NK subjects	(3) NK newcomers	(4) NK newcomers: attrited	(5) NK newcomers: non-attrited	(6) NK returning newcomers	(7) NK students
NK	-1.766***	-1.628***	-1.398***	-1.771***	-0.530	-0.836	-1.835***
	(0.232)	(0.355)	(0.494)	(0.612)	(0.615)	(0.639)	(0.509)
Male		0.515**	0.436*	0.492*	0.657***	0.712***	0.660**
		(0.227)	(0.240)	(0.260)	(0.252)	(0.256)	(0.267)
Age		0.090	-0.002	-0.111	-0.021	-0.004	-0.302
		(0.074)	(0.091)	(0.131)	(0.098)	(0.103)	(0.226)
Age squared		-0.132	-0.033	0.143	-0.044	-0.033	0.615
		(0.085)	(0.111)	(0.180)	(0.118)	(0.118)	(0.422)
Constant	24.578***	23.256***	24.873***	26.376***	25.226***	24.772***	28.089***
	(0.133)	(1.211)	(1.429)	(1.950)	(1.538)	(1.621)	(2.895)
Experimental Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	669	666	532	468	465	465	471
NK subjects	202	201	131	67	64	64	70
SK subjects	403	401	401	401	401	401	401
R-squared	0.089	0.110	0.094	0.078	0.078	0.082	0.071

B. Democracy

Variables	(1) All NK subjects	(2) All NK subjects	(3) NK newcomers	(4) NK newcomers: attrited	(5) NK newcomers: non-attrited	(6) NK returning newcomers	(7) NK students
NK	-2.132***	-2.137***	-2.842***	-3.379***	-2.349***	-2.689***	-1.585***
	(0.220)	(0.289)	(0.390)	(0.450)	(0.543)	(0.493)	(0.527)
Male		-0.161	-0.233	-0.482*	-0.314	-0.422	-0.547*
		(0.223)	(0.242)	(0.261)	(0.268)	(0.259)	(0.284)
Age		0.150**	0.244***	0.354***	0.161	0.189*	0.107
		(0.071)	(0.081)	(0.112)	(0.099)	(0.100)	(0.267)
Age Squared		-0.221**	-0.326***	-0.435***	-0.246**	-0.251**	-0.072
		(0.089)	(0.099)	(0.147)	(0.120)	(0.123)	(0.511)
Constant	24.072***	21.798***	20.586***	18.699***	21.874***	21.018***	22.044***
	(0.139)	(1.135)	(1.283)	(1.691)	(1.558)	(1.565)	(3.383)
Experimental Controls	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	668	665	530	465	466	466	471
NK subjects	200	199	129	64	65	65	70
SK subjects	403	401	401	401	401	401	401
R-squared	0.129	0.153	0.145	0.107	0.102	0.120	0.036

Notes: Robust standard errors, clustered by individual subject, are reported in parentheses. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. NK is an indicator of a subject being North Korean. Experimental controls contain the study dummy and priming treatments.

Table 4: Individual-level classification: Types of distributional preferences

A. Against a North Korean opponent

Type	NK Newcomers (Study 1)	NK Returning Newcomers (Study 1)	NK Returning Newcomers (Study 3)	NK Students (Study 2)	SK Students (All three studies)
Selfish	0.17	0.18	0.14	0.21	0.44
Altruistic	0.05	0.05	0.03	0.01	0.02
Rawlsian	0.70	0.73	0.73	0.54	0.40
Utilitarian	0.08	0.04	0.11	0.24	0.14
Number of subjects	133	66	66	72	403

B. Against a South Korean opponent

Type	NK Newcomers (Study 1)	NK Returning Newcomers (Study 1)	NK Returning Newcomers (Study 3)	NK Students (Study 2)	SK Students (All three studies)
Selfish	0.20	0.21	0.18	0.19	0.56
Altruistic	0.08	0.08	0.03	0.03	0.00
Rawlsian	0.68	0.70	0.73	0.56	0.33
Utilitarian	0.05	0.02	0.06	0.22	0.11
Number of subjects	133	66	66	72	403

Note: Each cell reports the relative frequency of the preference types within each column.

Table 5: Regression analysis of the fraction of money given to other in the dictator game

Variables	(1) All NK subjects	(2) All NK subjects	(3) NK newcomers	(4) NK newcomers: attrited	(5) NK newcomers: non-attrited	(6) NK returning newcomers	(7) NK students
NK → SK	0.211***	0.164***	0.179***	0.177***	0.163***	0.097**	0.172***
	(0.016)	(0.022)	(0.031)	(0.042)	(0.039)	(0.041)	(0.034)
NK → NK	0.222***	0.176***	0.190***	0.194***	0.169***	0.112***	0.181***
	(0.015)	(0.021)	(0.029)	(0.038)	(0.036)	(0.041)	(0.034)
SK → NK	0.076***	0.076***	0.076***	0.076***	0.076***	0.076***	0.076***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
log(Endowment)		-0.009**	-0.013***	-0.017***	-0.015***	-0.014***	-0.018***
		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
log(Relative price)		-0.112***	-0.107***	-0.113***	-0.108***	-0.112***	-0.121***
		(0.006)	(0.006)	(0.007)	(0.006)	(0.007)	(0.007)
Study 2		-0.026	-0.027	-0.033	-0.027	-0.036	-0.030
		(0.019)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Study 3		-0.040*	-0.033	-0.047	-0.036	-0.059*	-0.048
		(0.021)	(0.028)	(0.030)	(0.029)	(0.031)	(0.031)
Confrontation priming		-0.007	-0.013	-0.024	-0.028	-0.044	-0.036
		(0.023)	(0.025)	(0.028)	(0.027)	(0.032)	(0.029)
Peace priming		0.007	0.000	-0.012	-0.006	-0.022	-0.021
		(0.024)	(0.025)	(0.029)	(0.027)	(0.032)	(0.031)
Session size		0.000	0.000	-0.000	0.001	-0.000	0.002
		(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Male		-0.015	-0.015	-0.034*	-0.015	-0.035**	-0.034*
		(0.015)	(0.017)	(0.019)	(0.018)	(0.018)	(0.019)
Age		0.006	0.003	0.012	-0.000	0.013**	-0.000
		(0.005)	(0.006)	(0.009)	(0.006)	(0.006)	(0.014)
Age squared		-0.003	-0.001	-0.012	0.004	-0.011	0.012
		(0.006)	(0.007)	(0.013)	(0.008)	(0.007)	(0.024)
Constant	0.209***	0.222**	0.300***	0.231	0.349***	0.195	0.320
	(0.009)	(0.096)	(0.116)	(0.157)	(0.130)	(0.122)	(0.206)
Observations	10,783	10,735	8,544	7,488	7,472	7,471	7,552
NK subjects	205	204	133	67	66	66	71
SK subjects	403	401	401	401	401	401	401
R-squared	0.111	0.220	0.216	0.207	0.188	0.186	0.185

Notes: Robust standard errors, clustered by individual subject, are reported in parentheses. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. A matching dummy $X \to Y$ indicates that a subject X faces an opponent Y. The baseline matching, SK → SK, is omitted.

Table 6: Joint frequencies of individual types of distributional preferences between Studies 1 and 3 (NK returning newcomers)

A. Against a North Korean opponent

		Study 3 (2013)				
		Selfish	Altruistic	Rawlsian	Utilitarian	Total
Study 1 (2011)	Selfish	0.03	0.00	0.12	0.03	0.18
	Altruistic	0.00	0.02	0.03	0.00	0.05
	Rawlsian	0.09	0.02	0.55	0.08	0.73
	Utilitarian	0.02	0.00	0.02	0.00	0.04
	Total	0.14	0.03	0.73	0.11	1.00

B. Against a South Korean opponent

		Study 3 (2013)				
		Selfish	Altruistic	Rawlsian	Utilitarian	Total
Study 1 (2011)	Selfish	0.08	0.00	0.11	0.03	0.21
	Altruistic	0.00	0.02	0.05	0.02	0.08
	Rawlsian	0.09	0.02	0.58	0.02	0.70
	Utilitarian	0.02	0.00	0.00	0.00	0.02
	Total	0.14	0.03	0.73	0.11	1.00

Note: Each cell reports the relative frequency of the preference types within each panel.

Table 7: Summary statistics regarding the reprensentativeness of our sample

	Census[1]	Refugees[2]	Newcomers
Year	2008	2011	2011
Sample Size	24,052,231	20,358	133
Female[3] (%)	51.2	68.6	63.2
Age Composition[3] (%)			
0-9	14.8	3.9	0.0
10-19	17.0	11.6	3.8
20-29	14.9	27.4	35.3
30-39	16.2	32.1	23.3
40-49	14.9	15.6	20.3
50-59	9.2	4.8	11.3
60 and above	13.0	4.6	6.0
Birth or residential providence in North Korea			
Border[3][4] (%)	30.3	78.2	82.6
Marital status			
Married[5] (%)	65.4	35.3	24.8
Highest educational attainment obtained in North Korea[5] (%)			
Primary (including no education)	7.5	8.8	3.0
Secondary (incomplete)	71.9[6]	66.0[6]	6.0
Secondary (complete)			58.6
Post-secondary (up to 3 additional years)	9.9	13.5	24.8
Tertiary or higher	10.7	9.4	7.5
No response	0.0	2.2	0.8

Notes: (1) "Census" refers to the population census by the North Korean government, funded by the United Nation. Source: DPR Korea 2008 Population Census, National Report, available at `https://unstats.un.org/unsd/demographic/sources/census/2010_PHC/North_Korea/Final%20national%20census%20report.pdf`.
(2) "Refugees" correspond to North Koreans who entered South Korea as refugees. According to the official South Korean government statistics, there were 20,358 individuals who entered South Korea up to December 2010. Source: 2011 Report on North Korean Refugees by North Korean Refugees Foundation (in Korean).
(3) For the Census, the variables "Female", "Age Composition" and "Border" are for the entire population. For the refugees, the corresponding figures are from the South Korean government statistics for the entire 20,358 refugees.
(4) The binary indicator "Border" is defined as follows. It has value 1 if an individual lived in providences that consist of the border between North Korea and China and has value 0 otherwise. The bordering providences are North Hamgyoung, Ryanggang, Chagang, and North Pyongan (starting from the far east to west). This variable refers to the birth place in our survey (newcomers in 2011).
(5) The variables "Marital status" and "Highest educational attainment obtained in North Korea" are constructed differently from the other variables. For the Census, the percentage in entry is for those aged 15 years and above. For the refugees, the corresponding percentage is obtained from the survey (conducted by North Korean Refugees Foundation in 2011) among the refugees aged 19 and above. The sample size of the survey was 7,560, which corresponds to roughly 40% of the total refugee population aged 19 and above.
(6) There is no information whether the secondary education is complete or not from the original source.

Table 8: Regression analysis of the fraction of money given in the dictator game using only the NK sample

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Receiver = NK	0.011	0.011	0.011	0.011	0.011	0.011
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Age		0.001				0.001
		(0.007)				(0.008)
Age squared		0.002				0.002
		(0.009)				(0.009)
Male	0.024					0.049
	(0.032)					(0.033)
Married			0.030			0.011
			(0.035)			(0.042)
Border				-0.043		-0.049
				(0.049)		(0.052)
Secondary (incomplete)					0.087	0.073
					(0.079)	(0.091)
Secondary (complete)					0.083	0.063
					(0.051)	(0.074)
Post-secondary					0.134**	0.112
(up to 3 additional years)					(0.057)	(0.077)
Tertiary or higher					0.078	-0.002
					(0.071)	(0.094)
Constant	0.436***	0.388***	0.438***	0.480***	0.351***	0.326**
	(0.024)	(0.135)	(0.022)	(0.047)	(0.047)	(0.140)
Joint test	0.457	0.095	0.395	0.376	0.249	0.160
Observations	2,128	2,128	2,128	2,112	2,112	2,096
NK subjects	133	133	133	132	132	131
R-squared	0.003	0.019	0.003	0.005	0.012	0.040

Notes: (1) The omitted dummy variables are age less than 23 for the age dummies and primary (including no education) for the education variables (obtained in North Korea).
(2) The sample consists of 133 newcomers in Study 1, 132 for columns (4) and (5), and 131 for column (6) after subtracting observations due to nonresponse on birth or educational attainment.
(3) Robust standard errors, clustered by individual subject, are reported in parentheses. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.
(4) The row called "Joint test" refers to the p-value of testing the joint significance of coefficients excluding the constant and the indicator variable called "Receiver = NK".

Table 9: Robustness check for regression analysis of the fraction of money given in the dictator game

Variables	(1) Main Sample	(2) Supplementary Sample	(3) Main Sample	(4) Supplementary Sample
NK → SK	0.211***	0.087**	0.171***	0.092**
	(0.016)	(0.038)	(0.021)	(0.037)
NK → NK	0.222***	0.066*	0.183***	0.071*
	(0.015)	(0.040)	(0.020)	(0.039)
SK → NK	0.076***	0.056***	0.076***	0.053***
	(0.007)	(0.018)	(0.007)	(0.019)
log(Endowment)			-0.010**	0.015
			(0.005)	(0.012)
log(Relative price)			-0.112***	-0.116***
			(0.006)	(0.012)
Male			-0.014	-0.002
			(0.015)	(0.039)
Age			0.004	-0.009
			(0.005)	(0.007)
Age squared			0.000	0.000
			0.000	(0.000)
Constant	0.209***	0.358***	0.222***	0.355*
	(0.009)	(0.030)	(0.085)	(0.211)
Observations	10,783	1696	10,735	1696
NK Subjects	205	53	204	53
SK Subjects	403	53	401	53
R-squared	0.111	0.016	0.246	0.139

Notes: Robust standard errors, clustered by individual subject, are reported in parentheses. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. A matching dummy $X \to Y$ indicates that a subject X faces an opponent Y. The baseline matching, SK → SK, is omitted. The main sample refers to the dataset used in Table 5. Column (1) of this table replicates Column (1) of Table 5. The supplement sample consists of 53 NK subjects that are different from those in the main sample and 53 SK subjects that are matched to the NK subjects based on gender and age.

Table 10: [Appendix Table] Further regression analysis of the fraction of money given to other in the dictator game

Variables	(1)	(2)	(3)
NK → SK	0.164***	0.169***	0.169***
	(0.022)	(0.029)	(0.030)
NK → NK	0.176***	0.181***	0.180***
	(0.021)	(0.028)	(0.027)
SK → NK	0.076***	0.076***	0.076***
	(0.007)	(0.007)	(0.007)
(Study 2) × (NK dummy)		0.006	
		(0.039)	
(Study 3) × (NK dummy)		-0.031	
		(0.032)	
(Study 2) × (NK → SK)			0.007
			(0.040)
(Study 2) × (NK → NK)			0.005
			(0.039)
(Study 3) × (NK → SK)			-0.033
			(0.033)
(Study 3) × (NK → NK)			-0.029
			(0.033)
log(Endowment)	-0.009**	-0.009**	-0.009**
	(0.005)	(0.005)	(0.005)
log(Relative price)	-0.112***	-0.112***	-0.112***
	(0.006)	(0.006)	(0.006)
Study 2	-0.026	-0.028	-0.028
	(0.019)	(0.027)	(0.027)
Study 3	-0.040*	-0.030	-0.030
	(0.021)	(0.027)	(0.027)
Confrontation priming	-0.007	-0.007	-0.007
	(0.023)	(0.023)	(0.023)
Peace priming	0.007	0.007	0.007
	(0.024)	(0.024)	(0.024)
Session size	0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)
Male	-0.015	-0.015	-0.015
	(0.015)	(0.015)	(0.015)
Age	0.006	0.006	0.006
	(0.005)	(0.005)	(0.005)
Age squared	-0.003	-0.003	-0.003
	(0.006)	(0.006)	(0.006)
Constant	0.222**	0.222**	0.222**
	(0.096)	(0.097)	(0.097)
Observations	10,735	10,735	10,735
NK subjects	204	204	204
SK subjects	403	401	401
R-squared	0.220	0.221	0.221

Notes: Robust standard errors, clustered by individual subject, are reported in parentheses. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. A matching dummy $X \to Y$ indicates that a subject X faces an opponent Y. The baseline matching, SK → SK, is omitted.

Table 11: [`Appendix Table`] Regression analysis of giving behavior in the dictator game with further controls

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
NK → SK	0.149***	0.151***	0.164***	0.138***	0.158***	0.165**	0.164***	0.124***
	(0.025)	(0.022)	(0.022)	(0.023)	(0.022)	(0.022)	(0.022)	(0.027)
NK → NK	0.160***	0.162***	0.176***	0.150***	0.170***	0.175***	0.175***	0.135***
	(0.024)	(0.022)	(0.021)	(0.022)	(0.021)	(0.021)	(0.021)	(0.026)
SK → NK	0.076***	0.076***	0.076***	0.076***	0.076***	0.076***	0.076***	0.076***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Att. toward SK society	0.004*							0.001
	(0.002)							(0.002)
Identity as Korean		0.030**						0.020**
		(0.008)						(0.009)
Identity as South Korean			0.013					-0.007
			(0.009)					(0.009)
Att. toward reunification				0.015***				0.012***
				(0.003)				(0.003)
Att. toward NK refugees					0.012**			0.006
					(0.006)			(0.006)
Discrimination						-0.008*		-0.006
						(0.004)		(0.004)
Risk taking							-0.004	-0.007
							(0.006)	(0.006)
Constant	0.155	0.139	0.175*	0.103	0.152	0.252***	0.236**	0.081
	(0.107)	(0.099)	(0.105)	(0.100)	(0.104)	(0.094)	(0.097)	(0.118)
Observations	10,671	10,735	10,735	10,719	10,543	10,607	10,719	10,223
R-squared	0.224	0.231	0.222	0.238	0.225	0.218	0.220	0.240

Notes: Robust standard errors, clustered by individual subject, are reported in parentheses. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. A matching dummy $X \rightarrow Y$ indicates that a subject X faces an opponent Y. The baseline matching, SK → SK, is omitted. Each specification includes experimental controls containing the natural logarithms of amount of endowment and relative price of giving, study dummies, priming treatments, and the size of session.

Table 12: [`Appendix Table`] Regression analysis of the fraction of money given in the dictator game by reasons for defection

Variables	(1) Reason: Food	(2) Reason: Liberty	(3) Reason: Money	(4) Reason: Threat	(5) Reason: Persuasion	(6) Reason: Family	(7) Reason: Kids
NK → SK	0.130***	0.189***	0.163***	0.154*	0.157***	0.173***	0.205***
	(0.032)	(0.029)	(0.050)	(0.079)	(0.050)	(0.028)	(0.059)
NK → NK	0.138***	0.189***	0.169***	0.162***	0.178***	0.184***	0.221***
	(0.032)	(0.027)	(0.048)	(0.061)	(0.046)	(0.027)	(0.057)
SK → NK	0.076***	0.076***	0.076***	0.076***	0.076***	0.076***	0.076***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
log(Endowment)	-0.016***	-0.015***	-0.018***	-0.018***	-0.018***	-0.017***	-0.018***
	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
log(Relative Price)	-0.115***	-0.111***	-0.114***	-0.115***	-0.111***	-0.120***	-0.110***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Study 2	-0.027	-0.021	-0.027	-0.031	-0.035	-0.029	-0.024
	(0.023)	(0.023)	(0.026)	(0.026)	(0.025)	(0.023)	(0.026)
Study 3	-0.044	-0.033	-0.041	-0.044	-0.045	-0.049*	-0.044
	(0.029)	(0.028)	(0.032)	(0.031)	(0.030)	(0.028)	(0.030)
Confrontation priming	-0.030	-0.024	-0.027	-0.033	-0.031	-0.039	-0.034
	(0.028)	(0.025)	(0.032)	(0.031)	(0.030)	(0.026)	(0.030)
Peace priming	-0.008	-0.003	-0.001	-0.005	-0.019	-0.018	-0.013
	(0.029)	(0.026)	(0.035)	(0.032)	(0.031)	(0.027)	(0.030)
Session size	-0.001	0.002	-0.001	0.001	0.001	0.002	0.001
	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)
Male	-0.033*	-0.017	-0.033	-0.036*	-0.028	-0.029	-0.026
	(0.019)	(0.018)	(0.020)	(0.020)	(0.020)	(0.018)	(0.020)
Age	0.005	0.001	0.003	0.009	-0.006	0.012	0.012
	(0.007)	(0.007)	(0.010)	(0.008)	(0.010)	(0.008)	(0.009)
Age Squared	0.001	0.005	0.004	-0.006	0.016	-0.013	-0.016
	(0.009)	(0.009)	(0.015)	(0.010)	(0.013)	(0.009)	(0.012)
Constant	0.338**	0.309**	0.376**	0.261*	0.474***	0.185	0.235
	(0.142)	(0.124)	(0.180)	(0.153)	(0.160)	(0.142)	(0.161)
Observations	7,744	8,096	6,848	6,704	6,896	7,600	6,832
R-squared	0.189	0.221	0.169	0.165	0.169	0.200	0.170

Notes: Robust standard errors, clustered by individual subject, are reported in parentheses. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. A matching dummy $X \rightarrow Y$ indicates that a subject X faces an opponent Y. The baseline matching, SK → SK, is omitted. In each column, the estimation subsample consists of NK subjects with the same reason for defection and all SK subjects. Since in our survey, the NK subjects were asked to report two main reasons for defection, each NK subject can be included in the subsample for two columns.