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Social Capital to Induce a Contribution to

Environmental Collective Action in Indonesia: An

Experimental Method

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Abstract

Social capital is considered to be an important factor in economic development. It is argued that it generates a flow of (economic) benefits through collective action, by reducing free riding and increasing individual contribution. This study examines whether social capital increases individual contribution in a collective action situation. Using a classroom experiment, two games are played in a sequential manner: a trust game to measure level of trust–as a proxy for social capital–and a public goods game to measure individual contribution to collective action. In the public goods game, we apply some treatments to look at the impact of partial disclosure of a group member's behaviour in the trust game on contributions in the public goods game. In general, the result shows that the level of social capital positively impacts individual contribution to collective action. However, we found no significant evidence to support the impact of partial disclosure of a group member's behaviour in the trust game on contributions in the public goods game.

SOCIAL CAPITAL TO INDUCE A CONTRIBUTION TO ENVIRONMENTAL COLLECTIVE ACTION IN INDONESIA: AN EXPERIMENTAL METHOD

1. Introduction

It is argued that social capital plays an important role in development. It generates a flow of benefits through collective action by reducing the free rider problem and increasing individual contribution (Grootaert & van Bastelaer, 2002). Social capital refers to connections among individuals i.e. social networks and the norms of reciprocity and trustworthiness that arise from them (Putnam, 2000). Fukuyama (1997) defined social capital as the existence of certain informal values or norm shared among members of a group that permits cooperation among them. It also interpreted as a set of values and relationship created by individuals in the past that can be drawn on in the present and future to overcome social dilemmas (Ahn & Ostrom, 2002). Social capital functions to promote cooperation and solve collective problems (Putnam, 2000; Fukuyama, 1997; Ahn & Ostrom, 2002).

A group of individuals in a community engage with one another through interaction. The intensity of interaction could bring about a better knowledge of others' preferences. If he/she takes into account another individual's preference in his/her utility function then he/she is recognised as having a social preference (other-regarding preference). This assumption is different from the most common one in basic economic analysis where an individual has self-interested motives only. Individuals with social preference possess a reciprocity, a behavioural response to perceived kindness and unkindness (Falk & Fischbacher, 2006). One important type of social preference is reciprocal fairness, which responds to kindness in a kind manner, and to hostility in a hostile manner (Fehr & Fischbacher, 2002).

Recognition of individual heterogeneous preferences[1] regarding social interactions is important in the analysis of reasons for successful collective action (Ahn et al., 2003). Most individuals can be classified as conditional cooperators, and the rest range between selfish, envious, and altruistic (Fehr & Fischbacher, 2002). Reciprocal behaviour not only can be attached to individuals as their characteristics of preference, but also can emerge as social norms called norms of reciprocity. Rules reflected in formal and informal values play a role

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[1] A heterogeneous preference means there are individuals who do not only have self-interested motives, but have a social preference or other-regarding preference. Homogeneous preference only allows for one type of individual i.e. self-interested or egoistical.

in strengthening norms of reciprocity, which is closely tied to the term *trust*. Networks in a community facilitate transmission of information in the trust of the trustor (the one who entrusts[2] others) and the trustworthiness of the trustee (the one who receives the trust of others and responds to it) (Ostrom & Ahn, 2003). We can put our trust in a trustworthy person and this produces a positive net benefit from interaction. A community with a denser network of trust is said to be more likely to have higher social capital.

Several variables have empirically been identified in the literature as factors that could increase the contribution of individuals in collective action. Besides individual and household characteristics--such as income, expenditure, assets, age, gender, marital status, household size, type of region (urban/rural), ethnicity, and religion (Oliver, 1984; Chakrabarti et al., 2009; Rupasingha, 1997; Bwalya, 2004; Beard, 2005, 2007, Muller & Vothknecht, 2013)-- there is a need to incorporate variables that relate to the social context. As incorporating the social context is important in the analysis of workable collective action, we found in literature that these variables matter: interaction among community members (Siyaranamual, 2013; Duffy & Ochs, 2009; Cason & Khan, 1999); social preference (Fischbacher & Gachter, 2010); formal and informal values embedded in the community, such as social sanctions (Fehr & Gachter, 2000); norms of reciprocity among community members (Fehr & Fischbacher, 2004; Lubell & Scholz, 2001; Pfeiffer et al., 2005; Keser & van Winden, 2000); trust (Gachter et al., 2004; Carpenter et al., 2006; Qin et al., 2011); and social capital (Anderson et al., 2004; Potipiti, 2012; Bouma et al., 2008; Leonard et al., 2010).

Experiments on how social capital induces collective action have been conducted by Anderson et al. (2004), Potipiti (2012), and Leonard et al. (2010). These three studies used a questionnaire to measure social capital and a public goods game to measure collective action contribution. However, there are potential problems in measuring social capital. The problems relate to vague interpretations regarding social capital, poor data sources, and the possibility of measurement error that could be brought into identification and endogeneity issues (Durlauf, 2002a). There is also concern that survey-based measures of social capital are not meaningful (Anderson et al, 2004) especially if we refer to the empirical results of Glaeser et al. (2000). As trust is so central in the theory of social capital (Putnam, 1995), they have found that a widely-used survey question on trust in the GSS (General Social Survey) - agreement with 'most people can be trusted'- only explains trustworthiness but not trusting behaviour. The question explains attitudinal measures of trust and moving toward

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[2] To entrust means to give our trust to others.

behavioural measures of trust becomes important (Putnam, 1995). Limitations from survey-based measures of social capital bring on the suggestion of the use of an experimental approach to measure social capital (Durlauf, 2002a; 2002b).

This study conducts a series of experiments to test whether social capital induces individual contribution in a collective action problem, using both a trust and a public goods game in a sequential manner. We apply treatment to the group in the public goods game to look at whether partial disclosure of a group member's behaviour in the trust game affects individual contributions in the public goods game. We also compare trust measurements from the trust game and the questionnaire.

2. Experimental Design and Procedures

The game simulation addresses the environmental problem of uncollected trash. We will look at the role of social capital, measured by trust level, in making contributions to a collective action–which provides environmental public services. Two games are conducted sequentially: a trust game and a public goods game with a threshold. The trust game measures trust level and the public goods game measures individual contributions in public goods provision. In addition, trust level is also measured by a questionnaire on social capital.

This study used a computerised class experiment, with 462 University of Indonesia undergraduate students as participants. The experiment was conducted in a computer laboratory at the Department of Economics, Faculty of Economics, University of Indonesia in Depok, West Java, using widely-used software, z-Tree (Zurich Toolbox for Readymade Economic Experiments) (Fischbacher, 1999). Each session consists of 16 participants and there were 29 sessions of the experiment in total. Each session took about one hour. All the sessions were completed within 10 days.

We advertised this experiment through a mailing list and 838 applicants registered online and about 105 applicants registered on the spot. Those who registered online could choose a timeslot. We selected participants randomly if more than 16 participants registered for any particular session. If there were applicants who registered online but did not arrive, we immediately replaced them with applicants who had registered on the spot. We invited 18-20 participants to each session in case of no-show participants. If more than 16 participants arrived, we paid IDR 20,000 as a show-up fee to those who registered but could not become participants in the experiment.

All participants are guaranteed a minimum payment of IDR 20,000. In this experiment, there is no communication between participants and their identities are

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confidential. At the start, the participants are informed that the amount earned will be determined by lottery.

The lottery is conducted to ensure that the payoffs from both games – the trust game and the public goods game – are independent of each other. This is important because should a participant receive payoffs from both games, then we are faced with two problems: Firstly, if we guarantee participants that they will receive a payoff from the trust game, this payoff will add on to the endowment received from the public goods game. The endowment in the public goods game will no longer be equal among the participants due to heterogeneity in endowment and this will complicate analysis of the results. Secondly, an individual's decision as to the size of their contribution in the public goods game is dependent on their earnings in the trust game. To avoid these two problems, we need the decision made by the individual in the public goods game to be independent of the earnings he or she makes in the trust game.

However, it is worth noting that even if the payoffs from both games end up being independent of each other through a lottery, the experience that a participant undergoes in the trust game could influence their actions in the public goods game. In other words, even if we can ensure that what is decided by the individual is not influenced through their earnings in the trust game, they will still remember how they and their partner acted in the trust game.

There are four activities in this experiment, conducted as follows: *First*, participants fill out a social capital questionnaire mostly adapted from Bullen and Onyx (1998).

Second, they play the trust game. In this trust game, every participant is given IDR 50,000 and the computer assigns 16 participants randomly into two equal groups: groups A and B. Each participant in A is paired randomly with a participant from B. Each participant in A is asked to decide on how much money, if any, is to be given to B. A has the option to give nothing, all of it, or some. The computer will triple the money A decides to send to B, and B receives all of it. After that, B is asked to decide how much money should be returned to A. B could give nothing, all of it, or some. B possesses three times the money A initially sent, plus an endowment of IDR 50,000. Both A and B know that the computer has tripled the money transferred by A. We adopted this game an from investment game by Berg et al. (1995) and modified it by allowing B to give money to A from his/her endowment, not only from the tripled money he/she received from A.

Third is a public goods game with a threshold. There were 116 groups of 4 assigning persons. These groups are categorised into three types: control, treatment 1 and treatment 2 groups. The control groups are those who are selected randomly: we assigned 2 A persons

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and 2 B persons to form a group, with no assurance that an A-B couple from the trust game will be in the same group. In the treatment 1 groups we deliberately put 2 A-B couples from the trust game into a group. The treatment 2 groups are those where no A-B couple from the trust game will be in the same group. Please note there are more than 30 groups formed using each method.

In this public goods game, each group faces the same problem: neighbourhood trash that has not been collected for about 2 weeks. The neighborhood smells bad and residents find it uncomfortable to live there. There is a health risk of diarrhoea. Everyone gets IDR 50,000 as an endowment and each participant will be asked how much he/she wishes to contribute to resolve the problem – none of the IDR 50,000 received, all of it or some. A group will be able to solve this problem if the total contribution of the group reaches IDR 100,000.

If the threshold is met, then every group member will have benefits and this will be added to the money they already have at hand. The higher the total contribution of a group, the higher the returns for its member. The computer will double the total contribution of the group and divide it equally among group-members. So the marginal per capita return, or MPCR, is 0.5. But if the threshold is not met, group-members will have their contribution returned.

The public goods game dilemma above can be described as follows: for a particular threshold level j (T_j), the individual payoff is (π_i) :

$$E_i - X_i(TR_i, GT_i) + B(a \sum_{m=1}^{N} X_m) \text{ if } \qquad \sum_{m=1}^{N} X_m \geq T_j; \text{ and} \qquad (1)$$

$$E_i \qquad\qquad\qquad\qquad\qquad \text{ if } \qquad \sum_{m=1}^{N} X_m < T_j \qquad\qquad (2)$$

where the individual i payoff function π_i may be formed into two equations. The first equation applies when the total contribution $\sum_{m=1}^{N} X_m$ is at least the same as the threshold required T_j to provide the environmental goods. In this situation, individual i will receive initial endowment E minus his own contribution X_i which depends on his trust level measured in the trust game TR_i and his group type (GT_i); added to which is the benefit received from the environmental goods which depends on the total contribution of the group $(a \sum_{m=1}^{N} X_m)$. The higher the total contribution, the higher the quality of environmental goods provided. From the experimental design we know in one group there are four members ($m=1,2,3,4$); the endowment (E) received by each participant is IDR 50,000; the threshold of

the game is IDR 100,000; and for every rupiah (IDR) invested in the group, the rate of return per member (*a*) is 0.5. There are also four types of pairs (*GTi*): exploitative, egoistic, generous and altruistic.

Fourth, at the end of the game, the participants are asked to fill in the socio-economic questionnaire and redeem the money they have earned based on the lottery results.

3. Result and Analysis

We planned to conduct as many as 40 experimental sessions of the trust game. The first 10 trial sessions were designed to test and improve our game procedures and computer program. Due to time constraints we could not implement our last session and so the total number of observations that we can produce from the 29 sessions are 462 observations or 231 pairs.

68 percent of the samples are female. About 74 percent are social science students; and 39 percent are from the Faculty of Economics. Most participants are 19-20, with the youngest participant aged 17 and the oldest 24. 70 percent of the participants are in their 1st and 2nd years of study. About 73 percent of participants come from urban areas and the rest from rural areas. Most participants have a family member (including himself) with the highest educational attainment level of a bachelor's degree (80 percent). About 62 percent of participants' families have migrated from their hometown. For 88 percent of participants, this is the first time they have participated in an experiment. Almost 74 percent of participants have friends or know about other participants in the same session of the experiment.

Analysis of the experiment results is divided into three parts. First is an analysis of trust behaviour from our trust games. The second part is an analysis of trust measurement from the experiment and whether this correlates/is consistent with trust measurement from the social capital questionnaire. The last part, which is the main analysis, discusses whether trust influences the contribution to solving the collective problem and whether recognition of the group may affect the contribution.

Table 1 gives statistics that illustrate the results of the two games. In the trust game, on average trustor A sent IDR 17,119 while trustee B sent back IDR 24,523. Some As and Bs sent no money to their partner while some As sent all. The maximum value B sent to A is IDR 190,000 which means that this person not only sent to A the money received from A (after it had tripled), but also some of his endowment. In the public goods game, the average contribution is IDR 31,906, with some participants contributing nothing and some all of their endowment. The range of group contribution in the public goods game is between IDR 37,500 and IDR 190,000.

Table 1

Statistics Descriptive of the Games Results

Parameter	Trust Game		Public Goods Game	
	Money Sent by A	Money Returned by B	Individual Contribution	Group Contribution
Mean	17,118	24,522	31,906	128,244
Std Dev	14,229	27,916	12,898	28,532
Min	0	0	0	37,500
Max	50,000	190,000	50,000	190,000
Observations	231	231	231	231

3.1. Trust Behaviour

The results of the trust game show that on average, A sent IDR 17,118 or 34 percent of their endowment to B (Table 1). On average, trustor A who sent appropriate sums of money to trustee B received IDR 24,522 or 39 percent more than they had invested in B. Therefore, on average, trust was marginally honoured.

Table 2 describes how B and A behaved in the trust game. Ten participants (4.3 percent) in Group A gave nothing to B and 11 participants (4.8 percent) from Group B gave nothing to A. 7 Group B participants sent money to A even though A sent nothing to them. 15 Group A participants gave all their money to Group B. However, 50 percent of participants belong to a pair where A gives something to B and B gives A more than A gave to B. From this figure it can be concluded that trust exists.

Table 2

Distribution of Decision Type in the Trust Game

Decision	Frequency	Percentage
A > 0	221	95.67
B > 0	220	95.24
A > 0 ; B > A	116	50.22
A > 0 ; B = A	27	11.69
A > 0 ; B < A	78	33.77
A = 0 ; B > A	7	3.03
A = 0 ; B = 0	3	1.30
Number of pairs = 231		

Acting as the second mover, trustee B's decision as to how much money he/she is willing to give to A could vary. We can then decompose trustees B into four types based on

how they reciprocate A's gift. We use a ratio between the money sent back by trustee B over money sent by trustor A as an indicator for categorising trustee reciprocal behaviour (Ahmed, 2011). Trustee reciprocal behaviour is the departure point from which to examine the level of trustworthiness[3] of B.

First is the **exploitative trustee**. About 34 percent of trustees B had an average ratio of less than 1 between the amount received by trustee B and that sent by trustor A. This trustee B type can be classified as purely selfish individuals who exploited the trust shown by trustor A because they sent back less money than trustor A had sent them. In this case, trustor A is worse off. Of the 11 trustees B who sent no money to trustor A, about 8 of them had been sent a positive amount of money by A. Therefore, trustor A lost their entire investment to B.

The second type is the **egoistical trustee**. About 27 trustees B (12 percent) had an average ratio equal to 1 between the amount they received and that sent by trustor A. This trustee B type can be classified as egoistical reciprocators because they sent back the same positive amount of money they had received from trustor A. In this case, trustee B only cares about how to maximise their welfare without sharing the benefit with trustor A or worsening their condition. Therefore, A's trust is not honoured.

The third type is the **generous trustee**. This type covers the majority of trustees B where 116 or approximately 50 percent of trustees B had an average ratio of more than 1 between the amount they received and the amount sent by trustor A. In this case, both trustor A and trustee B gain by trusting each other. Trustor A received more than they invested. Therefore, trust from trustor A is honoured.

The last type is the **altruistic trustee**. Seven trustees B (3 percent) can be categorised as altruists because although their partner trustor A did not give him anything (any trust), trustee B is still willing to make A better off by sending back a positive amount of money.

In Appendix 1, using ordinary least square, we test several models concerning how B responds to money sent by A.

3.2. Trust Measurement: Experiment vs Questionnaire Results

This section aims to compare the measurement of trust from the trust game with that of the social capital questionnaire. Table 3 shows the questions on trust. We then also compare the measurement of trust from the trust game with that of social capital from the questionnaire.

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[3] A trustworthy person is the one who gives back the trust given to him/her.

Table 4 shows the questions on civic engagement which together with trust compose the social capital scores.

Table 3
Trust Questions

No	Trust Question	Minimum (1)	Maximum (4)
1	Some say that by helping others you help yourself in the long run. Do you agree?	No, not at all	Yes, very much so
2	Do you feel safe walking down your street after dark?	No, not much	Yes, very
3	Do you agree that most people can be trusted?	No, not much	Yes, very much so
4	Can you get help from friends when you need it?	No, not at all	Yes, definitely
5	If you disagree with what everyone else agreed on, would you feel free to speak out?	No, not at all	Yes, definitely
6	If you have a dispute with your neighbours or friends, are you willing to seek mediation?	No, not at all	Yes, definitely
7	Do you think that multiculturalism makes life in your area better?	No, not at all	Yes, definitely
8	Do you enjoy living among people of different life styles?	No, not at all	Yes, definitely
9	How many best friends do you have right now?	None	5 or more

Note: Answers are in a Likert scale from 1 to 4.

Table 4
Civic Engagement Questions

No	Civic Engagement Question	Minimum (1)	Maximum (4)
1	Have you ever picked up other people's rubbish in a public place?	No, never	Yes, frequently
2	Do you help out a local group (in your campus or local community) as a volunteer?	No, not at all	Yes, often (at least once a week)
3	Are you an active member of an organisation or club such as in your campus or outside campus, sports club social organisation, or other kind of organisation?	No, not at all	Yes, very active
4	Does your local community (in campus or your neighbourhood) feel like home?	No, not at all	Yes, definitely
5	In the past week, how many phone conversations have you had with friends?	None	Many (at least 6)
6	How many people did you talk to yesterday?	None at all	Many (at least 10)
7	When you go shopping in your local area are you likely to run into friends and acquaintances?	No, not much	Yes, nearly always
8	In the past 6 months, have you done a favour for a sick friend/neighbour?	No, not at all	Yes, frequently (at least 5 times)
9	Are you on a management committee or organising committee for any local group or organisation?	No, not at all	Yes, several (at least 3)
10	In the past 3 years have you ever taken part in a local community project (in your campus or neighbourhood) or working bee?	No, not at all	Yes, many times
11	Have you ever been part of a project to organise a new service in your area (e.g. cleaning the neighbourhood together, social project, etc)	No, not at all	Yes, several times (at least 3)

Note: Answers are in a Likert scale from 1 to 4.

Table 5 presents trust scores from the trust game and the questionnaire as well as the social capital score. We divided the trust scores of A and B based on their decision in the trust game. We would expect A4, trustor A who gives nothing to B to have the lowest score. On the contrary, A4 has the highest trust and social capital scores. We observed also in the case of B4 who is supposed to have a high trust and social capital score since he is an altruist, the figure shows that to the contrary, B4 did not receive the highest trust score, and furthermore his social capital score is the lowest due to a low score for civic engagement. These results suggest that, if we believe that the game could extract a better true value of trust than the self-reporting questionnaire, the latter does produce a serious measurement error regarding trust and therefore social capital variables. Observing this table, we can conclude that there is no consistency between trust (and social capital) measurements in the survey and trust measurements in the experiment.[4]

Table 5
Trust and Social Capital Level from Trust Game and Questionnaire

Trust Game		Questionnaire		
Category/Decision	Trust Score	Civic Engagement Score	Social Capital Score
A1 (A>0; B>A)	3.15	2.92	3.02
A2 (A>0; B<=A)	3.13	2.98	3.05
A3 (A=0; B=0)	3.07	2.79	2.92
A4 (A=0; B>0)	3.32	2.88	3.08
B1 (B>A; A>0)	3.16	2.93	3.03
B2 (B<A; A>0)	3.12	2.98	3.04
B3 (B=0; A=0)	2.93	2.97	2.95
B4 (B>0; A=0)	3.06	2.60	2.81
Trust Pair (A>0 and B>A)	3.15	2.91	3.02
Mistrust Pair (others)	3.12	2.98	3.04
All	3.14	2.94	3.03

Note: All values are an average score. From a total of 20 questions on social capital, 11 questions are about civic engagement, 9 questions are about trust.

Rows A1–A4 are grouped under **Trustor A**; rows B1–B4 are grouped under **Trustee B**.

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[4] We also test for a correlation between each of the trust questions from the questionnaire with the contribution to collective action in our public goods game. For individuals in group B, we found some trust questions are a significant determinant for collective action. But none are so for individuals in group A. In general, we can conclude that the survey measurements hardly represent observed behaviour.

3.3. Trust and its Contribution to Collective Action

There are two models used to determine whether trust can affect individual contribution to a collective action. The models use the amount of money sent to the partner as a proxy of trust (Karlan, 2005; Bouma et al., 2008). Model A represents A's behaviour and model B represents B's. We separate the models for A as trustor and B as trustee because of their different role in the trust game. For A, this money sent represents the level of trust that A gave to his partner B. For B, this money sent represents the level of trustworthiness of B or how B wants to reciprocate the trust from A. It is important to note that the amount of money B gives back is suspected to be important for A's decision about how much to contribute in the public goods game. So, we have put a variable on the relative amount of money sent by B and A which is represented by the second explanatory variable i.e. the ratio of money sent. The higher the ratio, the higher the trustworthiness of B will be.

Table 6 shows how the explanatory variables affect contributions made by A and B in a public goods game. The results show that for both A and B, the amount contributed in the public goods game is positively dependent on the amount of money contributed to their partner in the trust game.

In the trust game, money sent by A to B measures how much A trusts B, and for B, money sent back by B to A measures how trustworthy B is towards A. Should we compare the coefficient, additional money contributed in the public goods game as a proportion of additional money sent in the trust game is much less for B than A (*ceteris paribus*). For each additional IDR 1,000 that A gives to B, A's contribution to the public good game would increase by IDR 295. For B, the coefficient is much lower: he/she only wants to contribute IDR 79 for each additional IDR 1,000 that he/she gives back to A. Trustor A is sensitive to the ratio of money sent by B over A; as generous trustee B sending more money to A is relative to what A has sent to him (ratio > 1), A will contribute more in the public goods game.

For both A and B, the amount of money contributed in the public goods game also depends on obedience to their religion. As the religious rate (scale 0-10) increases by 1, the amount of money contributed increases by about IDR 1,050 for A and IDR 1,400 for B. For A, undergoing another experiment lowers his contribution in the public goods game. For B, with many experiments giving the same result, being an economics student (this includes management and accounting) will lower his contribution to about IDR 6,000.

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Table 6
Model Estimation of Contribution in Public Goods Game

Independent Variables	Model for A		Model for B	
	Coefficient	Std Error	Coefficient	Std Error
Money Sent to Partner	0.295***	0.062	0.079**	0.03
Ratio of Money Sent B/A	0.289**	0.104		
Ratio Earnings B/Earnings A			-0.144	0.139
Treatment * Ratio of Money Sent B/A	-0.256*	0.129		
Treatment1*exploitative			4.193	2.756
Treatment1*Generous			2.606	2.232
Gender	1.448	1.882	3.343	1.743
Type of Region in Childhood	0.271	2.063	1.011	2.174
Using Ethnic Language	0.426	1.813	-1.742	1.89
Has Mother and Father	-0.372	2.759	-1.202	2.507
Migration	-0.273	1.764	2.733	1.856
Pocket Money	0	0.001	0.002	0.002
Environmental Concern	0.436	0.831	1.242	0.786
Religious Practitioners	1.046*	0.465	1.427**	0.481
Participate in Other Experiments	-5.970*	2.85	2.715	2.382
Number of Friends in the Same Session	-0.047	0.43	0.521	0.408
Economics	-0.794	1.846	-5.976**	1.837
Constant	15.056	9.08	3.659	8.325
Adj-R-squared	0.102		0.116	
R-squared	0.157		0.174	
F	2.873		3.01	
Prob >|F|	0.001		0	
Observations	231		231	

Note: The coefficients are reported for an OLS. All variables in money terms counted in thousand rupiahs. * Statistical significance at 10% level, ** Statistical significance at 5% level, *** Statistical significance at 1% level.

3.4. Treatment Effect

The group treatment is conducted to answer the research question on whether particular disclosure in a group could affect individual contributions to solving a collective problem. Treatment 1 is represented by a couple A and B from the trust game being in the same group during the public goods game. In this case, what happens in the trust game may affect the public goods game or influence the contribution in a public goods game. The treatment 2 is where it is certain a couple A and B from the trust game is not in the same group during the public goods game. Given this kind of treatment, the decision of each participant in the public goods game could be independent from that in the trust game. The control/reference groups are groups consisting of randomly chosen As and Bs.

In the contribution to collective action regression we pool groups receiving the second treatment and the control groups since their behaviour is not significantly different. We control those receiving the first treatment using a dummy variable.

From the estimation result we see that the treatment only affects trustor A and not trustee B. We expect that if A was paired with generous B (ratio of money sent B/A is high) in the trust game, and A is in the same group as B in the public goods game, then his contribution in the public goods game will be higher. However, the sign of the coefficient is different from what we expected. When A is in the same group as his partner B in the public goods game, A tends to contribute less. If A thinks he is in the same group as generous people, he will rely on B's contribution, and he thinks he can generate more benefits through the second game by contributing less.

The study by Oliver (1984) conducted a valuable analysis in this area. In her study on collective action, she found that participation in collective action could be negatively correlated to the perception of a neighbour's participation in collective action. If the subject thinks that the participation rate is high enough, then his contribution will be lower. Conversely, if he feels that the participation of his neighbour in collective action is low, then he will contribute more since it is in his interest to provide the collective good.

Table 7
Treatment and Contribution in Public Goods Game

Category/ Decision	Obs	Control Group		Treatment 1		Treatment 2	
		Contribution	n(%)	Contribution	n(%)	Contribution	n(%)
A1 (A>0; B>A)	116	29,918	32	31,216	32	34,995	36
A2 (A>0; B≤A)	105	27,075	38	34,200	29	32,272	33
A3 (A=0; B=0)	3	30,000	33	50,000	33	50,000	33
A4 (A=0; B>0)	7	50,000	29	30,000	57	50,000	14
B1 (A>0; B>A)	116	35,000	32	32,756	32	34,309	36
B2 (A>0; B≤A)	105	25,112	38	31,183	29	32,842	33
B3 (A=0; B=0)	3	15,000	33	10,000	33	25,000	33
B4 (A=0; B>0)	7	30,000	29	33,441	57	50,000	14
Total	462	29,340		32,238		33,954	

Note: Contribution is an average. Treatment is how we group participants in the public goods game based on their role in the trust game (as trustor A or trustee B). Control Group: Random grouping; Treatment 1: A and B are in the same group; Treatment 2: A and B are not in the same group.

Table 7 describes the average contribution in the public goods game based on a pair's decision in the trust game and their group treatment. The first four rows are the average contribution of A in the public goods game in each treatment, and the second four rows show the average contribution of B. We also decompose A and B into four categories based on their decision in the trust game. On average, the average contribution of the control group gives the lowest figure. The feature of the control group is random selection of participants or high uncertainty as to what type of person belongs to this group. On the other hand, treatment 2 group gives the highest average contribution in the public goods game. Both treatment 1 and 2 reveal several pieces of information to the participant, which reduces the uncertainty. But how can treatment 2 group give the highest figure? The answer is that in treatment 1 group, the condition of past relations is different for every pair, with some participants being part of a generous pair, some not, and some even having been in an exploitative pair. This pair condition is suggested to have an impact on their contribution in the public goods game. In this sense, the average contribution in treatment 1 group logically may be lower than in treatment 2 group with the previous argument.

We find B3's contribution in the public goods game is the same as what we expected to see. B3 is the one who not receive anything from A3. For all treatments, B3 gives the lowest contribution. However, the figure is only arrived at from one sample each so validation of this value has to be confirmed by another study with larger data on this pair type.

An altruistic person, B4, gives the highest contribution in treatment 2 group, where he is sure that he is not in the same group as his partner A. His partner does not give any money to him and when he is not in the same group as A, he can reveal his altruistic behaviour by giving all his money to public goods.

We should expect that for the trust pair (A1 and B1), the average contribution in treatment 1 should be higher than other group types (control group and treatment 2). But this table shows that neither A nor B belonging to the trust pair has the highest average contribution in treatment 1 group, where they are in the same group in the public goods game. The highest average contribution by A1 is when he is not in the same group as his partner B1 (treatment 2 group) and for B1, the highest average contribution is when he is in a random grouping type (control group). Another paradox is evident with A3, where he makes a large contribution to the public goods game after having sent nothing to his partner B.

For A1, the explanation could be similar to what Oliver (1984) found. Being in the same group as his generous partner B1 (treatment 1) does not motivate him to contribute

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more since he is sure that his partner is a generous person. In this case, A1 acts to maximize his payoff with the information about his type of partner.

An ANOVA test has been conducted to look at whether there are mean differences between each treatment, each pair type or interaction between the treatment and pair type. The result is there is a significant difference between pair types (4 pair types) at a significance level of 5% (Prob>F = 0.0202). For difference in treatments, the result is not significant at 5% (Prob>F = 0.1024). Interaction between treatment and type is also shown not to be significant at 5% (Prob>F = 0.1029).

4. Conclusion

The main goal of this study is to investigate the role of trust, as a measure of social capital, in individual contributions to a collective action. We conduct a series of experiments to measure these factors: a trust game to measure trust level and a public goods game to measure contribution to collective action. As an additional analysis, we also conduct a questionnaire on social capital to compare the trust level from the questionnaire with that of the experiment. Several conclusions can be drawn from this study, as follows:

First, we found that trust measured using a questionnaire does not correlate with that gathered from an experiment. Hence, if an experiment is a better way to extract information regarding trust, then trust extracted from a self-reporting question could contain a serious measurement error.

Second, we found that trust level, measured by the amount of money sent to a partner, significantly influences contribution to public goods, both for the trustor and the trustee. The contribution is also influenced by the respondent's level of religious practice. This result is consistent with Leonard et al. (2010). The trustor's contribution is also sensitive to the trustee's pay back. The more money returned by the trustee relative to the initial money sent by the trustor (ratio of money returned by B over money sent by A), the greater the contribution by the trustor in the public goods game. This could be a sign that a trustor's behaviour depends on past experience with his partner in the trust game. On the other hand, trustees from the economics faculty tend to contribute less than those from other faculties.

Third, related to the treatment applied in this experiment, we found weak evidence and an unexpected sign for the impact of information disclosure of (some of) group member's trust level regarding the contribution to public goods. For the trustor, being in the same group with his partner B negatively correlated with the ratio of money returned by B over money sent by A. Our result is the reverse of our expected sign: if A gets a generous trustee B in the

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trust game, then it is expected that if A is in the same group with his partner again (B), he will contribute more. The result shows that A is less willing to contribute if he is in the same group with his generous partner. Although the conditional cooperators' condition does not support this result, Oliver (1984) made a valuable analysis of this. In her study on collective action, she found that participation in collective action could be negatively correlated to his perception of his neighbour's participation. If he thinks that the participation rate is high enough, then his contribution will be lower. Conversely, if he feels that the participation of his neighbour in collective action is low, then he will contribute more since it is in his interest to make sure the collective good is provided.

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Appendix 1. How does B respond to the amount of money sent by A?

Using the ordinary least square method, we test several models relating to how B responds to money sent by A. The dependent variable for the three models is money returned by B. The independent variables are money sent by A, gender, whether the participant is from the economics faculty, the number of friends in the same session, and the type of trustee. Based on the categorisation of trustees discussed previously, we have two types of trustee as dummy variables i.e. a generous trustee (trustee B who gives back more money than trustor A gave him), and an exploitative trustee (trustee B who gives back less money than trustor A gave him). Hence, the reference group is the other two trustee types (egoist and altruist)[5]. We also controlled for economics, gender and number of friends in the same session.

      Table A1 describes whether the money sent by trustee B to trustor A is conditional on the amount sent by A to B. Three simulations are made, following Ahmed (2011). Model 1 is a simple model that links money sent in by B to money sent in by A, and the type of trustee. In Model 2, we expand the variables by adding trustee behaviour with interaction to money sent in by A. In the third model, we want to look at whether the response behaviour of B is of a convex or a linear function. All three models show that there is a significant positive impact on the amount sent in by A to the amount returned by B to A.

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[5] These two types of trustee have a very little sample (3 for egoistical and 10 for altruistic). Because of this sample number, we made these two categories the reference group.

Table A1
Regression Analysis of Money Returned

Dependent Variable: Money Returned by B	Model 1	Model 2	Model 3
Money Sent by A	1.04***	0.61**	0.81**
(Money Sent by A)^2			0.005
Gender (male=1)	4.355	2.475	4.19
Economics (1=yes)	-6.01*	-3.6	-6.14*
Number of Friends	0.622	0.56	0.626
Exploitative (1=yes)	-18.8***		-18.52***
Generous (1=yes)	17.0***		17.3***
Exploitative * Money Sent by A		-0.468*	
Generous* Money Sent by A		1.239***	
Constant	3.83	7.02**	5.17
R-squared	0.525	0.620	0.526
Adj-R-squared	0.512	0.610	0.511
F	41.184	61.018	35.337
Prob >|F|	0.000	0.000	0.000
Observations	231	231	231

Note: The coefficients are reported for an OLS. All variables in money terms counted in thousand rupiahs. Exploitative = 1 if the trustee has been classified as an exploitative trustee, and generous = 1 if the trustee has been classified as a generous trustee.* Statistical significance at 10% level, ** Statistical significance at 5% level, *** Statistical significance at 1% level.

Appendix 2. Instructions Displayed on the Computer
(Translated to English from Bahasa Indonesia)

<u>**Screen 1**</u>
Welcome and thank you for coming and for participating in this experiment.
Please input your ID number ......
Your ID number is the number written on the card given to you by the experimenter.

In this experiment, we will ask you to make some decisions. **You are free to make any decision in this experiment**; no decision is considered to be right or wrong.

You are not allowed to communicate with other participants. Your identity is anonymous.

If you have any questions or need help, please raise your hand and the experimenter will come to your table. We will answer your question in private.

Please look at the instructions given on your computer display. Please read them carefully and thoroughly because they will have an impact on the decisions you make.

Thank you for your cooperation.

<u>**Screen 2**</u>
You will receive payment for your participation in this experiment and we guarantee the minimum amount you will get is IDR 20,000.

This experiment consists of two sections. From each section you will get a payoff. The payoff from the first and the second experiment will be decided by lottery, using a coin. If you get heads (*gambar*), then your payoff is from the first experiment. If you get tails (*angka*), then your payoff is from the second experiment.

Your payoff can be redeemed after the experiment is finished.

The experiment will take about 1 (one) hour.

<u>**Screen 3**</u>
[SOCIAL CAPITAL QUESTIONNAIRE]
Please fill in the following questionnaire. Your answers will not have an effect on your payoff.

<u>**Screen 4**</u>
1. Have you ever picked up other people's rubbish in a public place?

No, never			*Yes, frequently*
1	2	3	4

2. Some say that by helping others you help yourself in the long run. Do you agree?

No, not much			*Yes, very much so*
1	2	3	4

3. Do you help out a local group (on your campus or in your local community) as a volunteer?

    No, not at all   *Yes, often (at least once a week)*
         1   2   3   4

4. Do you feel safe walking down your street after dark?

    No, not much   *Yes, very much so*
         1   2   3   4

Screen 5

5. Do you agree that most people can be trusted?

    No, not much   *Yes, very much so*
         1   2   3   4

6. Can you get help from friends when you need it?

    No, not at all   *Yes, definitely*
         1   2   3   4

7. Are you an active member of an organisation or club such as on your campus or outside campus, sports club, social organisation, or other kind of organisation?

    No, not at all   *Yes, very active*
         1   2   3   4

8. Does your local community (on campus or in your neighborhood) feel like home?

    No, not at all   *Yes, definitely*
         1   2   3   4

Screen 6

9. In the past week, how many phone conversations have you had with friends?

    None   *Many (at least 6)*
         1   2   3   4

10. How many people did you talk to yesterday?

    None at all   *Many (at least 10)*
         1   2   3   4

11. When you go shopping in your local area are you likely to run into friends and acquaintances?

    No, not often   *Yes, nearly always*
         1   2   3   4

12. In the past 6 months, have you done a favour for a sick friend/neighbor?

    No, never   *Yes, frequently (at least 5 times)*
         1   2   3   4

13. Are you on a management committee or organising committee for any local group or organisation?

    No, not at all   *Yes, several (at least 3)*
         1   2   3   4

14. In the past 3 years have you ever taken part in a local community project (on your campus or in your neighbourhood) or working bee*?*

| *No, never* | | | *Yes, many times* |
| 1 | 2 | 3 | 4 |

Screen 7

15. Have you ever been part of a project to organise a new service in your area (e.g. cleaning the neighbourhood together, social project, etc)

| *No, never* | | | *Yes, several times (at least 3)* |
| 1 | 2 | 3 | 4 |

16. If you disagree with what everyone else agreed on, would you feel free to speak out*?*

| *No, not at all* | | | *Yes, definitely* |
| 1 | 2 | 3 | 4 |

17. If you have a dispute with your neighbours or friends, are you willing to seek mediation*?*

| *No, not at all* | | | *Yes, definitely* |
| 1 | 2 | 3 | 4 |

18. Do you think that multiculturalism makes life in your area better*?*

| *No, not at all* | | | *Yes, definitely* |
| 1 | 2 | 3 | 4 |

19. Do you enjoy living among people of different lifestyles*?*

| *No, not at all* | | | *Yes, definitely* |
| 1 | 2 | 3 | 4 |

20. How many best friends do you have right now?

| *None* | *1-2 persons* | *3-4 persons* | *5 or more* |
| 1 | 2 | 3 | 4 |

Screen 8
Thank you for filling in this questionnaire.

Please wait until your friends have completed filling out the questionnaire.

Screen 9
INSTRUCTIONS

Please slide each arrowhead to the center. If you complete the task, you are entitled to IDR 50,000.

Enjoy the task!

Screen 10
[PARTICIPANTS PLAY THE SLIDING GAME]

Screen 11
You have succeeded in obtaining IDR 50,000!

Please prepare for the next experiment.

Screen 12
INSTRUCTIONS

Now you have IDR 50,000.

The computer will randomly assign the participants into two categories, A and B.

Each participant A will be paired with one participant B.

A will make a decision first, followed by B.

All decisions are real and will have an impact on your payoff.

However, to understand more about this experiment, you will have some practice.

Screen 13
INSTRUCTIONS FOR PRACTICE SESSION:

In this session you will practice both roles A and B.

In this practice session, you are free to decide how much money will be sent, as long as it is not more than the money you have.

Remember, this only PRACTICE SESSION and the payoff from this session will not have an impact on your real payoff.

Screen 14
Now you become A.

You will decide how much money you will give to B. We will triple the money so that B will receive he triple the amount you have sent him/her.

You are free to make your decision. You can give all, some or none of your money. In this case there is no right or wrong decision.

You decide to give B IDR ......

Screen 15
Now you become B.

Previously you decided to give B IDR ....
As B, you have received from A IDR ..... (triple what A gave you)
Your money as B now becomes IDR ....

As B you will be asked to decide how much money you want to give to A.

You are free to make your decision. You can give all, some or none of your money. In this case there is no right or wrong decision.

You decide to give A IDR ....

Screen 16
The amount of money that A has given to B is IDR ....
B gave A IDR .....
Therefore, A's money now is IDR ......

Screen 17
A has given B IDR .....
B has decided to give A IDR .....
Therefore, B's money now is IDR .....

Please prepare for the real experiment. The following is the first experiment.

Screen 18-A-1 & Screen 18-A-2
[COMPUTER DISPLAY A]

We will begin the real experiment.
Your decision will affect your real payoff.

You are A and your partner is B.
We randomly choose B from one of the participants in this experiment. You will make your decision first, followed by B. Your decision concerns how much money you want to give B. We will triple the money and give it to B. Then we will ask B to decide how much money he/she wants to give to you from the total amount of money that he/she has at that time.

You are free to make your decision. You can give all, some or none of your money. In this case there is no right or wrong decision.

You decide to give B IDR .....

Screen 18-A-1
[COMPUTER DISPLAY B]

Please wait. Your friends still making their decision.

Screen 19-B-1 & Screen 19-B-2
[COMPUTER DISPLAY B]

We will begin the real experiment.
Your decision will affect your real payoff.

You are B and your partner is A.
We randomly choose A from one of the participants in this experiment. A will make a decision first, followed by you. A's decision is about how much money he/she wants to give to you. We will triple the money from A and give it to you. Then we will ask you to decide how much money you want to give A from the overall money that you have at that time.

A has decided to give you IDR ......
You received money IDR .....

Your money right now becomes IDR .....

Now you have to make a decision about how much money you want to give A. You are free to make your decision. You can give all, some or none of your money. In this case there is no right or wrong decision.

You decide to give A IDR ......

Screen 20-A
[COMPUTER DISPLAY A]
The amount of money you give B is IDR .....
B gave you IDR ....
Therefore your amount right now is IDR .....
Please write this amount of money on the paper on your computer desk.

Please prepare for the second experiment.

Screen 20-B
[COMPUTER DISPLAY B]
A has given you IDR ......
You have decided to give A IDR .....
Therefore your money right now is IDR .....
Please write this amount of money on the paper on your computer desk.

Please prepare for the second experiment.

Screen 21
Please prepare for the second experiment.

Screen 22
INSTRUCTIONS

Please slide each arrowhead to the center. If you complete the task, you are entitled to IDR 50,000.

Enjoy the task!

Screen 23
[PARTICIPANTS ARE PLAYING THE SLIDING GAME]

Screen 24
You have succeeded in obtaining IDR 50,000!
Please prepare for the next experiment.

Screen 25-Control
[COMPUTER DISPLAY FOR THE CONTROL GROUP]

INSTRUCTIONS

You are entitled to IDR 50,000.

In this experiment you will make a decision as a group. Your group consists of 4 people.

The computer has randomly chosen your group members. Your identity is anonymous.

Please pay attention to the information and instructions on your computer display.

Screen 25-Treatment 1
[COMPUTER DISPLAY FOR THE TREATMENT 1 GROUP]

INSTRUCTIONS

You are entitled to IDR 50,000.

In this experiment you will make a decision as a group. Your group consists of 4 people.

The computer has chosen your group members. One of your group member is your partner on the first experiment. Your identity is anonymous.

Please pay attention to the information and instructions on your computer display.

Screen 25-Treatment 2
[COMPUTER DISPLAY FOR THE TREATMENT 2 GROUP]

INSTRUCTIONS

You are entitled to IDR 50,000.

In this experiment you will make a decision as a group. Your group consists of 4 people.

The computer has randomly your group members. All your group members are participants who have the same role at the first experiment. For example, if you became A at the first experiment, then all your group members now are A. On the contrary, if you became B at the first experiment, then your group members now are B.
Please pay attention to the information and instructions on your computer display.

Screen 26
Please assume that you and your group members live in the same neighbourhood. Your neighbourhood is experiencing waste problems. The waste has not been collected for the last two weeks because there is no officer on duty. The picture describes the amount of waste that has not been picked up. This waste has caused an unpleasant smell. Flies, worms and entities could spread diseases such as diarrhoea. Therefore you and your group members are asked to make a decision about this problem.

[PLEASE LOOK AT THE PICTURE FOR THE SITUATION DESCRIBED]

Screen 27
You are asked to decide how much money you are willing to contribute to solve the waste problem in your neighbourhood. The amount of money that your group needs to be accumulate to solve the problem is IDR100.000. Please note that you now have IDR50.000.

If the amount of money gathered by your group reaches IDR100.000 or more, then every group member will benefit from resolving the waste problem. Every group member's benefit will be equal even if his/her contribution is different from that of the others. The benefit received by every group member is half the total contribution of the respective group. The higher the total contribution of that group, the higher the benefit received by every group member. Assuming your group contribution is IDR100.000 or more, you will receive the following benefit:

IDR50.000 – your contribution + benefit received

where:

benefit received = 0.5 * total contribution of your group

If the total contribution of your group is less than IDR 100,000, then the waste problem is not resolved yet and computer will automatically give back your contribution so that you still have IDR 50,000.

To understand this concept, first you will have **two practice sessions**. This practice session will not have an impact on your real payoff.

Screen 28-1 & Screen 28-2
INSTRUCTIONS

In this first practice session, you are asked to put your contribution in the right hand column. You are free to choose any amount. You can give all, some or none of your IDR 50,000. In this case there is no right or wrong decision.

If you have made your decision, please select icon "Confirmation"

Your contribution IDR .....
Total contribution of your group IDR ..... (please insert at least IDR 100,000)

Screen 29
Your contribution IDR ....
Total contribution of your group IDR ....
Benefit received by every group member IDR ....
Your payoff in this experiment IDR ....

Screen 30-1 & Screen 30-2
INSTRUCTIONS

In this second practice session, you are asked to put your contribution in the right hand column. You are free to choose any contribution. You can give all, some or none of your IDR 50,000. In this case there is no right or wrong decision.

If you have made your decision, please select icon "Confirmation"

Your contribution IDR .....

Total contribution of your group IDR ..... (please insert below IDR 100,000)

Screen 31
Your contribution IDR ....
Total contribution of your group IDR ....
Benefit received by every group member IDR ....
Your payoff in this experiment IDR ....
Because the total contribution of your group does not reach IDR 100,000, then your contribution is returned and you have IDR 50,000.

Screen 32-1 & Screen 32-2
You will begin the second expriment. Your decision will affect your real payoff.

You are asked to put your contribution in the right hand column. You are free to choose any contribution. You can give all, some or none of your IDR 50,000. In this case there is no right or wrong decision.

Your contribution IDR .....
Total contribution of your group IDR ..... (please insert below IDR 100,000)

Screen 33
Your contribution IDR ....
Total contribution of your group IDR ....
Benefit received by every group member IDR ....
Your payoff in this experiment IDR ....
Please write down this amount of money on the paper on your computer desk.

Next please fill in the following questionnaire.

Screen 34

Please wait for the next session.

Screen 35
[SOCIO-ECONOMIC QUESTIONNAIRE]

1. Your gender:
   • Male
   • Female

2. Your age:

3. Where did you spend most of your time in your elementary-secondary schooling?
   • Urban
   • Rural

Screen 36
4. Do you use your vernacular in addition to Bahasa Indonesia in your daily conversation?
   • Yes
   • No

If yes, what language?
(you can choose more than one)
- Jawa
- Sunda
- Bali
- Batak
- Bugis
- Tionghoa
- Madura
- Sasak
- Minang
- Banjar
- Bima-Dompu
- Makassar
- Nias
- Palembang
- Sumbawa
- Toraja
- Betawi
- Dayak
- Melayu
- Komering
- Ambon
- Manado
- Aceh
- Sumatera Bagian Selatan
- Banten
- Cirebon
- Gorontalo
- Kutai
- Other

Screen 37
5. What is the highest educational attainment in your family?
- High school
- Bachelor's Degree
- Master's Degree
- Doctoral Degree

6. What is your GPA (scale 0.00-4.00)?
- 2.00-2.49
- 2.50-2.99
- 3.00-3.49
- 3.50-4.00

Screen 38
7. What is your religion?

- Islam
- Christian
- Catholic
- Hindu
- Buddhist
- Kong Hu Chu
- Other

8. Are both of your parents still alive?
- Yes
- No

If no, who already passed away?
- Father
- Mother

9. How many siblings do you have?
How many siblings have the same gender as you?
Note: siblings could have the same father and mother, or just one of them.

10. Does your family or your parents live in the same region as your or his/her birthplace (migrate)?
- Yes
- No

Screen 39
11. Do you receive pocket money from your parents?
- Yes
- No

If yes, how much money is received per month? IDR .....

12. You live in:
- House/apartment (owned)
- Parent's house (owned)
- Parent's house (rented)
- Live with relative
- Renting house/apartment
- Dorm/boarding
- Other

13. Please fill in the table below with an estimation of your expenditure based on several items:

Item Expenditure	IDR
Transportation	
Food	
Renting dorm/boarding	
Mobile phone usage	
Others	

14. According to you, the three most important problems that occur in your neighbourhood concern:
- Poverty
- Education
- Health
- Inequality
- Safety
- Environment
- Social Conflict
- Other problems

15. Out of the following environmental problems, please put a sign next to the three most important problems.
- Air quality
- Water quality
- Climate change
- Waste management
- Congestion
- Landslide

16. According to you, on a scale of 0-10, how important is it to preserve the environment? [0 for not important at all, 10 for the most important]

17. According to you, on a scale of 0-10, how obedient are you to your religion? [0 for not practicing at all, 10 for fully practicing my religion]

18. Have you ever participated in an experiment?
- Yes
- No

19. How much knowledge do you have concerning this experiment?
- None
- Know something from friends that participated in the previous session
- Know everything about this experiment from friends that participated in the previous session

20. Are there any friends of yours in this room?
- Yes
- No

If yes, how many?

Thank you for participating in this experiment. The experimenter will come to your table and one by one will determine your payoff by means of the lottery (i.e. by tossing a coin). If you

get heads (*gambar*), then your real payoff will be from the first experiment. If you get tails (*angka*), then your real payoff will be from your second experiment. You can redeem your payoff in the room announced by the experimenter.

11/01   BUDY P RESOSUDARMO and SATOSHI YAMAZAKI, 'Training and Visit (T&V) Extension vs. Farmer Field School: The Indonesian'

11/02   BUDY P RESOSUDARMO and DANIEL SURYADARMA, 'The Effect of Childhood Migration on Human Capital Accumulation: Evidence from Rural-Urban Migrants in Indonesia'

11/03   PREMA-CHANDRA ATHUKORALA and EVELYN S DEVADASON, 'The Impact of Foreign Labour on Host Country Wages: The Experience of a Southern Host, Malaysia'

11/04   PETER WARR, 'Food Security vs. Food Self-Sufficiency: The Indonesian Case'

11/05   PREMA-CHANDRA ATHUKORALA, 'Asian Trade Flows: Trends, Patterns and Projections'

11/06   PAUL J BURKE, 'Economic Growth and Political Survival'

11/07   HAL HILL and JUTHATHIP JONGWANICH, 'Asia Rising: Emerging East Asian Economies as Foreign Investors'

11/08   HAL HILL and JAYANT MENON, 'Reducing Vulnerability in Transition Economies: Crises and Adjustment in Cambodia'

11/09   PREMA-CHANDRA ATHUKORALA, 'South-South Trade: An Asian Perspective'

11/10   ARMAND A SIM, DANIEL SURYADARMA and ASEP SURYAHADI, 'The Consequences of Child Market Work on the Growth of Human Capital'

11/11   HARYO ASWICAHYONO and CHRIS MANNING, 'Exports and Job Creation in Indonesia Before and After the Asian Financial Crisis'

11/12   PREMA-CHANDRA ATHUKORALA and ARCHANUN KOHPAIBOON, 'Australia-Thailand Trade: Has the FTA Made a Difference?

11/13   PREMA-CHANDRA ATHUKORALA, 'Growing with Global Production Sharing: The Tale of Penang Export Hub'

11/14   W. MAX CORDEN, 'The Dutch Disease in Australia: Policy Options for a Three-Speed Economy'

11/15   PAUL J BURKE and SHUHEI NISHITATENO, 'Gasoline prices, gasoline consumption, and new-vehicle fuel economy: Evidence for a large sample of countries'

12/01   BUDY P RESOSUDARMO, ANI A NAWIR, IDA AJU P RESOSUDARMO and NINA L SUBIMAN, 'Forest Land use Dynamics in Indonesia'

12/02   SHUHEI NISHITATENO, 'Global Production Sharing in the Japanese Automobile Industry: A Comparative Analysis'

12/03   HAL HILL, 'The Best of Times and the Worst of Times: Indonesia and Economic Crises'

12/04   PREMA-CHANDRA ATHUKORALA, 'Disaster, Generosity and Recovery: Indian Ocean Tsunami'

12/05   KYM ANDERSON, ' Agricultural Trade Distortions During the Global Financial Crisis'

12/06   KYM ANDERSON and MARKUS BRUCKNER, 'Distortions to Agriculture and Economic Growth in Sub-Saharan Africa'

12/07   ROBERT SPARROW, ELLEN VAN DE POEL, GRACIA HANDIWIDJAJA, ATHIA YUMNA, NILA WARDA and ASEP SURYAHADI, 'Financial Consequences of Ill Health and Informal Coping Mechanisms in Indonesia'

12/08   KYM ANDERSON, 'Costing Global Trade Barriers, 1900 to 2050'

12/09   KYM ANDERSON, WILL MARTIN and DOMINIQUE VAN DER MENSBRUGGHE, 'Estimating Effects of Price-distorting Policies Using Alternative Distortions Databases'

12/10   W. MAX CORDEN, 'The Dutch Disease in Australia: Policy Options for a Three-Speed Economy' (revised version of Trade & Development Working Paper 2011/14)

12/11   KYM ANDERSON, 'Policy Responses to Changing Perceptions of the Role of Agriculture in Development'

12/12   PREMA-CHANDRA ATHUKORALA and SHAHBAZ NASIR, 'Global Production Sharing and South-South Trade'

12/13   SHUHEI NISHITATENO, 'Global Production Sharing and the FDI–Trade Nexus: New Evidence from the Japanese Automobile Industry'

12/14   PREMA-CHANDRA ATHUKORALA, 'Sri Lanka's Trade Policy: Reverting to Dirigisme?'

12/15   PREMA-CHANDRA ATHUKORALA and SISIRA JAYASURIYA, 'Economic Policy Shifts in Sri Lanka: The Post-conflict Development Challenge'

12/16   PREMA-CHANDRA ATHUKORALA and JUTHATHIP JONGWANICH, 'How Effective are Capital Controls? Evidence from Malaysia'

12/17   HAL HILL and JAYANT MENON, 'Financial Safety Nets in Asia: Genesis, Evolution, Adequacy, and Way Forward'

12/18   KYM ANDERSON, GORDON RAUSSER and JOHAN SWINNEN, 'Political Economy of Public Policies: Insights from Distortions to Agricultural and Food Markets'

13/01   KYM ANDERSON, 'Agricultural Price Distortions: Trends and Volatility, Past and Prospective'

13/02   PREMA-CHANDRA ATHUKORALA and SWARNIM WAGLÉ, 'Export Performance in Transition: The Case of Georgia'

13/03   JAYANT MENON and THIAM HEE NG, 'Are Government-Linked Corporations Crowding out Private Investment in Malaysia?'

13/04   RAGHBENDRA JHA, HARI K. NAGARAJAN & KOLUMUM R. NAGARAJAN, 'Fiscal Federalism and Competitive Bidding for Foreign Investment as a Multistage Game'

13/05   PREMA-CHANDRA ATHUKORALA, 'Intra-Regional FDI and Economic Integration in South Asia: Trends, Patterns and Prospects'.

13/06   JAYANT MENON, 'Can FTAs Support the Growth or Spread of International Production Networks in Asia?'

13/07   PETER WARR and ARIEF ANSHORY YUSUF, 'World Food Prices and Poverty in Indonesia'.

13/08   PETER WARR & ARIEF ANSHORY YUSUF, 'Fertilizer Subsidies and Food Self-Sufficiency in Indonesia'.

13/09   MIA AMALIA, BUDY P. RESOSUDARMO, & JEFF BENNETT, 'The Consequences of Urban Air Pollution for Child Health: What does self reporting data in the Jakarta metropolitan area reveal?'

13/10 PREMA-CHANDRA ATHUKORALA, 'Global Production Sharing and Trade Patterns in East Asia'.

13/11 KYM ANDERSON, MAROS IVANIC & WILL MARTIN, 'Food Price Spikes, Price Insulation, and Poverty'.

13/12 MARCEL SCHRÖDER, 'Should Developing Countries Undervalue Their Currencies?'.

13/13 PREMA-CHANDRA ATHUKORALA, 'How India Fits into Global Production Sharing: Experience, Prospects and Policy Options'.

13/14 PETER WARR, JAYANT MENON and SITTHIROTH RASPHONE, 'Public Services and the poor in Laos'.

13/15 SAMBIT BHATTACHARYYA and BUDY R. RESOSUDARMO, 'Growth, Growth Accelerations and the Poor: Lessons from Indonesia'

13/16 PREMA-CHANDRA ATHUKORALA and ARCHANUN KOPHAIBOON, 'Trade and Investment Patterns in Asia: Implications for Multilateralizing Regionalism'

13/17 KYM ANDERSON and ANNA STRUTT, 'Emerging Economies, Productivity Growth, and Trade with Resource-Rich Economies by 2030'

13/18 PREMA-CHANDRA ATHUKORALA and ARCHANUN KOHPAIBOON, 'Global Production Sharing, Trade Patterns and Industrialization in Southeast Asia'

13/19 HAL HILL, 'Is There a Southeast Asian Development Model?'

14/01 RAMESH CHANDRA PAUDEL, 'Economic Growth in Developing Countries: Is Landlockedness Destiny?

14/02 ROSS McLEOD, 'The ill-fated currency board proposal for Indonesia'

14/03 ALIN HALIMATUSSADIAH, BUDY P. RESOSUDARMO AND DIAH WIDYAWATI, 'Social Capital to Induce a Contribution to Environmental Collective Action in Indonesia: An Experimental Method'