The Effect of Sanctions on Cooperative Behavior: A Study on Medium Trust Individuals in the Context of Corruption

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This study aims to describe the effect of sanctions (individual sanctions, collective sanctions, and absence of sanctions) on cooperative behavior of individuals with medium trust in the context of corruption. Both collective sanctions and individual sanctions, are systemic, which means sanctioning behavior is exercised not by each individual but by the system. Cooperative behavior in this context means choosing to obey rules, to reject acts of corruption and to prioritize public interests rather than the personal interests. Conversely, corruption is an uncooperative behavior to the rules, and ignores the public interest and prioritizes personal interests. Research subjects were 62 students. The Chi-Square Analysis was used to see the association between the variables and the logistic regression model was applied to describe the structure of this association. Individual sanction is recommended as punishment to medium trust individuals to promote cooperative behavior in the context of corruption. The results showed that individuals with medium trust had more cooperative behavior.

Keywords: cooperative behavior, general trust, sanction, corruption

Studi ini bertujuan memeriksa pengaruh pemberian sanksi (sanksi individual, sanksi kolektif, dan tanpa sanksi) terhadap perilaku kooperatif individu dengan *medium trust* dalam konteks korupsi. Baik sanksi kolektif maupun sanksi individual, bersifat sistemik, yang berarti bahwa pemberian sanksi tidak dilakukan oleh individu masing-masing, tetapi oleh sistem. Perilaku kooperatif dalam konteks ini dimaknai sebagai perilaku menaati aturan, menolak tindakan korupsi, mengutamakan kepentingan umum dibandingkan kepentingan pribadi. Sebaliknya, korupsi adalah perilaku tidak kooperatif terhadap aturan, mengabaikan kepentingan umum dan mengutamakan kepentingan pribadi. Studi ini melibatkan 62 mahasiswa. Uji *Chi-Square* digunakan untuk melihat asosiasi antar-variabel dan model regresi logistik digunakan untuk menggambarkan struktur hubungan tersebut. Sanksi individual direkomendasikan untuk meningkatkan perilaku kooperatif individu dengan *medium trust* pada konteks korupsi. Hasil memperlihatkan bahwa individu dengan *medium trust* menunjukkan perilaku kooperatif lebih banyak.

Kata kunci: perilaku kooperatif, general trust, sanksi, korupsi

The construction of state-owned facilities is aimed at the prosperity of the people. The facilities financed from regional governmental budgets (*Anggaran Pendapatan dan Belanja Daerah* - APBD) or the National Budget (*Anggaran Pendapatan dan Belanja Nasional* - APBN) should be utilized by the whole of society. Unfortunately, efficient governance and public pros-

perity is difficult to achieve, because of corruption. The discovery of corruption committed by businessman (private sector), involving government employees, in Indonesia, is not rare. An example is the way a businessman and one or more government employees collude to win a tender. In order to win such a tender, they involve the tender committee. As a participant in the project tendering process, the businessman offers a bribe to a government employee. In return for the bribe received, the government employee abuses his autho-

rity, to ensure the businessman wins the tender, by making a deal with the tender committee. This phenomenon was found, for example, in a case in Hulu Sungai Tengah District. The alleged corrupt acts involved bribery, offered to ensure the procurement of the Damanhuri Hospital maintenance contract, in 2017. The suspected recipient was the Chief of the Hulu Sungai Tengah District during the period 2016-2021.

A second example involved allegations of corruption related to the Bobong Airport land acquisition, in the Sula Islands Regency APBD of 2009. The suspects were the Regent of Sula Islands Regency during the period 2005-2010, and the Chairman of the Regional Peoples' Representative Council (*Dewan Perwakilan Rakyat Daerah* - DPRD) of Sula Islands Regency for the period 2009-2014. A third case involved allegations of corruption regarding the bribery of judges on the bench of the Tangerang State Court (*Pengadilan Negeri* - PN). The suspects were two judges and two lawyers (KPK Tetapkan Delapan Tersangka, 2018).

The Statistical data from the Corruption Eradication Commission (*Komisi Pemberantasan Korupsi* - KPK), showed that, as at 2018, the professions recorded as having the highest levels of corruption were those of politicians, government officials and private sector individuals (KPK, 2018). Running an efficient government requires cooperative behavior from various parties, both from government employees and from the community, requiring people to be faithful to their responsibilities and to support law enforcement.

Corruption, from the perspective of cooperative behavior in the context of corruption, is considered to be uncooperative behavior regarding compliance with the rules, and behaviors which ignore the public interest and prioritize self interest. Cooperative behavior in the context of corruption is considered to be behavior which complies with the rules, which rejects corrupt behavior, and which prioritizes the interests of the public, rather than of the self. Cooperative behavior involves "*giving*" behavior for public good, and "*not taking too much*" from shared resources (Van Lange, 2014). According to Parks, Joireman, and Van Lange (2013) this cooperative behavior is described as participatory behavior in the joint interests of the individual and the public. Participation can occur in two types of situation. The first type is related to the public good. This is a situation when the individual in the group depends entirely or partly on the contribution to be given by the entire membership of the group. In this situation the individual makes a sacrifice in the short-term (that is, by contributing) to realize long-term benefits for him or herself, and in the public in-

terest. However, because anyone may use the facilities provided (from the contributions of all), there is a temptation for the individual not to make a contribution, but none the less to capitalize upon the facilities. This situation creates a conflict between doing what is best for oneself and doing what is best for the group.

The second type of situation is related to a common-pool resource problem, or common resource problem. All members of society may utilize natural resources. However, such natural resources are limited, and may be exhausted quickly, if they are not well managed. This is the reason the use of these natural resources needs to be well managed. Every individual in society should participate in this effort, by obeying the rules which manage the sustainability of these natural resources. In this situation the individual may face a conflict between choosing short-term benefits (behaving selfishly, taking natural resources for him or herself, without much concern for others) or choosing to prioritize the long-term needs of the group, of society in general. Various studies on cooperative behavior have emphasized how it can be promoted and become a solution for the achievement of the common good. Some studies worthy of mention are, for example, those on pro-environmental behavior (Irwin & Berigan, 2013), on energy conservation, on donation of blood, and on the use of environmentally friendly vehicles (Attari, Krantz, & Weber, 2016), on mass transportation (van Lange, van Vugt, Meertens, & Ruiter, 1998), and on anti-corruption efforts (Chen, Jiang, & Villeval, 2016; Kobis, van Prooijen, Righetti, & van Lange, 2016).

Various factors influence cooperative behavior. One of the influencing psychological factors is trust, which in the present study refers to medium levels of general trust, Trust is essential to the initiation, building and maintenance of social relationships. Trust supports the establishment of cooperative behavioral relationships (McKnight, Cummings, & Chervany, 1998), facilitating relationships within groups (de Jong & Elfring, 2010), within organizations (McEvily, Perrone , & Zaheer, 2003), and between countries (Knack & Keefer, 1997). Trust is the "social glue" of relationships, groups, and society. Trust connects individuals, and also facilitates thought, motivation, and behavior, which promotes cooperation towards collective goals. Trust can improve the stability and quality of social networks, by strengthening norms which support cooperative behavior and by helping new members of a group to accelerate their adjustment that particular social network (Balliet & Van Lange, 2013).

In general, individuals vary in their trust of others

(Rotter, 1967, Yamagishi, 2011). There are some differences between individuals who are considered to have high levels of trust, and those who are considered to have low levels of trust. The first difference relates to the sensitivity of the individuals in receiving information. As compared to individuals commanding low levels of trust, those commanding high levels are more sensitive to relevant information about the trustworthiness of others (about the extent to which others have credible traits). Those with higher trust more quickly adjust their level of confidence to certain targets, reflecting relevant information, than those with low trust (Kosugi & Yamagishi, 1996; Rotter, 1980; Yamagishi, Kikuchi, & Kosugi, 1999). Secondly, there are differences in social and health behaviors, between people considered to have high levels of trust, and those considered to have low levels. "High trust", as compared to "low trust" individuals, tend to behave cooperatively in confronting uncertainty and conflicts of interest, to participate more in charitable activities, to have higher life satisfaction, to exhibit better physical health, and even to live longer lives (Balliet & Van Lange, 2013; Barefoot, Beckham, Brummett, & Maynard, 1998; Holmes & Rempel, 1989; Simpson, 2007; Yamagishi, 2011).

While "high trust" and "low trust" individuals have been studied widely, and it is well known how they demonstrate cooperative behavior (see, for example, Balliet & Van Lange, 2013; Irwin & Berigan, 2013; Yamagishi, Akutsu, Cho, Inoue, Li, & Matsumoto, 2015), as far as is known, there has not been any research conducted on the cooperative behavior of individuals deemed to have medium levels of trust, especially in the context of corruption. Studies concerning the cooperative behavior of individuals deemed to have medium levels of trust are important, because the number of individuals with medium levels of trust is higher than the number of "high trust" and "low trust" individuals. For example, the results from research by Rosiana (2018) showed that the number of individuals deemed to have medium levels of trust was 74.54%, ($N = 1658$, $M_{age} = 20.40$, $SD_{age} = 1.89$, female 64%). The study was conducted in Bandung, Central Java, Indonesia. The question is whether the cooperative behavior of the individuals deemed to have medium levels of general trust, in the context of corruption, tends to have any similarity with that of individuals deemed to have high and low levels of trust. This information is particularly important for promoting cooperative behavior in those individuals deemed to have medium levels of general trust, that is the majority of individuals in society.

Trust, Cooperative Behavior and Corruption

The relationship between trust and cooperative behavior varies across countries (Balliet & Van Lange, 2013). They stated that, in some countries, trust has strong positive relationships with cooperative behavior (the Netherlands, Switzerland, and the UK), but in other countries the relationship between trust and cooperative behavior is weak (for example, Canada, Singapore and the United States). Moreno (2002) mentions a positive relationship between trust and economic development and democracy. Furthermore, there is a negative correlation between tolerance of corruption and the level of trust. This suggests that, in general, people with higher trust tend to be less likely to justify, or to tolerate, corruption, and, conversely, people with low levels of trust tend to be highly likely to justify or tolerate corruption. In accord with Moreno & Putnam (as cited in Uslaner, 2002) argues that corruption and trust are at odds with each other. Trust is the foundation of the spirit of cooperative behavior, which is the moral sentiment driving people to work with others, whilst corruption is a form of selfishness. Trust encourages giving, and performing voluntary work, whilst corruption leads to the usurpation of the property rights of others. In addition, trust and corruption arise from fundamentally different views of life. Trust is based on an optimistic view of the world. Seligman (1991) states that one who trusts others believes that the world is a good place, and will continue to get better, and that he or she can help make the world a better place. According to Uslaner (2004), the commission of corrupt behavior is based on the view of people who steal because they value comfort.

Sanctions and Cooperation

Sanctions effectively increase cooperative behavior in situations of social dilemma (Eek, Loukopoulos, Fujii, & Gärling, 2002; Fehr & Gächter, 2002; Van Vugt & De Cremer, 1999). In numerous situations of social dilemma in society, sanctioning systems are introduced and applied to make people cooperate. The most obvious reason why sanctioning systems may increase cooperation is that they make defection less attractive and, as such, change the reward structure of a social dilemma. However, there are also studies showing the negative sides of sanctions. Such studies have focused mainly on the motives for cooperation, such as frames, norms, expectations and trust, rather than the cooperative behavior itself. Tenbrunsel and Messick (1999) showed that sanctions made people

frame their decisions regarding social dilemmas as business decisions, rather than as ethical decisions. The results of their studies showed that sanctions occasioned cooperation, and that the expectations for cooperation decreased when the sanction was minimal. When the sanction was large enough to make cooperation unattractive, it increased cooperation. Mulder, Van Dijk, De Cremer, and Wilke (2006) showed that sanction systems in situations of social dilemma harm the trust by which fellow group members are internally motivated to cooperate.

There are two types of sanctions, based on the party who executes them, namely peer sanctions and systemic sanctions (centralized punishment). Peer sanctions are imposed by fellow participants, on participants who are declared to have violated the rules of their groups (for example, Fehr & Gachter, 1999). Systemic sanctions were imposed by someone outside the participants in the study, usually the researcher him or herself, on participants who were declared to have violated the rules in the group (for example, Mulder, Verboon, & Cremer, 2009). This type of outside-imposed sanction is also commonly referred to as a "punishment based on the system". Systemic sanctions are more effective in complex communities, wherein control systems are often carried out centrally. For example, people do not sanction their neighbors because of speed-limit violations, because the police (as the central authority) do so. Studies on the effectiveness of centralized sanctions (systemic sanctions) have showed the causal effects of legitimacy on cooperative behavior, in which the participants were more responsive to the authority of the selected monitor than the randomly selected monitor (Baldassarri & Grossman, 2011).

Research Objectives

The present study aimed to examine the effects of sanctions on the cooperative behavior of individuals with medium levels of general trust in the context of corruption. Investigated was conducted into whether the sanction type and the degree of cooperative behavior were independent one of the other, or whether they were, in some way, associated. The study also examined the types of sanction(s) which were effective in improving cooperative behavior.

Methods

The present study used an experimental method in a laboratory setting. The dependent variable was coo-

perative behavior, and the independent variable was sanctions (at three levels, that is, individual sanctions, collective sanctions, and absence of sanctions).

Participants

The participants in the present study were 62 undergraduate students 19 to 21 years old ($M = 19.35$; $SD = 1.79$) of the Faculty of Psychology at a private university in Bandung, Indonesia, 47 (75.8%) of whom were female, The participants involved in this study were free to withdraw voluntarily, whenever they so desired. The participants were recruited through invitations to participate in research, broadcast via social media. Within seven days of the posting of the invitations, 94 students replied and expressed their interest in participating in the study. After biodata and suitability regarding the research schedule was determined, 62 students were selected to participate in the study.

Measurement

General Trust was measured using the Inclusive General Trust Scale, by Yamagishi et al. (2015). The authors obtained permission from Yamagishi to adapt this measurement tool, this being received by electronic mail on June 4, 2017. The Inclusive General Trust Scale consists of nine items. Five items measure aspect of the belief of others trustworthiness (for example, "Most people are basically honest,"), and four items measure aspect of preference for trust (that is, positive evaluations of acting in a trustful manner) (for example, "I hate to lose because of having counted on someone.") The results of applying the Rank Spearman correlation for all items were between .291 and .631, meaning all items were usable, and also were reliable ($\alpha = .83$). This self-reporting questionnaire had response categories ranging from 1 (= distrust completely) to 5 (= trust completely). There were three categories used regarding general trust, based on score scales. The calculation employed SPSS 21 software, and obtained values for Mean and Standard Deviations for low trust ($X < 25.68$), medium trust ($25.68 \leq X \leq 33.12$), high trust ($X > 33.12$).

Cooperative behavior was measured via online computer simulation, adapted from a corruption game designed by Köbis, van Prooijen, Righetti, and Van Lange (2015). Köbis gave the authors a soft file, and permission to adapt the corruption game, by electronic mail received on May 6, 2017.

In summary, of the experimental materials used covered the following scenario. The participants play-

ed the role of the CEO (Chief Executive Officer) of a construction company, Construx. In the game, Construx is tendering for large construction contracts, advertised and allocated by the Public Works Department and Spatial Management Agency, of Godam City. At this stage of the procurement procedure there are only two construction companies eligible to do the work, Construx and Roley (the only competitor). The participants, as the CEO of Construx, have to decide whether to submit a low-cost tender (which would mean low development costs and low quality work) or an expensive tender (which would mean expensive capital development costs and good quality work, where every detail is laid out, and sketches and bridge models developed in detail).

The project going to tender consists of five development stages, divided into five rounds of tendering. At each round of the tendering process, the participants have to decide how much money they intend to allocate for the bridge building contract for the Public Works Department and Spatial Planning Agency. The participants are then given the bidding corruption scenario; as follows. "You have friends who are very close to the Head of the Public Works Department and Spatial Planning Agency of Godam City, so you have a unique opportunity to invite him to take a vacation to Paris on the corporate budget. If you invite him to take a vacation in Paris, then your company (Construx) will be selected as the winner of the tender in all five rounds. Would you like to invite the Head of the Public Works Department and Spatial Planning Agency of Godam City to take a holiday in Paris on the corporate budget?" The responses are: (1) "No, I will not invite him." - resulting in the construction tender being awarded to the highest bidder; (2) "Yes, I will invite him.", - resulting in the tender being given to your company (Construx) in all (five) rounds of the tender. The answer to this question is then taken to imply cooperative behavior (answer 'No'), or uncooperative behavior (answer 'Yes'). The participants are given five questions to confirm their understanding of the instructions (for example, "If you, as the CEO of Construx, offer EUR 50,000, and Roley, the other company, offers EUR 40,000, who gets the job?"). If any participants answer the question wrongly, they have a second chance to answer correctly (the participants answered 92% of the questions correctly, at the first trial).

Sanctions

The authors used a design allowing examination of whether or not the participants were able to cooperate with one another. In this design, there was the opportunity for the participants to cooperate, in order to avoid sanctions. The authors adapted the design from Chen, Jiang, and Villeval (2016), who investigated corruption as a social dilemma, by means of using a game based upon bribery. In this game, the risk of collective sanctions against public officials was introduced when the number of officials accepting bribes from firms reached a certain threshold. In the current experiment, each participant received a coupon which could be redeemed for IDR 25,000. The sanction, in the form of a monetary deduction, was 80% of IDR 25,000, so that participants on whom such a sanction was imposed would receive only IDR 5,000. Sanctions were imposed if at least 20% of the participants (in 10 person groups) chose uncooperative behavior (bribing the head of the department/agency, by giving him a vacation ticket to Paris). Thus, sanctions were applied when three or more from the 10 person group of participants chose uncooperative behavior. In this experiment, systemic sanctions were applied. The sanctions were imposable at three levels, with the following operational definitions for each level: At the level of "individual sanctions," sanctions were imposed on only those participants who chose to engage in uncooperative behavior (bribing the head of the department/agency, by way of giving him a vacation ticket to Paris). At the level of "collective sanctions", such sanctions were imposed on all participants in the group, whether they chose to engage in uncooperative behavior (bribing the head of the department/agency by providing holiday tickets to Paris), or rather chose cooperative behavior. At the level of "absence of sanctions", the participants were not given any information relating to sanctions, and there was no sanction imposed.

Procedure

There were two experimental stages in this research. At the first stage, general trust was measured using only the participants deemed to have a medium level of trust. The participants were divided randomly into three groups. The group which was subject to collective sanctions comprised 20 participants, the group subject to individual sanctions comprised 21 participants, and the group of not subject to any sanction consisted of 21 participants.

In the second stage, cooperative behavior was measured through an online computer simulation, accessed by opening the specified address. The participants were each provided an individual computer. They were

instructed that there was a group of 10 people working together on the simulation, and that their choices would have impacts on the other group members. The instruction, that there was a group of people, and that their choice of answers would have an impact on their fellow group members, was an adaptation for examining cooperative behavior, in the context of corruption. The participants were given the story scenario. The simulation lasted for 30 minutes.

Data Analysis Technique

Data were summarized into 3 x 2 contingency tables, with the categorizing of participants according to their cooperative, or uncooperative, behavior responses to three sanction treatments: individual sanctions, collective sanctions, and the absence of sanctions. The question of interest in the present study was, whether the rates of cooperative responses and uncooperative responses were the same. The authors addressed this question by investigating whether there was a statistical association, between treatment and outcome. The null hypothesis stated that there was no association between sanctions and outcomes. To test this statistical hypothesis, the authors used Chi-Squared statistics and likelihood-ratio statistics.

Further analysis was needed, to assess the strength of any association between sanction type and the cooperative behavior of participants, as a response. In this analysis, the authors used one measure of association, the odds ratio. The odds ratio figures resulted from the use of the logistic regression model. This demonstrated the relationship between the categorical response variables and a set of explanatory variables. In this study, the response variable was cooperative behavior, which was rated at two different response levels (cooperative and the uncooperative). The explanatory variable was the sanction type, which had three different response levels: individual sanctions, collective sanctions, and the absence of sanctions. One of the advantages was that the model interpretation was possible through the odds ratios, which were the functions of the model parameters. Data were processed using the IBM Statistical Package for the Social Sciences, Version 17.

Results

Table 1 presents the results from the 62 participants, who took part in the research as individuals with medium levels of trust. They were undergraduate students of the Faculty of Psychology, of a private university in Bandung, Central Java. Table 1 depicts the cross classifications of behavior (two levels, that is, cooperative behavior and uncooperative behavior) by sanction type (three levels, that is, individual sanctions, collective sanctions, and the absence of sanction) in the context of corruption.

In general, regardless of the sanction type, the tendency of individuals with medium levels of trust to show cooperative behavior was higher (34 participants, 54.84%) than that of those demonstrating uncooperative behavior (28 participants, 45.16%). These findings revealed that the tendency of individuals demonstrating medium levels of trust to behave cooperatively when facing uncertainty and a conflict of interests, was similar to the tendency of individuals deemed to have high levels of trust to show cooperative behavior (Balliet & Van Lange, 2013; Yamagishi, 2011).

The percentage of individuals having medium levels of trust, facing individual sanctions, who demonstrated cooperative behavior, was higher (13 participants, 21%) than that of those who showed uncooperative behavior (seven participants, 11.3%). Different results were shown by the individuals having medium levels of trust, who were facing collective sanctions. The percentage of those who behaved uncooperatively was higher (15 participants, 24.19%) than that of those who behaved cooperatively (six participants, 9.67%). The individuals having medium levels of trust, and not threatened with sanctions, had similar tendencies to those who faced individual sanctions. The percentage of those who behaved cooperatively was higher (15 participants, 24.19%) than that of those who behaved uncooperatively (six participants, 9.67%).

Table 1

Cross Classification of Participant Behavior by Sanction Type

Sanction Type	Cooperative Sanction		Total
	Cooperative (f, %)	Uncooperative (f, %)	
Individual Sanctions	13 (21%)	7 (11.3%)	20 (32.25%)
Collective Sanctions	6 (9.67%)	15 (24.19%)	21 (33.87%)
Absence of Sanction	15 (24.19%)	6 (9.67%)	21 (33.87%)
Total	34 (54.83%)	28 (45.16%)	62 (100%)

Table 2

Results of Chi-Square Analysis

Methods	Value	df	p-value
Pearson Chi-Square	9.018	2	0.011
Likelihood Ratio	9.216	2	0.010

Table 3

Parameter Estimate of Logistic Regression Model

Parameter	Estimate	Standard Error	Wald Chi-Square	df	p-value	Odds Ratio
Intercept	- 0.916	.483	3.598	1	.058	0.400
Sanction			8.335	2	.015	
Individual sanction	1.833	.683	7.196	1	.007	6.250
Collective sanction	0.297	.673	0.195	1	.659	1.346

There was a question to be statistically tested in the present study, namely whether sanction type and cooperative behavior were associated. Also to be tested was whether the proportion of cooperative behavior by participants in the present study who were considered to be individuals having medium levels of trust, subject to individual sanctions, different from the proportion of cooperative behavior from those who faced no sanction, and if the proportion of the cooperative behavior of the participants, in the present study, who were considered to be individuals having medium levels of trust, subject to collective sanctions, was different from the proportion of the cooperative behavior of those who facing no sanctions. These questions were answered by statistical examination of the association between the sanction type and cooperative behavior. The null hypothesis stated, H0: "There was no association between sanction type and cooperative behavior." There were several ways for testing the hypothesis (that is, by using Pearson Chi-Square statistics and by using Likelihood Ratio Chi-Square statistics.) The results of the hypothesis testing are presented in Table 2.

Table 2 shows that the value resulting from Pearson Chi-Square analysis was 9.018 (with *df* = 2, and *p-value* = .011), and the value resulting from Likelihood Ratio Chi-Square analysis was 9.216 (with *df* = 2, and *p-value* = .010). These results indicated that the hypothesis testing was statistically significant, and that the null hypothesis was therefore rejected, meaning that there <u>was</u> an association between the sanction type and cooperative behavior.

In addition to the examination of the statistical association between sanction type and cooperative behavior, the strength of the association was also examined. A logistic regression model was used to describe the structure of this association. It was a modeling strategy which associated the logistic regression to a set of explanatory variables, using a linear model. One of the benefits of using the logistic regression model was that the odds ratios (OR), the important measure of the association, was obtainable from the parameter estimate. A maximum likelihood estimate was used to provide those estimates. The parameter estimate of the logistic regression model is presented in Table 3.

In the model applied in the current research, there was only one effect, or one explanatory variable, which was the sanction type, which was rated at three levels (individual sanctions, collective sanctions, and absence of sanctions). To determine whether the association between the responses and the explanatory variable in the model was statistically significant, p-value was used to test the null hypothesis. The null hypothesis was stated, H0: "The parameter of the term was equal to zero, indicating that there was no association between the parameter and the responses. The significant level (denoted as α or *alpha*) of .05 usually worked well. The level of significance was defined as the probability of rejecting a null hypothesis by the test, if the hypothesis was actually true. A Wald Chi-Square analysis was applied, to test the null hypothesis.

The results of the model testing are presented in Table 3, which describes the parameter estimate of the logistic regression model. The effects of the "individual sanctions" level in the model were significant, being at the level of .05 (*p-value* = .007), whereas the effects of the "collective sanctions" level in the model were not significant, being at the .05 level (*p-value* = .659).

As mentioned in the previous paragraph, the explanatory variable in this study (the sanction type) was rated at three levels (that is, individual sanctions, collective sanctions, the absence of sanctions), and it was measured on a nominal scale. For the purposes of the analysis, the computation, and its interpretation, it was necessary to have a coding for the explanatory variables. Therefore, it was required to have a set of design variables to describe the categories of those vari-

Table 4

Specification of Design Variables Using "Not Subject to Sanction" Persons, as the Control Group

Sanction Type	Coding	Design Variable	
		D_1	D_2
Individual Sanctions	Sanction(1)	1	0
Collective Sanctions	Sanction(2)	0	1
Absence of Sanctions		0	0

Table 5

Results of "Goodness-of-Fit" Test Statistics

Methods	Value	*df*	*p*-value
Pearson Chi-Square	1.1519	1	0.283
Deviance	1.1630	1	0.281
Hosmer-Lemeshow	1.1519	1	0.283

ables. Table 4 explains the method for specifying the design variables involving the compilation of all the arrangements. In this design, there was a level of sanctions which had a code equal to zero (that is, the control level), and there was another level of sanctions having a code equal to one. In the current study, the control level, or level of reference, was the level of absence of sanctions. The parameter of individual sanction was a comparison of the probability between the successfulness of the level of "individual sanctions", with the "absence of sanctions" level. The parameter of "collective sanctions" was a comparison of the probability between the successfulness of the level of "collective sanctions" with the level of "absence of sanctions".

The odds ratio regarding "individual sanctions" (see Table 3) compared the probability of receiving cooperative behavior from the individuals having medium levels of trust, subject to individual sanctions, with the probability of receiving cooperative behavior from the individuals having medium levels of trust, who faced no sanction (absence of sanctions). The odds ratio regarding "collective sanctions" (see Table 3), compared the probability of receiving cooperative behavior from the individuals having medium levels of trust and facing collective sanctions, with the probability of receiving cooperative behavior from the individuals having medium levels of trust , who faced no sanction. The value of the probability ratio (the odds ratio, OR) ranged from zero to infinity. When the OR was 1, this meant that there was no association between the variables in the row and the variables in the column. When the OR was greater than 1, as compared to the participants facing collective sanctions, the participants subject to individual sanctions were more likely to give the response 'Yes', indicating uncooperative behavior (see experimental materials). When the OR was less than 1, as compared to the participants facing collective sanctions, the participants facing individual sanc-

tions were less likely to give the response 'Yes', indicating uncooperative behavior (see experimental materials).

As presented in Table 3, this study found that the estimated odds ratio was obtained by exponentiating the regression estimate. The estimated odds ratio for individual sanctions was *exp(1.833)* = 6.250. This meant that, as compared to the probability of receiving cooperative behavior from the individuals having medium levels of trust, in the group facing no sanction, the probability of receiving cooperative behavior from the individuals having medium levels of trust who were facing individual sanctions was 6.250. This was statistically significant (*p-value* = .007). The estimated odds ratio for collective sanctions was *exp(0.297)* = 1.346, meaning that, as compared to the probability of receiving cooperative behavior from the individuals having medium levels of trust in the group facing no sanction, the probability of receiving cooperative behavior from the individuals having medium levels of trust in the group facing collective sanctions was 1.346. This was, however, statistically insignificant (*p-value* = .659). In other words, the probability of receiving cooperative behavior from the individuals having medium levels of trust in the group facing collective sanctions was similar to the probability of receiving cooperative behavior from the individuals having medium levels of trust in the group not subject to sanctions.

The authors computed a set of "*goodness-of-fit*" statistics to evaluate the "*model fit*", and have presented the results in Table 5. Three "*goodness-of-fit*" statistics were used to test the null hypothesis, that is to say whether the model presented in Table 3 was correct. These were the deviance test, the Pearson Chi-Square test, and the Hosmer-Lemeshow test. The output was a p-value ranging from 0 to 1, with higher values indicating a better "*fit*". A p-value of less than a determined α level (say, .05) indicated that the model was not acceptable. A p-value higher than a determined α

level (say, .05) indicated that the model was acceptable, or "*fit*" with the data. The deviance and the Pearson Chi-Square "*goodness-of-fit*" tests examined the discrepancy between the current model and the full model. The Hosmer-Lemeshow "*goodness-of-fit*" test compared the observed frequencies and the expected frequencies of events, and frequencies of non-events, to examine how well the model "*fit*" with the data.

The deviance and the Pearson chi-square "*goodness-of-fit*" tests were used to determine if the predicted probabilities deviated from the observed probabilities, in a way not predicted by the bi-nomial distribution. The results presented in Table 5 showed that the p-values of the "*goodness-of-fit*" tests (the deviance, and the Pearson Chi-Square "*goodness-of-fit*" tests) were higher than the significant level of .05. This meant that the predicted probabilities deviated from the observed probabilities, in a way that was not predicted by the bi-nomial distribution. The Hosmer–Lemeshow test is a statistical test for "*goodness-of-fit*" of logistic regression models. It is frequently used in risk-prediction models. The test assesses whether the observed event rates match the expected event rates, in the sub-groups of the model population. The Hosmer–Lemeshow test identifies particular sub-groups as the deciles of fitted risk values. In this study, the models for the expected and observed event rates in sub-groups were similar, and, for this reason, were considered to be well calibrated. These results implied that the effects of the particular sanction type in the model was important for the prediction of the probability of cooperative behavior. Thus, the model presented in Table 3 "*fit*" with the data.

Discussion

In summation, this study was intended to fill the dearth of studies into individuals having medium levels of trust (these forming the majority of people in society), particularly in the context of corruption. The results in Table 1 show that the percentage of those who demonstrated cooperative behavior (54.83%) was higher than that of those who exhibited uncooperative behavior (45.16%). These finding were in accord with the findings from the other studies of individuals having high levels of trust, meaning that the tendency of individuals having medium levels of trust to behave cooperatively, in facing uncertainty and conflict of interests, was similar to the tendency of the cooperative behavior of individuals showing high levels of trust (Balliet & Van Lange, 2013; Yamagishi, 2011).

Furthermore, this research investigated the effects of different types of sanctions (that is, individual sanctions, collective sanctions, the absence of sanctions) on the cooperative behavior, in the context of corruption, of individuals having medium levels of trust. The sanctions in this research were systemic, in which they were imposed by the system, and not by the individual (see subheading 'Procedure' above). Individual participants decided whether or not to contribute to the sanctioning system. As described previously, in this system of sanctions, the term "individual sanctions" indicated that the sanctions were to be imposed only on participants who chose to engage in uncooperative behavior. The term "collective sanctions" indicated that the sanctions were to be imposed upon all participants in the group, whether they chose to engage in uncooperative behavior, or rather chose cooperative behavior. The term "absence of sanctions" indicated that the participants were not given any information relating to sanctions, and that no sanctions were to be imposed. It was clear from those understandings, that "collective sanctions" forced the participants to consider the group, and other participants in that group. In this situation, the participants should have been aware that the risks inherent if they behaved uncooperatively, in other words if they chose not to cooperate, were that any sanctions incurred would also apply to the other participants in the group, including those who had behaved cooperatively. In this way, the participants who chose to behave cooperatively would suffer sanctions because of the behavior of the "uncooperative" participants, those who chose not to cooperate (Chen, Jiang, & Villeval, 2016). The results of this study showed that the individuals having medium levels of trust, who faced individual sanctions, as well as those who faced no sanction, tended to behave cooperatively. Interestingly, this was not the case when they faced collective sanctions. In that situation, they tended to display uncooperative behavior (see Table 1). These results implied that the participants, who, in this study, were considered to be individuals having medium levels of trust, had lower concerns for the group, and for other participants in that group.

In general, the findings indicated that there was a significant association between the sanction type and cooperative behavior. Regarding the type of sanctions imposed upon the participants, who, in this study were considered to be individuals having medium levels of trust, the results in Table 3 showed that different types of sanction resulted in differences in cooperative behavior, in the context of corruption. Individual sanctions had a significant effect on cooperative behavior,

whereas collective sanctions did not have any detectable effect on such behavior. These results suggested that, in the context of corruption, individual sanctions might well be applied to promote cooperative behavior, rather than collective sanctions. These results indicated a "*model fit*" with the data.

The integrative model of decision-making in social dilemmas (Parks, Joireman, & Van Lange, 2013) explains the dynamics of the formation of cooperative behavior. Cooperative behavior in this model has four stages (the distal causes stage, the proximal causes and decision process stage, the initial interaction stage, and the consequences of the initial interaction stage.) From the perspective of this model, this study described the dynamics of cooperative behavior of the individuals having medium levels of trust at the proximal causes stage, and the decision process stage, resulting in the intended stage of the behavior (prior to the initial interaction stage). Therefore, the generalization of the results of this study across all of the behavior, in the context of corruption, should be performed carefully, and should always take into consideration the stages in the model.

Three methods used in making efforts to eradicate corruption are preventative, repressive and restorative (Rakhmat, 2015). The results of the present study could be recommended for use in the repressive methods for the eradication of corruption, in which trust, as one of the individual aspects, should be considered in imposing sanctions. Specifically, for individuals having medium levels of trust, individual sanctions are shown to be more suitable for promoting cooperative behavior, in the context of corruption.

Limitations and Further Study

This present study was conducted on only a relatively small number of participants, 75.8% of whom were female. Further studies, with more participants, involving equal numbers of male and female participants, are recommended. Regarding responses to sanctions, further studies are recommended to be conducted, focusing on the sensitivity of individuals having medium levels of trust regarding their receiving information, for example if they are more sensitive to relevant information about the trustworthiness of others (about the extent to which others have credible traits of trust).

Conclusion

The majority of individuals having medium levels of trust displays cooperative behavior. There is a sig-nificant association between sanction type and cooperative behavior. The cooperative behavior of individuals having medium levels of could be promoted, by making them subject to individual sanctions. The model "*fit*" with the data.

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