Eliciting Guilt Sensitivity to Predict Real-World Behavior

Shoji, Masahiro

Faculty of Economics, Seijo University

19 September 2017

Eliciting Guilt Sensitivity to Predict Real-World Behavior*

*Masahiro Shoji***
Faculty of Economics, Seijo University

Abstract
This study tests guilt aversion by experimentally eliciting guilt sensitivity of villagers in Bangladesh and evaluating its impact on real-world behavior. In a trust game with hidden action, villagers in this study are asked about their reciprocal behavior toward seven potential opponents with different levels of trusting belief. Guilt sensitivity is elicited from the threshold belief to switch from selfish to reciprocal behavior. It appears that males exhibit higher guilt sensitivity. I also find robust supporting evidence for guilt aversion but not for pure altruism or trustworthiness; guilt-averse villagers can borrow from and repay to community members after a disaster. Individuals also suffer less from property crime in villages with a higher guilt-sensitivity neighborhood. However, guilt sensitivity is uncorrelated with contribution to community events. A potential reason for the insignificant effect is discussed.

JEL Codes: C91; C93; K42
Keywords: Guilt aversion; peer effects; antisocial behavior; experiment; Bangladesh

* This study was financially supported by KAKENHI Grant Number 16K03657 from the Japan Society for the Promotion of Science (PI: Masahiro Shoji). The author would like to express gratitude to Klaus Abbink, Yukihiko Funaki, Jonathan Morduch, Alistair Munro, and Tomomi Tanaka for their valuable comments. This paper also benefited from the comments of Koichi Hamada, Yoko Kijima, Takashi Kurosaki, Takeshi Murooka, Yoshitaka Okano, Yasuyuki Sawada, and Kan Takeuchi. Special thanks are due to the seminar participants at the Asian Meeting of the Econometric Society (AMES), Chuo University, Association for Public Economic Theory (PET), National Graduate Institute For Policy Studies, Hitotsubashi University, Institute of Developing Economies, the Japanese Economic Association, Meeting on Applied Economics and Data Analysis, National Taiwan University, Osaka University, Seijo University, Society for the Advancement of Behavioral Economics (SABE), Tohoku University, Tokyo Metropolitan University, the University of Tokyo, Waseda University, and Yokohama National University. The author is also grateful to Naonori Kusakabe and Data Analysis and Technical Assistance Ltd. for their valuable cooperation in the household survey and experiment. The usual disclaimer applies.
** 6-1-20 Seijo, Setagaya-ku, Tokyo 157-8511, Japan. +81(3)3482-5936, Email: shoji@seijo.ac.jp

1. Introduction

Social preference, such as altruism, cooperativeness, and trustworthiness, has been recognized as vital to underpinning human society since the time of Adam Smith (Smith 1759). This argument has been tested in the literature with the recent development of economic experiments; social preference is shown to have positive effects on real-world behavior, such as living standards, labor market outcomes, creditworthiness, and common resource management (Karlan 2005; Bouma et al. 2008; Barr and Serneels 2009; Carpenter and Seki 2011; Carter and Castillo 2011; Fehr and Leibbrandt 2011; Sawada et al. 2013Kosfeld and Rustagi 2015).

Likewise, economic analyses on guilt are increasing. The guilt aversion preference of Charness and Dufwenberg (2006) considers that an individual feels guilty and experiences utility loss if he/she believes his/her behavior falls short of someone's expectation and lets the person down. This concept was theoretically formalized by Battigalli and Dufwenberg (2007), and extended to experimental studies by Charness and Dufwenberg (2006), Miettinen and Suetens (2008), Vanberg (2008), Reuben et al. (2009), Ellingsen et al. (2010, 2012), Bellemare et al. (2011), Dufwenberg et al. (2011), Battigalli et al. (2013), Beck et al. (2013), and Kawagoe and Narita (2014), among others.

While insightful, these previous studies face three remaining issues. First, it is not well known to what extent guilt aversion explains real-world behavior relative to other social preference. This is important because, unlike pure altruism and trustworthiness, guilt aversion is belief-dependent, providing different implications for researchers and policymakers. Second, the experiments in the previous studies are not designed to elicit guilt sensitivity of individuals, a preference parameter that allows us to distinguish guilt aversion from other social preference. Finally, even among the experimental studies there is no consensus whether the behavioral patterns of individuals are consistent with guilt aversion.

The goal of this study is to test the validity of guilt aversion in the real world, by developing a unique experimental approach to elicit the guilt sensitivity parameter. I elicit the sensitivity by conducting a trust game with hidden action, which is frequently used in the literature pertaining to guilt aversion (Charness and Dufwenberg 2006, 2010, 2011; Vanberg 2008; Ellingsen, et al. 2010; Kawagoe and Narita 2014). Then, I combine the experimental result with the survey data collected from the subject households to examine the association between the sensitivity and real-world behavior. To the best of my knowledge, this study is the first to elicit guilt sensitivity and to test guilt aversion in a real-world setting.

In addition, this study attempts to contribute to the literature by addressing two major issues in experimental studies. First, there is little experimental evidence from developing countries particularly in the literature on guilt aversion. Second, in many studies, the subjects are self-selected to participate in the experiment, causing estimation results to be biased. By contrast, my experiment was conducted among 288 randomly selected households in rural Bangladesh, of which 279 participated in the experiment and household survey. It is particularly insightful to study the impact of guilt in developing countries, since they have long grappled with problems arising from ineffective law enforcement. Therefore, intrinsic motivation plays a significant role in facilitating normative behavior in such areas.

To preview the result, the villagers' guilt sensitivity has significant causal effects on their real-world behavior, whereas pure altruism or trustworthiness does not; after a disaster, guilt-averse individuals can borrow from and repay informal sources, such as neighbors and relatives, and are less likely to be bound by credit constraint. This is in line with the finding of Karlan (2005). In addition, the risk of crime victimization is lower in villages with guilt-averse neighbors. By contrast, intriguingly, guilt aversion does not predict behavioral patterns regarding contribution to community events.

The remainder of this paper is structured as follows. The next section describes the

experimental design to elicit guilt sensitivity. Section 3 investigates the causal effect of guilt sensitivity on real-world behavior. Finally, Section 4 concludes.

2. Experimental Design and Results

2.1. Procedure and Participants

The study site is Satkhira district in southwestern Bangladesh. This district suffers from ineffective law enforcement and formal credit/insurance markets, as in other parts of developing countries. Therefore, social preference of villagers plays an important role in facilitating normative behavior, such as mutual help and crime control. This is particularly true after the district was hit by a devastating cyclone in May 2009 and opportunities for both crime incidence and mutual help increased.

In this district, 288 households from 16 rural villages are randomly sampled.[1] Of the 288 sampled households, 285 participated in a household survey in December 2010 (1.5 years after the cyclone).[2] Then, in August 2011, the heads of the survey households were invited to participate in an economic experiment that used real money. In cases in which the household head was not available, the next senior person representing the household (usually the spouse) was recruited to maintain the sample size. Ultimately, 279 of the 285 households participated in the experiment. This study uses the survey and experimental data collected

[1] In the first stage of stratified random sampling, I select the two sub-districts (*Upazila*) of Kaliganj and Ashashoni based on their socio-economic status and the intensity of cyclone damage. In the second stage, I randomly sample two unions from each sub-district. "Union" is an administrative unit in Bangladesh. Each union includes multiple villages. In the next stage, four villages from each union and one cluster from each of the villages are randomly selected. Finally, 18 households from each cluster are chosen.

[2] The questionnaire covers data from January 2009 until December 2010 on the magnitude of cyclone damage, crime incidence, self-reported social capital, socio-economic status, membership of microfinance institutions, and relationship with the other sample households.

from these households.

Panels A and B of Table 1 present the subject and household characteristics of experiment participants, respectively. The average participant is 36 years old and has 6 years of schooling. 56% of subjects are household heads and the others are mainly wives or sons of the head. Participants' working place was inundated for 1 month as a result of a 2-foot cyclone. After the cyclone, 26% of households borrowed from informal sources, such as neighbors and friends, at zero interest. Finally, 45% of households were victims of property crime.

The experiments were conducted at the local government offices over 8 days. A total of 36 subjects from two villages were invited per day and were randomly allocated to two rooms, so that each room includes nine subjects from each village. Each subject participated in five games, such as the take-away games, dictator game, trust game with hidden action, risk preference game, and trust game with complete information. However, this study employs the results of the dictator game and trust game with hidden action only. Table 2 provides an overview of the experiments. The experimenters were hired in Bangladesh, and since participants had an average of 6 years of schooling, the experimenters explained the experimental design slowly and carefully.

Each subject received his/her payoff from only one randomly selected decision after finishing all the games. Therefore, the subjects did not know the decision from which they received the payoff and were aware that each subject had earned money from a different decision. This is important for two reasons. First, it alleviates the correlation of choices within subjects across games due to the wealth effect. Second, if subjects were to earn money from all games and discuss the payoffs after the experiment, they might have been able to infer the choices of the other subjects. This would have violated subject anonymity, potentially affecting behavior.

[Table 1]

[Table 2]

2.2. Trust Game with Hidden Action

In order to elicit guilt sensitivity at the individual level, I conduct a trust game with hidden action. This game is commonly used in the guilt-aversion literature (Charness and Dufwenberg 2006, 2010, 2011; Vanberg 2008; Ellingsen et al., 2010; Kawagoe and Narita 2014). Therefore, while the elicited guilt sensitivity would be sensitive to experimental design, I still consider this the most suitable game.

The structure of the game is summarized in Figure 1. A detailed description of the experiment implementation is presented in the online appendix. Each subject is paired with a randomly chosen anonymous opponent in the other experiment room. It is explained to the participants that the opponent player in this game is not the same as the opponents in the prior games. The participants are assigned as Players A and B. This game has three stages. First, Player A chooses *In* or *Out*. If he/she chooses *Out*, the game is over, and both subjects receive Bangladeshi Taka (BDT) 100 each. If *In* is chosen, the game proceeds to the second stage, in which Player B chooses either *Roll the die* or *Don't roll.* If Player B does not roll the die, he/she earns BDT 280, while the paired Player A receives BDT 0. If Player B decides to roll the die, the game proceeds to the third stage, in which Player B's payoff is BDT 200, regardless of the face of the die. However, Player A's payoff depends on the face of the die. Player A receives nothing if the face shows 1 and BDT 240 otherwise.

This study applies the strategy method; after all the subjects make decisions about the role of Player A, they make decisions as Player B. All the subjects are asked four questions. First, as Player A, they are asked to choose *In* or *Out*. Second, they are asked how many out of the 18 subjects in the other room will roll the die if he/she chooses *In*. Recall that the

subjects are told that they are paired with 1 of the 18 subjects. Therefore, this question elicits the first-order belief about Player B's trustworthiness.[3] Third, as Player B this time, all the subjects decide whether to roll the die, conditional on Player A choosing *In*. This question is used to elicit the subjects' trustworthiness. Finally, the experimenters explain that there are seven potential Player As, and they exhibit different levels of belief about *Roll the die*: 0%, 16.7%, 33.3%, 50%, 66.7%, 83.3%, and 100%. For example, in case of the third opponent with the belief being 33.3%, the following is explained to the subjects: *Player A expects that 6 of the 18 participants in this room will roll the die. Then, which option will you choose?*[4] The subjects are asked their decisions for each potential opponent.[5]

In this experimental design, the set of *Don't roll* by Player B and *Out* by Player A satisfies a sub-game perfect Nash equilibrium regardless of Player A's belief.

[Figure 1]

2.3. Elicitation Method and Result

Guilt sensitivity is elicited from behavioral patterns in the last question about the role of Player B. If Player B does not roll the die even though the paired Player A trusts him/her to

---

[3] Belief-elicitation experiments usually reward accuracy of stated beliefs in addition to payments for other decisions, but this study does not, as this approach potentially affects participants' incentives in a different way (Blanco et al. 2010; Gächter and Renner 2010).

[4] In order to help uneducated subjects understand the experiment setting, the experimenters explained the belief using the proportion of individuals who are anticipated to roll the die rather than the probability, as described in the experiment script in the online appendix.

[5] In other words, I use the strategy method regarding the level of the first-order belief. Although the strategy method has some potential concerns, Brandts and Charness (2011) claim, based on a large number of previous studies, that the results of the strategy and direct-response methods are comparable. Amdur and Schmick (2012) show that the feeling of guilt does not differ between the cases of direct-response and strategy methods.

do so, it lets Player A down. According to the concept of guilt aversion of Charness and Dufwenberg (2006), this causes Player B to feel disutility of guilt. The level of disutility depends on the extent to which Player B believes his/her choice lets Player A down.

To explain this argument more clearly, suppose ρ^A represents Player A's belief about *Roll the die*, conditional on Player A choosing *In*. Since the expected material payoff for Player A is BDT 200 when Player B rolls the die, Player A expects BDT $200\rho^A$ when choosing *In*. However, if Player B chooses *Don't roll*, Player A yields nothing. Thus, if Player B does not roll the die, his/her choice will let Player A down by BDT $200\rho^A$. However, since ρ^A is unobservable for Player B, he/she does not know exactly by how much his/her choice lets Player A down. Hence, he/she makes decisions based on his/her expectation about ρ^A, which is denoted by ρ^B. In other words, ρ^A and ρ^B are the first- and second-order belief about *Roll the die*, respectively. This causes Player B to achieve utility as much as BDT $280–200\rho^B g$ by choosing not to roll the die, where g represents the guilt sensitivity parameter. If this utility exceeds the utility obtained from rolling the die (BDT 200), Player B will not roll the die. This implies that Player B rolls the die if and only if $\rho^B g>0.4$. Therefore, subjects with a certain level of guilt sensitivity should switch their choice from *Don't roll* to *Roll the die* as ρ^B increases. The switching point varies depending on their guilt sensitivity.

Furthermore, this experimental design has another preferable feature. Since ρ^B is endogenous for Player B, it suffers from (false) consensus effects if ρ^B is used to analyze Player B's behavior. However, since this study provides Player B with information on Player A's first-order belief, this procedure assures that the first- and second-order beliefs coincide, that is, $\rho^A = \rho^B = \rho$, reducing the scope for such effects.[6]

By exploiting the experimental design, I compute four indicators of guilt sensitivity.

[6] The strategy to inform Player A's first-order belief to Player B was first suggested by Ellingsen et al. (2010).

The first is an indicator assuming linear guilt disutility, where Player B's utility from not rolling the die is characterized by $280–200\rho g$. This utility function is consistent with Charness and Dufwenberg (2006) and other studies, and therefore, is useful as a benchmark. However, the anticipated payoff for Player A when choosing *In* becomes lower than that when choosing *Out,* if $\rho < 0.5$. Such a low belief might not be credible for Player B, causing the elicited guilt sensitivity to be inaccurate. Therefore, I use the responses to 4 potential opponents with $\rho \geq 0.5$ and compute the second sensitivity variable, which takes unity if the subject always rolls the die in this range, and zero otherwise. This is equivalent to the indicator taking unity if the first indicator is equal to or greater than one. The third indicator assumes quadratic guilt disutility, that is, $280–(200\rho)^2 g$, implying that the marginal disutility of guilt increases with the level of letting Player A down. Finally, the last indicator assumes logarithmic disutility, that is, $280–\log(200\rho)g$, considering the opposite tendency from the third indicator (decreasing marginal disutility).

The experimental results are presented in Table 3. The first two columns present the switching points. The third column shows the corresponding range of guilt sensitivity when linear disutility is assumed. The fourth column is the level of sensitivity used for the empirical analyses. Finally, the last column presents the breakdown of sensitivity. Table 3 shows three noteworthy points. First, more than 40% of subjects switch their behavior from self-interested to trustworthy manner at 50% or 67% of belief. Second, 26.5% of subjects choose *Roll the die* even when Player A's belief is zero. This cannot be explained simply by guilt aversion, because the net gain from choosing *Don't roll* is positive regardless of guilt sensitivity. Rather, this is consistent with pure altruism and trustworthiness, implying that the indicator of guilt sensitivity partially captures these characteristics. The econometric analysis in Section 3 addresses this concern by controlling for the indicators of pure altruism and trustworthiness. Third, 11 subjects (3.9%) switch their answers to the opposite or switch

multiple times. These observations are not used in the empirical analyses.

The summary statistics of guilt sensitivity and the other experimental results are reported in Panel C of Table 1. The average subject anticipates that 10.8 out of 18 subjects in the other experimental room will roll the die if he/she chooses *In*, implying that the mean first-order belief is 60%.

[Table 3]

2.4. Dictator Game

In addition to the trust game with hidden action, the dictator game is conducted to elicit the pure altruism of subjects. The experimental design follows that of Forsythe et al. (1994). This game is played anonymously by a randomly matched pair of participants, referred to as the dictator and recipient. When the game starts, the experimenters provide an endowment of BDT 400 to the dictator and nothing to the recipient. The dictator can then allocate BDT 400, 350, 300, 250, 200, 150, 100, 50, or 0 to the recipient. The extent of pure altruism is measured by the proportion of endowment allocated to the dictator's recipient.[7] This study elicits this preference parameter from all participants by using the strategy method across the roles in the game. The average subject allocates 46% of endowment to the recipient (Table 1).

2.5. Determinants of Guilt Sensitivity

This section examines the association between guilt sensitivity and subjects' socio-economic and demographic characteristics. The following OLS model is estimated:

$$Guilt_{vi} = \alpha_0 + \alpha_1 Pref_{vi} + \alpha_2 X_{vi} + \omega_v + \varepsilon_{vi} \quad (1)$$

where $Guilt_{vi}$ is the guilt sensitivity of individual i in village v; *Pref* denotes the level of pure

[7] Since this game is conducted after a take-away game, the rule is explained in this context. See the online appendix for details.

altruism and trustworthiness; X denotes household and subject characteristics, such as socio-economic status and demographics; ω is village fixed effects; and finally, ε is the residual.

Table 4 shows the result. Predictably, sensitivity is strongly correlated with the level of pure altruism and trustworthiness. On the other hand, it is uncorrelated with the other covariates, such as socio-economic status. The only significant determinant is the sex of subjects. Males exhibit higher guilt sensitivity. These results suggest that guilt sensitivity is not necessarily formed through life experience, but is determined by individuals' predisposition.

[Table 4]

3. Guilt Sensitivity to Predict Real-World Behavior

3.1. Credit Accessibility and Repayment

First, we examine the impact of guilt sensitivity on credit accessibility and creditworthiness. In developing countries, like Bangladesh, access to formal credit and insurance is limited. Therefore, villagers rely on borrowing from informal sources, such as friends and relatives, to smooth consumption. Since such informal lenders do not charge interest rates and a formal scheme to enforce repayment does not exist, the borrower's social preference plays a critical role in whether he/she repays, and therefore, in whether he/she can borrow. For example, Foster and Rosenzweig (2001) show that the risk-sharing arrangement in the rural economy is likely to be inefficient if individuals are self-interested. Karlan (2005) also finds that microfinance members with higher trustworthiness are less likely to default on their loans. Since the study site was hit by a cyclone before the survey, the demand for loans should be particularly high during the survey period.

This argument leads to the following testable hypotheses; those with higher guilt

sensitivity are (1) more likely to be able to borrow from informal sources, (2) more likely to repay the informal loans, and (3) less likely to bind the credit constraint. The term "credit constraint" refers to excess demand for consumption and investment credit with respect to the overall market, including formal and informal lenders. In Figure 2, households are defined as credit constrained if they borrowed money but could not borrow sufficiently, or if they did not borrow from any sources because their credit applications were rejected, they feared default, or they did not have sufficient credit sources. Furthermore, households were credit unconstrained when they borrowed the required amount, or when they did not borrow because they did not need to. The indicator of credit constraint is measured from the survey in that manner. This is a simplified version of the direct eliciting methodology of Boucher et al. (2009).

[Figure 2]

These hypotheses are tested by estimating the following OLS model:

$$L_{vi} = \alpha_0 + \alpha_1 Guilt_{vi} + \alpha_2 Pref_{vi} + \alpha_3 X_{vi} + \omega_v + \varepsilon_{vi} \quad (2)$$

where, L_{vi} denotes the credit accessibility and creditworthiness of household i in village v, namely (1) a dummy for borrowing from informal sources without interest rate after the cyclone, (2) a dummy for repaying at least a part of the received informal loans by the survey period, and (3) a dummy for being bound by credit constraint. *Pref* is included in the specification to mitigate the possibility of omitted variable bias; it could be correlated with both guilt sensitivity and credit accessibility.

Table 5 presents the results, showing that those with higher guilt sensitivity are more likely to be able to borrow from informal sources, and they repay the informal loans, supporting H1 and H2, respectively. In addition, they are less likely to be bound by credit constraint, which supports H3. Furthermore, these results are robust to the choice of guilt sensitivity. By contrast, pure altruism or trustworthiness does not explain the heterogeneity of

credit accessibility across households. The full estimation results are reported in Table A1 in the online appendix.

It should be noted that since the experiment is conducted after the household survey, this specification might be influenced by reverse causality; the experience of borrowing might have affected guilt sensitivity. Unfortunately, it is difficult to rule out this possibility in this specification. Therefore, I examine the next outcome variable below, as the reverse causality is less likely to affect the interpretation of the estimation result.

[Table 5]

3.2. Neighbors' Guilt Sensitivity and Crime Victimization

This subsection examines the validity of guilt sensitivity by predicting crime incidence. Guilt-sensitive individuals should be less likely to commit crimes. However, in practice, it is difficult to collect accurate data on crimes committed by the survey respondents, as they might not report their true crime experience. Therefore, I examine the determinants of victimization by following Gaviria and Pagés (2002) and Barslund et al. (2007). Exploiting the fact that 64% of crimes in Bangladesh occur between peers in the same community (Faruk and Khatun 2008), I test whether individuals residing in more guilt-averse neighborhoods are less likely to be victims of crime.[8]

The following OLS model is estimated:

$$V_{svi} = \alpha_0 + \alpha_1 Guilt_{svi} + \alpha_2 Pref_{svi} + \alpha_3 VGuilt_{sv} + \alpha_4 Vpref_{sv} + \alpha_5 X_{svi} + \delta_s + \varepsilon_{vi} \qquad (3)$$

where V_{svi} takes unity if household i in village v of sub-district s experienced victimization of property crimes after the cyclone, and zero otherwise. $Vguilt_{sv}$ and $Vpref_{sv}$ indicate the mean levels of $Guilt_{svi}$ and $Pref_{svi}$ in the village, respectively. δ_s denotes the sub-district fixed effects.

[8] I assume that criminals reside in the same community as the victim. The validity of this assumption in the study area is discussed by Shoji (2017).

I control for the preference parameters of household i ($Guilt_{svi}$ and $Pref_{svi}$) to mitigate reverse causality; while the experience of victimization might affect the preference of i, these variables capture this effect. The hypothesis here indicates that $\alpha_3 < 0$. Table 6 shows that the coefficients of mean guilt sensitivity are negative and statistically significant, except the logarithmic disutility, supporting the hypothesis. Again, the data do not fit the hypothesis of pure altruism or trustworthiness. The full estimation results are reported at Table A2 in the online appendix.

[Table 6]

3.3. Contribution to Community Events

Finally, I examine the role of guilt in the contribution to community events. The empirical model is analogous to Subsection 3.1, except that the dependent variables are (1) the household's average hours per month spent participating in community work, such as religious festivals, and (2) household expenditure for ceremonies per month. Guilt-averse individuals might contribute more to the community, so that they do not let the other community members down. However, Table 7 presents the results counter to this expectation. None of the coefficients of guilt sensitivity is statistically significant. This cannot be explained by reverse causality, since it should cause upward bias. The full estimation results are reported in Table A3 in the online appendix. I discuss potential reasons for the insignificant effects in the next section.

[Table 7]

4. Conclusions

Guilt aversion has been tested in many studies, with mixed results. By exploiting a new experimental approach and data on real-world behavior, this study provides supporting

evidence for guilt aversion. It shows that those with higher guilt sensitivity can borrow from informal sources and repay the informal loans. In addition, individuals suffer from less property crime in villages with a higher guilt-sensitivity neighborhood. By contrast, it appears that the elicited guilt sensitivity does not explain the contribution to community events.

Why does guilt aversion not facilitate contribution to community events? Although it is difficult to test this rigorously with my data, a likely explanation is that an individual's contribution to community events is beneficial for multiple villagers, while loan repayment and theft are bilateral transactions. Therefore, the attitude to guilt in such a setting may not be well manipulated via a two-player game. It might rather be suitable to elicit sensitivity from a public goods game to predict the contribution to community events. In order to draw conclusions regarding this question, further studies examining different outcomes and different elicitation methods are required.

References

Amdur, D., Schmick, E., 2012. Does the direct-response method induce guilt aversion in a trust game? *MPRA Paper*, 40157.

Barr, A., & Serneels, P. (2009). Reciprocity in the workplace. *Experimental Economics*, 12(1), 99-112.

Barslund, M., Rand, J., Tarp, F., Chiconela, J., 2007. Understanding 16ictimization: the case of Mozambique. *World Development* 35, 1237–1258.

Battigalli, P., Charness, G., Dufwenberg, M., 2013. Deception: the role of guilt. *Journal of Economic Behavior and Organization* 93, 227–232.

Battigalli, P., Dufwenberg, M., 2007. Guilt in games. *American Economic Review* 97, 170–176.

Beck, A., Kerschbamer, R., Qiu, J., Sutter, M., 2013. Shaping beliefs in experimental markets for expert services: guilt aversion and the impact of promises and money-burning options. *Game and Economic Behavior* 81(1), 145–164.

Bellemare, C., Sebald, A., Strobel, M., 2011. Measuring the willingness to pay to avoid guilt: estimation using equilibrium and stated belief models. *Journal of Applied Econometrics* 26(3), 437–453.

Blanco, M., Engelmann, D., Koch, A., Normann, H. 2010. Belief elicitation in experiments: is there a hedging problem? *Experimental Economics* 13, 412-438.

Boucher, S. R., Guirkinger, C., & Trivelli, C. (2009). Direct elicitation of credit constraints: Conceptual and practical issues with an application to Peruvian agriculture. *Economic Development and Cultural Change*, 57(4), 609-640.

Bouma, J., Bulte, E., & van Soest, D. (2008). "Trust and cooperation: Social capital and community resource management". *Journal of environmental economics and management,* 56(2), 155-166.

Brandts, J., Charness, G., 2011. The strategy versus the direct-response method: a first survey of experimental comparisons. *Experimental Economics* 14, 375–398.

Carpenter, J., & Seki, E. (2011). Do social preferences increase productivity? Field experimental evidence from fishermen in Toyama Bay. *Economic Inquiry*, 49(2), 612-630.

Carter, M. R., & Castillo, M. (2011). Trustworthiness and social capital in South Africa: Analysis of actual living standards data and artefactual field experiments. *Economic Development and Cultural Change*, 59(4), 695-722.

Charness, G., Dufwenberg, M., 2006. Promises and partnership. *Econometrica* 74, 1579–1601.

Charness, G., Dufwenberg, M., 2010. Bare promises: an experiment. *Economics Letters* 107, 281–283.

Charness, G., Dufwenberg, M., 2011. Participation. *American Economic Review* 101, 1211–1237.

Dufwenberg, M., Gächter, S., Hennig–Schmidt, H., 2011. The framing of games and the psychology of play. *Games and Economic Behavior* 73, 459–478.

Ellingsen, T., Johannesson, M., Mollerstrom, J., Munkhammar, S., 2012. Social framing effects: preferences or beliefs? *Games and Economic Behavior* 76, 117–130.

Ellingsen, T., Johannesson, M., Tjøtta, S., Torsvik, G., 2010. Testing guilt aversion. *Games and Economic Behavior* 68, 95–107.

Faruk, O., Khatun, N., 2008. *Crime index Bangladesh 2007*. Dhaka: Academic Press and Publishers Library

Fehr, E., & Leibbrandt, A. (2011). A field study on cooperativeness and impatience in the tragedy of the commons. *Journal of Public Economics*, 95(9), 1144-1155.

Forsythe, R., Horowitz, J. L., Savin, N. E., and Sefton, M. (1994). "Fairness in simple bargaining experiments". *Game and Economic Behavior* 6 (3), 347-369.

Foster, A. D., and Rosenzweig, M. R. (2001). "Imperfect commitment, altruism, and the family: Evidence from transfer behavior in low-income rural areas". *Review of Economics and Statistics* 83 (3), 389-407.

Gächter, S., Renner, E. 2010. The effects of (incentivized) belief elicitation in public goods experiments. *Experimental Economics* 13, 364–377.

Gaviria, A. and Pagés, C. (2002). Patterns of crime 17ictimization in Latin American cities, *Journal of Development Economics*, vol. 67, pp. 181–203.

Karlan, D. S. (2005). Using experimental economics to measure social capital and predict financial decisions. *American Economic Review*, 95(5), 1688-1699.

Kawagoe, T., & Narita, Y. (2014). Guilt aversion revisited: An experimental test of a new model. *Journal of Economic Behavior & Organization*, 102, 1-9.

Kosfeld, M., & Rustagi, D. (2015). Leader punishment and cooperation in groups: Experimental field evidence from commons management in Ethiopia. *American Economic Review*, 105(2), 747-783.

Miettinen, T., Suetens, S., 2008. Communication and guilt in a prisoner's dilemma. *Journal of Conflict Resolution* 52, 945–960.

Reuben, E., Sapienza, P., Zingales, L., 2009. Is mistrust self-fulfilling? *Economics Letters* 104, 89–91.

Sawada, Y., Kasahara, R., Aoyagi, K., Shoji, M., & Ueyama, M. (2013). Modes of collective action in village economies: Evidence from natural and artefactual field experiments in a developing country. Asian Development Review.

Shoji, M. (2017). Religious Fractionalisation and Crimes in Disaster-Affected Communities: Survey Evidence from Bangladesh. *MPRA Working Paper*, No. 78702.

Smith, A., 1759. *The Theory of Moral Sentiments*. D. D. Raphael and A. L. Macfie, eds. Liberty Fund: Indianapolis.

Vanberg, C, 2008. Why do people keep their promises? An experimental test of two explanations. *Econometrica* 76, 1467–1480.

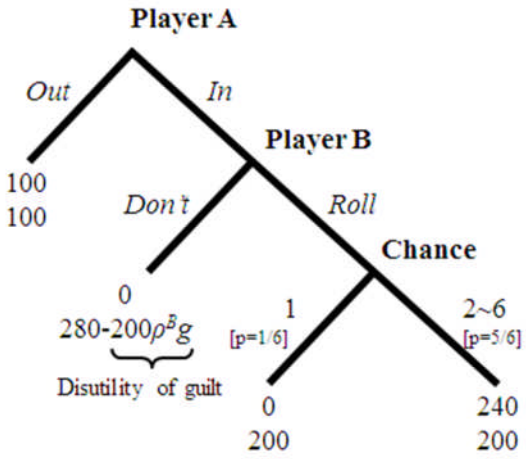

Fig. 1. Structure of the Trust Game with Hidden Action

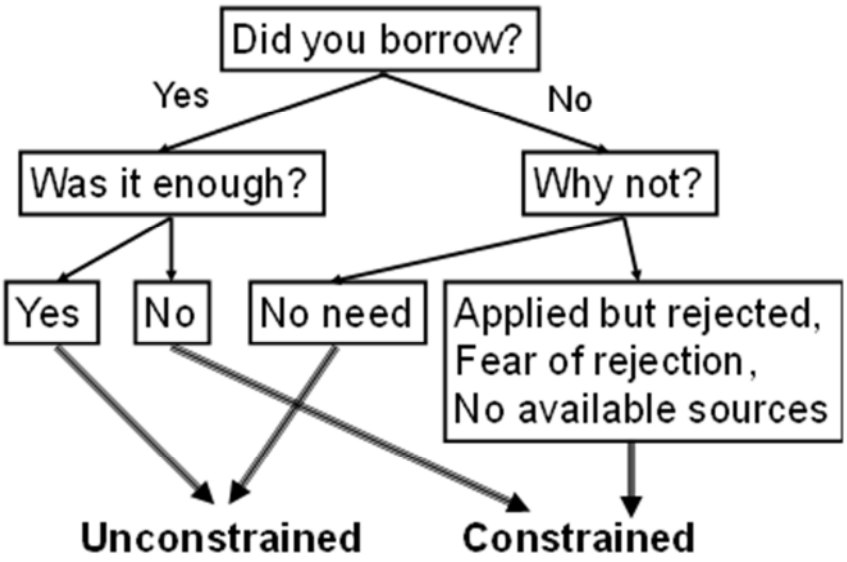

Fig. 2. Questionnaire design for credit constraint module

Table 1: Summary Statistics

Variable	Mean	S.D.
Panel A: Subject characteristics		
1 if subject is household head	0.56	0.50
1 if subject is male	0.70	0.46
Age of subject	35.81	13.71
Schooling years of subject	5.84	4.07
Panel B: Household Characteristics		
Large assets (BDT 10^6)	0.16	0.39
Small assets (BDT 10^6)	0.03	0.05
Age of head (10^2 years)	0.44	0.13
Schooling years of head	4.56	3.91
1 if head is married	0.90	0.30
Household size	4.22	1.55
Proportion of males over 15 in the household	0.37	0.18
1 if Muslim	0.50	0.50
Duration of inundation at working place (months)	0.98	1.27
Height of inundation at working place (feet)	2.07	1.91
Distance to market (km)	1.50	1.23
1 if borrowed from informal sources after cyclone	0.26	0.44
1 if started to repay the informal loans	0.22	0.41
1 if binding the credit constraint during the survey period	0.09	0.29
1 if victimized by property crime after cyclone	0.45	0.50
Log (hours per month for community work)	3.40	1.08
Log(expenditure for ceremonies per month)	3.88	1.49
Panel C: Experimental Results		
Trust (dummy for choosing *In*)	0.71	0.45
Trusting belief (guess for the number of subjects rolling the die)	10.80	5.29
Trustworthiness (dummy for choosing *Roll the die*)	0.59	0.49
Guilt sensitivity: linear	1.32	0.82
Guilt sensitivity: binary	0.37	0.49
Guilt sensitivity: quadratic	0.03	0.03
Guilt sensitivity: logarithmic	17.81	3.65
Altruism (% allocated to the recipient in the dictator game)	46.15	31.47
Observations	279	

Guilt sensitivity variables include only 268 observations as explained in the text.

Table 2: Overview of Experiments and Tasks in Each Game

Tasks
Take away game (Session 1) Only the opponent subject receives BDT 400 from the experimenter. Decide the amount to take away from him/her.
Take away game (Session 2) Receive BDT 400 from the experimenter. Guess the amount that the opponent will take away from the subject.
Dictator game Receive BDT 400 from the experimenter. Decide the amount to allocate to the paired opponent.
Take away game (Session 3) Only the opponent subject receives BDT 400 from the experimenter. Decide the amount to take away from him/her.
Trust game with hidden action 1. Play the role of Player A. Choose *In* or *Out.* 2. Guess the probability that paired Player B chooses *Roll the die*. 3. Play the role of Player B. Choose *Roll the die* or *Don't Roll.* 4-10. After the first order beliefs of seven potential opponents are informed, choose *Roll the die* or *Don't Roll* for each opponent.
Risk preference game Receive BDT 300 and a die from the experimenter. Decide the amount to bet on the die.
Trust game with complete information 1. Play the role of first mover. Receive BDT 300 from the experimenter. Decide the amount to invest in an anonymous opponent. 2-9. After the names of eight potential opponents are informed, decide the amount to invest in each opponent. 10. Play the role of second mover. Receive money from the paired anonymous first mover. Decide the amount to return to him/her. 11-18. After the names of eight potential first movers are informed, decide the amount to return to each of them.

All the subjects played all the games, and in each game, they played all the roles. The results of take away games, risk preference game, and trust game with complete information are not used in this study.

Table 3: Switching Point and Inferred Guilt Sensitivity (N = 279)

Range of belief to choose		Range of guilt sensitivity (linear disutility)	Guilt sensitivity in this study (*Guilt*)	Proportion (%)
Roll the die	*Don't roll*			
None	0~18 (0~100%)	$0 < g < 0.4$	0.2	8.2
18 (100%)	0~15 (0~83%)	$0.4 < g < 0.48$	0.44	2.5
15~18 (83~100%)	0~12 (0~67%)	$0.48 < g < 0.6$	0.54	5.0
12~18 (67~100%)	0~9 (0~50%)	$0.6 < g < 0.8$	0.7	21.9
9~18 (50~100%)	0~6 (0~33%)	$0.8 < g < 1.2$	1.0	22.6
6~18 (33~100%)	0~3 (0~17%)	$1.2 < g < 2.4$	1.8	3.6
3~18 (17~100%)	0 (0%)	$2.4 < g$	2.4	5.7
0~18 (0~100%)	None	Guilt aversion with altruism or trustworthiness	2.4	26.5
Others[#]			Missing	3.9

Notes. The sensitivity parameter is elicited from all participants (279 individuals). # indicates that these subjects switched their answers to the opposite or switched multiple times. These observations are not used in the regression analyses.

Table 4: Determinants of Guilt Sensitivity

	(1)	(2)	(3)
1 if subject is household head	-0.0396	-0.0668	-0.1284
	(0.099)	(0.113)	(0.107)
1 if subject is male	0.2564	0.3008*	0.2867**
	(0.151)	(0.159)	(0.101)
Age of subject	-0.0064	-0.0056	-0.0003
	(0.005)	(0.005)	(0.004)
Schooling years of subject	-0.0150	-0.0091	-0.0048
	(0.019)	(0.022)	(0.018)
Large assets (BDT 10^6)		-0.0969	-0.0560
		(0.150)	(0.099)
Small assets (BDT 10^6)		0.2389	-0.2767
		(1.119)	(0.977)
Age of head (10^2 years)		1.6994	0.0559
		(2.108)	(2.178)
Squared age of head		-2.4051	-0.5031
		(2.250)	(2.324)
Schooling years of head		-0.0044	0.0042
		(0.017)	(0.017)
1 if head is married		-0.1288	-0.1049
		(0.204)	(0.173)
Household size		-0.0122	-0.0430
		(0.039)	(0.030)
Proportion of males over 15 in the household		0.2703	-0.0203
		(0.330)	(0.267)
1 if Muslim		-0.3123	-0.2305
		(0.201)	(0.193)
Duration of inundation at working place (months)		-0.0156	0.0200
		(0.056)	(0.037)
Height of inundation at working place (feet)		0.0146	0.0105
		(0.041)	(0.030)
Distance to market (km)		0.1072	0.1008
		(0.076)	(0.058)
Altruism			0.0031*
			(0.002)
Trustworthiness			0.7909***
			(0.102)
Observations	268	268	268
R-squared	0.109	0.137	0.343
Village FE	Yes	Yes	Yes

The OLS coefficients are reported, and the clustered robust standard errors at the village level are in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.

Table 5: Credit Accessibility and Repayment

	Borrowed from informal sources					Repaid			Credit constraint			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Guilt sensitivity (linear)	0.130***				0.090**				-0.039**			
	(0.030)				(0.036)				(0.016)			
Guilt sensitivity (binary)		0.212***				0.144**				-0.053*		
		(0.049)				(0.062)				(0.028)		
Guilt sensitivity (quadratic)			3.559***				2.415**				-0.999**	
			(0.811)				(1.000)				(0.462)	
Guilt sensitivity (logarithmic)				0.017**				0.014*				-0.005
				(0.007)				(0.007)				(0.006)
Altruism	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.001	0.001	0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Trustworthiness	-0.037	-0.018	-0.028	-0.001	0.018	0.033	0.026	0.034	-0.035	-0.045	-0.039	-0.046
	(0.065)	(0.065)	(0.064)	(0.081)	(0.071)	(0.068)	(0.068)	(0.080)	(0.026)	(0.030)	(0.028)	(0.029)
Observations	268	268	268	268	268	268	268	268	268	268	268	268
R-squared	0.204	0.204	0.207	0.179	0.201	0.199	0.201	0.190	0.293	0.291	0.293	0.288
Controlling for *X*?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Village FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

The OLS coefficients are reported, and the clustered robust standard errors at the village level are in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.

Table 6: Victimization of Property Crime

	Victimization of property crime			
	(1)	(2)	(3)	(4)
Village guilt sensitivity (linear)	-0.3723**			
	(0.132)			
Village guilt sensitivity (binary)		-0.5337***		
		(0.136)		
Village guilt sensitivity (quadratic)			-9.6846***	
			(3.213)	
Village guilt sensitivity (logarithmic)				-0.0535
				(0.035)
Village altruism	0.0040	0.0033	0.0043	0.0007
	(0.003)	(0.003)	(0.003)	(0.003)
Village trustworthiness	0.1956	0.1668	0.1859	0.1425
	(0.176)	(0.182)	(0.177)	(0.202)
Guilt sensitivity (linear)	0.0376			
	(0.039)			
Guilt sensitivity (binary)		0.0678		
		(0.061)		
Guilt sensitivity (quadratic)			1.0716	
			(1.038)	
Guilt sensitivity (logarithmic)				0.0050
				(0.008)
Altruism	0.0015	0.0014	0.0015	0.0016
	(0.002)	(0.002)	(0.002)	(0.002)
Trustworthiness	0.0676	0.0728	0.0702	0.0760
	(0.061)	(0.059)	(0.061)	(0.067)
Observations	268	268	268	268
R-squared	0.109	0.111	0.109	0.100
Controlling for *X*?	Yes	Yes	Yes	Yes
Village FE	Yes	Yes	Yes	Yes

The OLS coefficients are reported, and the clustered robust standard errors at the village level are in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.

Table 7: Contribution to Community Events

	Log(hours per month for community work)				Log(expenditure for ceremonies per month)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Guilt sensitivity (linear)	-0.128				0.072			
	(0.086)				(0.116)			
Guilt sensitivity (binary)		-0.157				0.215		
		(0.144)				(0.222)		
Guilt sensitivity (quadratic)			-2.733				2.948	
			(2.303)				(3.335)	
Guilt sensitivity (logarithmic)				-0.036				-0.008
				(0.024)				(0.016)
Altruism	-0.001	-0.001	-0.001	-0.001	0.003	0.003	0.003	0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)	(0.004)	(0.004)	(0.004)
Trustworthiness	0.232	0.192	0.203	0.269	-0.203	-0.230	-0.223	-0.116
	(0.166)	(0.142)	(0.149)	(0.220)	(0.212)	(0.211)	(0.211)	(0.202)
Observations	268	268	268	268	268	268	268	268
R-squared	0.280	0.277	0.278	0.284	0.254	0.257	0.256	0.254
Controlling for *X*?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Village FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

The OLS coefficients are reported, and the clustered robust standard errors at the village level are in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.

Online Appendix

1. Instructions of Experiment

Welcome Speech

Thank you all for coming and for your cooperation in the last survey in January. We are also grateful for your cooperation today. We would like to offer an opportunity to make money. Today you play some games and earn money depending on the score you get in the games. There are 18 participants in this room and another 18 in the other room. The amount you receive depends on what you and the other participants do in the games. We want to emphasize that real money is at stake and we strongly recommend you to try to understand the games and play seriously as much as possible. It will take a total of 5 to 6 hours to play all games. After completing them, one of them will be chosen by rolling a die. You receive the money corresponding to your score in the selected game. Keep in mind that you receive money for only one game. The payment will be after completing all games. None of the other participants will know how much money you earn or what you do during the games. We will never tell anyone. To assure that your responses are confidential, we ask you not to talk about the games until all games are completed. If you follow this rule, we will give you 100 Tk each at the end of games as participation fee, in addition to the payoff in the games. However, if you talk to other participants or do not follow the rules in any other way, we will reduce the payment. If you do not wish to participate in the games for any reasons, you are free to leave now. Is there anybody who does not want to participate today?

Instruction for the Take-away Game (Session 1)

Skipped.

Instruction for the Dictator Game

Finally, in Question 6, the rule is a little bit different. Please listen carefully. You are Player A and have BDT 400, but this time, Player B cannot take away money from you. Instead, you can give some money to him if you wish. If you give nothing, his payoff is zero. If you give BDT 100, he gets BDT 100 and you get BDT 300. Keep in mind that your partner in this game should be different from the one in the last game.

Instruction for the Take-away Game (Session 2)

Skipped.

Instruction for the Trust Game with Hidden Action

[Show the modified version of Figure 1 with only the material payoff reported] Now we are starting the next game. This game is played by two people: Player A and Player B. This time you are assigned to be Player A. Each of you is paired with somebody in the other room. This game has three stages. In the first stage, you choose *In* or *Out*. If you choose *Out*, the game is over immediately, and both of you receive BDT 100 for sure. If you choose *In*, the game proceeds to the second stage where Player B chooses *Roll the die* or *Don't roll*. If Player B chooses not to roll the die, he gets BDT 280, while you get nothing. If Player B rolls the die, his payoff is BDT 200 for certain, but your payoff depends on the face of the die. If the face shows 1, you receive nothing. If the face of the die shows any of the other faces, you receive BDT 240.

Therefore, if Player B rolls a die, he/she can earn BDT 200 for sure. However, you might get BDT 240 or nothing, depending on the face of the die. If Player B chooses not to roll the die in the second stage, he gets BDT 280, but you get nothing. In the first stage, if you choose *Out*, you get BDT 100 for sure. Thus, suppose you choose *In* in the first stage. You get as much as BDT 240, only if Player B actually rolls the die and the die lands on 2 to 6. On the

other hand, if Player B chooses not to roll the die, or if he/she rolls the die and it lands on 1, then you get nothing.

This is the beginning part of the answer sheet. First, in Question H-1, you are Player A. Please choose *In* or *Out* [Show the answer sheet and read Question H-1]. If you choose *Out*, you get BDT 100 for sure. If you choose *In*, you might get BDT 240 or nothing, depending on Player B's decision and the face of the die.

[H-1] *Suppose you are Player A, which option will you choose?*

Next comes Question H-2 [Show the answer sheet for Question H-2]. There are 18 participants in the other room, and you are playing the game with one of them. Please guess how many people in the other room will roll the die if you choose *In*. The answer can be nobody, 3, 6, 9, 12, 15, or everybody.

[H-2] *There are 18 people who can be paired with you. If you are Player A and choose* In*, how many of the 18 participants do you think will roll the die?*

In Question H-3, this time, you are Player B, and you choose whether to roll the die. If you roll it, you get BDT 200 and Player A gets BDT 240 or nothing. If you don't roll the die, you get BDT 280 and Player A gets nothing [Show the answer sheet and read Question H-3]. Please circle your answer on this sheet.

[H-3] *If you are Player B and Player A chooses* In*, then which option will you choose?*

[Show the answer sheet for Question H-4] Finally, suppose you are Player B and the paired Player A chose *In*. When Player A chose *In*, he/she was anticipating how likely it was for people in this room to roll the die. There are seven participants with different levels of anticipation, and you are paired with one of them. For example, the first person anticipates that nobody would roll the die. The second person expects that three people in this room will roll the die, and the person in the middle expects that half of you will roll the die. Finally, the last person expects that all of you will roll the die.

Please choose whether or not to roll the die for each of the seven potential opponents. You are playing this game with one of them. Finally, please roll this die after answering all the questions. Everyone must roll the die, because this procedure guarantees that no one can infer your decision. If your choice is *Don't roll*, the face of the die has no impact on the payoffs.

Questions

[H-4] *Player A expects that none of the 18 participants in this room will roll the die. Then, which option will you choose?*

[H-5] *Player A expects that 3 of the 18 participants in this room will roll the die. Then, which option will you choose?*

[H-6] *Player A expects that 6 of the 18 participants in this room will roll the die. Then, which option will you choose?*

[H-7] *Player A expects that 9 of the 18 participants in this room will roll the die. Then, which option will you choose?*

[H-8] *Player A expects that 12 of the 18 participants in this room will roll the die. Then, which option will you choose?*

[H-9] *Player A expects that 15 of the 18 participants in this room will roll the die. Then, which option will you choose?*

[H-10] *Player A expects that everybody will roll the die. Then, which option will you choose?*

Table A1: Full Estimation Results of Table 5

	Borrowed from informal sources				Repaid				Credit constraint			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Guilt sensitivity (linear)	0.130***				0.090**				-0.039**			
	(0.030)				(0.036)				(0.016)			
Guilt sensitivity (binary)		0.212***				0.144**				-0.053*		
		(0.049)				(0.062)				(0.028)		
Guilt sensitivity (quadratic)			3.559***				2.415**				-0.999**	
			(0.811)				(1.000)				(0.462)	
Guilt sensitivity (logarithmic)				0.017**				0.014*				-0.005
				(0.007)				(0.007)				(0.006)
Altruism	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.001	0.001	0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Trustworthiness	-0.037	-0.018	-0.028	-0.001	0.018	0.033	0.026	0.034	-0.035	-0.045	-0.039	-0.046
	(0.065)	(0.065)	(0.064)	(0.081)	(0.071)	(0.068)	(0.068)	(0.080)	(0.026)	(0.030)	(0.028)	(0.029)
Large assets	-0.040	-0.040	-0.037	-0.049	-0.044	-0.044	-0.042	-0.051	-0.058**	-0.057**	-0.058**	-0.055**
	(0.058)	(0.059)	(0.057)	(0.060)	(0.044)	(0.045)	(0.043)	(0.045)	(0.021)	(0.022)	(0.021)	(0.021)
Small assets	0.929	0.851	0.922	0.930	0.721	0.668	0.716	0.727	0.792*	0.814*	0.795*	0.792**
	(0.717)	(0.729)	(0.725)	(0.686)	(0.654)	(0.668)	(0.662)	(0.613)	(0.383)	(0.390)	(0.388)	(0.365)
Age of head	0.319	0.206	0.252	0.407	-0.145	-0.221	-0.190	-0.073	-0.980	-0.952	-0.962	-1.007
	(1.124)	(1.150)	(1.134)	(1.117)	(0.931)	(0.956)	(0.946)	(0.903)	(1.017)	(1.036)	(1.025)	(1.027)
Squared age of head	-0.490	-0.394	-0.427	-0.625	-0.038	0.026	0.004	-0.141	1.010	0.989	0.993	1.050
	(1.088)	(1.113)	(1.098)	(1.086)	(0.876)	(0.902)	(0.892)	(0.849)	(0.991)	(1.012)	(0.999)	(1.007)
Schooling years of head	0.022**	0.023**	0.023**	0.020*	0.025**	0.025***	0.025***	0.023**	-0.000	-0.000	-0.000	0.000
	(0.009)	(0.009)	(0.009)	(0.010)	(0.008)	(0.008)	(0.008)	(0.008)	(0.006)	(0.006)	(0.006)	(0.006)
1 if head is married	-0.032	-0.039	-0.037	-0.031	0.047	0.042	0.043	0.049	-0.011	-0.008	-0.009	-0.011
	(0.083)	(0.083)	(0.082)	(0.086)	(0.057)	(0.057)	(0.058)	(0.051)	(0.071)	(0.072)	(0.071)	(0.070)
Household size	-0.010	-0.008	-0.009	-0.014	-0.014	-0.013	-0.014	-0.017	0.002	0.002	0.002	0.003
	(0.014)	(0.014)	(0.014)	(0.013)	(0.016)	(0.016)	(0.016)	(0.015)	(0.009)	(0.008)	(0.008)	(0.008)
Proportion of males over 15	-0.056	-0.048	-0.052	-0.051	-0.081	-0.076	-0.079	-0.077	0.031	0.030	0.031	0.030
in the household	(0.155)	(0.153)	(0.153)	(0.156)	(0.166)	(0.167)	(0.166)	(0.165)	(0.112)	(0.111)	(0.112)	(0.111)
1 if Muslim	0.056	0.047	0.058	0.040	0.122	0.115	0.123	0.112	-0.018	-0.015	-0.018	-0.013
	(0.113)	(0.110)	(0.113)	(0.113)	(0.098)	(0.096)	(0.098)	(0.095)	(0.043)	(0.045)	(0.043)	(0.046)
Duration of inundation	0.023	0.024	0.025	0.019	0.023	0.024	0.025	0.020	0.013	0.012	0.012	0.014
at working place	(0.026)	(0.026)	(0.026)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)	(0.020)	(0.020)	(0.020)	(0.020)

Height of inundation	-0.005	-0.005	-0.005	-0.004	-0.001	-0.001	-0.001	-0.000	-0.011	-0.011	-0.011	-0.011
at working place	(0.018)	(0.018)	(0.018)	(0.018)	(0.019)	(0.019)	(0.019)	(0.019)	(0.018)	(0.018)	(0.018)	(0.019)
Distance to market	0.020	0.022	0.020	0.027	0.021	0.023	0.021	0.025	-0.017	-0.018	-0.017	-0.019
	(0.032)	(0.032)	(0.031)	(0.034)	(0.027)	(0.028)	(0.027)	(0.028)	(0.015)	(0.015)	(0.015)	(0.017)
1 if subject is household head	0.060	0.062	0.060	0.046	-0.002	-0.001	-0.002	-0.011	0.022	0.023	0.023	0.027
	(0.083)	(0.083)	(0.083)	(0.085)	(0.060)	(0.060)	(0.060)	(0.060)	(0.049)	(0.049)	(0.049)	(0.049)
1 if subject is male	0.058	0.061	0.054	0.085	0.088	0.091	0.086	0.106*	-0.050	-0.053	-0.050	-0.058
	(0.058)	(0.058)	(0.058)	(0.063)	(0.052)	(0.053)	(0.052)	(0.056)	(0.050)	(0.049)	(0.050)	(0.051)
Age of subject	-0.004	-0.004	-0.004	-0.004	-0.001	-0.001	-0.001	-0.001	0.002	0.002	0.002	0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Schooling years of subject	-0.018**	-0.019**	-0.018**	-0.018*	-0.016*	-0.016*	-0.016*	-0.015*	0.003	0.004	0.004	0.003
	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.008)	(0.008)	(0.008)	(0.006)	(0.006)	(0.006)	(0.006)
Observations	268	268	268	268	268	268	268	268	268	268	268	268
R-squared	0.204	0.204	0.207	0.179	0.201	0.199	0.201	0.190	0.293	0.291	0.293	0.288
Village FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

The OLS coefficients are reported, and the clustered robust standard errors at the village level are in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.

Table A2: Full Estimation Results of Table 6

	Victimization of property crime			
	(1)	(2)	(3)	(4)
Village guilt sensitivity (linear)	-0.3723**			
	(0.132)			
Village guilt sensitivity (binary)		-0.5337***		
		(0.136)		
Village guilt sensitivity (quadratic)			-9.6846***	
			(3.213)	
Village guilt sensitivity (logarithmic)				-0.0535
				(0.035)
Village altruism	0.0040	0.0033	0.0043	0.0007
	(0.003)	(0.003)	(0.003)	(0.003)
Village trustworthiness	0.1956	0.1668	0.1859	0.1425
	(0.176)	(0.182)	(0.177)	(0.202)
Guilt sensitivity (linear)	0.0376			
	(0.039)			
Guilt sensitivity (binary)		0.0678		
		(0.061)		
Guilt sensitivity (quadratic)			1.0716	
			(1.038)	
Guilt sensitivity (logarithmic)				0.0050
				(0.008)
Altruism	0.0015	0.0014	0.0015	0.0016
	(0.002)	(0.002)	(0.002)	(0.002)
Trustworthiness	0.0676	0.0728	0.0702	0.0760
	(0.061)	(0.059)	(0.061)	(0.067)
Large assets	-0.0781	-0.0832	-0.0762	-0.0857
	(0.123)	(0.124)	(0.124)	(0.122)
Small assets	-0.0021	-0.0371	-0.0077	-0.0064
	(0.482)	(0.489)	(0.481)	(0.497)
Age of head	-0.1914	-0.0837	-0.1552	-0.2871
	(1.231)	(1.217)	(1.214)	(1.260)
Squared age of head	0.2013	0.0742	0.1623	0.2912
	(1.201)	(1.189)	(1.184)	(1.237)
Schooling years of head	0.0284***	0.0282***	0.0286***	0.0285***
	(0.009)	(0.009)	(0.009)	(0.009)
1 if head is married	-0.0147	-0.0118	-0.0145	-0.0209
	(0.094)	(0.092)	(0.093)	(0.094)
Household size	-0.0344	-0.0347	-0.0343	-0.0344
	(0.023)	(0.024)	(0.024)	(0.023)
Proportion of males over 15 in the household	-0.1476	-0.1491	-0.1503	-0.1104
	(0.154)	(0.149)	(0.153)	(0.152)
1 if Muslim	-0.0014	0.0087	0.0011	0.0159
	(0.058)	(0.054)	(0.058)	(0.060)
Duration of inundation at working place	-0.0222	-0.0196	-0.0213	-0.0248
	(0.036)	(0.035)	(0.036)	(0.036)
Height of inundation at working place	0.0637***	0.0616***	0.0627**	0.0664***
	(0.021)	(0.021)	(0.021)	(0.021)
Distance to market	-0.0503*	-0.0494*	-0.0499*	-0.0406
	(0.028)	(0.026)	(0.028)	(0.032)
1 if subject is household head	-0.1725*	-0.1643*	-0.1721*	-0.1672
	(0.092)	(0.092)	(0.092)	(0.096)
1 if subject is male	0.0504	0.0493	0.0501	0.0428

	(0.088)	(0.089)	(0.088)	(0.095)
Age of subject	0.0030	0.0032	0.0031	0.0026
	(0.003)	(0.003)	(0.003)	(0.003)
Schooling years of subject	-0.0112	-0.0093	-0.0107	-0.0113
	(0.013)	(0.012)	(0.013)	(0.013)
Observations	268	268	268	268
R-squared	0.109	0.111	0.109	0.100
Village FE	Yes	Yes	Yes	Yes

The OLS coefficients are reported, and the clustered robust standard errors at the village level are in parentheses. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.

Table A3: Full Estimation Results of Table 7

	Log(hours per month for community work)				Log(expenditure for ceremonies per month)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Guilt sensitivity (linear)	-0.128				0.072			
	(0.086)				(0.116)			
Guilt sensitivity (binary)		-0.157				0.215		
		(0.144)				(0.222)		
Guilt sensitivity (quadratic)			-2.733				2.948	
			(2.303)				(3.335)	
Guilt sensitivity (logarithmic)				-0.036				-0.008
				(0.024)				(0.016)
Altruism	-0.001	-0.001	-0.001	-0.001	0.003	0.003	0.003	0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)	(0.004)	(0.004)	(0.004)
Trustworthiness	0.232	0.192	0.203	0.269	-0.203	-0.230	-0.223	-0.116
	(0.166)	(0.142)	(0.149)	(0.220)	(0.212)	(0.211)	(0.211)	(0.202)
Large assets	-0.078	-0.076	-0.079	-0.066	0.588***	0.591***	0.592***	0.585***
	(0.125)	(0.125)	(0.124)	(0.128)	(0.165)	(0.173)	(0.166)	(0.164)
Small assets	2.195	2.261	2.207	2.152	4.239**	4.177**	4.244**	4.202**
	(1.807)	(1.828)	(1.808)	(1.848)	(1.842)	(1.822)	(1.825)	(1.884)
Age of head	6.490**	6.573**	6.541**	6.317**	-4.456	-4.574	-4.514	-4.488
	(2.454)	(2.458)	(2.463)	(2.376)	(3.142)	(3.131)	(3.150)	(3.131)
Squared age of head	-6.307**	-6.363**	-6.342**	-6.099**	5.333	5.461	5.404	5.329
	(2.220)	(2.230)	(2.229)	(2.150)	(3.538)	(3.516)	(3.542)	(3.508)
Schooling years of head	0.043*	0.042*	0.042*	0.047*	0.030	0.031	0.031	0.032
	(0.022)	(0.022)	(0.022)	(0.023)	(0.039)	(0.039)	(0.039)	(0.039)
1 if head is married	-0.203	-0.195	-0.196	-0.219	0.193	0.192	0.192	0.179
	(0.180)	(0.174)	(0.176)	(0.182)	(0.183)	(0.176)	(0.179)	(0.191)
Household size	0.124***	0.124***	0.125***	0.127***	0.114	0.119	0.116	0.110
	(0.040)	(0.040)	(0.040)	(0.040)	(0.101)	(0.101)	(0.101)	(0.100)
Proportion of males over 15	0.859**	0.854**	0.857**	0.846**	0.834	0.842	0.837	0.829
in the household	(0.352)	(0.354)	(0.353)	(0.347)	(0.686)	(0.688)	(0.687)	(0.676)
1 if Muslim	0.174	0.187	0.179	0.175	-0.492	-0.486	-0.481	-0.515
	(0.269)	(0.271)	(0.268)	(0.269)	(0.371)	(0.361)	(0.363)	(0.384)
Duration of inundation	-0.030	-0.031	-0.032	-0.019	-0.109	-0.110	-0.108	-0.105
at working place	(0.091)	(0.091)	(0.092)	(0.087)	(0.119)	(0.119)	(0.119)	(0.116)
Height of inundation	0.023	0.023	0.023	0.023	-0.007	-0.008	-0.008	-0.006
at working place	(0.057)	(0.057)	(0.057)	(0.056)	(0.100)	(0.099)	(0.099)	(0.100)
Distance to market	0.167	0.162	0.164	0.167	-0.062	-0.065	-0.065	-0.051
	(0.110)	(0.111)	(0.111)	(0.107)	(0.131)	(0.131)	(0.131)	(0.133)
1 if subject is household head	0.009	0.011	0.012	0.019	-0.301	-0.292	-0.297	-0.312
	(0.171)	(0.173)	(0.171)	(0.170)	(0.206)	(0.203)	(0.205)	(0.216)
1 if subject is male	-0.027	-0.039	-0.033	-0.044	0.122	0.108	0.109	0.147
	(0.172)	(0.172)	(0.175)	(0.159)	(0.282)	(0.282)	(0.282)	(0.285)
Age of subject	0.005	0.005	0.005	0.005	-0.000	-0.000	-0.000	-0.000
	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)
Schooling years of subject	0.026	0.027	0.026	0.025	0.015	0.015	0.015	0.014
	(0.024)	(0.024)	(0.024)	(0.025)	(0.028)	(0.028)	(0.028)	(0.029)
Observations	268	268	268	268	268	268	268	268
R-squared	0.280	0.277	0.278	0.284	0.254	0.257	0.256	0.254
Village FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

The OLS coefficients are reported, and the clustered robust standard errors at the village level are in parentheses.
***, **, and * indicate significance at 1%, 5%, and 10%, respectively.