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FORMAL AND INFORMAL THREATS AND THE REVELATION OF TRUE PREFERENCES: Evidence from a Field Experiment

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Abstract

Applied research in economics is mostly based on information which is provided by a heterogeneous set of economic agents. However, such information may not reflect the true preference of agents. In order to highlight this issue, a field experiment which comprises a fund-raising campaign for helping needy students was conducted. A pledge from students in different treatments was taken; and they were asked to deposit their pledge by a specific date. Results of this study shows two important findings: First, the deposited amount was significantly less than the pledged amount, in all treatments; second, the introduction of formal and informal threats reduced the amount of both the average and total pledge. Alternatively, threats incentivize individuals to make only the realistic pledges. Thus, people do not reveal true preference when they are asked about the same things in different ways/circumstances. In particular, in absence of the formal or informal threats, individuals have no incentive to reveal their true preference. Analysis of the study, have an important implication for applied research like willingness to pay for alternative commodities, construction of survey-based indices, perception surveys, etc. For instance, it suggests that careful analysis should be taken before taking any policy decision on studies related to these aspects.

Key Words: Information, True Preferences, Formal and Informal Threats, Fund-Raising Campaign, Pledge.
JEL Classification: D890, D64.

I. Introduction

In most of the applied research in economics, it is implicitly assumed that people show their preference, truthfully. For instance, in survey-based research, it is believed that respondents reveal their preferences honesty. Likewise, in experiments-based research, there is a trust in uprightness of the subjects. Results of both these processes, in turn, are used for prediction of economic behaviour. Given the famous

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result in form of Revelation Principle, if individuals are provided appropriate incentives, private information can be extracted from them.[1] Equivalently, if credible threats are imposed on individuals, truthfulness in information revelation can be ensured; for instance, in most of the social and economic interactions, norms like religion, retaliation, embarrassment, social exclusion, etc., make cooperation, honesty and truthfulness as rational strategies. However, in absence of these formal and informal threats or incentives, the truthfulness and honesty of individuals can be suspected. Alternatively, in such a case, the applied research which is based on either surveys or experiments can be questioned.[2] The present study is related to this phenomenon. In particular, behaviour is studied when students are asked the same information in the absence and presence of formal and informal threats.

In order to examine whether people reveal true preferences, a field experiment was conducted for this study. As compared to other approaches, experiment has the advantage in revelation of true preferences; for instance, experiment is much focused on the issues raised, while controlling a large number of disturbing variables. Though, some authors have studied on the reliability of survey data in the literature; but however, most of them are based on subjective perceptions.[3] Likewise, in experiments-based research, there is a bunch of research studies which are mostly related to the 'aversion to lie'.[4] However, most of these studies are undertaken in controlled environment which involves payment to the participants. Thus, addition is made to literature by examining evidence from a field experiment.[5] When compared to the literature on subjective perceptions and controlled experiments contribution is made on three fronts. First, field experiment reduces subjectivity in a significant way, second, in sharp contrast to controlled experiments, the experiment involves receipts from the participants, instead of payments to them; and third, the work has implications for research which is being conducted on oral or written surveys like willingness to pay for alternative commodities, construction of survey-based indices, perception surveys, etc. Alternatively, due to non-revelation of true preferences by the agents, policy decisions which are based on such type of research might not be effective.

[1] According to Revelation Principle, access to any type of private information can be simulated by an incentive compatible direct-revelation mechanism, where honesty and obedience are rational equilibrium strategies for individuals.

[2] In absence of incentives or credible threats to respondents in the surveys or subjects; the experiments may make the data spoiled.

[3] Krueger and Schkade (2008) looked at the reliability of measures of subjective well-being. Similarly, Bertrand and Mullainathan (2001) question the meaningful answers of questions in the surveys.

[4] See, Brandts and Charness (2003), Gneezy (2005), Charness and Dufwenberg (2006).

[5] It is worth mentioning that the field experiment examined an intervention in the real world or naturally occurring environments as compared to involvement in the laboratory environment. If the impact of religiosity, spirituality, or ethics is analysed on economic behaviour in controlled experiments; the monetary cost of data is likely to be higher as per needs to incentivize the participants in the experiments. In comparison, field experiment is costly in terms of time as identification of treatment variable is time-taking process.

In order to support the hypothesis, a fund raising campaign comprising four treatments was conducted. Participants were asked to make pledges in order to donate for the help of deserving students. The four treatments were differentiated by level of requests or threats given at the time of asking the pledges. In the baseline treatment, there was a simple request but no threats. The participants were just asked to make pledges and then, deposit their pledges in the account of Roshni Trust.[6] The second treatment was like the first treatment with only difference that, at the time of asking pledges, repeated requests for not to make unrealistic pledges were made. Alternatively, the participants were requested to avoid lying when making their pledges. In the third and fourth treatment, the level of threats were formalized. For instance, in the third treatment, the identity of the pledge maker was asked. Likewise, in the fourth treatment, students were threatened to be disclosed on the notice boards of the university, if they fail to deposit their pledges by a given deadline. It was found that the average pledge (in all the three treatments) with requests or threats fell, when compared to the baseline treatment. However, the percentage of the received amount increased in the fourth treatment which was relatively a treatment with formal threat. This shows that relative to controlled experiment, no support was found for aversion to lie per se as discussed by Vanberg (2008). Rest of the paper is organised in four Sections. In Section II, a brief review of the existing literature is given. Section III provides details of the experimental procedure; and, it also sheds light on the theoretical framework and hypotheses of the study. In Section IV, results of the analysis are discussed; while Section V concludes the study.

II. Review of the Literature

The existing literature has raised the issue of truthfulness in surveys and experiments, in many ways. For example, Herbert, et al. (1992) asserts that people are not consistent in answering the same type of questions due to the type of language that is used in surveys. Likewise, the truthfulness of answers to the retrospective questions depends on several factors like the time given for answers; the sequence of the events recalled, the presence or absence of the anchors for comparison, etc., [see, for example, Schuman and Kalton (1985), Bradburn, et al. (1982)]. Relatedly, Pearson, et al. (1992) attributed the psychological and environmental state of respondents as main factors in answering such retrospective type of questions. In the same way, gender is also critical in provision of information as women tends shy in revealing most information like those related to age, health, family, etc. Waldron (1983) proclaims that women tends to give lower self-perceived health-status ratings as compared to men. However, in case of personal recalls, sometimes individuals are not much perceptive to recall their memories. Though, one can have a glimpse of preferences of the subject or respondents through changing sequence, wording, context, etc., but however, it cannot ensure the accuracy

[6] Details of the account were provided in the instructions of the experiment.

of information provided to the investigators. Thus in economics, applied research is based on strong assumptions of truthfulness of the data provided to the investigators.

A more relevant research related to the question is 'aversion to lying.' It is found in the literature that people have some degree of aversion to lying [see, for example, Brandts and Charness (2003), Gneezy (2005)]; specially, in case of selfish agents and this behaviour is worth noting. In this regard, Charness and Dufwenberg (2006) suggest that it happens because decision-makers dislike hurting others, irrespective to what others expect from them.[7] The other relevant findings on aversion to lying shows that promises have been helpful in fostering trust and cooperation [see, for example, Kerr and Kaufman-Gilliland (1994), Dufwenberg and Gneezy (2000), Ellingsen and Johannesson (2004), Charness and Dufwenberg (2006), Vanberg (2008), and Sutter (2009)]. In particular, Charness and Dufwenberg (2006) show that people honour promise even if it would hurt them. In their trust-games-with-communication, the second-movers often make promises and exhibit trustworthy behaviour. Moreover, Vanberg (2008) shows that the 'effects of promises cannot be accounted for by changes in payoff expectations' suggesting that people have a preference for promise-keeping per se. Ellingsen and Johannesson (2004) model is via 'personal cost of being inconsistent.' Chen, et al. (2008) and Kartik (2009) made a theory around more general notion that decision-makers have a (belief-independent) cost of lying. The upshot of such research is that decision makers dislike making statements that are false. In this study, it is examined that aversion to lie exist in case of pledge making process or not. It is pertinent to mention that, in a laboratory experiment, participants are not supposed to pay to experimenter from their pocket. This study tests whether people in situations where they have to pay from their pockets honour their promise due to aversion to lie. In other words, it is to be seen whether individuals honour promise due to guilt aversion for dishonouring promises. The level of such aversion under various treatments or level of threats is examined.

III. Experimental Procedure and Theoretical Framework

In this section, procedure of the experiment of this study is provided. In addition, theoretical framework for analysis is also defined.

1. Experimental Procedure

The experiment was conducted in Quaid-i-Azam University (QAU), Islamabad, Pakistan. The participants were students in their natural environment of class

[7] Charness and Dufwenberg (2010) provides some examples from the real life. For instance, in restaurants, guilt-averse guests tip in proportion to their beliefs about waitresses expectation, such as no tip in Italy, a couple of coins in Germany, and 16.5% in New York City ('double-the-tax'). For a theory of guilt aversion that applies to general games, see, Battigalli and Dufwenberg (2013).

rooms in the School of Economics (SOE), who were the target population of the experiment. With a view to proceed for donation for the needy students, all class rooms in the SOE were visited. Pledge forms were provided to students in the class rooms and were asked to write their pledge in writing, on the form. They were also informed that collected donation will be given to the deserving/needy students of QAU, including those in SOE. The experiment had four treatments; in each treatment the form was read and written instructions were given to students. The basic characteristics of all treatments are shown in Table 1. In the first treatment, students were asked for the pledge on a form with multiple choices. However, no identity of pledge maker was asked.[8] Then the students were advised to deposit their pledges by a specific deadline, in the account of the Roshni Trust (a charitable trust registered for the purpose of helping needy students of QAU). In the second treatment (at the time of pledge asking) repeated requests were made to make only the realistic pledges. Alternatively, the students were asked to avoid making a pledge, which they would not be able to deposit by the given due date. The treatment variable in this round of campaign was the 'repeated requests' which served as a form of informal threat. In this treatment, the pledge making form was without multiple choices; rather it had two options, either to tick an option of excuse or just write the amount of pledge. In both the first and second treatments, the students were advised to deposit their pledges by a specific deadline in the account of Roshni Trust.

In the third treatment, request was again made, for pledge. However, this time, apart from making the repeated requests to avoid making unrealistic pledge, students were requested to declare their 'personal identity (full name) at the time of asking the pledge. The pledge making form again had two options. The participant could leave the form unfilled or could write an amount of pledge. We were not interested in the identity of persons who would leave the form unfilled. In this treatment, asking the identity of the pledge maker was equivalent to allowing the level of formal threat. It was generally observed that asking identity at the stage of making commitment make the individuals hesitant to make non-credible commitments. Besides, at this stage the individuals were allowed to pay their pledge in cash to a specific person in the BS office of School of Economics, QAU. In this way, the problem associated with the que in Bank was mitigated. In the fourth treatment, a more formal threat was made at the time of asking the pledge. For instance, threat was given that names of those students who had made the pledge, but fails to deposit the pledge amount by the dead-line, will be placed at the notice board. Again, this time, the payment was to be made to a specific person in the BS office of the SOE, QAU, instead of depositing the amount in the bank.

[8] Instruction of each treatment can be provided on request.

TABLE 1

Details of Treatments of the Fund Raising Campaign

Treatments	Date of Treatment	Due date for Submitting Pledges	Reminder Month for Submitting Pledges	Nature of Threat	Nature of the Pledge Form
No. of Threats	November/ December, 2013	30, December 2013	January, 2014	No. of identity disclosed and no. of threats to defaulters.	Multiple choices with identity undisclosed.
Informal Threats	April/ May, 2014	10, June 2014	June, 2014	No. of identity disclosed and no. threat to defaulters, but repeated request to avoid making unrealistic pledge.	Ticking an option of excuse or writing the amount of pledge with identity undisclosed.
Low Formal Threats	December, 2014	Self-Selected Due date	January, 2015	Identity disclosed, but no open threat to defaulters and repeated requests to avoid making unrealistic pledge.	Leaving the pledge form unfilled with identity undisclosed or filling it with identity disclosed.
High Formal Threats	March, 2015	10 April, 2015	There were no reminders and display of names after due date.	Identity disclosed and threat for defaulters that their names will be displayed on notice board and repeated request to avoid making unrealistic pledge.	Leaving the pledge form unfilled with identity undisclosed or filling it with identity disclosed.

Note: In all treatments, the participants have to drop the pledge form in a large collection box.
Source: Authors' calculations.

2. Theoretical Framework and Hypotheses

Given the definition of selfishness-based rationality, pledge is not an graceful talk. Alternatively, as self-centered agents, participants have no incentive to make a pledge. Thus, according to the rational choice theory, majority of them will either not make a pledge or will not show true preference at the time of making pledge. However, there exists most notable literature in the Behavioural Economics which shows that usually the behaviour of people is not compatible with traditional economic paradigm.[9] Given this type of literature, positive amount of pledge in all rounds is expected. In addition, it is pertinent to mention that students were asked to give pledge privately, on a piece of paper. However, the pledge-making request was undertaken in class rooms where students usually sit next to each other. This might have a peer effect on the pledge-making activity.[10] In particular, it may be expected that the number or amount of positive pledges was likely to be equivalent across various treatments. However, the number or amount of actual payment was likely to be different across various treatments, as students had to pay the pledge amount privately. For instance, in private payment of pledge the peer effect might drop, which in turn, might make the honouring of pledge costly. In other words, discrepancy between the pledged amount and the actual payment would be low if incentive for honouring the pledge was high. The literature shows that people value morality and try to resist temptation to act dishonestly [Aquino and Reed (2002), Bazerman and Tenbrunsel (2011)]. Investigations of misconduct in real life and in laboratory experiments indicate that while most people act dishonestly in everyday life, their dishonest acts are usually far below the maximum possible [Gneezy (2005), Mazar, et al. (2008), Shalvi, et al. (2011)]. According to the Self-Maintenance model of dishonesty, this is due to ethical dissonance [Ayal and Gino (2011), Barkan, et al. (2012)] - a psychological tension which stems from conflict between the desire to benefit from unethical behavior and the motivation to maintain a positive moral image [Shalvi, et al. (2015), Ayal, et al. (2016)].

In the design of an experiment of this study, the likely incentives of honouring a pledge are positive feelings from honesty, generosity, warm glow and aversion to lie, etc. Likewise, the disincentives of not honouring a pledge are negative feelings from shame, distress from cheating and discomfort while facing the experimenters.[11] It is conjecture that factors of disincentives are high in the fourth treatment as compared to the first three treatments. Accordingly, the revelation of true preference is likely to be high in the fourth treatment as compared to the first three treatments.

[9] See, Güth, et al. (1982) in the ultimatum game, Kahneman, et al. (1986) and Forsythe, et al. (1994) in the dictator game and Fehr, et al. (1993), and Berg, et al. (1995), in the gift-exchange and trust games, respectively.

[10] According to Foster (2006), the peer effect in such type of activities is usually positive.

[11] For instance, willingness to be honest, motivation of helping others, or warm glow, etc., might be the factors which incentivize the individuals to make realistic pledges. In the same way, shame, guilt, or dishonesty might incentivize the participants to be truthful in their pledges.

IV. Experimental Evidence

In this section, the results of the study are presented; first, an overview of the pledges across all treatments is taken. Onwards, the behaviour of participants in each treatment is discussed in detail. In Table 2, the summary of all treatments in the campaign is provided. As it can be seen, the table shows three important features. First, the received amount in all treatments is significantly smaller than the pledged amount; for instance, in the first treatment (no threat treatment), the received amount was just 18.9 per cent of the pledged amount. Similarly, in treatments of informal threat, low formal threat, and high formal threat, it was 14.9, 17.88 and 70.27 per cents, respectively. It is an indication of the fact that people don't show their preferences truthfully. As it is stated earlier, in high formal threat treatment, the threat of disclosing identity of defaulters was introduced. Thus, the threat of displaying names of defaulters was successful in raising percentage of receipts from below 20 to 70.27 per cents in all of the three treatments in high formal threat treatment.

Second, as the level of threat was increased, the percentage of students with zero pledge increased, despite the continuous reduction in the size of sample. For instance, it was 41.78, 42.3 and 76 per cents in the treatments of no threat, informal threat and low formal threat, respectively. Likewise, it was 43.25 per cent in the treatment with high level of formal threat. It can be seen that, percentage of participant with zero pledge was almost similar in treatments of no threat and informal threat, as in both these treatments identity of pledge makers was not asked. However, in treatment of low formal threat where people are worried in the form of disclosing their identity, a higher fraction of participants abstain from making their pledges. Unlike the low formal threat treatment in the high formal threat treatment, the percentage with zero pledge is not much different from those in no threat and informal threat treatments. However, this effect is counterbalanced by higher percentage of receipts; i.e., it shows that only realistic donors have pledged in the high formal threat treatment.

Third, the average pledge declined continuously in the successive treatments. For instance, it was Rs.442.2 in the no threat treatment; Rs.348.00 in the informal threat treatment; Rs.122.03 in the low formal threat treatment; and Rs.344.77 in the high formal threat treatment. The decline in the average amount of pledge shows that both the informal and formal threats do matters. Alternatively, in absence of the formal or informal threats, individuals have no incentive to provide the information truthfully. Finally, in the treatment of high formal threat, the average amount of pledge was higher than that in the treatment of low formal threat. For instance, it was Rs.344.77 in case of high formal threat as compared to Rs.122.03 in case of the low formal threat treatment. However, this effect is partly compensated by higher percentage of receipts in high formal threat treatment. Alternatively, in high formal threat treatment, only the effective donors made the pledges, during the campaign. It indicates that the intensity of threat is increased and individuals becomes more realistic in revelation of true pref-

TABLE 2

Overview of Pledge across Treatments

Treatments	No. of Participants	Percentage of Students with no Pledge (%)	Minimum Amount of Pledge	Maximum Amount of Pledge	Mean	Std. Dev.	Pledge	Received Amount	Percentage of received Pledge (%)
No Threat	395	41.23	10	6000	442.2	652.71	174,868	33,119	18.9
Informal Threat	357	42.11	20	8,300	348	718.8	124,240	18,500	14.9
Low Formal Threat	227	73.51	50	5,000	122.03	516.74	23,200	4,150	17.88
High Formal Threat	289	47.65	10	5,000	344.77	536.98	51,370	36,100	70.27

Source: Authors' calculations.

erences. Likewise, the amount of total pledge decreases continuously with the introduction of threats. For instance, it was Rs.174,868 in the treatment of no threat as compared to Rs.124,240 in the treatment of informal threat; Rs.23,200 in the treatment of low formal threat and Rs.51,370 in the treatment of high formal threat. Again, this shows that threat enhances realism in revelation of preferences. The results of Mann Whitney U test for pair-wise comparison in Table 3, reinforces this fact. As it is evident from the table, the amount of pledges in all treatments with threat is different from that of the baseline of no threat treatment. This supports the conjecture that pledge without a formal or informal credible threat is like a inexpensive talk. Table 3 also supports the hypothesis that the role of formal threat is relatively stronger than that of the informal threat.

TABLE 3

Results of the Wilcoxon Rank-Sum (Mann-Whitney U) Test[12]
for the Pledge Amount Across Treatments

Name of the Treatments	Probability Mann-Whitney U Test
No Threat vs. Informal Threat.	$P < 0.01$
No Threat vs. Low Formal Threat.	$P < 0.01$
No Threat vs. High Formal Threat.	$P < 0.01$
Informal Threat vs. Low Formal Threat.	$P < 0.01$
Informal Threat vs. High Formal Threat.	$P < 0.01$
Low Formal Threat vs. High Formal Threat.	$P = 0.77$

Source: Authors' calculations.

Percentage of participants with zero pledge and the total amount of pledge has been further decomposed in Table 4. As it is evident from the table, a significant number of participants avoid making pledge in the baseline treatment of no threat. In the informal threat treatment, this percentage increases in all classes, except class 1 and 2, translating into the overall increase in percentage of participants with zero pledge. Similar is the case with the total pledge, i.e., in all classes except in class 2, the total amount of pledge decreases. Thus, repeated requests for not making the unrealistic pledges worked in majority of the classes. Furthermore, as treatments of no threat and low formal threat are compared, it can be observed that there is an increase in percentage of participants with zero pledge and a reduction in the total amount of pledge. This

[12] The Mann–Whitney U test is a nonparametric test of null hypothesis which is equally like a randomly selected value from one sample and will be less than or greater than a randomly selected value from a second sample. Unlike the t-test it does not require the assumption of normal distributions. It is nearly as efficient as the t-test on normal distributions.

TABLE 4

Comparison of Pledges across Different Classes

4A: Comparison of the Percentage of Zero Pledge within a Class across Treatments

Name of Treatment.	1	2	3	4	5	6
No Threat.	43.06%	44.38%	57.50%	30.13%	46.87%	25.45%
Informal Threat.	30.60%	20%	50.76%	62.96%	53.19%	35.13%
Low Formal Threat.	78.04%	39.14%	72.97%	86.48%	91.48%	72.97%
High Formal Threat.	74.57%	40.66%	41.87%	35.64%	52.79%	40.36%

4B: Comparison of the Total Pledge within a Class across Treatments

	1	2	3	4	5	6
No Threat.	31,664	26,002	16,996	18,740	32,148	35,454
Informal Threat.	20,450	29,650	13,000	9,100	23,300	10,400
Low Formal Threat.	6,850	6,600	1,450	2,100	2,700	8,500
High Formal Threat.	5,800	8,100	2,400	7,000	1,250	11,550

Source: Authors' calculations.

change is significant almost in all classes. Thus, the request for identity of pledge-makers, incentivize the pledge maker to be realistic. Likewise, the comparison between treatments of no threat and high formal threat display reduction in the amount of total pledge which is, again, the indication of seriousness of the donors.[13]

V. Conclusion

The revelation of true preferences has been a subject matter of debate among researchers since long. In particular, in absence of any threat or incentive, the subjects to reveal preferences cannot be incentivized truthfully. This study, intend to analyse whether threats have any impact on revelation of preferences. The focus is on both the formal and informal threats and follows the approach of experimental economics which has an advantage of reducing subjectivity. The experiment comprises four treatments. In each treatment, students are asked to make a pledge for donations for needy students. The treatments are differentiated by type and level of threats given at the time of asking pledges. In the baseline treatment, there was no threat involved. Students were simply asked to make pledges, and then, deposit their pledges in a designated account. In the second treatment, repeated requests were made to the participants that they should not

[13] However, the comparison between treatments of no threat and high formal threat in terms of percentage of participants with zero pledge is relatively inconclusive.

make unrealistic pledges. In the third treatment, students were asked for identity of the pledge maker, while in the fourth treatment, they were threatened that their names will be disclosed on the notice board of the university, if they failed to deposit their pledges by a given deadline. It was conjecture that discrepancy between the pledge and actual payment declined with an increase in the level of threat.

It is found that difference between the pledge and actual payment was higher in the no threat treatments as compared to the treatments with formal or informal threats. The comparison between treatments of low level and high level of formal threats shows that difference between the pledge and honouring of pledge is relatively low in treatment with higher level of formal threats. Likewise, the discrepancy is higher in treatment with informal threat as compared to the high level of formal threat. Thus, it is concluded that individuals reveal true preference, only when there are credible threats associated with violation. The study implies that applied research which is based on replies of subjects with no incentive or threats needs to be substantiated with an analysis from the field or controlled laboratory experiments. For instance, this analysis questions the policy implications of research which is based on either the oral or written surveys like willingness to pay for alternative commodities, construction of survey-based indices, perception surveys, etc. Alternatively, the study suggests that such research should be complemented with more evidence from experimental perspective.

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