The effect of shame in dictator games with information asymmetry

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Abstract

This experimental study deals with the effect of shame on decisions of dictators in a dictator game when they have an opportunity to partially hide their actions before recipients. A size of the pie to be split by a dictator is fully known only to a dictator, and a recipient knows only the probability distribution of this amount. Threat of shame is induced by different disclosures of the dictator's decision and identity to a recipient or a third party observer. The idea of the experiment is based on the fact that the feeling of exposure after an "unfair" action can lead to a higher intensity of negative emotions. In order to prevent such situations, dictators may adjust their behavior. The experimental results suggest this is the case and dictators send significantly higher amounts to recipients in treatments with disclosure especially when the disclosure of the action is also connected with a certain breach of anonymity.

Keywords: shame, dictator game, anonymity

JEL Classification: C91, D03

1 Introduction

Selfishness and altruism in human behavior have been examined by experimental economists using dictator games. In these games, one player (a dictator) decides how to split a certain amount of money between himself/herself and the other player (a recipient). If dictators were maximizing only their monetary payoffs, they would keep everything for themselves and leave recipients empty handed. However, dictators do not usually make such decisions. Holt (2007) provides evidence of experiments in which the average share for the recipient is 31 percent; only less than 10% of dictators keep everything for themselves. Similarly, Andreoni and Miller (2003) also found in their experimental study that only around 23 percent of their subjects behave "perfectly selfishly".It has been shown that depending on the characteristic of the experiment and socio-demographic characteristics, they mostly transfer some positive amounts to recipients. See Camerer (2011) for a detailed overview.

This contradiction to the theory of purely selfish people has been explained by fairness concerns and inequality aversion. Fehr and Schmidt (2006) review many theories of other-regarding preferences based on different assumptions and models. For example, two well accepted theories which explain many of the observed results are from Fehr and Schmidt (1999) and from Bolton and Ockenfels (2000). Both theories suggest a concave utility with respect to one's own payoff and disutility from unequal distribution. These theories work well in the environment where both parties are fully informed about all aspects of the game.

There are, however, many situations when both parties are not symmetrically informed about everything and one party has some information advantage over the other (e.g. principal-agent situations). Another examples of incomplete information is a situation where nature can randomly change the outcomes without both parties being informed about the intervention symmetrically (Andreoni and Bernheim, 2009, Charness and Dufwenberg, 2006). Also evidence from other types of games suggests that a more informed party uses this as an advantage and starts to exploit a less informed counterpart (Mitzkewitz and Nagel, 1993, Rapoport and Sundali, 1996, Straub and Murnighan, 1995). So there is a question of what are the other determinants affecting our behavior in such a way. There has been other explanations of giving positive amounts in dictator games such as guilt, shame or the effort to be considered as a "fair" person (see the next section for more details). The experiments of Reuben and Van Winden (2010) illustrate that an unfair actions of the players are correlated with a higher intensity of emotions like shame and guilt.

If an unfair (from the decision maker's point of view) decision leads to negative emotions, some agents may regret the decision and would like to change it if they had an opportunity to do so. It is possible that they were not expecting such intense negative emotions either due to a lack of experience with the situation, or their cognitive abilities were used for solving other problems. It is usually not

possible to let an agent go through the same situation a few times in order to gain some experience. Therefore, I will try to examine whether it is possible to change the decisions of agents ex-ante by focusing their attention on the threat of having negative emotions. In particular, I will concentrate on the efects of expected shame and investigate it along two dimensions.

The first dimension is investigation of the possible shame effect when only a decision of an agent is disclosed only to his or her counterpart who is financially affected by this decision. In this case, an anonymity of both agents is ensured. This would allow examination of the effect of shame connected with financial consequences (depriving my counterpart of money). The second dimension is investigation of the possible shame effect when the agent's decision and identity are known to a financially uninvolved person (observer). Usually, this revelation of identity is done publicly in front of all subjects in the experimental works when studying "audience effects" (e.g. Andreoni and Bernheim, 2009). I plan to introduce a more realistic, and for the application less costly, environment when each decision making agent is observed by only a limited number of observers (in this case only one observer per agent).

So, I would like to experimentally test the effect of shame on decisions of dictators in a one-shot dictator game. It is shame coming from the exposure of the dictator's actions and/or his identity to other agents, even those who are not financially influenced by his decisions. My hypothesis is that if the dictator knows about such exposure ex-ante, there will be an effort to minimize his or her negative feelings (disutility), or level of shame, by choosing a different action (sending higher amounts for recipient) than the action that would be chosen without this exposure.

2   Related research

In order to examine the possible effects of shame, it is necessary to have some solid definitions and understanding of what shame is. Shame has been studied in the psychological literature for decades. Tangney (1995) provides an overview of shame-related studies in the psychological literature. At first, shame has been studied together with guilt without a clear distinction. Then a distinction was made in a way that describes guilt as the inner feeling for which we do not need other people to know about our action, while for feeling ashamed, we need other people to be aware of our actions (Tangney and Dearing, 2003). Later defining the difference between the two included the criteria of the role of the "self" (Lewis, 1971). For the feeling of shame, the evaluation of some action needs to be focused on self, while for feelings of guilt, the evaluation needs to be focused on the action done. So for shame, it is not necessary to be directly observed, it is enough to have a feeling of being observed or evaluated. However, exposure to other people still plays an important role (Tangney, 1995):

"...shame experiences were more likely to involve a concern with others' evaluations of self, whereas guilt experiences were more likely to involve a concern with one's effect on others" (p. 1136).

Going back into the experimental economics literature, there are studies focusing on the behavior which may be attributed to shame effects. Such effects are in general examined by providing an opportunity to conceal own behavior from other participants in the experimental conditions. Studies have been performed in different types of games. Fehr and Gächter (1999) and Rege and Telle (2004) study it in public good games. Both studies vary the different level of ex-post anonymity after all decisions are made. Rege and Telle (2004) find positive a effect of the higher exposure on public good contributions, while Fehr and Gächter (1999) find an effect only when anonymity has been removed before the game and combined with meeting of group members, after the game.

Tadelis (2007) uses a trust game design with varying disclosures of the subject's anonymity and information about nature intervention. Tadelis (2007) also introduces a model with shame aversion in this paper. His results confirm the effect of shame on the behavior of agents. However, here the decision of the possibly shame-affected decision maker comes into effect only after the other player trusts him/her. So, the shame effects are confounded with reciprocity effects in this paper (unless we impose a restriction of additivity and no interaction of these effects)[1].

There are also studies in ultimatum games which may have a connection to shame effects (Mitzkewitz and Nagel, 1993, Rapoport and Sundali, 1996). Here, the pie size is unknown to the recipients and level of exposure is varied by changing the variance of the pie size (note that according to the psychological literature, only a feeling of being observed or evaluated is enough for shame) which is fully known only to proposers. A higher variance provides more opportunities to "hide behind a small pie" as it makes a proper evaluation from the side of the recipients more difficult. The evidence suggests that for higher variances of the pie size, proposers keep larger shares of it. The question here is which part of the observed behavior is caused by shame and which by the strategic behavior present in ultimatum games and its possible interaction with shame effects.

If the game is more complex, the cognitive process of the subject may focus on the very structure of the game and perceived exposure in the game is considered only to a certain extent. Because the crucial aim of my study is to trigger thoughts about exposure and the consequent possible shame, I will choose a dictator game which has a very simple setting and does not include strategic concerns or reciprocity concerns. There has been a study using the dictator game with asymmetric information. Andreoni and Bernheim (2009) developed a theoretical model which is based on the utility coming from the dictator's

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[1]Ong and Lin (2011) show that "kind" behavior evokes reciprocation even in cases that first movers do not know about any possibility of reciprocation by other subjects, and second movers could keep everything without first movers knowing this.

social image. They completely remove anonymity among the participants[2]. Exogenous change in exposure levels is governed by different probabilities of nature intervening and deciding about the split at certain default values (what is general knowledge for everybody). They find a significant effect of this exposure on proportions of people sending either half of the pie or nothing (in this case, nature's intervention led to 0 or 1 for the recipient, depending on the treatment). However, different outside options and different natural intervention probabilities may draw attention of subjects from a pure distributional problem to thinking about different entitlements to the pie and different beliefs about expectations (also the experimeter's expectations). Although the aim of their study is not in shame effects it provides some patterns how shame may affect the behavior of agents.

It is possible to find possible flavour shame effects also in studies which are focused on other possible motivator of the observed pro-social behavior. They call it guilt aversion and is defined as failing somebody's expectations in these experiments. If people are guilt averse (in a way how they define it[3]), they have negative utility from not fulfilling these expectations. In their actions, this would look like non-selfish behavior if they believe that their counterparts have "non-selfish" expectations. Charness and Dufwenberg (2006) vary expectations in trust games by allowing communication which anchors the expectations of the subjects. Dana, Cain, and Dawes (2006) exclude the expectations in dictator games completely by announcing to recipients that some game has been played only in cases where the dictator decides to send a positive amount. Both of these studies find an effect of not fullfiling somebody's expectations on the decision making of more informed players. Although these effects are strong, they may be confounded with the effects of shame or shame aversion. The decision to send zero to a recipient in the mentioned dictator game does not only exclude any expectations of recipient but also prevents any feeling of exposure to others and therefore any evaluation of the dictator by the recipient. In this study, I plan to vary only the exposure level while controlling for expectations of the agents in order to separate these effects.

In my study, the opportunity to conceal own action for a dictator will come from the random pie size and different levels of exposure before a recipient or a third party observer (see the next section for details). I will also add another dimension to the experiment with respect to the financial involvement of the subject who will have complete information about the dictator's action. The above mentioned studies exposed the decision maker either to the person directly financially affected by decision or to everybody (both, the financially affected or unaffected). I will design the experiment in a way which would allow me to

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[2]Subjects in their experiment are undergraduate economics students from one university, so the removal of anonymity may lead also to concerns for future interaction. They argue that this is not a problem for the purpose of their work. However, I will try to filter out this concern out or minimize its impact in this study.

[3]I will stick to the definition of guilt from psychological literature in this study. Then guilt effects should be the same regardless of the exposure level.

disentangle shame concerns in front of these two groups of subjects from the different financial involvement at the dictator's decision.

3 Experimental design and hypotheses

3.1 The dictator game with a randomly drawn pie size

I use the dictator game with a randomly drawn pie size with asymmetric information about the realized value. In particular, the information advantage is on the side of the dictator (male pronouns further on) who knows the exact realized value of pie size before the splitting decision, while the receipient (female pronouns further on) observes only the amount transferred to her. This allows him to partially conceal full information about his decision and prevents any proper evaluation from her side (reducing the feeling of exposure). Varying the ex-post disclosure of the actual pie size and the presence of the third party observer allows me to test my hypotheses about the effect of shame[4].

Subjects are randomly assigned to one of two (or three, depending on the treatment, see the next section) types, labeled Type A or Type B (or Type C). They remain the same type for the rest of the experiment. The pie size is drawn from U[50, 150], where dictators know the exact realization, and recipients know only the ex-ante distribution. This information is explained in the instructions to all subjects. Then, the dictators are instructed to split the pie according to how much they have decided to transfer to a randomly chosen recipient, keeping the rest for themselves. Depending on the treatment, the subjects are informed about ex-post disclosure of the pie size to the receivers. The subjects are also informed about a demographic questionnaire at the end of the experiment. All earnings during the experiment are stated in experimental units (EU). Conversion rate, 1 EU= 2 Czech crowns (CZK)[5], is announced to subjects in written instructions at the beginning of the experiment.

For the dictators' decisions, I use a strategy method first introduced by Selten (1967) with five different pie sizes. The pie sizes are drawn from U[50,70], U[70,90]...U[130,150], respectively. They are displayed in random order sequentially. After all five decisions are made, one of the presented pie sizes and

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[4]Also varying exposure to the experimenter (single-blinded vs double-blinded designs) may be considered as shame effects sticking to the above mentioned definitions. As this is not the main goal of this study and exploring this area is beyond the possibilities of this project, I will not vary the level of exposure to the experimenter. There is also evidence when exposure to the experimenter is not very strong, the observed behavior does not differ significantly between single- and double-blind settings in the most common games (Barmettler et al., 2012). Moreover, in my experiment, an experimenter can immediatelly observe only earnings of the subjects not their decisions, and it is difficult to infere decisions from earnings (details later).

[5]The exchange rate at the time of the experiment was approximately 1 USD = 19.2 CZK.

corresponding decision was chosen as a payoff-relevant[6]. This way I have five decisions spread across the whole support of the distribution. Also this design allows me to test whether there are some effects of the absolute size of the pie on the share given to receivers. After the dictators make their decisions in this stage of the experiment, I elicit estimates from the recipients about the pie size based on the observed amounts they receive and also the estimates of dictators about the recipients estimates (second-order beliefs)[7]. If their estimate is correct within range $\pm$ 7 from the true value, they earn an additional bonus. These data allow me to control for an effect of fulfilling somebody's expectations when making decisions (trying to avoid guilt).

In the next stage, I ask the subjects to rate the intensity of ten emotions [8]on a scale from 1 (very low) to 7 (very high). They are chosen in a way that includes a spectrum of positive/negative emotions towards either self or others. Another reason to include more emotions was to dilute the salience of the emotion of core interest (shame). Consequently, they are asked to estimate intensity of these emotions by their counterpart. If this estimate is at most 1 point further from the true value, they earn an additional bonus. The purpose of this elicitation is to control for another channel how expected exposure may step into the decision making process. Some subjects may not transform the expected negative emotions into a change in their behavior in order to diminish the effect of the negative ones. However, they may simply accept the increased level of negative emotions without trying to avoid it.

Finally, subjects are asked to fill out a questionnaire asking for their basic socio-demographic characteristics, what they consider as a "fair" split, and the number of people in the lab they knew before the experiment (to control for a potentially different initial level of anonymity they perceived). Female subjects are also asked questions about their menstrual cycle as different levels of estrogen in different phases of the menstrual cycle could significantly influence their behavior, for more details see Chen, Katuscak, and Ozdenoren (2013). Then subjects are presented with a screen which informs them about their earnings from the experiment with an added show-up fee. In order to prevent inference about the pie size from possibly earned bonuses in some treatments, the feedback consists only of the sum of all earnings.

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[6]Using the strategy method should not lead in this case to qualitatively different results than using direct method (Brandts and Charness, 2009).

[7]Because this took some time I need to keep recipients busy by a different task to prevent revealing the type of each player. Recipients are asked to complete a general knowledge test with multiple choices. They are motivated by some small reward for each correct answer. Presence of this test has not been mentioned in the paper instructions and dictators are not informed about this for the duration of the whole experiment in order to prevent possible distributional effects.

[8]Happiness, Disappointment, Envy, Shame, Regret, Guilt, Contempt, Anger, Sympathy, and Gratitude

3.2 Treatments

One dimension of this experiment is based on a varying ex-post disclosure of the pie size. In the first alternative, the pie size is not revealed to recipients. In the second alternative, both player types are ex-ante informed that the pie size will be revealed ex-post, after the decision about splitting it is made. In this case the level of the dictator's anonymity in front of the recipient is held constant. This variation is aimed at examining of the exposure connected to the financial consequences of someone's decision. The second dimension of the experiment is aimed at the effects of exposure, which are not connected to the financial consequences of someone's decision but to a decrease in anonymity.

Therefore, a third party observer is added (Type C). This observer has no power to influence the outcome of splitting. On the other hand, an observer can always see the camera shot of the dictator's face together with the pie size and his decisions. Each dictator is observed by one observer. Earnings of observers are determined by a random draw from four possible values at the end of the experiment[9]. So, a combination of two possible ex-post pie size disclosure options (pie size not known to the recipient at the end of the experiment - NK, pie size known - K) and two options for the presence of observers (observer present - O, no observer - NO) gives a 2x2 experimental design.

3.3 Hypotheses to be tested

The described design allows me to test the following hypotheses conected with the effect of exposure on dictators' decisions. All of them are in form of null hypotheses with alternative hypotheses of dictators sending different shares accross the treatments.

- *Hypothesis 1: Dictators do not send different shares of the pie when their decision is fully revealed to the recipients.*

- *Hypothesis 2: Dictators do not send different shares of the pie when their decision is fully revealed to the financially unaffected observers when their anonymity is partially broken.*

Both these hypotheses test whether the expected shame coming from the exposure leads to a change in behavior. In case of rejection of at least one of them, there is a question how exactly the change in exposure changed behavior of the agents. The possible change may have been caused by a change in number of dictators sending positive amounts or there was an increase in the average positive shares sent. Hypotheses 3a and 3b test whether change in behavior occured at intensive (3a) or extensive (3b) margin.

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[9]I also need to keep observers busy at the time dictators are splitting the pie. So they are asked to estimate the decisions of the observed dictators and are motivated by a small bonus if they are close to the actual decision. This is not announced to the players in the written instructions and only observers learn this from additional on-screen instructions.

- *Hypothesis 3a: The overall change in sent shares is not caused by the change in average positive amount sent.*

- *Hypothesis 3b: The overall change in sent shares is not caused by the change in number of dictators sending positive amounts.*

3.4 Procedure

The experiment took place in the Laboratory of Experimental Economics at University of Economics in Prague at the end of October 2012 and in the first half on November 2012. The experiment was computerized using zTree software (Fischbacher, 2007). The experiment was conducted in English and subjects knew it when they registered for the sessions[10]. For O sessions, there were also 6 observers in each session and each observed two dictators. However, subjects were only told that each dictator is observed by one observer in the written instructions.

As the assignment of the roles is random and subjects need to understand this, a photo of each subject was required in the O sessions. This was done when they were entering the lab [11]. The whole procedure of picture taking did not take more than a few minutes for the whole session cohort.

4 Results

4.1 Subjects

Together, 430 subjects participated in 16 sessions of this experiment (4 for each treatment)[12]. There were 12 dictator - recipient pairs (11 for one NO-K session due to an unexpectedly low number of participants who showed up) for all treatments in each session. The whole session lasted around 40 minutes for NO sessions and 45 minutes for O sessions. The average experimental payoff was 305 CZK including a show-up fee of 150 CZK. Subjects received their payoff privately in cash at the end of the experiment.

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[10]There may be slight differences in understanding the meaning of various emotions across languages. So, in order to unify it, there was a brief English explanation of the emotions on the screen and also a Czech translation of these emotions (for the vast majority of the subjects, the Czech language is either their mother tongue or they have perfect command of it).

[11]Before this, the subjects needed to sign a consent form which stated they were informed about the photography issues together with the notice that the photo will be used for research purposes only and will not be shown in any output from the project. No one refused to participate in the experiment after finding out about this procedure.

[12]The ORSEE database has been used for recruitment (Greiner, 2004).

Subjects were mostly students studying at various universities in Prague[13]. Gender ratio was almost balanced (females 47.4%, males 52.6%)[14]. Regarding the country of origin, 69.3% of subjects were from the Czech Republic , 20.2% from Slovakia , 3.5% from Russia/Ukraine , 7% from other countries. For their majors, 76.3% of subjects have economics or business as their major, 8.4% science, engineering or medicine , 5.1% mathematics or statistics , 4.9% other social sciences , 5.3% humanities and other . Subjects also differ in the academic degree they hold: 57.2% of subject do not hold any degree, 35.6% hold a bachelor's degree, 7% a master's degree. The average age of the subjects was 22.3 years ranging from 18 to 38.

4.2 Basic results

As there is absolutely no effect of the pie size on the share given to recipients, I normalize and report the decisions of the dictators in shares given to recipients. Overall, in 13.2% of decisions, dictators kept the whole pie. The mean value of amount for the recipient was 0.263. Offers higher than 0.5 could be observed in 6.4% of the cases with about half of such decisions are only slightly above half of the pie[15].

Table 1 presents the means of the dictators' decision together with the standard errors in parentheses (clustered at the subject level) for each treatment. Means are slightly higher for K and O treatments, what is in line with the idea of expected disutility from shame and the consequent adjustment of behavior in order to avoid this shame. The subjects send the highest share of the pie when both, observer and recipient, know the exact size of the pie. A more detailed overview of decisions are in Figures 1 and 2 which present the cumulative distribution functions and histograms of the dictators' decisions in each treatment. From Figure 1 it is obvious that the distribution of the O-K treatment first-order stochastically dominates the distributions of all other treatments. Histograms show a higher share of the lowest offers in the treatments wihtout observer and somewhat lower proportion of decisions sending around half of the pie.

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[13]This minimizes concerns for future interaction and perception of the game continuation after the experiment. The subjects were asked to report on the number of people in the lab they knew before the experiment. 56% of dictators did not know anyone, 82.2% of dictators knew at most one person, 92.1% of dictators knew at most two people out of 23 (or 29, depending on treatment) subjects in the lab.

[14]In order to prevent big gender imbalances trough the sessions, male and female subjects were recruited separately with the equal proportion of free places for each gender. This specific recruitment procedure was not known to the subjects. However, when subjects came to the lab I did not insist on exactly balanced gender ratio of participants in order not to trigger thinking about possible experimenter's expectations.

[15]Most unusually high offers are caused by few subjects. This behavior may be caused by a misunderstanding of the instructions as these subjects reported very high levels of regret, envy and disappointment relative to other dictators and their reported fairness perceptions do not differ from other dictators. Omitting these subjects from data analysis does not qualitatively change the main results so I decided to keep them in the data set for further analysis. In case their presence will change the results, I will comment on it.

Table 1: Mean transfers to recipients with standard errors

		Disclosure	
		NK	K
Observer	NO	0.225 (0.030)	0.240 (0.027)
	O	0.269 (0.027)	0.319 (0.024)

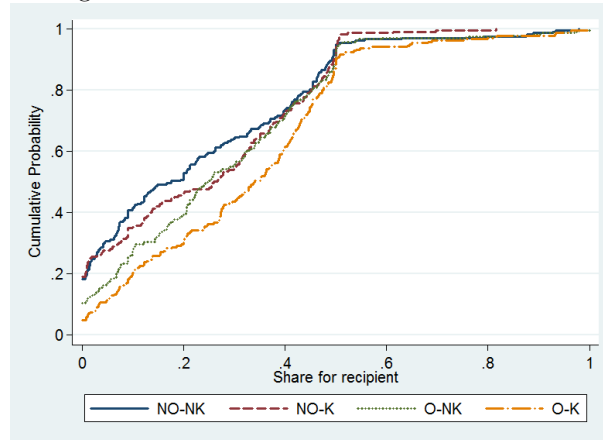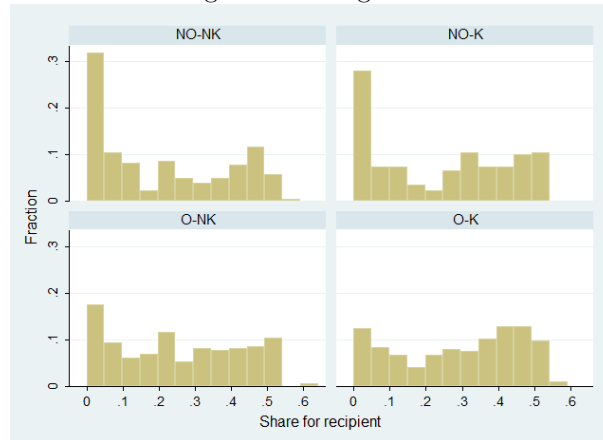Figure 1: Cumulative distribution functions

Figure 2: Histograms

As the decisions of one dictator cannot be considered to be independent, I use two approaches for the statistical analysis. In the first approach, I average the decisions within the subjects and then use the Mann-Whitney ranksum test (AV). In the second approach, I use the Mann-Whitney ranksum test with clustering at the subject level (CL) [16]. In both cases the null-hypothesis is that decisions in two compared treatments are from the same distribution.

Table 2 presents p-values of all relevant comparisons. The effect of disclosure is not significant given that the observer is not present, with the presence of a observer the subjects send higher shares when the pie size is disclosed after the decision, and this effect is marginally significant. Comparing treatments with and without an observer, dictators send higher shares when somebody observes them, but this difference is statistically significant only when recipient can ex-post observe the pie size. Testing for the joint effect of observer and disclosure (O-K treatment compared to NO-NK treatment), dictators send significantly higher shares when both players, recipient and observer, are fully informed about their decisions.

Table 2: Testing for the equality of distributions, p-values

Compared treatments	AV	CL
NO-NK vs NO-K	0.599	0.618
O-NK vs O-K	0.098	0.176
NO-NK vs O-NK	0.202	0.194
NO-K vs O-K	0.060	0.056
NO-NK vs O-K	0.009	0.011

Imposing distributional restrictions and performing robustness checks with OLS or tobit specifications and share on the pie given to recipients as a dependent variable, the qualitative results are stable across different regression specifications. Changing the set of exogenous variables and clustering on the subject level, dummy variable for observer presence has p-value at most 0.031 with a positive coefficient; the dummy variable for the presence of disclosure is insignificant at conventional levels regardless of the regression specification. There is only one other variable which is significant through all specifications and this one is the gender dummy with a higher given share when a dictator is female. Other variables such age, income, the number of people subject knows present in the lab, degree held, major or reported fair split are not significant in any used specification.

Naturally, one could possibly argue that a change in behavior may be caused by the change in second order beliefs. In that case, dictators just adjust their

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[16]For the details of this method see Newson (2002) or Datta and Satten (2005)

behavior in order to fulfill different beliefs they have about the recipients' expectations. That would support the guilt aversion approach in the previous literature Dana et al. (2006), Charness and Dufwenberg (2006). Comparing beliefs about a recipient's expectations, there is no statistically significant difference between beliefs in all treatment comparisons[17]. This result does not contradict the conclusions of literature dealing with behavior motivated by fullfiling somebody's expectation but suggests the existence of some other channel causing the observed behavior.

4.3   Intensive margin vs. Extensive margin

It would be useful to examine the change in the overall means between treatments in more detail for a better understanding of the treatment effects. If the mean of the shares for a recipient is higher in one treatment compared to another there are two possible reasons behind it (or a combination of them): first, the increase in mean contribution for dictators giving a positive amount (intensive margin) and second, an increase in the number of dictators giving a positive amount (extensive margin)[18].

For the extensive margin, I was comparing the number of decisions giving positive amounts between the treatments. Comparisons between O and NO treatments show a significant difference between the proportions of subjects giving something positive(p-values at most 0.013)[19]. Comparisons between K and NK differ in their results. While in the O dimension there is also a significant difference between the K and NK treatments (p-values from 0.026 to 0.05), there is no such result in the NO dimension (p-values from 0.577 to 0.942). For the intensive margin, comparing the means of the subject who gave something positive, dictators send slightly higher amounts in K treatments compared to NK treatments and also in O treatments compared to NO treatments. However, this difference is not statistically significant[20].

So, the differences between the amounts sent in different treatments are caused mainly by the different share of decisions keeping the whole pie. However, the sent positive amounts (conditional on sending positive amount) do not differ statistically between the treatments. The change in proportion of people keeping the whole pie is in line with the results of Andreoni and Bernheim (2009).

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[17]Either when using t-test (p-values are in the range from 0.282 to 0.943) or when relaxing the distributional assumptions and using the Wilcoxon rank-sum test (p-values from 0.424 to 0.834).

[18]It is straightforward to make a division between no giving at all and giving something positive at the zero contributions. But some subjects may perceive also giving 1 to the recipient as giving "nothing" for some reasons. For some of them, the lowest possible amount in their mental domain of splitting the pie may be 1 or they might have understood the instructions in a way that they need to transfer at least something. In order to see whether the results are sensitive to this division, I performed all the following tests with considering either 0 or 1 or 2 as giving nothing.

[19]Using a proportion test

[20]the Wilcoxon rank-sum tests

However, there is no significant increase in the decisions around the 50-50 division of the pie. This may be due to already mentioned differences between the experimental designs.

4.4 Reported emotions

The subjects were also asked to report the intensity of their emotions after a random choice of payoff relevant split and a possible disclosure in this experiment. Also they were asked to guess at the intensity of the emotions of their counterpart. Regarding the emotions of dictators, I have two relevant sets of emotions in the data. The first set comes directly from dictators and the second set comes from recipients when they were asked to estimate the intensity of emotions for dictators (incentivized).

For the first set, reported intensities of emotions are largely concentrated around the lowest values. Modal value is 1 for 9 out 10 emotions (except for happiness) and the median value is at most 2 for 7 out of 10 emotions. For some emotions it could be obviously expected given their essence and purpose of their presence (see Section 3.1.). However, lower intensities are frequently reported also for the emotions of interest (shame, guilt). There is obvious some weak linear relationship for shame depending on the shares, which is stronger when I exclude the six clearly outstanding observations for the subjects giving unusually high shares to recipients (correlation coefficient changes from -0.21 to -0.27)[21]. For the second set of reported emotions coming from the estimates of recipients, the same concentration of data around the lowest values and weak correlation with dictator's decisions can be observed.

This may be caused by a few reasons which may be crucial for different subjects reporting their emotions: subjects make decisions in order to avoid a higher intensity of negative emotions, they lack the incentives to report their true emotions, or the experimental setting, in general, does not induce these kinds of emotions for them. Although I cannot rule out the last two reasons completely, there is evidence in previous works that subjects report their emotions not only at the lowest intensities (e.g. Reuben and Van Winden, 2010). The results of emotion elicitation are in line with the argument that subjects try to prevent negative emotions by changing their actions (and this is expected also by the recipients).

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[21]These subjects report a relatively high intensity of shame together with anger, disappointment or envy. As there is strong suspicion that these subjects did not understand the instructions correctly, it is very likely that their reported emotions are confounded also with emotions coming from this fact (besides the decision itself).

5 Discussion

Information asymmetry is very likely to occur in social interactions. Such situations provide opportunities to exploit the information advantage for own gains and it is vastly documented that people do so. This experimental study was aimed at testing the effects of shame coming from the exposure in an environment where subjects have the possibility to partially hide their true actions in front of their counterparts. Compared to previous literature, the experiment was designed in a way which removes any strategic or efficiency concerns. The purpose was to focus the attention of subjects to the exposure and trigger their thinking about it before making their distributional decisions.

The aggregate results show that exposure, even to a third party observer, has a significant effect on dictators' decisions in dictator games. A more detailed inspection of the data showed that decreased anonymity leads to a lower fraction of dictators keeping the whole pie but does not lead to an increase in average positive transfers.

The results suggest that the ex-post removal of anonymity or information asymmetry has the power to trigger thinking about consequent exposure and the possible threat of shame. More importantly, this cognitive process is transferred to different actions more likely than to different intensities of emotions. Although there is need for further research regarding the various forms or intensities of exposure, the relatively cheap ex-post disclosure of either actions or of the identity of the agents is able to change their decisions ex-ante.

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