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Social and Moral Distance in Risky Settings

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Abstract

Many socially desirable actions are subject to risk and occur in situations where the others are not anonymous. Assessing whether lower subject-subject anonymity affects behavior when outcomes are risky is likely important but has not been studied in depth so far. Herein, we provide evidence on this issue. In a series of allocation tasks, all of them variations of the dictator game, we systematically vary the party who is exposed to risk and manipulate recipient anonymity by reducing the social and/or moral distance between the two parties. We propose a model that extends previous work by allowing not only for ex ante and ex post fairness but also for altruism. The model is consistent with observed behavior. In particular, a reduction in social and moral distance significantly increases the likelihood of equal split and more than equal split choices.

JEL Classification: C90, D63, D64, D81
Keywords: Risk, Fairness, Altruism, Anonymity, Experiment

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I. Introduction

The effects of many socially desirable actions—such as giving to charity, investing in climate change mitigation, and helping peers in work environments—are subject to risk. It is often the case that the decision-maker should be willing to sacrifice his material benefits in order to increase the payoff chances—rather than the sure payoff—of others. When giving to a charity, for instance, the donor does not know with certainty whether his money will reach the people in need. It could also be the case that the decision-maker should give up chances of own success in order to increase, either with certainty or with only some positive probability, the well-being of others. As an example, a firm competing for a contract might decide not to exploit loopholes in the legislation, thereby reducing, for the sake of a rival firm, its chances of winning the contract; or, to cite a more extreme example, a healthcare worker treating patients with an infectious disease may become himself infected and should therefore be willing to put his life in jeopardy to assist others.

Most of the existing studies on other-regarding preferences under risk have focused on situations in which the others are anonymous. However, in reality, one often comes face to face with those in need, or knows their circumstances when he voluntarily decides to reduce his sure payoff, or his chances of success, in order to increase their well-being (either deterministically or probabilistically). Charitable organizations have various methods of letting potential donors know who the beneficiaries of their activities will be, from merely showing the donors pictures of the people in need to providing detailed information about them. Healthcare professionals can see the patients who have been infected by an infectious disease while trying to cure them. In the present paper we use a series of allocation tasks, all of them variations of the standard dictator game,[1] to investigate whether and to what extent reducing the recipient's anonymity affects the dictator's giving behavior in the presence of risk. This issue merits attention because anonymity is an important driver of human behavior (Burnham 2003; Engel 2011) and, to the best of our knowledge, no study has thoroughly explored how reducing the other's anonymity affects giving under risk.

We focus on three types of risk—risk only on the recipient, risk only on oneself, and risk on both the recipient and oneself—and assess how decision-makers react to the introduction of each one of these risks when the recipients, instead of being anonymous, are less socially and/or morally distant from them. Social distance refers to the extent to which an individual feels close to another person (e.g., Bogardus 1926). A handful of experimental economics studies have related social distance to the ability of the dictator to identify his counterpart (see, e.g., Bohnet and Frey 1999; Frohlich et al. 2001; Burnham

[1]In this game, an individual (the decision-maker or "dictator") receives an initial endowment and is asked to allocate a portion of it to another individual (the "recipient"), who has no option but to accept the allocated amount. A large amount of literature has used the standard dictator game to study giving behavior in risk-free contexts (for extensive surveys see Camerer 2003 and Engel 2011).

2003; Charness and Gneezy 2008). In this study, we use photos of the recipients to shorten the social distance between the two parties. Such photos reduce anonymity without having the potential confounding effects of spoken words in verbal messages, or those of facial movements in videos. Moral distance, i.e., the degree of moral obligation that one feels toward the other, relates to the information that the dictator has about the neediness of the recipient (Aguiar et al. 2008). Herein, we create a moral context for the dictators' decisions by assigning the role of recipient to common, everyday people who have experienced a reduction in income and wealth since the advent of the global financial crisis in 2008. At the time the experiment was conducted—in 2019, before the start of the COVID-19 outbreak—Italy was one of the European countries worse affected by the 2008 crisis. Many Italian youngsters had parents who had faced job loss and financial strain due to the crisis and they themselves were struggling to find adequate jobs. Thus, the dictators—a random sample of 239 Italian university students aged on average 20.8 years—may have felt morally obliged to help others suffering from the same ordeal.

In our experiment, each dictator is confronted with four allocation tasks that vary the riskiness of the dictator's and/or the recipient's earnings in a controlled manner. Our settings are similar to those in Krawczyk and Le Lec (2010), Brock et al. (2013), Cettolin et al. (2017), and Freundt and Lange (2017). Besides the standard (risk-free) dictator game, the dictator has to complete three risk-involving tasks that coincide with the standard dictator game in terms of expected payoffs, but capture the three types of risk we are interested in. In one of these tasks, only the recipient is exposed to risk and the dictator can, by reducing his own sure monetary payoff, increase the recipient's chances of winning a prize. In another task, only the dictator's earnings are risky, in the sense that the recipient earns exactly the transferred amount whereas the dictator's chances of winning the prize decrease with the amount transferred to the recipient. In the final task, both the dictator and the recipient face risk and the dictator chooses the probabilities with which he himself and the recipient win the prize.[2] In all three risk-involving tasks, the dictator is asked to make his choice before risk is resolved and is aware that, depending on the realized state of the world, his own final payoff may be larger or smaller than that of the recipient.

To examine whether and how relaxing recipient anonymity affects giving under each type of risk, we run four treatments with four different groups of subjects: a control treatment in which the recipient is completely anonymous to the dictator; a social-distance-reducing treatment in which the dictator sees a photo of the recipient prior to his allocation decisions (Photo treatment); a moral-distance-reducing treatment in which the dictator

[2]Krawczyk and Le Lec (2010) analyze tasks where both the dictator and the recipient face risk, or both have certain payoffs. Brock et al. (2013) consider a further task where only the recipient is exposed to risk. In Cettolin et al. (2017) and Freundt and Lange (2017), the final earnings of either the dictator or the recipient are risky. Differently from these studies, we vary the party who is exposed to risk in a systematic manner and consider all possible cases.

makes his decisions being aware of how the financial crisis impacted on the recipient's income and wealth (Info treatment); and, finally, a treatment in which both social and moral distance are reduced in tandem (Photo+Info treatment).

While our study relies on lab experimental observations for dictator giving, it collects field data on recipients who, in the three treatments manipulating anonymity, are ordinary Greek citizens. We chose to collect data on recipients in Greece, rather than in Italy, because although the Italian economy had been growing only slowly since the financial crisis (which justifies our choice of moral context), economic and social conditions were much worse in Greece. The third bailout in 2015 was devastating for the Greek economy and four years later, in 2019, Greece was still a long way from catching up with the progress made by the other Eurozone states (Dendrinou and Varvitsioti 2019). We were therefore more likely to sample recipients of interest (i.e., people facing a significant reduction in income and wealth due to the financial crisis) in Greece than in Italy. Italian dictators were not made aware that the recipients were Greeks as this piece of information could have differentiated their concern toward the other in comparison to the control treatment, where the dictators did not know who the other was.

With standard, selfish preferences, dictators are expected to give zero independently of allocation task and treatment. However, in the literature on other-regarding preferences, several theories have been proposed on the role of inequality aversion under certainty (e.g., Fehr and Schmidt 1999; Bolton and Ockenfels 2000; Charness and Rabin 2002; Engelmann and Strobel 2004) and there is a small but growing body of research that extends such preferences to risky environments, mainly by studying the trade-off between ex ante (or procedural) fairness—which focuses on initial opportunities—and ex post (or consequentialist) fairness—which focuses on realized outcomes. Saito (2013) axiomatizes a model of inequality aversion under risk using the Fehr and Schmidt (1999) utility function. Brock et al. (2013) provide, and experimentally test, a generalization of the Fehr and Schmidt model that incorporates ex ante and ex post motives of fairness.[3] These extensions of inequality aversion to risky settings have considered situations where the recipients are anonymous.

Previous economic experiments on standard dictator games have documented that dictators are more likely to be altruistic when subject-subject anonymity is relaxed by decreasing the social and moral distance between the dictator and the recipient.[4] It is therefore

[3]Earlier than Brock et al. (2013) and Saito (2013), extensions of inequality aversion models to environments of risky decision-making had been proposed by Trautmann (2009) and Krawczyk (2011)—both these authors assume risk neutrality. More recent models of other-regarding preferences under risk include Cettolin et al. (2017), who allow for ex ante and ex post fairness concerns as well as for risk aversion, and Fahle and Sautua (2017), who focus on reference-dependent risk attitudes.

[4]Studies manipulating social distance include Bohnet and Frey (1999), Burnham (2003), Charness and Gneezy (2008), Leider et al. (2009), and Brañas-Garza et al. (2011). For studies manipulating moral distance see Eckel and Grossman (1996), Brañas-Garza (2006), and Aguiar et al. (2008). Details on these

crucial in our setting—where the dictators face risk-involving allocation tasks and the recipients are not anonymous in the experimental treatments—to account not only for ex ante and ex post fairness concerns, but also for the potential effect of altruism on allocation decisions. We propose a model that extends the approach of Brock et al. (2013) and Saito (2013) so as to allow for altruistic behavior by decision-makers. Our main objective here is to indicate a possible channel through which the reduction in recipient anonymity could result in less selfishness and more giving among the dictators. The model incorporates ex ante and ex post fairness and uses a utility function characterized by three parameters: the weight on the other's payoff when the recipient earns more than the dictator, the weight on the other's payoff when the recipient earns less than the dictator, and the change in weight when the dictator becomes altruistic. Thus, we combine preferences for fairness with altruism by means of postulating that the more altruistic a decision-maker is, the more he dislikes inequality.

The experimental results are broadly supportive of our model. First, having controlled for the effects of the considered types of risk on giving, both the frequency and the level of positive giving are significantly higher when dictators are provided with information about the impact of the financial crisis on the recipients' circumstances. Second, creating a moral context for the dictators' decisions significantly increases the probability of equal splits; among the experimental treatments, the probability of giving more than the equal split is the highest in the treatment that reduces both social and moral distance.

The remainder of the paper is organized as follows. In the next section, we review the relevant literature. In Section III., we discuss all aspects of the research design. In Section IV., we set up the model and derive behavioral predictions. In Section V., we describe the data and present the empirical analyses. Section VI. concludes the paper.

II. Related literature

Our paper is related to various strands of the experimental economics literature. It builds on and incorporates altruistic preferences into models that study fairness in the presence of risky outcomes (see references above). A few experiments in this area have used probabilistic dictator games to assess whether people put more weight on ex ante or ex post notions of fairness. In some studies (e.g., Krawczyk and Le Lec 2010; Brock et al. 2013; Freundt and Lange 2017), similarly to ours, the dictator can distribute risk ex ante, while in others (e.g., Cappelen et al. 2013) either the dictator or an external observer is allowed to redistribute payoffs after the resolution of risk. In general, these studies indicate that both notions of fairness matter when dictators make decisions in risky settings.

studies will be provided later. In psychological research, the people's tendency to be more generous toward identifiable rather than anonymous others is known as the 'Identifiable Victim Effect' (a meta-analysis of this body of literature is provided by Lee and Feeley 2016).

Another body of experimental research has examined the relation between other-regarding concerns and risk preferences when risk affects one's own and the others' payoffs. In decision problems where each decision-maker is asked to evaluate—via the BDM mechanism—different allocations that assign risky or certain payoffs to oneself and to another passive person, Brennan et al. (2008) and Güth et al. (2008) find that other-regarding individuals are influenced by the riskiness of their own payoff, but not by the riskiness of the other's payoff. Rohde and Rohde (2011), in an experiment where each participant repeatedly chooses between lotteries allocating money to himself and ten others, find no significant effect of the risk borne by others on the individuals' risk attitudes. Bolton and Ockenfels (2010) examine pairwise choice problems in which a subject chooses between a risky and a safe option, and compare decisions across one-person and dictator choice problems. According to their results, people are more reluctant to take risk when risk affects the payoff of another person, and ex post inequalities, which may result from the risky choice, do not affect risk taking. In dictator game settings where the final earnings of either the decision-maker or the recipient are risky, both Cettolin et al. (2017) and Freundt and Lange (2017) find that the dictators' own risk preferences are important for their giving behavior, whereas the recipients' believed or actual risk preferences play basically no role.

Our experimental manipulations of recipient anonymity relate our work to a large experimental literature that investigates the effects of reducing social and moral distance on behavior. In the context of the dictator game, Bohnet and Frey (1999) were the first to provide evidence that the level of giving increases when dictators can identify recipients via numbered cards. The line of research regarding the recipient's degree of anonymity continued with Frohlich et al. (2001) placing dictators and recipients in the same or different rooms, Burnham (2003) endowing dictators with pictures of the recipients, and Charness and Gneezy (2008) revealing the family name of the recipients to the dictators. The findings of these experiments corroborate the importance of social distance as a factor affecting dictator giving.[5]

In some experimental studies, social distance is reduced by making dictators play (or imagine playing) with friends. Jones and Rachlin (2006), Rachlin and Jones (2008), and Bechler et al. (2015) ask participants to imagine that they made a list of the 100 people closest to them—ranging from their dearest friend at position 1 to a mere acquaintance at position 100—and show that the amount of money a participant is willing to forego in order to give a fixed amount of money to another person varies inversely with the social distance

[5] While almost all previous studies have focused on the behavior of the dictators and on how their allocation decisions change with a reduction in social distance, a few papers exist that are interested in the recipients. For example, Aksoy et al. (2018) allow the recipients to choose between dictators on the basis of their photos. There is also work assessing the impact of relaxing the responders' anonymity on offers in the ultimatum game (e.g., Sircar et al. 2018), and recent research has investigated the effect of increased social distance due to the COVID-19 pandemic on dictator behavior (Lotti 2020).

between them. In an attempt to distinguish between different motives for giving, Leider et al. (2009) pioneered the methodology of first eliciting the individuals' real-life social networks and then letting them play allocation games with others in their network. By varying social distance (defined as the geodesic distance in the elicited network of friends) as well as the friends' anonymity, Leider et al. (2009) demonstrate that altruistic behavior increases as social distance decreases. Further works along this line include Brañas-Garza et al. (2010), Goeree et al. (2010), and Brañas-Garza et al. (2011). The general result of this strand of literature is that dictators give more to friends than to strangers.

The importance of moral context in dictator decision-making has been suggested and tested by Eckel and Grossman (1996), who find that giving increases significantly when an anonymous recipient is replaced by a reputed institution, namely the Red Cross. Similarly, according to Brañas-Garza (2006), informing dictators that recipients are poor communities from underdeveloped countries and that the donated money will be used to buy medicines has significant effects on giving. Aguiar et al. (2008) analyze the answers to a questionnaire expressly asking dictators about the reasons for their choice in the experiment reported in Brañas-Garza (2006). Their analysis shows that most dictators justify their giving decision by putting forward moral arguments (such as the importance of helping needy people), which led the authors to conclude that giving behavior is mainly determined by the information dictators have regarding the recipients' situation.

The work most similar to ours is Güth et al. (2011), who experimentally examine whether reducing social distance between the decision-maker and a passive other influences other-regarding behavior when one's own and the other's payoffs are risky. Güth et al. (2011) do not rely on variations of the dictator game, but—following Brennan et al. (2008) and Güth et al. (2008)—use the BDM mechanism to elicit the decision-makers' valuations of risky allocations. Furthermore, they reduce social distance by showing the decision-maker a speechless video (rather than a picture) of the passive other, and do not manipulate moral distance. Güth et al. (2011) find that watching a video of the other does not affect behavior significantly. But, as they point out, this null result could be due to the cognitively demanding elicitation mechanism used, which may have lessened the "empathy" toward non-anonymous others.

Somewhat akin to our study are also Montinari and Rancan (2018) and Wyszynski et al. (2020). Montinari and Rancan (2018) study whether risky choices made on behalf of another person are affected by variations in the social distance between the decision-maker and the passive other. They vary social distance by asking the decision-maker to bring a friend to the laboratory and find that individuals make significantly less risky choices when deciding for a friend rather than for a stranger. Wyszynski et al. (2020) investigate how recipient neediness and non-anonymity affect dictator behavior in a setting where giving depends on the outcome of a lottery that assigns the given amount to the recipient with

TABLE 1. Allocation tasks

Task	Riskiness	Dictator's earnings	Recipient's earnings
CC	Deterministic	$10 - x$	x
CR	Risk on recipient	$10 - x$	$\left(10, 0; \frac{x}{10}, \frac{10-x}{10}\right)$
RC	Risk on dictator	$\left(10, 0; \frac{10-x}{10}, \frac{x}{10}\right)$	x
RR	Risk on both	$\left(10, 0; \frac{10-x}{10}, \frac{x}{10}\right)$	$\left(10, 0; \frac{x}{10}, \frac{10-x}{10}\right)$

Note: $(10, 0; p_{10}, p_0)$ denotes a lottery in which the subject earns a 10-ECU prize with probability p_{10} and nothing with probability $p_0 = 1 - p_{10}$.

a known probability. Neediness is created artificially in the laboratory, in the sense that the recipient is paid only if the money that he gets at the end of the experiment meets a certain threshold, and anonymity is manipulated by allowing the dictators either to see a picture of the recipient or to see him in person. The results indicate that the lower the social distance between interacting parties, the more often the need threshold is reached.

In the present work, we combine the different strands of literature reviewed in this section. We carefully design allocation tasks and experimental treatments so as to discern whether a reduction in social distance, moral distance, or both affects giving in the presence of risky outcomes for the dictator and/or the recipient.

III. Research design

In this section, we detail the allocation tasks and treatments, and describe the procedures followed to implement the experiment.

A. Allocation tasks and treatments

Our experiment implements four allocation tasks. In each task, one person—the dictator, referred to as "he"—is endowed with 10 ECUs (Experimental Currency Units, with 1 ECU = €2) and has to decide how to distribute this endowment between himself and a passive person—the recipient, referred to as "she". We denote by $x \in \{0, 1, \ldots, 10\}$ the share given to the recipient and by $10 - x$ the share kept by the dictator. The tasks differ with respect to whether or not the players' payoffs are risky. Their main characteristics are summarized in Table 1. Each task is labeled with two letters: the first letter indicates whether the dictator's payoff is certain (C) or risky (R), the second letter indicates the same but for the recipient.

Task CC replicates the standard deterministic (i.e., risk-free) dictator game. Both pair members receive certain payoffs, those specified in the allocation $(10 - x, x)$ chosen by the dictator. In this task, increasing giving decreases (increases) the dictator's (the recipient's) sure earnings.

Task CR imposes risk only on the recipient as the dictator earns exactly what he keeps and transfers chances of winning a 10-ECU monetary prize to his passive partner. In this task, the dictator gets $10 - x$ ECUs with certainty, while the recipient faces a lottery in which she earns 10 ECUs with probability $x/10$ and 0 ECUs with probability $(10 - x)/10$. Thus by giving more, the dictator increases the recipient's chances of winning the prize.

Task RC imposes risk only on the dictator, who keeps for himself chances of winning the 10-ECU prize while transferring sure money to the recipient. Thus, while the recipient gets x ECUs with certainty, the dictator faces a lottery in which he earns 10 ECUs with probability $(10 - x)/10$ and 0 ECUs with probability $x/10$. If the dictator gives nothing (i.e., if $x = 0$), then he gets the prize for sure; the dictator's chances of winning the prize are inversely related to how much he gives.

Finally, task RR involves risk to both parties as the dictator allocates chances of winning the prize: giving zero secures the prize to the dictator; increasing x decreases (increases) the dictator's (the recipient's) chances of winning the 10-ECU prize. The dictator's and the recipient's chances of winning are independent, meaning that one, both, or none could win the prize.[6]

It is worth noting that in the three tasks that involve risk, the dictator's and/or the recipient's realized earnings can be larger or smaller than the allocation itself, but they are in expected value equal to it. This means that the risk-involving tasks coincide with the standard dictator game (task CC) in terms of expected payoffs.

In the experiment, each dictator is asked to make four decisions, one for each of the four tasks described above. To investigate whether and to what extent reducing recipient anonymity influences giving, decisions in the four allocation tasks are collected under four treatments.

(i) In the *Control treatment*, recipients are completely anonymous to the dictators, i.e., the dictators make their four decisions without knowing anything about the recipients. Anonymity is supposed to create both social distance (the dictator is emotionally remote from the recipient) and moral distance (the dictator feels less morally obliged toward the recipient).

(ii) In the *Photo treatment* we manipulate social distance: a picture of the recipient is shown to the dictator prior to decision-making.

(iii) In the *Info treatment* we manipulate moral distance: each dictator makes his decisions

[6]In a setting similar to ours, Brock et al. (2013) find no evidence that giving depends on whether the dictator's and the recipient's chances of winning are independent or mutually exclusive. Krawczyk and Le Lec (2010) report less giving in a competitive environment (that is when the dictator allocates mutually-exclusive chances of winning a prize) than in a non-competitive one, but this difference does not reach significance in a regression. We retain the non-competitive environment in all four allocation tasks.

in an easily recognizable moral context, that is, he is provided with information about the consequences of the 2008 financial crisis on the recipient's income and wealth.

(iv) In the *Photo+Info treatment* we manipulate both social and moral distance: the dictator sees a picture of the recipient and receives information about her situation.

B. Procedures

The dictators' allocation decisions were elicited in a computerized experiment, which was programmed in z-Tree (Fischbacher 2007) and conducted at the Verona Experimental Laboratory in Economics (VELE) in October and November 2019. The dictators—undergraduate students in various fields from the University of Verona (Italy)—were recruited using the ORSEE system (Greiner 2015) and had no previous experience with the tasks in question.

To allow for within-subject comparisons of the allocation decisions, dictators were exposed to all four tasks and stayed with the same randomly matched partner throughout the experiment. Each task was presented separately in a different part of the experiment. Dictators knew from the beginning that there would be four parts, but—to mitigate potential demand effects—they were initially given only the instructions for the first part. The instructions for each new part were distributed after completion of the previous part and were also read aloud in order to establish public knowledge.[7]

The order of appearance of the four tasks was kept constant in all sessions and treatments.[8] To minimize the problem of cognitive overload that (as suggested by Güth et al. 2008) may occur when one makes choices in situations involving risk for oneself and affecting another person's payoff, we gradually increased task complexity by presenting the standard dictator game (task CC) first, the task with risk only on the recipient (CR) next, then the task with risk only on the dictator (RC), and the task with risk on both parties (RR) at the end. Thus, the sequence of the tasks mirrored the order of presentation in Section A..

Upon completion of the fourth part, participants filled out a post-experimental questionnaire asking them about their (i) age, (ii) gender, (iii) field of study, and (iv) attitude to risk. The latter was measured with a non-incentivized question from the German Socio-Economic Panel asking participants to rate their willingness to take risks in general on an 11-point scale ranging from 0 (not at all willing to take risks) to 10 (very willing to take risks). Dohmen et al. (2011) have confirmed the behavioral validity of this survey risk measure by showing that it is a reliable predictor of risk-taking in an incentivized

[7] Appendix B contains a translation of the instructions for the Photo+Info treatment.

[8] In a pilot study, with 120 dictator-recipient pairs participating in the Control treatment, we randomized the order in which the tasks were presented to the participants and found no evidence of order effects on allocation decisions.

lottery experiment. To prevent wealth effects, which might result if all decisions were paid, one of the four tasks was randomly chosen for payment (participants knew about this procedure since the beginning of the session).[9] After all dictators completed the tasks, a randomly selected dictator determined the task to be paid out by drawing a ticket from an opaque bag containing four tickets numbered 1 to 4. The outcome of the draw applied to all participants. Whenever a task involving risk was selected, the corresponding lottery was played by the computer with the associated probabilities of winning defined by the dictators' choices.

The dictators received information on both their own and the recipients' earnings, which dispelled second-order uncertainty (i.e., uncertainty about the other's payoff) and allowed for ex post payoff comparisons in tasks CR and RR. Additionally, the dictators knew that their decision in the payoff-relevant task would be revealed to the recipients, hence no moral "wiggle room" was left to them to behave self-interestedly (Dana et al. 2007).

The four treatments were administered in a between-subject design (i.e., each subject participated in only one treatment). In all treatments, dictators were aware that the recipients were not in the laboratory with them and that their passive partners' experimental earnings would be paid in full the following week. To dispel any doubts that dictators may have held concerning actual payments to the recipients, dictators were informed that a guarantee of payment—signed by the executive secretary of the Department of Economics of the University of Verona—was available on the experimenter's desk.[10]

In the Control treatment, where dictators were paired with anonymous partners, recipients were recruited in Verona using ORSEE. In the three treatments reducing anonymity (namely Photo, Info, and Photo+Info), recipients were recruited in the central area of Athens (Greece) by a market research company, which was instructed to sample native Greeks, balanced between gender and age groups. Two characteristics of the Greek people make them particularly suitable for this study. First, being Southern Europeans, their facial characteristics are similar to those of Italians. Second, many people in Greece have been profoundly affected by the financial crisis and, at the end of 2019, were still suffering from its consequences due to the events of 2015 that, in the words of Dendrinou and Varvitsioti (2019, p. 15), "marked the culmination of a six-year odyssey for a country that had been blindsided by economic and political crises". Dictators did not know that the passive partners were from another country as this could have influenced the extent of social distance felt toward the recipients.

The Italian recipients came to the VELE, read the instructions, learned the payoff-

[9] Azrieli et al. (2018) prove that, when subjects are asked to make multiple decisions, paying for one randomly chosen decision is the only incentive compatible mechanism under statewise monotonicity.

[10] As Frohlich et al. (2001) point out, willingness to give may be distorted if dictators doubt that the transferred amount will be actually paid to the recipient as described in the instructions.

relevant decision of the dictator they were paired with, and collected their experimental earnings. The Greek recipients were informed, when recruited, that they would be photographed and/or asked to fill in a short questionnaire and that their photos and/or personal information would be used for scientific purposes only. They were also told that their photo and/or information would be shown to students at the University of Verona, that they would immediately receive €5.00 in cash for providing the photo and/or answering the questionnaire, and that they could earn extra money, which would be paid to them after the study in Verona was conducted. If they agreed to participate, they signed a consent form and the interviewers took a frontal facial passport-like photo of them against a neutral color background and/or handed them the questionnaire. This questionnaire (reproduced in Appendix C) included standard demographic characteristics (i.e., age and gender) and four questions about the effects of the financial crisis on (i) the recipients' standards of living, (ii) the value of their mobile and immobile property, (iii) their real income, and (iv) their–or their close relatives'–employment status. The Greek recipients were paid their experimental earnings by the same market research company that collected the data.

Empirical research in both psychology and economics has documented the existence of a beauty premium—attractive people earn more than unattractive people (e.g., Rosenblat 2008)—and that of a smile premium—people with a smiling facial expression earn more than people with a neutral facial expression (e.g., Scharlemann et al. 2001). To verify that perceived beauty was balanced between the groups of recipients participating in the treatments that manipulate social distance, dictators assigned to the Photo and Photo+Info treatments were asked, as part of the post-experimental questionnaire, to rate the attractiveness of their partners using a scale ranging from 1 (homely) to 5 (strikingly beautiful). As an additional check, a panel of eight external evaluators (four females and four males) rated, using the same 1–5 scale, the attractiveness of the recipients in the two groups.[11] Finally, we used the Noldus FaceReader software to analyze the photos and confirm that recipient facial expressions were balanced between the groups assigned to the Photo and Photo+Info treatments.[12]

Overall, 478 subjects (i.e., 239 dictator-recipient pairs) participated in the experiment. To elicit the dictators' decisions, we ran eight sessions. Two sessions (with 30 and 29 participants) were devoted to the Control treatment, and two sessions (with 30 participants per session) were devoted to each of the experimental treatments. Dictators took about 75

[11] Following Andreoni and Petrie (2008), the evaluators' instructions read: "You will be shown a series of photographs of ordinary people. For each photograph, you are asked to judge how physically attractive you think the person is."

[12] FaceReader recognizes facial expressions by distinguishing six basic emotions (happiness, sadness, anger, fear, disgust, and surprise) plus the neutral state. The software automatically classifies each facial expression according to the emotion with the highest intensity.

minutes to complete the experiment, including distribution and reading of the instructions as well as payment of earnings. Average earnings (inclusive of a €3.00 show-up fee) were €18.46 for dictators and €7.08 for recipients.

IV. Ex ante versus ex post fairness with altruism

We propose a model of other-regarding preferences in dictator games that distinguishes between ex ante and ex post notions of fairness in the presence of risky outcomes and allows for two motives for giving: inequality aversion and altruism.[13] We extend other-regarding preferences to risky situations by building on Brock et al. (2013) and Saito (2013). These authors employ the Fehr and Schmidt (1999) preference structure and are consequently silent about the effect of altruism on giving decisions. Because altruistic concerns are found to be particularly important in settings manipulating, as we do here, social and moral distance, we rely on Andreoni and Miller (2002) and Charness and Rabin (2002) to capture preferences for both equality and altruism. Based on our model, we derive qualitative predictions for our allocation tasks and experimental treatments.

Following Brock et al. (2013) and Saito (2013), we assume that the dictator is concerned with both ex ante expected payoffs and ex post realized outcomes, and let his preferences be given by

$$V(\pi_D, \pi_R) = \gamma E(U(\pi_D, \pi_R)) + (1-\gamma)U(E(\pi_D, \pi_R)), \tag{1}$$

where π_D and π_R are, respectively, the dictator's and the recipient's monetary payoffs. The term $E(U(\pi_D, \pi_R))$ denotes ex post utility, namely the expected utility of realized payoffs, and the term $U(E(\pi_D, \pi_R))$ denotes ex ante utility, namely the utility of expected payoffs. The parameter $\gamma \in [0, 1]$ reflects the dictator's degree of concern for ex post utility.

The function U is assumed to be a weighted sum of the dictator's and the recipient's payoffs, where the weight the dictator places on the recipient's payoff depends on whether the recipient receives a higher or lower payoff than himself and on the dictator's degree of altruism. Specifically, we consider the functional form

$$U(\pi_D, \pi_R) = (\beta r - \alpha s + \theta)\pi_R + (1 - \beta r + \alpha s - \theta)\pi_D, \tag{2}$$

where

$r = 1$ if $\pi_D > \pi_R$, and $r = 0$ otherwise;

$s = 1$ if $\pi_D < \pi_R$, and $s = 0$ otherwise;

[13] Although the model is presented with reference to the allocation tasks implemented in our experiment, it can be easily generalized and applied to virtually all strategic settings with two or more interacting parties.

$\alpha \geq 0$ captures aversion to disadvantageous inequality or, in Saito's (2013) terminology, "envy" when the dictator's payoff is smaller than the recipient's payoff;

$\beta \in [0, 1)$, with $\beta \leq \alpha$, captures aversion to advantageous inequality or, in Saito's (2013) terminology, "guilt" when the dictator's payoff is larger than the recipient's payoff;

$\theta \in [0, 1]$ is an altruism parameter shifting any positive α down if the recipient is ahead ($\pi_D < \pi_R$) and any positive β up if the recipient is behind ($\pi_D > \pi_R$).[14]

Another way of writing (2) is:

$$U(\pi_D, \pi_R) = \pi_D - (\alpha - \theta) \max\{0, \pi_R - \pi_D\} - (\beta + \theta) \max\{0, \pi_D - \pi_R\}. \quad (3)$$

This formulation makes it evident that the proposed utility collapses to the Fehr and Schmidt (1999) model when $\theta = 0$, whereas for $\alpha, \beta > 0$, $\theta > 0$ leads to a decrease in α, the level of envy felt by the dictator when $\pi_D < \pi_R$, and an increase in β, the level of guilt felt by the dictator when $\pi_D > \pi_R$. Assuming that the altruism parameter shifts α down or β up distinguishes our formulation of altruism from other approaches that introduce altruistic concerns into the utility function in an additively separable manner (see, e.g., Becker 1974; Stark 1993; Tan and Bolle 2006). In our framework, (i) dictators have preferences for fairness, and (ii) the higher their level of altruism, the less comfortable they feel with inequality.

A. *Optimal giving across tasks*

Table 2 summarizes the giving behavior predicted by our model in task CC for all $\gamma \in [0, 1]$, and in tasks CR, RC, and RR if dictators are concerned exclusively with either ex ante utility ($\gamma = 0$) or ex post utility ($\gamma = 1$); predictions are made for different levels of the altruism parameter θ, holding α and β constant at some positive values. The formal proofs can be found in Appendix A, where we show that there exist two thresholds, $\theta' \equiv 0.5 - \beta$ and $\theta'' \equiv 0.5 + \alpha$ (with $\theta' < \theta''$ if α and β are positive), and optimal giving depends on which region (the regions are defined by θ' and/or θ'') the altruism parameter θ lies in.

In task CC there is no risk and thus ex ante and ex post utilities are one and the same. In tasks CR, RC, and RR the expected payoffs are equal to $10 - x$ ECUs for the dictator and x ECUs for the recipient, i.e., they are identical to the payoffs in CC. Hence, the three risk-involving tasks coincide in terms of utility of expected values, and are equivalent to

[14] Our (2) is akin to the formulation of preferences proposed by Charness and Rabin (2002) but with two major changes. First, we replace their reciprocity parameter with the altruism parameter θ. Second, instead of allowing for a range of different distributional preferences, the parameters α and β capture, respectively, aversion to disadvantageous and advantageous inequality.

TABLE 2. Optimal giving in CC for all values of γ, and in CR, RC, and RR separately for just ex ante utility ($\gamma = 0$) and just ex post utility ($\gamma = 1$), depending (for fixed α and β) on the strength of altruism

	Altruism parameter $\theta \in$					
	$[0, \theta')$	$\{\theta'\}$	$(\theta', \theta' + \frac{\alpha+\beta}{2})$	$[\theta' + \frac{\alpha+\beta}{2}, \theta'')$	$\{\theta''\}$	$(\theta'', 1]$
(a) CC with $\gamma \in [0, 1]$	0	$[0, 5]$	5	5	$[5, 10]$	10
(b) CR, RC, & RR with $\gamma = 0$	0	$[0, 5]$	5	5	$[5, 10]$	10
(c) CR, RC, & RR with $\gamma = 1$	0	0	$[1, 4]$	$[5, 9]$	10	10

Note: $\theta' := 0.5 - \beta$ and $\theta'' := 0.5 + \alpha$. Assuming $0 < \beta \leq 0.5$ and $0 < \alpha \leq 0.5$, we have $\theta' \in [0, 0.5)$ and $\theta'' \in (0.5, 1]$. If $\beta > 0.5$, then $\theta' < 0$ and $\theta > \theta'$ always. If $\alpha > 0.5$, then $\theta'' > 1$ and $\theta < \theta''$ always. Additionally, $\alpha > 0$ and $\beta > 0$ entail $\theta' + \frac{\alpha+\beta}{2} < \theta''$.

CC. Giving predictions in these three tasks and CC are the same provided that dictators have a purely ex ante view of fairness. Specifically, from Table 2 we see that both in CC and in CR, RC, and RR when $\gamma = 0$ the dictators may give anything between 0 and 10 depending, ceteris paribus, on the strength of the altruism parameter. It is worth noting that dictators with preferences as in (3) may find it optimal to give more than the equal split of 5 if their value of α is less than 0.5 and their sense of altruism is sufficiently strong.[15]

If only concerns for ex post utility matter ($\gamma = 1$), it is shown in Appendix A that dictators with the hypothesized preferences are expected to give the same amount in the three risk-involving tasks, in particular optimal giving is $x_j^* = 5\frac{2(\beta+\theta)-1}{\alpha+\beta}$ for $j = \{\text{CR, RC, RR}\}$, implying that the predicted allocation decisions are those displayed in Table 2, row (c). A comparison of the table entries in rows (a) and (c) shows that positive giving requires θ to exceed θ' in CR, RC, and RR when $\gamma = 1$, whereas θ should minimally meet θ' in CC; it follows that if the dictators' value of β is lower than 0.5 (entailing $\theta' > 0$) and their sense of altruism is sufficiently weak, the frequency of zero giving should be higher in the risk-involving tasks than in CC. Additionally, while dictators in CC may optimally choose the equal split if $\theta = \theta'$, the equal split is an optimal choice in tasks CR, RC, and RR when $\gamma = 1$ only if θ exceeds θ' by the average of α and β or more (in which case any amount of giving between 5 and 9, inclusive of these values, is optimal).

B. *Optimal giving across treatments*

Previous studies have shown that both the dictators' notion of fairness and their altruistic tendencies are not static but modulated by the social and moral distance from the recipient, in the sense that the smaller these distances are, the stronger the dictators' altruistic motivation will be (see, e.g., Brañas-Garza 2006; Aguiar et al. 2008; Rachlin and Jones 2008;

[15]Such hyperfair choices, i.e., giving more than the equal split, cannot be rationalized using a standard Fehr and Schmidt (1999) utility function.

Leider et al. 2009; Bechler et al. 2015). On the basis of this evidence, we hypothesize that our experimental manipulations of social and moral distance will strengthen the dictators' sense of altruism. According to the assumed preference structure, this translates into an increase in θ, which is then more likely, ceteris paribus (i.e., for given α and β), to lie within a region where giving is optimal, or to relocate in a region where optimal giving is higher.

If the recipient were anonymous to the dictator, as it is the case in our Control treatment, then the dictator would give what he considers fair given his intrinsic level of altruism, which can be called "baseline altruism" (see Leider et al. 2009) and denoted by θ_B. Let us reasonably assume that the alleged increase in θ resulting from our experimental manipulations does not interact with the allocation task, so that the increase in θ is the same in all tasks. It can be shown that, for any $0 < \theta_B < \theta''$, the ultimate effect of higher θ values on giving decisions in the risk-involving tasks depends on the dictator's degree of concern for ex post utility.

Let us denote the level of altruism when social and/or moral distance is manipulated by θ_M. Different possibilities may arise depending on (i) the value of θ_B, and (ii) given θ_B, the extent of increase in θ, i.e., the eventual value of θ_M. Assume $\theta_B \in [0, \theta')$. From Table 2 we see that, in the Control, the dictator should give zero both in CC and the three risk-involving tasks independent of the value of γ. Turning to the experimental treatments, there are three cases of interest. First, when $\theta_M \in [\theta', \theta' + \frac{\alpha+\beta}{2})$, optimal giving in CC can arrive up to the equal split (it could become 5 the moment θ_M meets the lower threshold θ'); the same holds for the tasks that involve risk if $\gamma = 0$, whereas for these same tasks $\gamma = 1$ implies giving either 0 (if $\theta_M = \theta'$) or at most 4 (if $\theta' < \theta_M < \theta' + \frac{\alpha+\beta}{2}$)). Second, when $\theta_M \in [\theta' + \frac{\alpha+\beta}{2}, \theta'')$, optimal giving equals 5 in both CC and the risk-involving tasks if $\gamma = 0$, while it is between 5 and anything up to and inclusive of 9 in the risk-involving tasks if $\gamma = 1$. Third, when $\theta_M \in [\theta'', 1]$, the dictator should give between 5 and 10 (if $\theta_M = \theta''$) or exactly 10 (if $\theta_M > \theta''$) both in CC and the risk-involving tasks for $\gamma = 0$; optimal giving is 10 in the risk-involving tasks if $\gamma = 1$. Hence, although the reduction of recipient anonymity increases giving in all tasks, the increase could be less (first case) or more (second and third cases) pronounced in the risk-involving tasks than in CC if the dictator is concerned with ex post utility.

Assuming $\theta_B \in [\theta', \theta'')$ would not alter the above conclusion. Values of θ_B no less than θ' may make it optimal to give positive amounts in the Control, thereby reducing the number of regions where θ_M may lie in the experimental treatments. This reduces the number of interesting cases to be considered, but leaves the analysis of the remaining ones unchanged.

Based on the above considerations, we formulate the following predictions concerning changes in giving across treatments and across tasks in all treatments.

PREDICTION 1. *For any of the four tasks, zero giving is less common and the level of giving is higher in the experimental treatments than in the Control. The manipulation of social and/or moral distance increases the likelihood of equal splits and hyperfair (i.e., more than the equal split) choices.*

PREDICTION 2. *For each experimental treatment, the increase in giving (compared to the Control) may differ between CC and the tasks that involve risk if dictators put sufficient weight on ex post utility.*

We do not have a clear prediction as to which of the experimental manipulations of recipient anonymity has the largest effect on the dictators' level of altruism and thus on giving behavior. Some studies indicate that dictators give more when social distance is decreased by letting the dictator identify the recipient (Bohnet and Frey 1999), see his photo (Burnham 2003), or learn his name (Charness and Gneezy 2008). On the other hand, there is evidence that allocation decisions are affected by information that the dictator acquires about the recipient's extent of need. According to Eckel and Grossman (1996, p. 184) "fairness and altruism require context", in the sense that it is the knowledge that the recipient deserves aid that increases altruistic behavior. The importance of moral distance as a variable affecting giving in dictator games is substantiated by Brañas-Garza (2006) and Aguiar et al. (2008). Given all evidence, the issue of which experimental treatment is more effective in raising allocations is treated as an exploratory question.

The predictions in Table 2 are derived under the simplifying assumptions that (i) the dictators care only about either ex ante or ex post utility, and (ii) preferences are linear in payoffs and therefore resemble risk-neutral decisions. As to assumption (i), the analysis for $\gamma \in [0, 1]$ is somewhat more involved, but the results are overall the same and lie between the two extreme cases considered here. Concerning assumption (ii), while we note that most previous models of other-regarding preferences in risky settings assume risk neutrality (e.g., Trautmann 2009; Krawczyk 2011; Brock et al. 2013; Saito 2013), we eagerly admit that assuming different risk attitudes could change our results. For example, a risk averse dictator with concerns for ex ante utility ($\gamma = 0$) would evaluate the certainty equivalent to the recipient in task CR below the expected value. If he is interested in equalizing ex ante chances by equating certainty equivalents, he may give more in CR than in CC. Yet, if the dictator feels that a 1/10 probability of earning 10 ECUs is less valuable than getting 1 ECU with certainty, he may give less in CR than in CC because keeping the ECUs is more efficient. Applying the same line of reasoning to the tasks involving risk to the dictator, fewer dictators should give in RC and RR relative to CR and CC as dictators trade off their own certainty equivalent against the recipient's certainty equivalent. Hence,

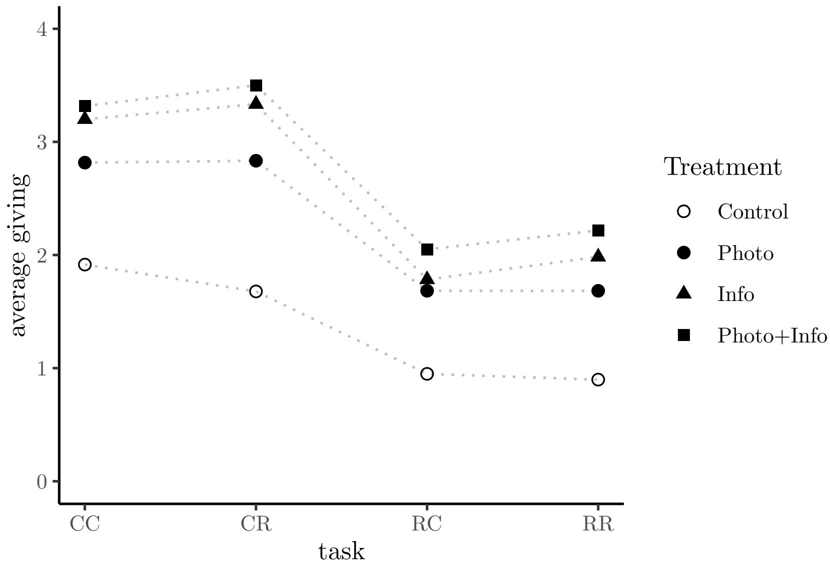

FIGURE 1. Average giving per task in each treatment

evaluating the effect of risk aversion on giving is not straightforward and crucially depends on how risk aversion is conceptualized.[16]

Although the assumption of a concave utility function may have a bearing on the analysis, we remind the reader that our theoretical model serves the purpose of illustrating in a simple but formal way how reducing the anonymity of the recipient may lead to higher giving in the experimental treatments than in the Control. Additionally, since we are primarily interested in treatment comparisons, insofar as dictators do not differ significantly in risk attitudes across the four treatments (as we observe in the data), the potential effect of risk aversion on giving should be the same in all treatments.

V. Experimental results

In Appendix D we verify that the random assignment of participants to treatments has been effective. In what follows we describe the data and investigate Predictions 1 and 2.

A. Descriptive and nonparametric analyses

Figure 1 shows that, for each task, average giving increases with decreasing social and moral distance (mean and standard deviation values are reported in Table 3). Providing the dictators with information on the recipients seems to be, on average, more effective than showing them photos.

The mean values observed in the Control treatment are consistent with earlier findings

[16]For a discussion on this point, see Krawczyk and Le Lec (2016) and the reply by Brock et al. (2016).

TABLE 3. Descriptive statistics of giving choices in each task of each treatment

	Control	Photo	Info	Photo+Info
CC	1.915	2.817	3.200	3.317
	(1.764)	(2.151)	(2.015)	(2.175)
CR	1.678	2.833	3.333	3.500
	(1.824)	(2.286)	(2.405)	(2.494)
RC	0.949	1.683	1.783	2.050
	(1.455)	(2.013)	(1.958)	(2.119)
RR	0.898	1.683	1.983	2.217
	(1.373)	(2.004)	(2.205)	(2.263)

Note: Standard deviations are reported in parentheses.

(Krawczyk and Le Lec 2010; Brock et al. 2013; Cettolin et al. 2017; Freundt and Lange 2017). Similarly to Brock et al. (2013), under the Control, average giving is smaller in CR than in CC, however the difference is not significant (Wilcoxon signed rank test, p-value = 0.18).[17] In all treatments, dictators tend to give less when their own payoffs are risky (tasks RC and RR) rather than certain (tasks CC and CR). In the experimental treatments, the drop in giving when the dictators' payoffs are risky is not counterbalanced by the alleged increase in giving consequent to the reduction in social or moral distance. The exact numerical values of the between-task differences in average giving are reported in Table 4 (e.g., in the Control treatment, average giving in CR minus average giving in CC equals -0.237). For each treatment, we perform pairwise comparisons of the distributions of giving in the four tasks. On the basis of Wilcoxon signed rank tests, we detect, in all treatments, no location shift different from zero in the case of CC vs CR and RC vs RR, whereas the remaining four comparisons indicate significant differences (all p-values < 0.01).

B. *Treatment effects on giving*

Figure 2 depicts, separately for each treatment and each task, the frequencies for the variable x. The data on giving, a count response variable, exhibit (especially in RC and RR) more zero observations than would be allowed for by either the Poisson or the negative binomial distribution. In what follows, we assess treatment effects on giving decisions by means of two-component models: a binomial hurdle component estimates the probability of a nonzero count and a truncated count component is used for the positive counts (we treat the data as absence/presence of giving and analyze the level of the presence data with a count model). This two-step estimation procedure allows us to separately examine

[17]Unless otherwise stated, all statistical tests are two-sided.

TABLE 4. Between-task differences in average giving in each treatment

		CR	RC	RR
Control	CC	−0.237	−0.966**	−1.017**
	CR		−0.729**	−0.780**
	RC			−0.051
Photo	CC	0.017	−1.133**	−1.133**
	CR		−1.150**	−1.150**
	RC			0.000
Info	CC	0.133	−1.417**	−1.217**
	CR		−1.550**	−1.350**
	RC			0.200
Photo+Info	CC	0.183	−1.267**	−1.100**
	CR		−1.450**	−1.283**
	RC			0.167

Note: Differences in average giving between the column task and the row task. ** p-value < 0.01, Wilcoxon signed rank test.

the behavior of zero and positive-amount givers. The set of explanatory variables includes three experimental treatment indicator variables, the dictators' age (centered at zero to aid in the interpretation of the results), their gender (female = 1, male = 0), a field of study categorical variable (economics = 1, other = 0), and the dictators' attitude to risk (treated as a quantitative variable). The estimation results are presented in Table 5 (the reference group is the group of participants allocated to the Control treatment). For each task, we decide between a hurdle Poisson and a hurdle negative binomial regression on the basis of the likelihood ratio tests (LRTs) displayed at the lower part of the table. Vuong non-nested tests (and comparisons on the basis of AIC, not reported for brevity) provide evidence in favor of the hurdle models over their ordinary Poisson or negative-binomial analogs. We also tested (using LRTs) for the inclusion of interaction terms; the results are not reported as none of the interaction terms contributes significantly to the explanatory power of the models.

There is strong evidence that the treatment dummies are important to include in the models (applying the LRT, $\mathcal{X}_6^2 = 23.21$ in CC, 32.58 in CR, 18.86 in RC, and 22.37 in RR; all p-values < 0.01). In the binary component of the models, the coefficients for Info and Photo+Info are always significant at conventional levels (the coefficient for Photo is significant in two out of four regressions)[18] and similar in magnitude (not significantly different). These results confirm that it is the provision of the recipients' information,

[18]Photo in RR, with a p-value equal to 0.0505, is marginally insignificant.

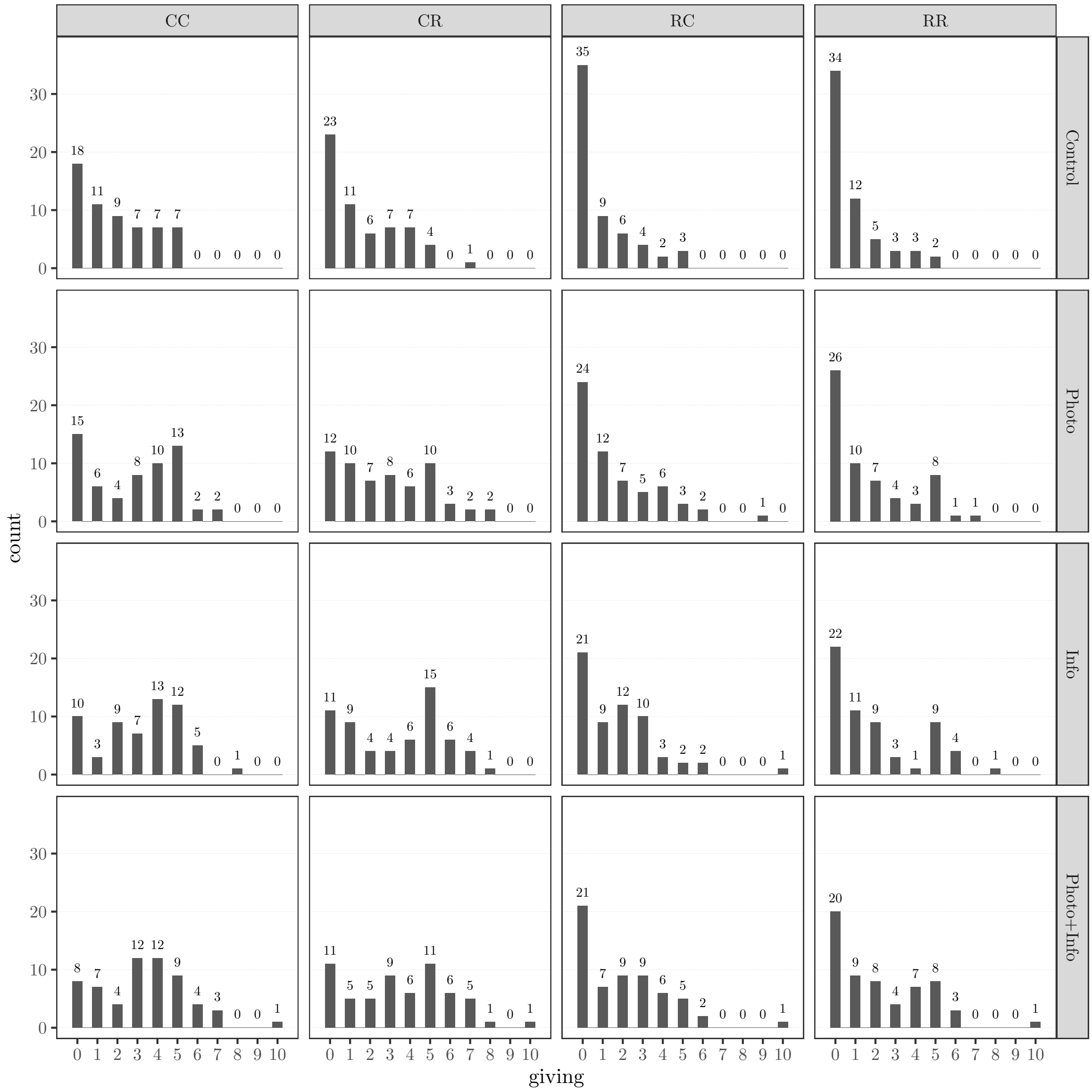

FIGURE 2. Histograms of allocation choices by treatment and task

rather than their photos, that affects the most the probability of non-selfish behavior.[19] In the tasks that impose risk on the participants (especially risk on the dictator), the higher the dictators' willingness to take risks, the more probable a positive allocation.[20] The remaining coefficients are not systematically significant.

In the positive count component of the models, the positive sign of the coefficients of

[19]The largest (in absolute value) coefficient is that of the Info dummy in the CR binomial regression; providing the dictators with information (while holding the other explanatory variables constant) increases the estimated odds of a positive allocation by $e^{1.338} = 3.81$ times.

[20]The interaction terms between the three treatment dummies and the risk attitude variable (omitted from Table 5 for the sake of brevity) are clearly not statistically significant: $\mathcal{X}_6^2 = 4.13$ in CC, 3.36 in CR, 3.43 in RC, and 2.74 in RR, with LRT p-values equal to 0.66, 0.73, 0.75, and 0.84, respectively.

TABLE 5. Hurdle models on giving in each task

	CC	CR	RC	RR
	Binary component (logit($x > 0$))			
Intercept	0.703	−0.095	−1.464**	−1.093*
	(0.526)	(0.505)	(0.490)	(0.475)
Photo	0.351	1.114*	0.977*	0.765
	(0.427)	(0.441)	(0.398)	(0.391)
Info	1.018*	1.338**	1.225**	1.068**
	(0.473)	(0.460)	(0.408)	(0.402)
Photo+Info	1.175*	1.260**	1.271**	1.247**
	(0.493)	(0.453)	(0.406)	(0.405)
Age	−0.171*	−0.131	0.000	−0.013
	(0.069)	(0.067)	(0.065)	(0.062)
Gender	0.082	0.342	0.183	0.464
	(0.343)	(0.335)	(0.294)	(0.293)
Econ	−0.677	−0.700*	−0.245	−0.590*
	(0.349)	(0.340)	(0.292)	(0.290)
Risk	0.100	0.160*	0.232**	0.172**
	(0.064)	(0.064)	(0.057)	(0.055)
	Positive count component			
Intercept	0.820**	0.778**	0.330	−0.068
	(0.160)	(0.169)	(0.304)	(0.328)
Photo	0.410**	0.345*	0.357	0.604*
	(0.135)	(0.142)	(0.239)	(0.253)
Info	0.446**	0.503**	0.374	0.673**
	(0.134)	(0.139)	(0.241)	(0.249)
Photo+Info	0.430**	0.556**	0.538*	0.760**
	(0.132)	(0.137)	(0.233)	(0.245)
Age	−0.014	0.002	−0.016	0.002
	(0.020)	(0.018)	(0.030)	(0.030)
Gender	0.042	0.110	−0.125	0.051
	(0.090)	(0.088)	(0.152)	(0.153)
Econ	−0.169	−0.117	−0.131	−0.058
	(0.090)	(0.088)	(0.153)	(0.151)
Risk	0.029	0.025	0.067*	0.091**
	(0.017)	(0.017)	(0.033)	(0.034)
LRT $\mathcal{X}_1^2$	0.000	0.419	5.852*	6.861**
Vuong z-statistic	3.971**	4.387**	2.263**	2.027**

Note: * p-value < 0.05, ** p-value < 0.01. A zero-truncated Poisson (negative binomial) distribution is used for CC and CR (RC and RR). $N = 239$ in all regressions.

the treatment dummies implies that if we reduce social and/or moral distance, then giving increases. The coefficients for the Photo+Info dummy are consistently significant. The coefficients for the Photo and the Info dummies are significant, except when the dictators are the sole bearers of risk (task RC). Among the remaining variables, risk attitude is significant when the task entails risk for the dictator.

To sum up, in risky settings, the reduction in social distance, and, even more, the reduction in moral distance, diminishes significantly the probability of selfish behavior. When the dictators' payoffs are certain, or when both dictators and recipients are faced with risk, then the reduction in social and/or moral distance is associated with significantly higher levels of giving. Even when the dictator is the sole bearer of risk, giving increases significantly following a joint reduction in social and moral distance. The estimation results of Table 5, especially on the Photo+Info indicator variable, provide clear support for the first part of Prediction 1.

The second part of Prediction 1 states that the reduction in social and/or moral distance increases the likelihood of choosing the equal split and more than the equal split. In line with this prediction, we find that, averaging over all four tasks, 6.78% of the dictators select the equal split in the Control treatment and this percentage more than doubles in the experimental treatments (it ranges from 13.75% in Photo+Info to 15.83% in Info). As to hyperfair choices, and averaging as above, while 0.42% of the dictators give more than the equal split in the Control treatment, this percentage rises to 6.67%, 10.42%, and 11.67% in treatments Photo, Info, and Photo+Info, respectively.

To understand what drives participants to give 5, we use a mixed effects logistic model on the dictators' choices for the different tasks and treatments. From the estimation results, shown in the first column of Table 6 (the reference is task CC in the Control), it is clear that the reduction in social and/or moral distance significantly increases the odds of an equal split. On the other hand, the odds of an equal split are significantly smaller in the tasks entailing risk for the dictators.[21]

We draw similar conclusions from the binary model on hyperfair choices in the second column of Table 6. For this regression model we use just the experimental treatments (only one choice in the Control treatment, in particular in task CR, exceeds five) and select the Photo+Info treatment as the reference one ($\mathcal{X}_6^2 = 5.32$, p-value $= 0.50$, LRT on the interaction terms between task and treatment variables). When dictators have access to photos of and information on the recipients, imposing risk on the dictators (just on the recipients) significantly decreases (increases) the odds of giving more than the equal split. In addition, limiting access to photos or information (instead of having access to both) has a negative, albeit insignificant, effect on the likelihood of making hyperfair offers.[22] In

[21]The interaction terms between the task and treatment dummies are not reported as they are not significant ($\mathcal{X}_9^2 = 9.56$, LRT p-value $= 0.39$).

[22]Recipient characteristics have limited explanatory power for the dependent variable. For example, in the subsample consisting of participants in the Photo and Photo+Info treatments, recipient attractiveness has a positive (though not statistically significant) effect on the likelihood of making hyperfair offers.

TABLE 6. Logistic mixed effects models on equal split and hyperfair choices

	logit($x = 5$)	logit($x > 5$)
Intercept	−5.308**	−7.883**
	(1.002)	(1.746)
CR	−0.050	1.673**
	(0.315)	(0.580)
RC	−1.987**	−1.690*
	(0.434)	(0.656)
RR	−0.795*	−1.232*
	(0.346)	(0.615)
Photo	1.556*	−0.819
	(0.690)	(1.102)
Info	1.744*	−0.078
	(0.693)	(1.049)
Photo+Info	1.398*	
	(0.691)	
Age	−0.003	−0.166
	(0.105)	(0.220)
Gender	0.846	0.010
	(0.493)	(0.990)
Econ	−0.328	−0.733
	(0.482)	(1.001)
Risk	0.161	0.211
	(0.093)	(0.184)

Note: * p-value < 0.05, ** p-value < 0.01. $N = 956$ (239 groups) in the first model, $N = 720$ (180 groups) in the second. Nonparametric dispersion test p-values: 0.65 and 0.21.

terms of our model, the higher frequency of equal split and more than equal split choices in the experimental treatments suggests that our manipulations of social and moral distance strengthen the dictators' level of altruism, lending support to the second part of Prediction 1.

C. Between-task giving disparities across treatments

We are interested in whether, and how, differences in giving between CC and each of the three risk-involving tasks vary across treatments. To this aim, we estimate a hurdle mixed effects model on giving—task dummies, as well as their interactions with the treatment dummies, are added to the set of explanatory variables.[23] The results are reported in

[23]For this particular estimation we use a generalized Poisson distribution that has been found useful in fitting over/underdispersed count data (Consul and Famoye 1992). On the basis of a nonparametric simulation-based test, the observed data are not more/less dispersed than expected under the fitted model

TABLE 7. Hurdle mixed effects model on giving

	Binary component (logit($x > 0$))	Positive count component
Intercept	0.129	0.644**
	(1.229)	(0.150)
Photo	2.140	0.379**
	(1.253)	(0.133)
Info	3.360**	0.448**
	(1.289)	(0.132)
Photo+Info	4.434**	0.436**
	(1.392)	(0.130)
Age	−0.252	−0.013
	(0.164)	(0.018)
Gender	0.823	0.041
	(0.726)	(0.082)
Econ	−1.697*	−0.124
	(0.750)	(0.082)
Risk	0.523**	0.042**
	(0.143)	(0.016)
CR	−0.991	−0.070
	(0.643)	(0.096)
CR×Photo	1.851	0.051
	(1.003)	(0.121)
CR×Info	0.677	0.153
	(1.019)	(0.118)
CR×Photo+Info	−0.080	0.182
	(1.073)	(0.118)
RC	−3.155**	−0.347**
	(0.705)	(0.119)
RC×Photo	0.966	0.017
	(1.013)	(0.147)
RC×Info	0.462	−0.067
	(1.037)	(0.145)
RC×Photo+Info	−0.545	0.034
	(1.134)	(0.143)
RR	−2.973**	−0.424**
	(0.696)	(0.120)
RR×Photo	0.376	0.106
	(1.016)	(0.148)
RR×Info	0.088	0.199
	(1.035)	(0.145)
RR×Photo+Info	−0.524	0.207
	(1.127)	(0.143)

Note: * p-value < 0.05, ** p-value < 0.01. $N = 956$ (239 groups).

(p-value $= 0.34$, instead p-value < 0.01 when we use the ordinary Poisson distribution). In addition, compared to using the ordinary Poisson distribution, the overall fit of the model is improved (AIC = 3108.3 instead of 3185.2). The hurdle negative binomial model does not converge.

Table 7 (the reference group is the group of dictators allocated to the Control treatment and deciding in CC). As in the individual-task model estimations, the probability of a positive allocation is significantly larger in the Info and Photo+Info treatments. In addition, in all experimental treatments, those that give, give significantly more. Attitude to risk is significant in both components of the model.

What matters most for our purposes here is that the coefficients of the added interaction terms are not significant ($\mathcal{X}^2_{18} = 12.3$, p-value $= 0.83$; LRT), meaning that the observed between-task differences in giving do not significantly vary across treatments.[24] In terms of Prediction 2, this implies that dictators are not driven by purely ex post fairness concerns.

To aid in the comparison of the aforementioned differences, we plot in Figure 3 the positive count component's predictions on x in each treatment, conditioned on task. Our subsample consists of the average-aged female dictators that study economics (risk is set equal to its median value, namely four), but the analysis is similar for the other categories of dictators.[25] In the Control and Photo treatments, the differences in the predicted average amount of giving between (i) the CC and CR tasks, and (ii) the RC and RR tasks are rather small. In the Info and Photo+Info treatments, the predicted average amount of giving is larger in CR than in CC and in RR than in RC. Thus, once we create a moral context in which positive-amount givers may act, independently of whether their payoffs are certain or risky, exposing the recipients to risk actually increases average giving (albeit not much).

In general, and similarly to Table 4, the difference between the CR and CC predicted average amounts of giving is inversely related to social and moral distance, and positive in value in the Info and Photo+Info treatments. Instead, the differences between (i) the RC and CC, and (ii) the RR and CC predicted average amounts of giving are always negative and do not seem to follow a clear trend. Even in the experimental treatments where moral distance is reduced, the dictators are primarily affected by their own exposure to risk.

VI. Conclusions

Using variations of the standard dictator game and experimentally manipulating subject-subject anonymity by decreasing the social and/or moral distance between the dictator and the recipient, we show that a reduction in anonymity affects dictator giving not only in a risk-free allocation task (which is commonly observed in the literature), but also in allocation tasks that involve risk for the decision-maker and/or the recipient. We deemed

[24] If, for example, a lower moral distance was sufficient to prevent the decline in the average level of giving observed in RC and RR, then the coefficients for RC×Info and RR×Info would have been significantly positive in both components of the model.

[25] The vertical bars represent 95% confidence intervals for the predicted average count, the standard errors do not account for the uncertainty of the random effects.

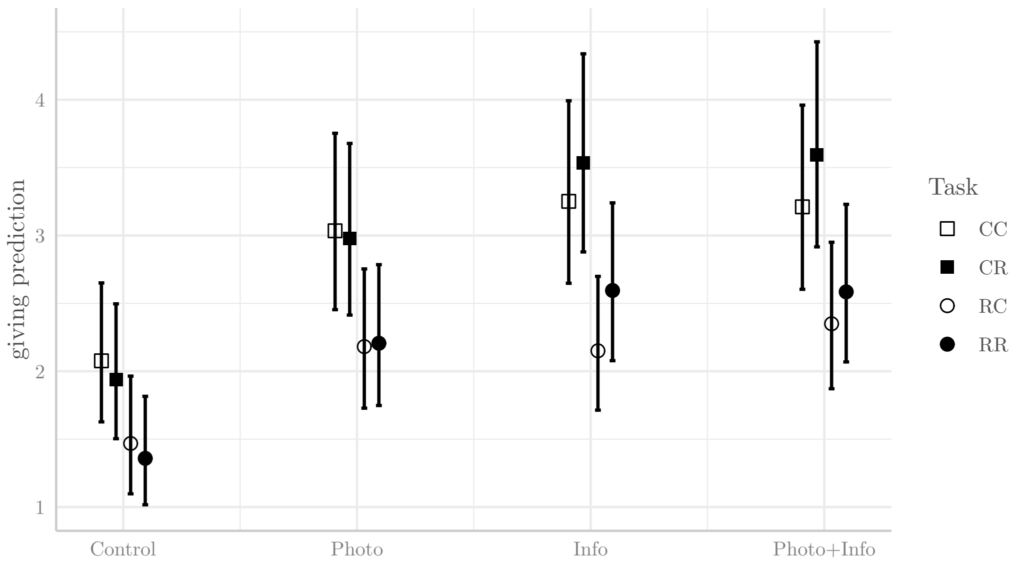

FIGURE 3. The mixed effects positive count component's predictions on the giving behavior of a sample of representative dictators

important to investigate this issue because socially desirable behavior is frequently subject to risk and occurs in situations where the recipient is not anonymous to the decision-maker. However, with a few exceptions, the literature on other-regarding preferences has been largely silent on how lowering recipient anonymity affects decision-making under risk.

On the one hand, studying other-regarding preferences in risky settings makes it important to distinguish between ex ante and ex post notions of fairness (e.g., Krawczyk and Le Lec 2010; Brock et al. 2013; Saito 2013; Cettolin et al. 2017). On the other hand, relaxing subject-subject anonymity calls for altruism as an important motive for giving (e.g., Eckel and Grossman 1996; Burnham 2003; Brañas-Garza 2006; Leider et al. 2009). We therefore propose a model allowing not only for inequality aversion and ex ante and ex post views of fairness, but also for altruism. The model, even if simple, describes the data well. Indeed, it predicts, and our regression analyses confirm, that in all allocation tasks—the risk-free and the risk-involving ones—lowering anonymity (i) decreases the likelihood of selfish behavior, (ii) increases the giving of the positive-amount givers, and (iii) makes significantly more likely the possibility of an equal split. Most importantly, the model rationalizes the observed increase in hyperfair choices (giving more than the equal split occurs more frequently when social distance is reduced in tandem with moral distance).

Manipulating anonymity affects giving across tasks differently. Our mixed effects regression results indicate that, in each treatment, giving differs between the risk-free and the risk-involving tasks, which suggests that dictators do not just compare expected payoffs and consequently do not have a purely ex ante view of fairness. Moreover, dictators are found, independent of the treatment, to give up less of their endowment when they themselves rather than the recipients are exposed to risk, which implies that dictators are not motivated by purely ex post fairness concerns either. Thus, we confirm previous findings that giving behavior in risky settings is the result of a combination of ex ante and ex post fairness concerns.

We did not have an a priori hypothesis about which manipulation of recipient anonymity would be more effective. Our results indicate that the key variable that affects giving is the information that dictators have about recipients, even though the largest effect is found when both social and moral distance are reduced jointly. Hence, our experimental data support the view that letting dictators make decisions in an easily recognizable moral context enhances fairness and altruism (Eckel and Grossman 1996; Brañas-Garza 2006; Aguiar et al. 2008). Notwithstanding the relatively poor performance of the treatment manipulating only social distance, seeing a photo of the recipient increases giving significantly as compared to the Control, except when the dictators are the sole bearers of risk. Such a finding stands in contrast with that reported by Güth et al. (2011), but also corroborates their claim that they could not detect any effect of social distance in risky settings because of the cognitively demanding elicitation mechanism that they used.

In the treatments manipulating anonymity, the observed reduction in giving when the dictators' payoffs are risky may be due to lower levels of what we call "manipulated" altruism in the presence of risk or, alternatively, it could be driven by risk aversion (or a combination of the two). Our experiment was not designed to disentangle between these competing explanations, but rather to provide comparisons between treatments so as to assess the role of lower recipient anonymity in the various allocation tasks. Since the dictators' elicited risk attitudes do not significantly differ across treatments, we believe to have achieved our main goal. Examining how other-regarding and risk preferences theoretically predict decision-making under risk when anonymity is reduced offers a fruitful avenue for future research. Additionally, in our experiment, the dictators can distribute risk (i.e., known probabilities) ex ante. Often, however, probabilities are not well-known, generating ambiguity. It could be of interest to investigate whether the findings garnered here generalize to ambiguous situations.

Finally, our results could be useful to organizations interested in promoting pro-social behavior in risky situations. They emphasize that, in the presence of risky outcomes for the decision-maker and/or the passive other, campaigns work best when they, at a minimum, create a moral context for the decision-makers.

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Appendix A: Optimal Giving when the Dictator is Inequality Averse and Altruist

In this appendix, we illustrate the predictions of our model in terms of giving decisions in the four experimental tasks. The model extends (1), the linear combination of ex ante and ex post fairness discussed in Brock et al. (2013) and Saito (2013). Specifically, in (2), or equivalently (3), we assume that dictators are motivated by both inequality aversion and altruism.

Task CC

PROPOSITION A.1: In the standard dictator game, task CC, the optimal choice x^*_{CC} depends, ceteris paribus, on which region the altruism parameter θ lies in, with the various regions defined by the parameters α and β.

PROOF: In CC, ex ante utility equals ex post utility. Recalling that the payoffs are $\pi_D = 10 - x$ and $\pi_R = x$, with $x \in [0, 10]$, we have

$$E(U(\pi_D, \pi_R)) = U(E(\pi_D, \pi_R)) =$$
$$V(\pi_D, \pi_R) = \begin{cases} 10 - x - (\beta + \theta)(10 - 2x) & \text{if } \ x \in [0, 5], \\ 10 - x - (\alpha - \theta)(2x - 10) & \text{if } \ x \in [5, 10]. \end{cases}$$

Taking the first derivative of $V(\pi_D, \pi_R)$ with respect to x we get

$$\frac{\partial V(\pi_D, \pi_R)}{\partial x} = \begin{cases} -1 + 2(\beta + \theta) & \text{if } \ x \in [0, 5], \\ -1 - 2(\alpha - \theta) & \text{if } \ x \in [5, 10]. \end{cases}$$

The sign of this derivative depends on whether $(\beta+\theta)$ and $(\alpha-\theta)$ are $\gtreqless 0.5$, or, equivalently, on how the altruism parameter θ compares to $0.5-\beta$ and $0.5+\alpha$.[26] Let us define $\theta' := 0.5-\beta$ and $\theta'' := 0.5 + \alpha$. Assuming that both β and α are positive, so that $\theta' < \theta''$, the optimal

[26] Note that if $\theta = 0$ no dictator should choose $x^*_{CC} > 5$ and the optimal allocation depends on whether $\beta \gtreqless 0.5$ (a result known from Fehr and Schmidt 1999).

allocation in CC depends on θ as follows:

$$x^*_{CC} \in \begin{cases} \{0\} & \text{if } 0 \leq \theta < \theta' < \theta'', \\ [0,5] & \text{if } 0 \leq \theta = \theta' < \theta'', \\ \{5\} & \text{if } \theta' < \theta < \theta'', \\ [5,10] & \text{if } \theta = \theta'', \\ \{10\} & \text{if } \theta > \theta''. \end{cases}$$

If the altruism parameter θ is small and lies below the lower threshold θ' (defined by β), the optimal allocation is zero. If θ equals θ', the dictator should allocate anything between 0 and 5, the equal split. If θ exceeds θ', the optimal allocation depends on whether θ is smaller than, equal to, or greater than the upper threshold θ'' (defined by α). If θ lies between θ' and θ'', the optimal choice is the equal split. If θ equals θ'', the dictator may give any amount between 5 and 10. Finally, the dictator should give everything to the recipient if θ exceeds θ''. Hence, given α and β, and therefore the thresholds θ' and θ'', the altruism parameter θ determines giving behavior in task CC. ■

Note that, under the assumption $\theta \in [0,1]$, $\theta < \theta'$ holds only if $\beta < 0.5$, which is usually observed (e.g., Fehr and Schmidt 1999). If $\beta \geq 0.5$, then $\theta' \leq 0$ and $\theta \geq \theta'$ will always be true. Likewise, $\theta > \theta''$ can occur only if $\alpha < 0.5$. If $\alpha \geq 0.5$, then $\theta'' \geq 1$ and $\theta \leq \theta''$ will always be true.

Just ex ante utility in tasks CR, RC, and RR

PROPOSITION A.2: If the dictator cares only about the expected payoffs, i.e., if $\gamma = 0$ *in* (1)*, then the results in tasks CR, RC, and RR coincide with those in CC.*

PROOF: Suppose $\gamma = 0$ in (1). Then

$$V(\pi_D, \pi_R) = U(E(\pi_D, \pi_R)).$$

Since in tasks CR, RC, and RR the ex ante expected values are $10 - x$ for the dictator and x for the recipient, from the proof for optimal giving in task CC we have that optimal giving x^*_j in task j, with $j = \{\text{CR, RC, RR}\}$, equals x^*_{CC}. ■

Just ex post utility in tasks CR, RC, and RR

PROPOSITION A.3: If the dictator cares only about ex post utility, i.e., if $\gamma = 1$ *in* (1)*, then optimal giving in tasks CR, RC, and RR depends, ceteris paribus, on the region in* *which the altruism parameter θ lies in. If $\beta < 0.5$, the region for optimal positive giving shrinks compared to that in CC. If $\theta < 0.5$, the equal split of 5 and hyperfair choices of more than the equal split cannot be optimal.*

PROOF: Suppose $\gamma = 1$ in (1). Then

$$V(\pi_D, \pi_R) = E(U(\pi_D, \pi_R)).$$

Optimal giving in CR In task CR, the dictator's payoff is always $10 - x$, while the recipient's payoff can be either 10 with probability $\frac{x}{10}$ or 0 with probability $\frac{10-x}{10}$. Hence, the dictator's utility is given by:

$$V(\pi_D, \pi_R) = E(U(\pi_D, \pi_R)) = \frac{10 - x}{10} U(10 - x, 0) + \frac{x}{10} U(10 - x, 10),$$

which using (3) can be written as:

$$\begin{aligned} E(U(\pi_D, \pi_R)) &= 10 - x - \frac{10 - x}{10} (\beta + \theta) (10 - x - 0) \\ &\qquad - \frac{x}{10} (\alpha - \theta) (10 - 10 + x) \\ &= 10 - x - \frac{(10 - x)^2}{10} (\beta + \theta) - \frac{x^2}{10} (\alpha - \theta). \end{aligned}$$

Differentiating with respect to x yields

$$\frac{\partial E(U(\pi_D, \pi_R))}{\partial x} = -1 + (\beta + \theta) \frac{(10 - x)}{5} - (\alpha - \theta) \frac{x}{5}.$$

Setting the derivative equal to zero we find that optimal giving in CR is

$$x^*_{CR} = 5 \frac{2(\beta + \theta) - 1}{\alpha + \beta}.$$

If $\alpha, \beta > 0$, then $\alpha + \beta > 0$. Hence, $x^*_{CR} > 0$ holds if and only if $2(\beta + \theta) - 1 > 0$ or, equivalently, $\theta > 0.5 - \beta := \theta'$. If $\beta < 0.5$, implying $\theta' > 0$, the condition for positive giving is more stringent in CR than in CC as θ must exceed θ' in order for x^*_{CR} to be positive.

Additionally, $x^*_{CR} \geq 5$ if and only if $2(\beta + \theta) - 1 \geq \alpha + \beta$ implying $\beta \geq \alpha + 1 - 2\theta$, which due to $\beta < \alpha$ can be satisfied only if $1 - 2\theta < 0$ or, equivalently, $\theta > 0.5$. In particular, from $2(\beta + \theta) - 1 \geq \alpha + \beta$, we obtain $\theta \geq 0.5 + (\alpha - \beta)/2$, which is equivalent to $\theta > \theta' + (\alpha + \beta)/2$.

Finally, $x^*_{CR} = 10$ if θ equals the upper threshold θ''.[27] Thus, in CR like in CC, optimal

[27] From $5 \frac{2(\beta+\theta)-1}{\alpha+\beta} = 10$, we have $2(\beta + \theta) - 1 = 2(\alpha + \beta) \Rightarrow \beta + \theta = 0.5 + (\alpha + \beta) \Rightarrow \theta = 0.5 + \alpha := \theta''$.

giving depends on the region where θ lies as follows:

$$x^*_{CR} \in \begin{cases} \{0\} & \text{if } 0 \leq \theta \leq \theta', \\ [1,4] & \text{if } \theta' < \theta < \theta' + \frac{\alpha+\beta}{2}, \\ [5,9] & \text{if } \theta' + \frac{\alpha+\beta}{2} \leq \theta < \theta'', \\ 10 & \text{if } \theta'' \leq \theta \leq 1. \end{cases}$$

Note that while x^*_{CR} increases with θ and decreases with α, the effect of β on x^*_{CR} is ambiguous and depends on whether θ is smaller or greater than the upper threshold θ''. Specifically, $\frac{\partial(x^*_{CR})}{\partial\beta} > 0$ if and only if $\theta < \theta''$.[28]

Optimal giving in RC In task RC, the recipient's payoff is always x, while the dictator's payoff can be either 10 with probability $\frac{10-x}{10}$ or 0 with probability $\frac{x}{10}$. The ex post formulation of preferences imply

$$V(\pi_D, \pi_R) = E(U(\pi_D, \pi_R)) = \frac{10-x}{10}U(10,x) + \frac{x}{10}U(0,x),$$

which, using (3), is

$$\begin{aligned} E(U(\pi_D, \pi_R)) &= 10 - x - \frac{10-x}{10}(\beta+\theta)(10-x) - \frac{x}{10}(\alpha-\theta)x \\ &= 10 - x - \frac{(10-x)^2}{10}(\beta+\theta) - \frac{x^2}{10}(\alpha-\theta). \end{aligned}$$

This is the same as in CR, and thus the results coincide.

Optimal giving in RR In task RR, one of the players, both players, or neither of them has a payoff of 10, so the dictator's expected utility is

$$\begin{aligned} E(U(\pi_D, \pi_R)) = \left(\frac{10-x}{10}\right)^2 U(10,0) + \left(\frac{x}{10}\right)^2 U(0,10) \\ + \frac{10-x}{10}\frac{x}{10}U(10,10) + \frac{10-x}{10}\frac{x}{10}U(0,0). \end{aligned}$$

[28] Differentiating x^*_{CR} with respect to β yields $5\frac{2(\alpha+\beta)-2(\beta+\theta)+1}{(\alpha+\beta)^2}$, which is positive if $2(\alpha+\beta)-2(\beta+\theta)+1>0$ implying $2\alpha-2\theta+1>0$ or $\theta < \alpha+0.5 := \theta''$.

With the functional form given in (3), this is:

$$
\begin{aligned}
E\left(U(\pi_D,\pi_R)\right) &= \left(\frac{10-x}{10}\right)^2 (10-(\beta+\theta)10) \\
&\qquad + \left(\frac{x}{10}\right)^2 (0-(\alpha-\theta)10) + \frac{10-x}{10}\frac{x}{10}10 \\
&= \frac{(10-x)^2}{10}(1-\beta-\theta) + \frac{x^2}{10}(\theta-\alpha) + \frac{10-x}{10}x.
\end{aligned}
$$

The derivative with respect to x is given by

$$
\begin{aligned}
\frac{\partial E(U(\pi_D,\pi_R))}{\partial x} &= -\frac{10-x}{5} + \frac{\beta+\theta}{5}(10-x) - \frac{\alpha-\theta}{5}x - \frac{x}{10} + \frac{10-x}{10} \\
&= -1 + (\beta+\theta)\frac{10-x}{5} - (\alpha-\theta)\frac{x}{5},
\end{aligned}
$$

which coincides with the derivative in task CR, and thus the same predictions hold. ■

Appendix B: Experimental Instructions

This appendix provides a translation of the instructions used for the dictators and the recipients in the Photo+Info treatment. The instructions for the other treatments were adapted accordingly and are available upon request.

Instructions for Dictators (originally in Italian)

Welcome! You are about to participate in an experiment funded by the Department of Economics of the University of Verona. Please switch off your mobile and remain silent. It is strictly forbidden to talk to the other participants. Raise your hand whenever you have a question and one of the experimenters will come to your aid.

You will receive €3.00 for showing up on time and, beyond this, you can earn more money. Read these instructions carefully to understand how your decisions affect your earnings. All the decisions you make and information you provide will be treated as confidential, that is your name will not be in any way associated with the data collected in the experiment.

During the experiment, we shall not speak of euros but of ECU (Experimental Currency Unit). ECU are converted to euros at the following exchange rate: 1 ECU = €2.

The experiment consists of four parts. You will find the instructions for the first part on the following pages. You will get the instructions for the second, third and fourth part after all participants have completed the first, second and third part, respectively.

In each individual part of the experiment you will have the opportunity to earn money. Your final payoff will be determined by your earnings in only one of these four parts, but neither you nor we know in advance which part will be used.

At the end of the experiment (i.e., after part 4 is over), one experimenter will select one participant by drawing one card from a deck that contains as many cards as the number of participants. This participant will in his/her turn select one of the four parts of the experiment by drawing a ticket from a bag containing four tickets numbered 1 to 4. Each part will therefore have an equal chance of being selected for payment. The outcome of the draw will apply to all the participants. The experimental earnings that correspond to the randomly selected part will be converted to euros and paid out in cash (along with the €3.00 show-up fee). Payments will be carried out privately, i.e., the others will not be aware of your earnings.

Instructions for Part 1

In part 1 of the experiment, you will be paired with another person, who is not in the lab with you now. In the following we will refer to the person you are matched with as the Other.

The Other is a person who has been affected by the 2008 financial crisis. Because of the crisis, this person might have remained unemployed and his/her living standards and income might have been reduced. Before you make your decisions, you will see a picture of the Other and receive more precise details of his/her situation.

Your task

You must choose one of 11 possible prospects, each of which gives

- a *certain* amount of ECU to you, and
- a *certain* amount of ECU to the Other.

The 11 prospects among which you can choose are reported in the table below:

Prospect	You	the Other	Decision
1	10 ECU with 100% probability	0 ECU with 100% probability	☐
2	9 ECU with 100% probability	1 ECU with 100% probability	☐
3	8 ECU with 100% probability	2 ECU with 100% probability	☐
4	7 ECU with 100% probability	3 ECU with 100% probability	☐
5	6 ECU with 100% probability	4 ECU with 100% probability	☐
6	5 ECU with 100% probability	5 ECU with 100% probability	☐
7	4 ECU with 100% probability	6 ECU with 100% probability	☐
8	3 ECU with 100% probability	7 ECU with 100% probability	☐
9	2 ECU with 100% probability	8 ECU with 100% probability	☐
10	1 ECU with 100% probability	9 ECU with 100% probability	☐
11	0 ECU with 100% probability	10 ECU with 100% probability	☐

Look, for instance, at prospect 1. This prospect gives

- 10 ECU with 100% probability (i.e., with certainty) to you, and
- 0 ECU with 100% probability (i.e., with certainty) to the Other.

Hence, if you choose prospect 1, you earn 10 ECU and the Other earns 0 ECU.
Consider now prospect 2. This prospect gives

- 9 ECU with 100% probability (i.e., with certainty) to you, and
- 1 ECU with 100% probability (i.e., with certainty) to the Other.

Hence, if you choose prospect 2, you earn 9 ECU and the Other earns 1 ECU.
The remaining prospects must be read similarly so that, for example, prospect 10 gives 1 ECU with certainty to you and 9 ECU with certainty to the Other.
Note that moving down the rows, your earnings decrease and the Other's earnings increase.
In the last column of the table—labeled "Decision"—you have to indicate which one of the 11 prospects you want to choose by checking the corresponding box.

The Other's task

The Other has no choice to make and must accept your decision.

Earnings in the first part

If part 1 is randomly selected for payment at the end of the experiment, the earnings in ECU that correspond to your decision will be converted to euros and paid out to you today and to the Other on any day of the following week.

The Other, after reading a brief description of your task and before collecting his/her payment, will be informed about the prospect you choose, i.e., (s)he will learn your and his/her certain earnings.

On the experimenter desk you can find a guarantee of payment to the Other. This guarantee is signed by the executive secretary of the Department of Economics of the University of Verona. At the end of the experiment, you can, if you wish, take a look at this guarantee.

If you have finished reading the instructions for the present part and have no questions, please click "OK" on your computer screen.

Instructions for Part 2

In this part of the experiment, you will be paired with the same person you were paired with in part 1, i.e., with the same person who has been affected by the financial crisis.

Your task

You must choose one of 11 possible prospects, each of which gives

- a *certain* amount of ECU to you, and
- an *uncertain* amount of ECU (either 10 or 0, with varying probabilities) to the Other.

The 11 prospects among which you can choose are reported in the table below:

Prospect	You	the Other	Decision
1	10 ECU with 100% probability	10 ECU with 0% probability, 0 ECU with 100% probability	☐
2	9 ECU with 100% probability	10 ECU with 10% probability, 0 ECU with 90% probability	☐
3	8 ECU with 100% probability	10 ECU with 20% probability, 0 ECU with 80% probability	☐
4	7 ECU with 100% probability	10 ECU with 30% probability, 0 ECU with 70% probability	☐
5	6 ECU with 100% probability	10 ECU with 40% probability, 0 ECU with 60% probability	☐
6	5 ECU with 100% probability	10 ECU with 50% probability, 0 ECU with 50% probability	☐
7	4 ECU with 100% probability	10 ECU with 60% probability, 0 ECU with 40% probability	☐
8	3 ECU with 100% probability	10 ECU with 70% probability, 0 ECU with 30% probability	☐
9	2 ECU with 100% probability	10 ECU with 80% probability, 0 ECU with 20% probability	☐
10	1 ECU with 100% probability	10 ECU with 90% probability, 0 ECU with 10% probability	☐
11	0 ECU with 100% probability	10 ECU with 100% probability, 0 ECU with 0% probability	☐

Look, for instance, at prospect 1. This prospect gives

- 10 ECU with 100% probability to you, and
- 10 ECU with 0% probability or 0 ECU with 100% probability to the Other.

Hence, if you choose prospect 1, you earn 10 ECU with certainty and the Other earns 0 ECU with certainty.

Consider now prospect 2. This prospect gives

- 9 ECU with 100% probability to you, and
- 10 ECU with 10% probability or 0 ECU with 90% probability to the Other.

Hence, if you choose prospect 2, you earn 9 ECU with certainty and the Other has 10% probability of earning 10 ECU and 90% probability of earning 0 ECU.

The remaining prospects must be read similarly so that, for example, prospect 10 gives 1 ECU with certainty to you and either 10 ECU with 90% probability or 0 ECU with 10% probability to the Other.

Note that moving down the rows, your sure earnings decrease and the Other's probability of earning 10 ECU increases.

In the last column of the table—labeled "Decision"—you have to indicate which one of the 11 prospects you want to choose by checking the corresponding box.

The Other's task

The Other has no choice to make and must accept your decision.

Earnings in the second part

If part 2 is randomly selected for payment at the end of the experiment, the earnings in ECU that correspond to your decision will be converted to euros and paid out to you today and to the Other on any day of the following week. The guarantee of payment to the Other on the experimenter desk certifies that the money will be paid to him/her.

To determine the earnings of the Other, which will be told to you, a random integer number K in the range 1 to 10 (namely 1, 2, 3, . . ., 9, 10) will be generated by the computer. For prospect 2, where probabilities are 10% and 90%, the Other will earn either 10 ECU if the random number K is 1 or 0 ECU if the random number K is 2–10, meaning 2, 3, 4, 5, 6, 7, 8, 9, or 10. The computation of the Other's earnings for the other prospects is similar, except that as your decision moves down the rows, the Other's probability of earning 10 ECU increases. In fact, for the prospect in the last row, namely prospect 11, the generation of the random number will not be needed since the Other will receive 10 ECU for sure.

The Other, after reading a brief description of your task and before collecting his/her payment, will be informed about the prospect you choose. i.e., (s)he will learn your certain earnings and his/her probabilities of earning 0 ECU and 10 ECU.

If you have finished reading the instructions for the present part and have no questions, please click "OK" on your computer screen.

Instructions for Part 3

In this part of the experiment, you will be paired with the same person you were paired with in the previous parts, i.e., with the same person who has been affected by the financial crisis.

Your task

You must, once again, choose one of 11 possible prospects, but now each prospect gives

- an *uncertain* amount of ECU (either 10 or 0, with varying probabilities) to you, and
- a *certain* amount of ECU to the Other.

The 11 prospects among which your can choose are reported in the table below:

Prospect	You	The Other	Decision
1	10 ECU with 100% probability, 0 ECU with 0% probability	0 ECU with 100% probability	☐
2	10 ECU with 90% probability, 0 ECU with 10% probability	1 ECU with 100% probability	☐
3	10 ECU with 80% probability, 0 ECU with 20% probability	2 ECU with 100% probability	☐
4	10 ECU with 70% probability, 0 ECU with 30% probability	3 ECU with 100% probability	☐
5	10 ECU with 60% probability, 0 ECU with 40% probability	4 ECU with 100% probability	☐
6	10 ECU with 50% probability, 0 ECU with 50% probability	5 ECU with 100% probability	☐
7	10 ECU with 40% probability, 0 ECU with 60% probability	6 ECU with 100% probability	☐
8	10 ECU with 30% probability, 0 ECU with 70% probability	7 ECU with 100% probability	☐
9	10 ECU with 20% probability, 0 ECU with 80% probability	8 ECU with 100% probability	☐
10	10 ECU with 10% probability, 0 ECU with 90% probability	9 ECU with 100% probability	☐
11	10 ECU with 0% probability, 0 ECU with 100% probability	10 ECU with 100% probability	☐

Look, for instance, at prospect 1. This prospect gives

- 10 ECU with 100% probability or 0 ECU with 0% probability to you, and
- 0 ECU with 100% probability to the Other.

Hence, if you choose prospect 1, you earn 10 ECU with certainty and the Other earns 0 ECU with certainty.

Consider now prospect 2. This prospect gives

- 10 ECU with 90% probability or 0 ECU with 10% probability to you, and
- 1 ECU with 100% probability to the Other.

Hence, if you choose prospect 2, you have 90% probability of earning 10 ECU and 10% probability of earning 0 ECU and the Other earns 1 ECU with certainty.

The remaining prospects must be read similarly so that, for example, prospect 10 gives either 10 ECU with 10% probability or 0 ECU with 90% probability to you and 9 ECU with certainty to the Other.

Note that moving down the rows, the probability that you earn 10 ECU decreases and the Other's sure earnings increase.

In the last column of the table—labeled "Decision"—you have to indicate which one of the 11 prospects you want to choose by checking the corresponding box.

The Other's task

The Other has no choice to make and must accept your decision.

Earnings in the third part

If part 3 is randomly selected for payment at the end of the experiment, the earnings in ECU that correspond to your decision will be converted to euros and paid out to you today and to the Other on any day of the following week. The guarantee of payment to the Other on the experimenter desk certifies that the money will be paid to him/her.

To determine your earnings, a random integer number Z in the range 1 to 10 (namely 1, 2, 3, ..., 9, 10) will be generated by the computer. For prospect 2, where probabilities are 90% and 10%, you will earn 10 ECU if the random number Z is 1–9 or 0 ECU if the random number Z is 10. The computation of your earnings for the other prospects is similar, except that as your decision moves down the rows, your probability of earning 10 ECU decreases. In fact, for the prospect in the last row, namely prospect 11, the generation of the random number will not be needed since you will receive 0 ECU for sure.

The Other, after reading a brief description of your task and before collecting his/her payment, will be informed about the prospect you choose, i.e., (s)he will learn your probabilities of earning 0 ECU and 10 ECU and his/her certain earnings.

If you have finished reading the instructions for the present part and have no questions, please click "OK" on your computer screen.

Instructions for Part 4

In this part of the experiment, you will be paired with the same person you were paired with in parts 1, 2, and 3, i.e., with the same person who has been affected by the financial crisis.

Your task

As in the previous parts, you must choose one of 11 possible prospects, but now each prospect gives

- an *uncertain* amount of ECU (either 10 or 0, with varying probabilities) to you, and
- an *uncertain* amount of ECU (either 10 or 0, with varying probabilities) to the Other.

The 11 prospects among which you can choose are reported in the table below:

Prospect	You	The Other	Decision
1	10 ECU with 100% probability, 0 ECU with 0% probability	10 ECU with 0% probability, 0 ECU with 100% probability	☐
2	10 ECU with 90% probability, 0 ECU with 10% probability	10 ECU with 10% probability, 0 ECU with 90% probability	☐
3	10 ECU with 80% probability, 0 ECU with 20% probability	10 ECU with 20% probability, 0 ECU with 80% probability	☐
4	10 ECU with 70% probability, 0 ECU with 30% probability	10 ECU with 30% probability, 0 ECU with 70% probability	☐
5	10 ECU with 60% probability, 0 ECU with 40% probability	10 ECU with 40% probability, 0 ECU with 60% probability	☐
6	10 ECU with 50% probability, 0 ECU with 50% probability	10 ECU with 50% probability, 0 ECU with 50% probability	☐
7	10 ECU with 40% probability, 0 ECU with 60% probability	10 ECU with 60% probability, 0 ECU with 40% probability	☐
8	10 ECU with 30% probability, 0 ECU with 70% probability	10 ECU with 70% probability, 0 ECU with 30% probability	☐
9	10 ECU with 20% probability, 0 ECU with 80% probability	10 ECU with 80% probability, 0 ECU with 20% probability	☐
10	10 ECU with 10% probability, 0 ECU with 90% probability	10 ECU with 90% probability, 0 ECU with 10% probability	☐
11	10 ECU with 0% probability, 0 ECU with 100% probability	10 ECU with 100% probability, 0 ECU with 0% probability	☐

Look, for instance, at prospect 1. This prospect gives

- 10 ECU with 100% probability or 0 ECU with 0% probability to you, and
- 10 ECU with 0% probability or 0 ECU with 100% probability to the Other.

Hence, if you choose prospect 1, you earn 10 ECU with certainty, and the Other earns 0 ECU with certainty.

Consider now prospect 2. This prospect gives

- 10 ECU with 90% probability or 0 ECU with 10% probability to you, and
- 10 ECU with 10% probability or 0 ECU with 90% probability to the Other.

Hence, if you choose prospect 2, you have 90% probability of earning 10 ECU and 10% probability of earning 0 ECU, and the Other has 10% probability of earning 10 ECU and 90% probability of earning 0 ECU.

The remaining prospects must be read similarly so that, for example, prospect 10 gives either 10 ECU with 10% probability or 0 ECU with 90% probability to you and either 10 ECU with 90% probability or 0 ECU with 10% probability to the Other.

Note that moving down the rows, your probability of earning 10 ECU decreases and the Other's probability of earning 10 ECU increases.

In the last column of the table—labeled "Decision"—you have to indicate which one of the 11 prospects you want to choose by checking the corresponding box.

The Other's task

The Other has no choice to make and must accept your decision.

Earnings in the fourth part

If part 4 is randomly selected for payment at the end of the experiment, the earnings in ECU that correspond to your decision will be converted to euros and paid out to you today and to the Other on any day of the following week. The guarantee of payment to the Other on the experimenter desk certifies that the money will be paid to him/her.

To determine your earnings, a random integer number Z in the range 1 to 10 (namely 1, 2, 3, …, 9, 10) will be generated by the computer. For prospect 2, where probabilities are 90% and 10%, you will earn 10 ECU if the random number Z is 1–9 or 0 ECU if the random number Z is 10.

Independently of Z, to determine the Other's earnings, which will be told to you, a further random integer number K in the range 1 to 10 will be generated by the computer. For prospect 2, the Other will earn 10 ECU if the random number K is 1 or 0 ECU if the random number K is 2–10.

The computation of yours and the Other's earnings for the other prospects is similar, except that as your decision moves down the rows, your probability of earning 10 ECU decreases and the Other's probability of earning 10 ECU increases. In fact, for the prospect in the last row, namely prospect 11, the generation of the random numbers will not be needed since you will receive 0 ECU for sure and the Other will receive 10 ECU for sure.

The Other, after reading a brief description of your task and before collecting his/her payment, will be informed about the prospect you choose, i.e., (s)he will learn your and his/her probabilities of earning 0 ECU and 10 ECU.

If you have finished reading the instructions for the present part and have no questions, please click "OK" on your computer screen.

Instructions for Recipients (originally in Greek)

Distributed before collecting the recipient data

You are about to participate in a research study funded by the Department of Economics of the University of Verona.

You will have to fill in a short questionnaire and then we will take a photo of you. Both your answers to the questionnaire and your photo will be treated as confidential and used only for scientific purposes.

On any day during the following week we will randomly match you with a student from the University of Verona, whose identity will never be revealed to you. Your photo and the information you will provide via the questionnaire will be shown to this Verona student.

You will receive €5.00 for participating in this study. Beyond this, you can earn more money depending on the decisions that the Verona student will make next week. We will phone and inform you when and where the extra money will be paid to you. To receive your extra payment, it is strictly necessary that you bring the slip of paper that you are about to receive. So, please, keep it safe!

If you agree to participate in the study, please complete and sign the attached consent form.

Distributed before paying the experimental earnings

Thanks for coming back. Today you will receive €3.00 and, beyond this, you can earn more money depending on the decisions made by the Verona student with whom you have been matched. In the following we will refer to this student as the Other (using the male gender).

The Other's task

After having seen your picture and received the information you provided, the Other had to choose four prospects.

1. A prospect allowed both him and you to earn an even amount of Euros between €0 and €20 (namely, €0, €2, €4, ..., €18, or €20) with certainty. The Other could increase your earnings by reducing his own earnings.
2. Another prospect allowed him to earn an even amount of Euros between €0 and €20 with certainty and allowed you to earn €0 or €20 with given probabilities. The Other could increase your probability of earning €20 by reducing his own sure earnings.
3. A further prospect allowed him to earn €0 or €20 with given probabilities and allowed you to earn an even amount of Euros between €0 and €20 with certainty. The Other could increase your sure earnings by reducing his probability of earning €20.
4. The fourth prospect allowed both him and you to earn €0 or €20 with given probabilities. The Other could increase your probability of earning €20 by reducing his probability of earning €20.

A random draw determined which one of the four prospects chosen by the Other would be paid out.

Today you will learn the choice of the Other in the randomly selected prospect and collect your corresponding earnings.

Appendix C: Questionnaire for Greek Recipients

(**1**) What is your age? ......

(**2**) What is your gender?

☐ Male
☐ Female

(**3**) Has the financial crisis affected your standards of living?

☐ Really a lot
☐ A lot
☐ A bit
☐ Not at all

(**4**) During the crisis, the value of your mobile and immobile property has significantly decreased:

☐ Yes
☐ No
☐ I don't have any property

(**5**) During the crisis, your real income

☐ increased or remained the same
☐ was reduced by less than 10%
☐ was reduced between 10% and 20%
☐ was reduced between 20% and 30%
☐ was reduced between 30% and 40%
☐ was reduced by more than 40%

(**6**) Were you or one of your close relatives rendered unemployed due to the financial crisis?

☐ Yes
☐ No

TABLE D1. Descriptive Statistics of Dictator Characteristics

	Control	Photo	Info	Photo+Info
Age	20.59	20.60	21.27	20.65
	(1.90)	(1.84)	(2.64)	(2.39)
Female	32	30	30	30
Economics	29	35	32	31
Risk	4.56	4.22	4.10	3.85
	(3.00)	(2.57)	(2.52)	(2.39)
No. of subjects	59	60	60	60

Notes: Standard deviations are reported in parentheses.

Appendix D: Assessing the Quality of Randomization across Treatments

The dictators' characteristics in each treatment are summarized in Table D1. Overall, their average age is 20.8 years, which is not surprising given their recruitment from the undergraduate student population. About half of the sample is female and the most common field of study is economics. On the basis of their responses to the SOEP question, the mean of the risk attitude variable (measured on a scale from 0 to 10) ranges from 4.56 in the Control to 3.85 in the Photo+Info treatment. With unbiased recruitment, it should not be possible to reject the null hypothesis that the dictators' characteristics have identical distributions across treatments. Kruskal-Wallis tests indicate that this is the case for the age and risk attitude variables (the p-values are 0.147 and 0.617, respectively), and Fisher's exact tests show that there is no difference in the proportions of either male or economic students across treatments (the p-values are 0.951 and 0.788, respectively).

Table D2 presents descriptive statistics of recipient characteristics in the three experimental treatments. The average age is close to 50 years; there are no significant differences in age across treatment groups (p-value = 0.707; Kruskal-Wallis test). The sample is equally representative of both genders (p-value = 1.000; Fisher's exact test). Attractiveness, rated on a scale from 1 (homely) to 5 (strikingly beautiful), is virtually the same in the Photo and Photo+Info groups, and this holds independently of whether we consider the dictators' rating or the averages of the ratings provided by the panel of external evaluators (the p-values are 0.770 and 0.718, respectively; Wilcoxon rank sum test).[29] The vast majority of recipients was portrayed with a neutral expression; a Fisher's exact test reveals no significant difference between the distributions of facial expressions in the Photo

[29]The evaluators were in substantial agreement regarding their ratings of the 120 photos. Inter-evaluator reliability—as measured by Cronbach's alpha—equals 0.88, which is in line with the values reported in the literature (Langlois et al. 2000). Even when we standardize the evaluators' ratings following the procedure suggested by Andreoni and Petrie (2008) we detect no significant difference in attractiveness between the two treatments (p-value = 0.844; Wilcoxon rank sum test).

TABLE D2. Descriptive Statistics of Recipient Characteristics

	Photo	Info	Photo+Info
Age	49.08	50.03	48.95
	(8.25)	(8.99)	(7.85)
Female	30	31	30
Attractiveness:			
¬ Dictators' ratings	2.77		2.73
	(0.70)		(0.63)
¬ Evaluators' ratings	2.50		2.61
	(0.55)		(0.59)
Facial expressions:			
¬ Happy	13		14
¬ Neutral	44		45
¬ Angry	2		0
¬ Surprised	1		1
Decreased standards of living:			
¬ Really a lot		17	21
¬ A lot		37	29
¬ A bit		6	8
¬ Not at all		0	2
Decreased value of property:			
¬ Yes		52	52
¬ No		3	7
¬ No property owners		5	1
Decreased real income:			
¬ Not at all		0	4
¬ Less than 10%		1	4
¬ Between 10% and 20%		4	6
¬ Between 20% and 30%		25	17
¬ Between 30% and 40%		19	17
¬ More than 40%		11	12
Affected by unemployment		36	41
No. of subjects	60	60	60

Notes: Standard deviations are reported in parentheses.

and Photo+Info treatments (p-value = 0.491). Finally, the recipients assigned to the Info and Photo+Info treatments were equally impacted by the financial crisis. A series of Fishers' exact tests shows that the randomization worked well for (a) the extent to which the recipients' standards of living deteriorated during the financial crisis, (b) the decrease in the value of their property, (c) the reduction in their income, and (d) the proportion of recipients that were affected by unemployment (all p-values > 0.135).