Do I care if others lie? Current and future effects when lies can be delegated*

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In this study we want to find out how people behave in a situation where they can themselves lie or they can share the responsibility for lying with others. To answer this question we study a sender-receiver game followed by a dictator game. It is possible to delegate the act of lying in the sender-receiver game and take pro-social actions in the subsequent dictator game. We examine how delegation affects the outcomes of current and future ethical decisions. We find that a non-trivial fraction of participants delegate their decision and delegation is associated with higher transfers in the subsequent dictator game.

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Keywords: sender-receiver games, delegation; moral balancing, guilt aversion, experiments.

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1. Introduction

1.1. Motivation

Lying brings benefits but may come at a cost. *Lying aversion*, i.e. the desire to send truthful information in an anonymous setting, is of continuing interest in behavioural economics. Many empirical and theoretical studies investigate why people are telling the truth: do people respect trust, do they avoid losses of others, or do they dislike lying per se (Gneezy, 2005, Fischbacher & Heusi, 2013, Erat & Gneezy, 2011, Kartik, 2009)?

Baron & Ritov (2004), Spranca *et al.* (1991), Royzman & Baron (2002) distinguish direct and indirect negative consequences of actions. They find that negative outcomes from a direct action are perceived as more harmful than those from an indirect action. In this paper we suspect a similar distinction between the consequences of direct and indirect lies. People might generally prefer not to lie. However, people might consider an indirect lie, i.e. a lie through an intermediary, more acceptable than an own lie.

Hamman *et al.* (2010), Bartling & Fischbacher (2012), Coffman (2011), find that delegation reduces responsibility and that delegation facilitates reaching self-interested or immoral allocations. Still, people might view delegation differently ex-ante and ex-post. In line with Nisan & Horenczyk (1990), Sachdeva *et al.* (2009), Gneezy *et al.* (2014) we suspect that delegation could influence people's ex-post compensatory behaviour. Even after delegation people might still be willing to cleanse their past wrongdoing.

We study a game where it is possible to delegate the act of lying and where it is possible to take pro-social actions subsequently. We examine how delegation affects the outcomes of people's current and future ethical decisions.

1.2. Related literature

Cause and effect of delegation in the positive and the negative domain Efficiency could be a standard reason to delegate: an agent could be better equipped with resources, time, or expertise. A different mechanism has been brought forward by Hamman *et al.* (2010): People who are reluctant to implement painful decisions themselves (selfish allocations, discriminatory judgements, outright lies) might find that delegation reduces the disutility which they would otherwise obtain from a direct harmful act and frees them to act in their best interest. Hamman *et al.* compare a standard dictator game with and without delegation. Without delegation they find a substantial fraction of fair allocations. When delegation is imposed, many principals choose agents who then act more in the interest of their principals than the principals themselves. As a result, delegation substantially increases inequality. Hamman *et al.* suggest that shifting (and diffusion of) responsibility explain their result: principals and agents share and thereby reduce the joint responsibility for their actions. Hamman *et al.* (2010, p. 1843) explain that delegating principals "…do not feel that they are behaving unfairly because they do not directly take immoral actions; they simply hire agents. They also do not feel responsible for the ultimate outcomes."

Bartling & Fischbacher (2012) use delegation as a workhorse to compare different reasons for third-party punishment: outcome, intention, and responsibility. They observe that delegation reduces punishment. Furthermore, responsibility has a larger impact on punishment than outcome and intention.

Coffman (2011) distinguishes two causes for punishment: responsibility and intermediation. Coffman studies a situation where intermediation does not affect responsibility. Still (and in line with Hamman *et al.*, 2010, Bartling & Fischbacher, 2012) Coffman observes that intermediation, i.e. indirect interaction, reduces punishment.

Drugov *et al.* (2014) use a bribery game to study how intermediation affects the moral cost of a transaction. Drugov *et al.* find that intermediaries facilitate corruption not by reducing the responsibility for the outcome but rather by replacing a direct with an indirect link.

The concept of "moral distance" from a negative outcome mentioned by Drugov *et al.* is long known in moral psychology. Here, the detrimental effects of such distancing, whether through an indirect action or through an inaction (omission) are well-documented for both self- and other-regarding decisions (Baron & Ritov, 2004, Spranca *et al.*, 1991, Royzman & Baron, 2002, Hayashi, 2013). Inasmuch as dictators are held less responsible if they delegate (Hamman *et al.*, 2010, Bartling & Fischbacher, 2012, Coffman, 2011, Drugov *et al.*, 2014), allocations by *omission* trigger less blame by the recipients (DeScioli *et al.*, 2011).

But not only for morally questionable actions, also for desirable actions we find a distinction between the direct and the indirect. While decision makers prefer to implement unethical actions indirectly, i.e. through an intermediary, the same decision makers prefer to implement benevolent activities (generous donations, non-discriminatory judgements, honesty) rather directly. Patt & Zeckhauser (2000), for example, model willingness to attribute positive outcomes to one's own actions and provide the evidence of "action bias" in environmental decisions: people prefer actively implementing environmentally friendly policies even though inaction would lead to better environmental outcomes. Coffman (2011) compares direct (donor-recipient) and indirect (donor-fund-recipient) donations and finds that people reward donors much less if they donate to a cause through an intermediary. Eisenkopf & Fischbacher (2015) investigate the same reward pattern in a trust game. In their setting with two trustors and one trustee, delegation by the first trustor to the second one can potentially increase efficiency. They find that trustees seem not to recognise the efficiency gain due to delegation by the first trustor and do not reward the first trustor correspondingly.

Lying aversion and delegation Even when lying secures high monetary rewards people do not always lie. In a seminal experiment, Gneezy (2005) employs a deception-game to test for (non-strategic) *lying aversion*, i.e. the reluctance to get an otherwise desired outcome through lying. In his setting, a sender learns about the distributions of payoffs behind two options, A and B. The sender advises a receiver which of the two options to choose: 'Option A (B) will earn you more than Option B (A)'. Since the senders' payoffs are high when receivers' payoffs are low and vice versa, and since receivers do not know this, senders have an interest to lie. Gneezy compares choices in deception and in dictator games with equivalent payoffs and finds that the fraction of selfish choices in dictator games is higher than the fraction of lies in deception games. Gneezy concludes that lying is not neutral.

Since then a number of studies on various aspects of lying aversion have appeared (see Erat & Gneezy, 2011, Vanberg, 2008, Fischbacher & Heusi, 2013, Sutter, 2009). It has been shown that the expectations of the receiver, the damage from lying, and the ability to observe lies shape but do not fully explain preferences for truth-telling.

Although different motivations for lying aversion have been addressed, it remains unclear whether preferences distinguish between direct (own) lies and indirect lies (lies by an intermediary).

To shed light on this issue, Erat (2013) studies a three-person sender-receiver game where senders can delegate. Erat observes that roughly 30% of senders delegate the decision. Erat also finds that an increase in the receiver's cost of deception does not increase truth-telling but does increase delegation.

We extend the study by Erat by eliciting the choice between lying and truth-telling from the delegators, too. This allows us to learn more about the preferences of truth-telling of those who would like to delegate.

Compensatory behaviour and lying Erat finds that senders delegate, even when receivers do not know who sent a message. One motive for delegation might be the preservation of a self image. If a lie damages the self image of the sender, then this damage could be linked to subsequent compensatory behaviour.

According to moral balancing theories (Nisan & Horenczyk, 1990, Meritt *et al.*, 2010, Sachdeva *et al.*, 2009) people form a (subjective) benchmark of acceptable morale and allow for positive as well as negative deviations as long as the balance is appropriate. Doing extra good (creating a surplus to the moral account) may license a subsequent bad action, and doing extra bad (creating a moral debt) may be cleansed or compensated by a future good deed to balance the account.

Moral cleansing, the desire to compensate a bad action with a following good act, is sometimes explained within self-signalling models (Benabou & Tirole, 2011), where individuals with no perfect access to their deep preferences might 'invest' in a bad behaviour to get a signal of their true (good) type prompting higher goodness in a subsequent task. Similarly, Loewestein (2000) sees moral cleansing as a result of a prior underestimation of future negative emotions. If regret after lying is higher than expected, the initial choice turns out to be ex-post sub-optimal, requiring a compensation.

Gneezy *et al.* (2014) discuss how the feeling of guilt urges transgressors of a norm to behave more pro-socially. In Gneezy *et al.*'s experiment subjects who cheated in a first task contributed more to a charity than truth-tellers. Gneezy *et al.* conclude that an unannounced opportunity for pro-social behaviour right after a transgression may serve as a conscience cleansing instrument.

If people exercise moral balancing, seek to cleanse a transgression, but account indirect harm differently, the possibility to delegate lying may decrease the positive compensatory behaviour in a subsequent task.

Given the interdependency of moral choices across domains, the previously studied single-domain effect of delegation might be incomplete. Since many real-life decisions are taken in the form of delegated tasks, understanding their long-run consequences and spill-over effects in other morally relevant domains gains significant importance.

Allocation in the *no conflict* condition:

Box 1	Box 2	Box 3	Box 4	Box 5
Prize 1: 0	Prize 1: 0	Prize 1: 80	Prize 1: 0	Prize 1: 0
Prize 2: 0	Prize 2: 0	Prize 2: 80	Prize 2: 0	Prize 2: 0
Prize 3: 0	Prize 3: 0	Prize 3: 40	Prize 3: 0	Prize 3: 0

Allocation in the *conflict* condition:

Box 1	Box 2	Box 3	Box 4	Box 5
Prize 1: 0	Prize 1: 0	Prize 1: 80	Prize 1: 0	Prize 1: 0
Prize 2: 0	Prize 2: 0	Prize 2: 80	Prize 2: 0	Prize 2: 0
Prize 3: 0	Prize 3: 0	Prize 3: 0	Prize 3: 0	Prize 3: 40

Figure 1: Prizes in the two conditions

Prize i denotes the prize for player i. Payoffs are always as in this figure. The order of the boxes is random.

In this project we want to examine the effects of delegation in a dynamic setting: first, we study how delegation affects the intensity of lying (current effect); second, we investigate how delegation of lying affects subsequent compensatory behaviour (future effect).

2. Experimental design

To study lying behaviour, we use the framework of a sender-receiver game. We extend this game allowing the sender to delegate the decision. We use the strategy vector method (Selten, 1967) to observe whether delegating participants would prefer to lie or to tell the truth. To measure compensatory behaviour, we combine this game with a subsequent dictator game.

We use z-Tree (Fischbacher, 2007) to implement the experiment and ORSEE (Greiner, 2004) to recruit participants.[1] During the experiment payoffs are described as ECU. At the end of the experiment one period is chosen for payment. ECUs are converted into Euros at a rate of 10:1.

Sender-receiver game In the sender-receiver game, participants interact in groups of three: two senders (player 1 and player 2) and one receiver (player 3).

To make efficient use of our data, we use a variant of the strategy vector method: Both senders are asked whether they would delegate; both senders are also asked what signal to send. Once all players have made their decision, a random draw decides which delegation decision is implemented.

The payoff of the participants in the sender-receiver game is defined as follows. The computer randomly allocates a fixed prize for the senders, 80 ECU, and for the receiver, 40 ECU, among five virtual boxes. Figure 2 shows an example for the two conditions. The type of the allocation depends on the experimental condition: *no conflict* or *conflict*. In the *no conflict* condition, prizes for senders and receivers are placed in the same box (in the example in

[1] Instructions can be found at http://www.kirchkamp.de/research/delegation.html

Figure this is Box 3); in the *conflict* condition, prizes for senders are placed in a box different from the receiver's box (in the example in Figure this is Box 3 for the senders and Box 5 for the receiver).

Prizes of the two senders are always in the same box. Payoffs of senders and receivers are in the same box only in the *no conflict* condition, i.e. in 50% of the cases. Receivers do not know the condition, i.e. they do not know whether, in a given round, their prize is in the same box as the senders' prizes. This, together with having five different boxes, rules out sophisticated lying which has been observed by Sutter (2009) in a simpler setting. In Sutter's experiment there are only two possible options and the sender and receiver have always opposing interests. In Sutter's experiment the optimal choice of the receiver depends on the receiver's beliefs about the sender's beliefs which again depend on the receiver's beliefs etc.. As a result, there is room for sophisticated lying in Sutter's experiment.

In our design the optimal choice of the receiver does not depend on the receivers beliefs in case of conflict. For the receiver it is always optimal to follow the advice of the sender:

- Following yields: $\frac{1}{2}$(no-conflict)$\cdot$40+$\frac{1}{2}$(conflict)$\cdot$0=20;
- Not following yields: $\frac{1}{2}$(no-conflict)$\cdot$0+$\frac{1}{2}$(conflict)$\cdot\frac{1}{4}$(one box out of four)$\cdot$40=5.

Hence, we can rule out sophisticated lying, which facilitates the interpretation of the delegation choice.

The two senders know the condition (*conflict* or *no conflict*) and they know the exact position of the prizes; receivers only know that both conditions are equally probable. They do not know the position of the prizes. This asymmetry of information follows the common structure of sender-receiver games in the literature.

After observing the allocation of prizes to the boxes, each of the two senders makes two decisions:

1. Senders specify the advice for the receiver: "Your prize is in box x" (this allows us to determine whether a sender lies or tells the truth).
2. Senders make a decision about delegation: should the own advice or the advice chosen by the other sender be sent to the receiver?

The computer then randomly selects one of the senders (we will call this an "effective" sender later) and implements her decision: if the selected sender has chosen to delegate (prefers the other sender to send the advice), the number of the box advised by the other sender is sent to the receiver; if the selected player has chosen not to delegate, the number of the box selected by this sender is sent[2]

The receiver then obtains a message stating "Your prize is in Box x" from one of the two senders. The receiver also learns whether the sender's decision was a delegated decision. The receiver then chooses a box and, thus, determines the payoffs for all three players.

[2]This means that if a sender decides to delegate, she might be still end up sending the message herself (in case the other sender is chosen by the computer and this sender delegates). The strategy method allows us to elicit the preferences for truth-telling and lying for all senders, not only for those who decide not to delegate.

Once all receivers have made their choices, senders and receivers learn the outcome of the game. They also learn whether the advice was truthful. Since we are interested in the effect of delegation on the subsequent choice of senders in the dictator game, we have to give feedback at least to senders. Since we give feedback to senders, we must, in any case, take into account correlations of observations within matching groups. Giving feedback also to receivers does not make the statistical analysis more complicated. Giving feedback to receivers has, however, advantages: Feedback might increase the psychological cost of lying and might also be perceived as the more natural option to play the game by receivers.

Dictator game In this game, participants keep their roles, senders remain senders, receivers remain receivers, but groups are re-matched. Each participant meets two other participants he or she did not interact with in the sender-receiver game. Participants in the role of senders neither know what the new receiver has earned in the first part nor whether the new receiver was in the *conflict* or *no conflict* condition. Senders decide how much out of their 80 ECU earnings they want like to transfer to the new receiver[3]. The computer then randomly selects one of the two senders and implements this sender's decision.

Repetition Participants repeat this interaction (sender-receiver game + dictator game) for four periods with random matching and full feedback between the periods. Each sender played twice in each of the two conditions in the following order: C-C-NC-NC (half of the groups) or NC-NC-C-C (half of the groups), where C stands for *conflict* and NC stands for *no conflict* condition; receivers were randomly assigned to one of the two conditions in each period. Participants received the instructions for the dictator game only after the first sender-receiver game was played[4]

3. Hypotheses

3.1. Hypotheses for the sender-receiver game:

In the *no conflict* condition it is in the interest of senders to tell the truth. If all senders tell the truth, delegating or not delegating does not affect the outcome of the game. In the *conflict* condition senders might be tempted to lie but they might also experience psychological costs of lying. Delegation is a way to shift the burden of a lie to a different person.

If the psychological cost of lying matter at all, then we should expect the following.

Hypothesis 1 *The frequency of delegation is higher in conflict than in no conflict.*

Let us next look at the differences in delegation behaviour of senders who lie and senders who tell the truth. We expect that not only the monetary consequences of delegation but also the psychological cost determine the sender's decision.

[3]As in similar studies (see, for example Gneezy *et al.*, 2014) we do not provide senders with an extra endowment for the dictator game.

[4]Surprise condition is a typical feature of the experiments on compensatory behaviour. Our design with the surprise dictator game in the first period and known dictator game from the second period onwards allows us to detect the potential effect of this information.

We will first consider the monetary aspect: For a sender who would otherwise lie delegation reduces (in expectation) the own payoff: If the delegate lies, too, the sender's payoff remains the same. If the delegate tells the truth, the sender's payoff decreases.

For a sender who would otherwise tell the truth delegation increases (in expectation) the own payoff: If the delegate tells the truth, too, the sender's payoff remains the same. If the delegate lies, the sender's payoff increases.

As long as only monetary payoffs matter, the truth telling sender has a larger incentive to delegate than the lying sender.

For the psychological cost we could, however, tell a different story. A sender, who would otherwise lie, might expect to gain in terms of psychological cost from delegation. After all, the sender no longer bears the responsibility for a lie. A sender, who would otherwise tell the truth, might gain less in terms of psychological cost from delegation. After all, this sender did nothing wrong in the first place. Hence, in terms of psychological cost it could be that a lying sender has a stronger incentive to delegate.

If monetary effect is stronger than the psychological effect, then we should expect the following:

Hypothesis 2 *In the conflict condition, senders who themselves tell the truth are more likely to delegate than senders who lie.*

3.2. Hypotheses for the dictator game:

Truth telling implies no norm violation and thus does not call for moral cleansing. However, lying is a norm violation and induces negative feelings calling for cleansing. If our manipulation works, and if many participants lie in the *conflict* condition, we should observe different amounts shared in the dictator game. This hypothesis is consistent with the observation of lower donations by truth-tellers in Gneezy *et al.* (2014).

Hypothesis 3 *Senders who have lied in the sender-receiver game share more in the dictator game than truth tellers.*

Since we expect more lying in the *conflict* situation, we also hypothesize the following:

Hypothesis 4 *Senders share more in the conflict than in the no conflict condition.*

Since all players learn who actually sent the message, senders can assess their own responsibility and can distinguish between indirect and direct outcomes. Given our discussion in Section 1 it seems obvious to expect indirect lying has a lower psychological cost than direct lying. Hence, ceteris paribus we should see less cleansing behaviour in the case of indirect (delegated) decisions. We will call this a direct effect. We can't exclude that there might also be a second, indirect effect: Delegation is not exogenous in our experiment, it is a choice. This choice could be correlated with the sender's social preferences. Senders who dislike inequality could also have a preference to delegate, thus avoiding responsibility for an unequal outcome. Due to their social preference these senders might feel a stronger need to compensate for an unfair outcome of the sender-receiver game in the dictator game. If this (indirect) effect was stronger than the direct effect, then we might observe more cleansing behaviour

Condition	delegate	n	truth	lies	mean share	stddev share
no conflict	no	244	240	4	8.46	10.24
no conflict	yes	28	26	2	10.00	10.14
conflict	no	188	31	157	8.23	11.67
conflict	yes	84	27	57	12.43	10.71

Table 1: Summary statistics

The table shows frequencies for choices (delegation, tell the truth) and mean and standard deviation of the share offered in the dictator game (mean and standard deviation refer to participants who could share, i.e. who had received an 80 ECU earning in the first part of the game).

in the case of delegated decisions. Here we expect that the first (direct) effect dominates. For senders with positive earnings from the sender-receiver game we expect the following:

Hypothesis 5 *If a lie was told to the receiver, senders who delegate share less than senders who lie directly.*

If the receiver is told the truth, either directly or indirectly, then both senders receive nothing, and, hence, have nothing to share.

4. Results

We ran 7 sessions with 204 participants at the laboratory of the Max Planck Institute of Economics in Jena in November-December 2013.[5] In the sender-receiver game 136 players players had the role of senders and 68 had the role of receivers. Sessions lasted for approximately 50 minutes. The average payment (including show-up fee) was 7.47€.

Table 1 shows frequencies of choices as well as means and standard deviations of the share offered in the dictator game.

In the following we will examine treatment effects with the help of mixed effects regressions. The interdependence of choices within players and within groups will be modelled as random effects for individuals and groups, respectively.

4.1. Lying and truth-telling

The frequency of truth-telling in the two conditions is shown in Figure 2.

We see a clear treatment effect. In the *no conflict* condition almost all (98%) participants send truthful messages. In the *conflict* condition only 21% messages are truthful[6]. We conclude that our manipulation had a desired effect on the level of truth-telling. Still, even in

[5]The raw data and methods can be found at http://www.kirchkamp.de/research/delegation.html

[6]We do not have a good explanation of why 2% still lie in the *no conflict* condition. Probably, despite our efforts, these senders still believed that the some of the receivers would not follow the message and thus tried to "deceive" them into the right box.

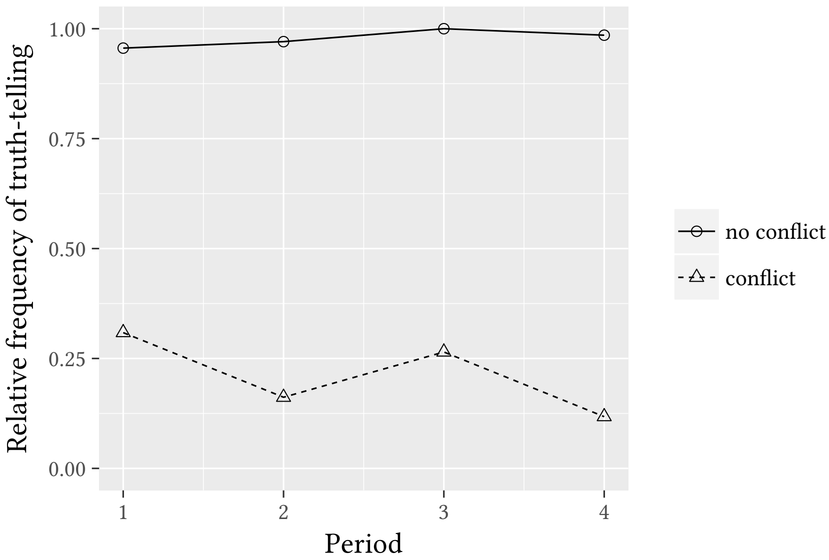


Figure 2: Truth-telling by Condition

conflict not all senders are lying. Consistent with the literature on lying aversion, we observe 21% who still tell the truth.[7]

4.2. Delegation

Delegation in *conflict* (Hypothesis 1) Figure 3 shows the fraction of senders who delegated their decision.

There are 31% of all senders in *conflict* who delegate and only 10% in *no conflict* who delegate[8]. To compare the two situations, we use a mixed effects logistic model. We include a random effect for the participant and a random effect for the matching group.

$$P(\textit{delegation}) = \mathcal{L}\left(\beta_0 + \beta_{\textit{conflict}} d_{\textit{conflict}} + \gamma_t + \epsilon_i + \epsilon_g\right) \tag{1}$$

Here $\mathcal{L}$ is the logistic function, $d_{\textit{conflict}}$ is a dummy which is one for the *conflict* condition, γ_t is a fixed effect for period t, ϵ_i is a random effect for the individual, and ϵ_g is a random effect for the matching group. The 95% confidence interval for $\beta_{\textit{conflict}}$ is [1.34,2.54].[9] We can,

[7] Although one can argue that some of the choices might be interpreted as revealed preference over the outcomes (0,0,40) vs. (80,80,0), for example, for strong inequality averse individuals, lie aversion still seems to manifest itself for a significant minority of participants.

[8] One potential reason for observing delegation in *no conflict* condition is the willingness not to impose one's choice on others, i.e. strong anti-paternalistic preferences: although I expect that sending a truthful message reflects the preferred option by all the players in the group, I stay overly cautious and delegate the choice to the other player. Another potential reason is the desire by delegation to assure the receiver of *no conflict* of interest. Some of the subjects' ex-post responses partially support these explanations.

[9] Based on a percentile bootstrap with 500 replications.

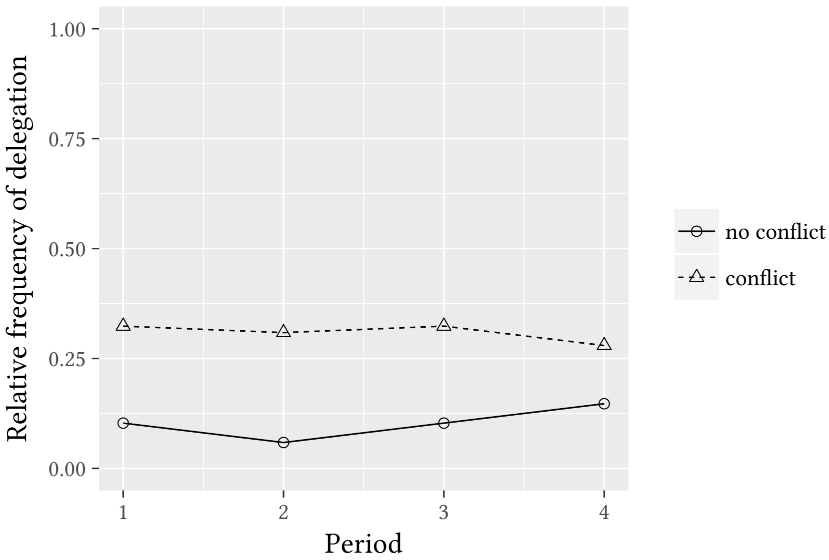


Figure 3: Delegation in *conflict* and *no conflict*

thus, confirm Hypothesis 1. More estimation results for Equation 1 can be found in Table 4 in Appendix A.

Delegation by truth-tellers (Hypothesis 2) Figure 4 shows the fractions of delegating truth-tellers and liars. In the *conflict* condition 47% of all senders who otherwise tell the truth delegate. In contrast, only 27% of all senders who otherwise lie delegate. This difference in behaviour emerges during the experiment.[10] To compare the two types we use a mixed effects logistic model where we include a random effect for the individual participant and a random effect for the matching group.

$$P(\textit{delegation}) = \mathcal{L}\left(\beta_0 + \beta_{\textit{truth}} d_{\textit{truth}} + \gamma_t + \epsilon_i + \epsilon_g\right) \quad (2)$$

Here $\mathcal{L}$ is the logistic function, $d_{\textit{truth}}$ is a dummy which is one for truth tellers, γ_t is a fixed effect for period t, ϵ_i is a random effect for the individual, and ϵ_g is a random effect for the matching group. The 95% confidence interval for $\beta_{\textit{truth}}$ is [0.169,5.47].[11].

We can, thus, confirm Hypothesis 2. More estimation results for Equation 2 can be found in Table 5 in Appendix A.

[10]It is possible that participants understand the game better after the have played the game a few times. It is also possible that participants mentally account for the cost of lying. If the accumulated cost of lying increases during the experiment then delegation becomes more attractive.

[11]Based on a percentile bootstrap with 500 replications.

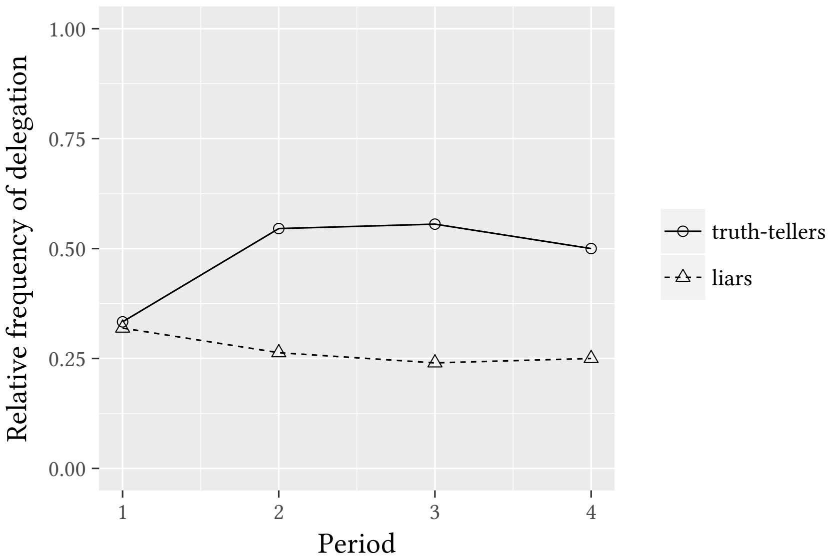


Figure 4: Delegation depending on truth telling in the *conflict* condition

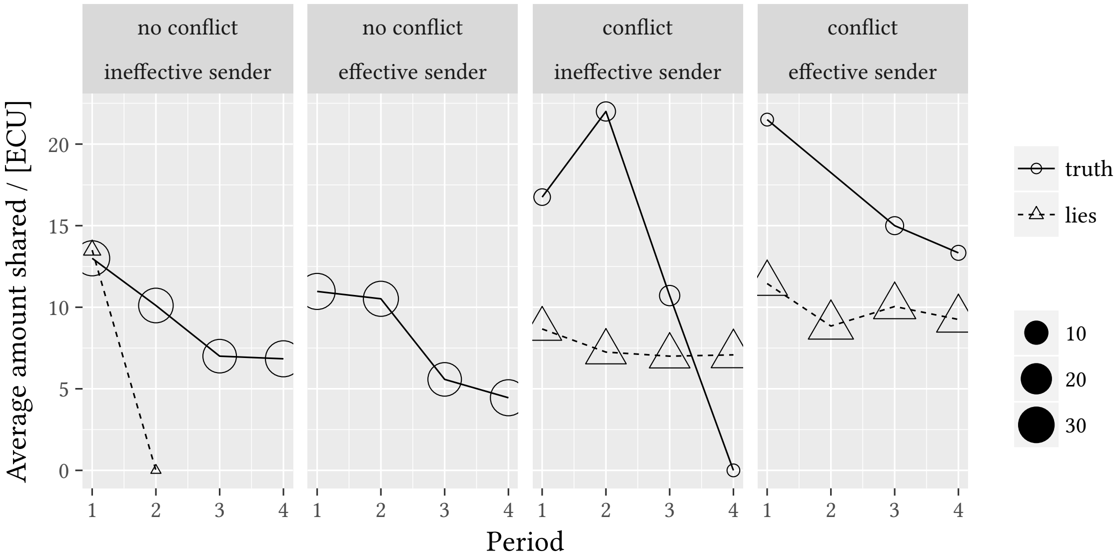
4.3. Compensatory behaviour

We measure compensatory behaviour as a sender's willingness to share money with an anonymous receiver in a dictator game. We have 438 observations for senders who had obtained a positive profit (80 ECU) in the sender-receiver game. Only these senders could share something in the dictator game. Hence, we discuss here only the sharing decisions of these senders. We can not say anything about the 106 cases where senders obtained a profit of zero in the sender-receiver game since these senders did not have an endowment they could share.

First, we have found a relatively high willingness to share money: as many as 53.2% of the senders who had earned 80 ECU in the sender-receiver game shared positive amounts to an anonymous receiver. Among those senders who shared positive amounts the average was 17 ECU or about 21.2% of the senders' earnings.

Do liars share more than truth-tellers? (Hypothesis 3) The average amounts shared by the senders in the two conditions are compared in Figure 5. The two panels in the left part of Figure 5 show the *no conflict* situation. The two panels on the right show the *conflict* situation. In each group of two panels the left one shows the ineffective senders, i.e. those which were not selected for a delegation decision by the computer, the right one shows the effective senders.

Interesting are, in particular, the effective players, i.e. those whose delegation decision was actually implemented. Here in the *no conflict* case (second panel from the left), all senders tell receivers the truth. Shared levels are lower than in the *conflict* case (fourth panel). In the *conflict* case the amounts shared are particularly high for truth telling players and intermediate for liars.



Sizes of the symbols increase with the number of observations. Graphs include only senders with positive earnings from the sender-receiver game.

Figure 5: Average amount shared in the dictator game depending on lying

Clearly, telling the truth in a situation with or without *conflict* are two different matters. In our experiment each player experiences both situations: players either start with *conflict* and conclude the experiment with *no conflict* or they do just the opposite. To better understand the impact of the treatments, we estimate the following mixed effects regressions:

$$\text{Share} = \beta_0 + \beta_{truth} d_{truth} + \gamma_t + \epsilon_i + \epsilon_g + \epsilon_{igt} \tag{3}$$

d_{truth} is a dummy which is one for senders who tell the truth, γ_t is a fixed effect for period t, ϵ_i is a random effect for the individual, ϵ_g is a random effect for the matching group, and ϵ_{igt} is the residual.

The first two columns in Table 2 show estimation results for Equation (3). We find that senders who tell the truth share an amount significantly smaller than those who lie—regardless whether we consider all senders with a positive income from the sender-receiver game or only the effective senders. This supports Hypothesis 3. The Table also includes (for comparison and in the row β^{FE}) the estimate of β_{truth} for a model with fixed effects for each player, yielding qualitatively the same result.

Do senders share more in *conflict*? (Hypothesis 4) To assess Hypothesis 4, we estimate the following equation:

$$\text{Share} = \beta_0 + \beta_{conflict} d_{conflict} + \gamma_t + \epsilon_i + \epsilon_g + \epsilon_{igt} \tag{4}$$

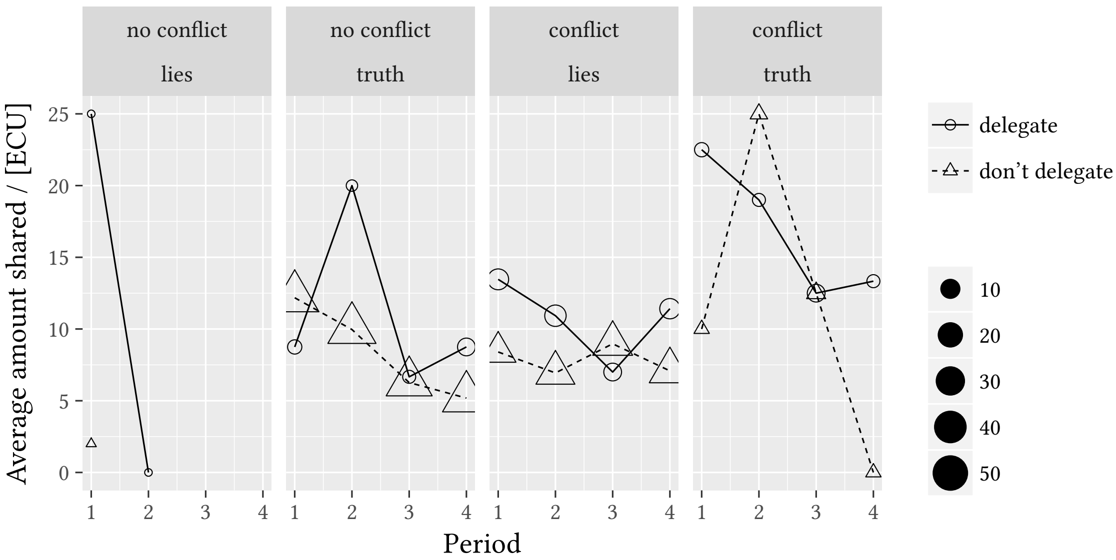
$d_{conflict}$ is a dummy which is one in the *conflict* condition.

Table 2 provides (in columns three and four) estimation results for Equation (4). We find that in both cases, all senders and effective senders, the coefficient for the *conflict* condition

	all Eq.(3)	effective Eq.(3)	all Eq.(4)	effective Eq.(4)	all Eq.(5)	effective Eq.(5)
$\beta_{conflict}$			1.80	2.90	-1.65	5.88
			[0.66,3.04]	[0.94,5.04]	[-10.75,7.02]	[0.53,10.86]
β_{truth}	-1.78	-2.21			-3.49	3.29
	[-3.03,-0.35]	[-4.26,-0.27]			[-12.52,5.27]	[-1.96,8.60]
$\beta_{truth \times conflict}$					3.56	
					[-5.92,12.65]	
(β^{FE})	-2.24	-2.72	1.93	3.00	-4.93	0.57
	[-3.57,-0.91]	[-5.08,-0.36]	[0.69,3.17]	[0.68,5.31]	[3.30,-14.69]	[NA,-5.60]
N	438	219	438	219	438	219
σ_g	0.00	0.00	0.00	0.00	0.00	0.00
	[0.00,2.40]	[0.00,2.76]	[0.00,2.57]	[0.00,2.91]	[0.00,2.54]	[0.00,2.97]
σ_i	8.70	8.59	8.61	8.54	8.63	8.44
	[7.45,9.89]	[6.98,10.15]	[7.36,9.70]	[6.92,10.13]	[7.38,9.84]	[6.99,9.97]

Table 2: Mixed-effect regression estimates for Equations 3, 4 and 5

Estimates are based on senders who could share a positive income from the sender-receiver game. Confidence intervals are given in brackets and are based on a percentile bootstrap with 500 replications. Fixed effects for periods are not shown in the Table. β^{FE} in parentheses gives (for comparison) the fixed effects estimator (subject specific dummies for i included as a fixed effect) for the treatment (*conflict* or *truth*, respectively).



Sizes of the symbols increase with the number of observations. Graphs show only senders with positive earnings from the sender-receiver game.

Figure 6: Average amounts shared in the dictator game depending on delegation.

is significantly different from zero. This supports Hypothesis 4. The Table also includes (for comparison and in the row β^{FE}) the estimate of $\beta_{conflict}$ for a model with fixed effects for each player, yielding qualitatively the same result.

We also estimated the model with the interaction *truth*×*conflict*:

$$\text{Share} = \beta_0 + \beta_{truth} d_{truth} + \beta_{conflict} d_{conflict} + \beta_{truth\times conflict} d_{truth\times conflict} + \gamma_t + \epsilon_i + \epsilon_g + \epsilon_{igt} \quad (5)$$

The results of this estimation are shown in the last two columns of Table 2. The row β^{FE} contains here (for comparison) the estimate of β_{truth} for a model with fixed effects for each player. Since both dummy variables, *truth* and *conflict*, are supposed to reflect the same factor (we introduce the *conflict*/*no conflict* conditions exactly to manipulate the level of truth-telling), it is not surprising that the single coefficients are no longer significant (see the last two columns in Table 2).

Does delegation produce less compensation? (Hypothesis 5) Figure 6 compares the amounts shared for senders who delegate with those who do not delegate in different situations. Most interesting is the third panel: Players in the *conflict* treatment who lie. According to Hypothesis 5 we expect senders who delegated to share less, since delegation reduced already some of their burden. Here we see that these senders actually share more than senders who have chosen to send the message themselves.

To better understand this finding, we estimate the following mixed effects regression:

$$\text{Share} = \beta_0 + \beta_{delegation} d_{delegation} + \gamma_t + \epsilon_i + \epsilon_g + \epsilon_{igt} \quad (6)$$

$d_{delegation}$ is a dummy which is one for senders who delegate, γ_t is a fixed effect for period t, ϵ_i is a random effect for the individual, ϵ_g is a random effect for the matching group, and ϵ_{igt} is

	all conflict Eq.(6)	effective conflict Eq.(6)
$\beta_{delegation}$	4.65	5.47
	[1.11,8.35]	[0.69,10.03]
(β^{FE})	6.30	6.43
	[0.01,12.59]	[-3.39,16.25]
N	204	102
σ_g	0.00	0.00
	[0.00,2.88]	[0.00,3.85]
σ_i	9.04	9.20
	[7.38,10.77]	[6.41,12.04]

Table 3: Mixed-effect regression estimates for Equation 6
Confidence intervals are given in brackets, based on a percentile bootstrap with 500 replications. Fixed effects for periods are not shown in the Table. β^{FE} in parentheses gives (for comparison) the fixed effects estimator (subject specific dummies for i included as a fixed effect) for Delegation.

the residual. Estimation results for senders with a positive income from the sender-receiver game (the other senders have no income to share) in the *conflict* treatment (the *no conflict* senders have no specific reason to share) are shown in Table 3. Regardless whether we look at all senders in the *conflict* treatment (leftmost column of the Table) or only at the effective senders (second column): senders who delegate share, on average, substantially higher amounts than those who do not delegate. This contradicts our expectation from Hypothesis 5.

Our motivation for Hypothesis 5 was based on a story of senders which are rather similar and a delegation decision which is rather exogenous. Our evidence seems to be more consistent with a story where senders are of different types. Some senders have a high cost of lying and others have a low cost of lying. In this context, the delegation decision and the sharing decision can be seen as substitutes: Senders with a low cost of lying don't delegate and don't have to compensate for their lies. Senders with a high cost of lying use both instruments to reduce this cost: They delegate in the sender-receiver game and they also compensate in the dictator game.

Another potential explanation is that senders feel additional (unanticipated) guilt from having forced others to lie. They then feel the need to compensate for this additional wrongdoing. It could also be that the foreseen opportunity to share money lured senders to delegate and then compensate more.

5. Conclusions and Discussion

In our experiment we allow senders to make a choice either directly (themselves) or indirectly (through a delegate). Although we create strong incentives for senders to make a direct choice, a significant share of senders prefers to delegate unpopular decisions. Among various explanations of why senders delegate, distancing from the moral consequence of the decision remains a promising candidate.

Our results add to the discussion of lying aversion and suggest that for some people it is not the (net) social losses to the affected parties (in our setting net social effect of lying was positive) but rather the direct interaction that lying senders try to avoid.

In our setting, many senders who prefer to delegate would chose a truthful message otherwise. This suggests that institutions which allow what looks like innocent delegation could benefit if delegation was restricted.

In line with the literature on moral balancing, we find that lying generates compensatory behaviour. After a lie senders share a larger fraction of their earnings than after telling the truth.

Perhaps most interestingly, indirect liars (delegators) share more than direct liars if there is a conflict between senders and receivers. As an explanation we suggest that delegation serves as a screening device: people with a low psychological cost of lying select into direct lying. People with a high psychological cost of lying reduce this cost at least partially by delegation. To reduce this cost furthermore they also share more in the dictator game.

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Online material

Data, methods and instructions can be found at http://www.kirchkamp.de/research/delegation.html

A. Further estimation results

Fixed effects:

	β	σ	z	$Pr(>\|z\|)$
(Intercept)	-3.1591	0.4645	-6.8014	0.00000
conflict	1.9001	0.3152	6.0292	0.00000
(Period)2	-0.2814	0.3761	-0.7481	0.45442
(Period)3	0.1343	0.3781	0.3551	0.72251
(Period)4	0.1343	0.3781	0.3551	0.72252

Random effects:

Groups	Name	σ	n
i	(Intercept)	1.7115	136
g	(Intercept)	0.0000	7
Residuals	(Intercept)	0.7107	544

Table 4: Estimation results for Equation (1)

Fixed effects:

	β	σ	z	$Pr(>\|z\|)$
(Intercept)	-2.0912	0.6949	-3.0091	0.00262
Truth	1.4128	0.6370	2.2179	0.02657
(Period)2	0.0642	0.5216	0.1232	0.90199
(Period)3	-0.0166	0.7313	-0.0227	0.98192
(Period)4	-0.1910	0.7484	-0.2552	0.79854

Random effects:

Groups	Name	σ	n
i	(Intercept)	2.6688	136
g	(Intercept)	0.0001	7
Residuals	(Intercept)	0.5729	272

Table 5: Estimation results for Equation (2)