

# The robustness of fairness

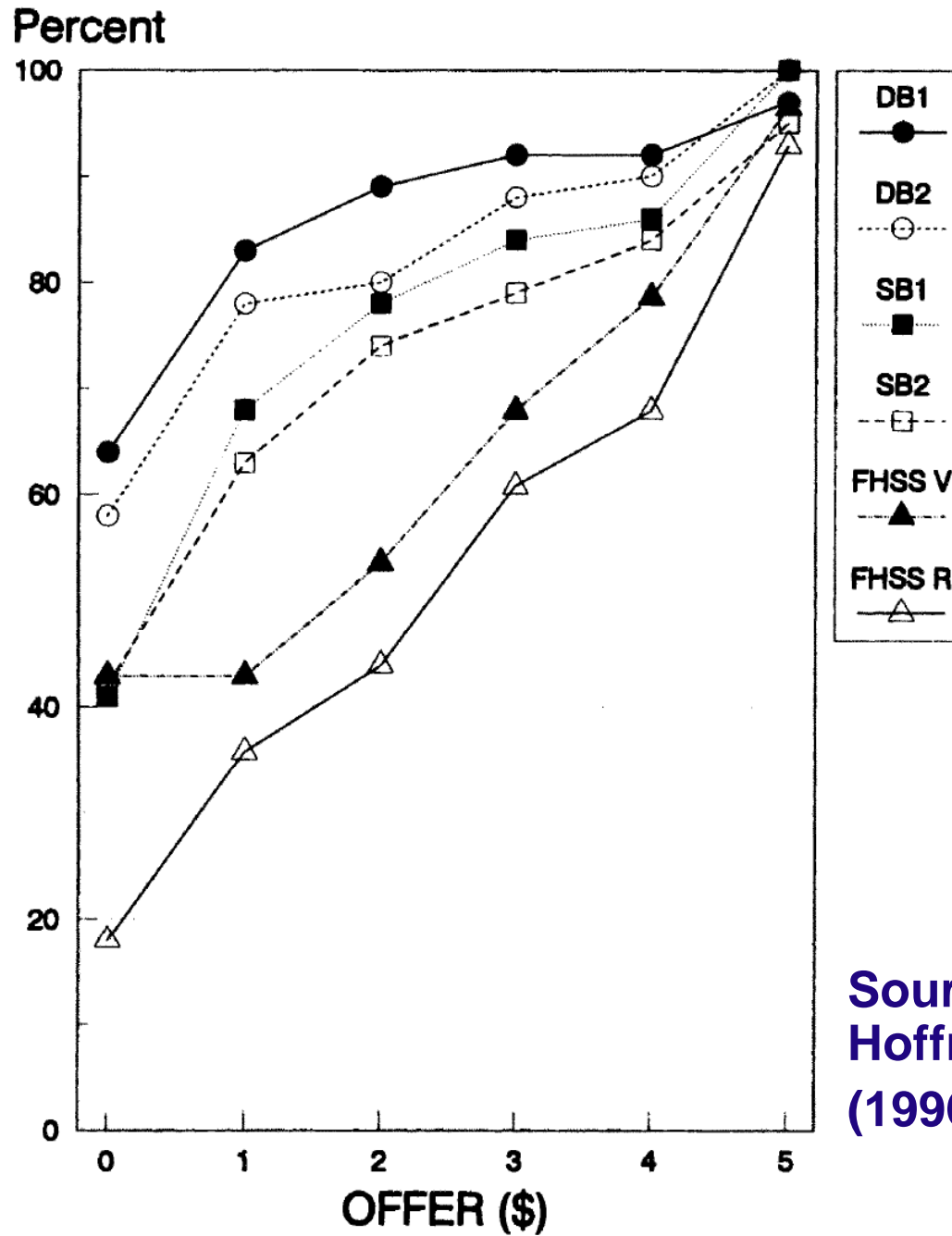
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## Introduction

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- > One of the most puzzling results with dictator games is, that participants share a considerable part of their endowments with their co-players. Frequently, players give half of their amount.
- > The results demonstrate the existence of a fairness norm.
- > A couple of authors contributed to these findings and considered fairness in their utility models (Fehr & Schmidt 1999, Bolton & Ockenfels 2000).
- > Some authors argued that a main motivation for positive donations is by expected reciprocity or by building reputation (Hoffman et al. 1996, HMS).
- > To exclude external motivations they increase anonymity and social distance („sense of coupling between dictator and his or her counterpart“).



Source:  
Hoffman/McCabe/Smith  
(1996: 654)

## Introduction

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- > 1. Are the remaining positive donations due to an intrinsic motivation or are there doubts about anonymity?
- > 2. Why confound anonymity and social distance?
- > HMS (1996) increased social distance by changing elements of the language. The instruction entailed no wordings like “divide” or “a sum of 10\$ has been provisionally allocated to each pair” like in Forsythe et al. (1994) or other dictator game instructions.
- > Bohnet and Frey (1999) argued that due to an increased social distance a fairness norm could not be activated. Dictators have no sense of a social interaction situation.
- > So, our focus is to test the **robustness of fairness with increasing anonymity but with stable social distance.**
- > Therefore, we only vary anonymity and we assure „social sense“ by the language we use in all our instructions (e.g. „divide between yourself and an anonymous co-player“).

## Experimental Designs

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- > 1st Design: Classroom experiment
- > 2nd Design: double blind dictator game
- > 3rd Design: RRT-dictator game



**increased anonymity,  
but unchanged  
instruction wording**

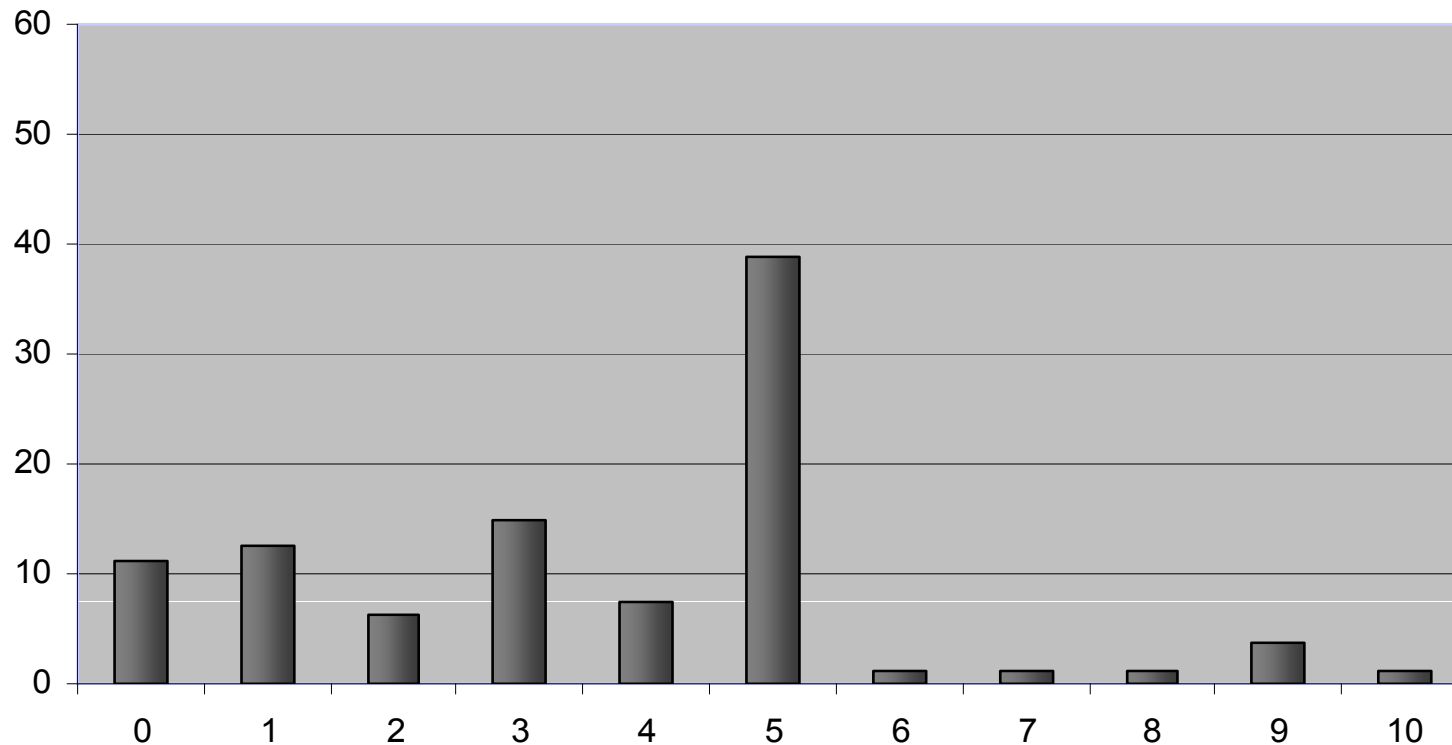
## 1st Design: The Dictator Game in class

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- > Paper-and-Pencil-experiment with students in the very first session of a lecture. Every student participated (no self-selection occurred).
- > Students received written instructions. They could divide 10 Euro between themselves and other students in a different lecture.
- > We later selected about 15% of sheets randomly for the actual payoff (subjects were informed). Payoffs had to be picked up in closed envelopes from the student office (so payment was double anonymous).
- > Anonymity during the experiment was limited (subjects could watch each other, the experimenter was present, maybe our test persons feared being interviewed afterwards, etc.).

# 1st Design: The Dictator Game in class

Relative frequency of amount given to co-player



$$\bar{x} = 3,66, N = 80$$

## 1st Design: The Dictator Game in class

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- > Most of our subjects decided to split the amount (39 %), so the fairness rule is a dominant decision point.
- > On average, subjects transferred 37%.
- > Allocations are comparatively high (Hoffman et al. 1994: 30%; Forsythe et al. 1994: 21,3%; Andreoni/Miller 1998: 25%).
- > Presumably, lacking anonymity in the inter-subject context and with regard to the experimenter caused the high allocations.



## 2nd Design: The double blind Dictator Game

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- > Complete anonymity by envelope procedure: Subjects could distribute tokens between two envelopes (one for themselves, the other for the recipients); they had to put the two envelopes in one big envelope and seal it.
- > After sealing they threw the envelope in a box. The box then was deposited outside the lab (a further student waited there, brought the box to the payment room and replaced the tokens with real money)
- > The test persons could pick up their envelopes in the payment room. Only envelopes were put down there, nobody was present.
- The envelope procedure guarantees anonymity for subjects' decisions

## 2nd Design: The double blind Dictator Game

- > No monitor was chosen. A student served as experimenter and was present to read the instructions aloud (to verify that everybody has the same instructions).
  - > No blank envelopes
  - > No recipients were present. Subjects were told, that recipients were randomly selected students from the university.
  - > No real money for the decision process, only Euro-vouchers.
- Despite no recipients and no real money, we expect similar results as in DB2 by HMS. If the instruction wording has a greater influence, our results will differ.

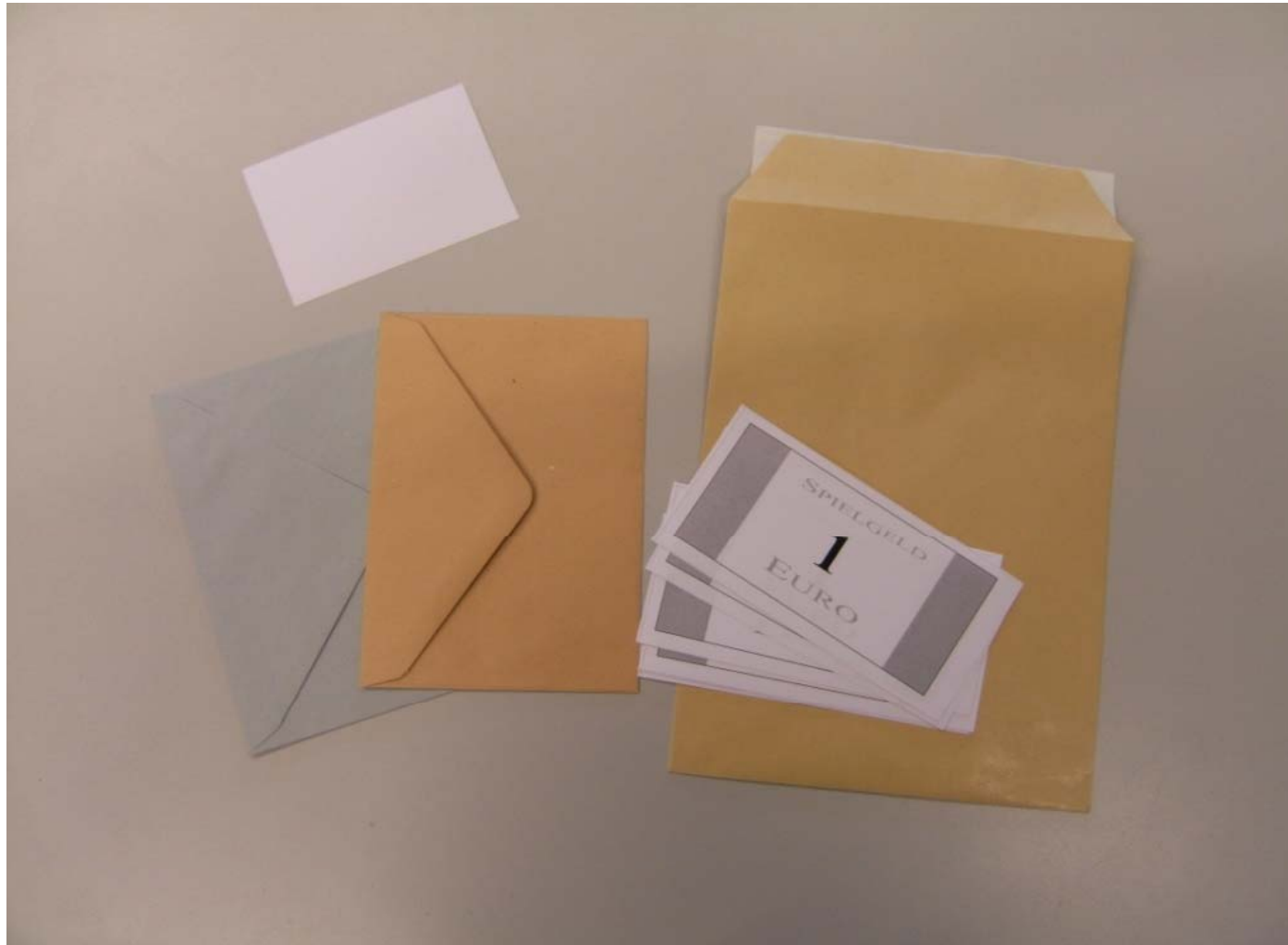
}  $\hat{=}$  **DB2**  
by  
HMS

## 2nd Design: Photos

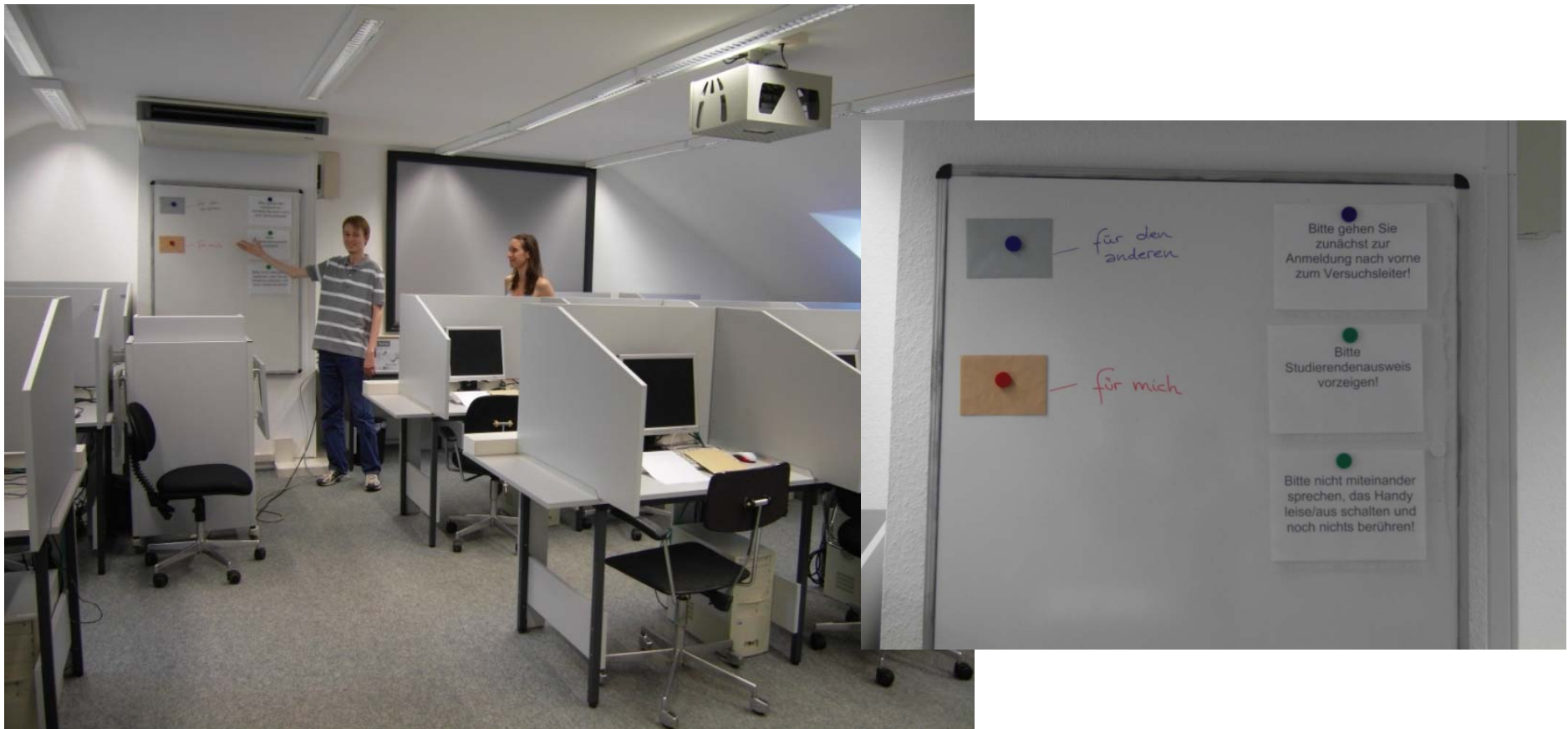


## 2nd Design: Photos

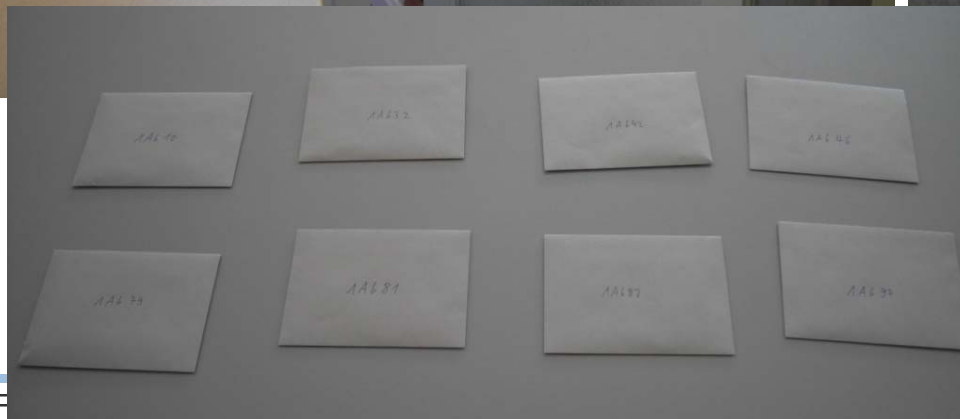
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## 2nd Design: Photos

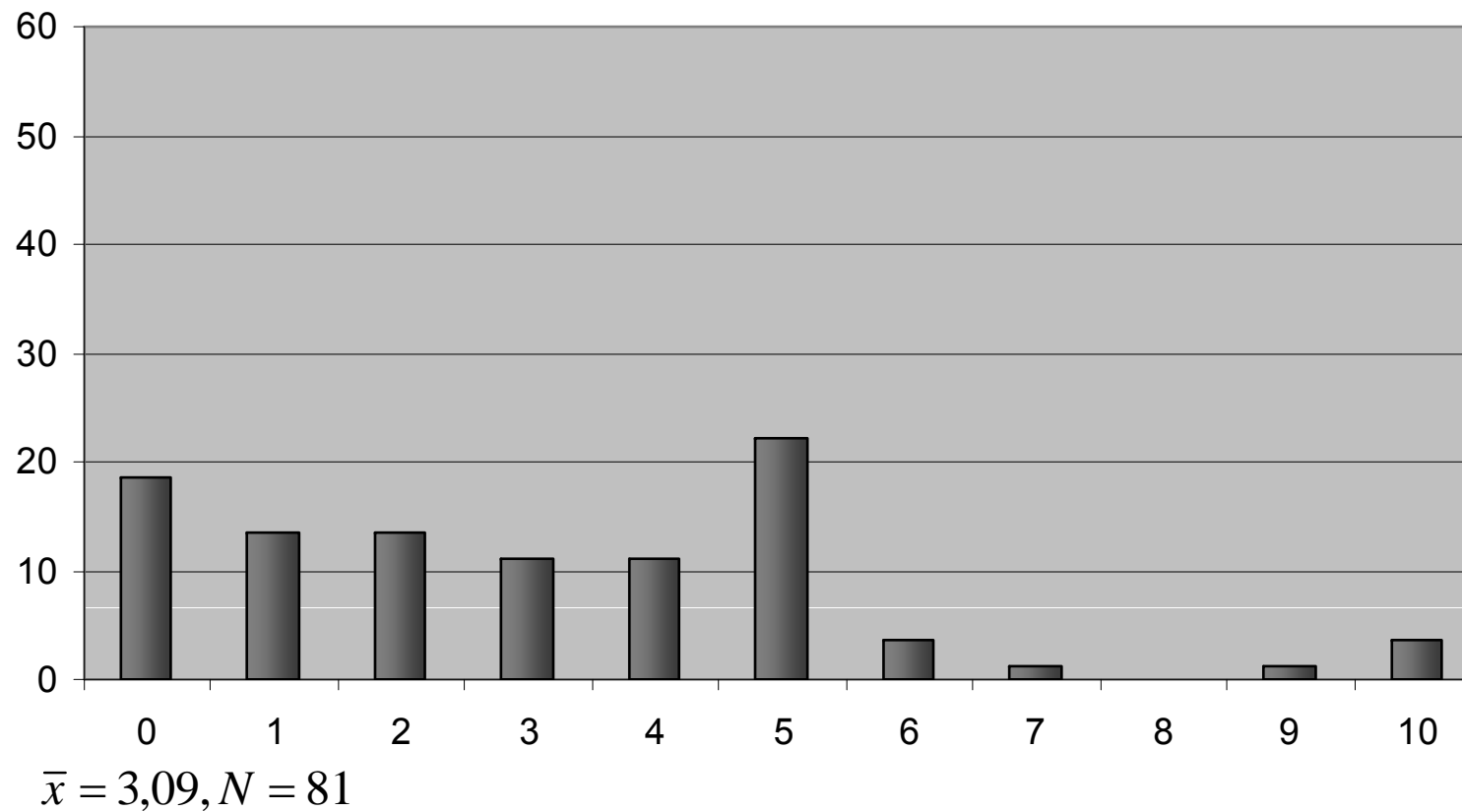


## 2nd Design: Photos



## 2nd Design: Results

Relative frequency of amount given to co-player



## 2nd Design: Results

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- > 18 persons (22%) made a fair split, this is the most frequent decision.
- > Dictators gave on average 3,09 Euro, only 18,5% did not donate any amount (similar to FHSS results). In contrast: in DB1 and DB2 design by HMS approximately 58%-62% of the test persons gave nothing.
- > So, even under double blind conditions fairness is an important decision rule.
- > As we can exclude external motivations for fairness, we suppose that an intrinsic motivation for fairness prevails here. We suppose, this is due to differences in the instruction language.

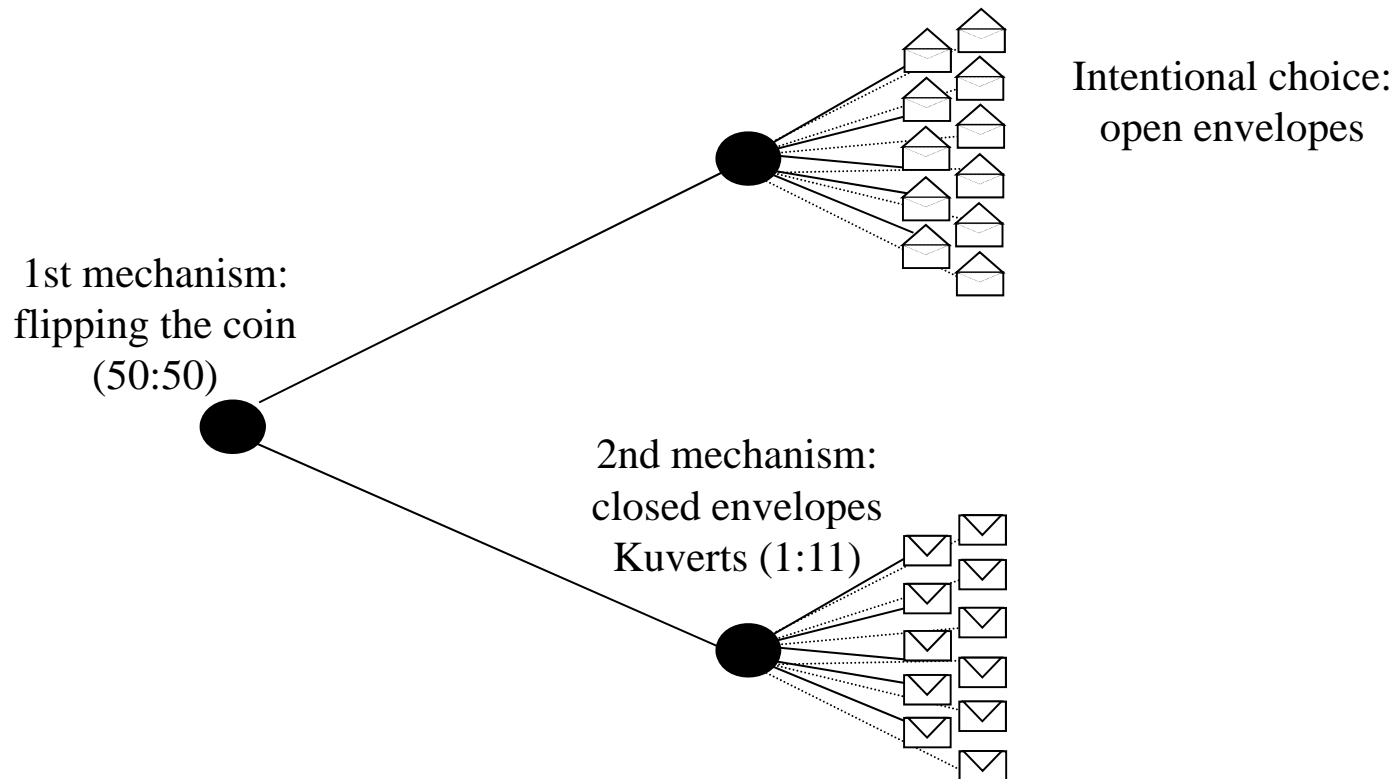


## 3rd Design: The RRT-Dictator Game

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- > Two packs of envelopes were deposited at every place in the laboratory. One pack with 11 closed envelopes, the other with 11 open envelopes.
- > All envelopes contained a white Euro-Voucher (the amount for the dictator) and a green Euro-Voucher (the amount for the recipient). Every white-green-voucher combination adds up to 10 Euro, in every staple were all possible combinations of 10 Euro (0/10, 1/9, ..., 9/1, 10/0).
- > Probands had to flip a coin. If the result is „heads“ the subject was allowed to draw one of the closed envelopes (this is the random choice).
- > In case of „tails“ the subject could chose one of the open envelopes (this was the intentional choice).
- > After the decision: Participants sealed all open envelopes, kept their selected envelope separate and threw the remaining 21 envelopes in a box. With the chosen envelope they went to the cashpoint.
- > The procedure is totally anonymous.

# 3rd Design: The RRT-Dictator Game



## 3rd Design: Preparation...



## 3rd Design: test set-up

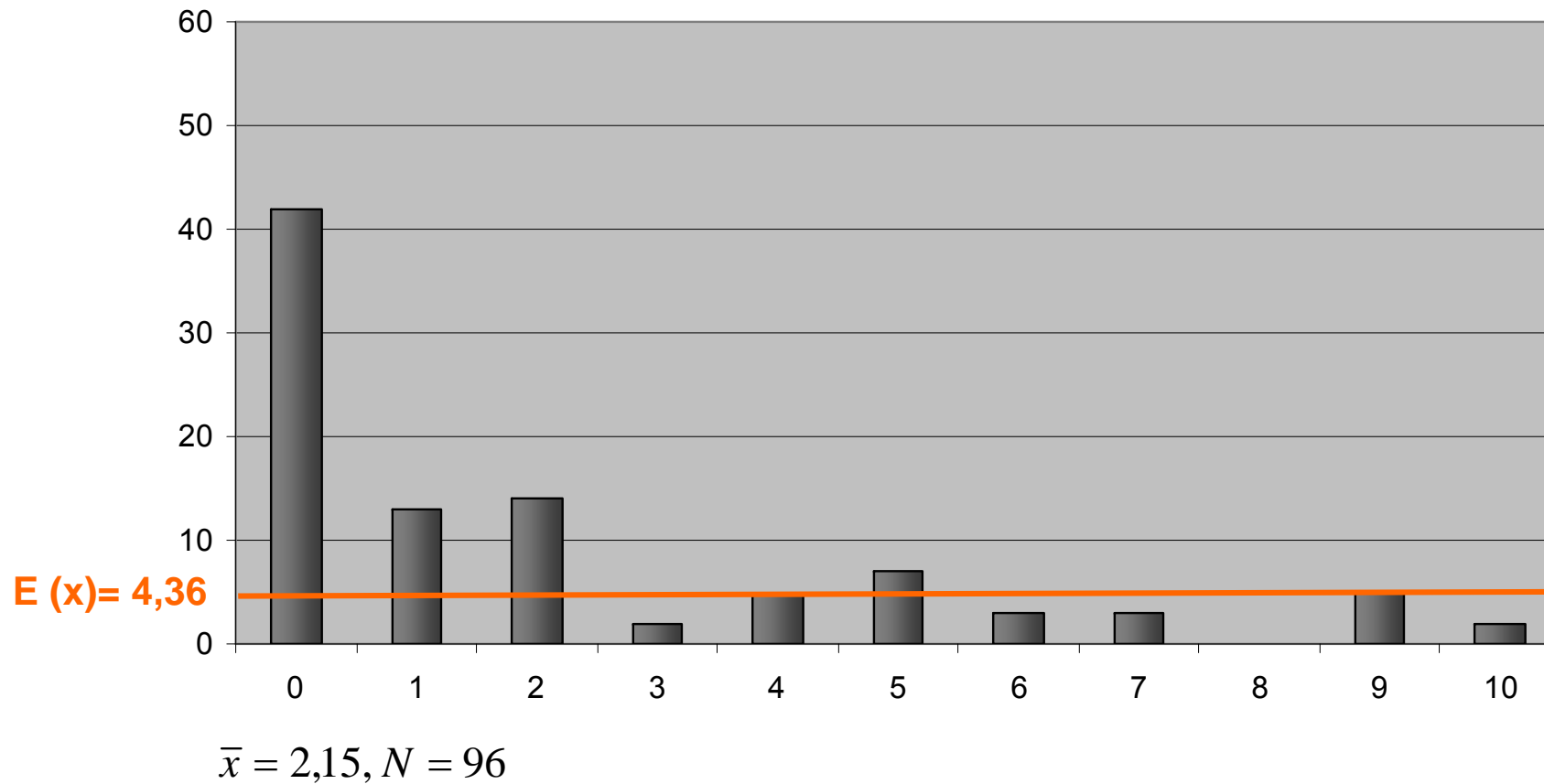


### 3rd Design: the cash office



## 3rd Design: results

Absolute frequency of amount given to co-player



## 3rd Design: results

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- > N=96 → 48 subjects should have randomly selected the open envelopes and 48 subjects the closed envelopes via coin toss
- > Closed envelopes: an equal distribution is expected, every combination (10/0, 9/1, ..., 1/9, 0/10) should occur 4,36 times.
- > 42 from 96 subjects gave nothing. So, approximately 37-38 persons made an intentionally egoistic distribution.
- > On average 2,15 Euro were transferred
- > But: What is the mean value of the intentional decisions?

## 3rd Design: results with black light





## 3rd Design: results with black light

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Now, we can specify our results:

- > 59 persons used the open envelopes, only 37 (39 %) have used the closed envelopes.
- > Open envelopes: on average subjects only submitted 69 Cent, almost 60% of our subjects gave nothing.
- > Only 2 persons played fair although we use „prosocial“ language. Therefore, RRT eliminates fair behavior!
- > It seems that RRT guarantees anonymity more reliably than a common double blind procedure.

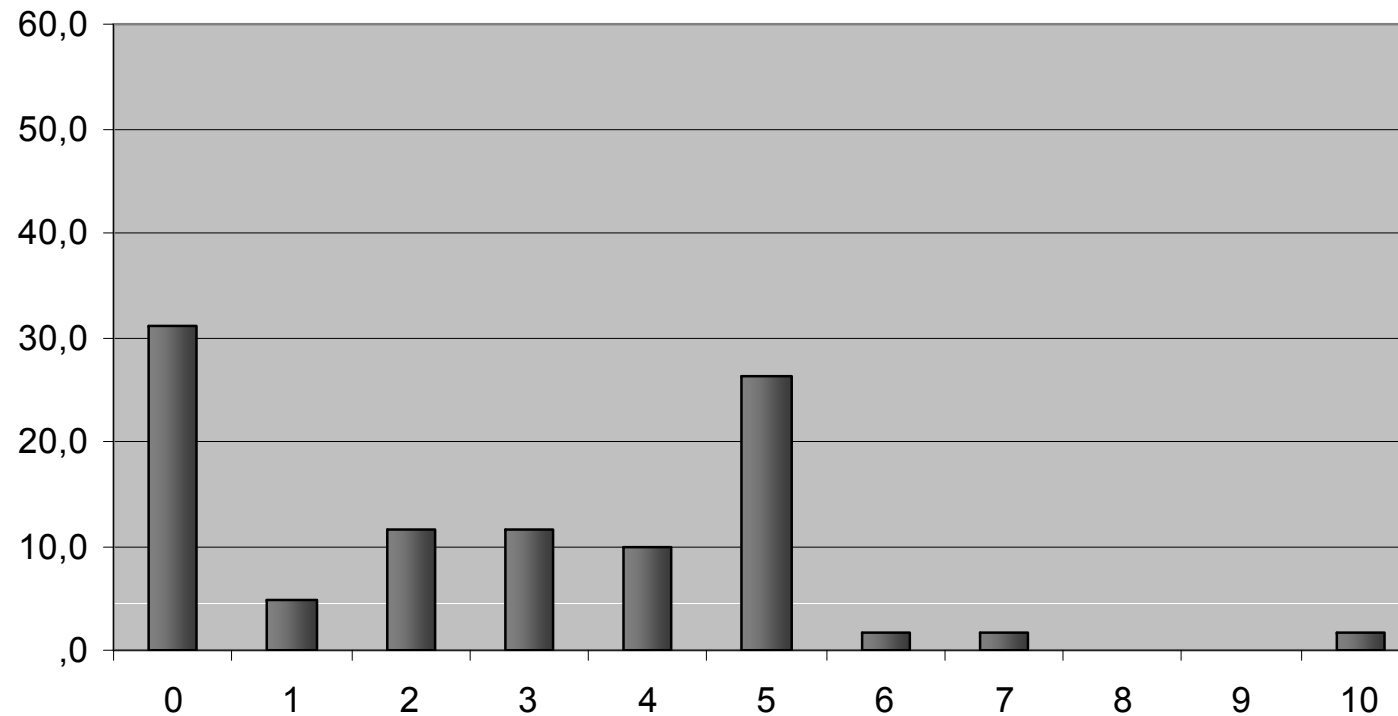
## 4th Design: Test for a „gambling effect“

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- > Is there an alternative explanation of the RRT-results?
- > Maybe, allocations are self-interested due to a lottery effect. Subjects had luck with the first random mechanism and therefore kept all the money.
- > So, we tested the coin toss in combination with the 2nd design. If the coin toss has no effect, then we expect the same results as in design 2. If players feel like winning a lottery, the results should resemble the RRT-dictator game.
- > 116 subjects were invited. All of them flipped the coin. Only the participants who got „head“ stayed in the laboratory. All other persons left the lab.
- > Then, our subjects got the same instructions as in the 2nd experiment. Recipients were again other students from the university, students who were involved in the experiments were excluded.

## 4th Design: results with the coin toss

Relative frequency of amount given to co-player



$$\bar{x} = 2,7, N = 61$$

## 4th Design: results with the coin toss

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- > Distributions of the 2nd Design (doubleblind DG) and the 5th design (DG with coin toss) are not different (K-S for two samples:  $Z=0,745$ ,  $\alpha=0,636$ )
- > The proportion of fair offers is slightly higher than in the DG with coin toss (26,2% versus 22,2%)
- > We have more egoistic offers in the DG with coin toss (31% versus 19%). But the mean value of 2,70 does not significantly differ from the DG without coin toss.
- > The coin toss creates no gambling effect!
- > So, the results in the RRT-dictator game seem to be caused by the extensive degree of anonymity.

## Conclusion

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- > Some results have shown that increasing anonymity is decreasing fairness behavior, but the results were often intertwined with other factors, e.g. with increased social distance.
- > So, we have used a social language (like Forsythe et al.) in all our experiments and only varied anonymity.
- > We conclude:
  - a) Anonymity by itself is a profound threat for the fairness norm, but only with the RRT and not under common double blind conditions.
  - b) There is no intrinsic motivation for fairness under reliable anonymous conditions.
  - c) The RRT is up to our results the only convincing mechanism for anonymity in experimental designs.

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Thank you for your attention!

