

# Choosing and Not Choosing with and without Communication: Experimental Results on Contract Design and Selection

by

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## *Online Appendix*

### *A.1 Instructions*

*(Notes to reader: the only difference between the chat and no-communication treatments is the presence of the paragraph on communication; the exogenous-contract and restricted-communication treatments are identical but for the minor changes indicated in section 3; we relabeled quality  $x$  as response  $R$  to maintain normal language.)*

Thanks for coming to the experiment. You will receive 8 Euro for having shown up on time. In addition you will make money during the session.

The participants have been randomly divided into two roles – agents  $A$  and agents  $B$  – according to the seat number. These roles will remain constant during the whole experiment.

The experiment will have 11 periods. In each period you will be matched with another person in the other role. This person will change from period to period and you will never be paired twice with the same person. At no point will you know with whom you are matched.

Each period is independent and develops as follows. Agent  $A$  and agent  $B$  each has an endowment of 5 monetary units and an opportunity to interact. To interact with  $B$ ,  $A$  has to propose a contract type (I or II) and a transfer,  $P$ , and  $B$  must accept this; all this occurs before knowing whether  $B$ 's cost is high (20) or low (0). After observing this cost (and if  $A$  and  $B$  agreed to interact), agent  $A$  can make an additional transfer,  $Q$ , but only if the negotiated contract is of type II. If, by contrast, the negotiated contract is of type I, the transfer remains fixed at  $P$ . After observing the cost and agent  $A$ 's final transfer ( $P$  or  $P + Q$ ), agent  $B$  chooses his/her response  $R$  between the values  $-1$ ,  $0$  and  $1$ , where  $R = -1$  or  $R = 1$  imply an additional cost of 1 on  $B$  relative to  $R = 0$ . This response affects what agent  $A$  receives as explained below. In fuller detail, each period contains 5 stages:

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- Stage 1: Agent  $A$  proposes to agent  $B$ : a contract of type I with a non-negative transfer  $P(I)$   
 –or–  
 a contract of type II with a non-negative transfer of  $P(II)$  (the initial transfer)
- Stage 2: Agent  $B$  accepts or rejects this proposal.  
 If agent  $B$  rejects, then the period ends without the following steps.  
 If agent  $B$  accepts, then the period proceeds to step 3.
- Stage 3: The cost of agent  $B$  is randomly determined by the computer. With probability  $1/2$  the cost is 0 and with probability  $1/2$  the cost is 20.
- Stage 4: If a contract of type II is agreed, then agent  $A$  can now increase the initial transfer with an additional non-negative transfer  $Q$  (that is, can make a total transfer of  $P + Q$  instead of  $P$ ).
- Stage 5: Agent  $B$  chooses a response level  $R = -1$ ,  $R = 0$  or  $R = 1$ .

At each stage, agent  $A$  and agent  $B$  are both directly informed of what happened in all earlier stages (of that period).

At the end of a period, the results are as follows:

If agent  $B$  rejects the contract proposed by agent  $A$ :

Agent  $A$  and agent  $B$  each receive their initial endowment of 5 units.

If agent  $B$  accepts:

Agent  $A$  receives:  $15 + 0_{(\text{if } R=-1)} + 20_{(\text{if } R=0)} + 35_{(\text{if } R=1)} - \text{transfer from } A \text{ to } B$ .

Agent  $B$  receives  $5 - \text{cost} - |R| + \text{transfer from } A \text{ to } B$ ,

where the cost is  $= 0$  or  $20$ , depending on the outcome given by the computer,  
 and the transfer from  $A$  to  $B = P(I)$  if the contract is of type I, and  
 $= P(II) + Q$  if the contract if of type II.

After this we will proceed to the next period which will develop in the same way. Remember that you will never play the same person twice.

The first period, called period 0, will be a trial period and will not be taken into account in determining what you will earn in the experiment. Periods 1 to 10 will not be trial periods. One of these will be randomly selected to determine what you earn in the experiment.

Each monetary unit is worth 1 Euro. At the end of the session you will be paid 8 Euros plus what you will have earned in the period that is selected randomly.

*Communication:* During each period, the agents  $A$  and  $B$ , can communicate through a chat. To do this, they have to write a message in the appropriate field and push “ENTER”. Each participant  $A$  and  $B$  can close his/her chat window and can open it

*again after having closed it (all previous messages of the period will remain visible). While one participant has his chat window closed, he/she will not be able to read or send messages, but the participant he is matched with will continue to be able to send messages (which will be visible for the matched person once he/she reopens the chat window). It is important not to use the chat window to send messages that reveal your identity.*

You can ask questions at any time. If you have a question, raise your hand and one of us will come to your cubicle to answer it.

Now we will briefly explain the screens that you will see once the experiment starts.

## A.2 Session-Level Data

Table A1

Behavior in Session 1 of the Endogenous No-Communication Treatment

Category	Rigid contract	Flexible contract
Frequency*	53 (49.5%)	56 (50.5%)
Rejections	12 (25.9%)	11 (20.0%)
Average $P$	15.15 [1.07]	13.00 [0.83]
Average $Q$	–	2.44 [0.58]
Low quality	10 (22.5%)	12 (27.9%)
Normal quality	25 (65.0%)	30 (9.8%)
High quality	5 (12.5%)	1 (2.3%)
Avg. quality	–0.10 (0.09)	–0.26 (0.09)
Avg. buyer earnings (all offers)	12.08 [1.41]	11.00 [1.20]
Avg. seller earnings (all offers)	9.62 [1.48]	10.56 [1.68]
Avg. total earnings (all offers)	21.70 [1.83]	20.21 [1.82]

Notes: \* No contract was offered on one occasion. Standard errors are in brackets.

Table A2

Behavior in Session 2 of the Endogenous No-Communication Treatment

Category	Rigid contract	Flexible contract
Frequency*	66 (60.0%)	44 (40.0%)
Rejections	24 (36.3%)	23 (52.3%)
Average $P$	14.18 [0.61]	10.00 [0.55]
Average $Q$	–	1.78 [0.83]
Low quality	14 (33.3%)	8 (38.1%)
Normal quality	27 (64.3%)	13 (61.9%)
High quality	1 (2.4%)	0 (0.0%)
Avg. quality	–0.31 (0.08)	–0.44 (0.12)
Avg. buyer earnings (all offers)	9.86 [1.07]	8.55 [1.32]
Avg. seller earnings (all offers)	8.92 [1.12]	4.00 [0.92]
Avg. total earnings (all offers)	18.79 [1.74]	12.55 [1.45]

Note: Standard errors are in brackets.

*Table A3*

Behavior in Session 3 of the Endogenous No-Communication Treatment

Category	Rigid contract	Flexible contract
Frequency	46 (41.8%)	64 (58.2%)
Rejections	11 (23.9%)	15 (23.4%)
Average $P$	12.93 [0.88]	10.66 [0.48]
Average $Q$	—	2.78 [0.44]
Low quality	9 (25.7%)	22 (44.9%)
Normal quality	26 (74.3%)	26 (53.1%)
High quality	0 (0.0%)	1 (2.0%)
Avg. quality	-0.26 [0.07]	-0.43 [0.08]
Avg. buyer earnings (all offers)	12.61 [1.35]	10.34 [1.19]
Avg. seller earnings (all offers)	7.41 [1.32]	6.88 [1.20]
Avg. total earnings (all offers)	20.02 [2.13]	17.22 [1.86]

*Note:* Standard errors are in brackets.*Table A4*

Behavior in Session 4 of the Endogenous No-Communication Treatment

Category	Rigid contract	Flexible contract
Frequency	78 (71.6%)	32 (28.4%)
Rejections	31 (39.7%)	11 (35.5%)
Average $P$	11.45 [0.76]	10.35 [1.19]
Average $Q$	—	3.45 [0.72]
Low quality	18 (38.3%)	11 (55.0%)
Normal quality	29 (61.7%)	7 (35.0%)
High quality	0 (0.0%)	2 (10.0%)
Avg. quality	-0.38 (0.07)	-0.43 (0.15)
Avg. buyer earnings (all offers)	9.65 [0.95]	7.84 [1.28]
Avg. seller earnings (all offers)	5.88 [0.92]	7.23 [1.89]
Avg. total earnings (all offers)	15.54 [1.47]	15.06 [2.82]

*Notes:* We exclude one case in which the buyer received a very large negative payoff in the final period. Standard errors are in brackets.

*Table A5*  
Behavior in Session 1 of the Endogenous Chat Treatment

Category	Rigid contract	Flexible contract
Frequency	29 (26.4%)	81 (73.6%)
Rejections	9 (23.7%)	4 (4.7%)
Average $P$	19.41 [1.76]	17.37 [0.84]
Average $Q$	—	9.29 [0.86]
Low quality	6 (30.0%)	8 (10.4%)
Normal quality	3 (15.0%)	15 (19.5%)
High quality	11 (55.0%)	54 (70.1%)
Avg. quality	0.25 [0.20]	0.60 [0.08]
Avg. buyer earnings (all offers)	10.83 [0.58]	15.59 [1.45]
Avg. seller earnings (all offers)	16.00 [2.03]	21.54 [0.93]
Avg. total earnings (all offers)	26.83 [3.62]	37.14 [1.94]

*Note:* Standard errors are in brackets.

*Table A6*  
Behavior in Session 2 of the Endogenous Chat Treatment

Category	Rigid contract	Flexible contract
Frequency*	12 (11.1%)	96 (88.9%)
Rejections	6 (50.0%)	2 (2.0%)
Average $P$	13.42 [2.28]	10.92 [0.97]
Average $Q$	—	15.74 [1.02]
Low quality	0 (0.0%)	5 (5.3%)
Normal quality	4 (66.7%)	17 (18.1%)
High quality	2 (33.3%)	72 (76.6%)
Avg. quality	0.33 [0.21]	0.71 [0.06]
Avg. buyer earnings (all offers)	14.42 [3.63]	18.39 [0.79]
Avg. seller earnings (all offers)	7.92 [3.78]	20.81 [0.95]
Avg. total earnings (all offers)	22.33 [4.51]	39.20 [1.44]

*Notes:* \* No contract was offered on two occasions. Standard errors are in brackets.

*Table A7*  
Behavior in Session 3 of the Endogenous Chat Treatment

Category	Rigid contract	Flexible contract
Frequency	53 (48.2%)	57 (51.8%)
Rejections	3 (5.7%)	6 (10.5%)
Average $P$	25.91 [0.85]	19.23 [1.04]
Average $Q$	—	7.92 [1.17]
Low quality	3 (6.0%)	4 (7.8%)
Normal quality	21 (42.0%)	15 (29.4%)
High quality	26 (52.0%)	32 (62.8%)
Avg. quality	0.46 [0.09]	0.55 [0.09]
Avg. buyer earnings (all offers)	14.47 [1.24]	13.86 [1.41]
Avg. seller earnings (all offers)	18.94 [1.69]	19.19 [1.23]
Avg. total earnings (all offers)	33.42 [2.37]	33.05 [2.19]

*Note:* Standard errors are in brackets.

*Table A8*  
Behavior in Session 4 of the Endogenous Chat Treatment

Category	Rigid contract	Flexible contract
Frequency	15 (15.4%)	93 (84.6%)
Rejections	2 (11.8%)	0 (0.0%)
Average $P$	25.24 [2.08]	21.30 [0.32]
Average $Q$	—	6.52 [0.58]
Low quality	4 (26.7%)	3 (3.2%)
Normal quality	5 (33.3%)	14 (15.1%)
High quality	6 (40.0%)	76 (81.7%)
Avg. quality	0.13 [0.22]	0.78 [0.05]
Avg. buyer earnings (all offers)	8.88 [2.59]	18.80 [0.86]
Avg. seller earnings (all offers)	17.00 [1.16]	21.65 [2.80]
Avg. total earnings (all offers)	25.88 [4.39]	40.44 [1.27]

*Note:* Standard errors are in brackets.

Table A9

Behavior in Session 1 of the Exogenous Rigid No-Communication Treatment

Category	Rigid contract
Frequency*	109 (100%)
Rejections	36 (33.0%)
Average $P$	14.09 [0.62]
Average $Q$	—
Low quality	29 (39.7%)
Normal quality	41 (56.2%)
High quality	3 (4.1%)
Avg. quality	−0.36 [0.07]
Avg. buyer earnings (all offers)	7.13 [0.90]
Avg. seller earnings (all offers)	13.08 [1.17]
Avg. total earnings (all offers)	20.21 [1.48]

*Notes:* \* No contract was offered on one occasion.  
Standard errors are in brackets.

Table A10

Behavior in Session 2 of the Exogenous Rigid No-Communication Treatment

Category	Rigid contract
Frequency*	107 (100%)
Rejections	40 (37.4%)
Average $P$	14.07 [0.57]
Average $Q$	—
Low quality	18 (26.9%)
Normal quality	44 (65.7%)
High quality	5 (7.5%)
Avg. quality	−0.19 [0.07]
Avg. buyer earnings (all offers)	12.11 [0.96]
Avg. seller earnings (all offers)	7.36 [0.79]
Avg. total earnings (all offers)	19.47 [1.34]

*Notes:* \* No contract was offered on three occasions.  
Standard errors are in brackets.

Table A11

Behavior in Session 3 of the Exogenous Rigid No-Communication Treatment

Category	Rigid contract
Frequency	110 (100%)
Rejections	29 (26.4%)
Average $P$	16.53 [0.45]
Average $Q$	—
Low quality	23 (28.4%)
Normal quality	52 (64.2%)
High quality	6 (7.4%)
Avg. quality	−0.21 [0.06]
Avg. buyer earnings (all offers)	11.55 [0.94]
Avg. seller earnings (all offers)	10.55 [0.90]
Avg. total earnings (all offers)	22.10 [1.40]

*Note:* Standard errors are in brackets.

Table A12

Behavior in Session 4 of the Exogenous Rigid No-Communication Treatment

Category	Rigid contract
Frequency	110 (100%)
Rejections	47 (42.7%)
Average $P$	14.62 [0.40]
Average $Q$	—
Low quality	16 (25.4%)
Normal quality	46 (73.0%)
High quality	1 (1.6%)
Avg. quality	−0.24 [0.06]
Avg. buyer earnings (all offers)	11.04 [0.86]
Avg. seller earnings (all offers)	8.67 [0.81]
Avg. total earnings (all offers)	19.71 [1.28]

*Note:* Standard errors are in brackets.

Table A13

Behavior in Session 1 of the Exogenous Flex No-Communication Treatment

Category	Flexible contract
Frequency*	109 (100%)
Rejections	33 (30.3%)
Average $P$	15.17 [0.76]
Average $Q$	3.62 [0.50]
Low quality	26 (34.2%)
Normal quality	41 (54.0%)
High quality	9 (11.8%)
Avg. quality	-0.22 [0.07]
Avg. buyer earnings (all offers)	9.25 [0.96]
Avg. seller earnings (all offers)	10.75 [1.09]
Avg. total earnings (all offers)	20.00 [1.59]

*Notes:* No contract was offered on one occasion. Standard errors are in brackets.

Table A14

Behavior in Session 2 of the Exogenous flex No-Communication Treatment

Category	Flexible contract
Frequency	110 (100%)
Rejections	40 (36.4%)
Average $P$	13.57 [0.63]
Average $Q$	3.30 [0.76]
Low quality	33 (47.1%)
Normal quality	31 (44.3%)
High quality	6 (8.6%)
Avg. quality	-0.39 [0.08]
Avg. buyer earnings (all offers)	8.17 [0.90]
Avg. seller earnings (all offers)	8.11 [0.93]
Avg. total earnings (all offers)	16.28 [1.40]

*Note:* Standard errors are in brackets.

Table A15

Behavior in Session 3 of the Exogenous Flex No-Communication Treatment

Category	Flexible contract
Frequency	110 (100%)
Rejections	26 (39.7%)
Average $P$	14.48[0.63]
Average $Q$	4.88 [1.12]
Low quality	20 (23.8%)
Normal quality	50 (59.5%)
High quality	14 (16.7%)
Avg. quality	-0.07 [0.07]
Avg. buyer earnings (all offers)	11.40 [1.02]
Avg. seller earnings (all offers)	13.84 [1.33]
Avg. total earnings (all offers)	25.24 [1.63]

*Note:* Standard errors are in brackets.

Table A16

Behavior in Session 4 of the Exogenous Flex No-Communication Treatment

Category	Rigid contract
Frequency	110 (100%)
Rejections	21 (19.1%)
Average $P$	12.37 [0.47]
Average $Q$	2.90 (0.41)
Low quality	29 (32.6%)
Normal quality	52 (58.4%)
High quality	8 (9.0%)
Average quality	-0.24 [0.06]
Avg. buyer earnings (all offers)	9.67 [1.10]
Avg. seller earnings (all offers)	11.72 [0.87]
Avg. total earnings (all offers)	21.39 [1.56]

*Note:* Standard errors are in brackets.

Table A17

Behavior in Session 1 of the Exogenous Rigid Chat Treatment

Category	Rigid contract
Frequency	110 (100%)
Rejections	12(10.9%)
Average $P$	27.37 [0.81]
Average $Q$	—
Low quality	4 (4.1%)
Normal quality	30 (30.6%)
High quality	64 (65.3%)
Avg. quality	0.61 [0.06]
Avg. buyer earnings (all offers)	13.03 [0.85]
Avg. seller earnings (all offers)	22.35 [1.11]
Avg. total earnings (all offers)	35.38 [1.38]

*Note:* Standard errors are in brackets.

Table A18

Behavior in Session 2 of the Exogenous Rigid Chat Treatment

Category	Rigid contract
Frequency	110 (100%)
Rejections	15 (13.6%)
Average $P$	23.28 [0.68]
Average $Q$	—
Low quality	14 (14.7%)
Normal quality	25 (26.3%)
High quality	56 (58.9%)
Avg. quality	0.44 [0.08]
Avg. buyer earnings (all offers)	14.11 [1.13]
Avg. seller earnings (all offers)	18.80 [1.10]
Avg. total earnings (all offers)	32.91 [1.69]

*Note:* Standard errors are in brackets.

Table A19

Behavior in Session 3 of the Exogenous Rigid Chat Treatment

Category	Rigid contract
Frequency	110 (100%)
Rejections	22 (20.0%)
Average $P$	21.17 [1.20]
Average $Q$	—
Low quality	24 (27.3%)
Normal quality	29 (32.9%)
High quality	35 (39.8%)
Avg. quality	0.12 [0.09]
Avg. buyer earnings (all offers)	9.84 [1.18]
Avg. seller earnings (all offers)	15.67 [1.40]
Avg. total earnings (all offers)	25.51 [1.68]

*Note:* Standard errors are in brackets.

Table A20

Behavior in Session 4 of the Exogenous Rigid Chat Treatment

Category	Rigid contract
Frequency	110 (100%)
Rejections	14 (12.7%)
Average $P$	19.91 [0.78]
Average $Q$	—
Low quality	21 (21.9%)
Normal quality	40 (41.7%)
High quality	35 (36.5%)
Avg. quality	0.15 [0.08]
Avg. buyer earnings (all offers)	13.33 [1.10]
Avg. seller earnings (all offers)	12.94 [1.16]
Avg. total earnings (all offers)	26.26 [1.72]

*Note:* Standard errors are in brackets.

Table A21

Behavior in Session 1 of the Exogenous Flex Chat Treatment

Category	Flexible contract
Frequency	110 (100%)
Rejections	4 (3.6%)
Average $P$	13.98 [0.57]
Average $Q$	12.05 (0.76)
Low quality	7 (6.6%)
Normal quality	20 (18.9%)
High quality	79 (74.5%)
Avg. quality	0.68 [0.06]
Avg. buyer earnings (all offers)	18.04 [0.82]
Avg. seller earnings (all offers)	19.95 [0.88]
Avg. total earnings (all offers)	37.99 [1.44]

*Note:* Standard errors are in brackets.

Table A22

Behavior in Session 2 of the Exogenous Flex Chat Treatment

Category	Flexible contract
Frequency	110 (100%)
Rejections	4 (3.6%)
Average $P$	14.74 [0.60]
Average $Q$	9.88 [0.76]
Low quality	9 (8.5%)
Normal quality	24 (22.6%)
High quality	73 (68.9%)
Avg. quality	0.60 [0.06]
Avg. buyer earnings (all offers)	18.19 [0.92]
Avg. seller earnings (all offers)	18.84 [0.92]
Avg. total earnings (all offers)	37.03 [1.47]

*Note:* Standard errors are in brackets.

Table A23

Behavior in Session 3 of the Exogenous Flex Chat Treatment

Category	Flexible contract
Frequency	110 (100%)
Rejections	5 (4.6%)
Average $P$	10.64 [0.63]
Average $Q$	15.05 [0.83]
Low quality	18 (17.1%)
Normal quality	12 (11.4%)
High quality	75 (71.4%)
Avg. quality	0.54 [0.08]
Avg. buyer earnings (all offers)	15.87 [0.99]
Avg. seller earnings (all offers)	18.15 [0.95]
Avg. total earnings (all offers)	34.02 [1.61]

*Note:* Standard errors are in brackets.

Table A24

Behavior in Session 4 of the Exogenous Flex Chat Treatment

Category	Flexible contract
Frequency	110 (100%)
Rejections	5 (4.6%)
Average $P$	13.21 [0.58]
Average $Q$	12.21 [0.77]
Low quality	17 (16.2%)
Normal quality	29 (27.6%)
High quality	59 (56.2%)
Avg. quality	0.42 [0.07]
Avg. buyer earnings (all offers)	13.98 [1.14]
Avg. seller earnings (all offers)	19.11 [1.03]
Avg. total earnings (all offers)	33.08 [1.71]

*Note:* Standard errors are in brackets.

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