Online Appendix for:

Is Money Essential? An Experimental Approach

A Social Value Orientation

We use a measure of SVO (Social Value Orientation) introduced by Murphy et al. (2011) to capture social or altruistic preferences. This is constructed by having participants play six generalized dictator games that differ in the costs for the sender to give money to the receiver. The SVO index is computed as an increasing function of the ratio of the amount given to the amount kept, so higher SVO scores correspond to more altruistic preferences (see Murphy et al. 2011). Experiments were conducted using the computerized module for zTree and oTree developed by Crosetto et al. (2019) with the ring matching protocol, where each subject acts as both a sender and a receiver (see Crosetto et al. 2019 for details). In addition to the six games used to compute SVO scores, we added nine secondary games from Murphy et al. (2011) and Crosetto al. (2019) that may help disentangle motives associated with maximization of social surplus from equality concerns, but since not even the basic SVO score has any explanatory power, we did not pursue this. One game where the subject was a proposer and another where the subject was a receiver were randomly chosen to determine subjects' payments.

B In-person vs Online Sessions of Treatment N-1-0

Before the pandemic, we ran four in-person sessions for Model N-1-0 with subjects from the same pool as the online sessions used in the paper. The in-person sessions were programmed using zTree (Fischbacher 2007).

Table B.1 provides a non-parametric comparison of production rates between online

and in-person sessions overall and conditional on money offers, and Table B.2 provides a parametric comparison where we add controls. Online production rates are higher than in-person, even when controlling for age, gender, field of study, and SVO scores (controls A). However, when adding controls for the quiz score (controls B), the difference is no longer significant. The average quiz score is 95% for in person and 82% for online sessions, suggesting that subjects may be more inattentive online.[1]

TABLE B.1: Average Production in Model N-1-0: Online vs. In-Person

	Average				WMW p-values	
	Online	In-person	Online (Cond.)	In-person (Cond.)	Online vs. In-person	Online v In-person (Cond.)
All Rounds	0.35	0.17	0.44	0.25	0.029	0.029
Rounds 1-5	0.43	0.20	0.51	0.28	0.086	0.114
Rounds 6-15	0.31	0.16	0.40	0.23	0.057	0.057
Rounds 11-15	0.32	0.14	0.40	0.22	0.029	0.029

NOTE.—The p-values from the WMW test are exact and two-sided, and there are 4 observations per treatment.

TABLE B.2: Production in Model N-1-0: Online vs. In-Person

Rounds	In-Person	Online	Difference (t-test)	Difference (controls A)	Difference (controls B)	# of Obs.
All	0.1706***	0.3583***	0.1877***	0.1382**	0.0489	990
	(0.0243)	(0.0445)	(0.0470)	(0.0561)	(0.0739)	
1–5	0.2000***	0.4375***	0.2375***	0.1928**	0.1028	330
	(0.0254)	(0.0442)	(0.0473)	(0.0549)	(0.0773)	
6–15	0.1559**	0.3188***	0.1629**	0.1108	0.0220	660
	(0.0436)	(0.0553)	(0.0652)	(0.0733)	(0.1005)	
11–15	0.1412**	0.3250***	0.1838**	0.1294*	0.0294	330
	(0.0388)	(0.0457)	(0.0556)	(0.0637)	(0.0847)	

NOTE.— Standard errors in parentheses are clustered by session.$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. Controls A include age, gender, field of study and their SVO scores. Controls B includes A and adds subjects' quiz score.

Survey results displayed in Table B.3 also suggest that subjects may be more confused ("I made a mistake" or "I wanted the token for the sake of it") online than in-person, which may explain the higher production. These results are consistent with Hergueux and Jaquemet (2015), who find that subjects tend to make more other-regarding decisions in online settings. Indeed, the exit surveys indicate that player 3 more frequently were willing to produce for the other player "To help the other player" online than in-person.

[1]For the in-person sessions, the quiz was done on paper. We retrieved the quiz score of 44 subjects out of 51. Of those, we managed to link the quiz score to choices for 35 participants. The average quiz score of 82% and the regression with controls in specification B are based on these 35 participants.

There is no consensus on the difference between online and in-person experiments. Our results line up with Hergueux and Jaquemet (2015), but others, such as Buso et al. (2021) find no differences. Further investigations into differences between online and laboratory behavior are beyond the scope of our paper.

TABLE B.3: Reasons for Monetary Exchange in N-1-0: Online vs. In-Person

		Player 3		Player 2	
		Online	In-person	Online	In-person
a	Not applicable: I was never in this situation	5	13	1	3
b	To increase the chance of trading it for the good with another player	1	1	13	12
c	I made a mistake	3	1	0	1
d	To help the other player	6	1	7	5
e	I wanted the token for the sake of it	6	2	1	1
f	Other reason. Please explain:	1	0	1	2

NOTE.—The number of responses to the question: "If you were offered the token and you produced in exchange for the token, why did you do it? Check all that apply." The total number of subjects of each type is 16 for the four online sessions, and 17 for the four in-person sessions.

C Alternative Implementation of Model N-1-0

Our results differ starkly from Davis et al. (2022), where production rates are similar regardless of whether money is essential or not. We believe that this can be attributed to aspects of their design that generated repeated game effects. This is important because when desirable allocations can be supported using repeated game strategies money is not essential in theory.

To explore this, we conducted two additional sessions of Model N-1-0 adopting an alternative design, similar to Davis et al. (2022). In this treatment, which we label N-1-0*, subjects played in fixed groups of three participants each for all 15 rounds, and their role was randomly determined at the beginning of each round. These two sessions generated seven independent observations (one session had three independent groups and the other had four). Our results suggest that these design choices indeed affect production rates (see Table C.1, Table C.2 and Figure C.1) as conjectured. There is more production in treatment N-1-0* than in N-1-0 (averaged across all 15 rounds, the average production rate is 0.35 in N-1-0 versus 0.50 for N-1-0*). Further, production rates in treatment N-1-0* are comparable with treatment M-1-0, exactly like in Davis et al. (2022). Table C.3 reports results from the exit survey, which also provides suggestive evidence that many subjects approached the

experiment as a repeated game: the most common explanation for producing in exchange of money is "To increase the chance that my group members produce for me in future games when I could turn out to be player 1 or 2".

TABLE C.1: Average Production in Model N-1-0, N-1-0* and M-1-0

	Average			WMW p-values	
	N-1-0	N-1-0*	M-1-0	N-1-0 vs. N-1-0*	N-1-0 vs. M-1-0
All Rounds	0.35	0.50	0.52	0.067	0.873
Rounds 1-5	0.43	0.58	0.55	0.248	0.800
Rounds 6-15	0.31	0.45	0.51	0.067	0.248
Rounds 11-15	0.32	0.41	0.48	0.053	0.630

NOTE.—The p-values from the WMW test are exact and two-sided, and there are 4 observations in treatments N-1-0 and M-1-0, and 7 observations in treatment N-1-0*.

Table C.2: Production in Models N-1-0* vs. N-1-0 v. M-1-0

Rounds	N-1-0*	N-1-0	Difference (t-test)	# of Obs.
All	0.5000^{***} (0.0346)	0.3583^{***} (0.0219)	0.1417^{**} (0.0477)	690
1–5	0.6000^{***} (0.0590)	0.4375^{***} (0.0393)	0.1625 (0.0982)	230
6–15	0.4500^{***} (0.0422)	0.3188^{**} (0.0261)	0.1313^{*} (0.0537)	460
11–15	0.4000^{***} (0.0590)	0.3250^{***} (0.0371)	0.0750 (0.0795)	230
Rounds	N-1-0*	M-1-0	Difference (t-test)	# of Obs.
All	0.5000^{***} (0.0346)	0.5255^{***} (0.0221)	-0.0255 (0.0264)	720
1–5	0.6000^{***} (0.0590)	0.5588^{***} (0.0382)	0.0412 (0.1026)	240
6–15	0.4500^{***} (0.0422)	0.5088^{***} (0.0272)	-0.0588^{*} (0.0262)	480
11–15	0.4000^{***} (0.0590)	0.4765^{***} (0.0384)	-0.0765 (0.0690)	240

NOTE.– Standard errors in parentheses are clustered by session.$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

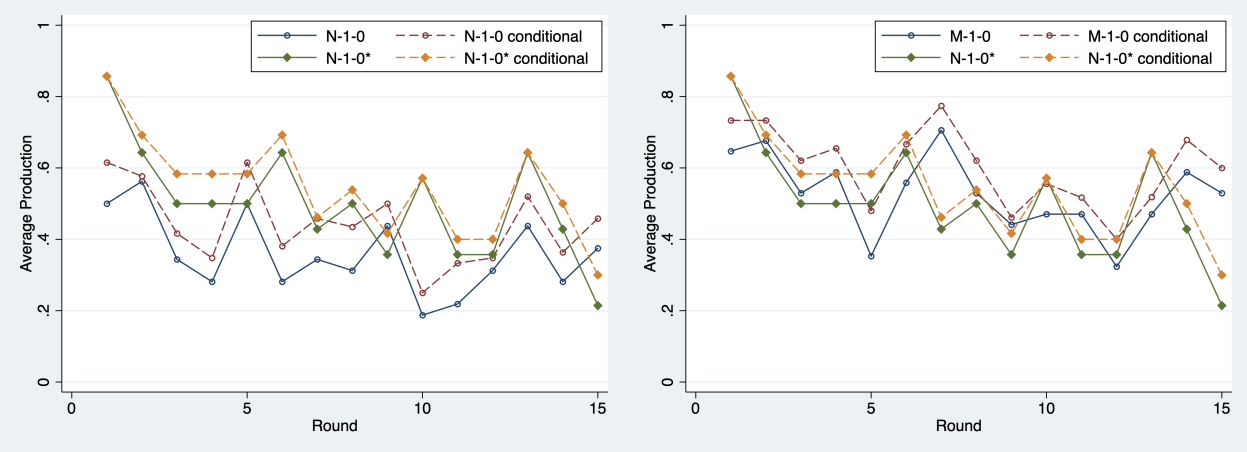


Fig C.1. Average production in Models M-1-0, N-1-0 and N-1-0*. Shown are average production unconditional and conditional on a buyer having money.

TABLE C.3: Reasons for Monetary Exchange in N-1-0*

		Player 3	Player 2
a	Not applicable: I was never in this situation	3	1
b	To increase the chance of trading it for the good with another player in that particular game	9	16
c	To increase the chance that my group members produce for me in future games where I could turn out to be player 1 or 2	12	17
d	I made a mistake	2	1
e	To help the other player	5	3
f	I wanted the token for the sake of it	4	1
g	Other reason. Please explain:	2	1

NOTE.—The number of responses to the questions "In games where you were player 2 (3), when player 1 (2) offered you the token and you produced in exchange for the token, why did you do it?" The total number of subjects is 21.

D Production by Session and Treatment

Table D.1 reports production by session and treatment for rounds 1-5, 6-15, 11-15 rounds, and all rounds. Table D.2 provides the same information conditional on money in the meeting.

Table D.1: Production by Session: All Meetings

Treatment	Session	Rounds				Treatment	Session	Rounds			
		1–5	6–15	11–15	All			1–5	6–15	11–15	All
M-1-0	1	0.64	0.52	0.48	0.56	N-1-0	1	0.42	0.19	0.20	0.27
	2	0.50	0.49	0.42	0.49		2	0.30	0.27	0.33	0.28
	3	0.42	0.57	0.52	0.52		3	0.55	0.36	0.35	0.42
	4	0.65	0.45	0.48	0.52		4	0.44	0.42	0.40	0.43
	Mean	0.55	0.51	0.48	0.52		Mean	0.43	0.31	0.32	0.35
M-1-1	1	0.75	0.67	0.65	0.7		5†	0.20	0.16	0.14	0.17
	2	0.57	0.55	0.50	0.58		6†	0.15	0.14	0.12	0.14
	3	0.50	0.58	0.53	0.56		7†	0.27	0.05	0.05	0.12
	4	0.76	0.64	0.66	0.68		8†	0.17	0.27	0.25	0.24
	Mean	0.65	0.61	0.59	0.62		Mean	0.20	0.16	0.14	0.17
M-0-0	1	0.24	0.26	0.3	0.25	N-1-1	1	0.27	0.09	0.1	0.15
	2	0.37	0.22	0.2	0.27		2	0.50	0.34	0.27	0.39
	3	0.33	0.1	0.07	0.18		3	0.52	0.27	0.22	0.36
	4	0.53	0.37	0.43	0.42		4	0.42	0.24	0.3	0.3
	Mean	0.37	0.24	0.25	0.28		Mean	0.43	0.23	0.22	0.3
M-0-1	1	0.62	0.31	0.22	0.42	N-1-0⋆	1	0.70	0.44	0.32	0.52
	2	0.42	0.26	0.22	0.32		2	0.47	0.47	0.50	0.47
	3	0.38	0.16	0.06	0.23		Mean	0.58	0.45	0.41	0.50
	4	0.67	0.56	0.52	0.6						
	Mean	0.52	0.32	0.25	0.39						

NOTE.— (†) Sessions were conducted in person. All the other sessions were conducted online. Treatment N-1-0⋆ was conducted with subjects in fixed groups and random roles.

Table D.2: Production by Session: Conditional on Money in Meeting

Treatment	Session	Rounds				Treatment	Session	Rounds			
		1–5	6–15	11–15	All			1–5	6–15	11–15	All
M-1-0	1	0.74	0.60	0.55	0.64	N-1-0	1	0.50	0.28	0.30	0.36
	2	0.59	0.59	0.50	0.59		2	0.38	0.35	0.41	0.36
	3	0.53	0.65	0.64	0.61		3	0.62	0.46	0.45	0.52
	4	0.70	0.48	0.50	0.57		4	0.53	0.51	0.46	0.51
	Mean	0.64	0.58	0.55	0.60		Mean	0.51	0.40	0.40	0.44
M-1-1	1	0.79	0.75	0.74	0.76		5†	0.30	0.25	0.23	0.27
	2	0.68	0.61	0.56	0.63		6†	0.20	0.22	0.20	0.21
	3	0.60	0.66	0.62	0.64		7†	0.37	0.07	0.09	0.20
	4	0.81	0.69	0.67	0.73		8†	0.17	0.37	0.33	0.33
	Mean	0.72	0.68	0.65	0.69		Mean	0.28	0.23	0.22	0.25
N-1-0⋆	1	0.74	0.50	0.40	0.58	N-1-1	1	0.37	0.15	0.17	0.23
	2	0.56	0.51	0.54	0.53		2	0.56	0.44	0.39	0.48
	Mean	0.65	0.50	0.47	0.56		3	0.53	0.33	0.31	0.41
							4	0.52	0.34	0.39	0.40
							Mean	0.49	0.32	0.31	0.38

NOTE.— Sample only includes meetings where the consumer entered the meeting with money. (†) Sessions were conducted in person. All the other sessions were conducted online. Treatment N-1-0⋆ was conducted with subjects in fixed groups and random roles.

E Regression Analysis

In the main text we report p-values from Wilcoxon-Mann-Whitney non-parametric tests to support our findings, and partition our sample into rounds 1–5, 6–15 and 11–15 because we expect play in early rounds to reflect more experimentation and mistakes. Here we

summarize OLS (ordinary least square) estimations of the linear probability model and MLE (maximum likelihood estimations) of the probit model. We also provide a robustness check of data partitioning by tabulating results from very early (1-3) and late rounds (13-15).

E.1 Money and Suggestions in Model M

Here we regress production on dummies for money, the interaction with suggestions and controls for round and meeting. The results in Table E.1pool data from treatments M-1-0, M-0-0, M-1-1 and M-0-1. We also ran regressions using controls considered in Appendix F, but do not report them here as results are similar.

Results from linear probability and probit estimations are qualitatively and quantitatively very similar, and consistent with the non-parametric results, except that the positive effects of money have higher significance levels. Money increases production between 18% to 33% depending on the round. Aggregating over all rounds, it appears that the effect of suggestions is of similar magnitude when it should not have an effect according to theory (without money) and when it could have a coordinating effect (with money). However, the effect of suggestions without money is concentrated in early rounds, and is slightly negative in late rounds. In contrast, the effect of suggestions in the monetary version of Model M is stable and significant except in the earliest rounds. This suggests that subjects learn not to follow suggestions in treatment M-0-1, but not in M-1-1.

E.2 Model M vs Model N

Next we pool the data from all online treatments with money and regress production on a dummy for Model M, interactions between Models M and N, suggestions and controls for meeting and round. Again we consider OLS of a linear probability and MLE of a probit specification. As the main effect of interest is on the use of money to increase production, we only consider production conditional on the consumer having money.

Table E.2 summarizes the results for the linear probability model and the marginal effects from the probit regression. Again the linear probability and probit specifications are similar. Production in Model M-1-0 is more than 15% higher than in Model N-1-0. Suggestions do not have a significant effect in Model N-1-0. By contrast, in Model M, the suggestion has significant effects in all but the earliest rounds.

Table E.1: Production in Model M

Rounds	LINEAR PROBABILITY MODEL			PROBIT MARGINAL EFFECTS			# of Obs.
	Money	Suggestion ×		Money	Suggestion ×		
		Money= 0	Money= 1		Money= 0	Money= 1	
All	0.2477***	0.1046	0.1057**	0.2645***	0.1168	0.1111***	1,950
	(0.0397)	(0.0811)	(0.0363)	(0.0464)	(0.0894)	(0.0394)	
1–5	0.2055**	0.1643*	0.1037	0.2139***	0.1707*	0.1108	650
	(0.0732)	(0.0861)	(0.0735)	(0.0782)	(0.0902)	(0.0792)	
6–15	0.2688***	0.0747	0.1068***	0.2876***	0.0884	0.1092***	1,430
	(0.0457)	(0.0872)	(0.0336)	(0.0541)	(0.1008)	(0.0343)	
11–15	0.2231***	−0.0063	0.1173**	0.2365***	−0.0047	0.1173***	650
	(0.0606)	(0.1062)	(0.0412)	(0.0694)	(0.1297)	(0.0424)	
1–3	0.1843***	0.1255	0.0282	0.1868***	0.1249	0.0311	390
	(0.0547)	(0.0816)	(0.0654)	(0.0553)	(0.0809)	(0.0693)	
13–15	0.3294***	−0.0137	0.0539	0.3484***	−0.0137	0.0523	390
	(0.0840)	(0.1051)	(0.0907)	(0.0968)	(0.1444)	(0.0877)	

NOTE.– Regression of production on money, suggestion interacted with money, and controls. Money is a dummy that equals 1 in models M-1-0 and M-1-1, and suggestion is a dummy that equals 1 in models M-0-1 and M-1-1. Controls are meeting and round. Standard errors in parentheses are clustered at the session level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table E.2: Production in Model M vs. N with Money

Rounds	LINEAR PROBABILITY MODEL			PROBIT MARGINAL EFFECTS			# of Obs.
	Model M	Suggestion ×		Model M	Suggestion ×		
		Model N	Model M		Model N	Model M	
All	0.1700***	−0.0634	0.0989**	0.1749***	−0.0672	0.1100***	1,549
	(0.0448)	(0.0635)	(0.0340)	(0.0472)	(0.0665)	(0.0388)	
1–5	0.1360**	−0.0256	0.0956	0.1398**	−0.0258	0.1082	543
	(0.0610)	(0.0572)	(0.0651)	(0.0619)	(0.0582)	(0.0736)	
6–15	0.1869***	−0.0884	0.1020**	0.1915***	−0.0959	0.1110**	1,006
	(0.0603)	(0.0745)	(0.0401)	(0.0639)	(0.0804)	(0.0431)	
11–15	0.1530***	−0.0936	0.1153**	0.1582***	−0.1024	0.1232**	502
	(0.0450)	(0.0601)	(0.0446)	(0.0474)	(0.0666)	(0.0485)	
1–3	0.1715**	0.0496	0.0252	0.1783**	0.0533	0.0317	336
	(0.0672)	(0.0756)	(0.0564)	(0.0694)	(0.0770)	(0.0632)	
13–15	0.1582	−0.1493	0.0489	0.1621*	−0.1588*	0.0520	302
	(0.0919)	(0.0862)	(0.0917)	(0.0952)	(0.0936)	(0.0970)	

NOTE.– Regression of production on Model M, suggestion interacted with Model M and Model N, and controls. Model M is a dummy that equals 1 in models M-1-0 and M-1-1, Model N is a dummy that equals 1 in models N-1-0 and N-1-1, and suggestion is a dummy that equals 1 in models M-0-1 and M-1-1. Controls are meeting and round. Standard errors in parentheses are clustered at the session level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

F Social Preferences and Demographics

Table F.1 reports OLS regression results for SVO, demographic variables and field of study controlling for meeting and round.

Table F.1: Production and Individual Characteristics

Models N-1-0 and N-1-1							
Rounds	SVO	Male	EconFin	Suggestion	Age	Native	# of Obs.
All	−0.0033	0.0082	0.0067	−0.0432	−0.0006	−0.0502	701
	(0.0022)	(0.0899)	(0.1117)	(0.0825)	(0.0047)	(0.0792)	
1–5	−0.0012	−0.0312	0.0359	−0.0214	−0.0040	−0.0708	256
	(0.0022)	(0.0913)	(0.1523)	(0.0684)	(0.0054)	(0.0838)	
6–15	−0.0045	0.0394	−0.0125	−0.0551	0.0014	−0.0435	445
	(0.0027)	(0.1014)	(0.1022)	(0.0959)	(0.0047)	(0.0931)	
11–15	−0.0027	0.0352	−0.0860	−0.0572	−0.0006	−0.0515	224
	(0.0032)	(0.1028)	(0.1231)	(0.0812)	(0.0060)	(0.1316)	
Models M-1-0 and M-1-1							
Rounds	SVO	Male	EconFin	Suggestion	Age	Native	# of Obs.
All	0.0010	−0.0067	0.1124	0.1068**	0.0162	−0.0176	848
	(0.0020)	(0.0349)	(0.0618)	(0.0430)	(0.0178)	(0.0598)	
1–5	0.0011	0.0564	0.0571	0.0881	0.0190*	0.0374	287
	(0.0016)	(0.0576)	(0.0489)	(0.0660)	(0.0095)	(0.0803)	
6–15	0.0011	−0.0378	0.1403	0.1156*	0.0150	−0.0412	561
	(0.0026)	(0.0536)	(0.0844)	(0.0520)	(0.0271)	(0.0875)	
11–15	0.0016	−0.0960	0.2338*	0.1430**	0.0242	−0.0758	278
	(0.0026)	(0.0678)	(0.1019)	(0.0595)	(0.0254)	(0.0823)	
Models M-0-0 and M-0-1							
Rounds	SVO	Male	EconFin	Suggestion	Age	Native	# of Obs.
All	0.0054*	−0.0457	−0.0453	0.1011	0.0084	0.0042	960
	(0.0024)	(0.0659)	(0.0696)	(0.0768)	(0.0081)	(0.0317)	
1–5	0.0062**	−0.0198	−0.0521	0.1573*	0.0080	0.0453	320
	(0.0018)	(0.0682)	(0.0648)	(0.0772)	(0.0073)	(0.0329)	
6–15	0.0049	−0.0569	−0.0434	0.0733	0.0086	−0.0166	640
	(0.0028)	(0.0730)	(0.0894)	(0.0844)	(0.0091)	(0.0401)	
11–15	0.0048	−0.0177	−0.0672	−0.0014	0.0116	0.0540	320
	(0.0033)	(0.0557)	(0.1089)	(0.1065)	(0.0089)	(0.0532)	

NOTE.– Regression of Production on SVO, male, econFin, suggestion, age, native, and controls. The variable SVO is explained in Appendix A, male equals 1 if male, econFin is a dummy that equals 1 for subjects majoring in economics or finance, suggestion is a dummy that equals 1 in models N-1-1, M-1-1, M-0-1, age is age in years, and native is a dummy that equals 1 for producers who are native english speakers. Controls are meeting and round. Standard errors in parentheses are clustered at the session level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Besides SVO scores, we expected that a dummy for majoring in economics or finance (econfin in Table F.1) could be important. We ran separate regressions for monetary treatments in Model N (N-1-0 and N-1-1), monetary treatments in Model M (M-1-0 and M-1-1),

and nonmonetary treatments in Model M (M-0-0 and M-0-1). For monetary treatments, we only consider meetings with money, but this does not affect the conclusions. As Table F.1 shows, SVO scores and individual characteristics have small effects that are either insignificant or have unexpected signs. SVO tends to have a negative impact on production in Model N, and a positive effect in Model M with money, but the magnitude is small and insignificant in late rounds. SVO is significant in the nonmonetary treatments in early rounds but not after the first five. Males tend to produce more in Model N and less in Model M, but this is also insignificant. Economic training seems to help some subjects find equilibria: economics and finance students produces more for money in Model M and less in Model N, but this is not significant at the 10% level except for late rounds for Model M.

G Meeting 1 vs Meeting 2

Table G.2 shows results of the regression of production on a dummy for meeting 2 in a linear probability model. We also include a dummy for Model M or N and interact Model M or N with the meeting and suggestions. In addition, we considered the interaction of meeting and suggestions but the effects are small, insignificant, and not robust to specification.

Table G.1: PRODUCTION IN MEETING 1 vs MEETING 2

Rounds	Model M	Meeting 2 ×		Suggestion ×		#
		Model N	Model M	Model N	Model M	of Obs.
All	0.2417^{***}	-0.2274^{***}	-0.1501^{***}	0.1097^{*}	0.0990^{**}	1,680
	(0.0768)	(0.0381)	(0.0260)	(0.0615)	(0.0340)	
1–5	0.0368	-0.3379^{***}	-0.1180^{**}	0.1814^{**}	0.0933	588
	(0.1157)	(0.0451)	(0.0543)	(0.0701)	(0.0642)	
6–15	0.3431^{***}	-0.1723^{***}	-0.1680^{***}	0.0690	0.1035^{**}	1,092
	(0.1075)	(0.0463)	(0.0339)	(0.0715)	(0.0402)	
11–15	0.3284^{**}	-0.2031^{***}	-0.2115^{***}	0.0669	0.1167^{**}	544
	(0.1220)	(0.0610)	(0.0555)	(0.0657)	(0.0447)	

NOTE.– Regression of production on Model M, meeting 2 interacted with Model M and Model N, suggestion interacted with Model M and Model N, and round. Model M is a dummy that equals 1 in models M-1-0 and M-1-1, meeting 2 is a dummy that equals 1 in the second meeting, Model N is a dummy that equals 1 in models N-1-0 and N-1-1, and suggestion is a dummy that equals 1 in models M-1-1 and N-1-1. Standard errors in parentheses are clustered at the session level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Results are similar whether we include these variables so we do not report them. The regression includes observations from the four monetary treatments and we only consider meetings where the consumer has the token. There are 1,680 such meetings, where 1,092 are meeting 1 and 588 are meeting 2. In both Model M and N, subjects In both Models M

and N, subjects produce significantly less (by 15% in Model M, and by 23% in Model N) in meeting 2. In Model M, this is consistent with subjects trying to infer which meeting they are in (see Section 5 of the paper). Production in later rounds is still over 30% higher in Model M than Model N, where they know in which meeting they are in.

In Table G.2 we display the results for testing the difference in production between meetings in Model M without money (treatments M-0-0 and M-0-1). We run a regression similar to the one above of production on Meeting 2, suggestion, and round as control. The overall difference is 4%, but it is not significant with a p-value of 30%. In the last 5 rounds the difference is even smaller at 1% and a p-value of 81%.

Table G.2: MEETING 1 vs 2 IN MODEL M WITHOUT MONEY

Rounds	Meeting 2	Suggestion	# of Obs.
All	0.0417	0.1046	960
	(0.0368)	(0.0840)	
1–5	0.0687	0.1643	320
	(0.0433)	(0.0892)	
6–15	0.0281	0.0747	640
	(0.0419)	(0.0904)	
11–15	−0.0125	−0.0063	320
	(0.0507)	(0.1100)	

NOTE.— Regression of production on meeting 2, suggestion, and round as control. Meeting 2 is a dummy that equals 1 in the second meeting, and suggestion is a dummy that equals 1 in treatment M-0-1. Standard errors in parentheses are clustered at the session level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

H Experimental Instructions

We report below the instructions for all six treatments of part I of the experiment: N-1-0, M-1-0, N-1-1, M-1-1, M-0-0, M-0-1 and N-1-0*. We also include the exit surveys for each treatment, the demographic survey and the instructions for the Social Value Orientation task (part II of the experiment).

Instructions for Treatment N-1-0

Introduction

Today's session has two parts. In each part, you will make a series of decisions. The earnings you make from the two parts are calculated in points, and will be converted to dollars at the specified exchange rates. In addition, you also receive a $5 show-up payment regardless of your earnings during the experiment. If you follow the instructions carefully, you can earn a considerable amount of cash. Between the two parts, you will be required to complete two short surveys. Please refrain from talking for the duration of today's session. Kindly silence all mobile devices.

Instructions for Part I

Overview

There are X participants in today's experiment. In the first part of the experiment, you will play 15 games in groups of 3 people. There are two objects: a token and a good. You earn points from consuming the good and lose points from producing it. The token itself does not yield points directly, but may help you earn points if other participants are only willing to produce for you in exchange for the token.

At the beginning of this part of the experiment, each participant is randomly assigned a number 1, 2 or 3, which determines his/her position in the group for *all* 15 games. Each participant is informed about his/her position. Depending on your position, you make either one or both of the following two decisions:

1. whether to produce for the player preceding you in the group, and
2. if you have a token, whether to offer it to the next player in exchange for the good that he/she can produce for you.

Decisions in each game

In each game, the three participants in the group make decisions sequentially.

- First, **player 1** is endowed with a token and decides whether or not to offer the token to player 2 in exchange for the good.
- **Player 2** observes whether player 1 has offered the token or not, and then decides whether to produce for player 1. If player 2 obtains the token, then he/she also decides whether to offer the token to player 3 in exchange for the good.
- Finally, **player 3** observes whether player 2 has offered the token or not, and then decides whether to produce for player 2.

Some observations:

- You earn 3 points from consumption, and lose 1 point from production.
- Player 1 *cannot produce* because there is no player preceding him, and *can consume* if player 2 decides to produce for him/her.
- Player 2 *can produce* for player 1, and *can consume* if player 3 decides to produce for him/her.
- Player 3 *can produce* for player 2, but *cannot consume* since there is no player after him/her.
- The token does not yield points directly, and cannot be carried from one game to another.

Grouping and Positions

There are 15 games. At the beginning of each game participants are randomly grouped in new groups of three, and thus group members are *likely* to change from game to game. However, your position is *fixed* for the duration of the experiment. For example, if you are player 3 in game 1, then you will remain player 3 in all games.

Earnings

You will start this part of the experiment with an endowment of 3 points. In each game your points total increases by 3 when you consume, and decreases by 1 when you produce. The computer will randomly select 3 games for payment. Your points from the 3 selected games will then be converted into dollars at rate 1 point = $2.

Computer Screens

You will submit your decision through a computer screen. For example, player 2 will input his/her decision through the screen as shown below.

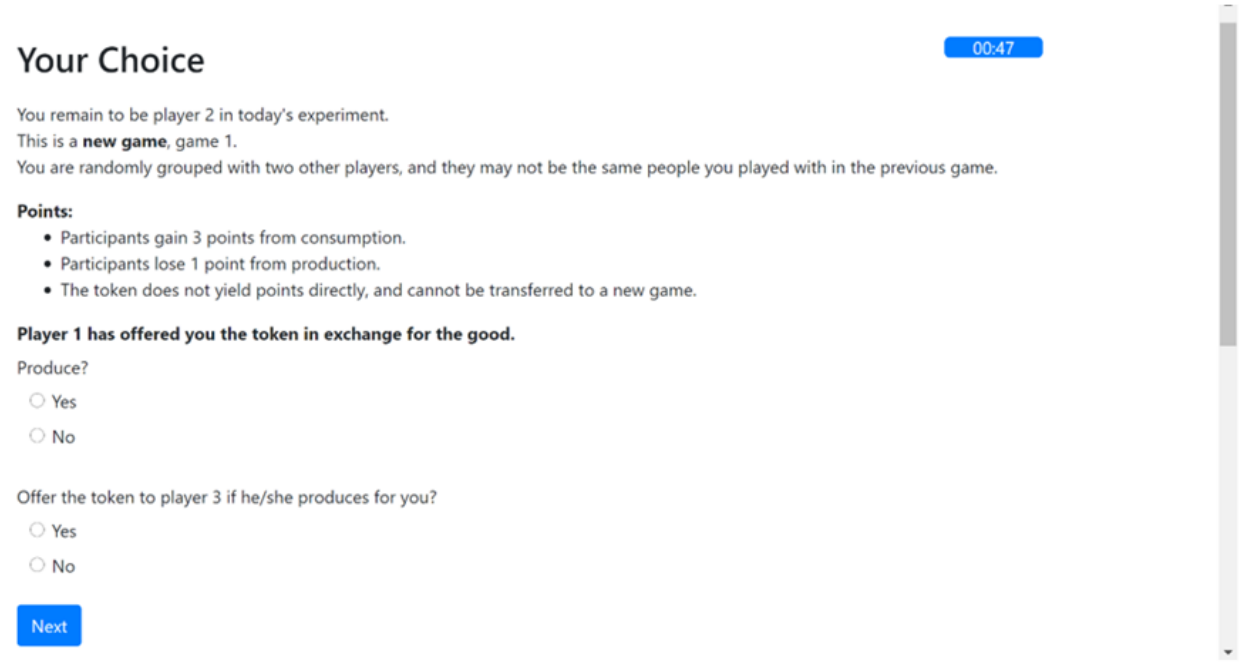


Figure 1. Decision screen for player 2.

At the end of each game, you will also receive information on the results for the game. See below for a sample result screen for player 2.

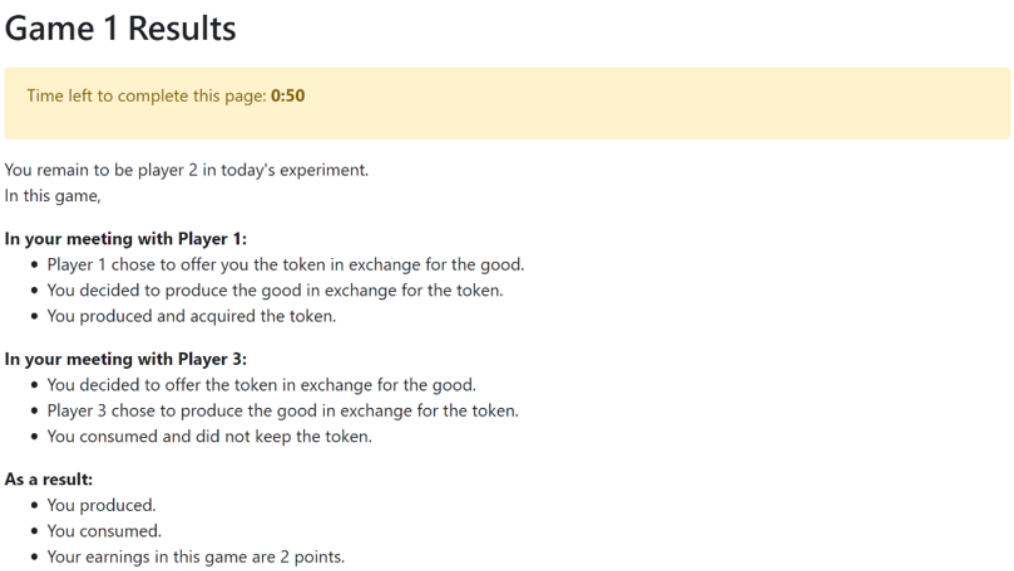


Figure 2. Result screen for player 2.

Summary

1. You will play 15 games.
2. At the beginning of this part of the experiment, each participant is randomly assigned a number with equal probability, 1, 2 or 3, that determines his/her position in all 15 games.
3. While the position is fixed, at the beginning of each game, participants are randomly grouped in new groups of three, and thus group members are likely to be different across games.
4. Player 1 is endowed with a token. Player 1 can only choose whether to offer or not the token to the next player. Player 1 cannot produce because there is no player preceding him/her.
5. Player 2 decides whether to produce for player 1. If he/she acquires a token, he/she can also decide whether to offer it to player 3 in exchange for the good.
6. Player 3 decides whether to produce for Player 2. Player 3 can neither transfer the token nor consume because there is no player after her/him.
7. You earn 3 points from consumption and lose 1 point from production.
8. Player 1 is endowed with the token, while the other two players can obtain and offer the token only if they produce for others and if the player preceding them offers the token in exchange for the good.
9. The token does not yield points directly and cannot be transferred from one game to another.

Quiz

1.
    a. Suppose that you are player 1 in game 1, then you will be player 1 in all games.
        - True
        - False

    b. Will other players keep their position in each game?
        - Yes
        - No

2. Suppose in game 2 you are grouped with two other participants. In game 3 you will be grouped for sure with the same two participants.
        - True
        - False

3. Suppose that you are player 1. Suppose that you offer the token to player 2, and he/she produces for you. How many points do you earn?

4. Suppose that you are player 2. Suppose player 1 offers you the token in exchange for the good, you decide to produce for player 1, and you offer the token to player 3 in exchange for the good. Player 3 chooses to produce for you.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn in total in this game?

5. Suppose again that you are player 2. Suppose player 1 offers you the token in exchange for your production, you decide not to produce for player 1 so you do not acquire the token. Player 3 observes that you do not offer the token and chooses NOT to produce for you.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn total in this game?

6. Suppose that you are player 3, or the last player in the game. Suppose that player 2 offered you the token and you produce for player 2.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn in total in this game?

7. The token will be converted into money and paid to you in cash at the end of the experiment.
        - True
        - False

Exit Survey- Treatment N-1-0

Player 1 Questionnaire for Part I of the Experiment

1. How often did you offer the token in exchange for the good?
    - Always
    - Sometimes
    - Never

2. If you offered the token, why did you do it? Check all that apply.
    - ☐ Not applicable: I have never offered the token.
    - ☐ To increase the chance of trading it for the good with player 2
    - ☐ I made a mistake
    - ☐ To help the other player
    - ☐ I had no other use of the token.
    - ☐ Other reason. Please explain:

      [Box Here]

3. If you did **not** offer the token, why did you do it? Check all that apply.
    - Not applicable: I always offered the token
    - It did not increase the chance of trading it for the good with player 2
    - I made a mistake
    - I wanted to keep the token.
    - Other reason. Please explain:

      [Box Here]

Additional Comments:

[Box Here]

Player 2 Questionnaire for Part I of the Experiment

1. When player 1 offered you the token in exchange for the good, how often did you produce?
    - Not applicable: I was never offered the token in exchange for the good.
    - Always
    - Sometimes
    - Never

2. If you were offered the token and you produced in exchange for the token, why did you do it? Check all that apply.
    - ☐ Not applicable: I was never in this situation.
    - ☐ To increase the chance of trading it for the good with player 3
    - ☐ I made a mistake
    - ☐ To help the other player
    - ☐ I wanted the token for the sake of it.
    - ☐ Other reason. Please explain:

      [Box Here]

3. If you were offered the token and you decided **not** to produce in exchange for the token, why did you do it? Check all that apply.
    - Not applicable: I was never in this situation
    - It is costly to produce, and the token would not increase the chance of trading it for the good with player 3
    - It is costly to produce, and the token would not be converted into cash
    - I made a mistake
    - Other reason. Please explain:

      [Box Here]

4. If the previous player did **not** offer you the token and you decided to produce for him/her, why did you do it? Check all that apply.
    - Not applicable: I was never in this situation
    - I made a mistake
    - To help the other player
    - Other reason. Please explain:

      [Box Here]

Additional Comments:

[Box Here]

Player 3 Questionnaire for Part I of the Experiment

1. When player 2 offered a token in exchange for the good, how often did you produce?
   - ○ Not applicable: I was never offered the token in exchange for the good.
   - ○ Always
   - ○ Sometimes
   - ○ Never

2. If you were offered the token and you produced in exchange for the token, why did you do it? Check all that apply.
   - ☐ Not applicable: I was never in this situation.
   - ☐ To increase the chance of trading it for the good with another player
   - ☐ I made a mistake
   - ☐ To help the other player
   - ☐ I wanted the token for the sake of it.
   - ☐ Other reason. Please explain:

     [Box Here]

3. If you were offered the token and you decided **not** to produce in exchange for the token, why did you do it? Check all that apply.
   - ○ Not applicable: I was never in this situation,
   - ○ It is costly to produce, and I could not trade the token for the good with another player
   - ○ I made a mistake
   - ○ Other reason. Please explain:

     [Box Here]

4. If the previous player did **not** offer you the token and you decided to produce for him/her, why did you do it? Check all that apply.
   - ○ Not applicable: I was never in this situation
   - ○ I made a mistake
   - ○ To help the other player
   - ○ Other reason. Please explain:

     [Box Here]

Additional Comments:

[Box Here]

Instructions for Treatment M-1-0

Introduction

Today's session has two parts. In each part, you will make a series of decisions. The earnings you make are calculated in points, and will be converted to dollars at the specified exchange rates. In addition, you also receive a $5 show-up payment regardless of your earnings during the experiment. If you follow the instructions carefully, you can earn a considerable amount of cash. Between the two parts, you will be required to complete two short surveys. Please refrain from talking for the duration of today's session. Kindly silence all mobile devices.

Instructions for Part I

Overview

There are X participants in today's experiment. In the first part of the experiment, you will play 15 games in groups of 3 people. There are two objects: a token and a good. You earn points from consuming the good and lose points from producing it. The token itself does not yield points directly, but may help you earn points if other participants are only willing to produce for you in exchange for the token.

In each game, each of the three participants will be assigned a position, 1, 2 or 3. Depending on your position, you make either one or both of the following two decisions:

1. whether to produce for the player preceding you in the group, and
2. if you have a token, whether to offer it to the next player in exchange for the good that he/she can produce for you.

Decisions in each game

At the beginning of each game, one of the three participants in a group is revealed as player 1 and informed about his/her position. The other two players are informed that they are not player 1, but do not know their exact positions, i.e. whether they are player 2 or player 3. *It is equally likely that they are player 2 or player 3*. The three players then make decisions sequentially.

- Player 1 is endowed with a token and decides whether or not to offer the token to the next player in exchange for the good.
- Player 2, **blind to his/her exact position**, is informed about whether the preceding player has offered the token and decides whether to produce for the preceding player. After the production decision, player 2 is informed about his/her exact position. If player 2 obtains the token, then he/she also decides whether to offer the token to player 3 in exchange for the good.
- Player 3, **blind to his/her exact position**, is informed about whether the preceding player has offered the token and decides whether to produce for the preceding player. After the production decision, player 3 is informed about his/her exact position. Player 3 has no further decisions to make, even if he/she has acquired a token.

Some observations:

- You earn 3 points from consumption, and lose 1 point from production.

- Player 1 *cannot produce* because there is no player preceding him/her, and *can consume* if player 2 decides to produce for him/her.
- Player 2 *can produce* for player 1, and *can consume* if player 3 decides to produce for him/her.
- Player 3 *can produce* for player 2, but *cannot consume* since there is no player after him/her.
- The token does not yield points directly, and cannot be carried from one game to another.
- Player 1 is endowed with the token. Player 2 and player 3 can obtain and offer the token only if they produce for others (and if the player preceding them offers the token in exchange for the good).

Regarding the production decision of the last two players, consider the following.

- When deciding whether to produce, the last two players do not know their exact positions. When deciding whether to produce, they should consider both the possibility of being player 2 and the possibility of being player 3.
- If offered a token, the token could either be from
    - player 1, who is endowed with the token, or
    - player 2 who has produced for the token.
- If not offered a token, the preceding player could be
    - player 1 who did not offer the token,
    - player 2 who acquired the token by producing but did not offer the token,
    - player 2 who did not acquire the token because player 1 did not offer the token, or
    - player 2 who did not acquire the token because he/she did not produce.

Grouping and Positions

There are 15 games. At the beginning of each game participants are randomly grouped in new groups of three, and thus group members are *likely* to change from game to game.

Player 1's position is fixed for the duration of the experiment. If you are player 1 in game 1, you will remain player 1 in all games. However, whether you are player 2 or player 3 is *randomly* determined in each game. For example, if you are player 3 in game 1, you have an equal chance of being player 2 or player 3 in each of the other games. Player 1 is informed that he/she is player 1 and the other two players are informed that they are not player 1. The exact position of the last two players is revealed to them only after they make the production decision.

Earnings

You will start this part of the experiment with an endowment of 3 points. In each game your points total increases by 3 when you consume, and decreases by 1 when you produce. The computer will randomly select 3 games for payment. Your points from the 3 selected games will then be converted into dollars at rate 1 point = $2.

Computer Screens

You will submit your decision plans through the following screens.

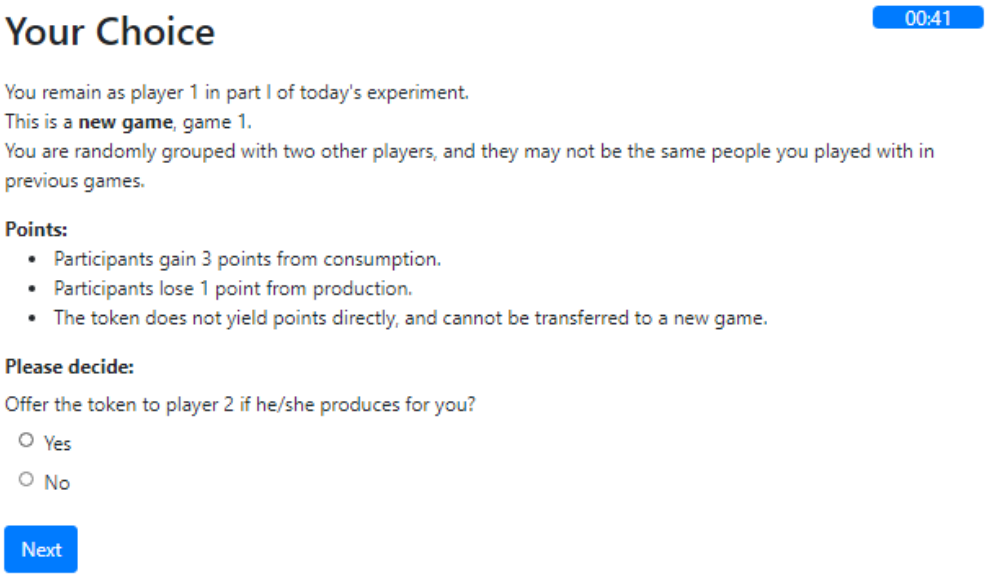


Figure 1. Decision screen for player 1

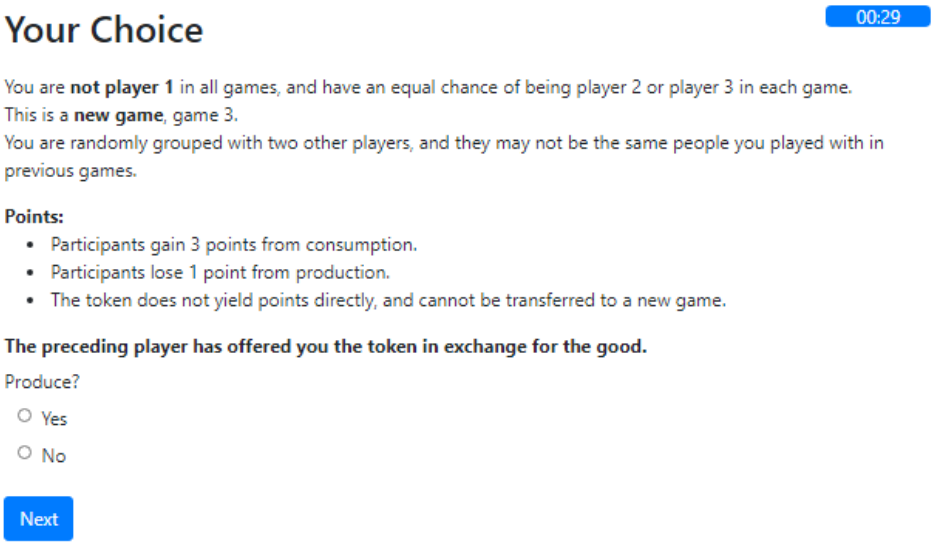


Figure 2. Decision screen for the last two players.

After players submit their decisions, you will also receive information on the results for each game. See Figure 3 for a sample result screen for player 2.

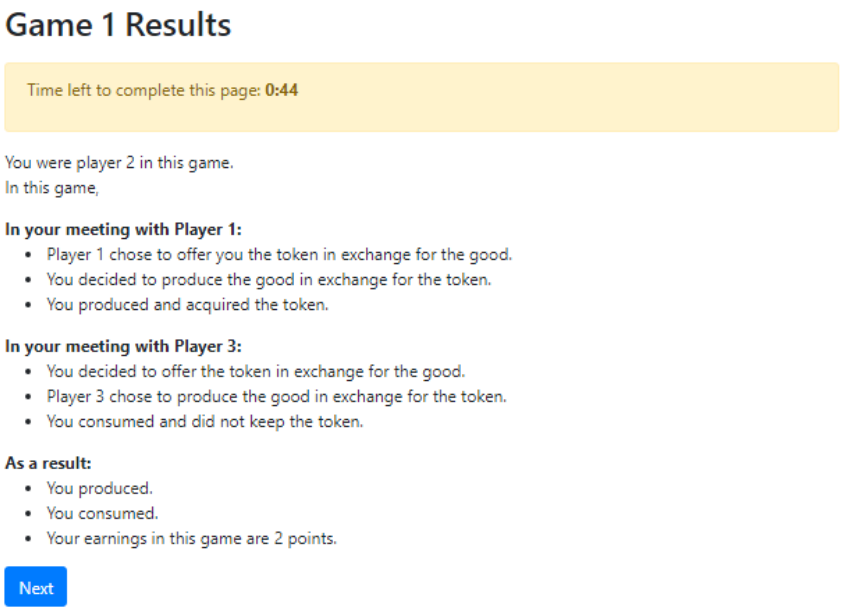


Figure 3. Result screen for player 2.

Summary

1. In this part of the experiment, you will play 15 games.
2. At the beginning of each game, participants are randomly grouped in new groups of three, and thus group members are likely to be different across games.
3. At the beginning of the experiment, each participant has an equal chance of being player 1, player 2, or player 3.
4. The position of player 1s is fixed throughout the 15 games. The rest of the players have an equal chance of being player 2 or player 3 in each game.
5. Player 1 can only choose whether or not to offer the token to the next player. Player 1 cannot produce because there is no player preceding him/her.
6. The last two players make a production decision *before* their exact position is revealed. However when they make this decision, they see whether they are offered the token or not.
7. Each of the last two players finds out his/her exact position after submitting his/her production decision. If a player turns out to be player 2 and he/she received a token, then he/she decides whether to offer the token to player 3. If a player turns out to be player 3, then he/she has no further decision even if he/she acquired the token.
8. You earn 3 points from consumption and lose 1 point from production.
9. Player 1 is endowed with the token, while the other two players can obtain and offer the token only if they produce for others and if the player preceding them offers the token in exchange for the good.
10. The token does not yield points directly and cannot be transferred from one game to another.

Quiz

1. Suppose that you are player 1 in game 1, then you will be player 1 in all games.
    - True
    - False

2. Suppose that you are player 3 in game 1. Then,
    - You will be player 3 in all games.
    - You will have an equal chance of being player 2 or player 3 in the other games.
    - You will be player 2 in game 2 for sure.

3. Suppose in game 2 you are grouped with two other participants. In game 3 you will be grouped for sure with the same two participants.
    - True
    - False

4. Player 2 or player 3 must produce for the preceding player to acquire the token.
    - True
    - False

5. While making the production decision, player 2 and player 3 know their exact positions.
    - True
    - False

6. Suppose that you are player 1 in a game. You offer the token to the next player, and he/she produces if offered the token. How many points do you earn in that game?

7. Suppose that you are NOT player 1 in a game. You were offered the token and you decide to produce. You learn that you are player 2 and you decide to offer the token to player 3 in exchange for the good. Player 3 chooses to produce for you.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn in total in this game?

8. Suppose that you are NOT player 1 in a game. You were offered the token and you decide NOT to produce, so you do not receive the token. You learn that you are player 2. Player 3 observes that he/she was not offered the token and decides not to produce.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn total in this game?

9. Suppose that you are NOT player 1 in a game. You are offered the token and you decide to produce. You learn that you are player 3.
    a. Did player 2 decide to produce for the token?
        - Yes.
        - No.
        - Cannot Tell.
    b. How many points do you lose from production?
    c. How many points do you earn from consumption?
    d. How many points do you earn in total in this game?

10. The token will be converted into money and paid to you in cash at the end of the experiment.
    - True
    - False

Exit Survey- Treatment M-1-0

Player 1 Questionnaire for Part I of the Experiment

1. How often did you offer the token in exchange for the good?
    - Always
    - Sometimes
    - Never

2. If you offered the token, why did you do it? Check all that apply.
    - ☐ Not applicable: I have never offered the token.
    - ☐ To increase the chance of trading it for the good with player 2
    - ☐ I made a mistake
    - ☐ To help the other player
    - ☐ I had no other use of the token.
    - ☐ Other reason. Please explain:

      [Box Here]

3. If you did **not** offer the token, why did you do it? Check all that apply.
    - Not applicable: I always offered the token
    - It did not increase the chance of trading it for the good with player 2
    - I made a mistake
    - I wanted to keep the token.
    - Other reason. Please explain:

      [Box Here]

Additional Comments:

[Box Here]

Player 2/3 Questionnaire for Part I of the Experiment

1. When the preceding player offered you the token in exchange for the good, how often did you produce?
    - Not applicable: I was never offered the token in exchange for the good.
    - Always
    - Sometimes
    - Never

2. If you were offered the token and you produced in exchange for the token, why did you do it? Check all that apply.
    - ☐ Not applicable: I was never in this situation.
    - ☐ To increase the chance of trading it for the good with player 3 in case I turn out to be player 2
    - ☐ I made a mistake
    - ☐ To help the other player
    - ☐ I wanted the token for the sake of it.
    - ☐ Other reason. Please explain:

      [Box Here]

3. If you were offered the token and you decided **not** to produce in exchange for the token, why did you do it? Check all that apply.
    - Not applicable: I was never in this situation
    - It is costly to produce, and I could be selected as player 3 and thus I would not be able to consume
    - It is costly to produce, and I did not think that the token would increase the chance of consuming
    - It is costly to produce, and the token would not be converted into cash
    - I made a mistake
    - Other reason. Please explain:

      [Box Here]

4. If the previous player did **not** offer you the token and you decided to produce for him/her, why did you do it? Check all that apply.
    - Not applicable: I was never in this situation
    - I made a mistake
    - To help the other player
    - Other reason. Please explain:

      [Box Here]

Additional Comments:

[Box Here]

Instructions for Treatment N-1-1

Introduction

Today's session has two parts. In each part, you will make a series of decisions. The earnings you make are calculated in points, and will be converted to dollars at the specified exchange rates. In addition, you also receive a $5 show-up payment regardless of your earnings during the experiment. If you follow the instructions carefully, you can earn a considerable amount of cash. Between the two parts, you will be required to complete two short surveys. Please refrain from talking for the duration of today's session. Kindly silence all mobile devices.

Overview

There are X participants in today's experiment. In the first part of the experiment, you will play 15 games in groups of 3 people. There are two objects: a token and a good. You earn points from consuming the good and lose points from producing it. The token itself does not yield points directly, but may help you earn points if other participants are only willing to produce for you in exchange for the token.

At the beginning of this part of the experiment, each participant is randomly assigned a number 1, 2 or 3, which determines his/her position in the group for *all* 15 games. Each participant is informed about his/her position. Depending on your position, you make either one or both of the following two decisions: (1) whether to produce for the player preceding you in the group, and (2) if you have a token, whether to offer it to the next player in exchange for the good that he/she can produce for you.

Decisions in each game

In each game, the three participants in the group make decision sequentially.

- First, **player 1** is endowed with a token and decides whether or not to offer the token to player 2 in exchange for the good.
- **Player 2** observes whether player 1 has offered the token or not, and then decides whether to produce for player 1. If player 2 obtains the token, then he/she also decides whether to offer the token to player 3 in exchange for the good.
- Finally, **player 3** observes whether player 2 has offered the token or not, and then decides whether to produce for player 2.

Some observations:

- You earn 3 points from consumption, and lose 1 point from production.
- Player 1 *cannot produce* because there is no player preceding him, and *can consume* if player 2 decides to produce for him/her.
- Player 2 *can produce* for player 1, and *can consume* if player 3 decides to produce for him/her.
- Player 3 *can produce* for player 2, but *cannot consume* since there is no player after him/her.
- The token does not yield points directly, and cannot be carried from one game to another.

A suggestion

Each player in a group may consider making the following choices:

1. Whenever you have the token, transfer it to the next player (if there is one).
2. Produce ONLY if you see that you are offered the token.

This is simply a suggestion. Feel free to follow it or not.

Grouping and Positions

There are 15 games. At the beginning of each game participants are randomly grouped in new groups of three, and thus group members are *likely* to change from game to game. However, your position is *fixed* for the duration of the experiment. For example, if you are player 3 in game 1, then you will remain player 3 in all games.

Earnings

You will start this part of the experiment with an endowment of 3 points. In each game your points total increases by 3 when you consume, and decreases by 1 when you produce. The computer will randomly select 3 games for payment. Your points from the 3 selected games will then be converted into dollars at rate 1 point = $2.

Computer Screens

You will submit your decision through a computer screen. For example, player 2 will input his/her decision through the screen as shown below.

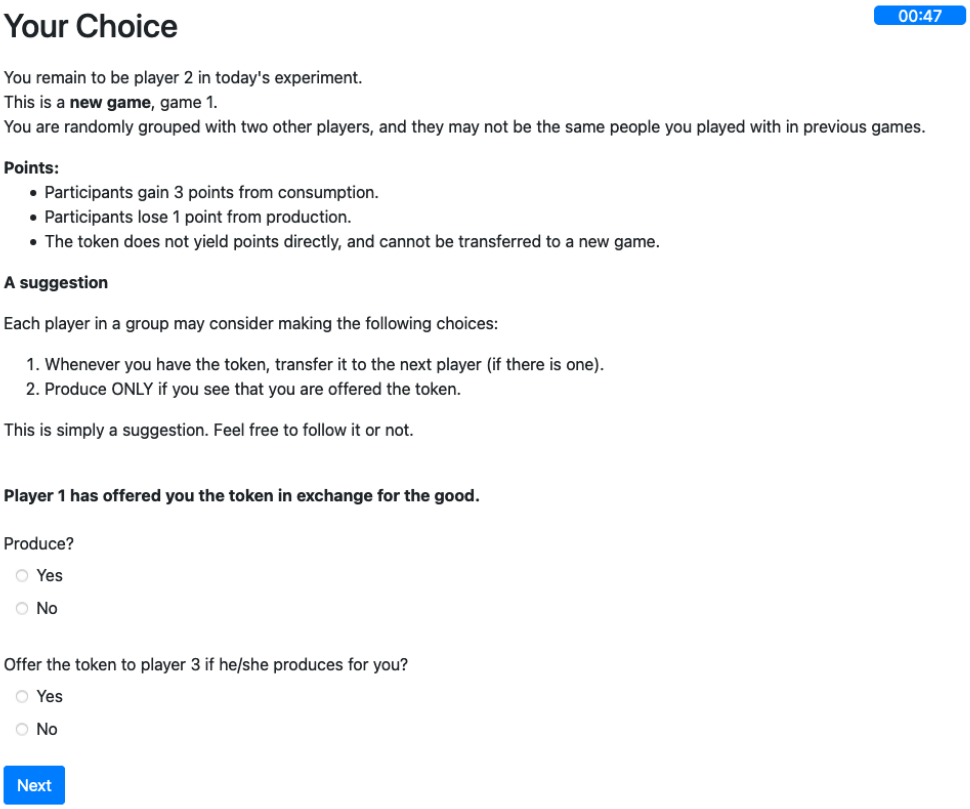


Figure 1. Decision screen for player 2.

At the end of each game, you will also receive information on the results for the game. See below for a sample result screen for player 2.

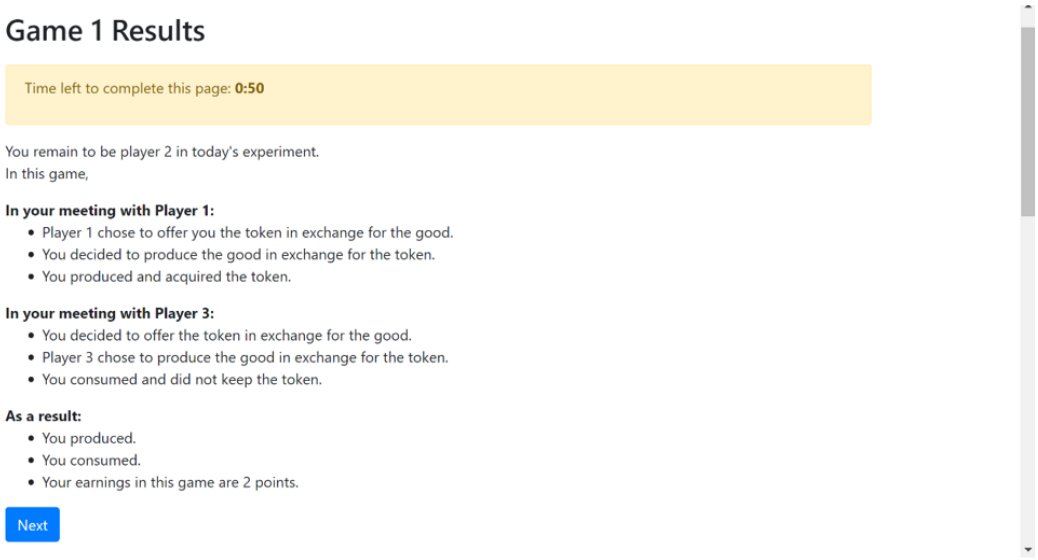


Figure 2. Result screen for player 2.

Summary

1. You will play 15 games.
2. At the beginning of this part of the experiment, each participant is randomly assigned a number with equal probability, 1, 2 or 3, that determines his/her position in all 15 games.
3. While the position is fixed, at the beginning of each game, participants are randomly grouped in new groups of three, and thus group members are likely to be different across games.
4. Player 1 is endowed with a token. Player 1 can only choose whether to offer or not the token to the next player. Player 1 cannot produce because there is no player preceding him/her.
5. Player 2 decides whether to produce for player 1. If he/she acquires a token, he/she can also decide whether to offer it to player 3 in exchange for the good.
6. Player 3 decides whether to produce for Player 2. Player 3 can neither transfer the token nor consume because there is no player after her/him.
7. You earn 3 points from consumption and lose 1 point from production.
8. Player 1 is endowed with the token, while the other two players can obtain and offer the token only if they produce for others and if the player preceding them offers the token in exchange for the good.
9. Each player may consider making the following choices: i) Whenever you have the token, transfer it to the next player; and ii) Produce only if you are offered the token. This is simply a suggestion.
10. The token does not yield points directly and cannot be transferred from one game to another.

Quiz

1.
    a. Suppose that you are player 1 in game 1, then you will be player 1 in all games.
        - True
        - False

    b. Will other players keep their position in each game?
        - Yes
        - No

2. Suppose in game 2 you are grouped with two other participants. In game 3 you will be grouped for sure with the same two participants.
    - True
    - False

3. Suppose that you are player 1. Suppose that you offer the token to player 2, and he/she produces for you. How many points do you earn?

4. Suppose that you are player 2. Suppose player 1 offers you the token in exchange for the good, you decide to produce for player 1, and you offer the token to player 3 in exchange for the good. Player 3 chooses to produce for you.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn in total in this game?

5. Suppose again that you are player 2. Suppose player 1 offers you the token in exchange for your production, you decide not to produce for player 1 so you do not acquire the token. Player 3 observes that you do not offer the token and chooses NOT to produce for you.

a. How many points do you lose from production?
b. How many points do you earn from consumption?
c. How many points do you earn total in this game?

6. Suppose that you are player 3, or the last player in the game. Suppose that player 2 offered you the token and you produce for player 2.

a. How many points do you lose from production?
b. How many points do you earn from consumption?
c. How many points do you earn in total in this game?

7. Consider the following suggestion: i) Whenever you have the token, transfer it to the next player; and ii) Produce only if you see that you are offered the token.

- You must follow this suggestion
- This is simply a suggestion, that is, you can choose another action.

8. The token will be converted into money and paid to you in cash at the end of the experiment.
   - True
   - False

Exit Survey- Treatment N-1-1

Player 1 Questionnaire for Part I of the Experiment

1. How often did you offer the token in exchange for the good?
   - Always
   - Sometimes
   - Never

2. If you offered the token, why did you do it? Check all that apply.
   - ☐ Not applicable: I have never offered the token.
   - ☐ To increase the chance of trading it for the good with player 2
   - ☐ I made a mistake
   - ☐ To help the other player
   - ☐ I had no other use of the token.
   - ☐ To follow the suggestion.
   - ☐ Other reason. Please explain:

     [Box Here]

3. If you did **not** offer the token, why did you do it? Check all that apply.
   - Not applicable: I always offered the token
   - It did not increase the chance of trading it for the good with player 2
   - I made a mistake
   - I wanted to keep the token.

- Other reason. Please explain:

  [Box Here]

4. If you followed the suggestion to transfer the token in any game, please explain why:

   [Box Here]

5. If you did NOT follow the suggestion to transfer the token in any game, please explain why:

   [Box Here]

Additional Comments:

[Box Here]

Player 2 Questionnaire for Part I of the Experiment

1. When player 1 offered you the token in exchange for the good, how often did you produce?
   - Not applicable: I was never offered the token in exchange for the good.
   - Always
   - Sometimes
   - Never

2. If you were offered the token and you produced in exchange for the token, why did you do it? Check all that apply.
   - ☐ Not applicable: I was never in this situation.
   - ☐ To increase the chance of trading it for the good with player 3
   - ☐ I made a mistake
   - ☐ To help the other player
   - ☐ I wanted the token for the sake of it.
   - ☐ To follow the suggestion.
   - ☐ Other reason. Please explain:

     [Box Here]

3. If you were offered the token and you decided **not** to produce in exchange for the token, why did you do it? Check all that apply.
   - Not applicable: I was never in this situation
   - It is costly to produce, and the token would not increase the chance of trading it for the good with player 3
   - It is costly to produce, and the token would not be converted into cash
   - I made a mistake
   - Other reason. Please explain:

     [Box Here]

4. If the previous player did **not** offer you the token and you decided to produce for him/her, why did you do it? Check all that apply.
    - Not applicable: I was never in this situation
    - I made a mistake
    - To help the other player
    - Other reason. Please explain:

      [Box Here]

5. If you followed the suggestion to transfer the token and produce ONLY for the token in any game, please explain why:

   [Box Here]

6. If you did NOT follow the suggestion to transfer the token and produce ONLY for the token in any game, please explain why:

   [Box Here]

Additional Comments:

[Box Here]

Player 3 Questionnaire for Part I of the Experiment

1. When player 2 offered a token in exchange for the good, how often did you produce?
    - Not applicable: I was never offered the token in exchange for the good.
    - Always
    - Sometimes
    - Never

2. If you were offered the token and you produced in exchange for the token, why did you do it? Check all that apply.
    - ☐ Not applicable: I was never in this situation.
    - ☐ To increase the chance of trading it for the good with another player
    - ☐ I made a mistake
    - ☐ To help the other player
    - ☐ I wanted the token for the sake of it.
    - ☐ To follow the suggestion.
    - ☐ Other reason. Please explain:

      [Box Here]

3. If you were offered the token and you decided **not** to produce in exchange for the token, why did you do it? Check all that apply.

- Not applicable: I was never in this situation,
- It is costly to produce, and I could not trade the token for the good with another player
- I made a mistake
- Other reason. Please explain:

  [Box Here]

4. If the previous player did **not** offer you the token and you decided to produce for him/her, why did you do it? Check all that apply.
   - Not applicable: I was never in this situation
   - I made a mistake
   - To help the other player
   - Other reason. Please explain:

     [Box Here]

5. If you followed the suggestion to produce ONLY for the token in any game, please explain why:

   [Box Here]

6. If you did NOT follow the suggestion to produce ONLY for the token in any game, please explain why:

   [Box Here]

Additional Comments:

[Box Here]

Instructions for Treatment M-1-1

Introduction

Today's session has two parts. In each part, you will make a series of decisions. The earnings you make are calculated in points, and will be converted to dollars at the specified exchange rates. In addition, you also receive a $5 show-up payment regardless of your earnings during the experiment. If you follow the instructions carefully, you can earn a considerable amount of cash. Between the two parts, you will be required to complete two short surveys. Please refrain from talking for the duration of today's session. Kindly silence all mobile devices.

Instructions for Part I

Overview

There are X participants in today's experiment. In the first part of the experiment, you will play 15 games in groups of 3 people. There are two objects: a token and a good. You earn points from consuming the good and lose points from producing it. The token itself does not yield points directly, but may help you earn points if other participants are only willing to produce for you in exchange for the token.

In each game, each of the three participants will be assigned a position, 1, 2 or 3. Depending on your position, you make either one or both of the following two decisions:

1. whether to produce for the player preceding you in the group, and
2. if you have a token, whether to offer it to the next player in exchange for the good that he/she can produce for you.

Decisions in each game

At the beginning of each game, one of the three participants in a group is revealed as player 1 and informed about his/her position. The other two players are informed that they are not player 1, but do not know their exact positions, i.e. whether they are player 2 or player 3. *It is equally likely that they are player 2 or player 3*. The three players then make decisions sequentially.

- Player 1 is endowed with a token and decides whether or not to offer the token to the next player in exchange for the good.
- Player 2, **blind to his/her exact position**, is informed about whether the preceding player has offered the token and decides whether to produce for the preceding player. After the production decision, player 2 is informed about his/her exact position. If player 2 obtains the token, then he/she also decides whether to offer the token to player 3 in exchange for the good.
- Player 3, **blind to his/her exact position**, is informed about whether the preceding player has offered the token and decides whether to produce for the preceding player. After the production decision, player 3 is informed about his/her exact position. Player 3 has no further decisions to make, even if he/she has acquired a token.

Some observations:

- You earn 3 points from consumption, and lose 1 point from production.
- Player 1 *cannot produce* because there is no player preceding him/her, and *can consume* if player 2 decides to produce for him/her.
- Player 2 *can produce* for player 1, and *can consume* if player 3 decides to produce for him/her.
- Player 3 *can produce* for player 2, but *cannot consume* since there is no player after him/her.

- The token does not yield points directly, and cannot be carried from one game to another.
- Player 1 is endowed with the token. Player 2 and player 3 can obtain and offer the token only if they produce for others (and if the player preceding them offers the token in exchange for the good).

Regarding the production decision of the last two players, consider the following.

- When deciding whether to produce, the last two players do not know their exact positions. When deciding whether to produce, they should consider both the possibility of being player 2 and the possibility of being player 3.
- If offered a token, the token could either be from
    - player 1, who is endowed with the token, or
    - player 2 who has produced for the token.
- If not offered a token, the preceding player could be
    - player 1 who did not offer the token,
    - player 2 who acquired the token by producing but did not offer the token,
    - player 2 who did not acquire the token because player 1 did not offer the token, or
    - player 2 who did not acquire the token because he/she did not produce.

A suggestion

Each player in a group may consider making the following choices:

1. Whenever you have the token, transfer it to the next player (if there is one).
2. Produce ONLY if you see that you are offered the token.

This is simply a suggestion. Feel free to follow it or not.

Grouping and Positions

There are 15 games. At the beginning of each game participants are randomly grouped in new groups of three, and thus group members are *likely* to change from game to game.

Player 1's position is fixed for the duration of the experiment. If you are player 1 in game 1, you will remain player 1 in all games. However, whether you are player 2 or player 3 is *randomly* determined in each game. For example, if you are player 3 in game 1, you have an equal chance of being player 2 or player 3 in each of the other games. Player 1 is informed that he/she is player 1 and the other two players are informed that they are not player 1. The exact position of the last two players is revealed to them only after they make the production decision.

Earnings

You will start this part of the experiment with an endowment of 3 points. In each game your points total increases by 3 when you consume, and decreases by 1 when you produce. The computer will randomly select 3 games for payment. Your points from the 3 selected games will then be converted into dollars at rate 1 point = $2.

Computer Screens

You will submit your decision plans through the following screens.

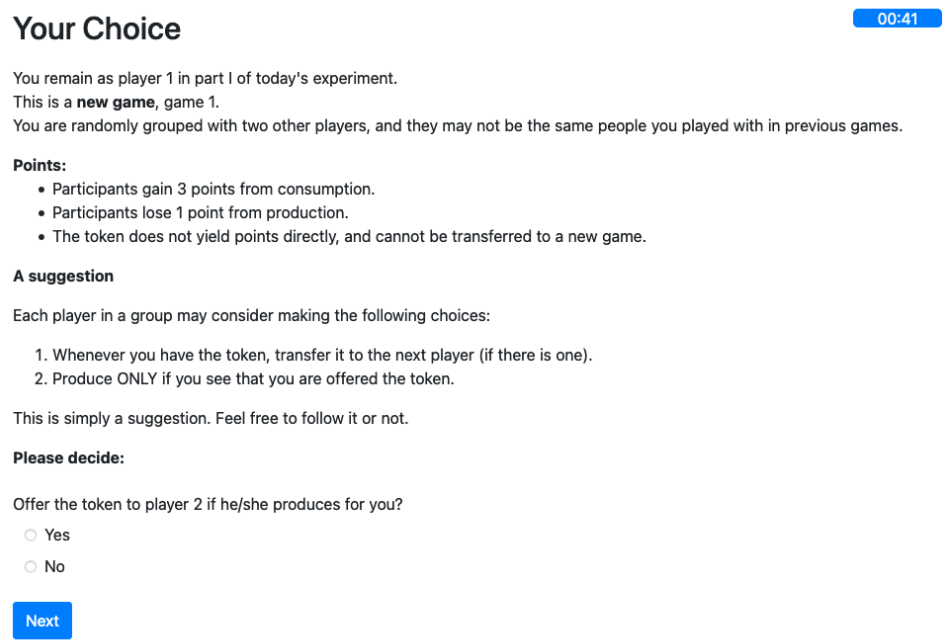


Figure 1. Decision screen for player 1.

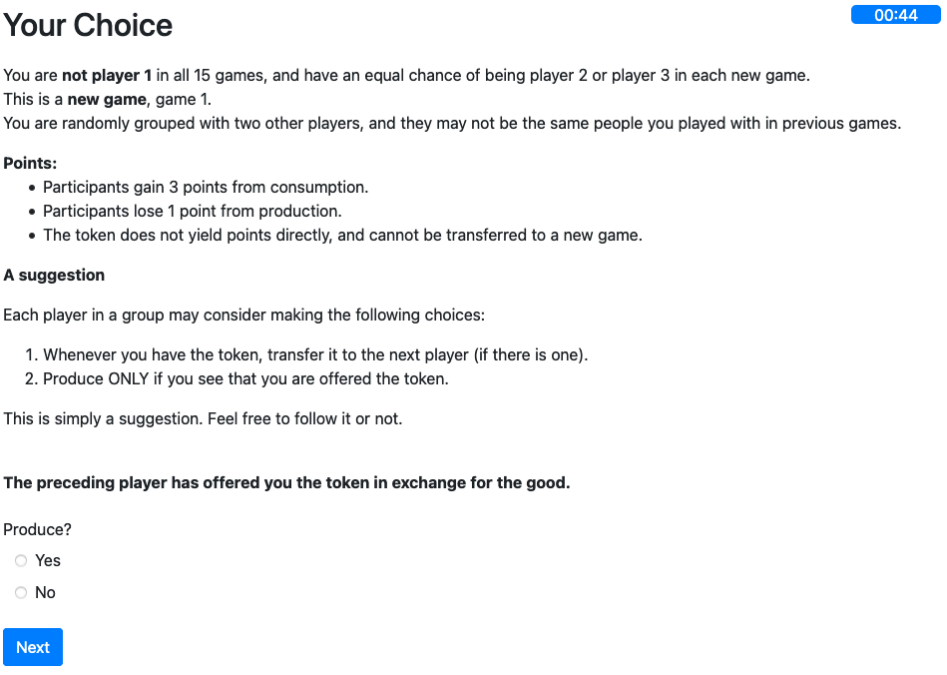


Figure 2. Decision screen for the last two players.

After players submit their decisions, you will also receive information on the results for each game. See Figure 3 for a sample result screen for player 2.

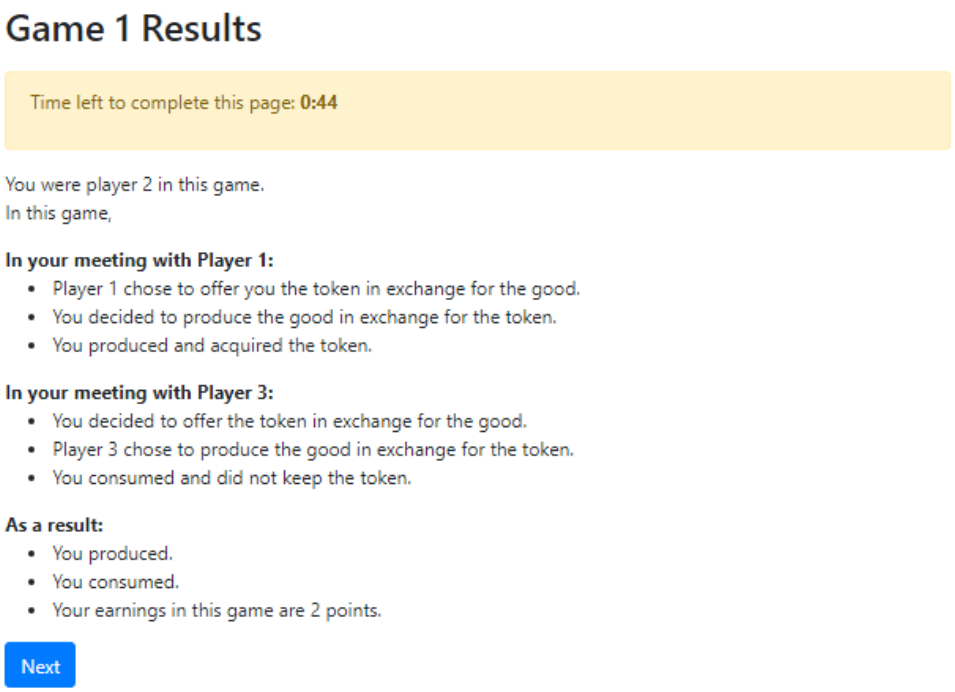


Figure 3. Result screen for player 2.

Summary

1. In this part of the experiment, you will play 15 games.
2. At the beginning of each game, participants are randomly grouped in new groups of three, and thus group members are likely to be different across games.
3. At the beginning of the experiment, each participant has an equal chance of being player 1, player 2, or player 3.
4. The position of player 1s is fixed throughout the 15 games. The rest of the players have an equal chance of being player 2 or player 3 in each game.
5. Player 1 can only choose whether or not to offer the token to the next player. Player 1 cannot produce because there is no player preceding him/her.
6. The last two players make a production decision *before* their exact position is revealed. However when they make this decision, they see whether they are offered the token or not.
7. Each of the last two players finds out his/her exact position after submitting his/her production decision. If a player turns out to be player 2 and he/she received a token, then he/she decides whether to offer the token to player 3. If a player turns out to be player 3, then he/she has no further decision even if he/she acquired the token.
8. Each player may consider making the following choices: i) Whenever you have the token, transfer it to the next player; and ii) Produce only if you are offered the token. This is simply a suggestion.
9. You earn 3 points from consumption and lose 1 point from production.
10. Player 1 is endowed with the token, while the other two players can obtain and offer the token only if they produce for others and if the player preceding them offers the token in exchange for the good.
11. The token does not yield points directly and cannot be transferred from one game to another.

Quiz

1. Suppose that you are player 1 in game 1, then you will be player 1 in all games.
    - True
    - False

2. Suppose that you are player 3 in game 1. Then,
    - You will be player 3 in all games.
    - You will have an equal chance of being player 2 or player 3 in the other games.
    - You will be player 2 in game 2 for sure.

3. Suppose in game 2 you are grouped with two other participants. In game 3 you will be grouped for sure with the same two participants.
    - True
    - False

4. Player 2 or player 3 must produce for the preceding player to acquire the token.
    - True
    - False

5. While making the production decision, player 2 and player 3 know their exact positions.
    - True
    - False

6. Suppose that you are player 1 in a game. You offer the token to the next player, and he/she produces if offered the token. How many points do you earn in that game?

7. Suppose that you are NOT player 1 in a game. You were offered the token and you decide to produce. You learn that you are player 2 and you decide to offer the token to player 3 in exchange for the good. Player 3 chooses to produce for you.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn in total in this game?

8. Suppose that you are NOT player 1 in a game. You were offered the token and you decide NOT to produce, so you do not receive the token. You learn that you are player 2. Player 3 observes that he/she was not offered the token and decides not to produce.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn total in this game?

9. Suppose that you are NOT player 1 in a game. You are offered the token and you decide to produce. You learn that you are player 3.
    a. Did player 2 decide to produce for the token?
        - Yes.
        - No.
        - Cannot Tell.
    b. How many points do you lose from production?
    c. How many points do you earn from consumption?
    d. How many points do you earn in total in this game?

10. Consider the following suggestion: i) Whenever you have the token, transfer it to the next player; and ii) Produce only if you see that you are offered the token.

    - You must follow this suggestion
    - This is simply a suggestion, that is, you can choose another action.

11. The token will be converted into money and paid to you in cash at the end of the experiment.

    - True
    - False

Exit Survey- Treatment M-1-1

Player 1 Questionnaire for Part I of the Experiment

1. How often did you offer the token in exchange for the good?
    - Always
    - Sometimes
    - Never

2. If you offered the token, why did you do it? Check all that apply.
    - ☐ Not applicable: I have never offered the token.
    - ☐ To increase the chance of trading it for the good with player 2
    - ☐ I made a mistake
    - ☐ To help the other player
    - ☐ I had no other use of the token.
    - ☐ To follow the suggestion.
    - ☐ Other reason. Please explain:

    [Box Here]

3. If you did **not** offer the token, why did you do it? Check all that apply.
    - Not applicable: I always offered the token
    - It did not increase the chance of trading it for the good with player 2
    - I made a mistake
    - I wanted to keep the token.
    - Other reason. Please explain:

    [Box Here]

4. If you followed the suggestion to transfer the token in any game, please explain why:

    [Box Here]

5. If you did NOT follow the suggestion to transfer the token in any game, please explain why:

    [Box Here]

Additional Comments: [Box Here]

Player 2/3 Questionnaire for Part I of the Experiment

1. When the preceding player offered you the token in exchange for the good, how often did you produce?
    - Not applicable: I was never offered the token in exchange for the good.
    - Always
    - Sometimes
    - Never

2. If you were offered the token and you produced in exchange for the token, why did you do it? Check all that apply.
    - ☐ Not applicable: I was never in this situation.
    - ☐ To increase the chance of trading it for the good with player 3 in case I turn out to be player 2
    - ☐ I made a mistake
    - ☐ To help the other player
    - ☐ I wanted the token for the sake of it.
    - ☐ To follow the suggestion.
    - ☐ Other reason. Please explain:

      [Box Here]

3. If you were offered the token and you decided **not** to produce in exchange for the token, why did you do it? Check all that apply.
    - Not applicable: I was never in this situation
    - It is costly to produce, and I could be selected as player 3 and thus I would not be able to consume
    - It is costly to produce, and I did not think that the token would increase the chance of consuming
    - It is costly to produce, and the token would not be converted into cash
    - I made a mistake
    - Other reason. Please explain:

      [Box Here]

4. If the previous player did **not** offer you the token and you decided to produce for him/her, why did you do it? Check all that apply.
    - Not applicable: I was never in this situation
    - I made a mistake
    - To help the other player
    - Other reason. Please explain:

      [Box Here]

5. If you followed the suggestion to transfer the token and produce ONLY for the token in any game, please explain why:

[Box Here]

6. If you did NOT follow the suggestion to transfer the token and produce ONLY for the token in any game, please explain why:

[Box Here]

Additional Comments:

[Box Here]

Instructions for Treatment M-0-0

Introduction

Today's session has two parts. In each part, you will make a series of decisions. The earnings you make are calculated in points, and will be converted to dollars at the specified exchange rates. In addition, you also receive a $5 show-up payment regardless of your earnings during the experiment. If you follow the instructions carefully, you can earn a considerable amount of cash. Between the two parts, you will be required to complete two short surveys. Please refrain from talking for the duration of today's session. Kindly silence all mobile devices.

Instructions for Part I

Overview

There are X participants in today's experiment. In the first part of the experiment, you will play 15 games in groups of 3 people. You earn points from consuming a good and lose points from producing it.

In each game, each of the three participants will be assigned a position, 1, 2 or 3. Player 1 does not make any decision. The other two players decide whether to produce for the player preceding him/her in the group.

Decisions in each game

At the beginning of each game, one of the three participants in a group is revealed as player 1 and informed about his/her position. The other two players are informed that they are not player 1, but do not know their exact positions, i.e. whether they are player 2 or player 3. *It is equally likely that they are player 2 or player 3*. Each game proceeds as follows:

- Player 1 does not make any decision.
- Player 2, **blind to his/her exact position**, decides whether to produce for the preceding player. After the production decision, player 2 is informed about his/her exact position. Player 2's decision will not be observed by player 3.
- Then, player 3, **blind to his/her exact position**, decides whether to produce for the preceding player. After the production decision, player 3 is informed about his/her exact position.

Some observations:

- You earn 3 points from consumption, and lose 1 point from production.
- Player 1 *cannot produce* because there is no player preceding him/her, and *can consume* if player 2 decides to produce for him/her.
- Player 2 *can produce* for player 1, and *can consume* if player 3 decides to produce for him/her.
- Player 3 *can produce* for player 2, but *cannot consume* since there is no player after him/her.

Regarding the production decision of the last two players, consider the following.

- When deciding whether to produce, the last two players do not know their exact positions. When deciding whether to produce, they should consider both the possibility of being player 2 and the possibility of being player 3.

Grouping and Positions

There are 15 games. At the beginning of each game participants are randomly grouped in new groups of three, and thus group members are *likely* to change from game to game.

Player 1's position is fixed for the duration of the experiment. If you are player 1 in game 1, you will remain player 1 in all games. However, whether you are player 2 or player 3 is *randomly* determined in each game. For example, if you are player 3 in game 1, you have an equal chance of being player 2 or player 3 in each of the other games. Player 1 is informed that he/she is player 1 and the other two players are informed that they are not player 1. The exact position of the last two players is revealed to them only after they make the production decision.

Earnings

You will start this part of the experiment with an endowment of 3 points. In each game your points total increases by 3 when you consume, and decreases by 1 when you produce. The computer will randomly select 3 games for payment. Your points from the 3 selected games will then be converted into dollars at rate 1 point = $2.

Computer Screens

You will submit your decision plans through the following screens.

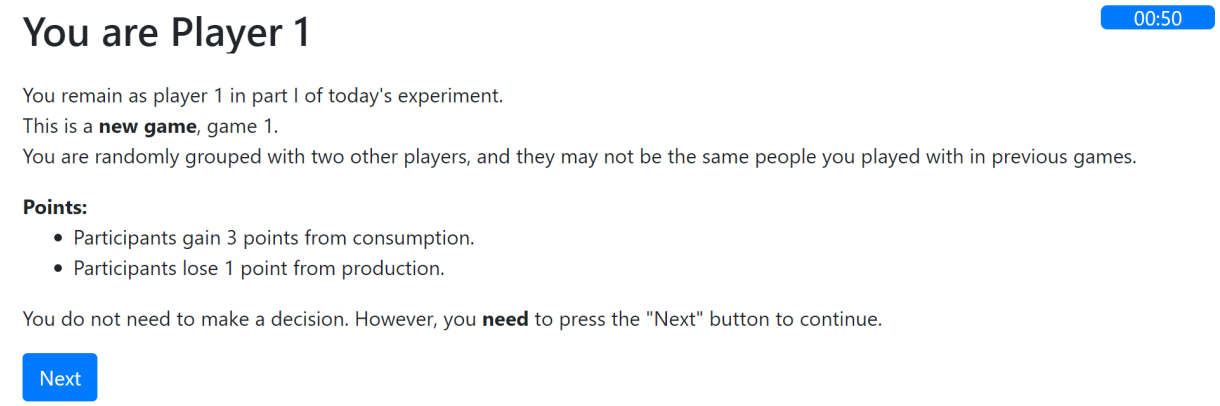


Figure 1. Decision screen for player 1.

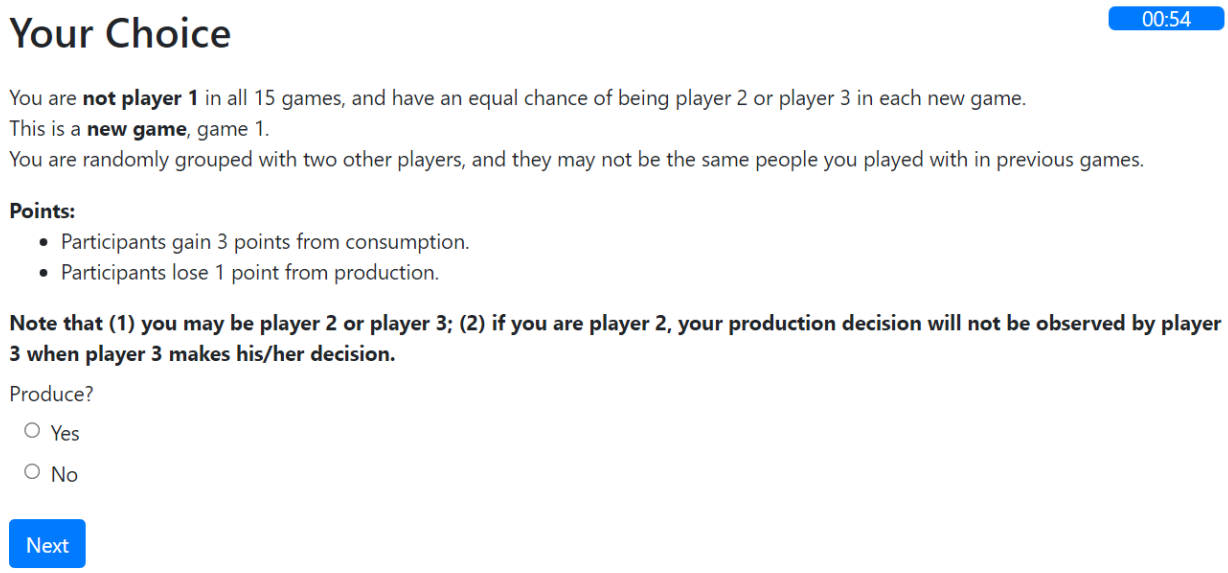


Figure 2. Decision screen for the last two players.

After players submit their decisions, you will also receive information on the results for each game. See Figure 3 for a sample result screen for player 2.

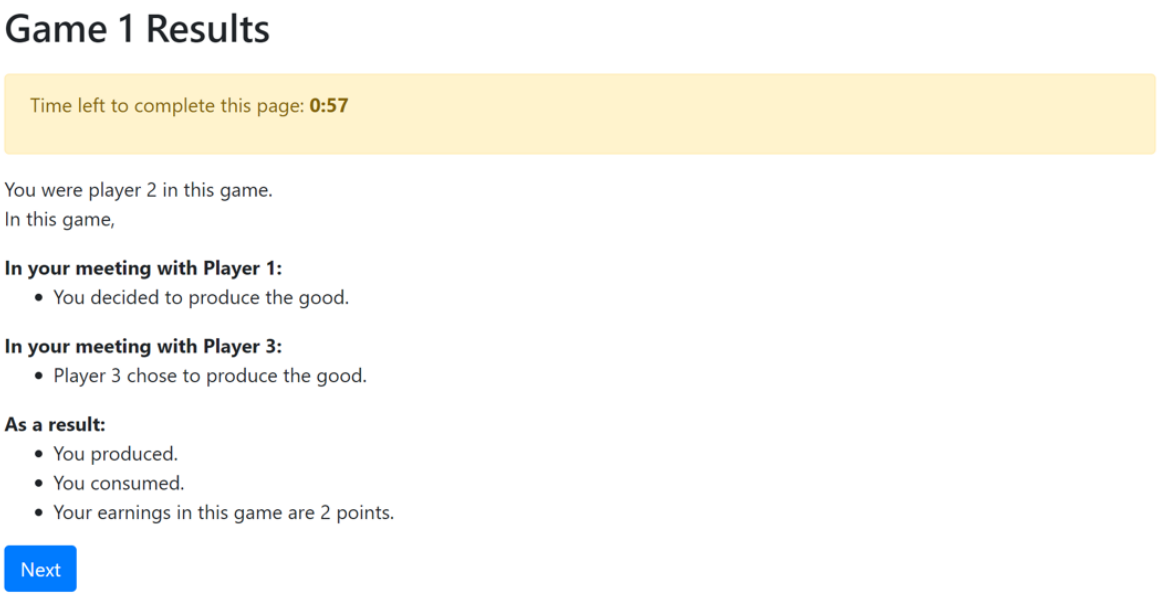


Figure 3. Result screen for player 2.

Summary

1. In this part of the experiment, you will play 15 games.
2. At the beginning of each game, participants are randomly grouped in new groups of three, and thus group members are likely to be different across games.
3. At the beginning of the experiment, each participant has an equal chance of being player 1, player 2, or player 3.
4. The position of player 1s is fixed throughout the 15 games. The rest of the players have an equal chance of being player 2 or player 3 in each game.
5. Player 1 does not make any decision. Player 1 cannot produce because there is no player preceding him/her.
6. The last two players make a production decision *before* their exact position is revealed. Neither can observe the other player's decision while making their own decisions.
7. Either of the last two players finds out his/her exact position after submitting his/her production decision.
8. You earn 3 points from consumption and lose 1 point from production.

Quiz

1. Suppose that you are player 1 in game 1, then you will be player 1 in all games.
    - True
    - False

2. Suppose that you are player 3 in game 1. Then,
    - You will be player 3 in all games.
    - You will have an equal chance of being player 2 or player 3 in the other games.
    - You will be player 2 in game 2 for sure.

3. Suppose in game 2 you are grouped with two other participants. In game 3 you will be grouped for sure with the same two participants.
    - True
    - False

4. While making the production decision, player 2 and player 3 know their exact positions.
    - True
    - False

5. Suppose that you are player 1 in a game. The next player produces for you. How many points do you earn in that game?

6. Suppose that you are NOT player 1 in a game. You decided to produce. You learn that you are player 2. Player 3 will observe that you produced.
    - True
    - False

7. Suppose that you are NOT player 1 in a game. You decided to produce. Then you learn that you are player 2. Later player 3 decides to produce.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn in total in this game?

8. Suppose that you are NOT player 1 in a game. You decided to produce. Then you learn that you are player 2. Later player 3 decides not to produce.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn total in this game?

9. Suppose that you are NOT player 1 in a game. You decided NOT to produce. Then you learn that you are player 2. Later player 3 decides not to produce.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn in total in this game?

10. Suppose that you are NOT player 1 in a game. You decided to produce. Then you learn that you are player 3.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn in total in this game?

Exit Survey- Treatment M-0-0

Player 1 Questionnaire for Part I of the Experiment

Please write below any comments you have on the experiment:

[Box Here]

Player 2/3 Questionnaire for Part I of the Experiment

1. How often did you produce?
    - Always
    - Sometimes
    - Never

2. If you produced in a game, why did you do it? Check all that apply.

    - ☐ Not applicable: I never produced
    - ☐ To increase the chance of others producing for me in this game
    - ☐ To increase the chance of others producing for me when in a following game
    - ☐ I made a mistake
    - ☐ To help the other player
    - ☐ Other reason. Please explain:

      [Box Here]

3. If you decided **not** to produce in a game, why? Check all that apply.

    - ☐ Not applicable: I always produced
    - ☐ It is costly to produce, and I could be selected as player 3 and thus I would not be able to consume
    - ☐ It is costly to produce and producing does not increase my chance of consuming in this game
    - ☐ It is costly to produce and producing does not increase my chance of consuming in a following game
    - ☐ I made a mistake
    - ☐ Other reason. Please explain:

      [Box Here]

4. Could you guess whether you were player 2 or player 3 in the experiment?
    - I could never tell
    - Sometimes
    - Often
    - Always

   If you selected "Sometimes", "Often", or "Always", can you explain how you could guess what your position was?

   [Box Here]

Additional Comments:

[Box Here]

Instructions for Treatment M-0-1

Introduction

Today's session has two parts. In each part, you will make a series of decisions. The earnings you make are calculated in points, and will be converted to dollars at the specified exchange rates. In addition, you also receive a $5 show-up payment regardless of your earnings during the experiment. If you follow the instructions carefully, you can earn a considerable amount of cash. Between the two parts, you will be required to complete two short surveys. Please refrain from talking for the duration of today's session. Kindly silence all mobile devices.

Instructions for Part I

Overview

There are X participants in today's experiment. In the first part of the experiment, you will play 15 games in groups of 3 people. You earn points from consuming a good and lose points from producing it.

In each game, each of the three participants will be assigned a position, 1, 2 or 3. Player 1 does not make any decision. The other two players decide whether to produce for the player preceding him/her in the group.

Decisions in each game

At the beginning of each game, one of the three participants in a group is revealed as player 1 and informed about his/her position. The other two players are informed that they are not player 1, but do not know their exact positions, i.e. whether they are player 2 or player 3. *It is equally likely that they are player 2 or player 3*. Each game proceeds as follows:

- Player 1 does not make any decision.
- Player 2, **blind to his/her exact position**, decides whether to produce for the preceding player. After the production decision, player 2 is informed about his/her exact position. Player 2's decision will not be observed by player 3.
- Then, player 3, **blind to his/her exact position**, decides whether to produce for the preceding player. After the production decision, player 3 is informed about his/her exact position.

Some observations:

- You earn 3 points from consumption, and lose 1 point from production.
- Player 1 *cannot produce* because there is no player preceding him/her, and *can consume* if player 2 decides to produce for him/her.
- Player 2 *can produce* for player 1, and *can consume* if player 3 decides to produce for him/her.
- Player 3 *can produce* for player 2, but *cannot consume* since there is no player after him/her.

Regarding the production decision of the last two players, consider the following.

- When deciding whether to produce, the last two players do not know their exact positions. When deciding whether to produce, they should consider both the possibility of being player 2 and the possibility of being player 3.

A suggestion

If you are not player 1, you may consider choosing to produce.

This is simply a suggestion. Feel free to follow it or not.

Grouping and Positions

There are 15 games. At the beginning of each game participants are randomly grouped in new groups of three, and thus group members are *likely* to change from game to game.

Player 1's position is fixed for the duration of the experiment. If you are player 1 in game 1, you will remain player 1 in all games. However, whether you are player 2 or player 3 is *randomly* determined in each game. For example, if you are player 3 in game 1, you have an equal chance of being player 2 or player 3 in each of the other games. Player 1 is informed that he/she is player 1 and the other two players are informed that they are not player 1. The exact position of the last two players is revealed to them only after they make the production decision.

Earnings

You will start this part of the experiment with an endowment of 3 points. In each game your points total increases by 3 when you consume, and decreases by 1 when you produce. The computer will randomly select 3 games for payment. Your points from the 3 selected games will then be converted into dollars at rate 1 point = $2.

Computer Screens

You will submit your decision plans through the following screens.

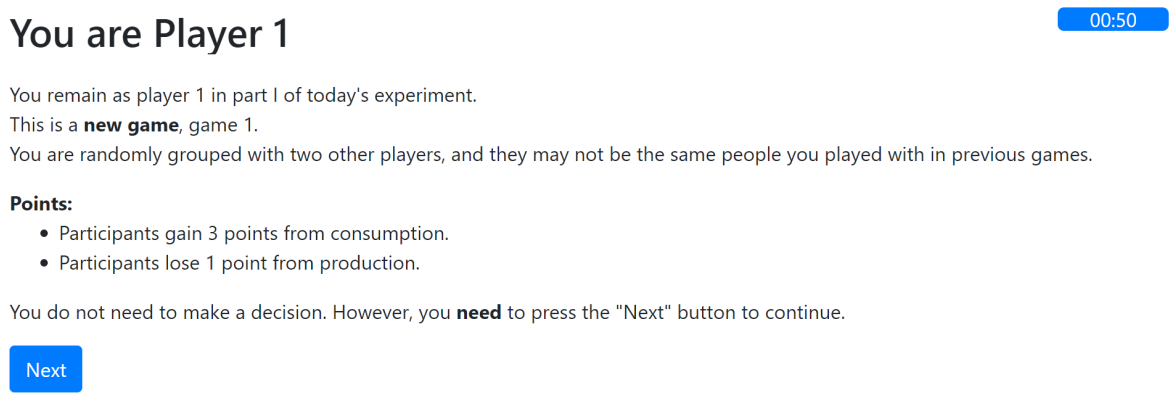


Figure 1. Decision screen for player 1.

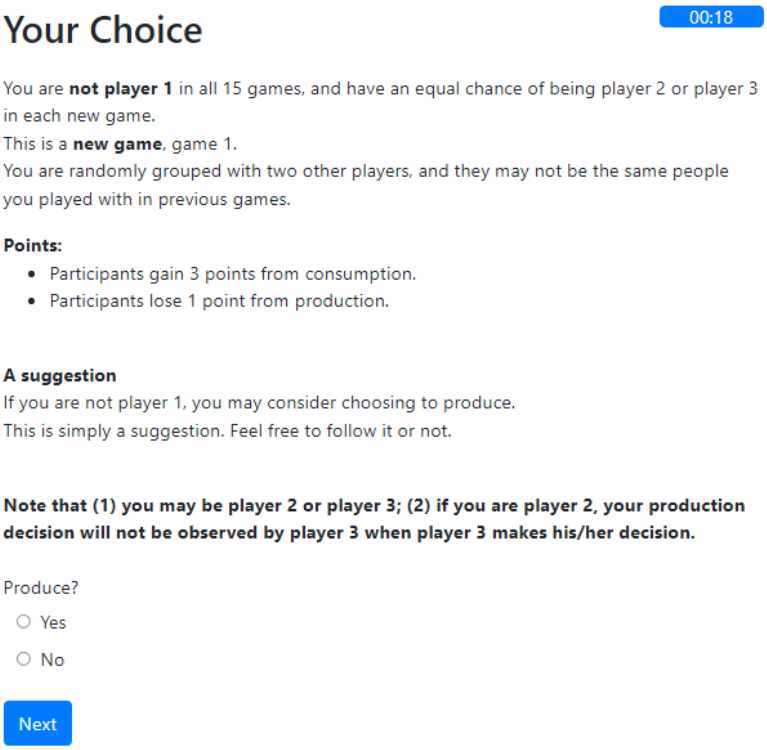


Figure 2. Decision screen for the last two players

After players submit their decisions, you will also receive information on the results for each game. See Figure 3 for a sample result screen for player 2.

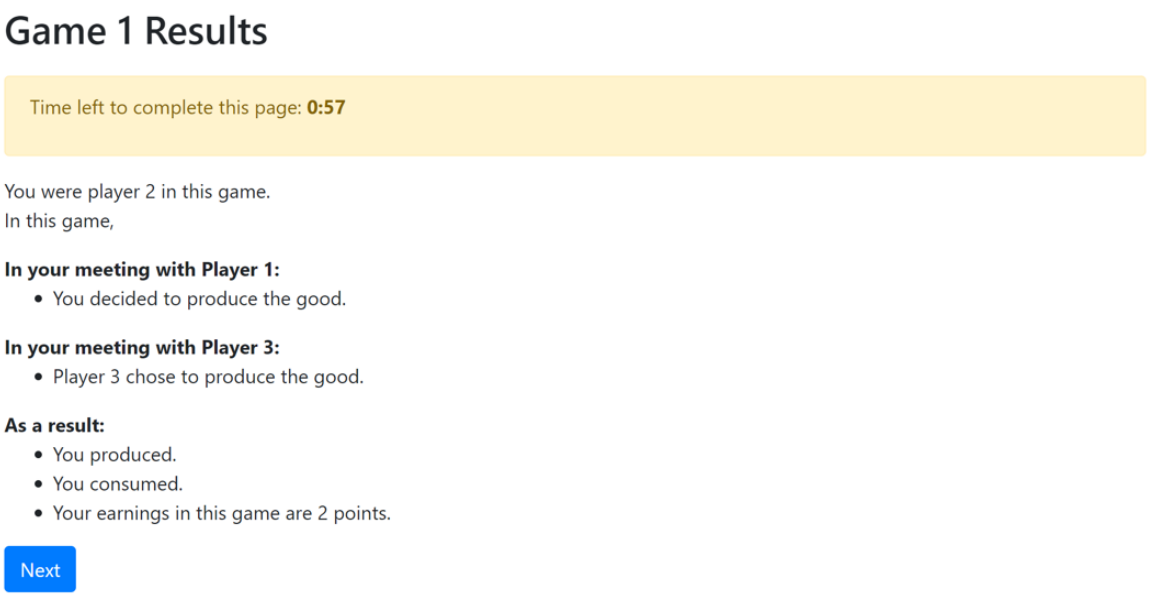


Figure 3. Result screen for player 2.

Summary

1. In this part of the experiment, you will play 15 games.
2. At the beginning of each game, participants are randomly grouped in new groups of three, and thus group members are likely to be different across games.
3. At the beginning of the experiment, each participant has an equal chance of being player 1, player 2, or player 3.
4. The position of player 1s is fixed throughout the 15 games. The rest of the players have an equal chance of being player 2 or player 3 in each game.
5. Player 1 does not make any decision. Player 1 cannot produce because there is no player preceding him/her.
6. The last two players make a production decision *before* their exact position is revealed. Neither can observe the other player's decision while making their own decisions.
7. Either of the last two players finds out his/her exact position after submitting his/her production decision.
8. If you are not player 1, you may consider choosing to produce. This is simply a suggestion.
9. You earn 3 points from consumption and lose 1 point from production

Quiz

1. Suppose that you are player 1 in game 1, then you will be player 1 in all games.
    - True
    - False

2. Suppose that you are player 3 in game 1. Then,
    a. You will be player 3 in all games.
    b. You will have an equal chance of being player 2 or player 3 in the other games.
    c. You will be player 2 in game 2 for sure.

3. Suppose in game 2 you are grouped with two other participants. In game 3 you will be grouped for sure with the same two participants.
    - True
    - False

4. While making the production decision, player 2 and player 3 know their exact positions.
    - True
    - False

5. Suppose that you are player 1 in a game. The next player produces for you. How many points do you earn in that game?

6. Suppose that you are NOT player 1 in a game. You decided to produce. You learn that you are player 2. Player 3 will observe that you produced.
    - True
    - False

7. Suppose that you are NOT player 1 in a game. You decided to produce. Then you learn that you are player 2. Later player 3 decides to produce.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn in total in this game?

8. Suppose that you are NOT player 1 in a game. You decided to produce. Then you learn that you are player 2. Later player 3 decides not to produce.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn total in this game?

9. Suppose that you are NOT player 1 in a game. You decided NOT to produce. Then you learn that you are player 2. Later player 3 decides not to produce.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn in total in this game?

10. Suppose that you are NOT player 1 in a game. You decided to produce. Then you learn that you are player 3.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn in total in this game?

11. Consider the following suggestion: If you are not player 1, you may consider choosing to produce.
    - You must follow this suggestion
    - This is simply a suggestion, that is, you can choose another action.

Exit Survey-Treatment M-0-1

Player 1 Questionnaire for Part I of the Experiment

Please write below any comments you have on the experiment:

[Box Here]

Player 2/3 Questionnaire for Part I of the Experiment

1. How often did you produce?
    - Always
    - Sometimes
    - Never

2. If you produced in a game, why did you do it? Check all that apply.

    - ☐ Not applicable: I never produced
    - ☐ To increase the chance of others producing for me in this game

- ☐ To increase the chance of others producing for me when in a following game
- ☐ I made a mistake
- ☐ To help the other player
- ☐ To follow the suggestion
- ☐ Other reason. Please explain:

  [Box Here]

3. If you decided **not** to produce in a game, why? Check all that apply.
   - o Not applicable: I always produced
   - o It is costly to produce, and I could be selected as player 3 and thus I would not be able to consume
   - o It is costly to produce and producing does not increase my chance of consuming in this game
   - o It is costly to produce and producing does not increase my chance of consuming in a following game
   - o I made a mistake
   - o Other reason. Please explain:

     [Box Here]

4. Could you guess whether you were player 2 or player 3 in the experiment?
   - o I could never tell
   - o Sometimes
   - o Often
   - o Always

   If you selected "Sometimes", "Often", or "Always", can you explain how you could guess what your position was?

Additional Comments:

[Box Here]

Instructions for Treatment N-1-0*

Introduction

Today's session has two parts. In each part, you will make a series of decisions. The earnings you make from the two parts are calculated in points, and will be converted to dollars at the specified exchange rates. In addition, you also receive a $5 show-up payment regardless of your earnings during the experiment. If you follow the instructions carefully, you can earn a considerable amount of cash. Between the two parts, you will be required to complete two short surveys. Please refrain from talking for the duration of today's session. Kindly silence all mobile devices.

Instructions for Part IOverview

There are X participants in today's experiment. In the first part of the experiment, you will play 15 games in groups of 3 people. There are two objects: a token and a good. You earn points from consuming the good and lose points from producing it. The token itself does not yield points directly, but may help you earn points if other participants are only willing to produce for you in exchange for the token.

At the beginning of each game, each participant is randomly assigned a number 1, 2 or 3, which determines his/her position in the group. Each participant is informed about his/her position in that game. Depending on your position, you make either one or both of the following two decisions: (1) whether to produce for the player preceding you in the group, and (2) if you have a token, whether to offer it to the next player in exchange for the good that he/she can produce for you.

Decisions in each game

In each game, the three participants in the group make decision sequentially.

- First, **player 1** is endowed with a token and decides whether or not to offer the token to player 2 in exchange for the good.
- **Player 2** observes whether player 1 has offered the token or not, and then decides whether to produce for player 1. If player 2 obtains the token, then he/she also decides whether to offer the token to player 3 in exchange for the good.
- Finally, **player 3** observes whether player 2 has offered the token or not, and then decides whether to produce for player 2.

Some observations:

- You earn 3 points from consumption, and lose 1 point from production.
- Player 1 *cannot produce* because there is no player preceding him, and *can consume* if player 2 decides to produce for him/her.
- Player 2 *can produce* for player 1, and *can consume* if player 3 decides to produce for him/her.
- Player 3 *can produce* for player 2, but *cannot consume* since there is no player after him/her.
- The token does not yield points directly, and cannot be carried from one game to another.

Grouping and Positions

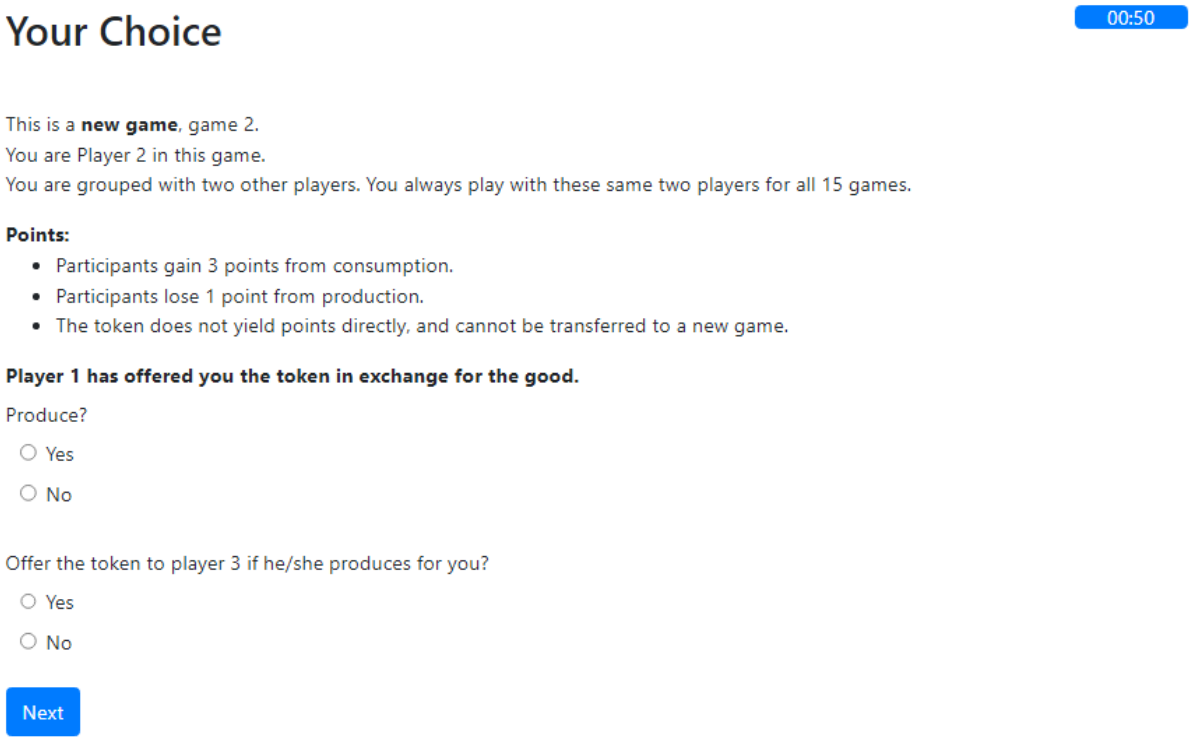
There are 15 games. At the beginning of the experiment, participants will be placed in groups of three. The groups remain the *same* for all 15 games. That is, you and two other participants will remain in the *same* group for all 15 games. However, whether you are player 1, player 2 or player 3 in your group is *randomly* determined in each game. For example, if you are player 3 in game 1, you have an equal chance of being player 1, player 2 or player 3 in each of the other games. Your exact position is revealed to you at the beginning of each game.

Earnings

You will start this part of the experiment with an endowment of 3 points. In each game your points total increases by 3 when you consume, and decreases by 1 when you produce. The computer will randomly select 3 games for payment. Your points from the 3 selected games will then be converted into dollars at rate 1 point = $2.

Computer Screens

You will submit your decision through a computer screen. For example, player 2 will input his/her decision through the screen as shown below.



At the end of each game, you will also receive information on the results for the game. See below for a sample result screen for player 2.

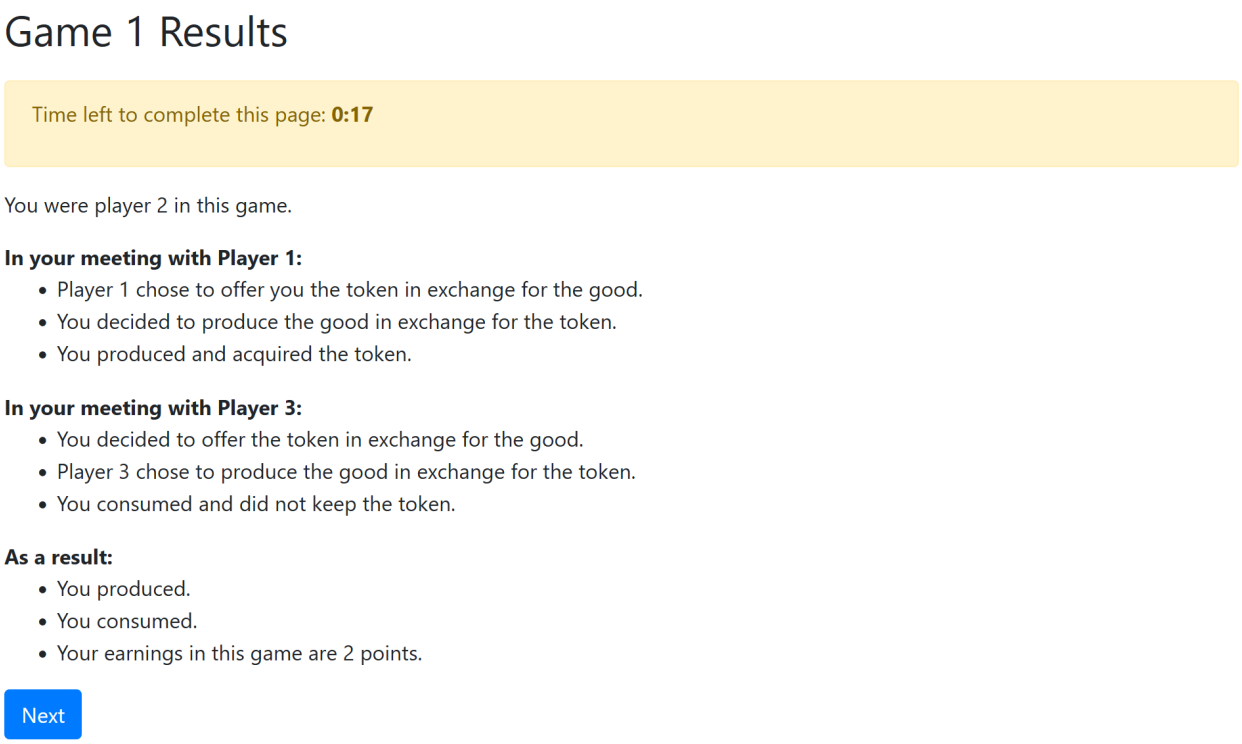


Figure 2. Result screen for player 2.

Summary

1. You will play 15 games.
2. The groups remain the *same* for all 15 games. That is, you and two other participants will remain in the *same* group for all 15 games.
3. At the beginning of each game, each participant is randomly assigned a number with equal probability, 1, 2 or 3, that determines his/her position in that game.
4. Player 1 is endowed with a token. Player 1 can only choose whether to offer or not the token to the next player. Player 1 cannot produce because there is no player preceding him/her.
5. Player 2 decides whether to produce for player 1. If he/she acquires a token, he/she can also decide whether to offer it to player 3 in exchange for the good.
6. Player 3 decides whether to produce for Player 2. Player 3 can neither transfer the token nor consume because there is no player after her/him.
7. You earn 3 points from consumption and lose 1 point from production.
8. Player 1 is endowed with the token, while the other two players can obtain and offer the token only if they produce for others and if the player preceding them offers the token in exchange for the good.
9. The token does not yield points directly and cannot be transferred from one game to another.

Quiz

1.
    a. Suppose that you are player 1 in game 1, then you will be player 1 in all games.
        - True
        - False
    b. Will the other players keep their position in each game?
        - Yes
        - No
2. Suppose in game 2 you are grouped with two other participants. In game 3 and all future games you will be grouped for sure with the same two participants.

        - True
        - False

3. Suppose that you are player 1 in a game. Suppose that you offer the token to player 2, and he/she produces for you. How many points do you earn?
4. Suppose that you are player 2 in a game. Suppose player 1 offers you the token in exchange for the good, you decide to produce for player 1, and you offer the token to player 3 in exchange for the good. Player 3 chooses to produce for you.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn in total in this game?
5. Suppose again that you are player 2 in a game. Suppose player 1 offers you the token in exchange for your production, you decide not to produce for player 1 so you do not acquire the token. Player 3 observes that you do not offer the token and chooses NOT to produce for you.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn total in this game?
6. Suppose that you are player 3, or the last player in a game. Suppose that player 2 offered you the token and you produce for player 2.
    a. How many points do you lose from production?
    b. How many points do you earn from consumption?
    c. How many points do you earn in total in this game?
7. The token will be converted into money and paid to you in cash at the end of the experiment.

        - True
        - False

Exit Survey- Treatment N-1-0*

The following questions ask about your decisions in **games where you were player 1.**

1. In games where you were player 1, how often did you offer the token in exchange for the good?
    - Always
    - Never
    - Sometimes
2. In games where you were player 1 and you offered the token, why did you do it? Check all that apply.
    - Not applicable: I have never offered the token.
    - To increase the chance of trading it for the good with player 2
    - I made a mistake
    - To help the other player
    - I had no other use of the token.
    - Other reason. Please explain:

      [Box Here]

3. In games where you were player 1 and you did **not** offer the token, what was the reason? Check all that apply.
    - Not applicable: I always offered the token
    - It did not increase the chance of trading it for the good with player 2
    - I made a mistake
    - I wanted to keep the token.
    - Other reason. Please explain:

    [Box Here]

Additional Comments:

[Box Here]

The following questions ask about your decisions in **games where you were player 2.**

1. In games where you were player 2, when player 1 offered you the token in exchange for the good, how often did you produce?
    - Not Applicable: I was never offered the token in exchange for the good.
    - Always
    - Never
    - Sometimes
2. In games where you were player 2, when player 1 offered you the token and you produced in exchange for the token, why did you do it? Check all that apply.
    - Not applicable: I was never in this situation.
    - To increase the chance of trading it for the good with player 3 in that particular game.
    - To increase the chance that my group members produce for me in FUTURE games where I could turn out to be player 1 or 2.
    - I made a mistake
    - To help the other player

- I wanted the token for the sake of it.
- Other reason. Please explain:

  [Box Here]

3. In games where you were player 2, if player 1 offered you the token and you decided **not** to produce in exchange for the token, what was the reason? Check all that apply.
   - Not applicable: I was never in this situation
   - It is costly to produce, and the token would not increase the chance of trading it for the good with player 3
   - It is costly to produce, and the token would not be converted into cash
   - I made a mistake
   - Other reason. Please explain:

     [Box Here]

4. In games where you were player 2, if player 1 did **not** offer you the token and you decided to produce for him/her, why did you do it? Check all that apply.
   - Not applicable: I was never in this situation
   - To increase the chance that my group members produce for me in FUTURE games where I could turn out to be player 1 or 2.
   - I made a mistake
   - To help the other player
   - Other reason. Please explain:

     [Bow Here]

Additional Comments:
[Bow Here]

The following questions ask you about your decisions in **games where you were player 3.**

1. In games where you were player 3, when player 2 offered a token in exchange for the good, how often did you produce?
   - Not applicable: I was never offered the token in exchange for the good
   - Always
   - Never
   - Sometimes
2. In games where you were player 3, when player 2 offered the token and you produced in exchange for the token, why did you do it? Check all that apply.
   - Not applicable: I was never in this situation.
   - To increase the chance of trading it for the good with another player in that particular game
   - To increase the chance that my group members produce for me in FUTURE games where I could turn out to be player 1 or 2.

- I made a mistake
- To help the other player
- I wanted the token for the sake of it.
- Other reason. Please explain:

[Bow Here]

3. In games where you were player 3, if player 2 offered you the token and you decided **not** to produce in exchange for the token, what was the reason? Check all that apply.
   - Not applicable: I was never in this situation,
   - It is costly to produce, and I could not trade the token for the good with another player
   - I made a mistake
   - Other reason. Please explain:

   [Bow Here]

4. In games where you were player 3, when player 2 did not offer you the token and you decided to produce for him/her, why did you do it? Check all that apply.
   - Not applicable: I was never in this situation
   - To increase the chance that my group members produce for me in FUTURE games where I could turn out to be player 1 or 2.
   - I made a mistake
   - To help the other player
   - Other reason. Please explain:

   [Bow Here]

Additional Comments:

[Bow Here]

The demographic survey is the same across treatments.

Demographic Survey

1. What is your gender? (Please select one.):
    - Female
    - Male
    - Other
    - Prefer not to answer

    If you selected 'Other', please specify:

    [Box here]

2. What is your age?

    [Box here]

3. Rate your English. (Please select one.):
    - Native
    - Fluent
    - Proficient
4. What is your intended major/field of study?

    [Box here]

Instructions for Part II of the experiment, SVO task, are the same across all treatments.

Instructions for Part II

In this part of the experiment, you will be paired with two other persons, whom we will refer to as **your receiver and your sender**, respectively. These two other persons are someone you do not know and will remain mutually anonymous. All of your choices are completely confidential. You will be deciding how to allocate resources between you and your receiver (how much to keep for yourself and how much to send to your receiver) in a series of scenarios. For each scenario, please indicate the allocation you prefer most by **marking the corresponding position along the line by sliding the cursor**. You can only make one mark for each question.

There are no right or wrong answers; this is all about personal preferences. Your choices will influence both the amount of money you receive, as well as the amount of money your receiver receives. After all choices have been submitted, one of your choices will be randomly selected to determine your payoff as a sender and your receiver's payoff. At the same time, you will also receive a payoff as a receiver from your sender. The points will be converted at the rate 100pts=$3.